



Town of Bristol

Town Administrator 1 South Street P.O. Box 249 Bristol, VT 05443 (802) 453-2410 x 1 townadmin@bristolvt.org www.bristolvt.org

MEMORANDUM

TO: CC:	Selectboard Maddison Shropshire, ACRPC WQ Planner and ECO AmeriCorps Member
FROM:	Valerie Capels, Town Administrator
DATE:	May 24, 2021
RE:	Stormwater Infiltration Chambers Final Design Proposals Summary

The Town of Bristol received two Clean Water Block Grants through the Vermont Agency of Natural Resources, approximately \$18,000 each, for 100% funding to complete final engineering designs of the two infiltration chambers stormwater management projects on School Street and at the Elementary School. The Addison County Regional Planning Commission has been contracted to assist with the administration and coordination of this project.

The projects must be completed by December 1, 2021.

The table below summarizes the results of the three proposals received by the May 14, 2021 due date:

Considerations	DuBois & King	Engineering Ventures	Otter Creek Engineering
Score	88	98	76
School Street	\$15,504	\$16,850	\$13,500
School 1 & 2	\$15,504	\$16,850	\$14,500
TOTAL	\$31,008	\$33,700	\$28,000

Maddison Shropshire, ACRPC Water Quality Planner and ECO AmeriCorps Member, and I independently reviewed and ranked the proposals. Though the ranking provided above reflects my review, our reviews were aligned in the outcome. She shared input form ACRPC Planner Mike Winslow, which also aligned with our review.

A key distinction between the budget figures is that both OCE and D&K expected the Town to pay a subcontractor or use Town staff and equipment for conducting text pits at the locations; whereas EV included the cost in their budget. The EV proposal was clear, coherent, and included similar, relevant examples of other infiltration chamber projects.

RECOMMENDATION: Accept the proposal from Engineering Ventures (attached).

FINAL ENGINEERING DESIGN OF SCHOOL STREET AND SCHOOL 1 & 2 SUB SURFACE INFILTRATION CHAMBER PROJECTS

May 14, 2021

Prepared For:



Addison County Regional Planning Commission 14 Seminary Street Middlebury, VT 05753

PREPARED BY:



Engineering Ventures, PC

208 Flynn Avenue, Suite 2A Burlington, Vermont 05401 (802) 863-6225 www.engineeringventures.com

FINAL ENGINEERING DESIGN OF SCHOOL STREET AND SCHOOL 1 & 2 SUB SURFACE INFILTRATION CHAMBER PROJECTS

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May 14, 2021

Addison County Regional Planning Commission c/o Maddison Shropshire, Water Quality Planner 14 Seminary Street Middlebury, VT 05753

Re: Final Engineering Design of Sub Surface Infiltration Chamber Projects

Dear Ms. Shropshire:

Thank you for the opportunity to provide civil engineering services to the Town of Bristol. We have reviewed the RFP dated April 8, 2021, and the Response to Questions, released on May 7, 2021, and are pleased to submit our proposal in the attached package.

Engineering Ventures has served private and public clients throughout our 25+ year history and our experienced staff has great depth across these types of projects. Our office regularly designs, permits, and oversees construction of, Low Impact Development stormwater systems. Typically, these systems are installed on sites with pre-existing features and uses that limit the siting of the treatment area, a situation similar to what is described in the RFP.

We understand the RFP includes the Final Design of 2 sub-surface infiltration chambers (School St. 001 and School 1 & 2). This proposal is based on the 30% drawings provided with the expectation that the systems shown can be built in the general locations shown.

If Engineering Ventures is selected, we can be available to begin immediately. If you should desire or require any clarifications or would like to discuss our qualifications further, I am available to meet at your convenience.

