Water Quality Restoration Formula Grant
Winooski Basin - Sub-grant Application Form
FY24 - Round 2

The Central Vermont Regional Planning Commission, in its role as the Clean Water Service Provider for the Winooski Basin, is accepting applications for funding for non-regulatory, phosphorous reduction projects that improve water quality. Fiscal Year 2024 - Round 2 proposals are due by 4:00 PM on 13 December 2023. For more information, including submission details, see the Winooski Clean Water Service Provider webpage.

0. Project Eligibility

Please Review the following reference materials before completing your proposal:

- *FY23 Clean Water Initiative Program Funding Policy*
- *Act 76, Clean Water Service Provider Rule and Guidance & explanatory materials*

Is the portion of the project for which you seek funding both non-regulatory and voluntary? (i.e. not a required or compelled element of a regulatory permit or a legal settlement)? **(answer must be Yes to proceed)**	Yes
Does the project type meet the applicable definitions and minimum standards in the FY23 Clean Water Initiative Funding Policy? **(answer must be Yes to proceed)**	Yes

1. Applicant Information

Organization/Municipality Name: Friends of the Winooski River
Primary Contact: Michele Braun
Title: Executive Director
Mailing Address: 21 Marvin St, Montpelier, VT 05602
Phone Number: 802-279-3771
E-mail Address: michele@winooskiriver.org

Has the proposing organization / municipality been pre-qualified to receive subcontracts / subgrants from the Central Vermont Regional Planning Commission serving in its capacity as the Winooski Basin Clean Water Service Provider?* * If you responded no to this question, please include Qualification Materials along with your funding proposal. See the Winooski Clean Water Service Provider webpage for more details.	Yes

2. Project Information

Project Title: Coburn Road Floodplain Restoration Final Design
Watershed Projects Database ID*: 11629

* Projects without a Watershed Projects Database ID will be evaluated. However, prior to receiving funding, a project must be entered into the Watershed Projects Database. See pages 11-13 of the FY23 Clean Water Initiative Funding Policy.

Select the most representative project type (according to Appendix B Project Types Table of the 2023 CWIP Funding Policy) from the dropdown list below.*

Floodplain/Stream Restoration – Preliminary Engineering Design

* If there is more than one project type associated with the proposal, enter additional project types in the Project Description section below.

Project Phase for which you are seeking funding: Preliminary Design

Project GPS coordinates (e.g. 44.26278, -72.58054):
44.2763, -72.4473
Project Sub-basin: Winooski River Headwaters

3. Project Description

*Describe the proposed project. Include the following: project history; the phosphorus reduction practices that will be developed, designed or implemented with the requested funds; **details** of the project development activities, conceptual or final design plans and cost proposals (if available); and **references** to prior plans and studies that support the funding request. Propose a project schedule based on the milestones of the proposed project type. Assume an 8 January 2024 start date. (1000 words maximum)*

Project History and Proposed Activities
The Winzell-Meisner property was badly damaged in the July 2023 flood. There were berms and riprap in place along the riverbank adjacent to the house that were breached by the Winooski, and the house and barn were flooded. The landowners considered repairing the existing riprap, and consulted with Ned Swanberg, Floodplain Coordinator, and Jaron Borg, District Stream Alteration Engineer, as well as several other representatives of state and federal land management agencies. After considering input of these experts, they concluded that the options they would prefer to pursue are to remove the armoring and look for opportunities to provide floodplain reconnection and restoration.

Project Development
Friends of the Winooski River staff visited the site on October 4 with Staci Pomeroy, our watershed River Scientist, and Evan Fitzgerald of Fitzgerald Engineering Associates (FEA), to learn more about the situation and consider the possibility of restoration work on the site. The land has been under lease for haying by Fairmont Farms, and the landowners have indicated they intend to discontinue the haying. They have begun the process of enrolling most of the land in CREP. FWR has planted trees along the river on this property in the past, and the landowner would like to plant the entire open area with woody vegetation, once any potential excavation has been completed. We all thought that there were potential areas where floodplain connection could be improved, which had the potential to somewhat reduce the fairly extreme erosion of the streambanks. FWR hired FEA to collect survey data during the remaining field season to inform potential project development. FEA has provided a scope of work and cost opinion for an alternatives analysis and preliminary design of three restoration practices.

Reference in Plans
This section of river is Reach 25 in the Upper Winooski River Corridor Management Plan (Blazewicz, 2010). The Plan describes Reach 25 as having “[m]ultiple eroding banks on both sides approximately 9 feet high and 250 feet long” and “significant sediment and nutrient load to downstream reaches” and identifies riparian buffer restoration as a High Priority in this reach. “Long term management towards equilibrium condition as well as provision of ecosystem services to the community and towns downstream would be improved through reforestation. Benefits would include: Long term channel stability, reduce flood velocities, nutrient uptake, habitat and other ecosystem services.”
The Upper Winooski Main Stem is a Focus Area for the Riparian Buffer/Floodplain Restoration Strategy in the 2018 Winooski Tactical Basin Plan (page 136).

Proposed Project Timeline
1. Contractor will be selected in January 2024.
2. Project Kickoff February 2024
3. Alternatives Analysis completed by June 30, 2024

4. Staff Capacity & Past Experience

A list of key staff and a (brief) description of their role in the project. If any of the staff listed here were not included in your organization's pre-qualification materials, please attach a one-page resume describing their qualifications to the project proposal.

Name	Project Role
Michele Braun	Project Manager

Provide three examples of relevant past work. Include the Watershed Projects Database ID (if applicable), key staff and their role(s) in the project, a brief description of the project (phase, type, partners, etc.) and contact information for project references. Projects listed here should demonstrate the experience of the specific staff anticipated to work under this proposal.

Example Project 1:

Watershed Projects Database ID (if applicable): 9031

Project staff & their project role(s):

Michele Braun managed the grant for this project, and worked together with the Town and their consultant to advance the project in all phases from design through implementation.

Project description (250 words max):

Installation of an underground chamber system and swales in the Barre Town DPW parking lot to manage stormwater on the site in accordance with the 3-9050 permit.

Reference contact information:

Name: Chris Violette
Affiliation: Town of Barre, Town Manager
Phone: (802) 479-9331
Email: cviolette@barretown.org

Example Project 2:

Watershed Projects Database ID (if applicable): NA

Project staff & their project role(s):

Michele Braun managed this project from the point of 60% design in October 2022 through implementation in 2023. The implementation cost was over $500,000, from five funders.

Project description (250 words max):

Replacement of an undersized and impassable culvert at the point where German Flats Road crosses Lockwood Brook.

Reference contact information:

Name: Jared Cadwell

Affiliation: Town of Fayston, Select Board Chair
Phone: 802-522-7438
Email: cadwelljared@gmail.com

Example Project 3:

Watershed Projects Database ID (if applicable): 8778
Project staff & their project role(s):

Michele Braun managed this project from identification through implementation.

Project description (250 words max):

Removal of Camp Wihakowi Dam and restoration of surrounding 4-acre floodplain.

Reference contact information:

Name: Julie Butler
Affiliation: US Fish & Wildlife Service
Phone: 802-233-1630
Email: julie_butler@fws.gov

5. Estimated annual total phosphorus load reduction (kg/yr)

Please review the Department of Environmental Conservation's Standard Operating Procedures (SOPs) for Tracking and Accounting of Phosphorous prior to completing this section.

For Developed Lands projects, estimate the annual phosphorous load reduction using the Department of Environmental Conservation's Stormwater Treatment Practice Calculator. Export the results from the calculator and include that information in the proposal package. For Natural Resource Restoration projects, estimate the annual phosphorous load reduction using the Department of Environmental Conservation's Interim Phosphorous Calculator Tool (v1.0). Save the results from the calculator and include them in the proposal package.

Enter the estimated annual total phosphorous load reduction (kg / yr):

22.04

If the proposed project consists of project identification / assessment or development-phase work, provide details regarding the types of projects you intend to investigate and the anticipated phosphorus reduction benefits you expect the project(s) might achieve.

