DEPARTMENT OF ENVIRONMENTAL QUALITY
APPLICATION FOR STORMWATER LOCAL ASSISTANCE FUND (SLAF)
STORMWATER CAPITAL PROJECTS

SECTION A – ORGANIZATIONAL DATA

Name of Project: Mill Point Living Shoreline

Name of Applicant: City of Hampton Department of Public Works

Applicant Address: 22 Lincoln St., Hampton, VA

Contact Person: Scott A. Smith, PE, LS

Phone: 757-771-1107 Email: scott.smith@hampton.gov

Name of Consultant: Brown and Caldwell

Consultant Address: 301 Bendix Rd, Virginia Beach, VA

Contact Person: Ben Nash

Phone: (919) 424-1437 Email: bnash@brwncald.com

SECTION B – PROPOSED FUNDING

PROJECT FUNDING

a) Amount of SLAF Grant Funds Requested: $970,950.00

	Source of Local Match Funds	Amount	CHECK BOX IF COMMITTED
1	2019 Stormwater Bond Fund	$31,625.00	✔
2	Community Flood Preparedness Fund	$126,498.00	✔
3	2019 Stormwater Bond Fund	$970,950.00	✔

b) Total Other Funding Available (1 + 2 + 3…)*: $1,079,073.00

c) Total Project Cost (a+b): $2,100,023.00

*This amount must be at least equal to the amount of Grant Funds being requested

SECTION C – WATER QUALITY DATA

Location of Project

Latitude: 37.0278 N Longitude: 76.3395 W Datum: NAD83

(Latitude and Longitude of project is a required entry on this application)

Name of Stream / Waterbody impacted by stormwater runoff being addressed by the project:

Hampton River

River Basin for Receiving Stream / Waterbody

James River / Chesapeake Bay

SECTION D – BRIEF PROJECT DESCRIPTION AND STATEMENT OF NEED

(attach additional pages if necessary)

The Mill Point Living Shoreline (MPLS) will consist of the transformation an existing 2,100 linear foot portion of armored shoreline along the Hampton River. The site is located along the western shore of the Hampton River from Lincoln Street to Mill Point Park. The property is owned by the City of Hampton. The MPLS will be designed in accordance with the City of Hampton Resilience Plan to holistically demonstrate Hampton's resilience strategies of managing water and utilizing nature based solutions. The project has been conceptually designed.

The current shoreline is lined by riprap with minimal (less than 5%) wetland marsh vegetation in the tidal zone. The area is devoid of riparian vegetation, wetland marsh, or habitat for fisheries in the Hampton River. With the current emphasis on resiliency, a living shoreline restoration will provide riparian vegetation, wetland marsh, or habitat for fisheries for this reach of shoreline as well as increase habitat for fisheries and improve water quality. The living shoreline project is anticipated to provide 20-30 feet of wetland marsh extended into the Hampton River using a riprap sill at the outer edge of the wetland marsh to reduce wave energy to the shoreline. The wetland marsh is also anticipated to provide additional protection to the shoreline during larger storm events.

This eco-services project will add riparian and ecosystem enhancements to the Hampton River while providing water quality benefits to the Hampton River, James River and Chesapeake Bay. This project will also demonstrate an alternate to armoring shorelines to protect against erosion due to wave action, for other properties along the Hampton River. The existing shoreline armoring will be utilized to create a sill off the shoreline. The sill will serve two purposes; the first is it will absorb and "trip" waves dissipating the erosive force of tidal waves. Secondly, the sill serves as a barrier to contain the sand backfill that will be utilized as a planting medium for the wetland plantings. The wetlands provide additional energy absorbing function plus and ecological function of nutrient uptake, filters, and a new habitat. In addition to the rock sill, an oyster reef will be placed in front of the sill as the oysters establish their shells which will add to the energy dissipating effect of the sill. There if evidence on natural oyster recruitment in this section of the river, providing the proper substrate and seeding of oyster spat, will increase the oyster population in the Hampton River. The oysters will grow on the sill to help the sill rise with rising sea levels and provide an efficient filtering capacity to the Hampton River. This holistic system will be adding storage, reducing runoff, treating runoff, and providing community amenities while demonstrating living with water is an essential resilience strategy in coastal Virginia.

This project is located at 196 Mill Point Drive in Hampton, VA, population 131,686 (2025 projection Weldon Cooper Center.) There are no Repetitive Loss or Severe repetitive Loss properties in the project area. The adjacent structures include Mill Point Park, Mill Point Townhouses and a City Parking lot. There is a Hampton Roads Sanitation District pump Station at 217 Washington Street.

The total project design and construction costs will be $2,100,023.00. The project is currently under design, funding through 50% design has been funded through a Community Flood Preparedness Fund Grant. Annual Maintenance costs are estimated at $3,171. This project will provide water quality benefits and is eligible costs for The Stormwater Utility Fee. Construction and Maintenance will be paid with proceeds from the Stormwater Utility fee, through the 2019 Stormwater Bond Fund.

SECTION E – POLLUTANT REDUCTION

The calculated Total Pounds (Per Year) of Total Phosphorus reduced from stormwater as a result of this project =
34.4 pounds per year

The calculated Total Pounds (Per Year) of Total Nitrogen reduced from stormwater as a result of this project =
123.3 pounds per year

SECTION F – READINESS-TO-PROCEED

Projects or nutrient credit purchases authorized for FY 2023 must meet program requirements and have an executed grant agreement by April 30, 2025 or funds authorized for the project or purchase will expire.

Stormwater Quality Projects:

Readiness Category	Check All That Apply
Final design plans approved by the locality	
Design plans submitted and under review by the locality	
Preliminary / Concept engineering completed	✔
Executed engineering contract with approved task order issued or in-house engineering approved by applicant for this project	✔
Project included in most recent Capital Improvement Plan, TMDL Action Plan, or has otherwise been posted for public notice.	✔
All funding is in place for the local match and, if necessary, land and easements for the project have already been acquired, or land and easement acquisitions are not required.	✔

Non-Point Source Nutrient Credit Purchases:

Readiness Category	Check All That Apply
Applicant has signed a contract with a bank to purchase a number of non-point source nutrient credits for a specific cost and are immediately available.	
Applicant has signed a contract with a bank to purchase a number of non-point source nutrient credits for a specific cost and are available within 6 months.	
Written contract with a bank has been drafted for the purchase of non-point source nutrient credits.	
Applicant has obtained written proposal(s) for the purchase of non-point source nutrient credits.	
All funding is in place for the local match.	

SECTION G – PROJECT BUDGET INFORMATION

Legal/Administration	$30,000
Land, Right-of-Way	$0
Architectural Engineering Basic Fees	$470,000
Project Inspection Fees	$128,700
Other (Explain)	-
Stormwater BMP Construction	$1,401,260
Contingencies	$70,063
TOTAL*	$2,100,023.00

*This amount should be the exact same as the amount in Item c) Total Project Cost, Page 1.

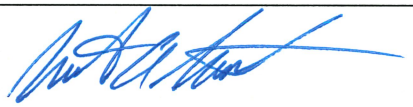
SECTION H – Small MS4s

Is the Applicant regulated under the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems? YES [ ] NO [✓]

SECTION I – ASSURANCES AND CERTIFICATIONS

The undersigned representative of the applicant certifies that the information contained herein and the attached statements and exhibits are true, correct, and complete to the best of their knowledge and belief. The undersigned also agrees to clarify or supplement information pertaining to this application upon request.

Name: Scott A. Smith, PE, LS CPWP-M Title: Senior Civil Engineer

Signature:  Date: 9/30/2022

SECTION J – ATTACHMENTS

Include all required attachments appropriate for your application. The following is a list of potential attachments:

1) Commonwealth of Virginia substitute W-9 form from DEQ website (required of all applications, Section A)
2) Documentation of project costs for conventional technology and for green technology (only required if applicant chooses incremental cost option for a green infrastructure project, Section B).
3) Documentation supporting site selection process and photographs of the reach of stream (only required for stream restoration projects, Section D).
4) Documentation supporting the Pollution Reduction methodology, calculations, text, etc. (Section E)
5) Documentation of highest project status option. (Section F)
6) Information substantiating project budget figures. (Section G)
7) Documentation of Dedicated Revenue Source for Stormwater Management Program. (Section H)

Virginia Department of Environmental Quality
Instructions for the Application for the Stormwater Local Assistance Fund

Section A – Organizational Data

Provide the project name as it appears (or will appear) on the design plans. Provide the contact information for the locality and for the engineering firm that will be designing the project if available.

Documentation: Commonwealth of Virginia substitute W-9 form must be provided.

