

June 3, 2019

Ms. Gina Gilpin  
Purchasing Agent  
Town of Vienna – Vienna Town Hall  
127 Center Street South  
Vienna, Virginia 22180

**RE: Revised Scope of Work and Cost Proposal for Hunters Branch Stream Restoration–  
RFP Number 18-02**

Dear Ms. Gilpin,

Wood Environment & Infrastructure Solutions (Wood) is pleased to submit our scope of work and cost proposal for the Town's *Hunters Branch Stream Restoration Project*. The attached cost proposal includes a breakdown of fully burdened hourly rates for all proposed individuals along with the estimated hours for each individual by task. This contract will be invoiced as hourly not-to-exceed.

Again, we greatly appreciate the opportunity to continue our partnership with the Town in supporting this project. Should you have any questions or require additional information regarding our scope of work and cost proposal, please feel free to contact me at (703) 488-3707 or [troy.biggs@woodplc.com](mailto:troy.biggs@woodplc.com).

Sincerely,  
Wood Environment & Infrastructure Solutions



M. Troy Biggs, PE, PH, D.WRE  
Project Manager



Tucker Clevenger, PE, CFM  
DC Office Manager

Name	Signature	Date
Attachment 1 – Scope and Cost Summary		
Attachment 2 – Cost Breakdown		
Attachment 3 – Bowman Consulting Group Subcontractor Proposal		

# HUNTERS BRANCH STREAM RESTORATION

## PROPOSED SCOPE OF SERVICES

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### A. GEOMORPHIC ASSESSMENT

#### PROPOSED SUBTASKS

The geomorphic/stream assessment will include the following items, to be performed sequentially:

- ▶ Watershed Assessment
- ▶ Geomorphic Channel Assessment / Hydrologic Comparison
- ▶ Detailed Stream Characterization
- ▶ Riparian Buffer Assessment
- ▶ Assessment of Stable Reaches Along Hunters Branch

#### Watershed Assessment

Wood will review the Accotink Creek Watershed Study and obtain existing readily available mapping data that will be used to assess historical, present, and planned land use practices and their impact on the morphology of Hunters Branch. This data will also be used to develop a clear understanding of watershed history and its influence on the hydrologic characteristics of Hunters Branch. Such an understanding is necessary to determine restoration potential for the subject corridor. The data reviewed could include any of the following depending on availability from the Town:

- |  |  |
|--|--|
| ▶ Climatic data  | ▶ Personal interviews to determine past stream conditions, channel and floodplain alterations, and land use activities |
| ▶ Aerial photographs (recent and historical)               | ▶ Major development plans for the watershed upstream of the project  |
| ▶ Site photographs   | ▶ Basin hydrology  |
| ▶ Topographical map of the watershed                       | ▶ Water quality data including information on point source and non-point source pollutants and stormwater outfalls     |
| ▶ Land use and land cover maps                             |  |
| ▶ Historical documents describing past land use activities |  |
| ▶ Geology  |  |
| ▶ Soils  |  |

Wood will verify existing watershed boundaries and sub-watershed boundaries to the project area. All of the collected information will be reviewed to develop an initial understanding of why certain reaches are unstable.

#### Geomorphic Channel Assessment/Hydrologic Comparison

Urban systems such as Hunters Branch are supply-limited systems. The watershed has been built out, and sediment coming from colluvium and alluvium from ephemeral streams has been replaced with parking lots and storm sewers. This man-man landscape delivers smaller gravel, sands, and salts from road operations and construction. The primary source of moving sediment in these systems is local bank erosion. When this erosion is corrected through restoration, the amount of sediment delivered downstream is drastically reduced.

Degraded urban streams are out of equilibrium. Due to incision and disconnection from the floodplain, the bankfull discharge or “channel filling discharge” does not necessarily correlate well with the effective discharge, or discharge responsible for moving the most sediment over time. Urban streams have such a high degree of instability that there are usually limited physical indicators present to establish a bankfull stage for the project stream reach.

Wood will identify and validate bankfull stage/channel filling stage indicators for the project stream reach prior to completing the morphological survey. The stage validation will be accomplished through an analysis and comparison of field identified indicators within the reach and output from hydraulic computations. Investigation of the inner berm features located along the incised channel will help determine the design discharge to be used

for sizing the channel. Wood will conduct a hydrologic analysis to determine the channel filling (bankfull) discharge for the site. The analysis will be performed considering regional curve data, USGS gage data (where available) and special geological considerations that may alter expected runoff at the site.

In order to determine discharge values for the project area along Hunters Branch where applicable, Wood will compare information from the Difficult Run Watershed Study along with urban regression equations based on United States Geological Survey Water-Supply Paper 2207 and streamflow data from a surrounding USGS gaged site. These comparisons will allow Wood to determine design discharges for higher return intervals (i.e. 100-yr discharge) as well as for lower more frequent discharges which will aid in sizing the channel.

**Deliverable:**

- A one page or less technical memo will be submitted to the Town summarizing the results of the discharge values based on the USGS Water-Supply Paper 2207.

**Detailed Stream Characterization**

Once the geomorphic map is completed, Wood will survey stream morphological character in detail within the project limits. The detailed survey will only be conducted on selected representative reaches identified during the development of the geomorphic map.