6. Project Budget

Develop a detailed budget with a cost breakdown of all project and administrative expenses. The budget should be itemized by Task with anticipated costs for personnel, equipment, materials, subcontracted services and other costs as appropriate. Be sure to request sufficient funding to complete the required milestones and deliverables (including project reporting) for the type of project being proposed. See the FY23 Clean Water Initiative Program Funding Policy for more information on the milestones required for the project type you are proposing.

Notes:
Mileage: Use the FY24 federal rate ($0.655 / mile)
Indirect: If you have a negotiated indirect rate, please use that. Otherwise, you may charge up to 10% on all APPLICANT costs and 10% on the first $50,000 of SUBCONTRACTORS costs.

Funding request
Amount of funding requested: $27,504
State matching funds:
Non-State matching funds:
Total project budget: $27,504

Future costs
If this proposal seeks funds for Preliminary (30%) or Final (100%) Design-phase work, please estimate anticipated future costs for subsequent project phases. Do not include this amount in the "Funding request" section above.

Anticipated future funding: Not possible to estimate yet

7. Co-benefits

a) **ENVIRONMENTAL JUSTICE:** points are awarded when a project is located in a Census Block Group where one or more Environmental Justice Focus Population demographic conditions exist. *This value is calculated by the Clean Water Service Provider based on the project location.*

b) **ECOLOGICAL BENEFITS:** points are awarded when a project reduces sediment and / or non-phosphorous nutrient loads to stressed, altered, impaired or priority waterways to which it is hydrologically connected. *This value is calculated by the Clean Water Service Provider based on the project location.*

c) **ECOSYSTEM SERVICES:** points are awarded when a project moderates natural phenomena through carbon sequestration and flood resilience. *This value is calculated by the Clean Water Service Provider based on the type of project being proposed.*

d) **COMMUNITY BUILDING:** points are awarded when a project involves the community in data collection and decision-making, enhances the working landscape and provides recreational benefits. Please answer the following:

- Are there proposed efforts to meaningfully involve community members in planning, project development, decision-making and implementation?

  No

  If you answered Yes to the previous question, please describe the effort to involve community members:

- Does the project involve data collection by community members (e.g. citizen science initiative)? No

  If you answered Yes to the previous question, please describe the effort to involve community members in data collection:

- Is the project located on a parcel that is enrolled in the Use Value & Appraisal Program (aka the Current Use Program) (Contact the Clean Water Service Provider for assistance.)? No

- Does the project maintain / improve an existing recreational space?

  No

If you answered Yes to the previous question, please describe the maintenance or improvement of existing recreational space(s):

- Will the project result in new / expanded recreational opportunities?

No

If you answered Yes to the previous question, please describe the effort to create new or expand existing recreational opportunities:

e) **EDUCATION:** An Education Co-Benefit is realized when a project includes aspects of public outreach designed to educate community members about the importance of phosphorus reduction and watershed health

- Will the project include an educational component? No

If you answered Yes to the previous question, please describe the educational component of the project below:

- Interpretive signage:

- Educational meetings / workshops:

8. Other Considerations

a) **DESIGN LIFE:** The design life of the proposed project is: 15+ years

b) **LANDOWNER RELATIONS**

- PROPERTY OWNERSHIP: The project will be located on:

  privately-owned property.

- LANDOWNER SUPPORT: Provide a list of landowner support letters below. Please submit any letters or email from the landowner indicating their support for the project and awareness of their required commitment. Note date of letter/email and sender below.

  December 11, 2023 letter from Par Winzell and Karen Meisner, landowners

- OTHER: Include other information regarding landowner relations here.

c) **OPERATIONS & MAINTENANCE**

- COST ESTIMATE: Provide a quantitative estimate of operation & maintenance costs on an annual basis where available. If not available, please provide a qualitative estimate. The anticipated annual operations & maintenance expenses for this project are:

- O & M AGREEMENT: There is a signed operations & maintenance agreement for this project: No

  If you answered Yes to the previous question, please include a copy of the signed O & M Agreement in the proposal package.

- OTHER: Include any other information regarding the operations & maintenance agreement for this project.

d) **PERMITTING:** This project will require a permit: Yes

If you answered Yes to the previous question, please provide a list of the required permits, any issues anticipated in obtaining the permits and the status of the permit. If you have permit(s) for the project in hand, please include a copy of them in the proposal package.

Stream alteration and stormwater construction general. Possibly local zoning, wetla

e) **BARRIERS:** Describe any potential barriers to completing this project and how you plan to manage those challenges:

f) **HISTORIC SITE REVIEW:** Consult the Vermont Historic Sites spreadsheet and accompanying guidance in the State Historic Preservation Review section of the FY23 Clean Water Initiative Program Funding Policy to determine whether the proposed project will require Preliminary and Final Project Review by the Vermont Division of Historic Preservation. Include a copy of the completed Vermont Historic Preservation Project Review Form in the proposal package.

- The proposed project will require State Historic Preservation Review:

Yes

9. Proposal Submission

Assemble the following materials in the order listed into a single PDF and submit to Brian Voigt (voigt@cvregion.com) with the Subject line: "Basin 8 Clean Water Service Provider Project Proposal – FY24, Round 2".

1. If your organization or municipality has not yet been pre-qualified as an eligible Basin 8 Clean Water Service Provider Clean Water Partner, please complete and submit a pre-qualification form along with your funding proposal.

2. Project proposal form (i.e. this document).

3. Include the following information in the order listed (please):
   a) Natural Resources Screening Form (see the FY23 Clean Water Initiative Program Funding Policy – Appendix A. Required for preliminary design, final design, or implementation phase projects.)
   b) Project Locator Map – applicants may use the Vermont Agency of Natural Resources Atlas to generate the Project Locator Map (Contact the Clean Water Service Provider for assistance.)
   c) Project Timeline – Propose a project schedule based on the milestones of the proposed project type. Assume an 8 January 2024 start date.
   d) Staff capacity – list key staff and their role(s) in the project. Attach one-page resumes for any staff listed in Section 4 of the Application Form who were not included in your pre-qualification materials.
   e) Completed DEC Interim Phosphorus Reduction Calculator Tool v1.0, or, for Developed Land Projects, report from DEC Stormwater Treatment Practice Calculator. (Contact the Clean Water Service Provider for assistance.)
   f) Detailed project budget with a cost breakdown of all project and administrative expenses. The project should be itemized by Task with anticipated costs for personnel, equipment, materials, subcontracted services and other costs as appropriate. Be sure to request sufficient funding to complete the required milestones and deliverables (including project reporting) for the type of project being proposed.
   g) Letter(s) of support from landowner(s) indicating their support for and awareness of the commitment required to advance / implement the project
   h) Signed Operations & Maintenance Agreement (if applicable)
   i) Permits – Attach approved project permits (if applicable).
   j) Historic Site Review - Use the spreadsheet and accompanying guidance in the State Historic Preservation Review section of the FY23 Clean Water Initiative Program Funding Policy to determine whether your clean water project will require Preliminary and Final Project Review by the Vermont Division of Historic Preservation. Attach a copy of the completed Vermont Historic Preservation Project Review Form.

APPENDIX A. CLEAN WATER INITIATIVE PROGRAM - PROJECT ELIGIBILITY SCREENING FORM

This fillable PDF form is designed to assist with project review by systematically walking through all eligibility criteria. It should be completed for all projects seeking funding for 30% + design or implementation work. It may be applied to projects seeking funding for assessment or development if helpful for determining their alignment with eligibility criteria 2, 3, 6, and 8.