Respectfully,

Paul Boisvert, P.E.
Primary Point of Contact
(802) 255-9766 · <u>paulb@engineeringventures.com</u>
208 Flynn Avenue, Suite 2A, Burlington, VT 05401



Engineering Ventures, PC is an experienced civil and structural consulting engineering firm established in 1994 in Burlington, VT and operating and licensed in the northeastern US and beyond. Our project management structure includes Principals, Project Managers, and Civil and Structural Staff Engineers. Our team of 32 qualified professionals and technicians provide a broad range of services to meet the needs of our private and public clients from our offices in Burlington, VT, Lebanon, NH and Schenectady, NY.

Civil Engineering and Permitting

Engineering Ventures civil team provides every project with an exceptional depth and breadth of engineering knowledge and experience, as well as the ability to staff projects according to each client's requirements. We have experience using the newest methodologies, technologies and work practices and a significant record of solving challenges. We offer skill and experience in buried utilities, local roads and bridges, parks and recreation facilities, master planning, stormwater management, sanitary sewer, water supply and distribution, erosion and sediment control, grading and earthwork, storage and fire protection, marine and waterfront development, wetlands and other environmentally sensitive habitat areas. We execute all of our projects with paramount consideration for the health, safety, and environmental well-being of all current and future project participants and stakeholders.

Municipal and State

Engineering Ventures is happy to serve our communities in Vermont, New Hampshire, and upstate New York. The relationships between our company and our local municipalities have grown over the course of our 25 years in business. We were the civil and structural engineering team for the Waterbury State Office Complex restoration and redesign, the largest municipal project in Vermont history. Our structural team assisted with the rehabilitation of the Vermont Statehouse dome, ensuring that the construction wouldn't damage the historical structure. We are currently assisting with the new construction of South Burlington's City Hall and Library.

Site Design Principles

In addition to a holistic approach to site design and collaboration with the owner and other team members, EV was an early adopter of Low Impact Development (LID) and innovative stormwater treatment methodologies. Our engineers focus on reducing impervious cover where possible, conserving natural resources and areas, maintaining natural drainage courses, and minimizing site disruption. We also consider life cycle costs and ongoing maintenance requirements when selecting management practices.

Availability and Capacity

For the past 26 years, Engineering Ventures has committed to being a planning-oriented firm that closely tracks workload, staffing availability, and capability as far ahead as 12 months. Prior to agreeing to work on a project, EV has evaluated the availability and capability of the 32 staff members to work on the project and communicate clearly with the project owner to make sure the schedule is understood. Our teams meet weekly to discuss priorities and staff assignments to meet the various project goals and milestones. Engineering Ventures staff available and most suited to work on this project include Paul Boisvert, Hannah Wingate and Tyler Barnard.



Comparable Projects

South Burlington Library and Community Center, South Burlington, VT – This project included installation of two large storm chamber galleries, similar (but larger) than what was shown in the Bristol stormwater 30% concept plans. Also included were a series of high-rate bioretention systems. Installation of the storm system was completed in 2020. (Paul and Hannah; reference Dave Wheeler, City Stormwater Superintendent: 802-734-1102)



Woodcrest Flow Restoration, South Burlington, VT – The Woodcrest Drive Stormwater project began with our review of a BMP included in the Potash Brook Flow Restoration Plan. Although the presence of Class II wetlands prevented installation as originally conceived, we were able to design an infiltration system in a nearby location to control peak discharges, reduce the volume of surface discharge, and maintain base flow to the wetland area during drier months. This project has been bid and a contractor selected. Construction work to begin soon. (Paul and Tyler; reference Dave Wheeler)





Burton Stormwater Improvements, Burlington, VT – Redesign of parking lots and circulation patterns to accommodate new stormwater treatment wetlands in preparation for compliance with new requirements under Act 64 (3 AC rule). This work involved analysis of existing drainage patterns, evaluation of treatment options, and design of improvements that could be completed in phases to reduce interference with operations on the campus. (Paul, Hannah, Tyler; reference Mike Fialko-Casey, Facilities Manager: 802-651-0480)

