FOR AGENCY USE ONLY	
	Notes:
JPA#	

APPLICANTS

PLEASE PRINT OR TYPE ALL ANSWERS. If a question does not apply to your project, please print N/A (not applicable) in the space provided. ***If additional space is needed, attach extra 8 ½ x 11 inch sheets of paper.***

Check all that apply			
☐ Pre-Construction Notification ☐ (PCN) NWP # _____ *(For Nationwide Permits ONLY - No DEQ-VWP permit writer will be assigned)*	☑ SPGP PASDO ☐ PASDO-PGP SELF VERIFICATION *(Replaces Regional Permit 17 (RP-17))*	☐ DEQ Reapplication Existing permit number: _____	☐ Receiving federal funds Agency providing funding: _____

PREVIOUS ACTIONS RELATED TO THE PROPOSED WORK (Include all federal, state, and local pre application coordination, site visits, previous permits, or applications whether issued, withdrawn, or denied)

Historical information for past permit submittals can be found online with VMRC - https://webapps.mrc.virginia.gov/public/habitat/ - or VIMS - http://ccrm.vims.edu/perms/newpermits.html

Agency	Action / Activity	Permit/Project number, including any non-reporting Nationwide permits previously used (e.g., NWP 13)	Date of Action	If denied, give reason for denial
DEQ	Individual VWPP	06-2269	8/21/2009	issued

1. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR INFORMATION
The applicant(s) is/are the legal entity to which the permit may be issued (see How to Apply at beginning of form). The applicant(s) can either be the property owner(s) or the person/people/company(ies) that intend(s) to undertake the activity. The agent is the person or company that is representing the applicant(s). If a company, please also provide the company name that is registered with the State Corporation Commission (SCC), or indicate no registration with the SCC.

Legal Name(s) of Applicant(s)			Agent (if applicable)		
Matt Walker, Middlesex County Administrator			Rebecca Francese, Waterway Surveys		
Mailing address P.O. Box 428			Mailing address 321 Cleveland Place		
City Saluda	State VA	ZIP Code 23149	City Virginia Beach	State VA	ZIP Code 23462
Phone number w/area code 804-758-4330	Fax 804-758-0061		Phone number w/area code 757-490-1691	Fax 757-490-1348	
Mobile	E-mail m.walker@co.middlesex.va.us		Mobile 757-537-5401	E-mail beccaf@waterway.net	
State Corporation Commission Name and ID number (if applicable)			State Corporation Commission Name and ID number (if applicable)		

Certain permits or permit authorizations may be provided via electronic mail. If the applicant wishes to receive their permit via electronic mail, please provide an e-mail address here: beccaf@waterway.net

1. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR INFORMATION (Continued)

Property owner(s) legal name, if different from applicant			Contractor, if known		
same					
Mailing address			Mailing address		
City	State	ZIP code	City	State	ZIP code
Phone number w/area code	Fax		Phone number w/area code	Fax	
Mobile	E-mail		Mobile	E-mail	
State Corporation Commission Name and ID number (if applicable)			State Corporation Commission Name ID number (if applicable)		

2. PROJECT LOCATION INFORMATION

(Attach a copy of a detailed map, such as a USGS topographic map or street map showing the site location and project boundary, so that it may be located for inspection. Include an arrow indicating the north direction. Include the drainage area if the SPGP box is checked on Page 7.)

Street Address (911 address if available)	City/County/ZIP Code
	Deltaville - Middlesex County
Subdivision	Lot/Block/Parcel #

Name of water body(ies) within project boundaries and drainage area (acres or square miles).
Broad Creek >1 mile

Tributary(ies) to: Rappahannock River
Basin: Lower Rappahannock Sub-basin: Corrotoman Creek
(*Example: Basin: James River Sub-basin: Middle James River*)

Special Standards (based on DEQ Water Quality Standards 9VAC25-260 et seq.): Not Applicable

Project type (check one)
_____ Single user (private, non-commercial, residential)
x Multi-user (community, commercial, industrial, government)
_____ Surface water withdrawal

Latitude and longitude at center of project site (decimal degrees): 37.559911 / -76.313701
(Example: 37.33164/-77.68200)

USGS topographic map name: Deltaville

8-digit USGS Hydrologic Unit Code (HUC) for your project site (See http://cfpub.epa.gov/surf/locate/index.cfm): 02080104
If known, indicate the 10-digit and 12-digit USGS HUCs (see http://consapps.dcr.virginia.gov/htdocs/maps/HUExplorer.htm) :
0208010407 RA-R 020801040705 RA74

Name of your project (*Example: Water Creek driveway crossing*) Broad Creek Dredging Project

Is there an access road to the project? ☑ Yes ☐ No. If yes, check all that apply: ☑ public ☑ private ☑ improved ☐ unimproved

Total size of the project area (in acres): 15.12 acres in the dredging area - the CDF is ~8 acres

2. PROJECT LOCATION INFORMATION (Continued)

Provide driving directions to your site, giving distances from the best and nearest visible landmarks or major intersections:

The proposed dredging area can be viewed from numerous street ends and marinas near the mouth of Broad Creek in Deltaville, VA (Timberneck Road and Neptune Lane). The CDF is located on the south side of Route 33 between Goodes Point Road and Richmond Road.

Does your project site cross boundaries of two or more localities (i.e., cities/counties/towns)? ☐ Yes ☑ No
If so, name those localities:

3. DESCRIPTION OF THE PROJECT, PROJECT PRIMARY AND SECONDARY *PURPOSES*, PROJECT *NEED*, INTENDED USE(S), AND ALTERNATIVES CONSIDERED (Attach additional sheets if necessary)

- The purpose and need must include any new development or expansion of an existing land use and/or proposed future use of residual land.
- Describe the physical alteration of surface waters, including the use of pilings (#, materials), vibratory hammers, explosives, and hydraulic dredging, when applicable, and *whether or not tree clearing will occur* (include the area in square feet and time of year).
- Include a description of alternatives considered and measures taken to avoid or minimize impacts to surface waters, including wetlands, to the maximum extent practicable. Include factors such as, but not limited to, alternative construction technologies, alternative project layout and design, alternative locations, local land use regulations, and existing infrastructure
- For utility crossings, include both alternative routes and alternative construction methodologies considered
- For surface water withdrawals, public surface water supply withdrawals, or projects that will alter in stream flows, include the water supply issues that form the basis of the proposed project.

This project involves maintenance and new work dredging of the Broad Creek Channel in Middlesex County, Virginia. The channel is a 100 ft wide by 4,900 ft long channel that extends from inside the entrance of Broad Creek by the marinas (Station -3+00) to the navigable waters in the Rappahannock River (Station 46+00). The permitted depth is -10 ft MLW. Broad Creek is a federally authorized channel; however, Middlesex County will be the applicant for the proposed dredging project. The disposal site will be the previously approved confined disposal facility (CDF) on the south side of Route 33. Sheets JPA-01 and JPA-04 of the attached drawings provide the general location of the project area and CDF; Sheets JPA-02 and JPA-03 provide the plan view and cross-sections of the dredging project. The channel has started to shoal and is in need of dredging for safe navigation. The proposed project is predominantly maintenance dredging, but three wideners (new work) have been added to this application. The wideners increase the will improve the channel by reducing the rate of shoaling into the existing permitted area which will maintain safe navigation for a longer period of time and increase the interval between dredging cycles resulting in a reduction in long term impacts to the benthic environment. The existing footprint of the permitted dredging project is 573,025 sf within the 2x buffer (maintenance area) and the proposed footprint within the 2x buffer is 658,700 sf. The difference (new work area) is 85,675 sf (1.97 acres) which is eligible for a PASDO permit. The project includes a total dredging volume of 70,500 cy (53,050 cy in maintenance and 17,450 cy in new work). The project does not impact vegetated or non-vegetated wetlands. The 2018 to 2022 SAV composite map indicates that there will be 1.09 acres of impact to a sparsely vegetated SAV bed. SAVs have not been documented in the area since 2018 and the 2019 to 2023 composite will not show any presence of SAVs. As a result, mitigation for SAVs have not been included in this application. The attached narrative provides additional project details.

Date of proposed commencement of work (MM/DD/YYYY)	Date of proposed completion of work (MM/DD/YYYY)
ASAP	3 months from start
Are you submitting this application at the direction of any state, local, or federal agency? _____Yes _x_____No	Has any work commenced or has any portion of the project for which you are seeking a permit been completed? _____ Yes __x___ No

If you answered "yes" to either question above, give details stating when the work was completed and/or when it commenced, who performed the work, and which agency (if any) directed you to submit this application. In addition, you will need to clearly differentiate between completed work and proposed work on your project drawings.

Not applicable

Are you aware of any unresolved violations of environmental law or litigation involving the property? _____Yes _x__No
(If yes, please explain)

Not applicable

4. PROJECT COSTS

Approximate cost of the entire project, including materials and labor: $ >500,000
Approximate cost of only the portion of the project affecting state waters (channelward of mean low water in tidal areas and below ordinary high water mark in nontidal areas): $ >500,000

5. PUBLIC NOTIFICATION (Attach additional sheets if necessary)
Complete information for all property owners adjacent to the project site and across the waterway, if the waterway is less than 500 feet in width. If your project is located within a cove, you will need to provide names and mailing addresses for all property owners within the cove. If you own the adjacent lot, provide the requested information for the first adjacent parcel beyond your property line. Per Army Regulation (AR 25-51) outgoing correspondence must be addressed to a person or business.
Failure to provide this information may result in a delay in the processing of your application by VMRC.

Property owner's name	Mailing address	City	State	ZIP code
See attached narrative for APO list				

Name of newspaper having general circulation in the area of the project: Southside Sentinel
Address and phone number (including area code) of newspaper P.O. Box 549, Urbanna VA 23175 (804) 758-2328

Have adjacent property owners been notified with forms in Appendix A? _____Yes X No (attach copies of distributed forms)

6. THREATENED AND ENDANGERED SPECIES INFORMATION

Please provide any information concerning the potential for your project to impact state and/or federally threatened and endangered species (listed or proposed). Attach correspondence from agencies and/or reference materials that address potential impacts, such as database search results or confirmed waters and wetlands delineation/jurisdictional determination. Include information when applicable regarding the location of the project in Endangered Species Act-designated or -critical habitats. Contact information for the U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, Virginia Dept. of Game and Inland Fisheries, and the Virginia Dept. of Conservation and Recreation-Division of Natural Heritage can be found on page 4 of this package.

See Narrative

7. HISTORIC RESOURCES INFORMATION

Note: Historic properties include but are not limited to archeological sites, battlefields, Civil War earthworks, graveyards, buildings, bridges, canals, etc. Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the USACE from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the USACE, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant.

Are any historic properties located within or adjacent to the project site? ____ Yes ____ No X Uncertain
If Yes, please provide a map showing the location of the historic property within or adjacent to the project site.

Are there any buildings or structures 50 years old or older located on the project site? ____ Yes ____ No X Uncertain
If Yes, please provide a map showing the location of these buildings or structures on the project site.

Is your project located within a historic district? ____ Yes X No ____ Uncertain

If Yes, please indicate which district: _____

7. HISTORIC RESOURCES INFORMATION (Continued)

Has a survey to locate archeological sites and/or historic structures been carried out on the property?
___ Yes ___ No _x_ Uncertain

If Yes, please provide the following information: Date of Survey: _____

Name of firm: _____

Is there a report on file with the Virginia Department of Historic Resources? ____ Yes ____ No X Uncertain

Title of Cultural Resources Management (CRM) report: _____

Was any historic property located? ____ Yes ____ No X Uncertain

8. WETLANDS, WATERS, AND DUNES/BEACHES IMPACT INFORMATION

Report each impact site in a separate column. If needed, attach additional sheets using a similar table format. Please ensure that the associated project drawings clearly depict the location and footprint of each numbered impact site. For dredging, mining, and excavating projects, use Section 17.

	Impact site number 1	Impact site number 2	Impact site number 3	Impact site number 4	Impact site number 5
Impact description (use all that apply): F=fill EX=excavation S=Structure T=tidal NT=non-tidal TE=temporary PE=permanent PR=perennial IN=intermittent SB=subaqueous bottom DB=dune/beach IS=hydrologically isolated V=vegetated NV=non-vegetated MC=Mechanized Clearing of PFO (*Example: F, NT, PE, V)*	Maintenance EX, T, SB 2x 573,025 sf	New Work EX, T, SB 2x 85,675 sf			
Latitude / Longitude (in decimal degrees)	37.55991/76.31370	37.55991/76.31370			
Wetland/waters impact area (square feet / acres)	573,025 sf/13.15 ac	85,675 sf/1.97 ac			
Dune/beach impact area (square feet)	0	0			
Stream dimensions at impact site (length and average width in linear feet, and area in square feet)	~800 ft to 21,000 ft	~800 ft to 21,000 ft			
Volume of fill below Mean High Water or Ordinary High Water (cubic yards)	0	0			

8. WETLANDS/WATERS IMPACT INFORMATION (Continued)					
Cowardin classification of impacted wetland/water or geomorphological classification of stream *Example wetland: PFO; Example stream: 'C' channel and if tidal, whether vegetated or non-vegetated wetlands per Section 28.2-1300 of the Code of Virginia*	UB	UB			
Average stream flow at site (flow rate under normal rainfall conditions in cubic feet per second) and method of deriving it (gage, estimate, etc.)	tidal	tidal			
Contributing drainage area in acres or square miles (*VMRC cannot complete review without this information*)	>1	>1			
DEQ classification of impacted resource(s): Estuarine Class II Non-tidal waters Class III Mountainous zone waters Class IV Stockable trout waters Class V Natural trout waters Class VI Wetlands Class VII https://law.lis.virginia.gov	Estuarine Class II	Estuarine Class II			

For DEQ permitting purposes, also submit as part of this section a wetland and waters boundary delineation map – see (3) in the Footnotes section in the form instructions.

For DEQ permitting purposes, also submit as part of this section a written disclosure of all wetlands, open water, or streams that are located within the proposed project or compensation areas that are also under a deed restriction, conservation easement, restrictive covenant, or other land-use protective instrument.

9. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR CERTIFICATIONS

READ ALL OF THE FOLLOWING CAREFULLY BEFORE SIGNING

PRIVACY ACT STATEMENT: The Department of the Army permit program is authorized by Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and Section 103 of the Marine Protection Research and Sanctuaries Act of 1972. These laws require that individuals obtain permits that authorize structures and work in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters prior to undertaking the activity. Information provided in the Joint Permit Application will be used in the permit review process and is a matter of public record once the application is filed. Disclosure of the requested information is voluntary, but it may not be possible to evaluate the permit application or to issue a permit if the information requested is not provided.