Step 1: Conduct Eligibility Criteria #1 Screening: Project Purpose

Table 1A: Project Purpose	
From the drop-down list to the right, please select which of the four objectives of Vermont's Surface Water Management Strategy this project addresses. If multiple, please list below: Protect and restore aquatic and riparian habitats Minimize flood and fluvial erosion hazards	Multiple

Step 2: Conduct Eligibility Criteria #2 Screening: Project Types and Standards

Table 2A: Project Types and Standards	
Please select the most representative project type from the drop-down list to the right.[1,2] If multiple BMPs are included in the project, please list below:	Floodplain/Stream Restoration - Preliminary Engineering D
Is the project type an eligible project type for the funding program you are applying to as listed in column B of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◉ No ○
Does the project meet the project type definitions and minimum standards as provided in column C of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◉ No ○
Will the project result in the standard performance measures, milestones, and deliverables as defined by project type in columns D-F of the CWIP Project Types Table? (Answer must be YES to proceed)	Yes ◉ No ○
Is the project listed as an ineligible project or activity in the CWIP Funding Policy? If Yes, please explain below how project meets the allowable exceptions within the CWIP Funding Policy. (Answer must be NO to proceed, unless reasonable justification is provided above)	Yes ○ No ◉

Step 3: Conduct Eligibility Criteria #3 Screening: Watershed Projects Database

Verify project has been recorded in the Watershed Project Database (WPD). Each project must have a Watershed Project Database number specific to the proposed project phase (for example,

[1] Note that Road/Stormwater Gully project-types must not otherwise be considered intermittent or perennial streams by the DEC Rivers Program and therefore project proponent must show documentation of this determination in order to select this project type.

[2] One project may include multiple best management practices (BMPs) that cross "project types." For example, a single project may include both stormwater and lake shoreland BMPs. Proponents should use their best judgement in selecting the most representative project type for the purposes of eligibility screening and reporting.

a final design will have a different WPD-ID from a preliminary design even if for the same project). If the project, or the specific phase, is not yet in the Watershed Project Database, follow directions provided in the CWIP Funding Policy to secure a WPD-ID. Please see CWIP Funding Policy for more information on the WPD-ID.

Table 3A. WPD-ID	
Watershed Project Database ID number assigned	11629
Watershed Project Database Project Name	Coburn Road Floodplain Restoration Final Design

Step 4: Conduct Eligibility Criteria #4 Screening: Natural Resource Impacts[3]

Agency of Natural Resources (ANR) permit screening for natural resource impacts includes 1) an initial desktop review to identify which ANR permitting programs should be contacted, 2) a review by the relevant ANR permitting staff, and 3) a response summary from the project proponent addressing any permitting staff concerns. [4]

1) **Table 4. Natural Resource Impacts** facilitates a high-level desktop review of the most likely ANR permits to apply to clean water projects. Project proponents should answer all the questions to identify likely permit needs. [5] Please note that "project site" may include both the active restoration location as well as any additional impact footprint related to staging, site access, or storage of waste or disposed materials.
2) If responses to the **Table 4. Natural Resource Impacts** desktop review trigger a permitting staff consultation, **Table 4** provides appropriate contact information.
    a. Proponents should send the identified permitting staff the following:
        i. The watersheds project database identification number (WPD-ID) (if available),
        ii. Project location (GPS coordinates)
        iii. Summary of proposed scope of work, and
        iv. Any other relevant information they request that will be utilized in their review.
    b. **Proponents should clarify they are seeking permitting staff input on potential permitting needs, permit-ability of proposed scope of work, and other design considerations but they are NOT seeking a formal permit determination.**
    c. Project proponents must attempt to communicate with the permitting staff and provide them with at least thirty days to review the project and provide a

[3] Easements and Riparian Buffer Plantings are excluded from this eligibility requirement/step.

[4] In cases where this screening may have already occurred in a prior project phase, project proponents may supply attachments or links to relevant permit needs assessment documents in place of completing Table 4.

[5] Entities selected for funding are expected to perform due diligence to ensure all applicable permits (including non-ANR state, local, and federal permits) are discovered and secured prior to implementation. The ANR Permit Navigator and an Environmental Compliance Division Community Assistance Specialist can help confirm ANR permitting needs for any projects once selected for funding.

response. Project proponents are encouraged to perform this screening during a project development phase as opposed to during a project solicitation round to allow for more time for feedback. Permitting feedback may be up to one year old.

3) Proponents should summarize permitting staff feedback and how the proposed scope of work will address this at the bottom of **Table 4**. Specifically, please include:
   a. Which permits or permit amendment are needed or might be needed? [6]
   b. What type might be needed? (e.g., a general or individual permit[7])?
   c. What concerns were voiced by permitting staff?
   d. How will the proposed scope of work address these concerns?[8]

Table 4A: Natural Resource Impacts		
I. Act 250 Permits		
1. Have any Act 250 (Vermont's Land Use and Development Control Law) Permits been issued in the project site's parcel location?[9]	Yes ○	No ◉
If ***yes,*** please provide the permit number and list any water resource issues or natural resource issues found[10]: **PermitNumber:** **ResourceIssues:** _____ If ***yes,*** use the Water Quality Project Screening Tool to identify the appropriate regulatory contact for an Act 250 consultation. **Regulatory Point of Contact Name/Position:**		
II. Lake and Shoreland		
1. Is the project site located within 250 feet of the mean water	Yes ○	No ◉

[6] Occasionally permit staff may indicate they need a field visit or to see more completed designs prior to making a permit need determination.

[7] Design phase projects that require an individual wetlands permit must have the permit in hand at the close of the final design phase. Implementation phase projects must have the individual permit in hand to be eligible for funding.

[8] Examples could include planned design changes or inviting permitting staff to stakeholder meetings.

[9] An Act 250 Permit is required for certain categories of development, such as subdivisions of 10 lots or more, commercial projects on more than one acre or ten acres (depending on whether the town has permanent zoning and subdivision regulations), and any development above the elevation of 2,500 feet. The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located on an Act 250 parcel. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

[10] Note that Act 250 permit amendments may require more extensive review of project impacts to natural resources including wildlife habitat, significant natural communities, and riparian zones. Please consult with the Act 250 District Coordinator regarding the nature and scope of that review and what bearing it may have on your project design.

level (shoreline) of a lake or pond? [11]	
If ***yes***, you might need either a Shoreland Protection Act Permit or a Lake Encroachment Permit. Use the Water Quality Project Screening Tool to find the Lakes and Ponds Program contact for your project's region. **Regulatory Point of Contact Name/Position:**	
III. Rivers, River Corridors, and Flood Hazard Areas	
1. Is there any portion of the project site located within 100' of a river corridor and/or mapped Federal Emergency Management Agency (FEMA) flood hazard area[12]**?** (e.g. a stormwater pond's pipe draining into a river corridor area)? Any permanent excavation/filling or construction within a flood hazard area or river corridor may trigger regulatory requirements through municipal bylaws or through state authorities.	Yes ◉ No ○
If ***yes***, you will need to speak with a Floodplain Manager. Use the Water Quality Project Screening Tool to find the Floodplain Manager for your project's region. **Regulatory Point of Contact Name/Position:** Ned Swanberg	
2. Is any portion of the project site within a perennial river or stream channel? [13]	Yes ◉ No ○
If ***yes***, you will need to speak with a Stream Alteration Engineer. Use the Water Quality Project Screening Tool to find the Stream Alteration Engineer for your project's region. **Regulatory Point of Contact Name/Position:** Jaron Borg	
IV. Wetland	

[11] The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located in the jurisdictional zone to trigger a Lakeshore permit. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

[12] FEMA mapped Flood Hazard Areas are not available statewide on the ANR Natural Resources Atlas. For projects located in Grand Isle, Franklin, Lamoille, Addison, Essex, Orleans, Caledonia, and Orange Counties, maps are available via the FEMA Flood Map Service Center: https://msc.fema.gov/portal/home. ANR Floodplain Managers are available to provide technical assistance if needed.

[13] Stream Alteration Permits regulate all activities that take place within perennial river and stream channels. Examples of regulated activities include streambank stabilization, dam removal, road improvements that encroach on streams, and bridge/culvert construction or repair. The ANR Atlas Clean Water Initiative Program Grant Screening tool can help answer this yes/no question. Follow the instructions on the link above to identify whether your project is located in the jurisdictional zone to trigger a Stream Alteration permit. Note that the layer to activate in ANR Atlas is now named "Clean Water Initiative Program Grant Screening."

