



## Environmental Assessment

### **Fairview Beach Riverbank Stabilization Project**

*Fairview Beach, King George County, Virginia*

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# FEMA

## List of Acronyms and Abbreviations

AHAP—Archaeological and Historic Preservation Act of 1974	MHW—Mean High Water
AIRFA—American Indian Religious Freedom Act	MLW—Mean Low Water
APE—Area of Potential Effect	NAAQS—National Ambient Air Quality Standards
BMP—Best Management Practice	NCA—Noise Control Act
CAA—Clean Air Act	NEPA—National Environmental Policy Act
CBLAD—Chesapeake Bay Local Assistance Department	NFIP—National Flood Insurance Program
CEQ—Council on Environmental Quality	NHIS—Natural Heritage Information System
CFR—Code of Federal Regulations	NHPA—National Historic Preservation Act
CO—Carbon monoxide	NMFS—National Marine Fisheries Service
CWA—Clean Water Act	NOAA—National Oceanographic and Atmospheric Administration
CZM—Coastal Zone Management	NOI—Notice of Intent
CZMA—Coastal Zone Management Act	NO <sub>2</sub> —Nitrogen Oxide
dB—Decibels	NPDES—National Pollutant Discharge Elimination System
DCR—Department of Conservation and Recreation	NRCS—Natural Resources Conservation Service
DEQ—Department of Environmental Quality	NRHP—National Register of Historic Places
DGIF—Department of Game and Inland Fisheries	NWI—National Wetlands Inventory
DHR—Department of Historic Resources	O <sub>3</sub> —Ozone
EA—Environmental Assessment	OSHA—Occupational Safety and Health Administration
EFH—Essential Fish Habitat	Pb—Lead
EIS—Environmental Impact Statement	PCBs—Polychlorinated Biphenyls
EO—Executive Order	P.L.—Public Law
EPA—Environmental Protection Agency	PM <sub>10</sub> —Particulate matter
ESA—Endangered Species Act	ROW—Right-of-way
FEMA—Federal Emergency Management Agency	SHPO—State Historical Preservation Office
FIRM—Flood Insurance Rate Map	SO <sub>2</sub> —Sulfur Dioxide
FONSI—Finding of No Significant Impact	Sq ft—square foot
FPPA—Farmland Protection Policy Act	SR—State Route
IBC—International Building Code	Sta—Survey Station
JD—Jurisdictional Determination	THPO—Tribal Historic Preservation Office
MNGP—Hazard Mitigation Grant Program	USACE—United States Army Corps of Engineers

USDA—United States Department of  
Agriculture

USFWS—United States Department of the  
Interior Fish and Wildlife Service

VDEM—Virginia Department of Emergency  
Management

VMRC—Virginia Marine Resources  
Commission

VPDES—Virginia Pollutant Discharge  
Elimination System

WoB—Woodstown fine sandy loam, 2-6%  
slopes

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## SECTION ONE: BACKGROUND

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### 1.1 Project Authority

King George County, in conjunction with Fairview Beach, LLC, a private corporation formed by local residents of Fairview Beach that owns the property in Fairview Beach (separate from the Fairview Beach Residents Association, which does not own the relevant real estate), applied in October 2016 through the Virginia Department of Emergency Management (VDEM) to the Federal Emergency Management Agency (FEMA) for funding under the Hazard Mitigation Grant Program (HMGP) for the stabilization of the bank of the Potomac River along Fairview Drive in Fairview Beach, Virginia. There has been a total of 19 severe weather events since 1954 that resulted in damage to a section of State Road 696 (Fairview Drive) and erosion of the Potomac River shoreline that parallels it along Fairview Drive. In accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500 through 1508), and FEMA regulations for NEPA compliance (44 CFR Part 10), FEMA must fully understand and consider the environmental consequences of actions proposed for federal funding. The purpose of this Environmental Assessment (EA) is to meet FEMA's responsibilities under NEPA to analyze potential environmental impacts and to determine whether to prepare a Finding of No Significant Impact (FONSI) or a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) for the proposed project.

### 1.2 Project Location

The project site is in King George County, Virginia. It is situated in an east-west alignment along the Potomac River shoreline and State Road 696 (Fairview Drive) and is bounded by where Fairview Drive approaches the shoreline (near First Street) to the west and Sixth Street to the east in Fairview Beach. Fairview Beach is an unincorporated community in King George County. The population of Fairview Beach was under 400 persons in the 2010 census, and under 25,000 persons in King George County. A site vicinity map is included in Appendix A.

### 1.3 Purpose and Need

The riverbank stabilization is necessary to protect and prevent the collapse of about 1,260 feet of Fairview Drive (State Route 696); County-owned water supply lines and gravity/force main sewer lines that are present along or under Fairview Drive; and up to 33 private residences in close proximity to Fairview Drive and the Potomac River shoreline. A total of 19 severe weather events since 1954 have resulted in damage to the riverbank. A summary of the most significant events to impact Fairview Beach is detailed below:

***Table 1.3: Fairview Beach Significant Weather Event Historical Summary***

Date of Event	Type of Event
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October 1954	Hurricane Hazel – collapse of embankment caused collapse of Fairview Drive at 6 <sup>th</sup> St, which was never repaired due to cost considerations.
September 2003	Hurricane Isabel – caused collapse of several sections of riverbank. Largest was 18’ wide by 22’ tall by 80’ long
September 2006	Tropical Storm Ernesto – caused 10-15’ of beach erosion
December 2009/ February 2010	Major snow events – snow drifts and ice caused erosion on riverbank between 1 <sup>st</sup> and 5 <sup>th</sup> Streets
June 29, 2012	Storm surge caused 2’ of erosion on riverbank
October 2012	Hurricane Sandy – Storm surge caused additional erosion of riverbank
January 2016	Major snow event – 24-30” of snow with high winds created 4’ drifts and serious erosion in the 2 <sup>nd</sup> St area that moved edge of bank to within 6-7’ of Fairview Drive

The objectives of FEMA’s HMGP are to assist the community in recovering from the damage caused by natural disasters and to mitigate long-term risk to people and property from future disasters. The purpose of the action alternatives presented in this EA are to repair the damage to the severely eroded riverbank. The need for the project is to mitigate against further damage and loss of the riverbank, which would prevent future damage to Fairview Beach Drive, as well as the homes and supporting infrastructure along SR 696 in Fairview Beach.

In accordance with federal laws and FEMA regulations, the EA process for a proposed federal action must include an evaluation of alternatives and a discussion of the potential environmental impacts. This EA was prepared in accordance with FEMA’s regulations as required under NEPA. As part of this NEPA review, the requirements of other environmental laws and executive orders are addressed.

#### **1.4 Existing Facility**

The existing conditions at the riverbank include a “Seament wall” from approximately survey station (Sta) 0+25 to Sta 1+60, a section with asphalt placed at the toe of the slope reportedly to limit further erosion, a section of existing seawall located between Sta 4+40 and 6+40, and areas of severely eroded slopes, some nearly vertical because of sections of the slope sloughing off. Much of the slope is covered in the invasive species, kudzu (*Pueraria montana*). There are three sets of wooden stairs and two sets of concrete stairs to allow access between the beach and Fairview Drive (SR 696). Current use of the area is primarily recreational by the residents of Fairview Beach and others that may visit the area. Photos of the existing conditions and a general site map are included in the Wetland Delineation Report in Appendix B.

## **SECTION TWO: ALTERNATIVE ANALYSIS**

During preliminary design, the no action alternative was considered as well as two options for mitigation, which include: a 255’ seawall and a 1,005’ riprap revetment, and a full-length seawall along the entire eroded shoreline.

## **2.1 Alternative 1 – No Action**

Under the No Action Alternative, no measures would be taken to repair the eroded slopes and there would be no action to protect Fairview Drive, the infrastructure, or the homes in Fairview Beach. No action would be taken to prevent further erosion of the bank along the Potomac River due to wave action and wind.

## **2.2 Alternative 2 – 255' Seawall and 1,005' Riprap Revetment Construction**

The seawall would extend from Sta 0+00 to Sta 2+55, and the revetment would extend from Sta 2+55 to 12+60. Schnabel Engineering developed the design considering that the entire shoreline from First Street through Sixth Street along Fairview Drive would need stabilization, and that the existing breakwaters and groins would remain.

An existing concrete masonry unit wall extends approximately from Sta 0+25 to Sta 1+60. The proposed seawall would be in approximately the same location as the existing masonry wall to minimize earthwork and maintain the functionality of the beach. The remainder of the proposed wall was placed at a location to achieve a minimum 2.5 Horizontal: 1 Vertical slope when grading from the top of the wall back to the existing grade north of Fairview Drive. Sloped riprap revetments would be used to protect the remaining areas of the riverbank within the project limits. Construction would be completed by equipment deemed appropriately sized by the contractor, but excavators, backhoes and dump trucks are anticipated.

Detailed plans are included in Appendix A showing the design of the alternative. Staging areas would be at the discretion of the contractor, but generally adjacent to the construction site and within nearby available parking lots. Existing utilities would remain in place and the slope along the riverbank would be regraded to match the slope at Fairview Drive without disturbing Fairview Drive. Total disturbance would be 1.94 acres.

A wind and wave analysis was performed as part of the Hydraulic Study (September 24, 2018) in order to size the riprap appropriately to withstand wind and wave action along the shoreline. A copy of the analysis is included in Appendix B.

## **2.3 Alternative 3 – Full-Length Seawall**

This alternative considers constructing a seawall along the entire eroded section of bank from First Street to Sixth Street along Fairview Drive. This alternative has been considered due to homeowner request and in an attempt to maintain beach access via stairs over the seawall.

An existing concrete masonry unit wall extends approximately from Sta 0+25 to Sta 1+60. The proposed seawall would replace the existing wall and extend the full length of the area in need of stabilization between First and Sixth Streets (Sta 0+00 to Sta 12+60).

Early conceptual plans include creating a living shoreline to utilize vegetation to assist in the stabilization of the shoreline.

## **2.4 Alternatives Considered and Eliminated from Further Consideration**

Alternative 2 was initially proposed to include 370' of seawall. This was reduced to the proposed 255' of seawall for the final design. Reasons for this design change are outlined in a memo dated October 10, 2018, based on communication with VMRC and King George County. A copy of this memo is included in Appendix B.