CERTIFICATION: I am hereby applying for permits typically issued by the DEQ, VMRC, USACE, and/or Local Wetlands Boards for the activities I have described herein. I agree to allow the duly authorized representatives of any regulatory or advisory agency to enter upon the premises of the project site at reasonable times to inspect and photograph site conditions, both in reviewing a proposal to issue a permit and after permit issuance to determine compliance with the permit.

In addition, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

9. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR CERTIFICATIONS (Continued)

Is/Are the Applicant(s) and Owner(s) the same? ☑ *Yes* ☐ *No*

Legal name & title of Applicant	Second applicant's legal name & title, if applicable
Matt Walker, County Administrator	
Applicant's signature Matt Walker	Second applicant's signature
Date 7-26-24	Date
Property owner's legal name, if different from Applicant	Second property owner's legal name, if applicable
Property owner's signature, if different from Applicant	Second property owner's signature
Date	Date

CERTIFICATION OF AUTHORIZATION TO ALLOW AGENT(S) TO ACT ON APPLICANT'S(S') BEHALF (IF APPLICABLE)

I (we), Matt Walker _____ (and) _____ ,
APPLICANT'S LEGAL NAME(S) – *complete the second blank if more than one Applicant*

hereby certify that I (we) have authorized Rebecca S. Francese _____ (and) _____
AGENT'S NAME(S) – *complete the second blank if more than one Agent*

to act on my (our) behalf and take all actions necessary to the processing, issuance, and acceptance of this permit and any and all standard and special conditions attached. I (we) hereby certify that the information submitted in this application is true and accurate to the best of my (our) knowledge.

Applicant's signature Matt Walker	Second applicant's signature, if applicable
Date 7/26/2024	Date
Agent's signature and title Rebecca S. Francese	Second agent's signature and title, if applicable
Date 7/24/2024	Date

CONTRACTOR ACKNOWLEDGEMENT (IF APPLICABLE)

I (we), _____ (and) _____ ,
APPLICANT'S LEGAL NAME(S) – *complete the second blank if more than one Applicant*

have contracted _____ (and) _____
CONTRACTOR'S NAME(S) – *complete the second blank if more than one Contractor*

to perform the work described in this Joint Permit Application, signed and dated _____.

I (we) will read and abide by all conditions as set forth in all federal, state, and local permits as required for this project. I (we) understand that failure to follow the conditions of the permits may constitute a violation of applicable federal, state, and local statutes and that we will be liable for any civil and/or criminal penalties imposed by these statutes.
In addition, I (we) agree to make available a copy of any permit to any regulatory representative visiting the project site to ensure permit compliance. If I (we) fail to provide the applicable permit upon request, I (we) understand that the representative will have the option of stopping our operation until it has been determined that we have a properly signed and executed permit and are in full compliance with all of the terms and conditions.

Contractor's name or name of firm (printed/typed)	Contractor's or firm's mailing address	
Contractor's signature and title	Contractor's license number	Date
Applicant's signature	Second applicant's signature, if applicable	
Date	Date	

16. BEACH NOURISHMENT (Continued)

Describe the type(s) of vegetation proposed for stabilization and the proposed planting plan, including schedule, spacing, monitoring, etc. Attach additional sheets if necessary.

17. DREDGING, MINING, AND EXCAVATING

FILL OUT THE FOLLOWING TABLE FOR DREDGING PROJECTS

	NEW dredging				MAINTENANCE dredging			
	Hydraulic		Mechanical (clamshell, dragline, etc.)		Hydraulic		Mechanical (clamshell, dragline, etc.)	
	Cubic yards	Square feet	Cubic yards	Square feet	Cubic yards	Square feet	Cubic yards	Square feet
Vegetated wetlands	0	0	0	0	0	0	0	0
Non-vegetated wetlands	0	0	0	0	0	0	0	0
Subaqueous land	17,450	85,675	17,450	85,675	53,050	573,025	53,050	573,025
Totals	17,450	85,675	17,450	85,675	53,050	573,025	53,050	573,025

Is this a one-time dredging event? ☐ Yes X No If "no", how many dredging cycles are anticipated: 1 every 10 years
(70.5 K initial cycle in cu. yds.) (40 K subsequent cycles in cu. yds.)

Composition of material (percentage sand, silt, clay, rock):
Provide documentation (i.e., laboratory results or analytical reports) that *dredged* material from on-site areas is free of toxics. If not free of toxics, provide documentation of proper disposal (i.e., bill of lading from commercial supplier or disposal site).

90% sand, 10% fines Dredged material passes a Tier II evaluation and is suitable for disposal in the CDF and beneficial use.

Please include a dredged material management plan that includes specifics on how the dredged material will be handled and retained to prevent its entry into surface waters or wetlands. If on-site dewatering is proposed, please include plan view and cross-sectional drawings of the dewatering area and associated outfall.

See attached narrative and figure set

Will the dredged material be used for any commercial purpose or beneficial use? X Yes _____ No
If yes, please explain:

While future beneficial use has not been determined, it is anticipated that the sandy material will be used for either beach fill or construction purposes

If this is a maintenance dredging project, what was the date that the dredging was last performed? 2269
Permit number of original permit: DEQ 06-2269 *(It is important that you attach a copy of the original permit.)*

17. DREDGING, MINING, AND EXCAVATING (Continued)

For mining projects: On separate sheets of paper, explain the operation plans, including: 1) the frequency (e.g., every six weeks), duration (i.e., April through September), and volume (in cubic yards) to be removed per operation; 2) the temporary storage and handling methods of mined material, including the dimensions of the containment berm used for upland disposal of dredged material and the need (or no need) for a liner or impermeable material to prevent the leaching of any identified contaminants into ground water; 3) how equipment will access the mine site; and 4) verification that dredging: a) will not occur in water body segments that are currently on the effective Section 303(d) Total Maximum Daily Load (TMDL) priority list (available at http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/TMDL/TMDLDevelopment/TMDLProgramPriorities.aspx) or that have an approved TMDL; b) will not exacerbate any impairment; and c) will be consistent with any waste load allocation/limit/conditions imposed by an approved TMDL (see, "What's in my backyard" or subsequent spatial files at http://www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx to determine the extent of TMDL watersheds and impairment segments).

Have you applied for a permit from the Virginia Department of Mines, Minerals and Energy? _____Yes _X_____No If Yes:
Existing permit number:_____ Date permit issued: _____

Contributing drainage area: >1 square miles	Average stream flow at site (flow rate under normal rainfall conditions): tidal cfs

18. FILL (not associated with backfilled shoreline structures) AND OTHER STRUCTURES (other than piers and boathouses) IN WETLANDS OR WATERS, OR ON DUNES/BEACHES

Source and composition of fill material (percentage sand, silt, clay, rock):

_____

Provide documentation (i.e., laboratory results or analytical reports) that *fill* material from *off-site* locations is free of toxics. If not free of toxics, provide documentation of proper disposal (i.e., bill of lading from commercial supplier or disposal site). Documentation is not necessary for fill material obtained from on-site areas.

Explain the purpose of the filling activity and the type of structure to be constructed over the filled area (if any):

Describe any structure that will be placed in wetlands/waters or on a beach dune and its purpose:

Will the structure be placed on pilings? ____ Yes ____ No	Total area occupied by any structure. _____ Square Feet
How far will the structure be placed channelward from the back edge of the dune? _____feet	How far will the structure be placed channelward from the back edge of the beach? _____feet

19. NONTIDAL STREAM CHANNEL MODIFICATIONS FOR RESTORATION OR ENHANCMENT, or TEMPORARY OR PERMANENT RELOCATIONS

If proposed activities are being conducted for the purposes of compensatory mitigation, please attach separate sheets of paper providing all information required by the most recent version of the stream assessment methodology approved by the Norfolk District of the U.S. Army Corps of Engineers and the Virginia Department of Environmental Quality, in lieu of completing the questions below. Required information outlined by the methodology can be found at:
http://www.nao.usace.army.mil/Missions/Regulatory/UnifiedStreamMethodology.aspx *or*
http://www.deq.virginia.gov/Programs/Water/WetlandsStreams/Mitigation.aspx.

For all projects proposing stream restoration provide a completed Natural Channel Design Review Checklist and Selected Morphological Characteristics form. These forms and the associated manual can be located at:
https://www.fws.gov/chesapeakebay/StreamReports/NCD%20Review%20Checklist/Natural%20Channel%20Design%20Checklist%20Doc%20V2%20Final%2011-4-11.pdf

Has the stream restoration project been designed by a local, state, or federal agency? ____ Yes ____ No. If yes, please include the name of the agency here: _____.

Is the agency also providing funding for this project? _____ Yes _____ No

Stream dimensions at impact site (length and average width in linear feet, and area in square feet):
L: _____(feet) AW:_____ (feet) Area:_____ (square feet)

Contributing drainage area: _____acres *or* _____square miles

Project Background

Broad Creek Channel Dredging

This project involves maintenance and new work dredging of the Broad Creek Channel in Middlesex County, Virginia. The channel is a 100 ft wide by 4,900 ft long channel that extends from inside the entrance of Broad Creek by the marinas (Station -3+00) to the navigable waters in the Rappahannock River (Station 46+00). Broad Creek is a federally authorized channel; however, Middlesex County will be the applicant for the proposed dredging project. The disposal site will be the confined disposal facility (CDF) on the south side of Route 33. Sheet JPA-01 of the attached drawings provide the general location of the project area and CDF.

The Virginia Department of Environmental Quality (DEQ) issued an Individual VWPP for the project (06-269) with a permitted depth of -10 ft MLW. The Virginia Resources Commission (VMRC) did not previously issue permits on this project since the channel was federally authorized and maintained and the placement site was in an upland area. Since Middlesex County will be the applicant, the VMRC will have jurisdictional authority over the dredging portion of the project.

Project Purpose

The channel has started to shoal and is in need of dredging for safe navigation. The proposed project is predominantly maintenance dredging, but three wideners (new work) have been added to this application. The wideners will improve the channel by reducing the rate of shoaling into the existing permitted area which will maintain safe navigation for a longer period of time and increase the interval between dredging cycles resulting in a lower long term impact on the benthic environment.

Project Description

The currently permitted area (maintenance) is 492,075 sf (toe) and 573,025 sf in the 2x buffer. Three wideners (new work) have been proposed to extend the life of the project and provide safer navigation. The first area of new work is a 13 ft widener on the west side of the channel between Stations 20+00 and 43+00 (2,300 ft), the second is a 13 ft widener on the east side of the channel between Stations 20+00 and 45+00 (2,500 ft) and the third area of new work dredging is a 15 ft widener on the west side of the channel between Stations 0+00 and 12+50 (1,250 ft). The total proposed project, maintenance and new work dredging, encompasses an area within the 2x buffer of 658,700 sf. The total area of new work dredging is 85,675 sf or 1.97 acres. Sheets JPA-02 and JPA-03 provide the channel layout and cross-sections.

Sediment and Geotechnical Evaluation

In April 2024, Biogenic Solutions Consulting, LLC, completed a Sediment and Effluent Water Investigation for the shoals in the Broad Creek channel to evaluate disposal options. Sediment and site water samples were collected on April 20th and 21st, 2024 and analyzed by a VELAP certified laboratory. The full report is provided as an Attachment to this narrative.

The geotechnical summary from that report is as follows: “Standard sieve and hydrometer analyses were performed to determine grain size distribution at each sample location at Broad Creek. The grain size analyses indicate that the sediments are predominately sand with all but two sample locations (sites 1 and 2) containing at least 90% sand and gravel. Sample location SS-2 (station 1+00) exhibited the highest percentage of fine-grained sediments, containing 67% sand and 33% silt and clays. For the sites inside of the federal channel, ~90% of the sediment was sand and gravel (~10% fines), while outside of the channel, 100.0% of the sediment was sand and gravel, with no silt and clays detected.”

Similar to the testing completed in 2008, the sediment and elutriate results did not reveal the presence of toxics in the material or effluent collected from within the dredging prism. While some metals were detected, they were well within screening criteria and meet Tier II requirements. Specific details are provided in the report. The dredged material is suitable for disposal into the CDF and can be used beneficially for fill or other uses, as applicable.

Subaquatic Vegetation (SAV)

The individual VIMS 2019 to 2023 SAV maps do not show SAVs in the vicinity of the Broad Creek channel. The 2018 to 2022 composite, however, does show SAVs adjacent to the outer channel on the western side. The composite outline has been depicted on the project drawings (Sheets JPA-02 and JPA-03). The last time SAVs were documented in the area was 2018 and the density were listed as “sparse” at the time. The new work wideners will impact 47,468 sf (1.09 acres) within the 4X buffer on the west side of the channel.

The proposed layout is the best design to reduce shoaling along both sides of the outer channel. Mitigation is not offered for potential impacts to SAVs. The last time SAVs were documented at the site was in 2018, and since SAVs were not present in 2023, then the new composite would not show SAVs at this location and therefore there are no measurable impacts.

Adjacent Property Owners

Eight adjacent property owners (APOs) have been identified in proximity to the proposed channel dredging project. The APOs have been located on the drawings and the following table provides the mailing addresses for each of the properties.

CHANNEL DREDGING	
Property #	**Owner / Address**
1	**Chesapeake Marina Partners Norview LLC** **18691 General Puller Highway** **Deltaville, VA 23043**
2	**CJP Ikaria LLC** **8510 Conover Place** **Alexandria, VA 22308**
3	**Donna Bailey Miles, et al** **24 Montgomery Cove Road** **Deltaville, VA 23043**
4	**Enterprise Marine Group** **P.O. Box 1188** **Deltaville, VA 23043**
5	**Tyndall & Dwala Baucom** **3092 Nathaniels Green** **Williamsburg, VA 23185**
6	**Douglas & Cynthia Adkins** **707 Riverside Drive** **Deltaville, VA 23043**
7	**Joseph & Nancy Edwards** **13806 Turtle Hill Road** **Midlothian, VA 23112**
8	**Tranquil Seas** **715 Riverside Drive** **Deltaville, VA 23043**

Threatened and Endangered Species

Threatened and endangered species were identified for the Broad Creek Channel via the U.S. Fish and Wildife Service IPaC website. The full report is attached to this narrative.

Two listed species were identified in the project area. One species was listed as endangered, the Northern Long-eared Bat (myotis septentrionalis), and one species was recommended as proposed endangered, the Tricolored Bat (Perimyotis subflavus). There is no critical habitat for these two species or any other listed species in the project area.

Shellfish Leases

There are no public lease areas in the proposed dredging area. While there are no direct impacts (within the 2x buffer) – there are several private lease areas adjacent to the channel. The lease areas and owners have been identified on the drawings. The contact information for the lease holders has been included in the following table.