Section B – Proposed Funding

Provide the amount of SLAF funds requested. Provide the source(s) and amount(s) of local match funds. Check the box on each line if these funds have been committed for this project. Provide the total amount of local match funds. Provide the total project cost. SLAF grants typically provide up to 50% of eligible project costs, with higher percentages available to localities with high or above average fiscal stress according to the Commission on Local Government. The applicant must identify anticipated source(s) and amounts(s) of local match funds.

[If the project is a green infrastructure project (such as a green roof or permeable pavement) that is in place of a conventional technology, the applicant has the option of requesting funding for only the incremental project costs if desired. If so, the applicant must provide both the projected cost of the conventional technology and the green technology to substantiate the request for the incremental costs. The incremental costs will then be used to determine the project's cost effectiveness as well as the SLAF grant amount requested.]

Section C – Water Quality Data

Provide the latitude and longitude with datum for the center of the project, in decimal degrees. Provide the name of the stream / waterbody that is being addressed by the project. Provide the river basin for the above mentioned stream / waterbody.

Section D – Project Description & Statement of Need

Provide a description of the proposed project, including the type of project (BMP), area treated by the BMP in acres, any TMDL or impaired water addressed by the project, if the project is relevant to a TMDL Implementation Plan, and other relevant information pertaining to the project. Describe the need for the proposed project. Needs should be in the areas of restoring, protecting, or preventing pollution in State waters.

[If the project is a stream restoration, you must also provide a written description of the site selection process for the project, including documentation (e.g. Rosgen stream channel classification, watershed study, conceptual design plans, existing BMPs within the watershed, etc.) and photographs of the reach of stream to be restored.]

Section E: Pollutant Reduction

The established methodology for calculating the TP and TN reductions is outlined in Attachment A of the SLAF Guidelines.

Documentation: To verify pollutant reduction calculations, the following information is **required** with the application:

1. Print out the Site Data tab of the Virginia Reduction Method spreadsheet showing the data entered and the resultant TP and TN loadings. Supporting documentation with rationale for parameter selection must be provided to demonstrate that the parameter estimates are valid for the project.
2. Provide a narrative explaining which pollution reduction calculation methodology was selected, why it is appropriate for the project, the calculated phosphorus load reduction, any assumptions with supporting documentation, and parameters selected with rationale for selection (must be provided to demonstrate that the estimates are valid for the project.) All supporting calculations must be provided.
3. If the project is a retrofit of an existing BMP, provide photographs showing the BMP before the upgrade. Provide a narrative describing the upgrade / enhancement and the incremental phosphorus reduction achieved utilizing the SLAF Guideline references, with supporting documentation. Rationale and calculated estimates for the BMP's current (former) efficiency must be provided.

Section F – Readiness-To-Proceed

For items 1-6, choose all project status options that accurately reflects the current status of the project.

Documentation for Stormwater Quality Projects: Provide documentation of all project status options that apply.

- For item 1, provide final design plans and local approval.

- For item 2, provide design plans, unless plans have already been provided for item 1.

- For item 3, provide concept engineering plan.

- For item 4, provide executed contract and task order or local approval of in-house engineering

- For item 5, provide Capital Improvement Plan, TMDL Action Plan, or other evidence of public notice.

- For item 6, provide local match confirmation and documentation of land/easement acquisition or that land and easement acquisitions are not required.

Documentation for Non-Point Source Nutrient Credit Purchases:

-For item 1, provide documentation of signed contract with indication that credits are immediately available.

-For item 2, provide documentation of signed contract with indication that credits are available within 6 months.

-For item 3, provide documentation of written contract

-For item 4, provide documentation of written proposals for the purchase of credits

-For item 5, provide local match confirmation.

Section G – Project Budget Information

Provide a breakdown of the project budget. The contingency amount should be no more than 5% of the Storm-water BMP Construction amount. Costs for professional services should be no more than 35% of the overall project cost. Ensure that the total is the same amount as the Total Project Cost in Section B of the application.

Documentation: Provide information such as professional services task orders, engineer's opinion of probable cost, and appraisals/basic administrative reports to substantiate the project budget figures

Section H: Locality stormwater data

Check question on whether the applicant is regulated under the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems.

Section I – Assurances and Certifications

Provide name, title, signature, and date.

Section J – Attachments

Provide all appropriate attachments.

DEPARTMENT OF ENVIRONMENTAL QUALITY

APPLICATION FRO STORMWATER LOCAL ASSISTANCE FUND (SLAF)

STORMWATER CAPITAL PROJECTS

Mill Point Living Shoreline

SECTION J – ATTACHMENTS

1) Commonwealth of Virginia substitute W-9 form.
2) Opinion of Probable Construction Costs
3) Documentation of Site Selection - Project Photographs
4) Pollution Reduction Calculations
5) Design Contract and Purchase Order
6) Budget documentation
7) Documentation of dedicated Revenue Source for Stormwater Management Program

Form **W-9**
Commonwealth of Virginia
Substitute W-9 Form
Revised July 2014

Request for Taxpayer Identification Number and Certification

Section 1 - Taxpayer Identification

☐ **Social Security Number (SSN)**

☒ **Employer Identification Number (EIN)**

5 4 6 0 0 1 3 3 6

Please select the appropriate Taxpayer Identification Number (EIN or SSN) type and enter your 9 digit ID number . The EIN or SSN provided must match the name given on the "Legal Name" line to avoid backup withholding. If you do not have a Tax ID number, please reference "Specific Instructions - Section 1." If the account is in more than one name, provide the name of the individual who is recognized with the IRS as the responsible party.

Dunn & Bradstreet Universal Numbering System (DUNS) (see instructions)

Legal Name:	City of Hampton, Virginia
Business Name:	City of Hampton, Virginia

Entity Type		Entity Classification		Exemptions (see instructions)
☐ Individual	☐ Corporation	☐ Professional Services	☐ Medical Services	Exempt payee code (if any):
☐ Sole Proprietorship	☐ S-Corporation	☐ Political Subdivision	☐ Legal Services	(from backup withholding)
☐ Partnership	☐ C-Corporation	☐ Real Estate Agent	☐ Joint Venture	
☐ Trust	☐ Disregarded Entity	☒ VA Local Government	☐ Tax Exempt Organization	Exemption from FATCA reporting code (if any):
☐ Estate	☐ Limited Liability Company	☐ Federal Government	☐ OTH Government	
☒ Government	☐ Partnership	☐ VA State Agency	☐ Other	
☐ Non-Profit	☐ Corporation			

Contact Information

Legal Address:	22 Lincoln Street	Name:	Scott Smith
		Email Address:	scott.smith@hampton.gov
City: Hampton	State : VA Zip Code: 23669	Business Phone:	(757) 727-6781
Remittance Address:	22 Lincoln Street	Fax Number:	
		Mobile Phone:	(757) 771-1107
City: Hampton	State : VA Zip Code: 23669	Alternate Phone:	

Section 2 - Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined later in general instructions), and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions: You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See instructions titled Certification

Printed Name:	Scott A. Smith	
Authorized U.S. Signature:	Scott A. Smith	Date: 09/30/2022

Mill Point Living Shore Line Project

OPINION OF PROBABLE COST

Plans - Conceptual Plan, prepared by Brown and Caldwell, Mill Point Living Shoreline
Estimate Date 9/28/2022
Prepared By: Scott A. Smith, PE - City of Hampton

Phase 1 - Design Costs

Line Item Number	Description	Quantity	Units	Unit Prices	Total Item Price	Unit Price Source
Administration						
	Legal/Administration	1	EA	$30,000.00	$30,000	**City of Hampton**
						$30,000 Legal/Administration Costs
Design Costs						
01 11 31.30 0800	Engineering Fees - Preliminary	1	EA	$158,123.00	$158,123	**City of Hampton**
	Engineering Fees - Final	1	EA	$311,877.00	$311,877	
						$470,000 Design Costs
01 45 23.50 5550	Project Inspection	26	weeks	$4,950.00	$128,700	**RS Means**
						$128,700 Project Inspection Costs