Another potential alternative considered was to move the sewer line that is being threatened by the erosion of the riverbank. This alternative was eliminated from further consideration because finding a location and securing right of way for the placement of the infrastructure at a different location would be an undue burden and would take a considerable amount of time. The riverbank needs to be stabilized as soon as possible to prevent further damage. Additionally, Fairview Drive is just beyond the sewer line and is at risk of being damaged as well and there were no viable alternatives to the location of Fairview Drive.

## **SECTION THREE: AFFECTED ENVIRONMENT AND CONSEQUENCES**

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### **Preliminary Screening of Assessment Categories**

The project is not located in a Coastal Barrier Resource area based on the USFWS Coastal Barrier Resources System mapper, so there will be no further discussion of Coastal Barrier Resources.

### **3.1 Physical Environment**

#### **3.1.1 Geology, Seismicity and Soils**

The project location lies within the Coastal Plain Physiographic Province, and within the Upland subprovince, characterized by broad uplands with low slopes and gentle drainage divides. Steep slopes develop where dissected by stream erosion (Elevation 60-250 ft). Based on the Virginia Division of Mineral Resources Geologic Map of Virginia (1993), the project is located on Shirley Formation and Lower Tertiary Deposits. Shirley Formation consists of surficial deposits of riverine terraces and relict baymouth barriers and bay-floor plains inset below depositional surfaces of the Chuckatuck Formation. Lower Tertiary Deposits may include the following formations: Brightseat, Aquia, Marlboro, Nanjemoy, and Piney Point (Pamunkey Group), and Old Church.

Based on the geotechnical investigation performed on July 30 and 31, 2018, the project geology consists of the Paleocene aged Aquia Formation. The Aquia has been divided into the Paspotansa Member (upper member) and the Piscataway Member (lower member). Fill has been placed over the Aquia to grade the road embankment. Along the shoreline, alluvium was encountered, which is likely from the erosion and redepositing of the Aquia.

Seismic activity is negligible because the area is not tectonically active (USGS Seismic Hazards Map). Within Schnabel Engineering's Geotechnical Investigation Report, dated November 9, 2018, Seismic Site Class and Seismic Site Coefficients were evaluated for this project according to the International Building Code (IBC) Section 1615 (2015). The analysis indicates Site Class D for this

location. Therefore, seismic concerns for all the alternatives are relatively low and will not be discussed further in this assessment. A copy of the Geotechnical Investigation Report is included in Appendix B.

The Natural Resources Conservation Service (NRCS) Web Soil Survey of the Stafford and King George Counties Soil Survey (2017) identifies the soils within the entire project area as Woodstown fine sandy loam (WoB), 2 to 6 percent slopes. Woodstown soils are classified as fine-loamy, mixed, active, mesic Aquic Hapludults that are very deep, and moderately well drained. Woodstown soils are considered hydric on marine terraces according to the Virginia hydric soil list.

A geotechnical investigation was conducted on the site on July 30 and 31, 2018. Borings were performed on the top of the slope where approximately two to three inches of topsoil were found before encountering Stratum A of seven to eight feet of fill, likely compacted from the placement of the roadway. A copy of the Geotechnical Investigation Report is included in Appendix B.

The project elevation varies from the elevation of the Potomac River which at this location fluctuates between MLW at EL -0.04 and MHW at EL 1.57, up to Fairview Drive which generally is within EL 18 to EL 25.

Surface drainage generally flows north towards the Potomac River. One stormwater drainage channel originating from a pipe under Fairview Road drains north to the Potomac River. There are drainage holes in the existing seawall.

The Farmland Protection Policy Act (FPPA) (P.L. 97-98, Sec. 1539-1549; 7 U.S.C. 4201, et seq.), which states that federal agencies must “minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses,” was considered in this EA. The NRCS Web Soil Survey identifies that soil classified as WoB is rated as prime farmland (2018). However, the current urban development in the area of the project makes the land unusable for agriculture.

#### ***Alternative 1 – No Action:***

Site drainage at the proposed project location flows to the north, towards the Potomac River. The No Action alternative would not significantly impact current geology or seismicity. Soils would continue to erode along the shoreline, causing sedimentation within the Potomac River. If no project action is taken, there would be no excavation or placement of soils. If no project action is taken, long term effects of erosion and further loss of the existing bank would continue. There would be no FPPA compliance requirements at this site as the site is already developed.

#### ***Alternative 2 – 255’ Seawall 1,005’ and Riprap Revetment (Proposed Action):***

The installation of a proposed seawall and riprap revetment would involve the re-grading of the existing slopes to a 2.5 horizontal: 1 vertical slope. Minimal excavation would be necessary to reform some of the existing ground surface, but since most areas are currently steeper than that because of erosion, most of the slope would need to be replaced. To achieve designed slope

geometry, the project would require the placement of earthfill (from an upland source), woven geotextile fabric, Class I riprap, #57 bedding stone, and #3 bedding stone.

The following points relate to Alternative 2:

- The proposed project would have no short-term or long-term effects to geology or seismicity.
- Upon project completion, surface soils may be different than existing soil types since earth fill would need to be transported to the site to achieve the desired slope geometry.
- Earth fill to be placed on the site would be trucked in as needed rather than stored onsite. The source of the material for the earth fill has not yet been established; therefore, it is uncertain what soil type would be used. However, the soil will be from an offsite source to be determined. The existing native soil will be effectively buried and therefore protected by the new earth fill brought on to the site.
- Fill materials should not contain particles larger than 3 inches.
- Due to the presence of perched water at the site, the backfill materials for walls should be free-draining backfill.
- Compacted structural fill should be placed in maximum 8-inch thick horizontal, loose lifts. Fill should be compacted to at least 95 percent of the maximum dry density per ASTM D698 (Standard Proctor). Soil moisture contents at the time of compaction should be within 3 percent of the soils' optimum moisture content.
- Erosion and sedimentation control best management practices (BMPs) would be utilized during construction to prevent sediment from entering the Potomac River. Silt fence would be installed around the perimeter of the project.
- Following construction, exposed soils would be revegetated with vegetation suitable for shoreline applications in order to withstand wind and wave action.
- There would be no FPPA compliance requirements at this site as the site is already developed.

### ***Alternative 3 – Full-Length Seawall:***

The installation of a full-length seawall along the 1,260 feet of eroded shoreline would involve the excavation of an area beyond STA 2+25 approximately 1.5 ft below existing grade to EL -0.5, to create a bench at the toe of the seawall to support it. The bench would extend 10-ft horizontally, then slope 2.5:1 with earth fill to meet existing grade. In order to withstand scour, the bench would need to be constructed out of riprap or similar material, which would result in the loss of any beach.

The following points relate to Alternative 3:

- This alternative would have no short-term or long-term effects to geology or seismicity.
- Upon project completion, surface soils may be different than existing soil types since earth fill would need to be transported to the site to achieve the desired slope geometry and to backfill the seawall.

- Earth fill to be placed on the site would be trucked in as needed rather than stored onsite. The source of the material for the earth fill has not yet been established; therefore, it is uncertain what soil type would be used. However, there would be no effect on the existing native soil.
- Fill materials should not contain particles larger than 3 inches.
- Due to the presence of perched water at the site, the backfill materials for walls should be free-draining backfill.
- Compacted structural fill should be placed in maximum 8-inch thick horizontal, loose lifts. Fill should be compacted to at least 95 percent of the maximum dry density per ASTM D698 (Standard Proctor). Soil moisture contents at the time of compaction should be within 3 percent of the soils' optimum moisture content.
- Erosion and sedimentation control BMPs would be utilized during construction to prevent sediment from entering the Potomac River. Silt fence would be installed around the perimeter of the project. Temporary cofferdams would be installed in order to dewater the areas where the footers for the seawall would need to be placed.
- Following construction, exposed soils would be revegetated with vegetation suitable for shoreline applications in order to withstand wind and wave action.
- There would be no FPPA compliance requirements at this site as the site is already developed.

### **3.1.2 Water Resources and Water Quality**

The Clean Water Act (CWA), passed in 1972 and amended in 1977 and 1987, and more specifically Section 404, regulates the discharge of dredged or fill material into waters of the United States, including wetlands.

The project is located within the Chesapeake Bay Preservation Area Resource Protection Area. Schnabel Engineering visited the site on July 27, 2018 to perform a routine wetland delineation to identify waters and wetlands on the project site. One wetland was identified that appears to be a hillside seep near the existing stairs at the end of Fifth Street. Details from the wetland delineation are provided in the Wetland Delineation Report in Appendix B.

Surface drainage generally flows north towards the Potomac River. One stormwater drainage channel originating from a pipe under Fairview Road drains north to the Potomac River. Drainage holes in the existing seawall sections also allow stormwater to drain through to the Potomac.

The project site is located within the Northern Atlantic Coastal Plain aquifer system. According to the US Environmental Protection Agency's (EPA) *How's My Waterway* website, the Potomac River was assessed in 2002 and is listed as polluted with pollution categories of excess sediment, nitrogen and phosphorus, and Polychlorinated Biphenyls (PCBs). The Potomac River in the vicinity of Fairview Beach is impaired with respect to bacteria levels to approximately 25-feet seaward of mean low water. The source of impairment is listed as storm runoff, shoreline beach erosion, resuspension of sediments in rough or choppy seas and possibly groundwater contamination.

***Alternative 1 – No Action:***

Under the No Action Alternative, the shoreline along the Potomac River would continue to erode, which would have an impact on the shoreline itself, as well as an increase in sediment entering the river. If the shoreline continues to erode, the existing storm drainage features may also be impacted. This alternative would result in increased sedimentation in the Potomac River. A long-term potential effect to water resources of this alternative would be the exposure and potential failure of the sewer lines along Fairview Drive. If the sanitary sewer lines were damaged, raw sewage would enter directly into the Potomac River.

***Alternative 2 – 1,005' Riprap Revetment and 255' Seawall (Proposed Action):***

If the 255' seawall and 1,005' riprap revetment were constructed, there may be short-term and long-term effects on water resources. A preliminary Jurisdictional Determination (JD) issued by the USACE on December 4, 2018 (included in Appendix C) confirms the presence of one emergent wetland on the project site (393 sq ft) and one channel (120 lf) originating from a stormwater pipe under Fairview Drive. The wetland boundary plan depicting these waters/wetlands is included in the Wetland Delineation Report in Appendix B. The installation of the riprap revetment would involve the placement of fill and subsequent loss of the wetland resource. If the groundwater discharge is the source for the wetland, the design of the revetment would allow for the drainage of the groundwater through the revetment, so no adverse effects to groundwater are anticipated. The construction of the riprap revetment and the seawall would require the placement of fill into 0.68 acres channelward of the shoreline to replace areas lost due to erosion. The placement of fill in 0.68 acres of waters would not result in the total loss of those waters, rather portions of the fill would be below the water line stabilizing the shoreline that was originally there.