CHANNEL DREDGING	
Lease Number (s)	**Owner / Address**
20967 (adjacent)	**Duncan Bright / POC Wayne Bailey 24 Montgomery Cove Road Deltaville, VA 23043**
21590 (adjacent)	**POC Wayne Bailey 24 Montgomery Cove Road Deltaville, VA 23043**
18241, 18242 (adjacent)	**Mark Plakas Ainsle Hodges 1224 Timberneck Road Deltaville, VA 23043**

Dredging Method

The Broad Creek Channel will be hydraulically or mechanically dredged. The dredged material will be pumped to the CDF on the south side of Route 33. If a hydraulic dredge is used for construction, then the material will be pumped directly from the dredge to the CDF. If the project is constructed mechanically, the material will be barged to the beginning of the channel and then placed in a barge for transport to the beginning of the channel (Station -3+00). The material will then be hydraulically pumped from the barge to the CDF. A typical pipeline route has been identified on the cover sheet depicting the relationship between the dredging area and the CDF (Sheet JPA-01).

Confined Disposal Area

The location and layout of the CDF is provided on Sheet JPA-04. The overall easement size of the CDF is 10.85 acres with an estimated fill area of about 8.0 acres. The estimated freeboard is between 7 and 8 ft resulting in a capacity of about 56,000 cy. The total permitted volume for maintenance and new work dredging is 70,550 cy to -10 ft MLW. The estimated dredging volume to the design depth of -8 ft MLW is 28,300 cy. There is currently enough capacity in the CDF to safely contain the material from the proposed project.

A topographic survey of the CDF will be conducted prior to dredging to determine the actual capacity. If maintenance in the CDF is required prior to dredging, the earthwork will be limited to inside the crest and side slopes of the facility, the cells and the spillway. The CDF shall be maintained such that there is positive sediment and effluent flow towards the spill box. The spill box will be monitored during construction to allow clear return water back to Broad Creek. No earthwork will take place outside of the interior confinement just prior to a dredging cycle. (Maintenance may be required after the sediment has stabilized or for potential future removal of sediment for a beneficial use.)

ATTACHMENT - 2009 DEQ VWPP

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Preston Bryant
Secretary of Natural Resources

PIEDMONT REGIONAL OFFICE
4949-A Cox Road, Glen Allen, Virginia 23060
(804) 527-5020; Fax (804) 527-5106
www.deq.virginia.gov

David K. Paylor
Director

August 21, 2009

US Army Corps of Engineers – Norfolk District
Attn: Elizabeth G. Warring
803 Front Street
Norfolk, Virginia 23510

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

RE: VWP Individual Permit Number Permit Number 06-2269, Broad Creek Federal Navigation Project Middlesex County, Virginia; Final VWP Individual Permit

Dear Ms. Warring:

Pursuant to the Virginia Water Protection (VWP) Permit Program Regulation 9 VAC 25-210-10 et seq., § 401 of the Clean Water Act Amendments of 1977, and Public Law 95-217, the Department of Environmental Quality (DEQ) has enclosed the original VWP Individual Permit Number 06-2269 for the Broad Creek Federal Navigation Project. The project will involve the dredging of Broad Creek from Red Day Beacon No. 10 in the mouth of Broad Creek to approximately 150 feet southwest of Green Beacon No. 1 via hydraulic cutterhead. Dredged material will be placed in an existing 8 acre confined disposal facility (CDF) on the south side of Route 33. The effluent from the CDF will be conveyed back to Broad Creek using the same easement as the dredge material pipe. The channel will be dredged to the maximum allowable dredge depth of -10 feet mean lower low water (MLLW), which includes a 2-foot paid allowable overdredge and a 1-foot non-paid allowable overdredge to maintain a channel with a depth of -7 feet MLLW.

This permit is valid for ten (10) years from the date of issuance. Continuation of the permit may be necessary if any portion of the authorized activities or any permit requirement, including compensatory mitigation provisions, have not been completed. The total permit term, including any extensions, cannot exceed 15 years. An extension may be requested through written notification to the Department of Environmental Quality - Piedmont Regional Office, provided that there are no changes in the authorized activities.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have **30 calendar days** from the date of service (the date you actually received this decision or the date it was mailed to you, whichever occurred first) within which to appeal this decision by filing a notice of appeal in accordance with the Rules of the Supreme Court of Virginia with the Director, Department of Environmental Quality. In the event that this decision is served on you by mail, three days are added to that period. Refer to Part 2A of the Rules of the Supreme Court of Virginia for additional requirements governing appeals from administrative agencies.

Alternatively, an owner may request a formal hearing for the formal taking of evidence upon relevant fact issues under Section 2.2-4020 of the Administrative Process Act. A petition for a formal hearing must meet the requirements set forth in 9 VAC 25-230-130.B of the Virginia Administrative Code. In cases involving actions of the board, such petition must be filed within 30 calendar days after notice of such action is sent to such owner by certified mail

If you have any questions, please contact William Pfeifle at (804) 527-5074 or wrpfeifle@deq.virginia.gov.

Sincerely,

Corwin D. Chamberlain
VWP Program Manager

Enclosures: Permit Cover Page, Part I - Special Conditions, Part II - General Conditions

c: Ben Stagg, VMRC
VWP File

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

VWP Individual Permit Number 06-2269

Effective Date: August 20, 2009

Expiration Date: August 19, 2019

VIRGINIA WATER PROTECTION PERMIT
ISSUED PURSUANT TO THE STATE WATER CONTROL LAW
AND SECTION 401 OF THE CLEAN WATER ACT

Based upon an examination of the information submitted by the owner, and in compliance with §401 of the Clean Water Act as amended (33 USC 1341) and the State Water Control Law and regulations adopted pursuant thereto, the State Water Control Board (board) has determined that there is a reasonable assurance that the activity authorized by this permit, if conducted in accordance with the conditions set forth herein, will protect instream beneficial uses and will not violate applicable water quality standards. The board finds that the effect of the impact, together with other existing or proposed impacts to surface waters, will not cause or contribute to a significant impairment to state waters or fish and wildlife resources.

Project Name: Broad Creek Federal Navigation Project

Permittee: U.S. Army Corps of Engineers – Norfolk District

Address: 803 Front Street
Norfolk, Virginia 23510

Activity Location: The Broad Creek Federal Navigation Channel is located within Broad Creek and the Rappahannock River in Middlesex County, Virginia.

Activity Description: The project involves maintenance dredging of approximately 50,000 cubic yards of sediment from the existing Broad Creek Federal Navigation Channel. The channel is authorized for a 100-foot bottom width and a length of approximately 4,900 feet as indicated on the "Broad Creek Federal Navigation Channel Plan View Drawing" submitted with the Joint Permit Application. The channel shall be dredged via hydraulic cutterhead dredge to no more than -10 feet MLLW which includes 3-foot allowable overdredge to maintain a channel with a depth of -7 feet MLLW. Dredged material shall be placed in an existing 8-acre confined disposal facility (CDF) on the south side of Route 33 in Deltaville. The effluent from the CDF will conveyed back to Broad Creek. Dredging of the Broad Creek Federal Navigation Channel was previously authorized by VWP Permit No. 93-1204, which expired on January 14, 2004.

The permitted activity shall be in accordance with this Permit Cover Page, Part I - Special Conditions, and Part II - General Conditions.

Kyle J. Winter, P.E.
Deputy Regional Director

20 AUGUST 2009
Date

Part I – Special Conditions

A. *Authorized Activities*

This permit authorizes maintenance dredging of approximately 50,000 cubic yards of subaqueous bottom per dredging cycle to a maximum allowable depth of -10 feet mean lower low water in order to maintain the Broad Creek Federal Navigation Channel to depth of -7 feet mean lower low water and a bottom width of 100 feet as indicated in the application received on September 27, 2006 and supplemental materials, revisions, and clarifications received through April 22, 2009. No wetland impacts are authorized by this permit.

B. *Permit Term*

This permit is valid for ten years from the date of issuance. An extension of this permit term or a new permit may be necessary for the continuance of the authorized activities or any permit requirement that has not been completed, including compensation provisions. The permit term, including any granted extensions, shall not exceed 15 years.

The permittee shall notify DEQ in writing at least **120 calendar days** prior to the expiration of this permit if an extension of the permit term is required.

C. *Standard Project Conditions*

1. The activities authorized by this permit shall be executed in such a manner that any impacts to stream beneficial uses are minimized. As defined in § 62.1-10(b) of the Code, "beneficial use" means both instream and offstream uses. Instream beneficial uses include, but are not limited to, the protection of fish and wildlife habitat, maintenance of waste assimilation, recreation, navigation, and cultural and aesthetic values. Offstream beneficial uses include, but are not limited to, domestic (including public water supply), agricultural, electric power generation, commercial, and industrial uses. Public water supply uses for human consumption shall be considered the highest priority.

2. No activity shall substantially disrupt the movement of aquatic life indigenous to the water body, including those species that normally migrate through the area, unless the primary purpose of the activity is to impound water.

3. Flows downstream of the project area shall be maintained to protect all uses.

4. No activity shall cause more than minimal adverse effect on navigation, and no activity shall block more than half of the width of the stream at any given time.

5. Activities shall be conducted in accordance with any Time-of-Year restriction(s) as recommended by the Department of Game and Inland Fisheries or the Virginia Marine Resources Commission. The permittee shall retain a copy of the agency correspondence

concerning the Time-of-Year restriction(s), or the lack thereof, for the duration of the construction phase of the project.

6. All excavation, dredging, or filling in surface waters shall be accomplished in a manner that minimizes bottom disturbance and turbidity.

7. All construction, construction access, and demolition activities associated with this project shall be accomplished in a manner that minimizes construction materials or waste materials from entering surface waters, unless authorized by this permit. Wet, excess, or waste concrete shall be prohibited from entering surface waters.

8. All fill material placed in surface waters shall be clean and free of contaminants in toxic concentrations or amounts in accordance with all applicable laws and regulations.

9. Stormwater runoff shall be prohibited from directly discharging into any surface waters. Best management practices (BMP) designed, installed, and maintained, as described in the Virginia Erosion and Sediment Control Handbook (Third Edition, 1992, or the most recent version in effect at the time of construction) and the Virginia Stormwater Management Handbook (First Edition, 1999, or the most recent version in effect at the time of construction), shall be deemed suitable treatment prior to discharge into surface waters. Installation of alternative practices not described in these references shall be submitted to DEQ for approval prior to beginning construction.

10. Measures shall be employed at all times to prevent and contain spills of fuels, lubricants, or other pollutants into surface waters.

11. Temporary disturbances to wetlands, stream channels, and/or stream banks during project construction activities shall be avoided and minimized to the maximum extent practicable.

12. All temporarily disturbed wetland areas shall be restored to preconstruction conditions within 30 calendar days of completing work in the areas, which shall include re-establishing pre-construction contours, and planting or seeding with appropriate wetland vegetation according to cover type (emergent, scrub/shrub, or forested), except for invasive species identified on DCR's Invasive Alien Plant Species of Virginia list. The permittee shall take all appropriate measures to promote and maintain the revegetation of temporarily disturbed surface waters through the second year post-disturbance.

13. All temporarily impacted streams and stream banks shall be restored to their original elevations and contours within 30 calendar days following the construction at that stream segment, and the banks shall be seeded or planted with the same vegetative cover type originally present along the banks, including supplemental erosion control grasses if necessary but not including invasive species identified on DCR's Invasive Alien Plant Species of Virginia list. The permittee shall take all appropriate measures to promote and

maintain the revegetation of temporarily disturbed surface waters through the second year post-disturbance.

14. All materials (including fill, construction debris, excavated materials, and woody materials, that are temporarily placed in wetlands, in stream channels, or on stream banks) shall be placed on mats or geotextile fabric, shall be immediately stabilized to prevent the material or leachate from entering surface waters, and shall be entirely removed within 30 calendar days following completion of that construction activity. After removal, disturbed areas shall be returned to original contours, shall be stabilized, and shall be restored to the original vegetated state within 30 calendar days. The permittee shall take all appropriate measures to promote and maintain the revegetation of temporarily disturbed surface waters through the second year post-disturbance.

15. Temporary in-stream construction features such as cofferdams shall be made of non-erodible materials.

16. Virginia Water Quality Standards shall not be violated in any surface waters as a result of the project activities.

17. Seeds used for all project and compensation activities shall conform to the Virginia Seed Law (Sections 3.1-262 Code of Virginia) and Virginia Seed Regulations (2 VAC 5-290-10 et seq).

18. Erosion and sedimentation controls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992, or the most recent version in effect at the time of construction. These controls shall be placed prior to clearing and grading activities and shall be maintained in good working order, to minimize impacts to surface waters. These controls shall remain in place only until clearing and grading activities cease and these areas have been stabilized.

19. All required notifications and submittals shall be submitted to the DEQ office stated below, to the attention of the VWP permit manager, unless directed in writing by DEQ subsequent to the issuance of this permit:

    DEQ Piedmont Regional Office
    4949A Cox Road
    Glen Allen, Virginia 23060

20. All reports required by this permit and other information requested by DEQ shall be signed by the permittee or a person acting in the permittee's behalf, with the authority to bind the permittee. A person is a duly authorized representative only if *both* criteria below are met. If a representative authorization is no longer valid because of a change in responsibility for the overall operation of the facility, a new authorization shall be immediately submitted to DEQ.

a. The authorization is made in writing by the permittee.
b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

21. All submittals shall contain the following signed certification statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

22. Any fish kills or spills of fuels or oils shall be reported to DEQ immediately upon discovery at (804) 527-5020. If DEQ cannot be reached, the spill shall be reported to the Virginia Department of Emergency Management (DEM) at 1-800-468-8892 or the National Response Center (NRC) at 1-800-424-8802.

23. DEQ shall be notified in writing within **24 hours or as soon as possible on the next business day** when potential environmentally threatening conditions are encountered which require debris removal or involve potentially toxic substances. Measures to remove the obstruction, material, or toxic substance or to change the location of any structure are prohibited until approved by DEQ.

24. The permittee shall notify the DEQ of any additional impacts to surface waters, including wetlands, and of any change to the type of surface water impacts associated with this project. Any additional impacts, modifications, or changes shall be subject to individual permit review and/or modification of this permit. Compensation may be required.

D. *Projects Involving Stream Modifications, Including Intake/Outfall Structures*

1. Any exposed slopes or streambanks shall be stabilized immediately upon completion of work in each impact area. Methods and materials for stabilization shall be in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992, or the most recent version in effect at the time of construction.

2. Redistribution of existing stream substrate for erosion control purposes is prohibited.

3. Material removed from the stream bottom shall not be deposited into surface waters unless otherwise authorized as fill material in this permit.

4. Riprap apron for all outfalls shall be designed in accordance with Virginia Erosion and Sediment Control Handbook, Third Edition, 1992, or the most recent version in effect at the time of construction.

5. For streambank protection activities, structures and backfill shall be placed as close to the streambank as practical, while still avoiding and minimizing impacts to vegetated wetlands to the maximum extent practical. No material shall be placed in excess of the minimum necessary for erosion protection.

