



# Caledonia County

## Natural Resources Conservation District

481 Summer Street, Suite 202 St. Johnsbury, VT | 802-424-3149 | [www.caledoniadistrict.org](http://www.caledoniadistrict.org) | [emily.finnegan@vt.nacdnet.net](mailto:emily.finnegan@vt.nacdnet.net)

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### Request for Proposals

#### Culvert Replacement Design Services on Tributary to Stannard Brook at Lazy Mill Rd in Stannard VT

##### Schedule:

Wednesday, July 24, 2024	RFP released
Friday, August 2, 2024	Questions due
Friday, August 9, 2024	Questions answered
Wednesday, August 28, 2024	Proposals due
Wednesday, September 4, 2024	Consultant selected

##### Contact for Proposals:

Emily Finnegan  
District Manager  
Caledonia County Natural Resources Conservation District (CCNRCD)  
[emily.finnegan@vt.nacdnet.net](mailto:emily.finnegan@vt.nacdnet.net)

**Purpose:** Caledonia County Natural Resources Conservation District is seeking an engineering consultant to provide design services for a culvert replacement project in the Town of Stannard to restore fish passage and stream stability.

**Project Description:** The purpose of this project is to replace one undersized culvert under Lazy Mill Rd to improve fish passage and stream stability along a tributary to Stannard Brook. The culvert is geomorphically incompatible, perched at low water, and the stream runs over the road in large storms. Caledonia County NRCDC seeks proposals to complete a 30% design, and subsequent 100% design.

##### Culvert Description:

**Location:** Lazy Mill Road, .25 miles south of Stannard Mtn Rd (44.5389, -72.2165)

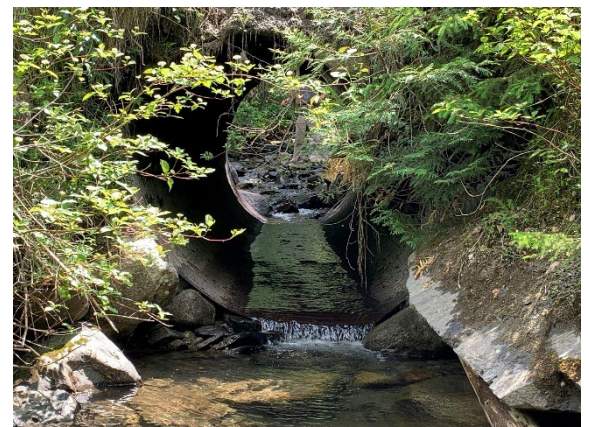
**Stream:** Tributary to Stannard Brook

**ID:** 4001400003131

**Bankfull Width:** 14.3'

**Culvert Width:** 6' **Length:** 20' **Height:** 6'

**Notes:** Barrier at low water, smaller project.





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**Scope of Work:** The work will be conducted in two phases: 1) Preliminary Design and 2) Final Design. The project will only proceed to Final Design if there is a feasible and acceptable Preliminary Design. During both phases, the Consultant will meet with the Project Team as needed to discuss topics such as scope of work, methods, deliverables, and project timelines. A site visit with the project team will be necessary early in the design process. In addition to Caledonia County NRCDC, the Project Team may include representatives from US Fish and Wildlife Service, VT Department of Fish and Wildlife, VTTrans, and the Town of Stannard.

Concepts and considerations found in the AOP design guidelines developed in SWG2-T-1-2 (<https://vtfishandwildlife.com/conservation/aquatic-habitat-conservation/aquatic-organism-passage-at-road-stream-crossings>) shall be used as the basis for project designs, with additional elements included from the USFWS Northeast Region Fish Passage Engineering Design Criteria (large document, please request from [emily.finnegan@vt.nacdnet.net](mailto:emily.finnegan@vt.nacdnet.net) as needed). The design will also need to meet VT Stream Alteration and Army Corps General Permit criteria.

### **Phase 1: Preliminary Design**

The goal of this phase is to collect the field data, analyze the data through appropriate models and produce 30% design(s) for the selected option(s). The consultant will collaborate throughout this step with the Project Team as needed to ensure an acceptable final product. Tasks for the preliminary design are:

**Data Collection:** The consultant will review existing relevant culvert information, including channel morphology, characterization of bed substrate, channel type, and condition. If necessary, the consultant will delineate wetlands adjacent to the channel throughout the project area. Topographic survey will be performed to record existing site conditions, including channel cross sections upstream and downstream of the structure, channel profile (20-30x times bank full width upstream and downstream of project site, pool depths, and head of riffle), road elevations, infrastructure that may be affected by the change, and other site features relevant to the design. Topographical survey limits shall extend a sufficient distance to define existing features related to the project site and provide sufficient information to complete a hydraulic analysis. CCNRCDC will facilitate landowner communication as needed.