Phase 2 - Construction Costs

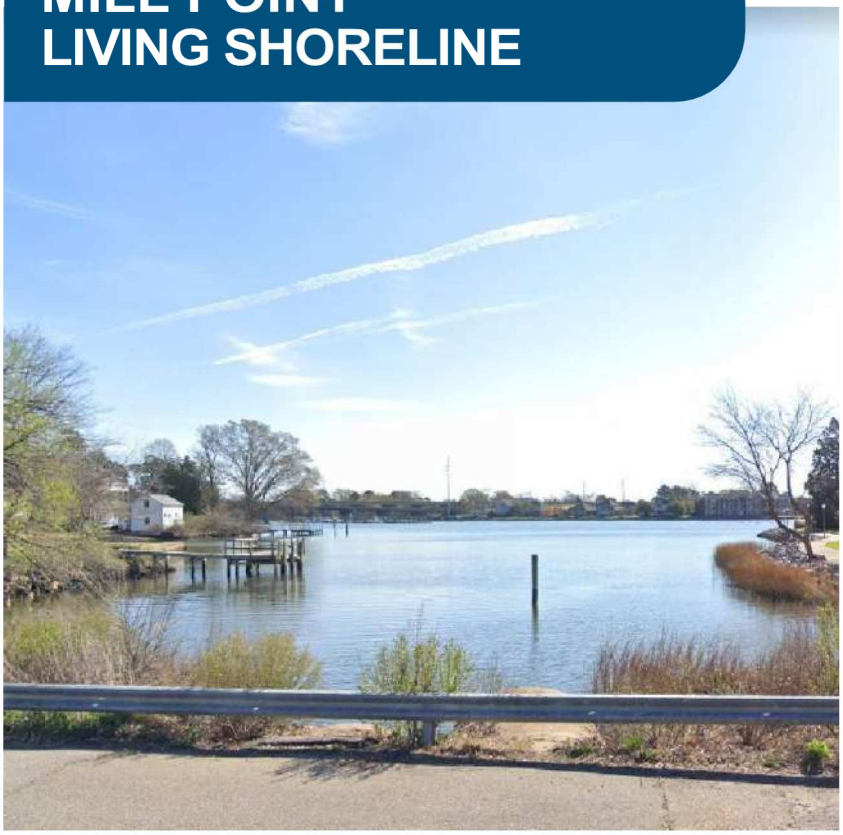
General Requirements						
01 54 56.50	Mobilization	1	LS	$100,000.00	$100,000	**RS Means**
01 71 23.13 110	Construction Layout	20	days	$2,650.00	$53,000	**RS Means**
01 31 13.20 0020	Construction Administration	10	weeks	$730.00	$7,300	**RS Means**
01 31 13.20 0200	Construction Management	40	weeks	$2,550.00	$102,000	**RS Means**
						$262,300 **General Requirements**
Utility Relocations & Signs						
01 58 13 0020	Project Signs	2	EA	$547.70	$1,095	**RS Means**
						$1,095 **Utility Relocations & Signs**
Demolition						
02 41 13.17 5800	Concrete Removal 6" Thick mesh reinforced	1,300	SY	$21.55	$28,015	**RS Means**
						$28,015 **Demolition**
Erosion and Sediment Control						
31 37 13.10 0300	Construction Entrance	50	Ton	$36.00	$1,800	**RS Means**
31 25 14.16 1000	Silt Fence	2,300	LF	$4.40	$10,120	**RS Means**
01 56 26.50 0610	Tree Protection	300	LF	$5.00	$1,500	**RS Means**
	Turbidity Curtain	2,100	LF	$34.00	$71,400	**VDOT Suffolk District Average, May 2018-June 2020**
31 25 14.16 1100	Maintenance of E&S Practices	6	Mon	$200.00	$1,200	**RS Means**
						$86,020 **Erosion and Sediment Control**
Landscaping						
32 93 43.10 0590	LS Wetland Planting	7,000	SY	$54.42	$380,940	**RS Means**
03 05 13.25 0950	LS Wetland planting media (12" Thick Sand)	2,333	CY	$80.00	$186,640	**RS Means**
31 37 13.10 0200	Wetland Sill -Class II Riprap	3,750	TN	$110.00	$412,500	**RS Means**
	Oyster Shell Base	7,000	SY	$2.10	$14,700	**USACE**
	Oyster Spat	7,000	SY	$4.15	$29,050	**USACE**
	8' Concrete - exposed aggregate sidewalk	1,300	SY	$67.50	$87,750	**RS Means**
						$1,023,830 **Landscaping**
Construction Sub Total					$1,226,710	**$1,401,260 Construction Costs**
Sub-Total Design & Construction						$2,029,960
Contingency (5%) Construction Costs						**$70,063 Contingency (5%)**
						$2,100,023 Total Design and Construction

DOCUMENTATION OF SITE SELECTION

TASK 4.1 WATER QUALITY SITES

HAMPTON VA

MILL POINT LIVING SHORELINE



CRITERIA MET

WATER QUALITY	4
FLOOD MANAGEMENT	5
COMMUNITY NEEDS	1
CIRCULATION	1

SITE OVERVIEW

Mill Point Living Shoreline is a nature-based shoreline protection facility that is located adjacent to the Mill Point neighborhood along the Hampton River. The site is situated in the City of Hampton's Downtown area and is publicly accessible from Lincoln Street and Mill Point park. This site primarily receives overland surface runoff and prevents erosion along the shore from tidal action. Long term operation and maintenance typically includes a combination of traditional grounds maintenance and specialized maintenance for vegetation.

COST OPINION

ENGINEER'S OPINION

Project	Date	Description
Downtown WQ Master Plan	8/27/2020	Mill Point Living Shoreline

Construction Cost Opinion Range		
-30%	Median Cost	+50%
$579,000	$827,200	$1,240,800

Capital Cost Multipliers		
Description	% of Construction Cost	Multiplier Cost (2020 $$)
Planning, Preliminary Engineering, and Design Services	12.0%	$99,000
CA/RE	20.0%	$165,000
Total Non-Project Costs	32.0%	$260,000

Capital Cost Opinion Range		
-30%	Median Cost	+50%
$764,300	$1,091,900	$1,637,900

DOCUMENTATION OF SITE SELECTION

MILL POINT LIVING SHORELINE

SITE PHOTOGRAPHS

SITE PHOTOGRAPHS

SITE PHOTOGRAPHS

SITE PHOTOGRAPHS

SITE PHOTOGRAPHS

POLLUTION REDUCTION CALCULATIONS

Estimated Shoreline Management Sediment and Nutrient Load Reduction

Results	Marsh Reduction (lbs/year)
TN	123.3
TP	34.4
TSS	54,629.8

Protocol 1 - Prevented Sediment

1. Estimated shoreline erosion rates and annual sediment loads
2. Convert shoreline erosion to nutrient loadings (V = LEB)
3. Estimate shoreline restoration efficiency

Total Length: 1563 ft
# of Reaches: 3

	Length	Erosion Rate (ft/yr)	Bank Height (ft)	Sediment (ft^3/yr)	Sediment (lbs/yr)	Sediment (tons/yr)	TN (lbs/yr)	TP (lbs/yr)
Reach 1	400	0.5	3	600	56,160	28.1	16.0	11.5
Reach 2	696	0	3	0	0	0.0	0.0	0.0
Reach 3	467	1	2	934	87,422	43.7	24.9	17.9
Reach 4	0			0	0	0.0	0.0	0.0
Totals	1,563	0.427		1,534	143,582		40.9	29.4
Bank Instability Reduction							40.9	29.4

Bulk Density 93.6 lbs/ft^3
TN concentration 0.57 lbs TN/ton sediment
TP concentration 0.41 lbs TP/ton sediment
Sand Reduction 0.337 From Table 11
Bank Instability 1 Assumed 3:1 slope meeting angle of repose

Sediment Removal = Sediment (tons/yr) * 0.337 (VA default sand reduction factor) * 0.50 (50% Bank Instability Reduction)
Sediment Removal 48,387.3 lbs TSS/yr

Protocol 2 - Denitrification

1. Determine the total post construction area of the net increase in marsh plantings and convert to acres
2. Multiply the acres of marsh planting by the unit dentrification rate (85 lbs TN/acre/year)

Total Length: 1,563 ft
Proposed Depth: 25 ft
Proposed Area (ft^2) 39,075 ft^2
Proposed Area (acre) 0.897 acres

Unit Denitrification Rate 85 lbs TN/acre/yr

Project Pollutant Load Reduction 76.2 lbs TN/yr

Protocol 3 - Sedimentation

1. Determine the total post construction area of the net increase in marsh plantings and convert to acres.
2. Multiply the acres of marsh planting by the unit sedimentation value (6,959 lbs TSS/acre/year)
3. For total phosphorous load removed, multiply the acres of marsh planting by 0.76 mg/g (0.00076) (5.289 lbs TP/acre/yr)

Proposed Area (acre) 0.897 acres

Unit Sedimentation Rate 6,959 lbs TSS/acre/yr

Project Sedimentation Load Reduction 6,242 lbs TSS/yr

Unit Phosphorous Rate 5 lbs TP/acre/yr
Project Phosphorous Load Reduction 4.7 lbs TP/yr

Protocol 4 - Marsh Redfield Ratio

1. Determine the total post construction area of the net increase in marsh plantings and convert to acres.
2. Multiply the acres of tidal marsh planting by the unit marsh Redfield ration volume (6.83 lbs TN/ac and 0.3 lbs TP/ac).