The proposed action would qualify for Nationwide Permit 13 – Bank Stabilization utilizing the Tidewater Joint Permit Application for Projects Involving Tidal Waters, Tidal Wetlands and/or Dunes and Beaches in Virginia. Since the length of the stabilization exceeds 500 feet, a Pre-Construction Notification would be required and the district engineer of USACE would need to determine that the discharge would result in no more than minimal adverse environmental effects. The permitting process through USACE and Virginia Department of Environmental Quality (DEQ), including Water Quality Certification would be finalized upon completion of the EA, prior to the start of work. The proposed alternative has been authorized by the Virginia Marine Resources Commission (VMRC) through permit #2018-2014 (Appendix C). The proposed alternative has also been reviewed and approved by the Local Wetlands Board on February 28, 2019, and a Virginia Pollutant Discharge Elimination System (VPDES) general permit VAR-10 was issued.

Short-term effects to surface water resources include increased turbidity and sedimentation during construction. The contractor would utilize erosion and sedimentation control BMPs to minimize these effects including installation of silt fence to prevent sediment from moving offsite, staging within existing parking lots, and other measures shown on the erosion and control plans in Appendix A.

Long-term, positive effects would be expected for surface water resources because the shoreline would be stabilized to prevent the further erosion of the bank into the river. Following construction, all disturbed areas would be replanted with vegetation suitable to withstand wind/wave action along the riverbank.

A hydraulic analysis was performed to design the seawall and the revetment in order to withstand the wind and wave action along the Potomac River. A copy of the Hydraulic Analysis is included in Appendix B.

Stormwater drainage on the site would be accomplished through a system of inlets and piping tied into existing stormwater drains from Fairview Beach that would outlet at adequately stabilized drainage outlets onto the new riprap revetment.

### ***Alternative 3 – Full-Length Seawall:***

If a full-length seawall were constructed, there may be short-term and long-term effects on water resources.

A preliminary Jurisdictional Determination (JD) issued by the USACE on December 4, 2018 (included in Appendix C) confirms the presence of one emergent wetland on the project site (393 sq ft) and one channel (120 lf) originating from a stormwater pipe under Fairview Drive. The wetland boundary plan depicting these waters/wetlands is included in the Wetland Delineation Report in Appendix B. The installation of a seawall would involve the placement of fill and subsequent loss of the wetland resource. If groundwater discharge is the source for the wetland, the design of the seawall would allow for the drainage of the groundwater through the wall, so no adverse effects to groundwater are anticipated.

The proposed action would qualify for Nationwide Permit 13 – Bank Stabilization utilizing the Tidewater Joint Permit Application for Projects Involving Tidal Waters, Tidal Wetlands and/or Dunes and Beaches in Virginia. The length of the stabilization exceeds 500 feet, so a Pre-Construction Notification would be required and the district engineer of USACE would need to determine that the discharge would result in no more than minimal adverse environmental effects. In order to be able to withstand scour, the seawall construction would require the construction of a riprap or similar material bench. The required dimensions of the bench would have roughly the same footprint in the river as the revetment of Alternative 2. Therefore, the impacts to the Potomac River would be the same as Alternative 2 (0.68 acres of water impact). A Virginia Pollutant Discharge Elimination System (VPDES) general permit VAR-10 would be required for this alternative.

Short-term effects to surface water resources would include increased turbidity and sedimentation during construction. The contractor would utilize erosion and sedimentation control best management practices to minimize these effects including installation of silt fence to prevent sediment from moving offsite, installation of cofferdams around the seawall construction area, staging within existing parking lots, and other measures.

Long-term effects to surface water resources would be positive because the shoreline would be stabilized and prevent the further erosion of the bank into the river. Following construction, all disturbed areas would be replanted with vegetation suitable to withstand wind/wave action along the riverbank.

A hydraulic analysis was performed so alternatives would be able to withstand the wind and wave action along the Potomac River. A copy of the Hydraulic Analysis is included in Appendix B.

Stormwater drainage on the site would be accomplished through a system of inlets and piping tied into existing stormwater drains from Fairview Beach that would outlet at adequately stabilized drainage outlets through the seawall.

### 3.1.3 Floodplain Management (Executive Order 11988)

Executive Order (EO) 11988 requires federal agencies to take action to minimize occupancy and modification of the floodplain. Specifically, EO 11988 prohibits federal agencies from funding construction in the 100-year floodplain unless there are no practicable alternatives. FEMA's regulations for complying with EO 11988 are promulgated in 44 CFR Part 9. The project site is located along the Potomac River in Fairview Beach, which participates in the National Flood Insurance Program (NFIP). According to the Flood Insurance Rate Map (FIRM) for the project area (Panel 51099C0053D), the project area is entirely within the 100-year flood zone (mapped as zone VE, Coastal Flood zone with velocity hazard (wave action), base flood elevations determined). A copy of the floodplain map is included in Appendix A. The Eight-Step Planning Process for Floodplains and Wetlands is included below:

**Table 3.1.3: Eight-Step Planning Process for Floodplains**

<b>Step 1:</b> Determine whether the Proposed Action is located in a wetlands and/or the 100-year floodplain, or whether it has the potential to affect or be affected by a floodplain or wetland.	<b>Project Analysis:</b> According to FIRM Panel 51099C0053D, the project site is located within the 100-year floodplain.
<b>Step 2:</b> Notify public at earliest possible time of the intent to carry out an action in a floodplain or wetland, and involve the affected and interested public in the decision-making process.	<b>Project Analysis:</b> A public notice was issued through three different newspapers on January 25, 2019 and January 31, 2019 as part of the VMRC permit process. Proof of public notice is included in Appendix D – Public Notice.
<b>Step 3:</b> Identify and evaluate practicable alternatives to locating the Proposed Action in a floodplain or wetland.	<p><b>Project Analysis:</b> The following alternatives were considered in selecting the proposed alternative.</p> <p>No Action Alternative: with no action, the shoreline would continue to erode and would</p>

	<p>pose inevitable damage to the sanitary sewer line, the water lines, and Fairview Drive, with potential eventual damage to the homes along Fairview Drive.</p> <p>Alternative 2: Construct a 255' Seawall and 1,005' riprap revetment (Proposed Action): Under the proposed alternative, the shoreline would be stabilized requiring fill within the floodplain, but the fill would represent sections of bank that were previously intact but have been eroded away.</p> <p>Alternative 3: Construct a full-length seawall: this alternative would involve the construction of a riprap bench to prevent scour of the constructed seawall, which would also require placement of fill within the floodplain, but the fill would represent sections of bank that were previously intact, but have been eroded away.</p> <p>Alternative 2 and 3 include the same approximate area of disturbance within the floodplain (1.94 acres), so the remainder of the 8-step process will address the alternative actions.</p>
<p><b>Step 4:</b> Identify the full range of potential direct or indirect impacts associated with the occupancy or modification of floodplains and wetlands, and the potential direct and indirect support of floodplain and wetland development that could result from the Proposed Action.</p>	<p><b>Project Analysis:</b> The placement of fill within the floodplain is required to stabilize the bank but represents the replacement of material that was originally in place along the shoreline. The material to be placed, (geotextile, earth fill, bedding stone and riprap) would all allow drainage through them to ultimately reach the Potomac River.</p>
<p><b>Step 5:</b> Minimize the potential adverse impacts from work within floodplains and wetlands (identified under Step 4), restore and preserve the natural and beneficial values served by wetlands.</p>	<p><b>Project Analysis:</b> The size of the revetment/seawall was designed to impact the least amount of floodplain and wetlands but maintain the capacity to withstand the wind and wave action along the Potomac so future erosion would be prevented.</p>
<p><b>Step 6:</b> Re-evaluate the Proposed Action to determine: 1) if it is still practicable considering its exposure to flood hazards; 2) the extent to which it will aggravate the</p>	<p><b>Project Analysis:</b> The proposed action remains practicable because it is the alternative that stabilizes the shoreline to prevent damage to infrastructure and homes, while replacing only</p>

hazards to others; 3) its potential to disrupt floodplain and wetland values.	the minimal amount to accomplish that stabilization. By nature of the project, there are no alternatives that would not be within the floodplain.
<b>Step 7:</b> If the agency decides to take an action in a floodplain or wetland, prepare and provide the public with a finding and explanation of any final decision that the floodplain or wetland is the only practicable alternative. The explanation should include any relevant factors considered in the decision-making process.	<b>Project Analysis:</b> Public notice of the Proposed Action Alternative will be provided as a function of this EA, informing the public of a potential FEMA funded action, which would occur within the 100-year flood zone.
<b>Step 8:</b> Review the Proposed Action to ensure that the requirements of the EOs are fully implemented. Oversight responsibility shall be integrated into existing processes.	<b>Project Analysis:</b> This step is integrated into the NEPA process and FEMA project management and oversight functions.

***Alternative 1 – No Action:***

No action would result in the further erosion of the shoreline, which may eventually change/increase the extent of the 100-year flood zone. If no action is taken, the shoreline would continue to erode and would pose inevitable damage to the sewer line, the water lines, and Fairview Drive, with potential eventual damage to the homes along Fairview Drive. Long-term impacts to the floodplain would be the further erosion of the bank, which would potentially cause the 100-year floodplain to encroach further inland.

***Alternative 2 – 255’ Seawall and 1,005’ Riprap Revetment (Proposed Action):***

Under the proposed action alternative, there would be placement of fill within the 100-year floodplain, but this is unavoidable as the entire project lies within the floodplain. The Floodplain Administrator of King George County, Kyle Conboy, was contacted via phone in August 2019. He agreed with the proposed project. The alternative contact for Floodplain Administrator is Heather Hall of King George County, who has been involved throughout this project and is aware of the proposed actions. Short-term effects on the floodplain would be the disturbance of 1.94 acres of the project site and placement of fill within 0.68 acres of water to construct the seawall and the revetment.

***Alternative 3 – Full-Length Seawall:***

Under Alternative 3, there would be placement of fill within the 100-year floodplain, but this is unavoidable as the entire project lies within the floodplain.