1. Does the Wetland Screening Tool[14] provide a result of wetlands likely, very likely, or present at the project site?	Yes ◉ No ○
2. Does your project site involve land that is in or near an area that has any of the following characteristics: o Water is present – ponds, streams, springs, seeps, water filled depressions, soggy ground under foot, trees with shallow roots or water marks? o Wetland plants, such as cattails, ferns, sphagnum moss, willows, red maple, trees with roots growing along the ground surface, swollen trunk bases, or flat root bases when tipped over? o Wetland Soils – soil is dark over gray, gray/blue/green? Is there presence of rusty/red/dark streaks? Soil smells like rotten eggs, feels greasy, mushy or wet? Water fills holes within a few minutes of digging? (See Landowners Guide to Wetlands for additional information on identifying wetlands onsite.)	Yes ◉ No ○ Not Sure ○
If you answered ***yes*** or ***not sure*** to either of the above questions, you will need to contact your District Wetlands Ecologist using the Wetland Inquiry Form. The District Wetlands Ecologist can help determine the approximate locations of wetlands and whether you need to hire a Wetland Consultant to conduct a wetland delineation. Alternatively, if you answered ***yes*** or ***not sure*** to either of the above questions, you can simply budget for a Wetland Consultant in the proposed scope of work. Any activity within a Class I or II wetland or wetland buffer zone (minimum of 100 feet and 50 feet respectively) which is not exempt or considered an "allowed use" under the Vermont Wetland Rules requires a permit. All permits must go through review and public notice process, which takes at minimum 6 weeks for a General Permit and 5 months for an Individual Permit. **Regulatory Point of Contact Name/Position:** Shannon Morrison	
1. Is your project a Wetland Restoration project type?	Yes ○ No ◉
If you answered yes, under the Vermont Wetland Rules you will need an "allowed use" determination from the DEC Wetlands Program. Contact your District Wetlands Ecologist using the Wetland Inquiry Form. **Regulatory Point of Contact Name/Position:**	
V. Fish and Wildlife	
State law protects endangered and threatened species. No person may take or possess such species without a Threatened & Endangered Species Takings permit. 1. **Does your project involve cutting down trees larger than 5 inches in diameter in any of the following towns?** Addison, Arlington, Benson, Brandon, Bridport, Bristol, Charlotte, Cornwall, Danby, Dorset, Fair Haven, Ferrisburgh, Hinesburg, Manchester, Middlebury, Monkton, New Haven, Orwell, Panton, Pawlet, Pittsford, Rupert, Salisbury, Sandgate, Shoreham, Starksboro, St. George, Sudbury, Sunderland, Vergennes, Waltham, West Haven, Weybridge, Whiting	Yes ○ No ◉

[14] To view the Wetland Screening Tool introduction video, see https://youtu.be/6lv5en0AB1o

2. Is the project site within 1 mile of a mapped[15] Significant Natural Community or Rare, Threatened, or Endangered Species?	Yes ◉ No ○

If ***yes*** to either of the above questions, connect with the VT Fish and Wildlife department (everett.marshall@vermont.gov 802-371-7333) to discuss your project and any necessary permitting.

Regulatory Point of Contact Name/Position: Everett Marshall

VI. Stormwater

1. Will the project disturb more than an acre of land during construction, add or redevelop impervious surface, create new development or otherwise require a Stormwater permit?	Yes ◉ No ○

If ***yes***, forward to the appropriate Stormwater specialist to ensure necessary permitting. Use the Water Quality Project Screening Tool to find the Stormwater specialist for your project's region.

Regulatory Point of Contact Name/Position:

Ashley Preston

VII. Solid Waste

2. Will you be creating any debris (including construction and demolition waste, stumps, brush, untreated wood, concrete, masonry, and mortar) with your project that you intend to bury on site? [16]	Yes ○ No ◉

If yes, connect with the Waste Management & Prevention Division (dennis.fekert@vermont.gov 802-522-0195) to discuss your project and any necessary permitting.

Regulatory Point of Contact Name/Position:

Provide below or attach a narrative summary of Table 4 findings. Please include:

a. Which permits or permit amendment are needed or might be needed?
b. What type might be needed? (e.g. a general or individual permit)?
c. What concerns were voiced by permitting staff?
d. How will the proposed scope of work address these concerns?

Permitting needs will be refined once the alternatives analysis is complete. It is reasonable to expect that we'll need a Stream Alteration Permit, and probably a Stormwater Construction General Permit. Jaron Borg has visited the site, and indicates that it is premature for him to comment on permitting prior to selection of alternatives. The project will need floodplain review; Ned Swanberg, our floodplain coordinator, strongly supports this project. The wetlands situation is very unclear, because there are no mapped wetland areas, but there has been a past wetland project on the property. We have requested project review by Shannon Morrison. Everett Marshall indicated the project will benefit the RTE species in the area.

Is the project, as proposed, reasonably considered permit-able by all applicable	Yes ◉ No ○

[15] Find both of these layers on the ANR Atlas under Atlas Layers/Fish and Wildlife. Use the Measurement tool to 1) Plot Coordinates for your project 2) select the coordinates from the left panel 3) select the Radius Tool 4) click on your project location 5) Indicate 1 mile distance 6) look for overlap with either of these mapped layers.

[16] If your project will result in the transfer and disposal of debris (including construction and demolition waste, stumps, brush, untreated wood, concrete, masonry and mortar), you do not need a permit from this office as long as you hire a licensed solid waste hauler and bring the material to a certified facility.

ANR permitting programs? (Answer must be Yes to continue)	

Step 5: Conduct Eligibility Criteria #5-8 Screenings

Table 5A. Eligibility Criteria 5-8	
Landowner and Operation and Maintenance Responsible Party Support. Project identifies and demonstrates commitment from a qualified and willing operation and maintenance responsible party. Project demonstrates landowner support for the proposed project phase. (Answer must be YES to proceed)	Yes ◉ No ○
Budget. Project budget includes ineligible expenses. (Answer must be NO to proceed)	Yes ○ No ◉
Leveraging. Proposed leveraging meets required leveraging levels (if applicable), meets the definition of leveraging, and comes from eligible sources (Answer must be YES or N/A to proceed)	Yes ○ No ○ N/A ◉
Funding Program Specific Eligibility. Project meets additional funding program eligibility requirements*. Please list applicable funding program below: (Answer must be YES to proceed) *If Water Quality Restoration Formula Grant, complete Step 6 below	Yes ◉ No ○

Step 6: Screening Projects on Agricultural Lands (Water Quality Restoration Formula Grants Only)

For Water Quality Restoration Formula Grant projects, please complete the following information as part of your Funding Program Specific Eligibility Screening (Criteria 8). Please note this must be completed for all projects located on agricultural lands regardless of project type. See CWIP Project Types Table for eligible project types.

Table 6A. Screening Projects on Agricultural Lands	
1. Is the proposed project located on a jurisdictional farm operation[17]? Complete a preliminary review to	○ **Yes** - Proceed to next question below.

[17] Jurisdictional farm operations are required to meet Vermont's Required Agricultural Practices (RAPs).

determine if it is a jurisdictional farm operation, and any case that requires consultation with AAFM will occur via the farm determination process. Please note this form must be submitted by the farm operation/landowner seeking the determination.	◉ **No**[18] - There is no additional requirements related to agricultural review for these projects.
2. Is the proposed project an agricultural project? Examples of agricultural projects include but are not limited to Production Area Practices – (e.g. Waste Storage Facilities, Heavy Use Area, Diversion) Fence, Livestock Exclusion, Filter Strip, Cover Crop, Reduced Tillage, Manure Injection, Rotational Grazing. Please note this is not an exhaustive list of all agricultural practices.	○ **Yes** - Agricultural Projects on jurisdictional farms are not an eligible project type. You can provide a referral to an applicable state or federal agricultural assistance program, or a local organization. ◉ **No** - The natural resource, innovative, or other project type will require an agricultural project review and approval from the Vermont Agency of Agriculture, Food and Markets (VAAFM) to ensure a consistent approach on farms statewide that follows rules, regulations, and laws in place. Please follow Steps 1 & 2 below. **Step 1** - Please submit a detailed description of the project, project site, project details, landowner, farm operation, and any other relevant information to VAAFM at AGR.WaterQuality@Vermont.gov . **Step 2** - Once you complete this Agricultural Project Review, please allow 30 days for a response. Once that response has been received, please include a summary of the response in the next section.