Winooski School District Capital Project, Winooski, VT – Site design and permit services for new buildings, parking areas, drive lanes, and utility improvements at the Winooski School campus. Improvements designed for this campus include 3 new gravel wetland treatment systems to treat stormwater runoff from existing unmanaged flows and new impervious surface. Our design work also looked at upcoming 3-AC stormwater requirements and maximized compliance within the scope of the current project by routing runoff from existing roofs and other impervious surfaces to the new treatment systems where possible. (Paul and Hannah, reference Cam Featherstonhaugh, Truex Cullins: 802-488-2775)

Gengras Motor Cars, Hartford, VT – Civil engineering design services for a car dealership parking lot expansion. Scope of services included development of plans and specifications for stormwater improvements. This involved on-site investigation of soil characteristics, design of drainage and treatment measures, as well as site grading and erosion control. Permitting services included Vermont Agency of Natural Resources (VT ANR) Water/Wastewater Permit, Water System Construction, Construction General Permit, and Operational Stormwater Permit.



Other Stormwater Practices

Subsurface Gravel Wetland (Burlington Waterfront)



This treatment system utilizes horizontal flow through open gravel media to remove pollutants through filtering, anaerobic denitrification, and nutrient uptake by plants.

In this particular location, the system was lined with geomembrane due to concerns about urban soil conditions and a subsurface hydrocarbon plume.

This standard treatment practice is accepted by VT ANR as a Tier 2 practice.



High-Rate Biofiltration (SB Library and Community Center)



This is an example of a compact stormwater treatment design using high flow rate media. The system has a very small footprint and includes pretreatment in the form of stone material at the inlet.

This alternative treatment practice can be designed for either Tier 1 or Tier 2, as recognized by VT ANR.



Project Start-up and Data Collection

We will begin our work on each project with collection of available data from a variety of sources, and review of that information to identify gaps where additional information is needed. Often school and public works staff can identify critical issues and provide background information that can be used as a "back-check" of any model that is created. Data will be collected from the following sources:

- Town of Bristol, regional planning, and ANR staff
- Prior work by Watershed Consulting (we have assumed that model and drawing information will be available in digital format)
- Available GIS information (aerial photos, stormwater infrastructure, Lidar contours, property lines)

Additionally, the initial project work will include a review of the 30% plans with Jaron Borg (River Management) to confirm that the initial work supports the intent of the project. We anticipate that he will be able to provide additional background for these projects.

As part of our data collection phase, a topographic survey and geotechnical investigation will be completed for each of the two project areas. Lidar-based contours are a great tool for planning but do not provide adequate detail for full design. Similarly, we anticipate deep, well drained soils in this area which will require confirmation before completing project plans and bidding.

This initial phase of work will conclude with delivery of an existing conditions plan, project added to ANR map, and geotechnical information for each site.

Design Phase

After collecting and reviewing data and prior work, we will confirm that the proposed BMP's are viable as envisioned in the 30% plans. This will involve looking at site conditions and constraints in more detail than can typically be done as part of a master plan process. If conflicts are found, we will look at ways to reconfigure the infiltration systems to fit each location. We will also review prior hydrological modeling work and build a simple HydroCad model of each location using the same inputs to confirm the basis for the 30% plans. This proposal assumes that these systems can be built generally as conceived by Watershed Consulting. We also assume that the subwatershed information used to develop the current plans is reasonably accurate.

Once we confirm a viable system layout for each location, we will design each system to meet stormwater manual standards to the maximum extent practical. We will then develop a 60% site plan and associated details. This 60% design will be reviewed with project stakeholders via a remote meeting and adjusted based on input received.

The design phase will conclude with delivery of 60% plans and details.

Project Review and Construction Documents

The 60% plan set will be presented to the Select Board in a public meeting. Engineering Ventures will attend either in person or remotely to discuss the systems designed and answer questions. We will then review input and suggestions to incorporate those considerations into the design where practical. Where possible, we will design each system to allow more than one chamber system to satisfy the requirements so that bidding will be competitive.