The detailed stream survey will describe the existing morphological character of the stream within the project limits. The Rosgen Stream Classification system will be used to describe the morphological character of the surveyed streams. The Stream Channel Classification (Level II) will be completed for each representative reach and the following data will be collected:

- |                                       |                              |
|---------------------------------------|------------------------------|
| ▶ Bankfull/channel filling dimensions | ▶ Longitudinal facet profile |
| ▶ Plan-form dimensions                | ▶ Channel substrates         |
| ▶ Flood-prone dimensions              |                              |

The reach-wide pebble count procedure (developed by Wolman, 1954 and modified by Rosgen, 1996) will be used to determine the composition of the streambed for stream classification purposes. Channel substrate material will be selected and measured in accordance with the procedure. After counts and tallies are complete, the data will be plotted by size class and frequency. In order to further characterize the upstream sediment supply, Wood will perform pebble counts and bar sampling of both the channel substrate and bank material to develop an understanding of sediment processes through the project reach. The upstream and downstream reach sediment deposition conditions will be used to assess the current sediment transport capacity and equilibrium conditions.

**Deliverables:**

- Stream Channel Classification
- Pebble Count Form and Plot

**Riparian Buffer Assessment**

Wood will perform a riparian buffer assessment, to include visual reconnaissance of the plant communities occurring within the riparian area of the stream reach. Information on plant species composition and areal cover, by strata (canopy, shrub, and ground story), will be recorded for each plant community. Additional information to be recorded will include presence and cover of nuisance plant species and occurrences (areas) of vegetative/ground disturbance. Photographic documentation of existing site conditions will be obtained. After the field survey has been completed, Wood will walk the site with the Town Arborist to identify trees which could potentially be worth saving.

**Deliverable:**

- A brief memorandum (3-page maximum) on the results of the riparian buffer assessment, along with a photographic log, will be provided to the client.

**Assessment of Stable Reaches along Hunters Branch**

Wood will walk upstream and downstream of the reach in order to field verify and locate stable geomorphic sections along Hunters Branch. Wood will survey cross sections and slopes and perform pebble counts along the stable reach. These stable cross sections will be modeled (at a section model using Manning's equation) and velocity, shear stress, and stream power for infrequent higher discharges will be determined along with the floodplain width, floodprone width, etc. This information will provide a valuable insight to how the stable sections are able to carry flow, and these parameters will be incorporated into the design along the project reach.

**Deliverable:**

- A one page or less technical memorandum will be submitted to the Town summarizing the results of the stable reaches along Hunters Branch

**B. STAKEHOLDER MEETING – PUBLIC OUTREACH**

**PROPOSED SUBTASKS**

**Identification of Restoration Objectives**

Two Wood staff will work with the Town to facilitate a kickoff meeting and conduct a stream walk with the Town and community stakeholders (identified by the Town). The purpose of the meeting and stream walk is to familiarize stakeholders with the project, identify initial concerns and issues, and develop restoration objectives that take into account stream stability and habitat improvement as well as the needs of the community and watershed.

Based on discussions with the Town, the kick-off meeting and stream walk can be structured to be one event, or divided into two events (such as having the meeting on a week night and the stream walk on a weekend). At the meeting, Wood will present the findings of the geomorphic assessment, describe the challenges and potential solutions, and facilitate discussion to develop project objectives. Objectives will cover the following areas:

- ▶ Provide for natural channel design and ecological restoration principles
- ▶ Results of the tree inventory and analysis
- ▶ Address watershed and stream constraints
- ▶ Be practical and feasible
- ▶ Consider the potential for long term success and minimal maintenance

- ▶ Recognize and address problems occurring within the watershed which contribute to stream system problems
- ▶ Be clearly defined
- ▶ Meet the major needs of the vested partners
- ▶ Allow for the community and stakeholders to be engaged and that important feedback is incorporated into the design

**Deliverables:**

- The stream walk will include a brief on-site orientation and overview of the project followed by a walk-through of the project site to highlight significant issues, challenges, and proposed solutions.
- Based on the kick-off meeting and stream walk, Wood will develop a memorandum summarizing the stakeholder discussion and the key restoration objectives.

## **C. SURVEY**

### **Surveying Services to Support the Stream Restoration for Design and Engineering**

Bowman Consulting Group (BCG) will be supporting Wood by providing all the surveying services for this project. The surveying services consist of a topographic survey and limited property survey. Further detail about these services, assumptions, and deliverables can be found in the proposal from BCG (please refer to the attached BCG subcontractor proposal for additional details).

## **D. ENVIRONMENTAL SERVICES**

### **Permitting Services to Support the Stream Restoration for Design and Engineering**

Bowman Consulting Group (BCG) will be supporting Wood by providing environmental permitting services for this project. Further detail about these services, assumptions, and deliverables can be found in the proposal from BCG (please refer to the attached BCG subcontractor proposal for additional details).

## **E. CONCEPT DESIGN ALTERNATIVES**

Using the information and topics discussed during the initial meeting with the Town and stakeholders, Wood staff will develop one (1) concept design alternative. The concept design alternatives will include the following:

- ▶ Existing Conditions
- ▶ Typical Cross Sections
- ▶ Stream Structure Details
- ▶ Preliminary Planform layout

A meeting will be held with the Town and other project stakeholders to review the concept, and an additional stream walk will take place to review the design. After approval of the concept design (it is assumed it could require an additional meeting to select the preferred concept), Wood will meet with the Town to discuss the required number of sheets and that will be required by the Town, for a complete set of construction documents

After the concept design has been agreed upon, Wood will prepare a planning level cost estimate based on costs (actual costs from qualified contractors) provided by the Town for the approved concept design. This planning level cost estimate should be used for budgeting purposes only.