Net Increase in Marsh Plantings 0.897 acres

Unit TN Rate 6.83 lbs TN/acre/yr

Unit TN Load Reduction 6.13 lbs TN/yr

Unit TP Rate 0.3 lbs TP/acre/yr

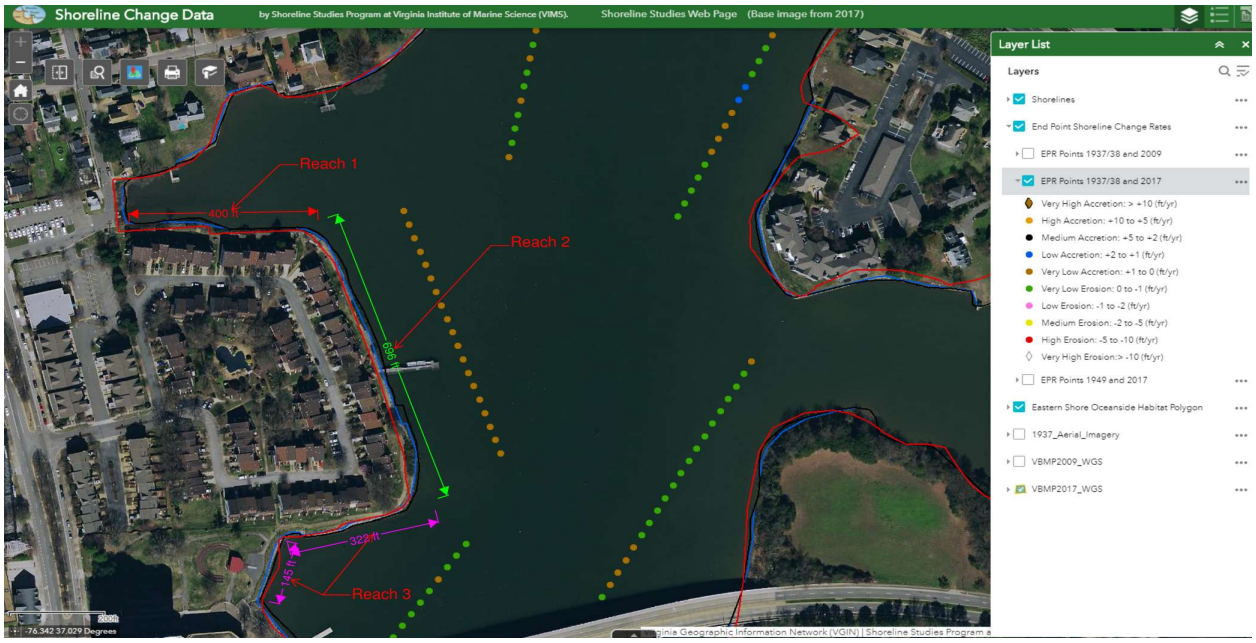
Unit TP Load Reduction 0.27 lbs TP/yr

Total Reductions
As Marsh

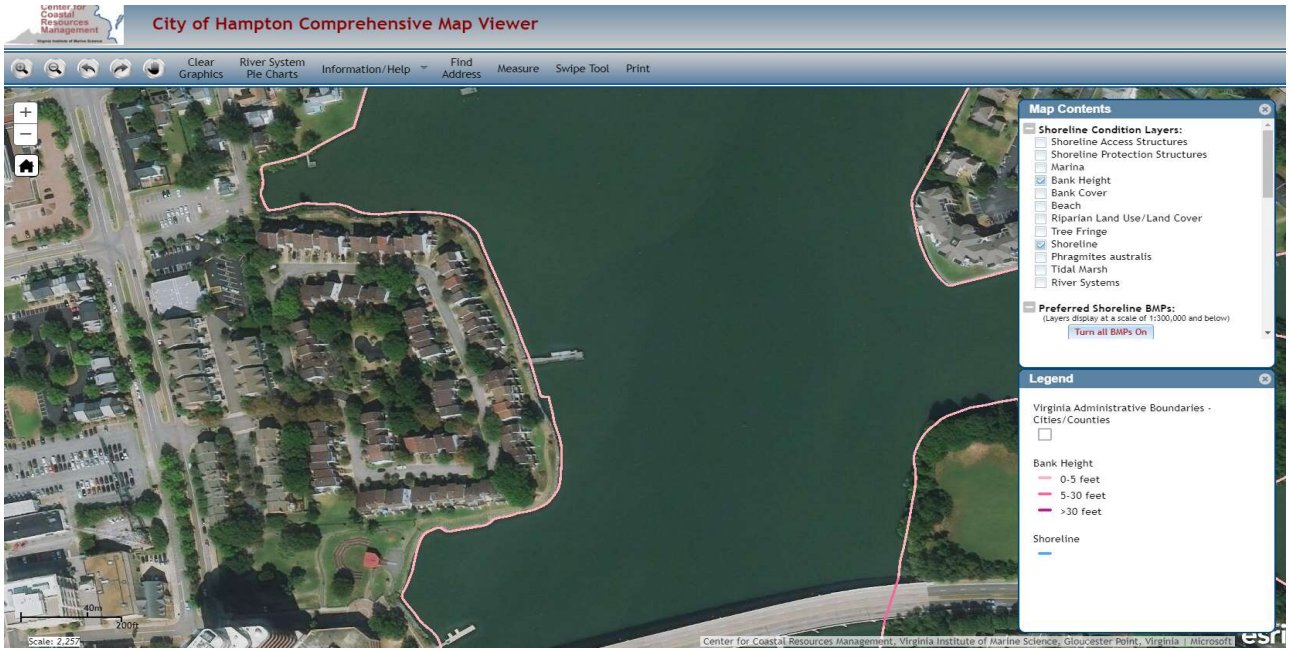
	Prevented Sediment (lbs/yr)	Denitri-fication (lbs/yr)	Sedi-mentation (lbs/yr)	Marsh Redfield Ratio (lbs/yr)	Totals (lb/yr)
TN	40.9	76.2	-	6.13	**123.3**
TP	29.4	-	4.7	0.27	**34.4**
TSS	48,387.3	-	6,242.5	-	**54,629.8**

POLLUTION REDUCTION CALCULATIONS

Shoreline Change Data - Erosion Rate and Reaches



CCRM - City of Hampton Bank Height Estimate



DESIGN CONTRACT

Work Order Number 11

RE: MILL POINT LIVING SHORELINE AND STORMWATER PARK DESIGN-PHASE I

Contract: Contract RFP 19-28/CLP is a Five-Year Annual Services Contract, dated September 18, 2019, for Consultant Services Agreement, between the City of Hampton Department of Public Works (City) and Brown and Caldwell (Engineer) for on-call professional services to provide water resources engineering and related.

Third Year Term: September 18, 2021 – September 17, 2022

Work to be performed in accordance with the terms, limitations, and conditions of said contract.

Scope of Work: The Engineer shall provide services related to data collection, public outreach, and up to 60% design for the Mill Point Living Shoreline project.

Schedule of Work: The Engineer shall complete the work within 11 months from execution of this work order.

Compensation: The Engineer will be reimbursed on a lump sum basis using percent complete for each phase. The project fee for the enclosed scope of work shall not exceed $389,197.50 without written permission from the City.

Submitted: _____ 7/28/2022
Don Cole — Date
Contract Manager

Approved: _____ 7/29/2022
City of Hampton — Date

Name: Scott A. Smith

Title: Senior Civil Engineer / Project Manager

DESIGN CONTRACT

Brown AND Caldwell

301 Bendix Road, Suite 400
Virginia Beach, VA 23452

T: 757-518-2400

WORK ORDER #11
CONTRACT # 19-28/CLP Water Resources Engineering Related Services

For the:
MILL POINT LIVING SHORELINE AND STORMWATER PARK DESIGN – PHASE I
SCOPE OF SERVICES

Background and Overview of Scope:

The City has requested that the Engineer provide survey, geotechnical, preliminary design services to the 30% level of design, and intermediate design services to the 60% level of design for the Mill Point Living Shoreline and Stormwater Park project. The work will include assisting with public outreach and coordination with state and federal permitting agencies to determine appropriate permits for the project.

The project includes approximately 1,700 linear feet of living shoreline restoration design on the Hampton River along the Mill Point residential development located just north of Settlers Landing Road. The project will include removal and reuse of existing riprap along the banks in the riprap sill that will be placed in the Hampton River to create high and low marsh wetland areas. The project also includes an approximate 0.5-acre area at the northwest corner of Lincoln Street and Eaton Street (and potentially a portion of Lincoln Street) for development of a stormwater park with water quality treatment and landscape, hardscape, and recreational amenities.