6. Asphalt and materials containing asphalt or other toxic substances shall not be used in the construction of submerged sills, breakwaters, dams, or weirs.

E. *Projects Involving Dredging Activities*

1. This permit authorizes maintenance dredging of the Broad Creek Federal Navigation Channel, for a length of approximately 4,900 feet as indicated on the "Broad Creek Federal Navigation Channel Plan View Drawing" submitted with the Joint Permit Application. The maximum allowable depth of -10 feet mean lower low water includes all allowable overdredge.

2. Dredging shall be accomplished via hydraulic cutterhead dredge in a manner to minimize disturbance of the bottom and minimize turbidity levels in the water column.

3. Dredging and excavation shall be limited to the minimum necessary to conduct the permitted activities. The dredged channel width shall not exceed 100 feet at the bottom of the channel.

4. Dredged material shall be pumped to the approximately 8 acre confined disposal facility (CDF) on the south side of Route 33. The return flow from the CDF will discharge into Broad Creek adjacent to the Norview Marina. The location of the CDF, dredge and effluent pipe easement and discharge location are identified on the plan "Broad Creek Channel: Plan View Alternate Discharge Point", received by DEQ on April 22, 2009.

5. All dredged materials pumped by hydraulic method will be done in such a manner as to prevent leakage or discharge into surface waters. In the event of a ruptured pipeline, dredging/disposal operations shall immediately cease until repairs are accomplished.

6. The double handling of dredged material in surface waters shall not be permitted.

7. The CDF shall be of adequate size to contain the dredge material and to allow for adequate dewatering and settling out of sediment prior to discharge back into surface waters.

8. The CDF area shall utilize an earthen berm along the edge of the area to contain the dredged material, and shall be properly stabilized prior to placing the dredged material within the containment area.

9. The dredge material influent pipe and the effluent pipe shall be located within the CDF to allow for maximum retention and settling time.

10. Overtopping of the dredge spoil containment berms with dredge spoil disposal materials post completion shall be prohibited.

11. For navigation channels the following shall apply:

    a. A minimum of 15 feet shall be maintained between the top of the dredge cut and the toe of the bank.

    b. A buffer of four times the depth of the dredge cut shall be maintained between the toe of the channel and the channelward limit of wetlands or mean low water.

12. Side slope cuts of the dredging area shall not exceed a two-horizontal-to-one-vertical (2:1) slope, when practicable, to reduce slumping of material into the dredged area.

F. *Project Monitoring and Submittals*

Pre-Dredging Submittals

1. The permittee shall submit written notification at least **ten calendar days** prior to the initiation of dredging activities in permitted areas. The notification shall include a projected schedule for initiating and completing the authorized work.

2. No less than 30 calendar days prior to commencement of each dredging cycle, the permittee shall submit plans detailing the operation and maintenance practices of the confined disposal facility. The plans shall include:

    a. Any changes to the existing operation of the CDF due to the alternative discharge point.

    b. Any new structures associated with the dredge and effluent pipes.

    c. Any structures associated with the discharge point on Broad Creek.

Monitoring During Dredging

3. The permittee shall perform daily visual monitoring of the dredge material disposal and return flow operations. If floating debris, oil, scum, a sheen, indication of contamination,

or discharge of sewage, industrial waste, other wastes, or any noxious or deleterious substance is visible in the dredged material placement site or in Broad Creek in the area of effluent discharge, the permittee shall immediately cease discharges, deploy measures to contain the contamination, and contact the DEQ-PRO immediately, but in no case later than 24 hours after discovery.

4. The permittee shall measure ambient instream dissolved oxygen (D.O.) concentrations at a minimum of once every other day during dredging and return flow operations at the effluent discharge location on Broad Creek during the period July 1st through October 31st of any year. D.O. measurements shall be taken at slack tide, one (1) meter below the water surface and within 100 feet down current of the effluent discharge location. D.O. measurements shall be taken using an EPA approved method.

   a) DEQ shall be notified within 24 hours of discovery should instantaneous ambient instream D.O. concentration measure less than 3.2 mg/l during return flow operations. The permittee shall immediately take corrective action and submit documentation to DEQ of actions taken to ensure that return flow operations do not cause or further contribute to low ambient D.O. conditions. Return flow operations shall cease, if directed by DEQ.

Monitoring Report

5. A Monitoring Report shall be submitted to DEQ within 30 calendar days of completing each dredging cycle. The reports shall include the following, as appropriate:

   a. A written narrative describing the work performed, when the work was initiated, and when the work was completed.

   b. A summary of activities conducted to comply with the permit conditions, including items associated with meeting specific permit conditions and a description of controls or measures used to protect water quality.

   c. A written summary, including photographs, of non-compliance events or problems encountered, any corrective actions taken, and any subsequent notifications to DEQ.

   d. Photographs with an associated date, time, and subject description and a labeled site map depicting where photos were taken.

   e. Dissolved oxygen monitoring data as described in Part I.F.4.

Post-Dredging Submittals

6. The permittee shall submit written notification within **30 calendar days** after completion of each dredging cycle.

7. A before-dredging and after-dredging bathymetric survey shall be submitted to DEQ within **60 calendar days** following completion of each dredging cycle.

Part II – General Conditions

A. *Duty to Comply*

The permittee shall comply with all conditions of the VWP permit. Nothing in the VWP permit regulations shall be construed to relieve the permittee of the duty to comply with all applicable federal and state statutes, regulations and prohibitions. Any VWP permit violation is a violation of the law, and is grounds for enforcement action, VWP permit termination, revocation, modification, or denial of an application for a VWP permit extension or reissuance.

B. *Duty to Cease or Confine Activity*

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which a VWP permit has been granted in order to maintain compliance with the conditions of the VWP permit.

C. *Duty to Mitigate*

The permittee shall take all reasonable steps to minimize or prevent any impacts in violation of the permit which may have a reasonable likelihood of adversely affecting human health or the environment.

D. *VWP Permit Action*

1. A VWP permit may be modified, revoked and reissued, or terminated as set forth in 9 VAC 25-210 et seq.

2. If a permittee files a request for VWP permit modification, revocation, or termination, or files a notification of planned changes, or anticipated noncompliance, the VWP permit terms and conditions shall remain effective until the request is acted upon by the board. This provision shall not be used to extend the expiration date of the effective VWP permit. If the permittee wishes to continue an activity regulated by the VWP permit after the expiration date of the VWP permit, the permittee must apply for and obtain a new VWP permit or comply with the provisions of 9 VAC 25-210-185 (VWP Permit Extension).

3. VWP permits may be modified, revoked and reissued or terminated upon the request of the permittee or other person at the board's discretion, or upon board initiative to reflect the requirements of any changes in the statutes or regulations, or as a result of VWP permit noncompliance as indicated in the Duty to Comply subsection above, or for other reasons listed in 9 VAC 25-210-180 (Rules for Modification, Revocation and Reissuance, and Termination of VWP permits).

E. *Inspection and Entry*

Upon presentation of credentials, any duly authorized agent of the board may, at reasonable times and under reasonable circumstances:

1. Enter upon any permittee's property, public or private, and have access to, inspect and copy any records that must be kept as part of the VWP permit conditions;

2. Inspect any facilities, operations or practices (including monitoring and control equipment) regulated or required under the VWP permit, and

3. Sample or monitor any substance, parameter or activity for the purpose of ensuring compliance with the conditions of the VWP permit or as otherwise authorized by law.

F. *Duty to Provide Information*

1. The permittee shall furnish to the board any information which the board may request to determine whether cause exists for modifying, revoking, reissuing or terminating the VWP permit, or to determine compliance with the VWP permit. The permittee shall also furnish to the board, upon request, copies of records required to be kept by the permittee.

2. Plans, specifications, maps, conceptual reports and other relevant information shall be submitted as required by the board prior to commencing construction.

G. *Monitoring and Records Requirements*

1. Monitoring of parameters, other than pollutants, shall be conducted according to approved analytical methods as specified in the VWP permit. Analysis of pollutants will be conducted according to 40 CFR Part 136 (2000), Guidelines Establishing Test Procedures for the Analysis of Pollutants.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring instrumentation, copies of all reports required by the VWP permit, and records of all data used to complete the application for the VWP permit, for a period of at least three years from the date of the expiration of a granted VWP permit. This period may be extended by request of the board at any time.

4. Records of monitoring information shall include:

   a. The date, exact place and time of sampling or measurements;

   b. The name of the individuals who performed the sampling or measurements;

   c. The date and time the analyses were performed;

   d. The name of the individuals who performed the analyses;

   e. The analytical techniques or methods supporting the information such as observations, readings, calculations and bench data used;

   f. The results of such analyses; and

   g. Chain of custody documentation.

H. *Transferability*

This VWP permit may be transferred to a new permittee only by modification to reflect the transfer, by revoking and reissuing the permit, or by automatic transfer. Automatic transfer to a new permittee shall occur if:

1. The current permittee notifies the board within 30 days of the proposed transfer of the title to the facility or property;

2. The notice to the board includes a written agreement between the existing and proposed permittee containing a specific date of transfer of VWP permit responsibility, coverage and liability to the new permittee, or that the existing permittee will retain such responsibility, coverage, or liability, including liability for compliance with the requirements of any enforcement activities related to the permitted activity; and

3. The board does not within the 30-day time period notify the existing permittee and the new permittee of its intent to modify or revoke and reissue the VWP permit.

I. *Property rights*

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize injury to private property or any invasion of personal rights or any infringement of federal, state or local law or regulation.

J. *Reopener*

Each VWP permit shall have a condition allowing the reopening of the VWP permit for the purpose of modifying the conditions of the VWP permit to meet new regulatory standards duly adopted by the board. Cause for reopening VWP permits includes, but is not limited to when the circumstances on which the previous VWP permit was based have materially and substantially changed, or special studies conducted by the board or the permittee show material and substantial change, since the time the VWP permit was issued and thereby constitute cause for VWP permit modification or revocation and reissuance.

K. *Compliance with State and Federal Law*

Compliance with this VWP permit constitutes compliance with the VWP permit requirements of the State Water Control Law. Nothing in this VWP permit shall be construed to preclude the institution of any legal action under or relieve the permittee from any responsibilities, liabilities, or other penalties established pursuant to any other state law or regulation or under the authority preserved by § 510 of the Clean Water Act.

L. *Severability*

The provisions of this VWP permit are severable.

M. *Permit Modification*

A VWP permit may be modified, but not revoked and reissued except when the permittee agrees or requests, when any of the following developments occur:

1. When additions or alterations have been made to the affected facility or activity which require the application of VWP permit conditions that differ from those of the existing VWP permit or are absent from it;

2. When new information becomes available about the operation or activity covered by the VWP permit which was not available at VWP permit issuance and would have justified the application of different VWP permit conditions at the time of VWP permit issuance;

3. When a change is made in the promulgated standards or regulations on which the VWP permit was based;

4. When it becomes necessary to change final dates in schedules due to circumstances over which the permittee has little or no control such as acts of God, materials shortages, etc. However, in no case may a compliance schedule be modified to extend beyond any applicable statutory deadline of the Act;

5. When changes occur which are subject to "reopener clauses" in the VWP permit; or

6. When the board determines that minimum instream flow levels resulting from the permittee's withdrawal of water are detrimental to the instream beneficial use and the withdrawal of water should be subject to further net limitations or when an area is declared a Surface Water Management Area pursuant to §§ 62.1-242 through 62.1-253 of the Code of Virginia, during the term of the VWP permit.

N. *Permit Termination*

After notice and opportunity for a formal hearing pursuant to Procedural Rule No. 1 (9 VAC 25-230-100) a VWP permit can be terminated for cause. Causes for termination are as follows:

1. Noncompliance by the permittee with any condition of the VWP permit;

2. The permittee's failure in the application or during the VWP permit issuance process to disclose fully all relevant facts or the permittee's misrepresentation of any relevant facts at any time;

3. The permittee's violation of a special or judicial order;

4. A determination by the board that the permitted activity endangers human health or the environment and can be regulated to acceptable levels by VWP permit modification or termination;

5. A change in any condition that requires either a temporary or permanent reduction or elimination of any activity controlled by the VWP permit; and

6. A determination that the permitted activity has ceased and that the compensatory mitigation for unavoidable adverse impacts has been successfully completed.

O. *Civil and Criminal Liability*

Nothing in this VWP permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

P. *Oil and Hazardous Substance Liability*

Nothing in this VWP permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under § 311 of the Clean Water Act or §§ 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

Q. *Unauthorized Discharge of Pollutants*

Except in compliance with this VWP permit, it shall be unlawful for the permittee to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances;

2. Excavate in a wetland;

3. Otherwise alter the physical, chemical, or biological properties of state waters and make them detrimental to the public health, to animal or aquatic life, to the uses of such waters for domestic or industrial consumption, for recreation, or for other uses.

4. On or after October 1, 2001 conduct the following activities in a wetland:
   a. New activities to cause draining that significantly alters or degrades existing wetland acreage or functions
   b. Filling or dumping
   c. Permanent flooding or impounding
   d. New activities that cause significant alteration or degradation of existing wetland acreage or functions.

R. *Permit Extension*

1. Any permittee with an effective VWP permit for an activity that is expected to continue after the expiration date of the VWP permit, without any change in the activity authorized by the VWP permit, shall submit written notification request if an extension. The permittee must file the request prior to the expiration date of the VWP permit. Under no circumstances will the extension be granted for more than 15 years beyond the original effective date of the VWP permit. If the request for extension if denied, the VWP permit will still expire on its original date and, therefore, care should be taken to allow for sufficient time for the board to evaluate the extension request and to process a full VWP permit modification, if required.