Once the design of each system has been settled, we will generate a cost estimate for use by the Town. We will base the estimate on unit pricing submitted for a recently bid project of similar nature. It is worth noting that construction prices have been rising recently and our estimate may not fully reflect recent changes.

Our office will document design standards and compliance with the following:

- A narrative summary of each system's compliance with the requirements of the 2017 stormwater manual in a narrative format.
- Data entry on a performance template (provided by DEC)
- A narrative description of permit requirements associated with the projects as designed
- An Operations and Maintenance plan for each site describing tasks to be completed and the schedule for completion.

We note that neither of the sites included in the RFP are identified on the Agency of Natural Resources "3 AC List" as being subject to stormwater requirements under VT GP 3-9050, and disturbed areas for each site are expected to be below 1 AC. As such we do not anticipate the need for either stormwater construction or operational permits. Therefore, these services are excluded from the proposal.

This phase of work will conclude with delivery of plans, details, and specifications that can be used by the Town for competitive bidding and construction.

As noted above, our office specializes in infill and redevelopment projects using high-performance stormwater management practices. That experience is ideally suited for the scope of work outlined in the RFP. We look forward to helping the Town and ACRPC complete these projects and protect the New Haven River.



Proposed Schedule

	Task	Date of Completion
Task 1	Kick Off Meeting	June 4, 2021
Task 2	Check in with DEC Regional River Scientist for 30%	June 4, 2021
Task 3	Projects added to ANR project locator map	June 11, 2021
Task 4	Supplemental site surveys and subsurface soil investigations	June 30, 2021
Task 5	Refine hydraulic analysis as needed	July 14, 2021
Task 6	60% plans and details	July 23, 2021
Task 6a	Check in with DEC Regional River Scientist for 60%	July 30, 2021
Task 7	Public meeting and presentation with Selectboard	August 9, 2021
Task 8	100% final design plan and details	August 27, 2021
Task 9	Final performance report	August 31, 2021
Task 10	Documentation of required permits	August 31, 2021
Task 11	Documentation of operation & maintenance plans	August 31, 2021
Task 12	Specifications for construction bid documents	August 31, 2021
	Project Completion	September 2021





BRISTOL SUB SURFACE INFILTRATION SYSTEM - FINAL DESIGN - PROJECT ORGANIZATION

The Engineering Ventures staff available to work on this with the project team includes Paul Boisvert, Hannah Wingate, and Tyler Barnard, who together have successfully completed hundreds of relevant projects including stormwater improvements, waterfront redevelopment, brownfields, industrial conversions in Burlington and beyond including local, state and federal related permits. Most recently, Paul and Hannah worked together on the site design and permits for the South Burlington Library and Community Center project. Paul, Hannah, and Tyler have all been working on stormwater improvements for the Burton campus in Burlington.

Paul Boisvert, P.E. will be the Principal in Charge (PIC). The PIC will maintain regular contact with the stakeholders. Paul will be responsible for Engineering Ventures meeting the commitments and expectations identified in the kick-off meeting.

Hannah Wingate, P.E. will be the Project Manager (PM). The PM will be responsible for day-to-day management of the project.

Tyler Barnard, E.I.T. will be assisting the PIC and PM with design tasks and document production.

In addition to the Key Staff presented in this proposal, EV has a team of 32 professionals to support all projects that are assigned and handle a diverse and sizeable workload as requested.





Education University of Vermont – Bachelor of Science in Civil Engineering

Professional Registrations Vermont

PAUL M. BOISVERT, P.E., LEED AP Senior Engineer/Principal

Paul joined EV in 2007 bringing with him a wealth of experience in water quality engineering, site design and permitting. Since then, he has grown into a project management role, focusing on the whole project and client relationship. In 2012, Paul became a principal of the firm and senior engineer with supervisory responsibility for growing team members.

Paul's wide range of experience includes site design, project management, contract administration, and permitting at the local, state and federal levels. Paul's approach to projects combines a strong interest in sustainable design with an understanding of the operational implications that follow.