The Engineer will work with the City to produce design documents to the 60% level of design for the Mill Point Living Shoreline and to the 30% level of design for the Stormwater Park project (Figure 1). Effort will include work with the Survey Subconsultant to provide survey for the site, a Geotechnical Subconsultant for geotechnical services in preparation for design plans, and a Landscape Architecture Subconsultant for site and amenity design of the stormwater park. Site survey will include topographic and site features within the project limits of the site. Geotechnical services will include performing both land borings and water-side borings to determine the subsurface conditions at the site. Landscape architecture services will include landscape, hardscape, and recreational amenity design services.

The work will include nine (9) phases to complete this work order, with work anticipated to be completed over approximately 11 months. Two (2) additional/contingency phases are included that can be added at the City's request.

Figure 1. Project Limits

Compensation:

Completed work will be invoiced on a lump sum basis. Engineer will not exceed a total fee of $389,197.50 without written permission and associate budget adjustment from the City. Engineer may transfer compensation between phases for items not completed or that have come under budget, provided total compensation is not exceeded, with approval from the City.

The City shall pay the Engineer for services rendered at the lump sum fees provided under this work order. Invoices for engineering services shall be prepared monthly, based on the lump sum percentage of work completed by the Engineer during the preceding month.

Phase	Description	Cost
Phase 1	Project Coordination	$53,675.00
Phase 2	Topographic Survey and Site Base Mapping	$27,602.00
Phase 3	Geotechnical Engineering	$21,365.00
Phase 4	Site Assessment	$19,890.00
Phase 5	Preliminary Hydrologic and Hydraulic Modeling for Stormwater Park	$18,158.00
Phase 6	Concept Plans and Technical Memo	$67,045.00
Phase 7	Preliminary Design (30% Submittal)	$49,152.50
Phase 8	Intermediate Design (60% Submittal)	$41,584.00
Phase 9	Permits and Authorizations Research	$9,926.00
	Subtotal:	**$308,397.50**
Phase 10	Additional Services – Prepare and Submit Required Permits and Authorizations	$50,000.00
Phase 11	Owner Controlled Contingency (10% of Subtotal)	$30,800.00
	Total:	**$389,197.50**

Scope of Services:

Phase 1: Project Coordination

Task 1.1 Project Coordination and Administrative Tasks
Provide project management and administrative tasks necessary to manage the project. Work includes project maintenance, billing, tracking, project risk register, development of a project specific health and safety plan, team and subconsultant coordination, creating and maintaining a project schedule to track project progress, and quality management plan.

Deliverables:

- BC will provide monthly invoices with project status updates.

Task 1.2 Project Meetings
The Engineer will attend up to 11 meetings with the City to discuss the status of the project and design review comments as part of the design task of the project. The Engineer shall prepare meeting materials including agendas and meeting minutes and distribute to attendees. Meeting minutes will be provided within five (5) business days of the meeting occurrence. For meeting attendance, the Engineer assumes attendance by its Project Manager and Project Engineer; the Project Delivery Officer will attend up to four (4) of the meetings. The City will coordinate attendance by appropriate City staff. Meetings will include:

- One (1) Kickoff Meeting – In person
- Concept Plans and Technical Memo – In person
- Preliminary Design (30% Submittal) – Virtual

- Intermediate Design (60% Submittal) - Virtual
- Seven (7) Monthly Status Update Meetings – Virtual

Task 1.3 Public Information Meeting
The Engineer will assist in public outreach activities related to the project. The City will facilitate two (2) public information meetings, solicitation of public comments, and response to those comments. The public information meetings are anticipated to occur during the concept design and during the 30% design. The Engineer will prepare the public information meeting materials, up to three (3) digital renderings, and information for the City's website. The Engineer (Project Manager and Project Engineer) will attend the public information meetings to support City staff.

Deliverables:

- Three (3) digital renderings.
- Meeting minutes for the public information meetings.

Phase 2: Topographic Survey and Site Base Mapping
The Engineer will work with the Survey Subconsultant to provide a topographic and bathymetric survey and site base map within the project limits. The topographic survey will be performed in accordance with Virginia State guidelines as per section 18 VAC 10-20-382 of the Department of Professional and Occupational Regulation. Horizontal datum (HARN) and vertical (NAVD 88) will be tied to the City of Hampton control network.

Effort in this task also includes visits to each site for QA/QC review and coordination by BC with the Survey Subconsultant.

- Topographic survey of physical features within the survey limits. Contours shall be generated at one-half (0.5) foot intervals. Topographic survey shall also include a bathymetric survey of the riverbed bottom out to the survey limits. Topographic information shall be referenced to the NAVD 88 vertical datum. The meridian source shall be based on the Virginia State Plane Coordinate System of 1983, South Zone (NAD83) (1993-HARN).
- Establish four (4) temporary benchmarks for vertical control at the site tied to the datum referenced above.
- Locate rear lot corners and show departing property lines per the City GIS and other property records for the side lot lines, rights-of-way, and drainage and utility easements. Information sources will be disclosed in cases where non-surveyed sources were necessary to identify parcel corners or extents.
- Locate Mean Low Water (MLW), Mean High Water (MHW), and limits of local wetlands board jurisdiction (1.5 x Tide Range) at the datum referenced above. Method for determining these water levels shall be provided on the survey for the site.
- Determine location and elevation of top of bank, toe of bank, and any changes in slope.
- Locate and specify species and diameter for trees greater than 6-inches diameter at breast height within the survey limits. Other areas of woody vegetation and wetland grass will be surveyed and located separately by area.
- Locate any houses, outbuildings, fences, areas of debris, docks, dock pilings a minimum of 50 feet from the start of each dock, areas of rock or riprap, and any other aboveground site features within the survey limits.
- Determine the location, rim, grate, inverts, pipe sizes, pipe material, etc. for storm sewer and sanitary sewer systems within the survey limits and extending upstream and

downstream two structures in each system. Also include ground surface elevations around the two upstream and downstream structures in each system.

- Locate aboveground and underground utilities. Submit underground utility locate tickets through the Virginia one call service and field locate underground utilities such as power, gas, water, communications, etc., based on field locates by the one call system and surveyor field observations.

Deliverables:

- One paper copy survey signed and sealed by a registered VA Professional Land Surveyor and an electronic copy (AutoCAD R2019 format).

Phase 3: Geotechnical Engineering

The purpose of the geotechnical engineering services will be to determine pertinent information regarding the subsurface soil and groundwater conditions at the site in order to provide conclusions and recommendations related to the shoreline restoration and stormwater park. To determine the project area subsurface conditions the following tasks will be completed:

- Contact the local underground utility service company prior to beginning our field services, in order to identify the location of underground utilities at the project sites. Please note that we are unable to determine if private utilities are on this site. Also, stake the proposed landside boring locations.
- Locate and advance three (3) 40-feet deep Standard Penetration Test (SPT) borings and five (5) Vibra-cores at 10-feet deep from the mudline at the locations selected by the Engineer.
- The SPT borings will be performed with the use of a power drill rig, using hollow stem auger and rotary wash "mud" drilling procedures. The soil samples will be obtained with a Split-Spoon Sampler in general accordance with the Standard Penetration Test (SPT) method ASTM D 1586. These samples will be taken continuously from the ground surface to a depth of 12 feet, and at 3- to 5-foot intervals thereafter.
- The Vibra-core sampling will be performed from a vessel.
- The Vibra-core samples will be collected by driving a 2-inch diameter tube into the mud line of the sampling area. The samples will be collected continuously from the mudline to approximately 8.0 to 10.0 feet below the mudline (as feasible) as required to obtain samples representative of the subsurface soils.
- Locate and advance three (3) 10-feet deep machine augers at the stormwater park site at locations selected by the Engineer.
- Perform limited laboratory classification tests on selected soil samples collected from the borings in order to determine in-situ moisture content, moisture-plasticity relationships (Atterberg Limits), and sieve analysis, as deemed necessary.
- Prepare an engineering report signed by a registered Professional Engineer presenting:
    - Data
    - Soil boring/auger logs and Vibra-core samples
    - Depth of water at sampling locations
    - Depth of muck
    - Bedding recommendations for proposed rip-rap berms:
        - Depth of undercut if unstable soils
        - Approximate bearing capacity of in-situ soils

- Slope stability analyses adjacent to the concrete walkway

Deliverables:

- Two (2) geotechnical engineering reports signed and sealed by a registered VA Professional Engineer.