ATTACHMENT - THREATENED AND ENDANGERED SPECIES

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694

In Reply Refer To: 07/17/2024 20:38:53 UTC
Project Code: 2024-0117800
Project Name: Broad Creek Dredging

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Project Code in the header of this

letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
(804) 693-6694

PROJECT SUMMARY

Project Code: 2024-0117800
Project Name: Broad Creek Dredging
Project Type: Navigation Channel Improvement
Project Description: Broad Creek Dredging in Deltaville with Disposal in Upland Placement Site
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.5618327,-76.31514977793931,14z

Counties: Middlesex County, Virginia

ENDANGERED SPECIES ACT SPECIES

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ This species only needs to be considered if the project includes wind turbine operations. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Northeastern Beach Tiger Beetle *Habroscelimorpha dorsalis dorsalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8105	Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider

implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

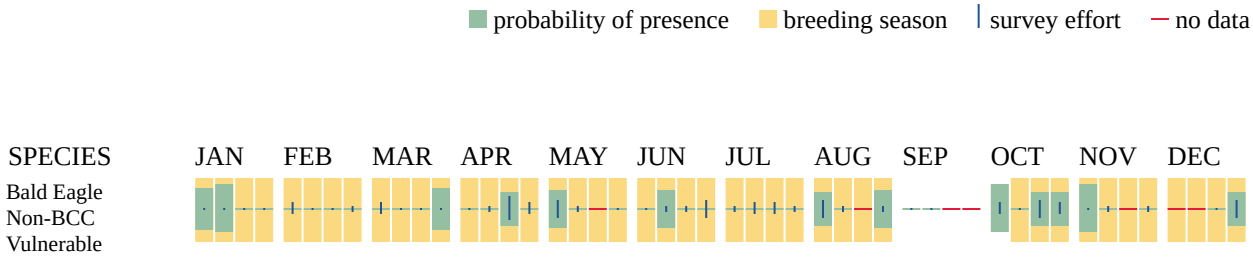
Probability of Presence (▪)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Black Scoter *Melanitta nigra* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10413	Breeds elsewhere
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Brown Pelican *Pelecanus occidentalis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/6034	Breeds Jan 15 to Sep 30
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Common Loon *gavia immer* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/4464	Breeds Apr 15 to Oct 31
Double-crested Cormorant *phalacrocorax auritus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/3478	Breeds Apr 20 to Aug 31
Grasshopper Sparrow *Ammodramus savannarum perpallidus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329	Breeds Jun 1 to Aug 20

NAME	BREEDING SEASON
Least Tern *Sternula antillarum antillarum* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/11919	Breeds Apr 25 to Sep 5
Long-tailed Duck *Clangula hyemalis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/7238	Breeds elsewhere
Red-breasted Merganser *Mergus serrator* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10693	Breeds elsewhere
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10
Ring-billed Gull *Larus delawarensis* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10468	Breeds elsewhere
Royal Tern *Thalasseus maximus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10471	Breeds Apr 15 to Aug 31
Scarlet Tanager *Piranga olivacea* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11967	Breeds May 10 to Aug 10
Semipalmated Sandpiper *Calidris pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9603	Breeds elsewhere
Surf Scoter *Melanitta perspicillata* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10463	Breeds elsewhere

NAME	BREEDING SEASON
White-winged Scoter *Melanitta fusca* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/10462	Breeds elsewhere
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10669	Breeds Apr 20 to Aug 5

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

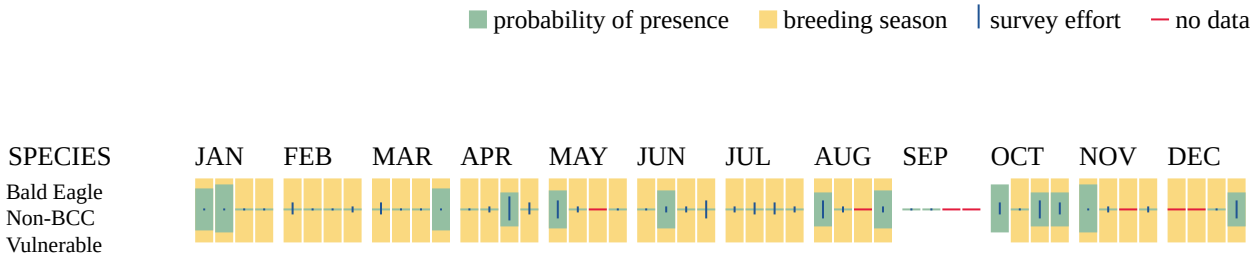
Probability of Presence (▪)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

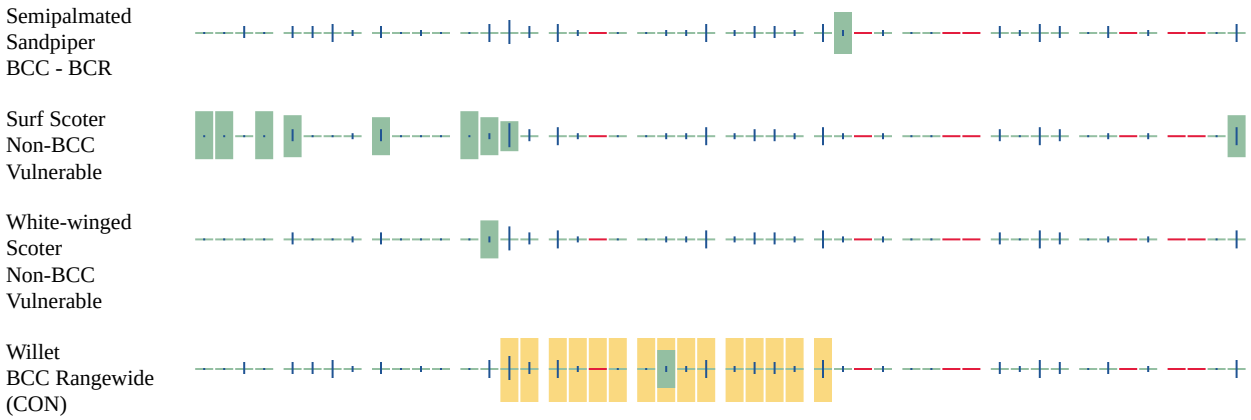
Breeding Season (▪)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.




Black Scoter
Non-BCC
Vulnerable
Black-billed
Cuckoo
BCC Rangewide
(CON)
Bobolink
BCC Rangewide
(CON)
Brown Pelican
Non-BCC
Vulnerable
Chimney Swift
BCC Rangewide
(CON)
Common Loon
Non-BCC
Vulnerable
Double-crested
Cormorant
Non-BCC
Vulnerable
Grasshopper
Sparrow
BCC - BCR
Least Tern
BCC Rangewide
(CON)
Long-tailed Duck
Non-BCC
Vulnerable
Red-breasted
Merganser
Non-BCC
Vulnerable
SPECIES
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Red-headed
Woodpecker
BCC Rangewide
(CON)
Ring-billed Gull
Non-BCC
Vulnerable
Royal Tern
Non-BCC
Vulnerable
Scarlet Tanager
BCC - BCR



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

IPAC USER CONTACT INFORMATION

Agency: County of Middlesex
Name: Rebecca Francese
Address: 321 Cleveland Place
City: Virginia Beach
State: VA
Zip: 23462
Email beccaf@waterway.net
Phone: 7575375401

Attachment - Sediment and Effluent Water Investigation

Broad Creek Federal Navigation Channel
Sediment and Effluent Water Investigation

Middlesex County, Virginia
April 2024

Presented by Biogenic Solutions Consulting, LLC

for Seaward Marine Corporation, the County of Middlesex (VA),

and the Middle Peninsula Planning District Commission

Prepared by: Russell P. Burke, Ph.D.
127 Edmond Drive
Newport News, VA 23606

30 May 2024

Sign-Off Sheet

This document entitled, "Broad Creek Federal Navigation Channel Sediment and Effluent Water Investigation, Middlesex County, Virginia, April 2024" was prepared by Biogenic Solutions Consulting, LLC ("BSC") for Seaward Marine Corporation (“Seaward”), their client, the County of Middlesex ("the County"), as well as the Middle Peninsula Planning District Commission (MPPDC). Any reliance on this document by any additional parties is strictly prohibited. The material in it reflects BSC's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between BSC and Seaward. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, BSC relied on documentation provided by the MPPDC, including #RFP-FY24-BroadCreek, entitled, “Dredging of Shoaling at Broad Creek Navigation Channel”), and did not seek to verify information supplied by others, including but not limited to, RFP Exhibit A (Broad Creek Federal Navigation Channel Sediment and Effluent Water Investigation, Middlesex County, Virginia, October 2007), and Exhibit B (Broad Creek Project Condition Survey, September 21, 2023). Other than Seaward, the County, or MPPDC, any use of this document is the responsibility of said third party. Such third party agrees that BSC shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by

Russell Burke

Table of Contents

1.0 Project Description

1.1 Description

The River and Harbor Act of 2 March 1945 authorized the Broad Creek Federal Navigation Project. Broad Creek is located in Middlesex County, Virginia and provides a channel approximately 4,100 feet long, 7 feet deep, and 100 feet wide from deep water in the Rappahannock River to Broad Creek. Broad Creek requires maintenance dredging approximately once every ten years resulting in approximately 50,000 cubic yards of predominately sandy dredged material removed from the channel and placed in existing eight-acre upland confined disposal facility located at an area south of Route 33 (USACE 2008).

Figure 1. Broad Creek Federal Navigation Channel and sediment disposal/placement area.

1.2 Background

BSC is conducting this sediment and elutriate investigation in support of Seaward's contract with the County of Middlesex (VA), in coordination with the MPPDC. This investigation is undertaken, in part, to gather and provide the necessary information to the Virginia Department of Environmental Quality (VA DEQ) as part of the Virginia Water Protection Permit Program (VWPP), which includes the required 401-water quality certification mandated by the Clean Water Act (CWA). As was the intent of the United States Army Corps of Engineers (USACE) – Norfolk District in 2007/2008 (USACE 2008), this sediment and elutriate investigation will evaluate the effluent pathway to determine if dredged material placement operations in the upland confined disposal facility (CDF) will act as a pathway for the migration of contaminants. The bulk sediment testing will be evaluated for the presence or absence of contaminants of concern (COC). The sediment data will be evaluated using conservative screening protocols to determine the potential for impacts to the water column during dredged material placement operations. The elutriate data will be directly compared to numeric water quality criteria with consideration of initial dilution in an appropriate mixing zone to predict compliance with state standards.

The Broad Creek sediment and elutriate investigation has followed the framework established in the joint US Environmental Protection Agency (EPA) and USACE manual "Evaluation of Dredged Material For Discharge in Waters of the U.S. – Testing Manual" (EPA, 1998) and the USACE manual "Evaluation of Dredged Material Proposed for Disposal at Island, Nearshore, or Upland Confined Disposal Facilities – Testing Manual" (UTM)(USACE, 2003). The "Inland Testing Manual" (ITM), as it is often referred to, implements a tiered level approach for evaluating dredged material for disposal. Dredged material from the project shoals will be placed in existing CDFs. The tiered approach outlined in the ITM and UTM has been used to determine the suitability of dredged material for placement in the existing CDF and to ensure the appropriate process is followed under the Federal guidelines for evaluation of dredged material discharges (USACE 2008).

The tiered (tiers I – IV) approach to testing is designed to aid in generating appropriate information (i.e. physical, chemical, toxicity, and bioaccumulation data) sufficient to make factual determinations, but not more information than is necessary. Generally, as testing progresses through the tiers the level of intensity and costs increase for the investigation. Tier I evaluations utilize readily available, existing information for making factual determinations about the need for contaminant evaluations, testing exclusions, identifying contaminants of concern in dredged material, and to aid in the over-all decision-making process. The EPA and USACE recommends tier I reevaluations every three years for navigation projects that require annual or episodic dredging (EPA, 1998). The tier I reevaluation should reassess any new and previously evaluated data, changes in sediment composition, advances in analytical methods, and any regulatory changes to determine if further investigation under tier II is warranted (USACE 2008).

Tier II evaluations are concerned with sediment and water chemistry. The data generated in tier II allows for an evaluation of State water quality standard compliance. The tier II level evaluation for this project investigated the effluent water as a contaminant pathway which

required the analysis of bulk sediment chemistry, site water, and elutriates for the specific COC. Analytical results from the modified elutriate analyses were utilized to evaluate effluent water quality against applicable water quality standards and state permit limits.

The list of target analytes required by the VA DEQ for Broad Creek includes the following: copper, zinc, and PCBs. This report will also include total organic carbon (TOC), particle-size, water content, specific gravity, and total suspended solids (elutriate only) for analysis to provide site specific data for further predictive modeling and screening evaluations if warranted.

1.3 Project Scope and Objectives

This sediment investigation was conducted within the Broad Creek Federal Navigation Channel in Middlesex County, Virginia. The dredged materials analyzed were maintenance sediments that had shoaled within the channel. However, unlike in 2007/2008, bulk sediment analysis did include new-work material in areas of interest <75 ft outside of the federal channel being considered for potential dredging in the future. This investigation was conducted to analyze the potential for a contaminant migration pathway from dredged material discharges from the associated CDF. This April 2024 investigation relied on predictive modeling (detailed in USACE 2008) to evaluate water column effects from effluent discharge to surface waters from dredged material placement operations from the CDF.

The work performed during this investigation involved the collection of sediment samples and site water. Additionally, the investigation involved the analysis of site water, bulk sediment chemistry for specific contaminants of concern (COC), preparation of elutriate samples, and analysis of effluent elutriate contaminant concentrations in the elutriate unfiltered sample ('totals') and the elutriate filtered sample ('dissolved 'fraction). Elutriate results were compared to applicable water quality standards. The stated objectives of the investigation were to:

- Collect sediments in the area to be dredged, both within the federal navigation channel and in select locations immediately adjacent to it.
- Collect samples representative of the bulk material to be dredged, both within the federal navigation channel and in select locations immediately adjacent to it.
- Test bulk sediments and site water in accordance with the USEPA/USACE, "Inland Testing Manual".
- Prepare and test effluent elutriate in accordance with the "Upland Testing Manual" (USACE, 2003).
- Test bulk sediments, site water, and effluent elutriate for the copper, zinc, PCB, and physical characteristics of the sediment from the Broad Creek channel as well as select locations immediately adjacent to it.
- Compare analytical results of the effluent elutriate against applicable water quality standards with consideration of dilution in a mixing zone if needed.

1.4 Project Organization and Responsibilities

Project Manager: The Project Manager for this investigation is Dr. Russell Burke, the owner, and chief marine scientist of Biogenic Solutions Consulting, LLC (BSC).

Quality Assurance Officer: The Quality Assurance Officer (QAO) for this investigation is Dr. Russell Burke (BSC). The QAO is responsible for implementing the approved sampling plan.

Sampling Personnel: BSC employed trusted subcontractors to assist with sample collection (The Dive Locker LLC) and preparation (Getting It Done Company) on-board BSC's research vessel. BSC acquired the equipment and materials necessary for all sample collection and processing – some of which were provided by Universal Laboratories.

Primary Contract Laboratory: The contract laboratory for this investigation was Universal Laboratories (Hampton, VA). Universal Laboratories is National Environmental Laboratory Accreditation Program (NELAP) accredited, equipped, and capable of performing some of the proposed analytical work while meeting data quality objectives. The remaining analyses were subcontracted to Katahdin Analytical Services (Scarborough, ME), which is also NELAP accredited and certified to meet Virginia's standards.

2.0 Field Methodology

2.1 General Sampling Protocol

Sediment and site water samples were collected at the Broad Creek Federal Navigation Channel located in the Rappahannock River on April 20th and 21st, 2024. A total of eleven (11) discrete locations were sampled (Table 1). Sampling locations were located on shoaled areas previously identified by bathymetric survey within the Federal navigation channel. Sampling locations were selected to be representative of the project dredged material. The sampling methodologies utilized were consistent with EPA and USACE guidance for evaluating dredged materials under Section 404 of the CWA.