Agricultural Project Review Status & Summary:	
Check as Applicable	**Status**
☐	Submitted/ Pending
☐	Approved
☐	Denied

[18] Note CWIP's Agricultural Pollution Prevention project type eligibility is limited to land where owner or operator is not a jurisdictional farm (i.e., not required to meet the Required Agricultural Practices (RAPs)). As such, projects that meet the definition of the Agricultural Pollution Prevention project type in the Appendix B. Project Types Table are not subject to review by VAAFM.

Please include a summary of the response here:

Please note that it is expected that all projects with the status "submitted/pending" will be "approved" prior to a project approval for funding.

Coburn Road Floodplain Restoration

Vermont Agency of Natural Resources

vermont.gov

LEGEND

- Parcels (standardized)
- Roads
  - Interstate
  - US Highway; 1
  - State Highway
  - Town Highway (Class 1)
  - Town Highway (Class 2,3)
  - Town Highway (Class 4)
  - State Forest Trail
  - National Forest Trail
  - Legal Trail
  - Private Road/Driveway
  - Proposed Roads
- Town Boundary

1: 4,870

December 11, 2023

247.0 0 124.00 247.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 406 Ft. 1cm = 49 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

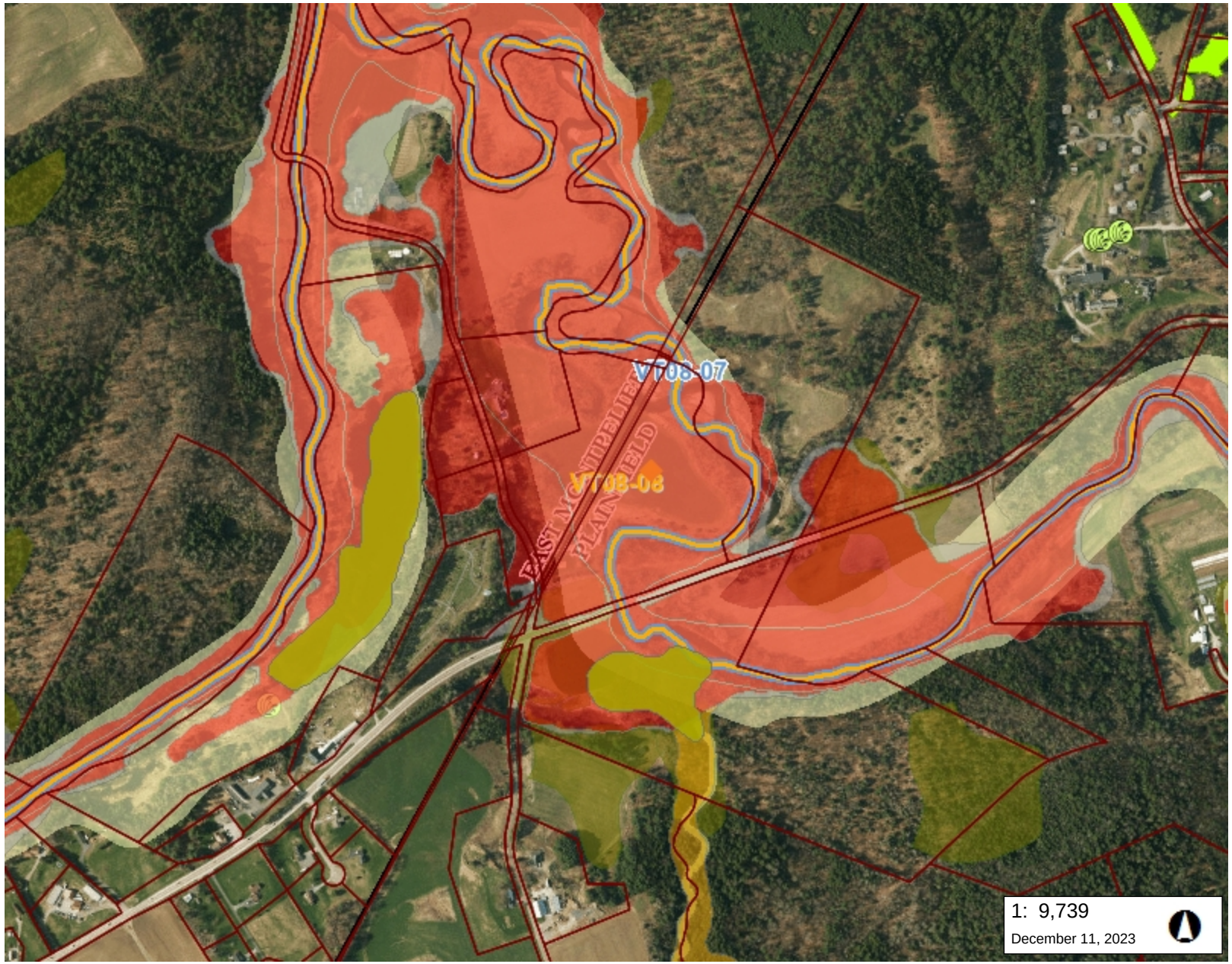
NOTES

Note property consists of two parcels: one in East Montpelier, one in Plainfield.

Coburn Road Floodplain Restoration

Vermont Agency of Natural Resources

vermont.gov



LEGEND

- Wetland - VSWI
  - Class 1 Wetland
  - Class 2 Wetland
  - Wetland Buffer
- Wetlands Advisory Layer
- River Main Stem Waterbodies
- WBID Watersheds
- Flood Hazard Areas (Only FEM
  - AE (1-percent annual chance floodp
  - A (1-percent annual chance floodpl
  - AO (1-percent annual chance zone feet)
  - 0.2-percent annual chance flood ha
- River Corridors (Aug 27, 2019)
- .5 - 2 sqmi.
- .25-.5 sqmi.
- Soils - Hydric
- Parcels (standardized)
- ACT250 Permits
- Town Boundary

NOTES

Map created using ANR's Natural Resources Atlas CWIP Grant Application Layer

1: 9,739

December 11, 2023

495.0 0 248.00 495.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 812 Ft. 1cm = 97 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Winzell and Meisner property at 1495 Coburn Road in Plainfield and East Montpelier

Photo 1: Significant sediment accumulation and large woody debris at the northern end of the property, where river turned to the west and slowed at the edge of the woody buffer on the near bank of the river.

Photo 2: Less sediment deposition on slightly higher elevation area, apparent flood chute flowing north in lower area with resulting deposit of large woody debris on far bank of river.

Winzell and Meisner at 1495 Coburn Road in Plainfield and East Montpelier

Proposed Project Timeline

1. Contractor will be selected in January 2024.
2. Project Kickoff February 2024
3. Alternatives Analysis completed by June 30, 2024
4. Stakeholder meetings: landowners and DEC program and regulatory staff in July 2024
5. Preliminary (30%) design complete by September 1, 2024
6. Project submitted for Preliminary VDHP Project Review
7. Project complete by December 15, 2024

FRIENDS OF THE Winooski

Michele Witten Braun

michele@winooskiriver.org

Executive Director, Friends of the Winooski River 2017

Organizational administration: financial management, insurance maintenance, grants management, policy compliance, board of directors support, fundraising, and personnel oversight

Project management of all large restoration projects, such as Dog River Park floodplain restoration, Camp Wihakowi dam removal, Barre Town Recreation Fields Bioretention, Lockwood Brook culvert replacement, and development and management of projects across all programs

Communications: publish web site, blog, newsletter, social media accounts, and outreach materials

Experience

Hazard Mitigation Planner **Town & Village of Northfield** **2015-2017**
Northfield, Vermont

* Obtained and managed $3 million in grants to acquire and demolish 18 flood-damaged homes and implement a floodplain restoration and public amenity project in the resulting riverfront open space

Planner/Zoning Administrator **Town & Village of Northfield** **2006-2015**
Northfield, Vermont