**Deliverables:**

- Additional stream walk with Town and stakeholders followed by meeting
- Technical Memorandum with maps of design
- Additional meeting(s) with Town and stakeholders
- Preferred Alternative Meeting and Meeting Minutes
- Planning Level Cost Estimate for concept design

## **F. 90% & 100% CONSTRUCTION DOCUMENTS**

### **PROPOSED TASKS**

#### **90% Plan Submission**

The final design (90%) will advance the Conceptual Design completed and presented to the Town of Vienna and associated stakeholders. As Wood works toward the 90% and final design, hydraulic analysis will be conducted using a combination of HEC-RAS 1-D and/or 2-D. Wood will evaluate the hydraulics for the proposed solutions and evaluate velocity, sheet stress, and stream power. An initial evaluation of the project extent shows that the project will terminate upstream of the Federal Emergency Management Agency (FEMA) Zone A (approximate) Floodplain. As a result it is assumed that a Conditional Letter of Map Revision (CLOMR), which requests FEMA's conditional approval of proposed encroachment within the floodplain, will not be required. The design will attempt to focus on minimizing any impacts or increases of the 100-yr flood elevation. The Wood team will attend one meeting with the Town to discuss the review comments for the 90% plan set. Wood will also facilitate a final meeting with community stakeholders to review the 90% plan (or earlier version, could be closer to the 75% plan) and ensure that any remaining issues or concerns have been adequately addressed. Comments from the Town and stakeholder meetings will be addressed/incorporated as appropriate in the plan set under the 100% Final construction document submission, which will be sealed by a VA Licensed Professional Engineer. Wood will offset the 50 foot and 100-foot RPA buffer area from edge of bank and show on the construction documents. The work will be conducted in accordance with the guidelines published by the Virginia Department of Environmental Quality entitled Resource Protection Area Onsite Buffer Delineation (revised June 15, 2009). The Final construction documents sheet (agreed upon in Task E) will most likely include:

- ▶ Cover Sheet
- ▶ Design Narrative & Computations
- ▶ General Notes
- ▶ Existing Conditions Legend and Property Owner Information Info
- ▶ Existing Tree Survey with Identification Table
- ▶ Existing Conditions / Demolition Plan
- ▶ Erosion and Sediment Control Ph I
- ▶ Erosion and Sediment Control Ph II
- ▶ Erosion and Sediment Control Notes
- ▶ Erosion and Sediment Control Details
- ▶ Soils Map
- ▶ Geometry Plan
- ▶ Overall Grading Plan
- ▶ Hunters Branch Plan and Profile
- ▶ Hunters Branch Cross Sections
- ▶ Stormsewer Outfall Plan and Profile
- ▶ Hunters Branch Typical Stream Sections
- ▶ Stream Structure Details and Notes
- ▶ Structure Stakeout Plan
- ▶ Water Quality Narrative and TMDL Computations
- ▶ Riparian Planting Plan
- ▶ Riparian Planting Plan Notes & Schedule
- ▶ Riparian Planting Plan Details

#### **Deliverables:**

- Entire set of 90% and 100% Plan Submission After concept design is agreed upon – three (3) printed plan sets provided to the Town at 90% and 100% submissions. Wood will also develop the technical specifications for the project. Wood will also meet in the field with DEQ and walk the site and review the proposed design.
- Wood will submit the final design plans to obtain approval from:
  - Town of Vienna Department of Public Works
  - U.S. Army Corps of Engineers (NWP #27)
  - Virginia Marine Resource Commission Permit (confirmation of no permit required)
  - Virginia Department of Environmental Quality (confirmation of DEQ's 401 certification for NWP #27)
- Construction Cost Estimate - Wood will prepare the Bill of Quantities (BOQ) and Cost Estimate for the Final Design using the prevailing unit prices and information provided by the Town of Vienna.

## **G. VSMP Permit**

Wood will provide technical assistance to apply for a General VPDES Permit for Discharges of Stormwater from Construction Activities for this Project. As part of this effort, Wood will develop a Stormwater Pollution Prevention Plan (SWPPP) as required by the Construction General Permit (CGP). Wood will complete the Registration Statement for your signature and prepare the SWPPP, in addition to coordinating the submittal of the required Registration Statement and fee forms to the Virginia Stormwater Management Program (VSMP) Authority on behalf of the Town of Vienna. This task excludes all required permit application fees and all CGP annual permit maintenance fees that may be required by the VSMP Authority.

## **H. PREBID MEETINGS / RESPONSE TO BIDDER QUESTIONS**

Wood will attend one pre-bid conference and assist with answering contractor questions about the design documents. Wood shall also attend one (1) pre-construction meeting to assist the Town with Contractor questions. In addition, Wood will respond to bidder questions provided by the Town. Wood will also provide the Town prequalification language which can be used in the bidding process to ensure a qualified contractor is selected.

## **I. CONSTRUCTION OBSERVATION SERVICES**

The Wood team will provide construction oversight services to represent the Town of Vienna and ensure proper construction and installation, provide on-site clarification to contractors, and assist in rectifying the unforeseen.