Phase 4: Site Assessment

Task 4.1 Site Assessment

The Engineer will conduct a desktop assessment of the project site shoreline to collect information including fetch, depth offshore, shoreline geometry and orientation, tide range, storm surge frequency, and design wave determination. Once this information is collected an on-site assessment will occur at the site where more site specific information will be collected. Information collected will include bank height, bank composition, condition and composition of Resource Protection Area buffer, proximity to infrastructure and utilities, exposure to boat wakes, and any existing shoreline defense structures. The site will also be categorized as low-energy, medium-energy, or high-energy based on the fetch; this determination will be used to help with selection of restoration materials and methods. Photographs will be taken as part of the assessment to document conditions at the time of assessment.

Engineer will also review available data related to the stormwater park site including the contributing watershed, drainage system (two outfalls at site), site characteristics and existing features, and existing underground utilities. Once survey and geotechnical data is available, Engineer will perform a limited field review of conditions within the project area. The focus of the field visit will include confirming the location of primary drainage features and their connectivity to the Hampton River, reviewing potential drainage system improvements, identifying potential locations and options for water quality BMPs, and identifying potential landscape and hardscape improvements (per the Downtown Hampton BID Implementation Strategy) to create a stormwater park.

Task 4.2 Jurisdictional Determination

Engineer will delineate the boundaries of jurisdictional waters and wetlands associated with the proposed project study area. The wetland boundaries will be marked using flagging based on the methodologies outlined in the Regional Supplement to the U.S. Army Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0). Field data and photographs will be collected within wetland and upland areas to serve as supporting documentation for the delineation. Engineer's Survey Subconsultant will survey-locate waters of the U.S. flags for the U.S. Army Corps of Engineers (USACE) Norfolk District report submittal.

Engineer will prepare a written request to the USACE seeking confirmation of the wetland delineation and issuance of a Preliminary Jurisdictional Determination (PJD). The written request will include a description of the jurisdictional waters and wetlands, accompanying graphics and maps, USACE Regional Supplement wetland delineation forms, and site photos. Engineer will coordinate with a USACE staff representative to perform the field inspection if required.

Engineer will perform a field study to determine the limits of Chesapeake Bay Preservation Areas that include the Resource Protection Area (RPA) and the Resource Management Area (RMA). Once field data on streams and adjacent wetlands are collected, Engineer will make a determination of the limits of RPA based on current guidance provided by the Department of Conservation and Recreation (DCR) and/or Virginia Department of Environmental Water Quality (DEQ), and City of Hampton. Engineer will submit a request to the appropriate representative of City of Hampton to confirm the identified limits of Chesapeake Bay Preservation Areas if required. Engineer will arrange an onsite meeting with the City of Hampton representative to inspect the mapped limits of the RPA and RMA, if applicable. A Water Quality Impact Assessment is not included in this scope of services.

Phase 5: Preliminary Hydrologic and Hydraulic Modeling for Stormwater Park
In support of the alternatives evaluation and preliminary design, the Engineer team will use a hydrologic and hydraulic (H&H) model to simulate existing and proposed conditions within the stormwater park area. Engineer will develop necessary H&H modeling parameters using collected watershed, river, and survey information from Phase 2. Engineer will use an H&H model provided by the City, or will develop a preliminary SWMM or similar model, to analyze the existing conditions within the project area.

The existing conditions model will be used to estimate the existing condition peak stages within the project area for the 10-year, 25-year, and 100-year 24-hour storm events.

Preliminary proposed conditions will be modeled based on the two alternatives and 30% design. Pre- and post-project water surface elevations for the 10-year, 25-year, and 100-year 24-hour storm event will be compared at locations within the project area.

Deliverables

- Analysis procedure and results of the H&H modeling in tables and/or figures.

Phase 6: Concept Plans and Technical Memo
After the site assessment has been completed, the Engineer will prepare a single sheet schematic plan view for two (2) alternatives to the 10% design level for the site based on the information collected in previous phases. The concept plans will include areas of potential shoreline restoration, wetland restoration, potential public access points, and stormwater park elements. Typical proposed cross sections will be created and provided for each plan to help illustrate the proposed general restoration activity.

Engineer will estimate the average annual pollutant load reduction for total nitrogen, total phosphorus, and total suspended solids for the two stormwater BMP alternatives at the stormwater park and for the living shoreline restoration.

The Engineer will prepare a short Technical Memo discussing the two designs. The Technical Memo will include the design approach, the concept design, pollutant load reduction, and conceptual opinion of probable construction cost (OPCC) for each option. A conceptual list of riparian buffer plants will be provided based on the available buffer areas along the shoreline.

At the completion of this task, a meeting will be held with the City to review the alternatives evaluation and select the alternative to be incorporated into the 30% design.

Deliverables:

- Two schematic plans and typical cross-sections.
- Technical Memo.

Phase 7: Preliminary Design (30% Submittal)
The Preliminary Design of the living shoreline and stormwater park will be developed under this phase using information completed in previous phases and selected conceptual plan developed in Phase 6. This phase of work includes the following:

Task 7.1 Preliminary Design Plans
The 30% plan drawings will be prepared in AutoCAD (Civil 3D) and include the proposed improvements utilizing City of Hampton and VDOT standard details when possible. The Engineer anticipates the Preliminary Design plan sheets will include 22, 22" x 34" sheets as follows:

- Cover Sheet - *(1 sheet)*
- General Notes, Legend, and Abbreviations - *(1 sheet)*
- Sheet Key Plan - *(1 sheet)*
- Existing Conditions (survey) - *(5 sheets)*
- Clearing and Demolition Plans - *(5 sheets)*
- Grading (and Drainage for Stormwater Park) Plans - *(5 sheets)*
- Cross Sections - *(3 sheets)*
- Hardscape/Amenity Plans - *(1 sheet)*

Task 7.2 Shoreline Modeling
Modeling of the shoreline will consist of using the U.S. Army Corps of Engineers (USACE) Automated Coastal Engineering System (ACES) model to determine wave period and shallow wave height for design of the living shoreline sill structure.

Task 7.3 Outline Technical Specifications
An outline of the anticipated general and technical specification sections will be developed and prepared in Microsoft Word. The Technical Specifications outline will be based on HRPDC specifications for the contract documents.

Task 7.4 Class 3 - 30% Opinion of Probable Construction Cost
A Class 3 cost opinion will be prepared by the Engineer under this task.

Note: In accordance with the Association for the Advancement of Cost Engineering International (AACE) criteria, this is a Class 3 estimate. A Class 3 estimate is defined as a basis for budget authorization with engineering typically 10% to 40% complete. Class 3 estimates are used to support full project funding requests, and become the first of the project phase "control estimates" against which all actual costs and resources will be monitored for variations to the budget. Expected variation of actual construction cost for Class 3 estimates typically ranges from -20% to +30%, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. In unusual circumstances, ranges could exceed those shown.

Task 7.5 QA/QC Review
Prior to the Preliminary Design submittal, the Engineer will conduct an internal QA/QC review of materials to be submitted to the City.

A virtual review workshop (Task 1.2) will be conducted following receipt and review of City comments.

Deliverables:

- Three (3) copies of Preliminary Design Plans (30%) on 22" x 34" drawing sheets plus one (1) digital PDF copy.
- One (1) copy of specification section outline plus one (1) digital PDF copy.
- One (1) copy of Class 3 Cost Opinion plus one (1) digital PDF copy.

Phase 8: Intermediate Design (60% Submittal)
The Intermediate Design of the living shoreline will be developed under this phase using information completed in previous phases and comments received from the City's plan review of the living shoreline design in Phase 7. The stormwater park will not be included in this portion of the 60% submittal and will be updated under a separate scope of work. This phase of work includes the following:

Task 8.1 Intermediate Design Plans
The 60% plan drawings will be prepared in AutoCAD (Civil 3D) and include the proposed improvements utilizing City of Hampton and VDOT standard details when possible. The Engineer anticipates the Intermediate Design plan sheets will include 34, 22" x 34" sheets as follows:

- Cover Sheet - *(1 sheet)*
- General Notes, Legend, and Abbreviations - *(1 sheet)*
- Sheet Key Plan - *(1 sheet)*
- Existing Conditions (survey) - *(5 sheets)*
- Clearing and Demolition Plans - *(5 sheets)*
- Erosion and Sediment Control Plan - *(4 sheets for living shoreline only)*
- Grading (and Drainage for Stormwater Park Plans (at 30% level of design)) - *(5 sheets)*
- Cross Sections - *(3 sheets)*
- Hardscape/Amenity Plans (at 30% level of design - *(1 sheet)*
- Landscape Plan - *(4 sheets for living shoreline only)*
- Erosion and Sediment Control Notes - *(1 sheet)*
- Erosion and Sediment Control Details - *(1 sheet)*
- Civil Details - *(2 sheets for living shoreline only)*

Task 8.2 Shoreline Modeling
Update the USACE ACES model based on City comments from the 30% submittal review to reflect applicable design revisions or wave period and shallow wave height considerations for design of the living shoreline sill structure.

