



**Date:** March 9, 2020

**To:** Mike Bailey (Friends of Fletcher's Cove)

**From:** Jim Wescott, David Iseri, Ryan Murley (Tetra Tech)

**Subject:** Fletcher's Cove Sediment Regrading Scope and Cost Estimate

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## **I. Introduction**

The purpose of this memorandum is to provide the Friends of Fletcher's Cove with a scope of work and estimated costs to conduct onsite regrading of excess sediment that has accumulated in Fletcher's Cove impairing recreational activity at the site. This sediment regrading effort is proposed to provide temporary relief to the Cove while a more thorough dredging effort can be planned and implemented. The approximate location of the proposed regrading efforts are shown on **Figure 1**. Described in the text below are the proposed scope of work tasks, the costs associated with each task, and the underlying assumptions used in developing the cost estimate.

## **II. Sediment Regrading Tasks**

Tetra Tech identified 7 tasks to be performed to collect the data needed to answer questions associated with the project data quality objectives. These tasks were developed based on our considerable experience performing similar sediment removal projects but may be modified based on stakeholder requirements. Following are the identified tasks along with brief descriptions of the support:

Task 1 – National Environmental Policy Act Environmental Assessment (NEPA EA) – Based on the conversations with the National Park Service (NPS), the scope of work as proposed will not require a NEPA EA performed, therefore no costs for this task are included.

Task 2 – Design and Permitting – Design drawings based on the available survey information and required water depth at low tide to restore use of the dock will be prepared. Drawings will show horizontal and vertical limits of regrading, proposed relocated sediment placement area(s), and temporary facilities. Specifications for unique tasks, such as equipment access points, woody debris transportation and disposal, and site restoration, will be developed as part of the design package. Permit applications will also be prepared and submitted to the applicable regulatory authority. Required permits may include Section 401, Section 404, Construction in a Floodway, and District of Columbia Regulatory Department of Energy and Environment (DOEE) Water Quality Certification.

Task 3 – Mobilization – After a qualified marine construction contractor is procured, the contractor will mobilize to the Fletcher's Cove to establish temporary facilities, sediment turbidity controls, and site access. The construction area will be closed to the public during sediment regrading. The closure is not expected to exceed two (2) weeks, and the work can be planned in late fall or other low use periods to limit disruption to the public. Mobilization includes preparation and deployment of staff and resources to perform field activities included within Tasks 3 through Task 6. It is assumed that the existing bridge over the Chesapeake & Ohio Canal can be utilized to move equipment to the work area.

Task 4 – Prior to commencement of sediment relocation activities, turbidity curtains will be installed at the mouth of the Cove to surround the regrading zone and limit the dispersal of suspended sediment. These sediment curtains will remain in place for the duration of sediment relocation activities. Turbidity measurements will be regularly conducted upstream and downstream, from the shoreline, to verify effectiveness of the sediment curtains.

Task 5 – Sediment Regrading – **Figure 1** presents the area that will be the focus of the sediment regrading efforts. An estimated three feet of sediment will be relocated above the mean low water elevation and four feet of sediment will be relocated below the mean low water line. Therefore, a total of approximately seven feet of sediment will be regraded from the area shown on **Figure 1**. One excavator and one loader will be used to relocate and grade sediment. The excavator will move into the exposed sediment areas during to reach sediment farther from shore. The displaced sediment will be moved to designated areas located within the Cove. Each relocation area will be chosen such that displaced sediment is not exposed at mean low water and the area will not impact future access to the Cove. At the conclusion of sediment relocation Tetra Tech will measure depths to confirm adequate sediment has been moved. Additional sediment relocation beyond the limits shown on the design drawings may be required as site conditions may change between the design and mobilization. Wooden material encountered during sediment relocation will be loaded into a dump truck or roll-off box for proper disposal.

Task 6 – Demobilization and Site Restoration - Once all targeted sediment is relocated and graded on-site, equipment will be removed from the park property. Staging areas will be restored to their original conditions. Based on current site conditions, site restoration will primarily focus on re-grading and seeding areas along the bank.