The construction contractor will be responsible for providing the stakeout and providing stakes at key structure locations and to identify the extent of the work. Wood will field review the stakeout with the contractor and identify and locate key structures and components, and field-adjust the design as needed. Wood will contact the Town as soon as possible if problems or issues are discovered during the site visit.

This proposal assumes that the construction duration would last for 17 weeks, and Wood would provide oversight services by one staff for 40 hours per week. Any additional construction oversight resulting from extensions to the construction schedule beyond 17 weeks would warrant a cost modification

### **PROPOSED SUBTASKS**

#### **Construction Inspection and Oversight Services**

- ▶ Responses to Contractor questions through the Client for the duration of the project
- ▶ Wood will review shop drawings, construction submittals, materials, as-builts, and related data submitted by the general contractor
- ▶ Construction inspection for the duration of all construction activities and/or as directed by the Town by a qualified and experienced construction inspector onsite to observe and record all construction activities for the purpose of determining if the construction is in compliance with the construction contract documents. One Wood staff will be onsite during construction.
- ▶ Coordinating with the Town and addressing any necessary field changes due to unexpected field conditions.
- ▶ Wood will be available to attend weekly construction inspection and progress meetings held by the Town and the Contractor.
- ▶ Weekly submittals documenting daily construction inspections. Construction activities to be inspected and documented include, but are not limited to:
  - ✓ Determining and documenting the acceptability as specified in the construction contract documents
  - ✓ Furnished and salvaged construction materials.
  - ✓ Finished grading.
  - ✓ Constructed proposed channel cross section, longitudinal profile, and channel geometry. Dimensions and elevations of cross sections, structures, and longitudinal profile will be checked as part the construction inspection using the non-certified as-built survey data
  - ✓ In-stream structures within the channel (rock structures (footer and top rock placement) and reinforced bed material), including photographic documentation of the installation of each structure



to highlight key elements such as footer rock placement, etc. Include selected photographs in inspection forms and provide a final digital copy of photographs and reports on CD.

- ✓ Erosion and sediment control measures.
- ✓ Plant materials and plant material installation.
- ✓ Approval of the final as-built survey
- ✓ Recommending corrective actions if necessary

Wood will only communicate issues concerning design and construction with the Town. Wood will not supervise, direct, or have control over the Contractor's work, nor will Wood have authority over or responsibility for the construction means, methods, techniques, sequences or procedures, or for safety precautions. Wood will observe and report and supply observations and findings to the Town. Wood will follow safety rules of the contractor while on-site.

### **Final Construction Certification**

Wood will conduct final construction inspection and submit a punch list of construction work that needs repaired, replaced, adjusted, or finished. This walk-through will occur before the contractor demobilizes from the site. The required submittal includes the punch list, supporting photographs, and other information to support the inspection findings.

### **As-Built Survey**

After construction of the stream restoration is complete, BCG surveyors will provide an as-built survey of the site to locate the critical constructed features. This task includes as-built topography, utility as-built, as-built of the critical stream restoration hardscape and natural features, provide photographs, etc.

#### **Deliverable:**

- Certified survey by a licensed surveyor in the Commonwealth of Virginia, and providing an AutoCAD file, as required.

## **J. POST CONSTRUCTION MONITORING**

As part of the conditions of the NWP #27 permit, monitoring may be required. A post construction as-built survey of the restored stream will be conducted to ensure conformance with the approved design. In addition, Wood will conduct annual inspections of the project for a maximum of three years post construction. This monitoring will help determine the success of the project and if any maintenance actions are required to satisfy plan goals during the monitoring period.

#### **Deliverable:**

- Annual monitoring report for three years to include a visual inspection and photo documentation of the stream.

## **K. PROJECT MANAGEMENT & CLIENT COORDINATION**

Project management activities include budget and schedule management, invoicing, contract management, and overall project coordination.

## **SCHEDULE**

Wood previously provided a schedule with the RFP submission. This project schedule proposed a general guideline for the project duration. Once Notice-To-Proceed has been issued, Wood will coordinate with all subcontractors and the Town to develop a mutually agreeable final schedule.

## **EXCLUSIONS & ASSUMPTIONS**

- ▶ A traffic control plan for the project site entrance would not be required.
- ▶ FEMA conditional approval (CLOMR) or a follow-up floodplain revision (LOMR) will not be required



- ▶ No separate specifications will be provided.
- ▶ One round of comments will be addressed for the 90% submission.
- ▶ The major stream construction is assumed to be approximately 21 feet/day. Construction Observation time assumes 40 hours per week for 17 weeks for one Wood inspector.
- ▶ Geotechnical borings are not included within this proposal scope.
- ▶ The assumed length of the Hunters Branch stream restoration project is approximately 1,800 linear feet. Significant deviations to the project.
- ▶ Wood and all subcontractors will have open access to the project area.
- ▶ The Town of Vienna will provide Wood all relevant data in digital format.
- ▶ It is expected that any wetland and stream impacts determined by regulators are self-mitigating.
- ▶ The project will be drafted and delivered utilizing the AutoCAD platform.
- ▶ Wood is not responsible for directing the contractor. We will observe and report and supply observations and finding to the Town.
- ▶ Wood will follow the safety rules of the contractor while on-site but is not responsible for on-site safety of others.
- ▶ Wood will not perform materials or laboratory analysis as part of this scope.
- ▶ A maximum of three (3) printed plan sets will be delivered to the Town at the 90% and 100% design phases.
- ▶ Further detail about exclusions and assumptions can be found in the proposal from BCG (please refer to the attached BCG subcontractor proposal for additional details).

