



# FINAL REPORT

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**Contractor:** Caledonia County NRCD  
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## RESTORING ACCESS TO UPSTREAM HABITAT ON A TRIBUTARY TO STANNARD BROOK

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### CONTACT INFORMATION

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## EXECUTIVE SUMMARY

The purpose of this project was to replace a culvert under Hutchins Farm Road in Stannard with a concrete bridge. The previous structure was perched, blocking access to high-quality climate change resilient habitat for eastern brook trout; mis-aligned, creating hydraulic impacts on the upstream side; and too small, resulting in insufficient vertical and floodplain connection for the channel along this stretch of stream. This project took place in Stannard, located in Caledonia County and the Lamoille River Watershed. Construction took place in September 2023, and was complete by Friday, October 6th, 2023.

The output of this project was to remove one fish passage barrier. The outcomes of this project were to restore access to 2.9 miles of high-quality climate change resilient eastern brook trout habitat; and improve water quality and restore river and floodplain function, decreasing community vulnerability to climate change.



*Figure 1 Hutchins Farm Rd culvert before construction*



*Figure 2 Hutchins Farm Rd bridge after construction*

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## 1. PROJECT SYNOPSIS

This culvert was initially identified by CCNRCD and a Fisheries Biologist for the Vermont Fish & Wildlife Department in 2011. The culvert was re-prioritized during an aquatic organism passage prioritization process for the Upper Lamoille Watershed undertaken by CCNRCD and the U.S. Fish & Wildlife Service (USFWS) a few years ago. The structure under Hutchins Farm Rd was one of four structures in Stannard to be chosen to move forward to the design phase in late 2020. Stone Environmental, Inc. was sub-contracted by CCNRCD in Spring 2021 to complete 100% designs for two of the four structures. The contract with Stone was funded by a combination of a State Wildlife Grant agreement between CCNRCD and Vermont Fish & Wildlife, and a Cooperative Agreement between CCNRCD and Partners for Fish & Wildlife. The 100% design phase was complete by March 2023.

This agreement helped cover the implementation phase of the project. The tasks outlined in the workplan covered three categories: personnel time and travel to the site for the CCNRCD District Manager; and professional services. Following a competitive bid process, the Town of Stannard signed a construction contract with Kirk Fenoff & Son Excavating, LLC in June 2023. The previous structure was replaced by a bridge with prefabricated sub-structures (concrete footers, abutment walls, wingwalls) and pre-cast deck beams in late September and early October 2023. Flood benches and a natural streambed were also part of the design completed by Stone Environmental, Inc. Stone Environmental, Inc. also provided construction oversight.

The final cost of the bridge construction, construction oversight, and CCNRCD personnel time and travel was funded with a combination of this agreement, a Vermont Agency of Transportation Highway Structures grant, and an agreement between Caledonia County NRCD and Partners for U.S. Fish & Wildlife.

Given the diversity of goals and funding sources related to the replacement of this structure, CCNRCD engaged several stakeholders in the design and construction process, including members of the Stannard Selectboard and the Stannard road foreman; the Vermont Agency of Transportation District 7 Project Manager; an aquatic habitat biologist from the VT Department of Fish & Wildlife; and a fish biologist from USFWS.

In *Opportunities for Action*, a “healthy ecosystem” is described as one that not only provides, “intact habitats for diverse fish and wildlife populations,” but provides, “natural functions to sustain clean water communities” (Lake Champlain Basin Program, 2022). In addition to re-connecting priority habitat for brook trout and other native species (OFA Objective II.C – support conservation of habitat for ecosystem function), this project will improve sediment and debris transport, geomorphic conditions, and the water quality of this tributary of Stannard Brook (OFA Objective I.C – reduce nutrient loading). According to data references in the Lamoille River Tactical Basin Plan, a VT Department of Environmental Conservation Watershed Management Division monitoring site on Stannard Brook upstream of the tributary where the current structure is located received a “fair” condition score in a 2018 fish assessment. Sites in Fair or Poor condition do not meet Vermont Water Quality Standards and need to be considered for additional assessment, listing, source identification, monitoring, and restoration. Stannard Brook is also listed in the Tactical Basin Plan as Stressed for sediment (Owczarski, 2022).