The Floodplain Administrator of King George County, Kyle Conboy, was contacted via phone in August 2019. He supported the proposed action and did not have any concerns related to the proposed Action. The alternative contact for Floodplain Administrator is Heather Hall of King George County, who has been involved throughout the duration of this project and she is aware of the potential impacts. Heather expressed the permitting authorities' preference for the revetment design over the full-length seawall design because a riprap revetment would allow movement of animals to/from the river whereas a seawall would impede animal movement.

Short-term effects on the floodplain would be approximately the same as Alternative 2 (Proposed Action), or the disturbance of 1.94 acres of the project site and placement of fill within 0.68 acres of water to construct the required bench and the seawall.

#### **3.1.4 Air Quality**

The Clean Air Act (CAA) requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment; the CAA established two types of national air quality standards; primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly; and secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation and buildings. The EPA has set national ambient air quality standards for six current criteria pollutants including: Carbon Monoxide (CO), Nitrogen Dioxide (NO<sub>2</sub>), Ozone (O<sub>3</sub>), Lead (Pb), Particulate Matter (PM<sub>10</sub>), and Sulfur Dioxide (SO<sub>2</sub>). On behalf of the State Air Pollution Control Board, Virginia Department of Environmental Quality's Air Division is responsible for carrying out the mandates of the Virginia Air Pollution Control Law, as well as meeting Virginia's federal obligations under the CAA. According to the EPA, King George County is an attainment area, defined as an area that meets NAAQS.

##### ***Alternative 1 – No Action:***

Under the No Action Alternative, no impacts to air quality would occur.

##### ***Alternative 2 – 255' Seawall and 1,005' Riprap Revetment (Proposed Action):***

Under the Proposed Action Alternative, minor short-term impacts to air quality may occur during construction. To mitigate fugitive dust, contractors would be required to wet construction areas as necessary. Emissions from fuel-burning construction equipment may temporarily increase levels of CO, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>10</sub> and non-criteria pollutants such as volatile organic compounds. Due to the size of the project and the limited duration of construction activities, no air quality permits through DEQ are anticipated.

##### ***Alternative 3 – Full-Length Seawall:***

Under Alternative 3, minor short-term impacts to air quality may occur during construction. To mitigate fugitive dust, contractors would be required to wet construction areas as necessary. Emissions from fuel-burning construction equipment may temporarily increase levels of CO, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>10</sub> and non-criteria pollutants such as volatile organic compounds. Due to the size of the

project and the limited duration of construction activities, no air quality permits through DEQ are anticipated.

### **3.1.5 Coastal Zone Management**

The Coastal Zone Management Act (CZMA, 16 U.S.C. § 1451 et seq.) provides for the management of the nation's coastal resources. The Virginia Coastal Zone Management (CZM) Program is a network of state agencies and local governments, which administers enforceable laws, regulations and policies that protect coastal resources and foster sustainable development. DEQ serves as the lead agency for Virginia's networked program. The project site is located within Virginia's Coastal zone. According to the VDEQ Federal Consistency Manual, FEMA assistance activities do not require a federal consistency determination.

## **3.2 Biological Environment**

### **3.2.1 Terrestrial and Aquatic Environment**

The project area is an approximately 100' wide section of shoreline between Fairview Drive's First and Sixth Streets in Fairview Beach. The existing conditions at the riverbank include a 'Seament wall' from approximately Sta 0+25 to Sta 1+60, a section with asphalt placed at the toe of the slope reportedly to limit further erosion, a section of existing seawall located between Sta 4+40 and Sta 6+40, and areas of severely eroded slopes, some nearly vertical because of sections of the slope sloughing off. Much of the slope is covered in the invasive species, kudzu. There are three sets of wooden stairs and two sets of concrete stairs to allow access between the beach and Fairview Drive (SR 696). Current use of the area is primarily recreational by the residents of Fairview Beach and others that may visit the area.

Plant communities that exist on the property include kudzu-dominated steep slopes, a small wetland (393 sq. ft in size) dominated by emergent wetland/facultative wetland and invasive species, and the top of the slope is maintained grass on the shoulder of Fairview Drive. The project is not within a Virginia Natural Area Preserve and due to the degree of development at the site, the terrestrial environment has limited value for plant and wildlife species.

On August 8, 2018, Schnabel submitted a request to the Division of Natural Heritage of the Virginia Department of Conservation and Recreation (DCR) for an environmental review of the project to identify any known protected species within the project limits. DCR responded on September 7, 2018, stating that the proposed activity will not affect any documented state-listed plants or insects. The letter is included in Appendix C.

Coordination with USFWS resulted in the identification of the potential presence of the federally threatened Northern Long-eared bat (*Myotis septentrionalis*) and/or Sensitive Joint-vetch (*Aeschynomene virginica*).

According to the Information for Planning and Consultation (IPaC) list provided by USFWS, migratory birds that may be found in the area included Bald eagle (*Haliaeetus leucocephalus*),

Clapper rail (*Rallus crepitans*), Common loon (*gavial immer*), Double-crested cormorant (*phalacrocorax auritus*), Great black-backed gull (*Larus marinus*), Herring gull (*Larus argentatus*), Prothonotary warbler (*Protonotaria citrea*), and Ring-billed gull (*Larus delawarensis*).

Some of the common wildlife in the area may include Raccoon (*Procyon lotor*), Muskrat (*Ondatra zibethicus*), Deer mouse (*Peromyscus maniculatus*), Eastern box turtle (*Terrapene c. Carolina*), and Northern water snake (*Nerodia sipedon*). Numerous other transient species may be observed in the area.

Aquatic habitat has been impacted by the shoreline erosion. Below mean low water, the substrate is sand, with no submerged aquatic vegetation. The eroded shoreline provides little value as habitat other than for passing transient species.

NOAA identifies the Potomac River as essential fish habitat (EFH) for ten federally managed species. The Virginia Department of Game and Inland Fisheries (DGIF) designates the Potomac River as an anadromous fish passageway. The Virginia Fish and Wildlife Information Service map is included in Appendix C.

#### **Alternative 1 – No Action:**

Under the No Action Alternative, the terrestrial environment would continue to experience erosion, and the aquatic environment would continue to experience sedimentation and erosion.

#### **Alternative 2 – 255' Seawall and 1,005' Riprap Revetment (Proposed Action):**

Under the Proposed Action Alternative, the terrestrial environment would be temporarily impacted during construction due to equipment access, grading, and placement of earth fill, bedding stone, and riprap. Following construction, all disturbed areas would be revegetated with species able to withstand shoreline wind and wave action, as shown on the plans included in Appendix A. The Proposed Action Alternative would have an overall positive impact to terrestrial habitat because the vegetation would have a greater biodiversity after construction is complete and the restoration plantings are complete. Restoration plantings were determined through coordination between the Chesapeake Bay Local Assistance Department (CBLAD) using their Riparian Buffers Modification & Mitigation Guidance Manual and the landowner, Fairview Beach LLC. Restoration planting details are available on the enclosed plans (Appendix A, Sheets ES-7, ES-13, and ES-14). Plantings consist of vegetation able to withstand wind and wave action along the shoreline.

There are no existing trees on the site, therefore no habitat is available for the Northern long-eared bat. Based on the nearly monotypic stand of kudzu and low species diversity, there is no suitable habitat for the Sensitive joint-vetch, so the proposed alternative would have no effect to the federally threatened Northern long-eared bats or Sensitive joint-vetch.

Migratory birds may avoid the project site during construction, but this impact would be temporary. There are no long-term impacts expected to migratory birds.

Wildlife may be temporarily displaced by the construction activities, which would involve any resident species needing to move inland, or further upstream or downstream along the Potomac. During their review, VMRC noted their preference for riprap revetments over seawalls because revetments allow for movement of reptiles, including snakes and turtles that would be restricted by the presence of a seawall. The installation of the seawall may prevent movement of reptiles; however, reptiles would be able to move freely beyond the seawall section within the revetment area.

A positive long-term effect of the proposed alternative would be the availability of a greater diversity of habitat for reptile species, which may not currently utilize the project area because of the lack of habitat due to the eroded slopes.

Under the Proposed Action Alternative, the aquatic environment would be temporarily impacted during construction because of equipment access, placement of earth fill, bedding stone, and riprap for the construction of the revetment. The aquatic area directly impacted would vary from mean high water to a maximum of 46 ft channelward of mean low water within the 1,005' riprap revetment section. The construction of the 255' of seawall would not affect the aquatic environment because it is above mean high water.

During construction, any aquatic species in the vicinity would likely move away from the activity/disturbance at the project site. There may be a temporary impact to anadromous fish using the Potomac, but they would be able to actively avoid the construction area. These impacts would be short-term and based on the width of the Potomac at the project location and the availability of the surrounding area, these impacts would be insignificant. There are no long-term adverse effects to anadromous fish. After coordination, NOAA Fisheries Service concurred with FEMA's may affect, but not likely to adversely affect determination dated August 2, 2019 (included in Appendix C).

During construction there may be a temporary impact to essential fish habitat in the disturbed section of the Potomac River. This impact would be temporary and would not create any long-term negative effects. NOAA Fisheries Service concurs with FEMA's may affect, but not likely to adversely affect determination on essential fish habitat. Additionally, due to the width of the Potomac River at the project site, NOAA determined that a time of year restriction to help protect the migration and spawning of anadromous fish is not warranted.

Following construction, there would be a positive long-term effect provided by a greater variety of substrate for aquatic species to utilize. As before, there would be sand; however, after construction there would also be rock substrate available for use as cover for smaller species. A positive long-term effect of the Proposed Action Alternative is that aquatic habitat would not receive the sediment deposition that it is currently receiving because the shoreline would be stabilized and protected.

### ***Alternative 3 – Full-Length Seawall:***

Under Alternative 3, the terrestrial environment would be temporarily impacted during construction due to equipment access, grading, and placement of earth fill, bedding stone, riprap and a temporary cofferdam to construct the bench in front of the seawall. Following construction, all disturbed areas would be revegetated with native species able to withstand shoreline wind and wave action.

There are no existing trees on the site; therefore, no habitat is available for the Northern long-eared bat. Based on the nearly monotypic stand of kudzu and low species diversity, there is no suitable habitat for the Sensitive joint-vetch; as a result, ~~so~~ the proposed alternative would not impact the federally threatened Northern long-eared bats or Sensitive joint-vetch.