* Responsible for municipal land use planning, hazard mitigation planning, and implementation
* Secured grants to provide education to municipal boards, improve schools signage, engage the public in municipal plan update, and reconstruct village common pedestrian facilities
* Coordinated and supported municipal water and sewer department adoption of GIS

Project Associate **Green Mountain Institute for Environmental Democracy** **1996-2001**
Montpelier, Vermont

* Assisted states, cities, and non-profits with design and coordination of collaborative processes for improving public involvement in environmental planning.
* Developed group process agendas and facilitated meetings and collaborative planning processes

Education

Master of Science **University of Vermont** **1996**

* Natural Resources Planning
* Thesis: *Factors Affecting Farmer Participation in Federal Cost-Sharing Programs for Soil and Water Conservation*

Bachelor of Arts **Bowdoin College** **1991**

* Dual major: Government & Legal Studies and Romance Languages
* Diplôme d'Etudes Françaises, Deuxième Degré, University of Strasbourg, France 1990

Training

* Certified Floodplain Manager, 2012-2017

FRIENDS OF THE Winooski

Taylor Litwin

taylor@winooskiriver.org

EDUCATION

Master of Science, Environmental Humanities || University of Utah 2021

Thesis: *Albion Basin: A Case Study of Ecological Restoration in the Anthropocene*

Graduate Certificate, Global Sustainability || University of Utah 2020

Dual Bachelor of Science, Environmental Science and Geography || SUNY Oneonta 2017

EXPERIENCE

Stewardship Director, Cottonwood Canyons Foundation 2021-2023

- Secured grants from Utah Department of Agriculture, local governments, and corporate sponsors
- Coordinated the Invasive Weeds Management Program
- Organized large volunteer events including National Public Lands Day and National Trails Day
- Completed vegetation surveys for NEPA permitting applications relating to new trail construction
- Hired, trained, and supervised 4 seasonal crew members and over 120 volunteers
- Led snowshoe and ski field trips focused on ecological education for school groups

Environmental Humanities Graduate Fellow, University of Utah 2019-2021

- Assisted in event coordination in 2019, including green lunches and notable guest speakers
- Contacted prospective students who express interest in applying to the EH program

Vegetation Monitoring and Assessment Team, National Park Service, Moab, UT 2019

- Worked to restore native species and eradicate invasives in Canyonlands and Arches National Parks and Hovenweep/Natural Bridges National Monuments in riparian and grassland areas

Americorps Vista Member, Mālama Kauaʻi, Kilauea, HI 2018

- Streamlined grant application and management practices and secured grants
- Developed training materials and provided ongoing mentorship for 8 AmeriCorps members

Environmental Educator, NYS Dept. of Environmental Conservation, Delmar, NY 2017

- Developed 8 new educational programs including Beaver Lodges and Bird Adaptations
- Conducted routine invasive species removal of water chestnut and checks of 10 mile trail network
- Led High School research class of 12 students monitoring macroinvertebrates

Environmental Educator, The Wild Center, Tupper Lake, NY 2016

- Developed and implemented 6 new Live Animal programs
- Led Canoe and Stand Up Paddleboard tours, educating guests about river ecology and bog species
- Guided Green Technology tours explaining the functions of photovoltaic cells, biofiltration, pellet stove.

Training

- Utah State Noxious Weed Management Conference, St. George. (2023)
- Utah Master Naturalist: Utah State University (2022)
- Utah State Non-commercial Pesticide Applicators License: (2021)
- *QuickBooks* for Agriculture: Kauai Community College (2018)
- Federal Grant Writing for Nonprofits: NOAA Pacific Region (2018)
- Wilderness First Aid (WFA): National Outdoor Leadership School (2017)
- Early Childhood Educator Facilitator Training: Project Learning Tree (2017)
- Teachers on the Estuary Certified: NOAA (2017)
- Certified Interpretive Guide: National Association for Interpretation (2016)

FRIENDS OF THE Winooski

Samuel Puddicombe

samuel@winooskiriver.org

EDUCATION

The University of British Columbia, Vancouver, BC **2019**
Bachelor of Science in Global Resource Systems (B.Sc), Honors Standing
Thesis: *Soil Carbon Sequestration for British Columbia Vegetable Production*

The University of Vermont, Burlington, VT **2023**
Geographic Information Systems and Data Communication Professional Certificate

EXPERIENCE

Vermont Fish & Wildlife Department, Montpelier, VT *Technician* **2023**
- Conducted field work to monitor fish populations in ponds and streams.
- Created and used surveys to monitor stream banks, tree plantings, culverts, and dams.
- Synthesized extensive data sets.
- Created a GIS project to assess aquatic habitat quality.
- Supported a land acquisition project.

New Leaf Organics, Bristol, VT *Crew Lead* **2022**
- Assisted in running a 5-acre flower and vegetable farm.
- Primary tractor operator.
- Cover crop manager.
- Field crew supervisor.

Pumpkin Village Foods, Burlington, VT *Sales / Operations* **2020-2022**
- Operated sales, purchasing, accounting, and delivery for the VT branch of a local food distributor.
- Facilitated significant growth in sales and range of distribution.

Lamoille South Supervisory Union, Stowe, VT *Nordic Ski Coach* **2021-2022**

Laughing Crow Organics, Pemberton, BC *Field Crew* **2019**

Training
- UVM Soil Morphology (Fall 2021)
- UVM Pasture Management (Fall 2021)

Skills
- ArcGIS Pro / Survey123
- Excel / Data Management
- Google Workspace
- Quickbooks Online
- Soils Identification
- Basic Carpentry

Winzell and Meisner at 1495 Coburn Road in Plainfield and East Montpelier

Phosphorus Reduction Calculator

Floodplain and Stream Restoration Estimated Phosphorus Reduction Calculator

kg of TP = Stream Stability P Reduction + Storage P Reduction
Stream Stability P Reduction = project type and basin P reduction factor (lb/acre/yr) * acres * kg per lb
Storage P Reduction = pre- to post- restoration change in connectivity factor (lb/acre/yr) * acres * kg per lb * *50% after year 1*

Variable	Value	Unit	Notes
Unit conversion	*0.454*	*lb to kg*	Not all floodplain and stream restoration projects receive a storage P reduction credit. If a project does not effectively change the ability of a stream or river to access a floodplain, select matching floodplain connectivity ranking f restoration (ex: floodplain connectivity pre-restoration = low, floodplain connectivity post-restoration = low). For more detail on phosphorus credit allocations by project type, please refer to the Standard Operating Procedures for Accounting of Natural Resources Restoration Projects available on the VT DEC website.
Consecutive year storage p reduction	*50%*	*of year 1*	The Functioning Floodplains Initiative (FFI) web application (coming soon) is equipped to generate the most accurate estimation of phosphorus reduction achieved through a floodplain or stream restoration project based on more specifications, and will ultimately be used for phosphorus accounting purposes by VT DEC. This tool was developed as an interim solution to provide high level estimation of potential phosphorus reductions and can be used to hel potential project outcomes to inform prioritization. Phosphorus reductions calculated in the interim tool are based on FFI project simulations by project type and watershed. This interim tool cannot be used to accurately account f practices (i.e. multiple project types implemented in a single location) however, the FFI tool will allow for calculation of estimated phosphorus reduction resulting from implementation of multiple project components, such as a riv easement layered on a floodplain restoration and buffer planting.

When making a selection, please ensure that the project meets the definition and criteria for the selected project type as outlined in the Standard Opearting Procedures for Tracking & Accouting of Natural Resource Restoration Projects.