## 2. TASKS & DELIVERABLES COMPLETED

Task	Task Title	Tasks Completed	Deliverable/Output	Completion Date
1	Final Permitting	CCNRCD and the consulting engineer ensured that all permits necessary for construction were secured	Final permit documentation (Appendix A)	6/16/23
2	Pre-Construction Meeting	CCNRCD coordinated the schedule of the project start date and communicated with stakeholders as necessary; the consulting engineer and contracted construction firm led the pre-construction meeting	Pre-Construction Meeting Notes (Appendix B)	8/31/23
3	Construction (50%)	Completed 50% construction – installed traffic controls, installed erosion controls, created a system for bypassing flows around the project, removed the existing structure, and installed sub-structures (abutment and wingwall placement)	Construction Observation Reports * CCNRCD submitted deliverables for Task 3 & Task 4 together  Photos (Appendix C)	10/6/23
4	Construction (100%)	Replaced the former structure with a bridge – realigned stream per the plans, completed reconstruction of the stream, installed the bridge deck, completed upland work	Construction Observation Reports *Final invoice from contractor also included to indicate that task list from final construction report was completed  Photos (Appendix C)	10/6/23
5	Public Outreach & Communications	Contacted local media outreach and provided a press release and social media posts	Copy of press release	

			Estimate of number of people educated about this work – please see Project Metrics Report (Appendix D)	
6	Reporting	Completed quarterly reporting requirements and submitted on time  Compiled project summary and all project deliverables (plans, maps, articles, photographs, etc.) in this final report	Quarterly Reports  Approved Final report  Data and photos were submitted to project officer  Project metrics report (Appendix E)	

### **3. METHODOLOGY**

LCBP funds supported a construction firm chosen through a competitive bid process that took place prior to the execution of the agreement. CCNRCD received two price quotes through a documented competitive process. Good faith efforts to obtain services from disadvantaged business enterprises were also made.

In preparation for construction, trees on the project site were removed prior to March 31, 2023 in order to comply with the Endangered Species Act Section 7(a)(2) relative to the northern long-eared bat.

Construction was completed according to the methodologies required by the obtained permits and according to the timeline specified by the Authorization to Conduct Stream Alteration Activities issued by the Vermont Department of Environmental Conservation Watershed Management Division Rivers Program. All in-stream work was completed by October 1, 2023.

During construction, CCNRCD and partners at USFWS were on site to ensure the natural reconstruction of the stream bed and the appropriate density and depth of grade control and boulder clusters. The construction plans also included re-seeding all disturbed areas and riparian plantings of dogwood, alder, viburnum, willow, and hemlock or cedar shrubs/saplings.

### **4. CONCLUSIONS**

The output of this project was to remove one fish passage barrier. The outcomes of this project were to restore access to 2.9 miles of high-quality climate change resilient eastern brook trout



habitat; and improve water quality and restore river and floodplain function, decreasing community vulnerability to climate change. All outputs and outcomes were achieved.

Overall, this project went quite smoothly, and I think the Town of Stannard was pleased with the construction process as well as the final product. Although CCNRCD has facilitated culvert replacements before, this was the first time the current District Manager had personally overseen a culvert replacement of this magnitude. During construction, it was important to be on site for the reconstruction of the streambed, and together with partners from the USFWS, we did a good job ensuring as natural a streambed as possible. We also continued to follow up with the construction contractor after construction was ostensibly complete, as there were a few possible erosion hazards particularly by the wingwalls that had the potential to compromise the stream.

CCNRCD and other partners have identified a total of four priority culverts for replacement in this watershed, of which this barrier was one; once all four barriers are removed, eastern brook trout will have full access to the Stannard Brook and its tributaries, representing over 15 miles of new cold-water habitat. One of the other barriers will be replaced by the Town of Stannard in 2024. CCNRCD is actively working on securing funding for design and implementation for the other two culverts.

## 5. REFERENCES

Lake Champlain Basin Program. (2022). *Opportunities for Action: An Evolving Plan for the Future of the Lake Champlain Basin*.

[https://www.lcbp.org/wpcontent/uploads/2016/03/OFA\\_2022\\_Full-Plan.pdf](https://www.lcbp.org/wpcontent/uploads/2016/03/OFA_2022_Full-Plan.pdf)

Owczarski, Danielle. (2022). *Lamoille River Watershed Basin 7 Tactical Basin Plan*. Vermont Agency of Natural Resources.

<https://dec.vermont.gov/sites/dec/files/documents/2021%20Lamoille%20River%20Tactical%20Basin%20Plan.pdf>

## 6. APPENDICES

### Appended Documents:

Appendix A Task 1 Final Permit Documentation

Appendix B Task 2 Pre-Construction Meeting Notes

Appendix C Task 3 & 4 Construction Observation Reports

Appendix D Task 5 Hutchins Farm Rd Press Release

Appendix E Task 6 CCNRCD AOP Project Metrics