**Hydrology and Hydraulics:** The consultant will develop a hydrology and hydraulics model for this site. Hydrology estimates will be made from field measurements and from peak flow estimates using USGS StreamStats. The consultant will analyze peak flow rates using the VTTrans Hydraulics Manual, Chapter 4 as a guideline. The peak flow rates will be analyzed to ensure the culvert has the appropriate waterway openings and geometries to pass the Q-100 storm event with  $H_w/D < 0.8$  (where  $H_w$  = headwater surface elevation and  $D$  = culvert vertical span). Once

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the culvert is sized, a scour analysis will be performed using the controlling channel velocities using the Q-2.33 through Q-500 storm events.

**Design:** Based on the data that was collected during the field investigations, the consultant will develop a design for simulating the natural channel geometry through the project area. The design will provide the existing and anticipated longitudinal profile and cross sections, streambed composition, grade control locations, and anticipated access points for implementation. The information will be detailed on the preliminary plans and included in the technical specifications. If there is more than one option, the options will be reviewed with the Project Team to select a preferred option(s). Preference is for open-bottom structure designs. The design should minimize project footprint and impact thereby minimizing the requirement of easements on adjacent private properties. The consultant should provide construction and maintenance estimates as well as anticipated structure lifespan into the design recommendation.

**Deliverables:** The preliminary plans shall include but are not limited to a title sheet, site plan sheet, details sheet (including longitudinal profile), required permit advice, recommended additional survey or geotechnical work (including cost estimates) and cost opinions for construction and construction oversight. The estimated construction cost of the temporary crossing must be a separate line item.

### Phase 2: Final Design

The project will only proceed to the Final Design phase if the Preliminary Design is acceptable to the Project Team. The design analyses will be completed and all comments from the Preliminary Design will be addressed. The Final Design phase will include the following tasks and deliverables:

**Final design:** Construction-ready drawings of the chosen preliminary design.

**Construction scope of work and cost estimate:** A construction bid package, including quantities and construction notes that could be presented to potential contractors. A cost estimate for the construction portion of the project, including oversight. VTrans item unit cost data will be used to develop the estimate with contingencies included for project-specific issues and site conditions.

**Review of permits:** The deliverable would include the development and submission of all permit and regulatory applications for the selected design. Historical preservation review will be coordinated by CCNRCD. Bid package should specify that the selected contractor is expected to be a permit co-applicant.

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**Final Review and Approval:** The consultant will present the Final Design to the Project Team for final approval. The plans shall be stamped and sealed by a professional engineer registered in the State of Vermont.

**Deliverables:** The final plans shall include but are not limited to a title sheet, site plan sheet, details sheet, profile and typical sections sheet, temporary crossing right-of-way, construction sequencing and dewatering plan, construction estimate, bid documents, and the list of required permits.

The Caledonia County NRCDC can coordinate communications with the Town of Stannard to review options and discuss logistics as necessary. The Caledonia County NRCDC can also assist with coordinating site visits as necessary with the Project Team or other local, state or technical staff.

**Questions:** Questions may be submitted to [emily.finnegan@vt.nacdnet.net](mailto:emily.finnegan@vt.nacdnet.net) before 5:00 pm on August 2, 2024. A comprehensive answer sheet will be distributed to all interested parties by August 9, 2024 or sooner.

This solicitation in no way obligates CCNRCDC to award a contract. A contract will only be awarded as deemed in the best interest of CCNRCDC.

**Proposal Format:** The narrative response, cost proposal and proposed timeline should be laid out to correspond to each of the major tasks under the Preliminary and Final Design phases. A staffing summary plus one-page biographies should be included for each member of the consultant's team, as well as a summary of consultant's experience with aquatic organism passage projects.

Proposals shall be submitted via email as a single PDF to [emily.finnegan@vt.nacdnet.net](mailto:emily.finnegan@vt.nacdnet.net) by 5:00 pm on Wednesday, August 28, 2024.

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