Applies only to project type: replace culverts - undersized with shallow slope

Use the phc estimate ar effectivene

*Input**	*Dropdown**	*Dropdown**	*Input Value**	*Input Value*	*Dropdown**	*Dropdown**	*Output value*	*Output value*	*Output value*	*Output value*	*Outpu*
Project Identifier	**Basin**	**Project Type**	**Acres Restored**	**Number of Culverts Replaced (if applicable)**	**Floodplain Connectivity Pre-Restoration**	**Floodplain Connectivity Post-Restoration**	**Stream Stability P reduction (lb/yr)**	**Year 1 Storage P Reduction (lb)**	**Consecutive Year Storage P Reduction (lb/yr)**	**Estimated Year 1 P Reduction (kg)**	**Estima Reduc *Year 1*
11629	Winooski	Floodplain Restoration with Buffer Revegetation	18.00		Moderate	Moderate	48.60	0.00	0.00	22.04	

Coburn Road Floodplain Restoration Preliminary Design Budget				
		Units	Rate	Total
1	FWR staff time	64	$ 38.40	$ 2,458
	Project Management			
2	Mileage	70	$ 0.655	$ 46
3	Engineering Contract	1	$ 22,500.00	$ 22,500
	a. Kick-off Meeting *b. Existing Conditions and Restoration Alternatives Preliminary Plans* *c. Two-Dimensional Hydraulics Model* *d. Alternatives Analysis Memo* *e. On-site Meeting with landowners and programmatic and regulatory stakeholders* *f. Preliminary (30%) Design Plans, Cost Opinion, and Memo* *g. VDHP Review Request Submitted* *h. Design review meeting*			
	subtotal			*$ 25,003*
4	Indirect			$ 2,500
	TOTAL			**$ 27,504**

1. Staff time estimate based on past preliminary design projects, and actual wage rate including fringe

2. Mileage estimate based on distance from FWR office to project site. Assumes 4 trips to the site: kickoff, regulator visit(s), meeting(s) for landowner feedback.

3. Based on estimate provided by Fitzgerald Engineering

4. De minimis indirect rate of 10%

December 11, 2023

Dear Grant Review Committee:

We would like to express our support for the grant application by the Friends of Winooski River for the preliminary design of a floodplain restoration project on our land at 1495 Coburn Road.

This summer's flood had a major impact on our land. The Winooski River eroded the berms and riprap that had been meant to protect the farmhouse and barn. We have talked to many experts from the state and federal agencies that have an interest in river management, and we considered several options for how to repair or restore our land. Ultimately, we would like to remove the riprap – not just the spot where it broke through, but further along the northern bank as well. This will liberate the river to determine its own fate over time.

We like the thought of contributing, in this one tiny way, to a healthier Vermont river ecosystem. We're okay ceding what may become a substantial chunk of the field to the wilds. We plan to discontinue the lease for haying of the field, and would like the field restored to a natural state with shrubs and trees.

We support the study that Friends of the Winooski is proposing, to look at alternatives for letting the river spread out onto the land where we can do so without worsening the flooding of our home or undermining Route 2. We look forward to learning more about what might be possible to restore a healthy river and floodplain.

Sincerely,

Pär Winzell

Karen Meisner

Proposed Scope of Work - Meisner and Winszell Property, Plainfield, VT
November 29, 2023

The following scope of work was prepared for Friends of the Winooski River (FWR) by Fitzgerald Environmental Associates (FEA) for the Meisner and Winszell property in Plainfield, Vermont (**Figure 1**). The project scope includes evaluation of restoration alternatives for floodplain areas of the Winooski River which are present on the property and which experienced severe flooding in the most recent flood event of July 2023.

1 Project Initiation - Task 1

Evan Fitzgerald visited the property on 10/4/23 and met with FWR and the landowner on that occasion to discuss the effects of the recent floods on the property and determine general areas that hold potential for restoration with water quality and flood resiliency benefits. Evan Fitzgerald and Rodrigue Spinette (and other FEA colleagues as needed) will participate in an initial virtual meeting with FWR, the landowner, and other stakeholders as needed to kick-off the project and verify the mutual understanding of the project context and goals. During the meeting, we will discuss the potential restoration areas, and discuss our technical approach to the baseline conditions assessment and alternatives analysis.

Task Deliverable:

- Meeting minutes including any refinements in focal areas for existing conditions assessment and alternatives conceptual design

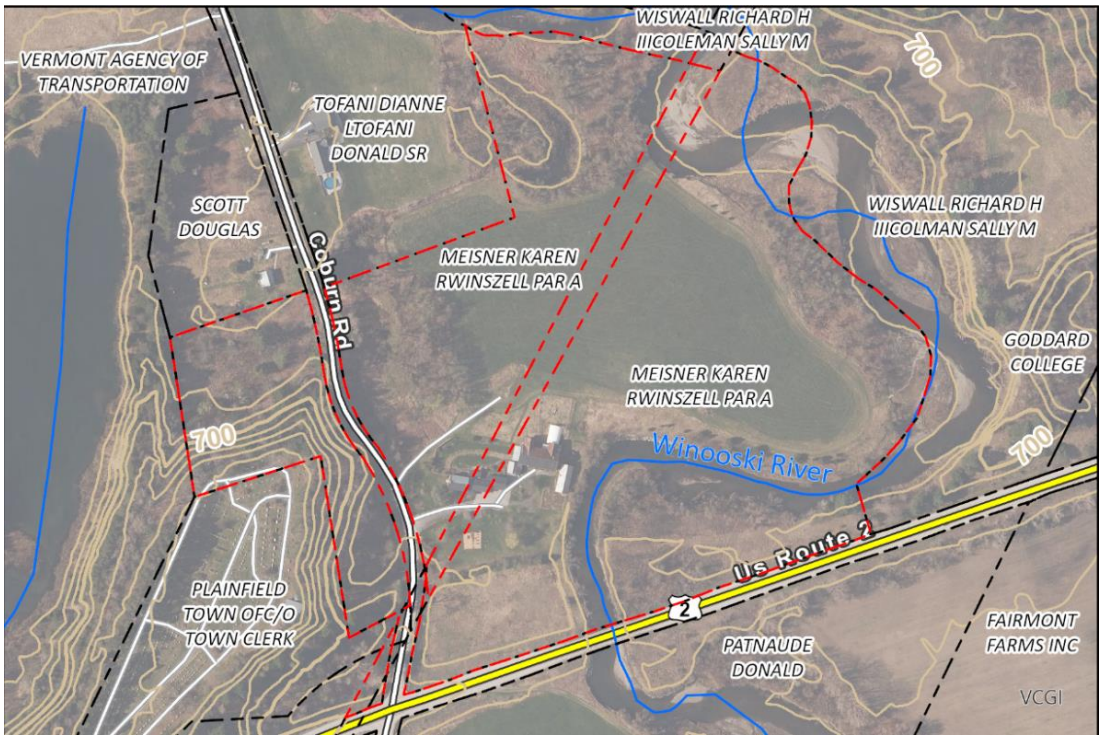


Figure 1: Project Scoping Overview Map

2 Existing Conditions and Restoration Alternatives Assessment - Task 2

2.1 Existing Data Review

In preparation for field surveys and data collection, we will organize all available spatial data pertinent to the project site in GIS, including LiDAR-derived terrain models and contours, aerial photos, NRCS soils data, wetlands mapping, stream centerlines, and FEMA flood zone mapping. We will also look to FWR, VTDEC, and the landowners to provide any relevant data or information not listed above, including knowledge of past land use or changes in land use affecting flooding and floodplain access (drainage structures).

2.2 Field Surveys and Data Collection

FEA completed a site topographic and bathymetric survey on November 15th, 2023 to augment existing LiDAR elevation data from VCGI and UVM. The fees associated with this task are excluded from this scope/proposal, but the data collection is summarized in this section. FEA has utilized elevation data from LiDAR datasets for several similar river/floodplain projects and has found the data to be very accurate and consistent in most areas. However, LiDAR datasets tend to smooth abrupt slope changes and channel bottom elevations are inaccurate due to the limited water penetration of the lidar laser sensors. In addition, the recent flood of July 2023 has deposited or eroded material in various parts of the study area, producing inconsistencies with the current lidar dataset. To increase the accuracy of our hydraulic model geometry, FEA collected survey data covering the Winooski river channel and the adjacent floodplains using a centimeter-grade GPS (Trimble Geo7X).

As part of a future site visit during the 2024 growing season, a preliminary assessment of wetlands will be performed by FEA staff who are trained in USACE methods and certified by VTDEC to delineate wetlands in Vermont. Approximate wetland boundaries and presumed classification of the wetlands will be included on preliminary plans as they may influence project planning and future permitting requirements.