Town of Vienna - Hunters Branch Stream Restoration  
Cost Estimate  
3-Jun-19



Task	Principal-in-Charge	Project Manager/ Senior Technical	Senior Engineer	Design Engineer	Project Engineer	Junior Engineer	Engineering Technician	Senior Planner	Riparian Specialist	Direct Expenses			Total Expenses (5% Markup)	Total Cost
										Jennings Environmental	Bowman Consulting Group	Mileage/ Printing		
Rates	\$258.20	\$213.32	\$167.11	\$134.95	\$105.28	\$95.87	\$86.66	\$157.75	\$95.87					
Task A - Geomorphic Assessment	0	48	4	52	15	0	0	0	25	\$4,000	\$0	\$915	\$5,161	\$27,062
Watershed Assessment		7		6	1								\$0	\$2,408
Geomorphic Channel Assessment/Hydrologic Comparison		15		14	7					\$2,000		\$40	\$2,142	\$7,968
Detailed Stream Characterization		12		24	3					\$2,000		\$75	\$2,179	\$8,293
Riparian Buffer Assessment		4							25			\$600	\$630	\$3,880
Assessment of Stable Reaches along Hunters Branch		10	4	8	4							\$200	\$210	\$4,512
Task B - Stakeholder Meeting - Public Outreach	0	22	0	17	0	0	0	16	0	\$0	\$0	\$0		\$9,511
Kickoff Meeting/Present Assessment Findings		10		10				10						\$5,060
Stream Walk		4		4				4						\$2,024
Identify Restoration Objectives		8		3				2						\$2,427
Task C - Survey	0	8	0	12	0	4	4	0	0	\$0	\$27,250	\$0	\$28,613	\$32,669
Survey											\$27,250		\$28,613	\$28,613
Coordination with Bowman		8		12		4	4							\$4,056
Task D - Permitting	0	10	0	38	0	0	0	0	0	\$0	\$20,500	\$0	\$21,525	\$28,786
Wetlands and Waters of the U.S. Delineation											\$6,500		\$6,825	\$6,825
USACE Jurisdictional Determination											\$1,500		\$1,575	\$1,575
Threatened & Endangered Species Review											\$1,500		\$1,575	\$1,575
Cultural Resources Review											\$2,500		\$2,625	\$2,625
Section 404/401 Permitting											\$8,500		\$8,925	\$8,925
Coordination with Bowman / Natural Channel Checklist & Geomorph Table		10		38										\$7,261
Task E - Concept Design Alternatives	0	18	22	85	8	12	4	16	0	\$500	\$0	\$3,000	\$3,675	\$27,525
1 Concept Design Alternative		6	12	55	8	12	4			\$500		\$3,000	\$3,675	\$16,722
Meeting with Town and Stakeholders		4	4	8				16						\$5,125
Stream Walk		2	2											\$761
Additional Meeting with Town and Stakeholders		2	2	4										\$1,301
Memo - Meeting Minutes		2	2	14										\$2,650
Planning Level Cost for Concept		2		4										\$966
Task F - 90% and 100% Construction Documents	0	42	34	107	167	80	5	0	16	\$2,000	\$0	\$3,000	\$5,250	\$61,550
Submit 90% Set		24	20	60	80	40	5		16	\$2,000		\$3,000	\$5,250	\$36,033
Meeting with Town to Discuss 90% Comments				6	6									\$1,441
Meeting with Town and Stakeholders					8									\$842
Address Comments and Finalize Plan Set		10	10	25	55	30								\$15,845
Technical Specifications		4	2	8	10	10								\$4,279
Develop Engineering Cost Estimate		4	2	8	8									\$3,109
Task G - VSMP Permit / SWPPP	0	16	0	0	0	12	0	0	0	\$0	\$0	\$0	\$0	\$4,563
Technical Assistance VSMP / SWPPP		16				12								\$4,563
Task H -PreBid Meetings/Response to Bidder Questions	0	24	0	8	0	0	0	0	0	\$0	\$0	\$0	\$0	\$6,199
Provide Town with Prequalification Language		4												\$853
Attend one Pre-Bid Conference Meeting		4		4										\$1,393
Assist with Answering Contractor Questions		16		4										\$3,953
Task I - Construction Observation Services	0	240	130	274	100	0	0	0	0	\$2,500	\$16,300	\$1,600	\$21,420	\$141,845
Review shop drawings and submittals		16												\$3,413
Construction Inspection		200	130	250	100					\$2,500		\$1,600	\$4,305	\$112,958
Final Construction certification		12		12										\$4,179
As-Built Survey											\$16,300		\$17,115	\$17,115
Coordination with Bowman		12		12										\$4,179
Task J - Post Construction Monitoring	0	3	0	36	0	0	0	0	0	\$0	\$0	\$0		\$5,498
Yearly monitoring for up to 3 yr period		3		36										\$5,498
Task K - Project Management	10	140	0	0	0	0	0	0	0	\$0	\$0	\$0		\$32,446
Overall Project Management, Invoicing and Client Coordination	10	140												\$32,446
TOTAL	10	555	190	629	290	96	13	32	41	\$9,000	\$64,050	\$8,515	\$85,643	\$377,654

*Revised May 31, 2019*

April 19, 2019

Mr. Troy Biggs  
Wood  
4795 Meadow Wood Lane  
Suite 310  
Chantilly, Virginia 20151

**Re: Hunter Branch Stream Restoration, Town of Vienna, Virginia (the “Project”)  
Proposal to provide Surveying and Environmental services (the “Proposal”)**

Dear Mr. Wood:

We are pleased to submit this *Revised Proposal* to provide Surveying and Environmental services for the above referenced Project. Upon verbal or written direction to proceed with performance of the services described herein, this Proposal, along with all attachments thereto will constitute a binding agreement (the “Agreement”) between Bowman Consulting Group, Ltd. (“BCG”) and Wood. (the “Client”).