2.1.1 Water Sampling

Water samples were collected from two stations located within the project channel. Water was collected from approximately one meter above the channel bottom utilizing a submersible GeoTech pump utilizing 1/8" polyethylene tubing.

2.1.2 Sediment Sampling

2.1.2.1 Sampling Equipment

Sediment sampling was performed from a 24-foot Sea Ark aluminum johnboat owned and operated by BSC. Sediment samples were collected using a stainless steel tube auger. Sediment collected from each discrete location was placed in pre-labeled glass bottles and placed on ice within dedicated coolers.

Table 1. Coordinates of Broad Creek sediment, water, and elutriate sampling locations (April 2024).

Sample Site Number	Location (Inside/Outside Channel)	Latitude (N)	Longitude (W)
1*	Inside	37.55885	76.31400
2	Inside	37.55990	76.31381
3	Outside	37.56184	76.31417
4	Outside	37.56320	76.31433
5*	Inside	37.56361	76.31367
6	Outside	37.56615	76.31215
7	Inside	37.56686	76.31145
8	Outside	37.56751	76.31082
9	Outside	37.56839	76.31050
10 (and Duplicate Sample)	Outside	37.56958	76.30923
11	Inside	37.57074	76.30865

*Site where a separate water sample was collected

2.1.2.2 Sample Locations

The sample locations were preselected using a bathymetric map generated by the USACE (2023), and located in the field using a Garmin 76s GPS unit. Sample locations were located and two anchors (one at the bow, and one at the stern) were placed to mark sample locations to keep the boat on location. The water depth at each sample location was verified by a Lowrance depth sounder and SCUBA divers to ensure the presence of shoaled material prior to sample collection (Refer to Figure 2 for sample locations).

2.1.2.3 Sample Collection and Processing

Cores were advanced manually by turning the tee-handle of the tube auger; when resistance was experienced (generally at locations with coarser sand), a pole pounder was used to achieve the desired sediment sampling depth. Multiple cores were pulled at each sample location to provide adequate sample volume for sediment and elutriate analysis. All sediment samples were collected as discrete samples for each proposed sample location. Collected sediment was placed in individual five-gallon buckets and homogenized and then transferred to the appropriate labeled glass sample containers and then placed on ice in coolers and stored at a maximum temperature of 4 degrees Celsius. Sediments samples were processed and packaged for chemical, geotechnical, and elutriate analyses. Chain-of-custody forms were completed and sealed in the coolers prior to transport. Samples were transported by truck to Universal Laboratories in Hampton, VA on April 22, 2024; PCB and Grain size analysis was conducted by Katahdin

Analytical Services – samples were shipped to them overnight by Federal Express and were received on April 23, 2024, in Scarborough, Maine. All chain-of-custody protocols were followed and samples arrived at the laboratory intact and at proper storage temperature.

2.1.3 Sample Identification Protocol

All samples collected during the field investigation were identified and labeled with a site-specific sample identification code. The site-specific sample code was based on the following system:

Sample ID: 24-XX-YY-#
2024- Fiscal Year
XX- BC - Project Designation, where BC = Broad Creek
YY- Sample Type: Two letter code, where SS = Sediment Sample, SW = Site Water, EL = Elutriate Sample, FD = Field Duplicate, EB = Equipment Blank, and TB = Trip Blank.
- Sample Number: Sample number will be designated 1, 2, and 3 for each sediment sample and elutriate sample location from each discrete site.

Example sample ID for discrete sediment sample collected at location 1 at the Broad Creek project, 24-BC-SS-1. Example sample ID for site water sample collected from Broad Creek project, 24-BC-SW-1. Example sample ID for discrete elutriate sample collected at location 1 at the Broad Creek project, 24-BC-EL-1.

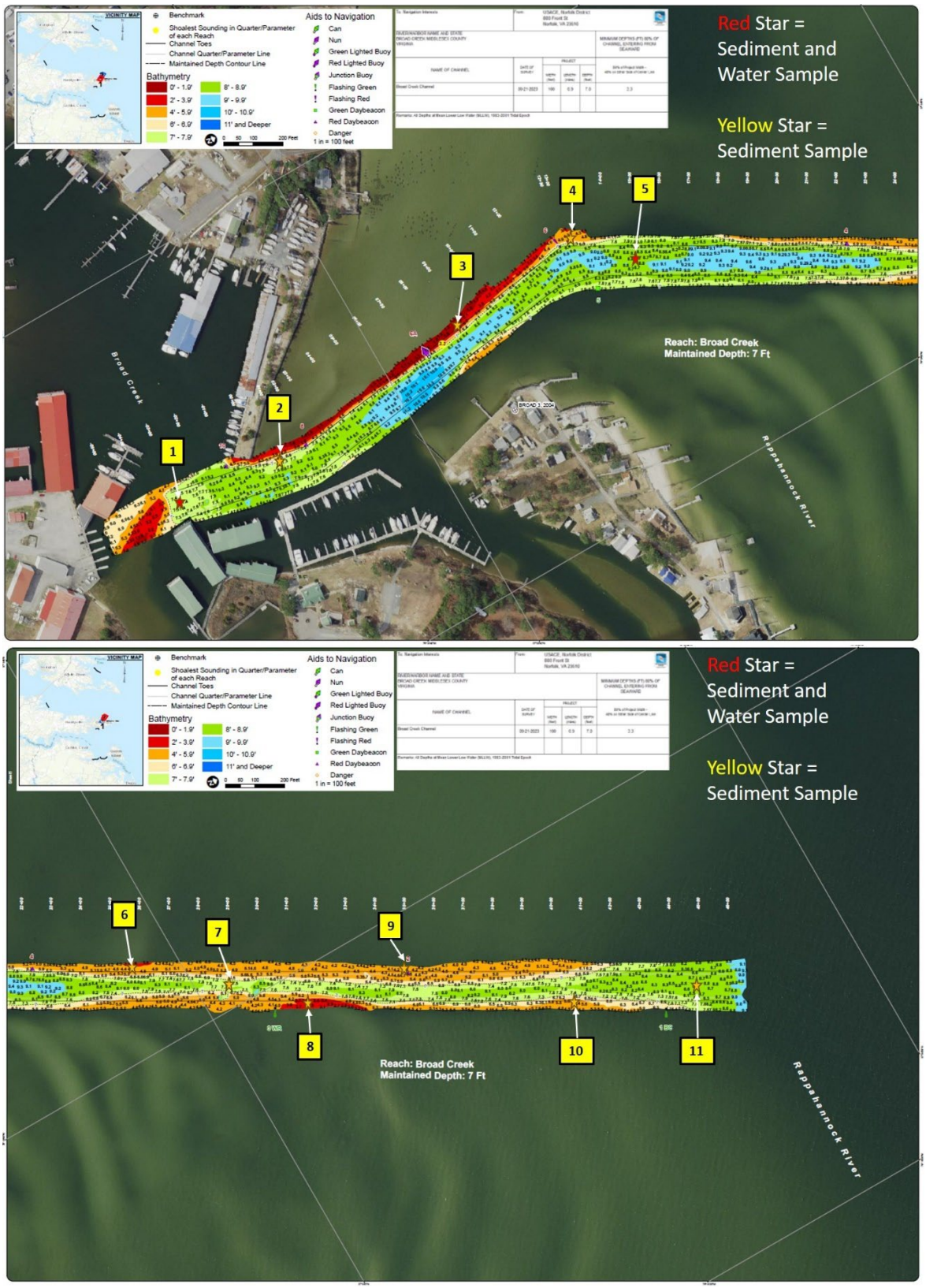


Figure 2. Broad Creek Federal Navigation Channel sediment and water sampling locations (selected April 2024) overlaid on a bathymetric survey map (Survey Date: September 21, 2023) produced by the USACE – Norfolk District, using revised benchmarks (updated on August 14, 2014).

3.0 Laboratory Results

3.1 General Description

The following sections provide both descriptive summaries and laboratory result summaries of the chemical and geotechnical analyses of sediment and elutriate testing from the Broad Creek Federal Navigation Project (samples collected in April 2024).

3.2 Laboratory Results

The following summaries of laboratory results provide a description of the contaminant concentrations in the sediment and elutriate samples and the general distribution of the contaminants throughout the Broad Creek Federal Navigation Project (samples collected in April 2024).

3.2.1 Sediment Results

3.2.1.1 Metals

The metals copper and zinc were detected throughout the project sediments at low concentrations generally well below published sediment screening guidelines. The concentration range for detected metals in the sediment samples were as follows:

- Copper was detected at sites 1 through 5, but not at sites 6 through 11.
    - Where detected, copper concentrations ranged from 0.926 mg/kg (Site 4) to 36.1 mg/kg (Site 1). The average of the concentrations was 6.0 mg/kg.
    - For the sites inside of the federal channel, the average copper concentration was 12.4 mg/kg, while outside of the channel, the average was 0.5 mg/kg.
- Zinc was detected at all eleven (11) sample locations.
    - The concentrations ranged from 2.66 mg/kg to 51.7 mg/kg. The average of the concentrations was 15.6 mg/kg.
    - For the sites inside of the federal channel, the average zinc concentration was 29.0 mg/kg, while outside of the channel, the average was 4.4 mg/kg.

3.2.1.2 Total PCBs

Total PCBs were determined by the summation of congeners following Federal guidance in the EPA/USACE “Inland Testing Manual” referencing the NOAA, 1989, Status and Trends. PCB congeners were not detected at any sediment sampling locations.

3.2.1.3 General Chemistry

Total organic carbon (TOC) concentrations were determined at each sample location. The TOC concentrations ranged from 670 mg/kg to 18,000 mg/kg. The average of the concentrations was 5,525 mg/kg. For the sites inside of the federal channel, the average TOC concentration was 10,500 mg/kg, while outside of the channel, the average was 1,378 mg/kg.

The percentage of solids in the samples ranged from 41.4% to 72.2% in the Universal Laboratories (UL) analyses, and 51% to 77% in the Katahdin Analytical Services (KAS)

analyses. Both labs measured higher average percentage of solids outside of the channel (UL: 65.5%; KAS: 74.3%) than inside of the channel (UL: 57.7%; KAS: 61.0%)

3.2.1.4 Geotechnical

Standard sieve and hydrometer analyses were performed to determine grain size distribution at each sample location at Broad Creek. The grain size analyses indicate that the sediments are predominately sand with all but two sample locations (sites 1 and 2) containing at least 90% sand and gravel. Sample location SS-2 exhibited the highest percentage of fine-grained sediments, containing 67% sand and 33% silt and clays. For the sites inside of the federal channel, ~90% of the sediment was sand and gravel (~10% fines), while outside of the channel, 100.0% of the sediment was sand and gravel, with no silt and clays detected.

3.2.2 Elutriate Results

3.2.2.1 Metals

Analyses for the metals copper and zinc were performed in both unfiltered (total concentration) and filtered (dissolved concentration) elutriate samples. Both copper and zinc were detected in the unfiltered elutriate samples. The concentration range for copper and zinc in the unfiltered elutriate samples were as follows:

- Copper was detected in 4 of the 11 unfiltered elutriate samples. Copper concentrations ranged from <0.005 to 2.781 mg/L; the average copper concentration was 0.50 mg/L.
- Zinc was detected in all of the unfiltered elutriate samples. Zinc concentrations ranged from 0.146 to 4.154 mg/L; the average zinc concentration was 0.93 mg/L.

The laboratory affixed a qualifier to each zinc result indicating that this analyte was positively detected above the method detection limit but was below the reporting limit.

Copper was detected in one filtered elutriate sample, but only slightly above the detection limit; the average copper concentration was 0.01 mg/L (same inside the channel as outside of it). However, zinc was detected in all 11 filtered elutriate samples, ranging from 0.104 to 1.156 mg/L, and an average zinc concentration of 0.34 mg/L. For the sites inside of the federal channel, the average zinc concentration was 0.50 mg/L, while outside of the channel, the average was 0.21 mg/L.

3.2.2.2 Total PCBs

Total PCB was determined by the summation of congeners following Federal guidance in the EPA/USACE “Inland Testing Manual” referencing NOAA, 1998, Status and Trends.

- PCB Congeners were not detected in any of the unfiltered or filtered elutriate samples at inside or outside of the federal navigation channel.

3.2.3 Site Water Results

Laboratory results show that there were no detectable levels of PCB congeners or the metals copper (0.013 mg/L) and zinc (0.012 mg/L) in the surface water at the Broad Creek

project site. General chemistry results for the two aqueous grabs (sites 1 and 5) were an average total organic carbon of 3.5 mg/L and average total suspended solids of 11.7 mg/L.

Table 2. Sediment results for the Broad Creek Federal Navigation Channel (April 2024).