Task 8.3 Outline Technical Specifications
The outline of the anticipated general and technical specification sections will be updated in Microsoft Word based on comments from the 30% submittal. The Technical Specifications outline will be based on HRPDC specifications for the contract documents.

Task 8.4 Class 2 - 60% Opinion of Probable Construction Cost
A Class 2 cost opinion will be prepared by the Engineer under this task.

Note: In accordance with the Association for the Advancement of Cost Engineering International (AACE) criteria, this is a Class 2 estimate. A Class 2 estimate is defined as a Control Baseline Estimate with engineering typically 30% to 70% complete. Class 2 estimates are used to form a detailed control baseline against which all project work is monitored in terms of cost and progress control. Expected variation of actual construction cost for Class 2 estimates typically ranges from -15% to +20%, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. In unusual circumstances, ranges could exceed those shown.

Task 8.5 QA/QC Review
Prior to the Intermediate Design submittal, the Engineer will conduct an internal QA/QC review of materials to be submitted to the City.

A virtual review workshop (Task 1.2) will be conducted following receipt and review of City comments.

Deliverables:

- Three (3) copies of Intermediate Design Plans (60%) on 22" x 34" drawing sheets plus one (1) digital PDF copy.
- One (1) copy of specification section outline plus one (1) digital PDF copy.
- One (1) copy of Class 2 Cost Opinion plus one (1) digital PDF copy.

Phase 9: Permits and Authorizations Research
The Engineer will research and identify the necessary state and federal permits or authorizations that would be needed for the project based on the awarded grants and proposed improvements. The Engineer will prepare a brief technical memorandum (TM) showing a matrix of permits/approving authorities, when the permits would be needed, and a description of path forward/strategies for acquisition. The permit expectations will be based on a desktop evaluation using readily available regulatory and resource information (streams, wetlands, threatened and endangered (T&E) species habitat, potential environmental justice communities), and other pertinent environmental data with respect to the immediate project area.

The requirements of the American Rescue Plan Act (ARPA) and other FEMA Funds for water projects will also be evaluated and included in the review. State environmental review is not expected to be required as the project would likely not be classified as a major project. As part of this task, we will confirm the information included in the TM through discussion with the permitting agencies and knowledge gained from participating in relevant project meetings. Once the required permits and authorizations are known and discussed with the City, the Engineer will coordinate with the City and use the information to refine the scope and budget for the Phase 10 Additional Services to refine the associated scope and budget for authorization by the City.

Phase 10: Additional Services – Prepare and Submit Required Permits and Authorizations
Once the scope and budget for this additional phase has been determined in coordination with the City and approved, the Engineer will proceed with applying for the required permits identified. This effort would include setting up pre-application meetings with permitting agencies to understand their concerns and determine how to address those concerns in the applications. Permit applications and supporting documentation will be compiled and submitted and we will respond to one round of agency questions, if any. If federal NEPA documentation is required due to a currently unrecognized federal nexus (e.g., required federal permit or authorization), that work would be completed under this task if it is a Categorical Exclusion, an environmental document submittal, or a brief draft environmental assessment without the need for public input. An approximate budget of $50,000 has been estimated for this effort for budgeting purposes. A detailed scope and fee will be provided for this task upon request of the City.

Phase 11: Additional Services – Contingency
This phase includes a budget for Owner Controlled Contingency which is 10% of the total Task Order budget. The Engineer will not proceed with work under this phase without prior authorization from the City. The Engineer will coordinate scope and fee estimates with the City prior to proceeding with any work under this task.

Information Provided by the City:

City will provide the following in support of the project:

- Access to the project area properties
- Survey plats as available to assist with determining the boundary and right-of-way conditions
- Record drawings and site plans of the project area as available
- Attendance at project workshops and meetings
- Access to City records, GIS mapping and other data sources to support the project
- All available design and as-built information within the project area
- If available, any current drainage system model for the project drainage system
- City underground utility information and locates
- Any available standard utility specifications
- Coordination with other City agencies
- Previous environmental studies of the project area

Assumptions:

The following assumptions have been made during the development of this scope:

1. The Engineer will be using AutoCAD and will be following Brown and Caldwell drawings standards.
2. Fee estimate for Project Coordination is based on an approximately 11 month duration for Phases 1 through 9.
3. Additional meetings beyond those listed within this scope will be considered additional services.
4. The City will notify residents that a topographic survey will be conducted within the project limits and obtain permission (if needed) to enter private property within the project limits to complete the survey.
5. Survey information will be based on the NAVD 88 vertical datum and the meridian source will be based on the Virginia State Plane Coordinate System, South Zone NAD83 (1993-HARN).
6. Survey will be limited and include information needed to complete the alternatives evaluation and 30% and 60% design within the project area. Off-site survey of drainage systems or other features, except as described above, are not included.
7. Data collected during survey may need to be supplemented with additional survey during the final design phase.
8. The City will provide all available design and as-built information within the project area within 2 weeks of NTP.
9. Geotechnical investigation will be limited and include information needed to complete the alternatives evaluation and 30% and 60% design.
10. Data collected during the geotechnical investigation may need to be supplemented with additional geotechnical investigation during the final design phase.
11. This scope of work assumes any disturbances to pavement will be replaced in-kind and that no pavement design will be required.
12. The field review will be completed in one day by a two-person field crew.

13. The City will provide Engineer with access to all related GIS coverages and other available information within the project area within 2 weeks of NTP.
14. Site assessment visit will be performed as close to low-tide levels as possible.
15. If available, City will provide the current drainage system model for the project drainage system within 2 weeks of NTP.
16. BC modeling will include existing condition and two alternative proposed conditions for three design storm events.
17. Preliminary modeling performed during this phase will need to be supplemented with additional modeling with more detailed proposed improvements during the final design phase (not included in this task order).
18. Conceptual Opinion of Probable Construction Cost will be Class 5 estimate per AACE guidelines and include an appropriate contingency and +/- range.
19. Preliminary Design Opinion of Probable Construction Cost will be Class 3 estimate per AACE guidelines and include an appropriate contingency and +/- range.
20. Intermediate Design Opinion of Probable Construction Cost will be Class 2 estimate per AACE guidelines and include an appropriate contingency and +/- range.
21. Design is limited to 60% level of completion for the living shoreline and 30% level of completion for the stormwater park project area shown on Figure 1.
22. Design does not include site layout information (e.g. coordinates), detailed grading, storm sewer profiles, detailed information about stormwater park hardscape, recreational elements, or other amenities, project details, or regulatory mitigation plans.
23. Any comments on the Technical Memo will be incorporated into the 30% design.
24. Any comments on the 30% design will be incorporated into the 60% design.
25. Comments on the 60% plans will be incorporated into the 90% percent plans (not included in this task order).
26. The 30% and 60% review meetings will be held virtually.
27. City to provide one consolidated set of review comments on the Concept Plans/TM, 30%, and 60% design plans and specifications.
28. It is assumed the City's review time for the Concept Plans/TM, 30% Design, and 60% Design documents will be no more than 4 weeks for each submittal.
29. Regulatory agencies will not provide significant comments that will require major modifications of the design plans or more than one response to a request for additional information.
30. Disturbed area of the project is anticipated to be over one (1) acre and a Stormwater Pollution Prevention Plan (SWPPP) will be required (not included in this task order).
31. The Engineer assumes all fees required for City reviews are waived. This includes site plan review, plat review, and recording fees.
32. Any permit application or other fees will be paid by the City.
33. Costs to evaluate or secure compensatory wetland mitigation, or create mitigation plans, are not included in this scope of work. Submerged aquatic vegetation (SAV) is assumed to not be present at the site, which is the condition where mitigation is anticipated as necessary; therefore, it is not anticipated that mitigation will be required.
34. Surveys for protected species habitat; archaeological and/or historic site surveys and documentation; and preparation of U.S. Coast Guard permit or approval application are not expected to be needed due to the assumption of categorical exclusion and such work is not included as part of this scope of work.

35. It is assumed for the purposes of this additional services that a detailed environmental assessment or an environmental impact statement will not be needed.

Time Limit of Project:

The following is the anticipated schedule to complete the tasks as reflected above. The Engineer will substantially complete this plan and provide the deliverables within 11 months of an anticipated August 1, 2022 notice to proceed (NTP), barring unforeseen circumstances.