Bowman Consulting Group has the resources and experience to make your project a success. In addition to Surveying, BCG also provides Engineering, Planning, Transportation, Subsurface Utility Engineering Services (SUE), 3-D Laser Scanning and Landscape Architecture services to clients across the nation.

This project is located in the Town of Vienna, Virginia and the area of interest contains approximately 5.1 acres. This project and is governed by the Town of Vienna, Virginia.

It is our understanding that the Project consists of Bowman providing Surveying Services and Environmental Services.

Bowman Consulting Group will prepare a certified topographic survey and deliverables associated with our Environmental services.

#### **SCOPE OF SERVICES AND FEES**

The scope of services (the “Scope”) and associated fees shall be as follows:

**1. Perform a Topographic Survey and Limited Property Survey:**

Bowman Consulting Group (BCG) will perform topographic surveying services as need to complete the design and engineering of the Hunter Branch stream restoration, including a separate task to provide a post construction as-built survey. Survey services includes the following:

Establish a semi-permanent horizontal and vertical control network using GPS and conventional technology. Horizontal datum will be NAD83, and vertical will be NGVD88 as required. This task includes setting temporary control as needed to complete the surveying. Semi-permanent control will be set in locations that will remain usable during construction and as-built operations.

BCG will perform property research to determine current ownership of the properties adjacent to the stream restoration survey, including research to acquire subdivision plats, public right-of-way information and public utility easements as shown on the subdivision plats. With parcel and right-of-way research completed and property boundaries processed in AutoCAD; our surveyors will perform reconnaissance and locate sufficient property corner monuments and evidence of property lines including, iron pins, fence corners, fence lines necessary to accurately depict the property boundaries on the topographic survey base.

Concurrent with the property survey, BCG will perform a field run topography/stream cross-section survey and utility as-built necessary to design the proposed stream restoration. This task shall include the following:

- Perform a field run topographic and cross-section survey at approximately on about 2,000 linear feet of the Hunter Branch stream and tributary.
- Cross-section survey will include the following details on the stream channel:  
TWG – thalweg (deepest part of channel cross section – not centerline).  
RCH – right toe of channel (bottom edge of channel, or toe of channel bank).  
RTB – right top of bank (of main channel).  
LCH – left toe of channel (bottom edge of channel, or toe of channel bank).  
LTB – left top of bank (of main channel).
- Cross-section will be taken at approximately 50-foot intervals and includes intermediate cross-sections at bends, or other critical features in the stream. Cross-section will extend to the near top of curb along Nutley Street and a minimum of 100-feet beyond the edge of the top of bank on the opposite side of Nutley Street, or to the rear property lines and or fence lines that parallel the stream.
- Topographic survey includes locating significant natural features within the stream channel.
- It is estimated that approximately 5.2-acres of topography is included.
- Topography will represent 2-foot contour intervals.
- BCG surveyors will take photographs of significant features and link them to the topographic survey.
- BCG will locate all visible indications of utility such as water meter, fire hydrants, valves, poles – including pole numbers, wires, transformers, pedestals, vaults, etc. Sanitary sewer and accessible storm sewer structures will locate and as-built, to acquire invert of pipes, and pipe sizes and pipe material. Any storm culverts will be surveyed and as-built.
- Surveying along Nutley Street will include capturing data to the top of curb nearest to the stream and site survey (does not include a full roadway survey).
- After a complete inspection of the site, BCG will coordinate with Miss-Utility to locate any suspected subsurface utilities. If subsurface utilities are delineated on the ground, BCG surveyors will locate the paint or flags, identify the utility and include the information on the topographic survey base.
- BCG will field locate wetlands flagged and provide the wetlands location to the to the BCG environmental team and update the topographic survey base to include the flagged wetlands.
- Individual trees 12” in diameter and larger (measured at breast height) will be identified by species, tagged and survey located within the survey limits.
- Final deliverable includes a certified topographic survey prepared by a surveyor licensed in the Commonwealth of Virginia, and includes delivering an AutoCAD digital file developed at the scale requested for engineering and depicting 2-foot contour intervals and referencing select spot elevations and cross-sections.

**FEE: Lump Sum of \$27,250.00**

**2. Provide a Post-Construction As-Built Survey:**

After construction of the stream restoration is complete, BCG surveyors will provide an as-built survey of the site to locate the critical constructed features. This task includes as-built topography, utility as-built, as-built of the critical stream restoration hardscape and natural features, provide photographs, etc. The deliverable shall include a certified as-built survey prepared by a licensed surveyor in the Commonwealth of Virginia, and provide an AutoCAD file, upon request.