Migratory birds may temporarily avoid the project site during construction, but this impact would be temporary. There are no long-term impacts to migratory birds.

Wildlife may be temporarily displaced by the construction activities, which would involve any resident species needing to move inland, or further upstream or downstream along the Potomac.

A positive long-term effect of the riprap bench in front of the seawall would be the availability of a greater diversity of habitat for reptile species, which may not currently utilize the project area because of the lack of habitat due to the eroded slopes.

A negative long-term effect would be that the Full-Length Seawall Alternative creates a barrier between the terrestrial and aquatic habitats, preventing movement of any species that need to reach the other resource.

Under this Alternative, the aquatic environment would be temporarily impacted during construction because of equipment access, placement of earth fill, bedding stone, riprap and a cofferdam for dewatering for the construction of the seawall. The aquatic area directly impacted would vary from mean high water to a maximum of 46 ft channelward of mean low water within the 1,005' riprap revetment section. Some of the seawall construction would be above mean high water; but, the area channelward of the installation would need to be dewatered so it could be excavated, and a stable concrete footing poured. The required riprap bench in front of the seawall to protect the seawall from scour would require excavation and the placement of riprap channelward of mean low water. During construction, any aquatic species in the vicinity would likely move away from the activity/disturbance at the project site. Following construction, there would be a positive impact provided by a greater variety of substrate for aquatic species to utilize. As before, there would be sand, but there would also be rock substrate available for use as cover for smaller species.

NOAA Fisheries Service have not provided their opinion regarding this alternative, but in the email dated August 2, 2019 they concurred that the Proposed Action Alternative would not substantially adversely affect essential fish habitat (EFH), and the Full-Length Seawall Alternative would be impacting a similar amount of aquatic habitat as the Proposed Action Alternative. A positive long-term effect of the Full-Length Seawall Alternative is that aquatic habitat would not receive the

sediment deposition that it is currently receiving because the shoreline would be stabilized and protected.

### **3.2.2 Wetlands (Executive Order 11990)**

Executive Order (EO) 11990, Protection of Wetlands, requires federal agencies to take action to minimize the loss of wetlands. The NEPA compliance process requires federal agencies to consider direct and indirect impacts to wetlands, which may result from federally funded actions. A wetland delineation was performed on the site on July 27, 2018. We identified one isolated wetland 393 sq ft in size that appears to be a hillside seep near the existing stairs at the end of Fifth Street. Details on the wetland are provided in the Wetland Delineation Report included in Appendix B. A preliminary JD was issued by USACE confirming the wetland delineation on December 4, 2018 (included in Appendix C).

**Table 3.2.2: Eight-Step Planning Process for Wetlands**

<b>Step 1:</b> Determine whether the Proposed Action is located in a wetland, or whether it has the potential to affect or be affected by a wetland.	<b>Project Analysis:</b> A wetland delineation was performed and a 393 sq ft wetland was identified on the project site.
<b>Step 2:</b> Notify public at earliest possible time of the intent to carry out an action in a floodplain or wetland, and involve the affected and interested public in the decision-making process.	<b>Project Analysis:</b> A public notice was issued through three different newspapers on January 25, 2019, and January 31, 2019 as part of the VMRC permit process. Proof of public notice is included in Appendix D – Public Notice.
<b>Step 3:</b> Identify and evaluate practicable alternatives to locating the Proposed Action in a floodplain or wetland.	<p><b>Project Analysis:</b> The following alternatives were considered in selecting the proposed alternative.</p> <p>No Action Alternative: with no action, the shoreline would continue to erode and would pose inevitable damage to the sanitary sewer line, the water lines, and Fairview Drive, with potential eventual damage to the homes along Fairview Drive.</p> <p>Alternative 2: Construct a 255' Seawall and 1,005' Riprap Revetment (Proposed Action): Under the proposed alternative, the shoreline would be stabilized requiring fill and subsequent loss of the entire (393 sq ft) wetland.</p>

	<p>Alternative 3: Construct a Full-Length Seawall: this alternative would involve the construction of a riprap bench to prevent scour of the constructed seawall, which would also require placement of fill and subsequent loss of the entire (393 sq ft) wetland.</p> <p>Alternative 2 and 3 are the only options that fulfill the project purpose and need. Both options include the loss of the entire wetland, so the remainder of the 8-step process will address the alternative actions.</p>
<p><b>Step 4:</b> Identify the full range of potential direct or indirect impacts associated with the occupancy or modification of floodplains and wetlands, and the potential direct and indirect support of floodplain and wetland development that could result from the Proposed Action.</p>	<p><b>Project Analysis:</b> The placement of fill in the wetland is required to stabilize the bank. The material to be placed, (geotextile, earth fill, bedding stone and riprap) all allow any seepage/discharge through the revetment to reach the Potomac River.</p>
<p><b>Step 5:</b> Minimize the potential adverse impacts from work within floodplains and wetlands (identified under Step 4), restore and preserve the natural and beneficial values served by wetlands.</p>	<p><b>Project Analysis:</b> The size of the revetment/seawall was designed to impact the least amount of wetlands but maintain the capacity to withstand the wind and wave action along the Potomac so future erosion will be prevented.</p>
<p><b>Step 6:</b> Re-evaluate the Proposed Action to determine: 1) if it is still practicable in light of its exposure to flood hazards; 2) the extent to which it will aggravate the hazards to others; 3) its potential to disrupt floodplain and wetland values.</p>	<p><b>Project Analysis:</b> The proposed action remains practicable because it is the alternative that stabilizes the shoreline to prevent damage to infrastructure and homes, while replacing only the minimal amount to accomplish that stabilization. By nature of the project, there are no alternatives that would not impact the wetland.</p>
<p><b>Step 7:</b> If the agency decides to take an action in a floodplain or wetland, prepare and provide the public with a finding and explanation of any final decision that the floodplain or wetland is the only practicable alternative. The explanation should include any relevant factors considered in the decision-making process.</p>	<p><b>Project Analysis:</b> Public notice of the Proposed Action Alternative will be provided as a function of this EA, informing the public of a potential FEMA funded action, which would impact a wetland.</p>

<p><b>Step 8:</b> Review the implementation and postimplementation phases of the Proposed Action to ensure that the requirements of the EOs are fully implemented. Oversight responsibility shall be integrated into existing processes.</p>	<p><b>Project Analysis:</b> This step is integrated into the NEPA process and FEMA project management and oversight functions.</p>
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### **3.2.3 Threatened and Endangered Species**

In accordance with Section 7 of the Endangered Species Act (ESA) of 1973, the project area was evaluated for the potential occurrences of federally listed threatened and endangered species. The ESA requires any federal agency that funds, authorizes or carries out an action to ensure that their action is not likely to jeopardize the continued existence of any endangered or threatened species (including plant species) or result in the destruction or adverse modification of designated critical habitats

USFWS Virginia Ecological Services Field Office and the Chesapeake Bay Ecological Services Field Office identified the potential presence of the federally threatened Northern Long-eared bat (*Myotis septentrionalis*) and/or Sensitive Joint-vetch (*Aeschynomene virginica*).

Coordination with NOAA Fisheries revealed the potential presence of the federally listed Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) and Shortnose sturgeon (*Acipenser brevirostrum*) at the project location.

#### **Alternative 1 – No Action:**

Under the No Action Alternative, there would not be any short-term impacts to threatened or endangered species. The project location is a highly eroded section of the riverbank along the residentially developed Fairview Drive providing low value habitat for any of the above listed species. Long-term effects of no action would include the continued erosion and sedimentation of the Potomac River. If the riverbank continues to recede as portions of the slope fail due to erosion, the sanitary sewer line may fail, depositing raw sewage into the Potomac River, increasing bacteria levels in the water, potentially making the water unsuitable for the sturgeon species.

#### **Alternative 2 – 255’ Seawall and 1,005’ Riprap Revetment (Proposed Action):**

Under the Proposed Action Alternative, there would be minimal negative short-term effects due to construction and the placement of riprap in the Potomac River.

In a consultation dated May 29, 2019, FEMA determined that the project may affect, but not likely to adversely affect the federally threatened Northern Long-eared bat (*Myotis septentrionalis*) because no tree removal would occur. Additionally, FEMA determined that there would be no effect to the federally threatened Sensitive Joint-vetch (*Aeschynomene virginica*) because there is no suitable habitat at the existing site. On August 30, 2019, USFWS concurred with FEMA’s

determination of may affect, not likely to adversely affect Northern Long-eared bats and no effect to Sensitive Joint-vetch or critical habitat through the self-certification process and a follow-up email.

In a consultation to the NOAA National Marine Fisheries Service (NMFS), dated December 12, 2019, FEMA determined that the Proposed Action may affect but not likely adversely affect Atlantic sturgeon (*Acipenser oxyrhynchus oxyrhynchus*) or Shortnose sturgeon (*Acipenser brevirostrum*). On February 4, 2020, NMFS concurred with this determination. The Section 7 consultation and concurrence letters are included in Appendix C.

### **Alternative 3 – Full-Length Seawall:**

Under the Alternative 3, there would be potential negative short-term effects due to construction and the placement of the riprap bench and the cofferdams in the Potomac River to dewater the seawall construction area. Long-term effects would be positive on threatened/endangered species because the riverbank and shoreline would be stabilized and would prevent the further deposit of sediment within the Potomac River.

Alternative 3 may affect, but not likely adversely affect the federally threatened Northern Long-eared bat (*Myotis septentrionalis*) because there are no trees on the site and no trees would be removed from the site.

There would be no effect to the federally threatened Sensitive Joint-vetch (*Aeschynomene virginica*) because there is no suitable habitat at the existing site.

Coordination with NOAA National Marine Fisheries Service (NMFS) confirmed FEMA's may effect, but not likely to adversely affect determination on Atlantic sturgeon (*Acipenser oxyrhynchus oxyrhynchus*) or Shortnose sturgeon (*Acipenser brevirostrum*) at the project location due to the Proposed Action Alternative. Impacts to the river under this Alternative are similar, and the same determination would be anticipated.

## **3.3 Hazardous Materials**

A Phase I Environmental Site Assessment (ESA) was not performed as part of the planning for the shoreline stabilization. Based on the nature of the project and the existing use of the property, hazardous materials that would adversely affect the project are not anticipated. During the site reconnaissance on July 27, 2018 to perform the wetland delineation, there were no hazardous materials identified on the site.