The following are the General Assumptions that were used in the development of the cost estimate:

- Design costs rely on existing data and do not include collection of any additional site characteristic data.
- The National Park Service, District of Columbia Department of Energy and Environment (DOEE), and the United States Army Corps of Engineers (USACE) will grant a permit for all work described herein.
- The cost estimate is contingent on authorization of all tasks within the proposal.
- Portions of the Chesapeake & Ohio Canal National Historical Park at Fletcher's Cove will be closed to the public during sediment removal.
- Access will be available around the perimeter of the Cove for mechanical regrading

- equipment.
- Sediment that cannot be regraded using a standard mechanical excavator will be left in place.
- Woody debris that can be mechanically separated from the relocated sediment will be removed from the Cove area and disposed at a local landfill.
- One 20 cubic yard roll off will be sufficient to dispose of woody debris.
- All field work can be completed using modified level D level of personal protective equipment (PPE).
- All field work can be completed from the shoreline or on the exposed sediment surface.
- Tetra Tech assumes ten-hour workdays for field staff on a Monday to Friday schedule, though weekend work may be performed. Tetra Tech further assumes no limitations on weekend Site access.
- The bridge at Fletcher's Cove that goes over the Chesapeake & Ohio Canal is assumed to be useable for the purposes of this estimate.
- No archaeological/cultural support activities are included.

### III. Sediment Regrading Costs

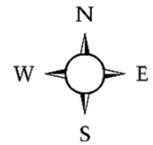
Tetra Tech estimates that the cost of sediment regrading will not exceed **\$120,000**. The development of this total was based on the 7 tasks and general assumptions described briefly above. Following is a table showing the estimated sediment removal costs by task. Cost estimate includes a 25% contingency and oversight during construction. These costs have been prepared using our professional judgment in consultation with specialty subcontractors local to the Washington DC region and do not represent an offer from Tetra Tech. As discussed above, we have also assumed that the bridge at the site can be used for trucks.

Fletcher's Cove Emergency Sediment Removal Work Plan

<b>Phase 2 Estimated Costs (Sediment Grading - 3 feet above MLW, 4 feet below MLW)</b>					
Item	Description	Quantity	Unit	Unit Price	Total Cost
1	NEPA EA	0	Each	\$75,000	\$0
2	Design (Work Plan)/Permits	1	Each	\$25,000	\$25,000
<b>Subtotal</b>					<b>\$25,000</b>
3	Mobilization	1	Each	\$12,000	\$12,000
4	Sediment Curtain Installation/Removal	1	Each	\$5,000	\$5,000
5	Sediment Grading				
5a	Excavator	1	week	\$7,500	\$7,500
5b	Loader rental (days)	1	week	\$1,500	\$1,500
5c	Swamp mat/timber rental/deployment	1	Each	\$5,000	\$5,000
5d	Operator (2)	120	Hour	\$125	\$15,000
5e	Laborer (1)	60	Hour	\$70	\$4,200
5f	Foreman	60	Hour	\$90	\$5,400
5g	Turbidity Monitoring	50	Hour	\$100	\$5,000
5h	Disposal of Woody Debris	20	Tons	\$70	\$1,400
6	Site Restoration (reseed with approved mix) - No wetland restoration	0.1	Acre	\$10,000	\$10,000
<b>Subtotal</b>					<b>\$72,000</b>
7	Bonds	1	Each	\$2,160	\$2,160
	Contingency	1	Each	25%	\$18,000
<b>Total</b>					<b>\$117,160</b>

Proposed Dock Configuration

Current Dock Configuration



 ESTIMATED EXCAVATION AREA

APPROXIMATELY 3,205 SQUARE FEET  
ESTIMATED EXCAVATION DEPTH 4 FEET BELOW  
MEAN LOW WATER LEVEL  
2019 PHOTOGRAPH (FAIRFAX COUNTY VA GIS)

0      Approximate Scale      100  
100 (Feet)



FLETCHER'S COVE, WASHINGTON, D.C.

**FIGURE 1**  
Alternate Dock Realignment  
and Sediment Grading