**FEE: Lump Sum of \$16,300.00**

**Environmental Services**

**3. Wetlands and Waters of the U.S. Delineation:**

BCG shall conduct a wetland delineation within the Project limits based on the requirements of the Corps of Engineers' Wetlands Delineation Manual (1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0, 2012). BCG shall delineate and flag the boundaries of waters of the U.S. and wetlands, and will collect photographs and data points to document existing site conditions and jurisdictional areas. BCG will then prepare and submit to the Town a Wetland Delineation Report and Map, which summarize the results of the field investigation and identify those areas that are most likely within the regulatory purview of the U.S. Army Corps of Engineers (USACE).

Please note that the flagged waters of the U.S. and wetland boundaries shall be field-located under separate survey task.

**FEE: Lump Sum of \$6,500.00**

**4. USACE Jurisdictional Determination:**

Following approval by the Town, BCG shall submit the Wetland Delineation Report and Map with a Jurisdictional Determination (JD) Request to the USACE. BCG shall then meet with the USACE at the Project to review and confirm the flagged waters of the U.S. and wetland boundaries, and will update the Wetland Delineation Map as necessary to reflect any changes agreed to in the field. During the site visit, BCG shall also review the concept design for the Project with the USACE to obtain preliminary feedback concerning the proposed stream restoration activities and Section 404/401 permitting requirements.

**FEE: Lump Sum of \$1,500.00**

**5. Threatened and Endangered Species Review:**

BCG shall prepare and submit a Project Review request to the Virginia Department of Conservation and Recreation (DCR), Division of Natural Heritage, to obtain preliminary information related to Federal or State-listed threatened and endangered species and other natural heritage resources for the Project.

BCG shall also conduct searches of the U.S. Fish and Wildlife Service's (FWS) Information, Planning and Conservation System (IPaC) and the Virginia Department of Game and Inland Fisheries' (DGIF) Fish and Wildlife Information Service (VaFWIS) to determine the potential for Federal or State-listed threatened and endangered species on, or in the vicinity of, the Project, and review the Center for Conservation Biology's VA Eagle online database. BCG shall then prepare a summary letter and exhibit to the Town detailing the results of the reviews, general habitat descriptions for the Project, and the potential for the occurrence of listed threatened and endangered species on the Project.

Please note that this task specifically excludes species-specific field surveys that may be recommended or required based on the results of the Review, or during Section 7 consultation by the USACE.

**FEE: Lump Sum of \$1,500.00**

**6. Cultural Resources Review:**

BCG shall conduct a review of the Virginia Department of Historic Resources' (DHR) Virginia Cultural Resource Information System (V-CRIS) to identify any documented cemeteries, archaeological sites, architectural resources, historic districts or other cultural resources on, or in the immediate vicinity of, the Project. BCG shall then submit a Project Review Request submission package to DHR through their ePIX system to obtain preliminary feedback concerning the proposed stream restoration activities at the Project and potential effects on historic resources. BCG shall then coordinate with the Client concerning the findings and results of DHR's Review, including the extent of any recommended archaeological and cultural resource surveys.

Please note that this task specifically excludes field investigations, archaeological and cultural resource surveys, and Memorandum of Understanding that may be recommended or required by DHR following their review of the Project, or during Section 106 coordination by the USACE.

**FEE: Lump Sum of \$2,500.00**

**7. Section 404/401 Permitting:**

BCG shall prepare and submit a Joint Permit Application/Pre-Construction Notification (JPA/PCN) for the Project to the USACE, Virginia Department of Environmental Quality (DEQ), and Virginia Marine Resources Commission (VMRC) for authorization to impact waters of the U.S. and wetlands under Nationwide Permit (NWP) 27 (Aquatic Habitat Restoration, Enhancement, and Establishment Activities), for which DEQ has issued conditional Section 401 Water Quality Certification; it is anticipated that VMRC shall issue a No Permit Required Letter for the Project. This task includes serving as Town's Agent and submitting the JPA/PCN package with accompanying exhibits and supporting information, including Section 7 Endangered Species Act and Section 106 National Historic Preservation Act information, and a mitigation monitoring plan with success criteria as required by NWP 27. BCG will also meet and coordinate with the Town and USACE concerning the proposed Project and impacts, respond to additional information requests and agency comments concerning the JPA/PCN, and negotiate the terms and conditions under which the final Permit shall be issued.

**FEE: Lump Sum of \$8,500.00**

**SUMMARY MATRIX**

Task	Description	Fee	Fee Type	Qty	Total
1	Topographic Survey/Limited Property	\$27,250.00	Lump Sum	1	\$27,250.00
2	Post- Construction As-Built Survey	\$16,300.00	Lump Sum	1	\$16,300.00
3	Wetlands and Waters of the U.S. Delineation	\$6,500.00	Lump Sum	1	\$6,500.00
4	USACE Jurisdictional Determination	\$1,500.00	Lump Sum	1	\$1,500.00
5	Threatened and Endangered Species Review	\$1,500.00	Lump Sum	1	\$1,500.00
6	Cultural Resources Review	\$2,500.00	Lump Sum	1	\$2,500.00
7	Section 404/401 Permitting	\$8,500.00	Lump Sum	1	\$8,500.00
<b>Total Estimated Fee</b>					<b>\$64,050.00</b>