2.3 Data Analysis and Modeling

Field survey data will be reduced and incorporated into ESRI ArcPRO and Autodesk CIVIL3D models of the site. We will use USGS StreamStats (Olson, 2014) to evaluate the hydrology of the Winooski River at this location and HEC-GeoRAS software (USACE, 2017) to examine the hydraulics of the river/floodplain system within the study area for a range of flood events. We will also incorporate existing hydrology data from the FEMA Flood Insurance Study. We will evaluate hydrology and river/floodplain hydraulics using HEC-RAS software (USACE, 2021) and a two-dimensional model to estimate flood flow velocity, depths, and elevations for different flood events (**Figure 2**). The hydrology and hydraulics data will be used to understand how the site behaves under existing conditions and will be used to evaluate the overall effects of different restoration alternatives. They will enable us to: 1) evaluate the general feasibility and benefits of near bank and floodplain restoration alternatives (berm and fill removal, natural levee removal, bench cutting), and 2) evaluate the relative flood risks and flood reduction benefits to nearby infrastructure under different scenarios.

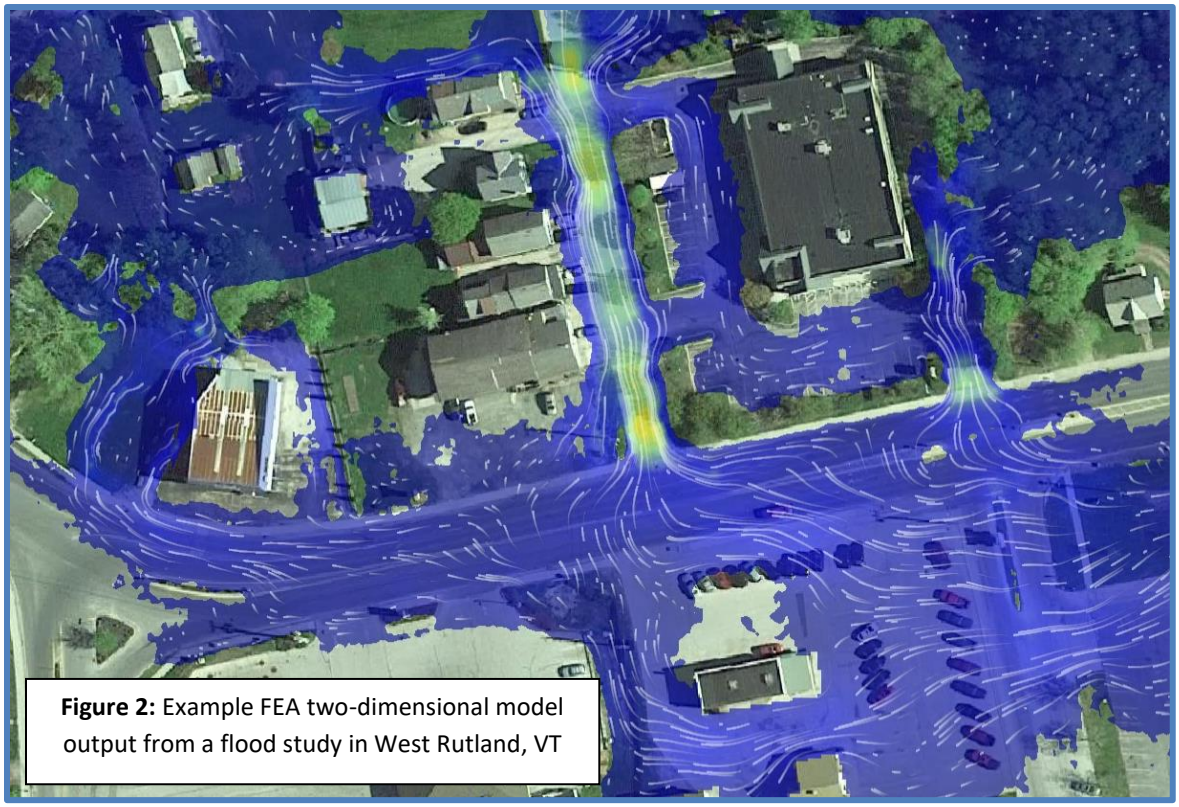


Figure 2: Example FEA two-dimensional model output from a flood study in West Rutland, VT

We estimate that 3-5 restoration alternatives will be evaluated, in coordination with FWR and the landowner. We will develop an alternatives matrix to evaluate and prioritize the alternatives (See Table 1 for typical evaluation criteria).

Table 1. Summary of Evaluation Criteria for Alternatives Analysis

Ecological Considerations	Social Considerations
• Sediment and phosphorus attenuation • Lateral floodplain connectivity • Aquatic habitat enhancement • Long-term river corridor equilibrium	• Flood resiliency enhancements • Ballpark implementation costs • Permitting constraints • General archaeological sensitivity (excludes Phase 1 ARA) • Compatibility with adjacent land use • Adjacent landowner concerns

Preliminary plans of existing conditions and the restoration alternatives will be prepared. The alternatives matrix, conceptual design sketches, and model results will be organized into a concise memorandum to be shared with FWR and the landowner. Maps, plans and modeling results will be used to illustrate the location of proposed interventions, and the positive and negative aspects associated with each one. Evan Fitzgerald and Rodrigue Spinette will meet on site with FWR, the landowner, and other

stakeholders/regulators as needed to review and discuss the summary of alternatives and concept sketches and prioritize the preferred alternatives for development of conceptual plans (Task 3).

Task Deliverables:

- Existing conditions plan and restoration alternatives assessment summary memorandum, including screen capture of important model results and conceptual restoration plans/maps
- On-site meeting minutes, including a list of selected alternatives (not to exceed 3) moving on to the next task.

3 Conceptual Design Plans (30%) and Cost Opinions - Task 3

Once the preferred alternatives have been selected, we will develop conceptual design plans (30%) and cost opinions for review. This will facilitate discussions of important project concepts and details between FEA, FWR, and the landowner. The conceptual design plans will also include enough information to initiate engagement with regulatory agencies to elicit preliminary feedback. The Conceptual design plans will include preliminary designs for up to three (3) restoration treatments.

The conceptual design plans will include:

- An existing conditions site plan that includes the most recent aerial photography and contours derived from lidar augmented with field survey data.
- A proposed conditions site plan that includes the extents and preliminary dimensions of proposed restoration treatments (not to exceed 3).
- Preliminary details that include typical cross-sections showing existing conditions and proposed treatment grading and flood elevations.

A cost opinion and summary of subsequent design and permitting steps needed to ready the concept designs for implementation will be outlined in a brief memorandum.

Task Deliverable:

- Conceptual design plans (30% complete) including up to three (3) restoration practices.
- Preliminary design memo including cost opinions and overview of probable permitting requirements.
- Virtual meeting minutes with FWR and landowner

4 Proposal Schedule and Budget with Lump Sum Fees

Table 2. Winzell/Meisner Floodplain Restoration, Plainfield, VT
Proposed Tasks, Deliverables, Schedule, and Fees

Task	Deliverable(s)	Target Schedule	Proposed Fee
Task 1 – Project Initiation/Kick-off Meeting	• Kick-off Meeting Minutes	2/1/2024	$1,500
Task 2 – Hydrologic & Hydraulic Modeling, Existing Conditions and Alternatives Analysis and Report	• Existing Conditions and Restoration Alternatives Preliminary Plans • Two-Dimensional Hydraulics Model • Alternatives Analysis Memo • On-site Meeting Minutes	7/1/2024	$13,000
Task 3 – Conceptual Design Plans and Cost Estimates	• Preliminary (30%) Design Plans, Cost Opinion, and Memo • Design review meeting minutes	9/1/2024	$8,000
		Proposed Total Fee:	**$22,500***

* Excludes fees for Evan attendance at initial scoping meeting on 10/4/2023 and FEA topographic and bathymetric survey in November, which will be covered by FWR separate from CWSP grant.