Phase	Task Length (weeks)	Task Schedule – After NTP
Phase 1 – Project Coordination	47	06/23/2023
Phase 2 – Topographic Survey and Site Base Mapping	8	09/30/2022
Phase 3 – Geotechnical Engineering	6	09/16/2022
Phase 4 – Site Assessment	2	10/28/2022
Phase 5 – Preliminary Hydrologic and Hydraulic Modeling for Stormwater Park	22	12/30/2022
Phase 6 – Concept Plans and Technical Memo	6	12/09/2022
Owner Review	4	01/06/2023
Phase 7 – Preliminary Design (30% Submittal)	8	03/10/2023
Owner Review	4	04/07/2023
Phase 8 – Intermediate Design (60% Submittal)	5	05/19/2023
Owner Review	4	06/16/2023
Phase 9 – Permits and Authorizations Research	4	05/12/2023

Hampton, City of (VA) – HAMP SW Mill Point Living Shoreline and Stormwater Park - Phase I

Phase	Phase Description	Engineer IV PM	Project Analyst	Engineer V	Engineer IV	Engineer III	Engineer II	Scientist II	Principal	Admin Professional I	Principal Senior QA/QC	Total Labor Hours	Total Labor Effort	Owner Contingency	Additional Services	Reproduction	Lodging and Food	Other Travel	Total ODCs	MSA Cost	GET Cost	WPL Cost	Includes 10% Markup Total Subcontractor Effort	Total Expense Effort	Total Effort
		$175.00	$89.00	$197.00	$175.00	$151.00	$126.00	$126.00	$210.00	$70.00	$210.00														
010	Project Coord	140	43	4	0	0	80	0	40	0	0	307	$ 47,595.00	$ -	$ -	$ 600.00	$430.00	$1,200.00	$ 2,230.00	$ -	$ -	$ 3,500.00	$ 3,850.00	$ 6,080.00	$ 53,675.00
020	Topo Survey	6	0	0	0	0	4	0	0	0	0	10	$ 1,554.00	$ -	$ -	$ -	$ -	$ -	$ -	$23,680.00	$ -	$ -	$ 26,048.00	$ 26,048.00	$ 27,602.00
030	Geotech	6	0	0	0	0	4	0	0	0	0	10	$ 1,554.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$18,010.00	$ -	$ 19,811.00	$ 19,811.00	$ 21,365.00
040	Site Assessment	22	0	4	0	16	16	28	4	0	4	94	$ 14,278.00	$ -	$ -	$ -	$225.00	$ 360.00	$ 585.00	$ -	$ -	$ 4,570.00	$ 5,027.00	$ 5,612.00	$ 19,890.00
050	Prelim HH Modeling SW Park	8	0	0	0	0	108	0	3	0	12	131	$ 18,158.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 18,158.00
060	Concept Plan & TM	84	0	40	8	88	92	0	20	8	16	356	$ 56,980.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,150.00	$ 10,065.00	$ 10,065.00	$ 67,045.00
070	Preliminary Design (30% Submittal)	64	0	22	0	64	112	0	18	0	14	294	$ 46,030.00	$ -	$ -	$ 400.00	$ -	$ -	$ 400.00	$ -	$ -	$ 2,475.00	$ 2,722.50	$ 3,122.50	$ 49,152.50
080	Intermediate Design (60% Submittal)	70	0	22	0	60	90	0	10	0	10	262	$ 41,184.00	$ -	$ -	$ 400.00	$ -	$ -	$ 400.00	$ -	$ -	$ -	$ -	$ 400.00	$ 41,584.00
090	Permits and Authorizations	14	0	0	0	0	6	40	0	0	8	68	$ 9,926.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,926.00
100	Addtl Serv-Prep & Submit Permits	0	0	0	0	0	0	0	0	0	0	0	$ -	$ -	$50,000.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 50,000.00
110	Addtl Serv-Owner Contingency	0	0	0	0	0	0	0	0	0	0	0	$ -	$ 30,800.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 30,800.00
	GRAND TOTAL	414	43	92	8	228	512	68	95	8	64	1,532	$237,259.00	$ 30,800.00	$50,000.00	$1,400.00	$655.00	$1,560.00	$ 3,615.00	$23,680.00	$18,010.00	$19,695.00	$ 67,523.50	$ 71,138.50	$389,197.50

DESIGN CONTRACT

BUDGET DOCUMENTATION

Mill Point Living Shore Line Project

OPINION OF PROBABLE COST

Plans - Conceptual Plan, prepared by Brown and Caldwell, Mill Point Living Shoreline
Estimate Date 9/28/2022
Prepared By: Scott A. Smith, PE - City of Hampton

Phase 1 - Design Costs

Line Item Number	Description	Quantity	Units	Unit Prices	Total Item Price	Unit Price Source
Administration						
	Legal/Administration	1	EA	$30,000.00	$30,000	**City of Hampton**
						$30,000 Legal/Administration Costs
Design Costs						
01 11 31.30 0800	Engineering Fees - Preliminary	1	EA	$158,123.00	$158,123	**City of Hampton**
	Engineering Fees - Final	1	EA	$311,877.00	$311,877	
						$470,000 Design Costs
01 45 23.50 5550	Project Inspection	26	weeks	$4,950.00	$128,700	**RS Means**
						$128,700 Project Inspection Costs

Phase 2 - Construction Costs

General Requirements						
01 54 56.50	Mobilization	1	LS	$100,000.00	$100,000	**RS Means**
01 71 23.13 110	Construction Layout	20	days	$2,650.00	$53,000	**RS Means**
01 31 13.20 0020	Construction Administration	10	weeks	$730.00	$7,300	**RS Means**
01 31 13.20 0200	Construction Management	40	weeks	$2,550.00	$102,000	**RS Means**
						$262,300 **General Requirements**
Utility Relocations & Signs						
01 58 13 0020	Project Signs	2	EA	$547.70	$1,095	**RS Means**
						$1,095 **Utility Relocations & Signs**
Demolition						
02 41 13.17 5800	Concrete Removal 6" Thick mesh reinforced	1,300	SY	$21.55	$28,015	**RS Means**
						$28,015 **Demolition**
Erosion and Sediment Control						
31 37 13.10 0300	Construction Entrance	50	Ton	$36.00	$1,800	**RS Means**
31 25 14.16 1000	Silt Fence	2,300	LF	$4.40	$10,120	**RS Means**
01 56 26.50 0610	Tree Protection	300	LF	$5.00	$1,500	**RS Means**
	Turbidity Curtain	2,100	LF	$34.00	$71,400	**VDOT Suffolk District Average, May 2018-June 2020**
31 25 14.16 1100	Maintenance of E&S Practices	6	Mon	$200.00	$1,200	**RS Means**
						$86,020 **Erosion and Sediment Control**
Landscaping						
32 93 43.10 0590	LS Wetland Planting	7,000	SY	$54.42	$380,940	**RS Means**
03 05 13.25 0950	LS Wetland planting media (12" Thick Sand)	2,333	CY	$80.00	$186,640	**RS Means**
31 37 13.10 0200	Wetland Sill -Class II Riprap	3,750	TN	$110.00	$412,500	**RS Means**
	Oyster Shell Base	7,000	SY	$2.10	$14,700	**USACE**
	Oyster Spat	7,000	SY	$4.15	$29,050	**USACE**
	8' Concrete - exposed aggregate sidewalk	1,300	SY	$67.50	$87,750	**RS Means**
						$1,023,830 **Landscaping**
Construction Sub Total					$1,226,710	**$1,401,260 Construction Costs**
Sub-Total Design & Construction						$2,029,960
Contingency (5%) Construction Costs						**$70,063 Contingency (5%)**
						$2,100,023 Total Design and Construction

HAMPTON VA

Memorandum

Date: 9/30/2022

To: SLAF Application File

From: Scott A Smith, PE

Subject: Budget Documentation 2022 SLAF GRANT – Mill Point Living Shoreline

The finance department confirmed on 9/28/22 that sufficient funds are available in the 2019 Stormwater Bond Fund to cover the total match of $2,220,950.00 City match for the 2022 SLAF Applications.

The applications are identified below:
Mill Point Living Shoreline - $970,950.00 – Account 2019 Stormwater Bond Fund
Butler Farm Wet Pond Retrofit - $1,250,000.00 – Account 2019 Stormwater Bond Fund.

Mill Point Living Shoreline

Project Costs

Preliminary Engineering	$158,123.00
Final Engineering	$311,877.00
Legal/Administration	$30,000.00
Project Inspection	$128,700.00
Construction	$1,401,260.00
Construction Contingency -	$70,063.00
Mill Point Living Shoreline Total Costs -	**$2,100,023.00**

Funding Summary

2019 Stormwater Bond Fund	$31,625.00
2021 Community Flood Preparedness Fund	$126,498.00
2019 Stormwater Bond Fund	$970,950.00
2022 SLAF Grant Fund Request	$970,950.00
Mill Point Living Shoreline Total Costs -	**$2,100,023.00**

Public Works Engineering
22 Lincoln Street | Hampton, Virginia 23669
www.hampton.gov | P: (757) 727-8311