### **ASSUMPTIONS**

The fees quoted above are based on work being performed in a systematic, orderly and progressive manner. If this is impossible because of circumstances peculiar to the particular operations, lump sum fees listed shall not apply, and instead work will be billed in accordance with our prevailing hourly rate schedule. The following circumstance, among others will necessitate charges being based on hourly rates:

- Work requiring less than 4-hour survey party day at the site, unless performed at the discretion of BCG.
- Re-stakes of all types.
- Work area not cleared of trash, building materials, vehicles, earth, etc.
- Both horizontal and/or vertical control points destroyed so as to require resetting necessary control for the job.
- Work requiring overtime when requested by you. Under these conditions, hourly rates will be at 1.5 times the quoted hourly rates charged. Sundays and holidays will be billed at 2.0 times the appropriate rate. All overtime is subject to the availability of personnel.
- Any additional work requested that is not specifically covered in the above scope of work.
- Cut sheets will be delivered by close of business the day following completion of stakeout.
- Client is responsible to provide traffic control, if needed.
- A minimum 48-hour notification is required for all stakeout requests.

### **EXCLUSIONS**

The following services are specifically excluded from the scope of this agreement and may be performed as contract addendums upon request:

- Services other than described herein
- All Archaeological Survey
- ALTA/NSPS Land Title Survey
- Bio-Retention Filters
- Boundary Survey
- Construction Administration Services
- Color Renderings
- Exhibits other than described herein
- Final Building Location
- Final Cost Estimates Geotechnical Report
- Hardscape Design and Layout
- Monitoring and/or Testing
- Off-site Design services other than those described
- Permits
- Record Plats
- Site Design
- Submission Fees

### **REIMBURSABLE EXPENSES**

Reimbursable expenses shall include actual expenditures made by BCG in the interest of the Project and will be invoiced at the actual cost to BCG plus fifteen percent (15%) for handling and indirect costs. Reimbursable expenses shall include but not be limited to costs of the following:

- Mailing, shipping, and out-source delivery (i.e. DHL, FedEx) costs
- Fees and expenses of special consultants as authorized by the Client

### **REPROGRAPHIC, COURIER AND OTHER CHARGES**

Reprographic, plotting, in-house courier, and archive retrieval services will be invoiced in accordance with Schedule A attached hereto.



**CLIENT RESPONSIBILITIES**

The Client shall be responsible for obtaining permission for BCG, its employees, agents and subcontractors to enter onto the subject property and any properties in the vicinity as reasonably necessary for BCG to perform the services described herein. By either countersigning this Proposal or verbally authorizing BCG to proceed, the Client warrants and represents that it has obtained such permission. The Client shall provide the following items upon request of BCG in a timely manner and at no expense to BCG:

- Site Access Permissions
- Title Report (if required)

**OTHER TERMS**

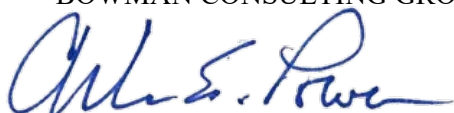
This proposal is based on the scope of services indicated herein and the information available at the time of the proposal preparation.

If any additional services are required due to unforeseen circumstances and/or conditions, Client or regulatory requested revisions, additional meetings, regulatory changes, etc., BCG will notify the Client that additional scope of work and fees are required and will obtain the Client's written approval prior to proceeding with any additional work.

Bowman Consulting Group's Standard Terms and Conditions and Hourly Rate Schedule are attached hereto and incorporated into this Proposal by reference. You should read these standard terms and conditions and assure yourself that you understand them prior to accepting this proposal or authorizing BCG to proceed with the performance of the services described herein.

In the event you wish to accept this proposal, please execute and return a copy to us. The individual executing this proposal represents and warrants that he has the authority to sign on behalf of Wood.

Sincerely,  
BOWMAN CONSULTING GROUP, LTD.



Charles E. Powell, LS  
Vice President - Survey  
13461 Sunrise Valley Drive, Suite 500  
Herndon, VA 20171

Wood hereby accepts all terms and conditions of this Proposal (including the Standard Terms and Conditions) and authorizes BCG to proceed with the Project.

WOOD

By: \_\_\_\_\_  
(Signature)

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_



7 Samuel Ashe Drive, Asheville, NC 28805  
919-600-4790  
[greg@jenningsenv.com](mailto:greg@jenningsenv.com)

May 31, 2019

## **PROPOSAL**

### **Stream Restoration Consulting Support Services for the Town of Vienna – Hunter's Branch Stream Restoration Design**

**Total Fee: \$9,000**

Jennings Environmental proposes to provide Senior Technical QA/QC services to Wood personnel for the Town of Vienna Hunters Branch Stream Restoration Design Project. Technical advising consulting services will be provided by Greg Jennings, PhD, Founding Principal and President of Jennings Environmental. Consulting services will include QA/QC services for the geomorphic assessment, development of 90%, and 100% CD and senior technical support during construction.

#### **Standard Rate Sheet**

Gregory D. Jennings, PhD, PE, Principal Engineer

\$175 per hour

Task A – Geomorphic Assessment  
Task E – Concept Design  
Task F – 90% DD and 100% Final CD  
Task I – Construction Observation Services

48 hrs. @ \$175/hr. = \$8,400

Travel/Expenses = \$600

Total = \$9,000

Respectfully,

A handwritten signature in cursive script that reads "Gregory D. Jennings".

Gregory D. Jennings, PhD, PE  
President, Jennings Environmental PLLC