### **Alternative 1 – No Action:**

Under the No Action Alternative, no impacts from hazardous materials are anticipated.

### **Alternative 2 – 255' Seawall and 1,005' Riprap Revetment (Proposed Action):**

Under the Proposed Alternative, no impacts from hazardous materials are anticipated. During construction, construction equipment would be monitored for leaks and appropriate measures would be taken if any spills occur. Although subsurface hazardous materials are not anticipated

to be present, excavation activities could expose or otherwise affect subsurface hazardous wastes or materials; any hazardous materials discovered, generated, or used during implementation of the proposed project shall be disposed of and handled by the project applicant in accordance with applicable local, state and federal regulations.

***Alternative 3 – Full-Length Seawall:***

Under the Full-Length Seawall Alternative, no impacts from hazardous materials are anticipated. During construction, construction equipment would be monitored for leaks and appropriate measures would be taken if any spills occur. Although subsurface hazardous materials are not anticipated to be present, excavation activities could expose or otherwise affect subsurface hazardous wastes or materials; any hazardous materials discovered, generated, or used during implementation of the proposed project shall be disposed of and handled by the project applicant in accordance with applicable local, state and federal regulations.

### **3.4 Socioeconomics**

#### ***3.4.1 Zoning and Land Use***

Situated in the unincorporated community of Fairview Beach in King George County, the project is located along the Potomac River shoreline at Fairview Beach between where Fairview Drive reaches the river and along Fairview Drive through Sixth Street. The zoning at the project site is designated as R1; residential, one-family dwelling. The areas surrounding Fairview Beach are zoned A2; Rural Agricultural. Most of the shoreline along Fairview Beach has been developed through the efforts of private landowners and the Fairview Beach LLC Owners Association.

***Alternative 1 – No Action:***

Under the No Action Alternative there would be no adverse effects on zoning. Land use may be impacted by the further erosion of the riverbank, eventually eroding Fairview Drive itself and destabilizing the homes along Fairview Drive.

***Alternative 2 – 255’ Seawall and 1,005’ Riprap Revetment (Proposed Action):***

Under the Proposed Action Alternative there would be no adverse effects on zoning or land use.

- The Proposed Action Alternative would help maintain the current zoning and land use as residential.
- The Proposed Action Alternative has been reviewed by King George County and is consistent with current zoning.
- No zoning permits would be necessary for the Proposed Action Alternative.

***Alternative 3 – Full-Length Seawall:***

Under Alternative 3 there would be no adverse effects on zoning or land use.

- The Full-Length Seawall Alternative would help maintain the current zoning and land use as residential.

- The Full-Length Seawall Alternative is consistent with current zoning.
- No zoning permits would be necessary for the Full-Length Seawall Alternative.

### **3.4.2 Visual Resources**

Visual resources at the project site include the beach and the view of the river from Fairview Drive. These resources are fragmented by Fairview Drive and the homes along Fairview Drive.

#### ***Alternative 1 – No Action:***

Under the No Action Alternative, the beach would continue to erode, and sections of the riverbank would likely fall into the Potomac River. A long-term adverse effect would be the eventual loss of Fairview Drive and loss of access to Fairview Beach.

The main constituents in the viewshed are the homeowners in Fairview Beach. Existing beach would be reduced through the continual erosion of the shoreline. The Homeowners are not in favor of the No Action Alternative as the infrastructure servicing their homes, Fairview Drive, and their homes would eventually be impacted by the continued loss of the shoreline due to erosion.

#### ***Alternative 2 – 255' Seawall and 1,005' Riprap Revetment (Proposed Action):***

Under the Proposed Action Alternative, the shoreline would be stabilized and protected to prevent future erosion.

The main constituents in the viewshed are the homeowners in Fairview Beach. The homeowners want the riverbank to be stabilized; however, they are concerned about the loss of beach, which is a visual resource at the project site. There is a small area of existing beach in front of the existing seawall from Station 0+00 to Station 2+50, which would remain after construction of the proposed seawall. There are narrower sections of sand beach in between sections of eroded riverbank further east on the shoreline, which would be covered by the proposed riprap revetment, necessary for adequate protection of the bank. There would be loss of sand beach between Station 2+50 through Station 13+00.

Public opinion of riprap is less favorable than of sand beach because sand beach is more aesthetically pleasing to the residents. Some residents are concerned that the riprap would encourage snakes and rodents.

The view of the river would not be adversely impacted due to the Proposed Action Alternative.

#### ***Alternative 3 – Full-Length Seawall:***

Under the Alternative 3, the shoreline would be stabilized and protected to prevent future erosion.

The main constituents in the viewshed are the homeowners in Fairview Beach. The homeowners want the riverbank to be stabilized, but are concerned about the loss of beach, which is a visual resource at the project site.

Originally, residents stated that they would prefer the visual appearance of a full-length seawall over a riprap revetment. However, upon further evaluation of the full-length seawall alternative, in order to adequately protect the seawall from scour, a riprap (or similar material) bench would need to be constructed channelward of the seawall, which would mean there would be riprap with or without the full-length seawall. The full-length seawall would be redundant with the required riprap bench to prevent scour in front of the seawall.

There is a small area of existing beach in front of the existing seawall from Station 0+00 to Station 2+50, which would remain after construction of the proposed full-length seawall because there is sufficient width of the beach to withstand the wave/wind action at that location. There are narrower sections of sand beach in between sections of eroded riverbank along the remainder of the shoreline, which would be covered by the proposed riprap bench, necessary for adequate protection of the full-length seawall. There would be loss of sand beach between Station 2+50 through Station 13+00.

Public opinion of riprap is less favorable than of sand beach because sand beach is more aesthetically pleasing to the residents. Some residents are concerned that the riprap would encourage snakes and rodents.

The view of the river would not be adversely impacted due to the Proposed Action Alternative.

### **3.4.3 Noise**

Noise is generally defined as undesirable sound and is federally regulated by the Noise Control Act of 1972 (NCA). Although the NCA gives the EPA the authority to prepare guidelines for acceptable ambient noise levels, it only charges those federal agencies that operate noise-producing facilities or equipment to implement noise standards. The EPA's guidelines, and those of many federal agencies, state that outdoor sound levels in excess of 55 dB are "normally unacceptable" for noise-sensitive land uses such as residences, schools, and hospitals. King George County has a noise ordinance with the following restrictions:

- Maximum of 75 dB between 6:00 am and 10:00 pm and 64 dB between 10:00 pm and 6:00 am.
- Exceptions include Friday and Saturday nights and nights preceding federal and state-recognized holidays between 10:00 pm and 12:00 am with a maximum of 70 dB.
- The authorized repair, restoration, maintenance, replacement and/or alternation of public property, facilities, and equipment is exempt from the noise ordinance.
- The residential community in Fairview beach would be receptors to increased noise levels.

The project would not impact noise levels after construction has been completed, as the seawall and riprap revetment are not noise producing facilities.

#### **Alternative 1 – No Action:**

Under the No Action Alternative, there would be no adverse effect on ambient noise levels.

***Alternative 2 – 255' Seawall and 1,005' Riprap Revetment (Proposed Action):***

Under the Proposed Action Alternative, there would be a temporary increase in noise levels limited to the duration of the construction activities. To reduce the impacts of temporary increased noise levels that would be generated, construction activities would be restricted to normal business hours. Equipment and machinery utilized at the site would be required to meet all State and Federal noise regulations, as well as applicable local noise ordinances. Upon completion of the project, there would be no long-term adverse effects on noise due to the Proposed Alternative Action.

***Alternative 3 – Full-Length Seawall:***

Under the Full-Length Seawall Alternative, there would be a temporary increase in noise levels limited to the duration of the construction activities. To reduce the impacts of temporary increased noise levels, construction activities would be restricted to normal business hours. Equipment and machinery utilized at the site would be required to meet all State and Federal noise regulations, as well as applicable local noise ordinances. Upon completion of the project, there would be no long-term adverse effects on noise due to the Proposed Alternative Action.

***3.4.4 Public Services and Utilities***

Public services in the area include King George Fire and Rescue, Company 3, Fairview Beach, located along Riverview Drive, less than ¼-mile from project location, and one block landward from Fairview Drive. There is an existing sanitary sewer line located along Fairview Drive, at the top of the slope at the project location. There is an existing 2-inch water line along the landward side of Fairview Drive. There are existing storm drains draining from Fairview Drive towards the Potomac River.

***Alternative 1 – No Action:***

Under the No Action Alternative, the sanitary sewer, Fairview Drive, the water line and the storm drains risk being exposed and/or damaged due to the continued erosion of the shoreline and riverbank. If the bank is not stabilized, these utilities could fail.

***Alternative 2 – 255' Seawall and 1,005' Riprap Revetment (Proposed Action):***

Under the Proposed Action Alternative, there would be no long-term adverse effects to Public Services or Utilities. The existing sanitary sewer and the water line would remain intact through construction of the proposed alternative. Some storm drains would need to be reconfigured or replaced, but the current function would be restored following construction. No new utilities or services would be required for the proposed alternative. A stockpile of emergency sewer line is kept at the Fairview Beach Wastewater Treatment Plant, in close proximity to the project site, that can be used to quickly respond to a sewer line break or leak in the unlikely event the existing sewer line is compromised by construction.

***Alternative 3 – Full-Length Seawall:***

Under the Full-Length Seawall Alternative, there would be no long-term adverse effects to Public Services or Utilities. The existing sanitary sewer and the water line would remain intact through construction. Some storm drains would need to be reconfigured or replaced, but the current function would be restored following construction. No new utilities or services would be required for the proposed alternative. A stockpile of emergency sewer line is kept at the Fairview Beach Wastewater Treatment Plant, in close proximity to the project site, that can be used to quickly respond to a sewer line break or leak in the unlikely event the existing sewer line is compromised during construction.

***3.4.5 Traffic and Circulation***

As has been established, the project is located along Fairview Drive, also known as State Route 969, a two-lane, 25-mph speed limit road, with average daily traffic of 130 vehicles, which is maintained by VDOT.

***Alternative 1 – No Action:***

Under the No Action Alternative, there would be no short-term adverse impacts to traffic and circulation. If no action is taken, Fairview Drive is at risk of damage from the continued erosion of the riverbank.

***Alternative 2 – 255’ Seawall and 1,005’ Riprap Revetment (Proposed Action):***

Under the Proposed Action Alternative, there would be short-term impacts to traffic only during construction. There may be temporary lane closures when equipment is accessing the site, but would only occur on weekdays and during business hours and only after appropriately notifying VDOT and local authorities per the Public Communication Plan as outlined on the plans included in Appendix A.