His recent projects include lead design engineer for the Winooski School District Capital Project, site design and lead on the Act 250 process for reconstruction of the Waterbury State Office Complex, stormwater and site design for Union Elementary School in Montpelier, and site design for the Community Sailing Center in Burlington. Other recent projects include grading, stormwater, and utility design for an extension of Lake Street, on the Burlington waterfront, and engineering for the King Street Center in Burlington.

Paul's expertise includes numerous stormwater design projects in Vermont, many within stormwater-impaired watersheds and involving offsets, municipal stormwater treatment easements, and sediment load reductions.

Relevant Project Experience

- Woodcrest Stormwater Improvements
- Winooski School District Capital Project
- Flow Restoration Projects, South Burlington, VT
- Burton Stormwater Improvements, Burlington, VT





Education University of Vermont – Bachelor of Science in Civil Engineering

Professional Registrations Vermont

HANNAH K. WINGATE, P.E. Civil Project Engineer

Hannah Wingate, P.E., has worked in Civil Engineering Consulting since obtaining a Bachelor's of Science degree in Civil Engineering from the University of Vermont. Hannah has a strong background in field work having performed an extensive amount of surveying for engineering site work, boundary plats and utility as-built surveys. Her qualifications also include construction & erosion prevention and sediment control oversight and stormwater inspection. Her experience at Engineering Ventures has facilitated growth of her skills set to include site layout and grading, utility design, contaminated soils management assistance and construction cost estimating.

Most recently, Hannah has obtained stormwater discharge permits through implementation of her knowledge of site design, grading and stormwater treatment design. This experience paired with the wide range of projects taken on at Engineering Ventures has provided Hannah with an ample understanding of the State of Vermont permitting process, specifically related to compliance with the 2017 Vermont Stormwater Management Rule. Hannah's permitting experience extends across Lake Champlain into New York, where she has assisted in gaining authorization from the Army Corps of Engineers to perform maintenance on existing marine structures within Lake Champlain.

Relevant Project Experience

- New Library and City Hall, South Burlington, VT
- Flow Restoration Projects, South Burlington, VT
- Field Drainage, CVU, Hinesburg, VT
- Gengras Motor Cars Permitting, Hartford, VT
- HULA Lakeside Campus, Burlington, VT
- Stormwater Permitting and design, Union Elementary School, Montpelier, VT
- Winooski School District Capital Project





Education Pennsylvania State University Bachelor of Science in Civil Engineering

Professional Registrations Vermont E.I.T.

TYLER BARNARD, E.I. *Civil Staff Engineer*

Tyler Barnard holds a Bachelor's Degree in Civil Engineering from Penn State University. He has been working in consulting engineering since April of 2015.

Tyler's first 3 years were spent designing septic systems and performing survey work for residential subdivisions and small commercial projects. Now, working for Engineering Ventures in Burlington Vermont, he performs civil site design for commercial and residential projects of all sizes.

Tyler has been serving as the Membership Chair on the Board of Directors for the Vermont Chapter of ASCE since 2015. During this time, he has helped organize social events for members across the state and assisted writing Vermont's 2018 infrastructure report card.

In his free time, Tyler enjoys outdoor recreation in the Vermont wilderness and grooving to the Burlington music scene.

Relevant Project Experience

- Flow Restoration Projects, South Burlington, VT
- Gengras Motor Cars, Hartford, VT
- Vermont Natural Resources Council Office, Montpelier, VT
- HULA Lakeside Campus, Burlington, VT



City of South Burlington

David Wheeler Stormwater Superintendent (802) 734-1102

Burton Corporation

Mike Fialko-Casey Facilities Manager (802) 651-0480

TruexCullins

Cam Featherstonhaugh Associate (802) 488-2775



Budget Allocation – School Street 001



208 Flynn Ave., Suite 2A Burington, VT 05401

TASK LIST & FEE SUMMARY

Project: ACRPC / Bristol Infiltration Chambers Date: 5/14/2021 School Street 001 Preparer: PMB Description: Task List & Fee Summary Worksheet