Target Compound	CAS Number	Units	MDL	RL	24-BC-SS-1	24-BC-SS-2	24-BC-SS-3	24-BC-SS-4	24-BC-SS-5	24-BC-SS-6	24-BC-SS-7	24-BC-SS-8	24-BC-SS-9	24-BC-SS-10	24-BC-SS-11	24-BC-SS-10FD
Penetration Depth (in ft) of Sediment Core Sample					3	3	5	4	2	4	3	4	4	4	2	4
Metals by ICP (SW-846 Method: EPA 6010C)																
Copper	7440-50-8	mg/kg		0.5	36.1	22.6	2.25	0.926	3.52	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	7440-66-6	mg/kg		2	51.7	41.2	5.04	5.51	44.4	4.46	3.99	2.66	4.45	4.46	3.47	8.04
Polychlorinated Biphenyls (SW-846 Method: 8082A)																
PCB 8 (2,4'-Dichlorobiphenyl)	34883-43-7	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 18 (2,2',5-Trichlorobiphenyl)	37680-65-2	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 28 (2,4,4'-Trichlorobiphenyl)	7012-37-5	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 52 (2,2',5,5'-Tetrachlorobiphenyl)	35693-99-3	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 49 (2,2',4,5'-Tetrachlorobiphenyl)	41464-40-8	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 44 (2,2',3,5'-Tetrachlorobiphenyl)	41464-39-5	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 66 (2,3'4,4'-Tetrachlorobiphenyl)	32598-10-0	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 101 (2,2',4,5,5'-Pentachlorobiphenyl)	37680-73-2	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 87 (2,2',3,4,5'-Pentachlorobiphenyl)	38380-02-8	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 81 (3,4,4',5-Tetrachlorobiphenyl)	70362-50-4	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 77 (3,3',4,4'-Tetrachlorobiphenyl)	32598-13-3	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 123 (2',3,4,4',5-Pentachlorobiphenyl)	65510-44-3	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 118 (2,3',4,4',5-Pentachlorobiphenyl)	31508-00-6	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 114 (2,3,4,4',5-Pentachlorobiphenyl)	74472-37-0	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 184 (2,2',3,4,4',6,6'-Heptachlorobiphenyl)	74472-48-3	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 153 (2,2',4,4',5,5'-Hexachlorobiphenyl)	35065-27-1	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 105 (2,3,3',4,4'-Pentachlorobiphenyl)	32598-14-4	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 138 (2,2',3,4,4',5'-Hexachlorobiphenyl)	35065-28-2	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 187 (2,2',3,4',5,5',6-Heptachlorobiphenyl)	52663-68-0	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 183 (2,2',3,4,4',5',6-Heptachlorobiphenyl)	52663-69-1	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 126 (3,3',4,4',5-Pentachlorobiphenyl)	57465-28-8	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 128 (2',3,3',4,4'-Hexachlorobiphenyl)	38380-07-3	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 167 (2,3',4,4',5,5'-Hexachlorobiphenyl)	52663-72-6	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 156 (2,3,3',4,4',5-Hexachlorobiphenyl)	38380-08-4	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 157 (2,3,3',4,4',5'-Hexachlorobiphenyl)	69782-90-7	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 180 (2,2',3,4,4',5,5'-Heptachlorobiphenyl)	35065-29-3	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 170 (2,2',3,3',4,4',5-Heptachlorobiphenyl)	35065-30-6	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 169 (3,3',4,4',5,5'-Hexachlorobiphenyl)	32774-16-6	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 189 (2,3,3',4,4',5,5'-Heptachlorobiphenyl)	39635-31-9	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 195 (2,2',3,3',4,4',5,6-Octachlorobiphenyl)	52663-78-2	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 206 (2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl)	40186-72-9	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 209 (2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl)	2051-24-3	µg/kg DW			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total PCBs	1336-36-3	µg/kg DW														
Total Suspended Solids - TSS (SM2540G (2011)) - TSS (SM 3540C) run by KAS		%		0.1	55.8	57.8	68.7	62.5	41.4	72.2	63.5	68.0	65.6	55.8	70.1	61.8
Total Organic Carbon - TOC (Method: Lloyd Kahn) -Method: SM5310B (for Aqueous Analysis)		µg/g DW			16000	18000	1300	1400	15000	1300	1600	670	2100	1500	1900	1300
Water Content (ASTM D2216)		%			49.166	46.020	25.508	26.883	45.006	22.605	26.848	24.555	25.754	27.100	27.651	27.344
Specific Gravity (ASTM D5057-90)				0.1	1.453	1.418	1.868	1.823	1.322	1.945	1.886	1.926	1.833	1.877	1.865	1.847
Particle Size (ASTM D422)																
%Gravel					1.08	4.33	0.25	0.30	36.66	0.00	0.00	1.27	0.30	0.09	0.19	0.22
%Sand					86.71	62.65	99.75	99.71	57.35	100.00	99.99	98.73	99.69	99.90	99.81	97.65
%Silt, Clay, Colloids					12.21	33.03	0.00	0.00	5.99	0.00	0.00	0.00	0.00	0.00	0.00	2.12

RL - Reporting Limit
MDL - Method Detection Limit
Cells in Yellow indicate sites that do not meet VMRC's requirements regarding shoreline placement for material containing less than 10 percent fines
Note: Total PCBs to be determined by summation of the listed congeners following the approach in the ITM, (EPA, 1998)

Table 3. Site water and elutriate results for the Broad Creek Federal Navigation Channel (April 2024).

			VA WATER QUALITY STANDARDS												
Target Compound	CAS Number	Units	VA Aquatic Life Saltwater Acute	VA Aquatic Life Saltwater Chronic	All Other Surface Waters	MDL	RL	24-BC-SW-1	24-BC-EL-1	24-BC-EL-1(F)	24-BC-EL-2	24-BC-EL-2(F)	24-BC-EL-3	24-BC-EL-3(F)
Metals by ICP (SW-846 Method: EPA 6010C)														
Copper	7440-50-8	µg/L	9.3	6			0.5	0.014	2.781	0.011	2.300	0.010	0.075	0.020
Zinc	7440-66-6	µg/L	90	81	69,000		2	0.015	4.154	1.156	3.166	0.595	0.146	0.432
Polychlorinated Biphenyls (SW-846 Method: 8082A)														
PCB 8 (2,4'-Dichlorobiphenyl)	34883-43-7	µg/kg DW				0.042	0.093	ND	ND	ND	ND	ND	ND	ND
PCB 18 (2,2',5-Trichlorobiphenyl)	37680-65-2	µg/kg DW				0.017	0.093	ND	ND	ND	ND	ND	ND	ND
PCB 28 (2,4,4'-Trichlorobiphenyl)	7012-37-5	µg/kg DW				0.026	0.093	ND	ND	ND	ND	ND	ND	ND
PCB 52 (2,2',5,5'-Tetrachlorobiphenyl)	35693-99-3	µg/kg DW				0.0025	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 49 (2,2',4,5'-Tetrachlorobiphenyl)	41464-40-8	µg/kg DW				0.0065	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 44 (2,2',3,5'-Tetrachlorobiphenyl)	41464-39-5	µg/kg DW				0.0061	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 66 (2,3'4,4'-Tetrachlorobiphenyl)	32598-10-0	µg/kg DW				0.0033	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 101 (2,2',4,5,5'-Pentachlorobiphenyl)	37680-73-2	µg/kg DW				0.0076	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 87 (2,2',3,4,5'-Pentachlorobiphenyl)	38380-02-8	µg/kg DW				0.0081	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 81 (3,4,4',5-Tetrachlorobiphenyl)	70362-50-4	µg/kg DW				0.0039	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 77 (3,3',4,4'-Tetrachlorobiphenyl)	32598-13-3	µg/kg DW				0.003	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 123 (2',3,4,4',5-Pentachlorobiphenyl)	65510-44-3	µg/kg DW				0.009	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 118 (2,3',4,4',5-Pentachlorobiphenyl)	31508-00-6	µg/kg DW				0.0022	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 114 (2,3,4,4',5-Pentachlorobiphenyl)	74472-37-0	µg/kg DW				0.0015	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 184 (2,2',3,4,4',6,6'-Heptachlorobiphenyl)	74472-48-3	µg/kg DW				0.0075	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 153 (2,2',4,4',5,5'-Hexachlorobiphenyl)	35065-27-1	µg/kg DW				0.0012	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 105 (2,3,3',4,4'-Pentachlorobiphenyl)	32598-14-4	µg/kg DW				0.0028	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 138 (2,2',3,4,4',5'-Hexachlorobiphenyl)	35065-28-2	µg/kg DW				0.0022	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 187 (2,2',3,4',5,5',6-Heptachlorobiphenyl)	52663-68-0	µg/kg DW				0.0069	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 183 (2,2',3,4,4',5',6-Heptachlorobiphenyl)	52663-69-1	µg/kg DW				0.0089	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 126 (3,3',4,4',5-Pentachlorobiphenyl)	57465-28-8	µg/kg DW				0.015	0.093	ND	ND	ND	ND	ND	ND	ND
PCB 128 (2',3,3',4,4'-Hexachlorobiphenyl)	38380-07-3	µg/kg DW				0.0052	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 167 (2,3',4,4',5,5'-Hexachlorobiphenyl)	52663-72-6	µg/kg DW				0.0045	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 156 (2,3,3',4,4',5-Hexachlorobiphenyl)	38380-08-4	µg/kg DW				0.0012	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 157 (2,3,3',4,4',5'-Hexachlorobiphenyl)	69782-90-7	µg/kg DW				0.0029	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 180 (2,2',3,4,4',5,5'-Heptachlorobiphenyl)	35065-29-3	µg/kg DW				0.0045	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 170 (2,2',3,3',4,4',5-Heptachlorobiphenyl)	35065-30-6	µg/kg DW				0.002	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 169 (3,3',4,4',5,5'-Hexachlorobiphenyl)	32774-16-6	µg/kg DW				0.0066	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 189 (2,3,3',4,4',5,5'-Heptachlorobiphenyl)	39635-31-9	µg/kg DW				0.012	0.093	ND	ND	ND	ND	ND	ND	ND
PCB 195 (2,2',3,3',4,4',5,6-Octachlorobiphenyl)	52663-78-2	µg/kg DW				0.0094	0.093	ND	ND	ND	ND	ND	ND	ND
PCB 206 (2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl)	40186-72-9	µg/kg DW				0.0022	0.019	ND	ND	ND	ND	ND	ND	ND
PCB 209 (2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl)	2051-24-3	µg/kg DW				0.0023	0.019	ND	ND	ND	ND	ND	ND	ND
Total PCBs	1336-36-3	µg/kg DW			0.0017									
Total Organic Carbon - TOC (Method: SM5310B)		µg/g DW				0.35	1	3.6	17		19		7.9	
Total Suspended Solids - TSS (SM 2540G (2011))		%					0.1	9.5	37060		32900		3360	

RL - Reporting Limit
MDL - Method Detection Limit
Note: Total PCBs to be determined by summation of the listed congeners following the approach in the ITM, (EPA, 1998)

			VA WATER QUALITY STANDARDS												
Target Compound	CAS Number	Units	VA Aquatic Life Saltwater Acute	VA Aquatic Life Saltwater Chronic	All Other Surface Waters	MDL	RL	24-BC-EL-4	24-BC-EL-4(F)	24-BC-SW-5	24-BC-EL-5	24-BC-EL-5(F)	24-BC-EL-6	24-BC-EL-6(F)	24-BC-EL-7	24-BC-EL-7(F)
Metals by ICP (SW-846 Method: EPA 6010C)																
Copper	7440-50-8	µg/L	9.3	6			0.5	0.099	0.010	0.012	0.180	0.010	<0.005	0.012	<0.005	0.010
Zinc	7440-66-6	µg/L	90	81	69,000		2	0.559	0.220	0.009	1.801	0.747	0.687	0.676	0.354	0.211
Polychlorinated Biphenyls (SW-846 Method: 8082A)																
PCB 8 (2,4'-Dichlorobiphenyl)	34883-43-7	µg/kg DW				0.042	0.093	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 18 (2,2',5-Trichlorobiphenyl)	37680-65-2	µg/kg DW				0.017	0.093	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 28 (2,4,4'-Trichlorobiphenyl)	7012-37-5	µg/kg DW				0.026	0.093	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 52 (2,2',5,5'-Tetrachlorobiphenyl)	35693-99-3	µg/kg DW				0.0025	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 49 (2,2',4,5'-Tetrachlorobiphenyl)	41464-40-8	µg/kg DW				0.0065	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 44 (2,2',3,5'-Tetrachlorobiphenyl)	41464-39-5	µg/kg DW				0.0061	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 66 (2,3'4,4'-Tetrachlorobiphenyl)	32598-10-0	µg/kg DW				0.0033	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 101 (2,2',4,5,5'-Pentachlorobiphenyl)	37680-73-2	µg/kg DW				0.0076	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 87 (2,2',3,4,5'-Pentachlorobiphenyl)	38380-02-8	µg/kg DW				0.0081	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 81 (3,4,4',5-Tetrachlorobiphenyl)	70362-50-4	µg/kg DW				0.0039	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 77 (3,3',4,4'-Tetrachlorobiphenyl)	32598-13-3	µg/kg DW				0.003	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 123 (2',3,4,4',5-Pentachlorobiphenyl)	65510-44-3	µg/kg DW				0.009	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 118 (2,3',4,4',5-Pentachlorobiphenyl)	31508-00-6	µg/kg DW				0.0022	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 114 (2,3,4,4',5-Pentachlorobiphenyl)	74472-37-0	µg/kg DW				0.0015	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 184 (2,2',3,4,4',6,6'-Heptachlorobiphenyl)	74472-48-3	µg/kg DW				0.0075	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 153 (2,2',4,4',5,5'-Hexachlorobiphenyl)	35065-27-1	µg/kg DW				0.0012	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 105 (2,3,3',4,4'-Pentachlorobiphenyl)	32598-14-4	µg/kg DW				0.0028	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 138 (2,2',3,4,4',5'-Hexachlorobiphenyl)	35065-28-2	µg/kg DW				0.0022	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 187 (2,2',3,4',5,5',6-Heptachlorobiphenyl)	52663-68-0	µg/kg DW				0.0069	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 183 (2,2',3,4,4',5',6-Heptachlorobiphenyl)	52663-69-1	µg/kg DW				0.0089	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 126 (3,3',4,4',5-Pentachlorobiphenyl)	57465-28-8	µg/kg DW				0.015	0.093	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 128 (2',3,3',4,4'-Hexachlorobiphenyl)	38380-07-3	µg/kg DW				0.0052	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 167 (2,3',4,4',5,5'-Hexachlorobiphenyl)	52663-72-6	µg/kg DW				0.0045	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 156 (2,3,3',4,4',5-Hexachlorobiphenyl)	38380-08-4	µg/kg DW				0.0012	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 157 (2,3,3',4,4',5'-Hexachlorobiphenyl)	69782-90-7	µg/kg DW				0.0029	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 180 (2,2',3,4,4',5,5'-Heptachlorobiphenyl)	35065-29-3	µg/kg DW				0.0045	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 170 (2,2',3,3',4,4',5-Heptachlorobiphenyl)	35065-30-6	µg/kg DW				0.002	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 169 (3,3',4,4',5,5'-Hexachlorobiphenyl)	32774-16-6	µg/kg DW				0.0066	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 189 (2,3,3',4,4',5,5'-Heptachlorobiphenyl)	39635-31-9	µg/kg DW				0.012	0.093	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 195 (2,2',3,3',4,4',5,6-Octachlorobiphenyl)	52663-78-2	µg/kg DW				0.0094	0.093	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 206 (2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl)	40186-72-9	µg/kg DW				0.0022	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB 209 (2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl)	2051-24-3	µg/kg DW				0.0023	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total PCBs	1336-36-3	µg/kg DW			0.0017											
Total Organic Carbon - TOC (Method: SM5310B)		µg/g DW				0.35	1	9.6		3.4	11		7.4		5.7	
Total Suspended Solids - TSS (SM 2540G (2011))		%					0.1	4860		13.8	38660		21700		6520	

RL - Reporting Limit
MDL - Method Detection Limit
Note: Total PCBs to be determined by summation of the listed congeners following the approach in the ITM, (EPA, 1998)

Table 3 continued.