After construction, there would be no long-term adverse effects on traffic or circulation, since the road conditions would be as they were prior to construction.

***Alternative 3 – Full-Length Seawall:***

Under the Alternative 3, there would be short-term impacts to traffic only during construction. There may be occasional, temporary lane closures due to construction at the project site, but this would only occur on weekdays and during business hours and only after appropriately notifying VDOT and local authorities per a Public Communication Plan.

After construction, there would be no long-term adverse effects on traffic or circulation, since the road conditions would be as they were prior to construction.

***3.4.6 Environmental Justice (Executive Order 12898)***

On February 11, 1994, President Clinton signed Executive Order (EO) 12898, entitled, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations”.

The EO directs federal agencies “to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States...”

King George County had a population of 26,575 as estimated in July 2018. Most of the population (73%) identify as white, 16% as black or African American, 6% as Hispanic or Latino, 2% as Asian, less than 1% as American Indian or Alaska Native, and 4% as two or more races.

Households where a language other than English is spoken at home was 4.2% in King George County in 2018.

This project does not raise environment justice concerns based on location or actions to be taken.

***Alternative 1 – No Action:***

Under the No Action Alternative, there would be no disproportionately high or adverse impacts to minority or low-income populations. In compliance with FEMA’s policy implementing EO 12898, Environmental Justice, the socioeconomic conditions and potential effects related to the No Action, Proposed Action and Action Alternative have been reviewed.

***Alternative 2 – 255’ Seawall and 1,005’ Riprap Revetment (Proposed Action):***

Under the Proposed Action Alternative, there would be no disproportionately high or adverse impacts to minority or low-income populations. In compliance with FEMA’s policy implementing EO 12898, Environmental Justice, the socioeconomic conditions and potential effects related to the No Action, Proposed Action and Action Alternative have been reviewed.

***Alternative 3 – Full-Length Seawall:***

Under the Full-Length Seawall Alternative, there would be no disproportionately high or adverse impacts to minority or low-income populations. In compliance with FEMA’s policy implementing EO 12898, Environmental Justice, the socioeconomic conditions and potential effects related to the No Action, Proposed Action and Action Alternative have been reviewed.

***3.4.7 Safety and Security***

The project site in its current state creates safety and security issues because of the failing slope. The residents of Fairview Beach have placed signs warning pedestrians to stay away from the edge. In compliance with FEMA’s policy implementing EO 13045, Protection of Children, the above-mentioned safety and security issues have been identified that may affect children, including riding bikes along Fairview Drive, or walking, or playing in the grass beyond the edge of Fairview Drive.

***Alternative 1 – No Action:***

Under the No Action Alternative, the riverbank would continue to erode, causing significant adverse safety and security issues due to the instability of the remaining slope, the compromised

integrity of Fairview Drive and the potential failure of the sanitary sewer line. Without a guard rail or some other means of preventing access, anyone walking along Fairview Drive may be at risk of falling off the steep, eroded riverbank. If the sanitary sewer line fails, raw sewage would contaminate the Potomac River.

***Alternative 2 – 255’ Seawall and 1,005’ Riprap Revetment (Proposed Action):***

Under the Proposed Action Alternative, the active construction site would create safety and security issues; however, these issues would be temporary and limited to the duration of the construction activities. To minimize risks to safety and human health, all construction activities would be performed using qualified personnel trained in the proper use of the appropriate equipment including all requisite safety precautions; additionally, all activities would be conducted in a safe manner in accordance with the standards specified in applicable Occupational Safety and Health Act (OSHA) regulations.

Following construction, there would be a decrease in safety and security issues in the vicinity of the project site because the severely eroded bank would be stabilized, and the slope would be at a 2.5H:1V ratio. A potential adverse effect of the riprap revetment would be the potential safety hazard if children were to attempt to walk or play on the riprap to gain access to the river. To mitigate this risk, King George County is proposing to install stairs to allow safe access from Fairview Drive directly down to the water’s edge.

***Alternative 3 – Full-Length Seawall:***

Under the Alternative 3, the active construction site would create potential safety and security issues; however, these possible hazards would be temporary and limited to the duration of the construction activities. To minimize risks to safety and human health, all construction activities would be performed using qualified personnel trained in the proper use of the appropriate equipment including all requisite safety precautions; additionally, all activities would be conducted in a safe manner in accordance with the standards specified in Occupational Safety and Health Act (OSHA) regulations.

Following construction, there would be a decrease in safety and security issues at the project location because the severely eroded bank would be stabilized, and the slope would be at a 2.5:1 ratio. A potential adverse effect of the riprap bench in front of the seawall would be the potential safety hazard if children were to attempt to walk or play on the riprap to gain access to the river. To mitigate this risk, King George County is proposing to install stairs to allow safe access from Fairview Drive directly down to the water edge.

### **3.5 Historic and Cultural Resources**

In addition to review under NEPA, consideration of effects to historic properties is mandated under Section 106 of the National Historic Preservation Act (NHPA), as amended, and implemented by 36 CFR Part 800. Requirements include identification of significant historic properties that may be affected by the Proposed Action. Historic properties are defined as buildings, structures, objects, sites or districts included or eligible for listing in the National

Register of Historic Places (NRHP) (36 CFR 60.4). As defined in 36 CFR Part 800.16(d), the Area of Potential Effect (APE), “is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist.”

In addition to identifying historic properties that may exist in the proposed project’s APE, FEMA must also determine, in consultation with the appropriate State Historic Preservation Officer (SHPO)/Tribal Historic Preservation Officer (THPO), what effect, if any, the action would have on historic properties. The Virginia SHPO is known as the Virginia Department of Historic Resources (DHR). Moreover, if the project would have an adverse effect on these properties, FEMA must consult with SHPO/THPO on ways to avoid, minimize, or mitigate the adverse effect.

Consultation with DHR, including an archives search, revealed that there are No Historic Properties in the proposed project’s APE or the project site.

***Alternative 1 – No Action:***

Under the No Action Alternative, there would be no adverse effect on cultural resources, because there are no documented cultural resources within the project’s APE.

***Alternative 2 – 255’ Seawall and 1,005’ Riprap Revetment (Proposed Action):***

Schnabel submitted the proposed project’s scope of work to DHR, through an archives search to identify potential above-ground and archaeological historic resources within the APE of the proposed riverbank stabilization. A response dated September 25, 2018, stated that no historic properties will be affected by the project. A copy of the letter is included in Appendix C.

***Alternative 3 – Full-Length Seawall:***

Under Alternative 3, there would be no adverse effect on cultural resources, because there are no documented cultural resources within the project’s APE.

***3.6 Comparison of Alternatives***

Below is a comparison of the No Action Alternative and the Proposed Alternative. The Full-Length Seawall Alternative (Alternative 3) had very similar impacts to Alternative 2 (Proposed Action); therefore, for ease of review, Alternative 2 was not included. The distinct difference between the Proposed Action Alternative 2 and the Full-Length Seawall Alternative 3 was that regulatory agencies preferred riprap revetment over a full-length seawall because seawalls prevent movement of reptiles and other species that need to gain access to the river. In order to construct the full-length seawall, a riprap bench would have been required to prevent scour of the base of the seawall at sections that would be within the tidal range and deeper excavation would have been necessary to place substantial footings for the seawall at that location, as a result, the riprap revetment portion of the Proposed Action 2 is easier to construct and more cost-effective than Alternative 3. With the need for the riprap bench for Alternative 3, it would have caused the loss of the beach, which was the initial reasoning behind the full-length seawall alternative, in the hopes that the residents would preserve some beach, but after analysis, that option was not feasible.

**Table 3.6.1 Impact Criteria**

Negligible	Changes in the resource or resource related values would be below or at the level of detection. If detected, effects would be considered slight with no perceptible consequences to health or visibility.
Minor	Changes in resource or resource related values would be measurable; although the changes would be small, effects on the resource or the environment would be localized.
Moderate	Changes in the resource or resource related values would be readily apparent. The effects would be sufficient to cause concern, although effects would be relative local and short-term.
Major	Changes in resource or resource related values would be obvious, the effects would have substantial consequences to the resource and environment and be noticed regionally
Short-term effect	Recovers in less than three years and contributes to a beneficial effect
Long-term effect	Takes more than three years to recover and does not contribute to the long-term beneficial effect
Long-term beneficial effect	Takes more than three years to recover and contributes to the long-term beneficial effect.

**Table 3.6.2: Summary of Environmental Impacts**

<b>Affected Environment</b>	<b>No Action Impacts</b>	<b>Proposed Action Impacts</b>	<b>Mitigation</b>
<b>Soils and Geology</b>	No short-term effect. Long-term effect of continued erosion of the riverbank.	Negligible impact of imported fill to replace what has eroded.	Erosion & sediment control BMPs.
<b>Water Resources and Water Quality</b>	Long-term effect of continued sedimentation of the Potomac River and potential failure of sewer line.	Minor short-term effect during construction. Long-term beneficial effect of the stabilized riverbank.	Erosion & sediment control BMPs, install drainage to accommodate stormwater.
<b>Floodplain Management</b>	Short-term and long-term effect of continued erosion of floodplain/riverbank.	Minor floodplain effect involving the placement of fill within 0.68 acres to replace and stabilize the eroded bank.	Stabilization of the riverbank would prevent future erosion.

<b>Affected Environment</b>	<b>No Action Impacts</b>	<b>Proposed Action Impacts</b>	<b>Mitigation</b>
<b>Air Quality</b>	No impact.	Negligible short-term effect during construction.	Wet construction areas to mitigate fugitive dust.
<b>Coastal Zone Management</b>	Erosion of the shoreline is not consistent with the Virginia CZM Program.	Long-term beneficial effect consistent with Virginia CZM Program.	Post-construction restoration plantings within the Resource Protection Area.
<b>Terrestrial and Aquatic Environment</b>	Continued erosion of terrestrial environment and continued sedimentation of the aquatic environment.	Short-term: Minor effect to terrestrial and aquatic species during construction. Long-term beneficial effect of greater vegetative diversity and stabilized shoreline that won't cause sedimentation.	Erosion & sediment control BMPs. Upon completion, all disturbed areas would be planted according to Resource Protection Area Guidelines.
<b>Wetlands</b>	No impact.	Minor loss of 393 sq ft of wetland.	Any possible groundwater discharge (wetland source) would be able to drain through the revetment.
<b>Threatened and Endangered Species</b>	Long-term effect on aquatic habitat if sewer line fails due to erosion.	May affect, but not likely to adversely affect listed species.	Installation of BMPs during construction to keep impacts to a minimum.
<b>Hazardous Materials</b>	No impact.	No impact.	N/A
<b>Zoning and Land Use</b>	No impact.	No impact.	N/A
<b>Visual Resources</b>	Beach would continue to erode. Potential loss of Fairview Drive along beach.	Loss of beach in front of proposed revetment area.	Beach replenishment project is planned for after the riverbank stabilization is complete.
<b>Noise</b>	No impact.	Moderate short-term effect due to construction noise.	Construction limited to business hours.