	Staff	Principal Paul Boisvert	Project Engineer Hannah Wingate	Staff Engineer Tyler Barnard	Fee
	Hourly Rate	\$135	\$115	\$90	
TASK	PROJECT START-UP AND DATA COLLECTION				
1	Kick-off meeting	1	1		\$250
2	Review plans with DEC River Scientist		1		\$115
3	Add projects to ANR Map			1	\$90
4	Subconsultant coordination, Dig-Safe	1	4		\$595
4	Topographic Survey (subconsultant)	10 HOURS			\$2,200
4	Geotechnical Investigation (subconsultant)	4 Borings with infiltration testing		\$3,000	
4	Existing Conditions Plan	4	8	8	\$2,180
	Deliverable: ANR Map, Geotechnical report, EC plan				
	PHASE SUBTOTAL				\$8,430
	DESIGN PHASE				
5	Confirm viability of 30% design	1	2		\$365
5	Check and build copy of stormwater model for review	1	4		\$595
6	Chamber layout and project details		8	8	\$1,640
6	Deliverable 60% plans	1	2	2	\$545
6a	Review of plans and modeling with DEC, narrative	2	4		\$730
7	Review with Selectboard at public meeting	з			\$405
	DESIGN PHASE SUBTOTAL				\$4,280
	PROJECT REVIEW AND CONSTRUCTION DOCUMENTS				
8	Final design plans and details	2	8	8	\$1,910
8	Cost Estimate			4	\$360
8	Narrative detailing compliance with Manual requirements		4		\$460
9	Performance report	1	1		\$250
10	Permit evaluation and summary of requirements	1	2		\$365
11	O & M Plan and completion schedule		2		\$230
12	Project specifications	1	2		\$365
	Deliverables: 100% plans, narrative, report, specs, O&M plan				
	PROJECT REVIEW AND CD'S SUBTOTAL				\$3,940
	REIMBURSABLE EXPENSE ALLOWANCE				\$200
	PROJECT TOTAL:				\$16,850

Work to be billed on a lump sum basis per phase, on a % completion basis

EXCLUDED SERVICES

Local, federal, & State Permitting (beyond what is outlined above)

Environmental engineering

Bid and Construction phase services

Stormwater modeling beyond project area

Wetland delineation, natural resources evaluation



Budget Allocation – School 1 and 2



208 Flynn Ave., Suite 2A Burington, VT 05401

TASK LIST & FEE SUMMARY

Project: ACRPC / Bristol Infiltration Chambers Date: 5/14/2021 School 1 and 2 Preparer: PMB

Description: Task List & Fee Summary Worksheet

	Staff	Principal Paul Boisvert	Project Engineer Hannah Wingate	Staff Engineer Tyler Barnard	Fee
	Hourly Rate	\$135	\$115	\$90	
TASK	PROJECT START-UP AND DATA COLLECTION				
1	Kick-off meeting	1	1		\$250
2	Review plans with DEC River Scientist		1		\$115
3	Add projects to ANR Map			1	\$90
4	Subconsultant coordination, Dig-Safe	1	4		\$595
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4	Geotechnical Investigation (subconsultant)	4 Borings with i	nfiltration testi	ng	\$3,000
4	Existing Conditions Plan	4	8	8	\$2,180
	Deliverable: ANR Map, Geotechnical report, EC plan				
	PHASE SUBTOTAL				\$8,430
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	PROJECT REVIEW AND CD'S SUBTOTAL				\$3,940
	REIMBURSABLE EXPENSE ALLOWANCE				\$200
	PROJECT TOTAL:				\$16,850

Work to be billed on a lump sum basis per phase, on a % completion basis

EXCLUDED SERVICES

Local, federal, & State Permitting (beyond what is outlined above)

Environmental engineering Bid and Construction phase services

Stormwater modeling beyond project area



Thank You for Your Consideration