Target Compound	CAS Number	Units	VA WATER QUALITY STANDARDS: VA Aquatic Life Saltwater Acute	VA Aquatic Life Saltwater Chronic	All Other Surface Waters	MDL	RL	24-BC-EL-8	24-BC-EL-8(F)	24-BC-EL-9	24-BC-EL-9(F)	24-BC-EL-10	24-BC-EL-10(F)	24-BC-EL-11	24-BC-EL-11(F)	24-BC-EL-10FD	24-BC-EL-10FD(F)	24-BC-EL-EB(F)
Metals by ICP (SW-846 Method: EPA 6010C)																		
Copper	7440-50-8	µg/L	9.3	6			0.5	0.014	0.010	<0.005	0.010	0.026	0.010	<0.005	0.011	0.017	0.011	0.014
Zinc	7440-66-6	µg/L	90	81	69,000		2	0.175	0.228	0.287	0.217	0.268	0.353	0.342	0.378	0.241	0.270	0.104
Polychlorinated Biphenyls (SW-846 Method: 8082A)																		
PCB 8 (2,4'-Dichlorobiphenyl)	34883-43-7	µg/kg DW				0.042	0.093	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 18 (2,2',5-Trichlorobiphenyl)	37680-65-2	µg/kg DW				0.017	0.093	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 28 (2,4,4'-Trichlorobiphenyl)	7012-37-5	µg/kg DW				0.026	0.093	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 52 (2,2',5,5'-Tetrachlorobiphenyl)	35693-99-3	µg/kg DW				0.0025	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 49 (2,2',4,5'-Tetrachlorobiphenyl)	41464-40-8	µg/kg DW				0.0065	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 44 (2,2',3,5'-Tetrachlorobiphenyl)	41464-39-5	µg/kg DW				0.0061	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 66 (2,3',4,4'-Tetrachlorobiphenyl)	32598-10-0	µg/kg DW				0.0033	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 101 (2,2',4,5,5'-Pentachlorobiphenyl)	37680-73-2	µg/kg DW				0.0076	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 87 (2,2',3,4,5'-Pentachlorobiphenyl)	38380-02-8	µg/kg DW				0.0081	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 81 (3,4,4',5-Tetrachlorobiphenyl)	70362-50-4	µg/kg DW				0.0039	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 77 (3,3',4,4'-Tetrachlorobiphenyl)	32598-13-3	µg/kg DW				0.003	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 123 (2',3,4,4',5-Pentachlorobiphenyl)	65510-44-3	µg/kg DW				0.009	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 118 (2,3',4,4',5-Pentachlorobiphenyl)	31508-00-6	µg/kg DW				0.0022	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 114 (2,3,4,4',5-Pentachlorobiphenyl)	74472-37-0	µg/kg DW				0.0015	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 184 (2,2',3,4,4',6,6'-Heptachlorobiphenyl)	74472-48-3	µg/kg DW				0.0075	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 153 (2,2',4,4',5,5'-Hexachlorobiphenyl)	35065-27-1	µg/kg DW				0.0012	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 105 (2,3,3',4,4'-Pentachlorobiphenyl)	32598-14-4	µg/kg DW				0.0028	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 138 (2,2',3,4,4',5'-Hexachlorobiphenyl)	35065-28-2	µg/kg DW				0.0022	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 187 (2,2',3,4',5,5',6-Heptachlorobiphenyl)	52663-68-0	µg/kg DW				0.0069	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 183 (2,2',3,4,4',5',6-Heptachlorobiphenyl)	52663-69-1	µg/kg DW				0.0089	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 126 (3,3',4,4',5-Pentachlorobiphenyl)	57465-28-8	µg/kg DW				0.015	0.093	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 128 (2',3,3',4,4'-Hexachlorobiphenyl)	38380-07-3	µg/kg DW				0.0052	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 167 (2,3',4,4',5,5'-Hexachlorobiphenyl)	52663-72-6	µg/kg DW				0.0045	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 156 (2,3,3',4,4',5-Hexachlorobiphenyl)	38380-08-4	µg/kg DW				0.0012	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 157 (2,3,3',4,4',5'-Hexachlorobiphenyl)	69782-90-7	µg/kg DW				0.0029	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 180 (2,2',3,4,4',5,5'-Heptachlorobiphenyl)	35065-29-3	µg/kg DW				0.0045	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 170 (2,2',3,3',4,4',5-Heptachlorobiphenyl)	35065-30-6	µg/kg DW				0.002	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 169 (3,3',4,4',5,5'-Hexachlorobiphenyl)	32774-16-6	µg/kg DW				0.0066	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 189 (2,3,3',4,4',5,5'-Heptachlorobiphenyl)	39635-31-9	µg/kg DW				0.012	0.093	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 195 (2,2',3,3',4,4',5,6-Octachlorobiphenyl)	52663-78-2	µg/kg DW				0.0094	0.093	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 206 (2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl)	40186-72-9	µg/kg DW				0.0022	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
PCB 209 (2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl)	2051-24-3	µg/kg DW				0.0023	0.019	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Total PCBs	1336-36-3	µg/kg DW			0.0017													
Total Organic Carbon - TOC (Method: SM5310B)		µg/g DW				0.35	1	6.2		7		11		5.4		9.5		
Total Suspended Solids - TSS (SM 2540G (2011))		%					0.1	1560		22660		12440		6020		3560		

RL - Reporting Limit
MDL - Method Detection Limit
Note: Total PCBs to be determined by summation of the listed congeners following the approach in the ITM, (EPA, 1998)

4.0 Discussion

4.1 Overview – Screening Assessments Under Section 404

The USACE conducts Civil Works dredging and dredged material discharge activities in accordance with Section 404 of the Clean Water Act (CWA). Section 404 further requires that discharge sites be specified through the application of the Section 404(b)(1) Guidelines developed by EPA in conjunction with the USACE. Section 404 requires that the guidelines be based upon criteria comparable to the criteria applicable to the territorial seas, contiguous zone, and the ocean". Additionally, Section 401 of the CWA requires that discharges of dredged material into waters of the United States be certified as complying with applicable State water quality standards. The joint EPA and USACE ITM and UTM testing manuals provide procedures applicable to determining the potential for contaminant-related environmental impacts associated with the discharge of dredged material. The ITM and UTM testing procedures are intended to provide sufficient data to make factual determinations under Section 404 of the CWA (USACE 2008).

4.2 Tiered Assessment (Testing)

A tiered approach to testing (I-IV) is used by the EPA and USACE to evaluate the suitability of dredged material for various placement options. The following is a brief description of the tiers in the ITM:

a. The initial tier (Tier I) uses readily available, existing information (including all previous testing).
b. Tier II is concerned solely with sediment and water chemistry.

c. Tier III is concerned with well-defined, nationally-accepted toxicity and bioaccumulation testing procedures.
d. Tier IV allows for case-specific laboratory and field-testing, and is intended for use in unusual circumstances.

Because the procedures in the ITM and UTM are arranged in a series of tiers, or levels of intensity (and cost) of investigation, the tiered testing results in environmental protection in the context of more efficient completion of necessary evaluations and reduced costs, especially to low-risk operations. It is necessary to proceed through the tiers only until information sufficient to make factual determinations has been obtained (USACE 2008).

4.3 Tier 1 – Project Assessment

The first step in the evaluation process is the determination of the need for contaminant evaluations based on the "reason to believe" contaminants of concern (COC) may be present in the dredged material. The decision not to test is based on available information that provides a reasonable assurance that the proposed discharge of dredged material is not a carrier of contaminants. The reason to believe no testing is required is based on the type of dredged material and its potential to be contaminated. No further evaluation is needed if any one of the following criteria is met:

a. The dredged material is excavated from a site far removed from existing and historical sources of contaminants, so as to provide a reasonable assurance that the dredged material does not contain them.
b. The dredged material is composed predominantly of sand, gravel, and/or rock.
c. The dredged material is composed of previously undisturbed geological materials that have not been exposed to modern sources of pollution.

Tier I evaluations utilize readily available, existing information for making factual determinations about testing exclusions, identifying contaminants of concern in dredged material, and to aid in the overall decision-making process. In the Tier I decision sequence; the first possibility is that more information is required to make a factual determination.

4.3.1 Contaminants of Concern

The COC for this sampling event were provided by the VA DEQ in 2007. That year, a sediment sampling point in the upstream reaches of Broad Creek indicated the presence of copper and zinc at or above the Effects Range – Median (ER-M) screening guideline published as part of the National Sediment Quality Survey. Additionally, VA DEQ had found accumulation of PCBs in fish tissues in the Rappahannock River system for which a source has not been identified. And, though there were no PCBs detected in any of the samples taken within the Broad Creek federal navigation channel in October 2007, the VA DEQ indicated in April 2024 that it would favor that the same analytical standards be maintained for this survey – thus, the County, MPPDC, Seaward, and BSC coordinated to maintain the same standards set by the USACE (2008) during the last assessment of water and sediment samples at Broad Creek.

4.3.2 Pathways of Concern

The effluent pathway will be the focus of this investigation to determine if it will meet requirements for Section 401 State Water Quality Certification and to ensure compliance with Section 404 requirements. The effluent pathway involves movement of large masses of water for hydraulically filled sites. Thus, the effluent pathway has the potential to act as a pathway for the migration of contaminants, if present, as a result of dredged material placement operations (USACE 2008).

4.3.3 Tier 1 Decisions

The rationale for decision-making presented in the ITM for the Tier I evaluation will be either:

a. Existing information does not provide a sufficient basis for making factual determinations. In this case, further evaluation in higher tiers is appropriate.
b. Existing information provides a sufficient basis for making factual determinations. In this case, one of the following decisions is reached:
   - The material meets the exclusion criteria.
   - The material does not meet exclusion criteria but information concerning the potential impact of the material is sufficient to make factual determinations.

4.3.4 Tier 1 Conclusions for Broad Creek Channel

Historically, the Broad Creek channel sediments has been comprised of predominantly >90% sands. Additionally, the project location is far removed from industrial sources of anthropogenic contamination. Generally, the project conditions would meet exclusion criteria. However, in 2007, the VA DEQ required testing of the project sediments to demonstrate compliance with State requirements when dredged; the VA DEQ indicated an interest in seeing similar testing done in 2024 as well. Therefore, the Tier I decision was by-passed and the investigation moved directly to Tier II evaluations.

4.4 Tier 2 – Sediment and Water Chemistry

Tier II utilizes sediment and water chemistry as well as conservative screening evaluations and elutriate testing procedures to evaluate the potential for a water column impact and compliance with 40 CFR Section 230.10(b)(1).

4.4.1 Screen Relative to Water Quality Standards (WQS)

This conservative screen is based on the assumption that all of the contaminants in the dredged material are completely released to the water column during the discharge operation. This screen is conservative because, in virtually all cases, most of the contaminants remain within the dredged material. If the screen predicts that all concentrations of all the COC after consideration of mixing are less than the applicable WQS then the dredged material complies with WQS. If the screen predicts that the WQS will be exceeded, the elutriate analysis should be utilized.

Application of the conservative screen relative to WQS at Broad Creek indicates the assumption that a complete release of all COC to the water column would result in WQS being exceeded after consideration of mixing. Therefore, the elutriate analysis approach was employed to make a factual determination of compliance with WQS.

4.4.2 Elutriate Analysis Relative to WQS

The modified elutriate test (MET) conservatively predicts effluent water quality based on laboratory elutriate simulation of the dredged material discharge. The results reflect the predicted concentrations of COC in the effluent discharge from the CDF (i.e. over the weir structure). The appropriate unfiltered or filtered MET results should be compared directly to available numeric water quality standards considering dilution in a mixing zone in the immediate vicinity of the CDF discharge. Water quality standards must be met at the boundary of a state approved mixing zone. Comparisons of predicted concentrations from MET results to water quality standards should consider background concentrations in the receiving water. If the background concentrations exceed the standards, then the dredged material discharge will not comply with water quality standards regardless of dilution in a mixing zone.

As in 2007/2008, the 2024 MET results indicate that the proposed dredged material discharge at Broad Creek will comply with applicable WQS for the COC analyzed. However, in 2024, there were no copper filtered elutriate result exceeding the “Aquatic Life, Saltwater Chronic” criteria (6.0 ug/l) at the end-of-pipe; the highest copper filtered elutriate result was notably below this threshold. The filtered elutriate was evaluated against WQS for metals since it represents the dissolved fraction of the contaminant. The dissolved fraction is fraction of the contaminant that is considered bio-available to aquatic life and exposure to concentrations above the WQS may result in acute impacts.

4.4.3 Tier 2 Decisions

Based on the findings of this report, the available WQS requirements are met. Thus, the potential water column impacts of the proposed dredged material discharge are acceptable.

4.4.4 Tier 2 Conclusions for Broad Creek Channel

Based on the evaluation of elutriate analysis relative to WQS, all available WQS requirements will be met for the proposed Broad Creek Federal Navigation Channel dredged material discharge – as was the case in 2007/2008. Based on the evaluation of dredged material testing results (summarized in this report, with raw data available in the appendices). the Broad Creek Channel project dredged material discharge will comply with 404(b)(1) requirements and meets requirements for state Section 401 certification.

5.0 References

Middle Peninsula Planning District Commission. 2024. REQUEST FOR PROPOSALS #RFP-FY24-BroadCreek: “Dredging of Shoaling at Broad Creek Navigation Channel”. 27 p.

National Oceanic and Atmospheric Administration (NOAA) - 1993. Sampling and Analytical Methods of the National Status and Trends Program, National Benthic Surveillance and Mussel Watch Projects 1984-1992, Vol. IV, NOAA Technical Memorandum, NOS ORCA 71.

Palermo, M.R. 1988. Field Evaluations of the Quality of Effluent from Confined Dredged Material Disposal Areas. Technical Report D-88-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

U.S. Environmental Protection Agency (EPA) – 1995. QA/QC Guidance for Sampling and Analysis of Sediments, Water, and Tissues for Dredged Materials Evaluations. Chemical Evaluations. EPA 823-B-95-001. USEPA, Office of Water, Washington, D.C.

U.S. Environmental Protection Agency (EPA) – 1998. Evaluation of Dredged Material Proposed For Discharge in Waters of the U.S. – Testing Manual, Inland Testing Manual. EPA-823-B-98-004. USEPA, Office of Water, Washington, D.C.

U.S. Environmental Protection Agency (EPA) – 1998. The Incidence and Severity of Sediment Contamination in Surface Waters of the United States: EPA’s Report to Congress. EPA-823-F-98-001. USEPA, Office of Water, Washington, D.C.

U.S. Army Corps of Engineers (USACE) – 2003. Evaluation of Dredged Material Proposed for Disposal at Island, Nearshore, or Upland Confined Disposal Facilities – Testing Manual. ERDC/EL TR-03-1. U.S. Army Engineer Research and Development Center.

U.S. Army Corps of Engineers (USACE) – 2008. Broad Creek Federal Navigation Channel Sediment and Effluent Water Investigation, Middlesex County, Virginia, October 2007. Norfolk, VA 23510. 165 p.

U.S. Army Corps of Engineers (USACE) – 2023. Broad Creek Project Condition Survey, September 21, 2023. Norfolk, VA 23510. 2 p.

Appendices can be found as standalone documents from Universal Labs (42 pages) and Katahdin Analytical Services (634 pages).