<b>Affected Environment</b>	<b>No Action Impacts</b>	<b>Proposed Action Impacts</b>	<b>Mitigation</b>
<b>Public Service and Utilities</b>	Potential failure of sewer line.	Long-term beneficial effect of preventing eroding of sewer line.	Storm drains would be reconfigured to allow drainage down the newly constructed bank.
<b>Traffic and Circulation</b>	Potential damage to Fairview Drive.	Minor short-term effect on traffic during construction.	Temporary road closures only during weekday business hours, with advance notification to VDOT and local authorities.
<b>Environmental Justice</b>	No disproportionately high or adverse impacts on minority or low-income populations.	No disproportionately high or adverse impacts on minority or low-income populations.	N/A
<b>Safety and Security</b>	Long-term effect: Continued erosion of slope would cause safety issue of instable slope, damage to sewer line and Fairview Drive.	Minor short-term construction impacts. Long-term beneficial effect of stabilizing slope.	Construction site would employ signage and fencing.
<b>Historic Structures</b>	No impact.	No impact.	N/A
<b>Archaeological Resources</b>	No impact.	No impact.	N/A
<b>Tribal and Religious Sites</b>	No impact.	No impact.	No impact.

## SECTION FOUR: CUMULATIVE IMPACTS

Cumulative effects are defined by the CEQ as the impact on the environment, resulting from the incremental impacts of the evaluated actions when added to other past, present, and reasonably foreseeable future actions, regardless of the source, such as Federal or non-Federal. Per 40 CFR Section 1508.7, cumulative impacts can result from individually minor but collectively significant actions taken over time.

Once the proposed riverbank stabilization project is complete, there should not be a need for a future riverbank stabilization project at this location. At this time, there is not a need for stabilization immediately upstream or downstream of the project site, but there could be a need

for such stabilization efforts in the future. If future stabilization projects are proposed, they should be designed to match the proposed stabilization project.

A long-term beneficial effect of the stabilization would include preventing further loss of the shoreline, which is important for aquatic species, water quality and the protection of existing infrastructure.

Future actions within the project area include a beach replenishment project, which will replenish the existing beach once the bank has been stabilized. The proposed action to stabilize the riverbank in combination with the beach replenishment project will have similar long-term beneficial effects to aquatic habitat.

There are two pump stations on either ends of the project location that will need to be upgraded by April 2024, but those upgrades will involve minor construction to the pump station and little to no ground disturbance. There are no other development projects planned for the area around the Proposed Action.

This assessment concludes that the long-term impacts of the Proposed Action would consist of minor to negligible impacts to soils, terrestrial and aquatic habitat and the floodplain. In addition, there may be moderate to minor short-term impacts to noise, water quality and traffic during construction. The other activities described above affecting the same area could also impact these resources. Because frameworks are in place to manage potential environmental impacts, no significant impacts are anticipated from the incremental impact of the Proposed Action in combination with other past, present, and reasonably foreseeable future actions along Fairview Drive in Fairview Beach.

## **SECTION FIVE: PUBLIC PARTICIPATION**

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To maintain transparency and inform the general public during all phases of project planning and design, affected residents and other interested stakeholders were provided the following public participation opportunities:

- Frequent coordination with members of the King George County Board of Supervisors, the King George County Administration, and King George County Service Authority Board of Directors.
- Frequent updates on project and EA status during King George County Service Authority board meetings that were open to the public at large and broadcast live online.
- Frequent coordination with Fairview Beach, LLC representatives.
- Fairview Beach, LLC monthly meetings and via its online and electronic communication platforms.
- The public was concerned with the loss of the beach, but their greater concern was the potential failure of the sewer line, the potential loss of Fairview Drive, or even the potential loss of their homes.

- Public notice ran on January 25, 2019 in *The Free Lance-Star*, Fredericksburg, VA.
- Public notice available on January 25, 2019 on Fredericksburg.com.
- Public notice ran on January 31, 2019 in the King George-City TMC.
- Attended King George County Wetland Board Hearing on February 28, 2019
- The 30-day public notice for this EA to solicit further review ended on August 10, 2020. No comments were received.

## **SECTION SIX: MITIGATION MEASURES AND CONDITIONS**

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Mitigation measures and conditions applicable to all sites:

- The applicant is responsible for obtaining and complying with all required local, State and Federal permit and approval processes.
- Tidewater Joint Permit Application for Projects Involving Tidal Waters, Tidal Wetlands and/or Dunes and Beaches in Virginia. This joint permit application encompasses both Federal and Commonwealth of Virginia requirements, resulting in the authorization of the following permits: USACE NWP, Virginia DEQ Water Quality Certification and VMRC Permit #2018-2014.
- USACE Nationwide Permit (NWP) 13 – Bank Stabilization Pre-Construction Notification. This federal permit authorized by Section 404 of the Clean Water Act permits discharge or placement of fill in a water of the US. All work authorized under USACE NWP 13 must be performed in compliance with the General Conditions of the nationwide permits and if applicable, any Regional General Conditions, and Special Conditions of the permit.
- Virginia DEQ Water Quality Certification through the Virginia Water Protection Permit Program serves as Virginia's Section 401 certification program for federal Section 404 permits issued under the authority of the Clean Water Act. State law requires that a VWP permit be obtained before disturbing a wetland or stream by clearing, filling, excavating, draining, or ditching. The Water Quality Certification is issued based on the submitted plans for the proposed project, so the project must be constructed as submitted through the Tidewater Joint Permit Application.
- VMRC Permit #2018-2014 requires the placement of the yellow placard included with the permit that reflects the authorized activities for inspection purposes and must be conspicuously displayed at the work site throughout the construction phase. The VMRC permit requires the permittee to notify VMRC 15 days prior to commencement of the permitted project and the work must be completed by May 28, 2022. All work authorized under VMRC Permit #2018-2014 must be performed in compliance with the conditions listed in the permit.
- Virginia Pollutant Discharge Elimination System (VPDES) General Permit VAR-10 authorizes discharges of stormwater from construction activities. The authorized discharge shall be in accordance with the registration statement filed with the DEQ, Part I - Discharge Authorization and Special Conditions, Part II - Stormwater Pollution Prevention Plan, and Part III – Conditions Applicable to All VPDES Permits as set forth in the general permit.

- As part of the final construction documents and in order to apply for the VPDES General Permit VAR-10, an Erosion and Sedimentation Control Plan has been prepared in accordance with PA DEP Chapter 102 regulations and requirements. The contractor will be required to adhere to the Erosion and Sedimentation Control Plan during construction in order to minimize erosion and sedimentation impacts to the surrounding environment.
- The applicant will monitor ground disturbance during the construction phase; should human skeletal remains, or historic or archaeological materials be discovered during construction, all ground-disturbing activities on the project site shall cease and the applicant shall notify the coroner's office (in the case of human remains), FEMA, and the SHPO.
- If deviations from the proposed scope of work result in substantial design changes, the need for additional ground disturbance, additional removal of vegetation, or any other unanticipated changes to the physical environment, the applicant must contact FEMA so that the revised project scope can be evaluated for compliance with NEPA and other applicable environmental laws.
- The applicant/contractor must coordinate with the local floodplain administrator to receive a permit to conduct any activities that would occur within the SFHA. Erosion control measures will be in place prior to any ground disturbing activity.
- Work must be conducted in the fashion it is proposed in any permit applications. Changes to project design would require reopening consultations with regulatory agencies.
- Heavy machinery and equipment to be used for the proposed action will meet federal clean air standards. In addition, all equipment used shall have sound control devices no less effective than those provided on the original equipment. No equipment shall have un-muffled exhaust.
- All equipment shall comply with pertinent equipment noise standards of the U.S. Environmental Protection Agency.
- Construction equipment will be well maintained and non-polluting.

## SECTION SEVEN: CONSULTATIONS AND REFERENCES

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- King George County Comprehensive Plan. Adopted October 1, 2019.  
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United States Geological Survey. Seismic Hazards Maps and Site Specific Data. <https://www.usgs.gov/natural-hazards/earthquake-hazards/seismic-hazard-maps-and-site-specific-data>

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Virginia Department of Environmental Quality. Virginia's Coastal Zone Map. [https://www.deq.virginia.gov/Portals/0/DEQ/CoastalZoneManagement/virginia\\_czm\\_boundary\\_map.jpg](https://www.deq.virginia.gov/Portals/0/DEQ/CoastalZoneManagement/virginia_czm_boundary_map.jpg)

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Virginia Department of Transportation. VDOT Speed Limits Map. <https://www.virginiaroads.org/datasets/vdot-speed-limits-map?geometry=-77.290%2C38.324%2C-77.209%2C38.335>

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- Michael Newchok, Environmental Inspector, King George County, VA
- Chad Brooks, VDOT
- Ruth Rodgers, Free Lance Star

## **APPENDICES**

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### **Appendix A Maps and Figures**

Site Vicinity Map  
 FEMA Flood Maps  
 Construction Plans  
 Fairview Beach Zoning Map  
 CZM Boundary Map

### **Appendix B Technical Reports**

Hydraulic Study, September 24, 2018  
 Design Revision Memorandum, October 10, 2018  
 Geotechnical Engineering Report, Revision 1, November 9, 2018  
 Wetland Delineation Report, November 8, 2018

### **Appendix C Agency Correspondence**

DCR Division of Natural Heritage letter, September 7, 2018  
 DGIF Anadromous Fish Map, September 18, 2018  
 DHR letter, September 25, 2018  
 VMRC email, Jeffrey Madden, approving of revetment, October 16, 2018  
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**Appendix D Public Notice**

Free Lance-Star Order Confirmation, January 24, 2019