



Final Report

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Lewis Creek Association

Date Submitted: November 16, 2020

Hinesburg Village Landowner Outreach and Stormwater Concept Design Final Report

This project was funded by the Vermont Department of Environmental Conservation to Watersheds United Vermont, under agreement #2019-ERP-PAR-PD-01, then through a sub-grant from Watersheds United Vermont to Lewis Creek Association.

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Project Introduction

The area of Hinesburg that drains into LaPlatte River M15 has been identified in past studies (“Management Alternatives, Hinesburg Village, August 24, 2010” and “Feasibility Study: Opportunities to Manage Transportation-Related Stormwater Runoff, Hinesburg, VT, June 30, 2015”) as an important area for stormwater treatment. This area encompasses Lyman Meadows, the Russell property, Hart & Mead, Lantman's, St. Jude's, Kelly's Field, the United Church of Hinesburg, and a portion of Route 116 (but not including the Cheesefactory property). This area of Hinesburg has reduced geomorphic and habitat condition and water quality. Channel straightening and berming, and altered flow from stormwater runoff contribute to channel instability. We held discussions with landowners in this subwatershed to determine willingness to participate, and developed one engineered concept design to maximize water quality benefits. Recommendations for other sites with willing landowners were also drafted. The site brought to concept design was designed using optimal conservation practices, so that once implemented, it can become one of Lewis Creek Association's “Ahead of the Storm” demonstration sites.

Tasks Completed

We developed a contract with Milone & MacBroom to serve as engineers on this project. Andrea Morgante met with Jaron Borg (River Management Engineer, VT DEC) and Tina Heath (District Wetlands Ecologist, VT DEC) to get information about what portion of the properties would be considered wetlands and streams vs. ditches (e.g. what would require stream alteration or wetland permits). Andrea Morgante and Kate Kelly of Lewis Creek Association, in conjunction with Alex Weinhagen (Director of Planning & Zoning for the Town of Hinesburg), contacted several landowners in the area and set up an advisory committee for the work. This team included a representative from each of the Lyman Meadows Homeowners Association, Lyman Park Homeowners Association, and United Church of Hinesburg groups. A site visit with the engineer was made in early November 2019 to walk the stream/drainage area and review previously identified and potential new projects. The advisory committee met on December 30, 2019, to discuss the potential work, and landowner/homeowner association concerns on their properties.

A letter to landowners was prepared to invite them to a meeting to describe the issues and potential projects, to determine if they were interested in participating. This meeting was to be held on March 19, 2020, when COVID-19 hit, and everything was shut down. In late July, we sent materials out to landowners via email (after collecting email addresses). We then followed up with phone calls and in-person visits where possible.

We investigated several potential projects with landowners to educate the landowners of projected options, water quality benefits, and investigate which landowners were potentially interested. Multiple projects were identified, and landowners contacted. Investigated projects include (Figure 1):

- 1) bio-retention areas at Lyman Meadows and Lyman Park
- 2) intersection improvements (culvert replacement, re-grading, and filter strips) at the intersection of Lyman Meadows and Lyman Park
- 3) bio-retention downstream of the culvert on a portion of Hart & Mead property
- 4) wetland restoration behind United Church

- 5) bio-retention at Lantman’s Market parking lot
- 6) bio-retention around edges of Lyman Fields

Landowner interest and recommendations were documented, see the following section. Given landowner interest, a decision was made to advance Project #4 to concept design based on location at the lower end of the subwatershed, potential water quality benefits, and benefits of habitat improvement, flood reduction, and public location with opportunity for educational signage.

The engineering team collected field data, prepared basemapping, and completed a concept design and cost estimate for the wetland restoration design. A grant application has been submitted to provide funding to complete final design for the wetland restoration with the support of the United Church and Town. A final team meeting was held in November 2020 to review the projects recommendations and concept design at the United Church.

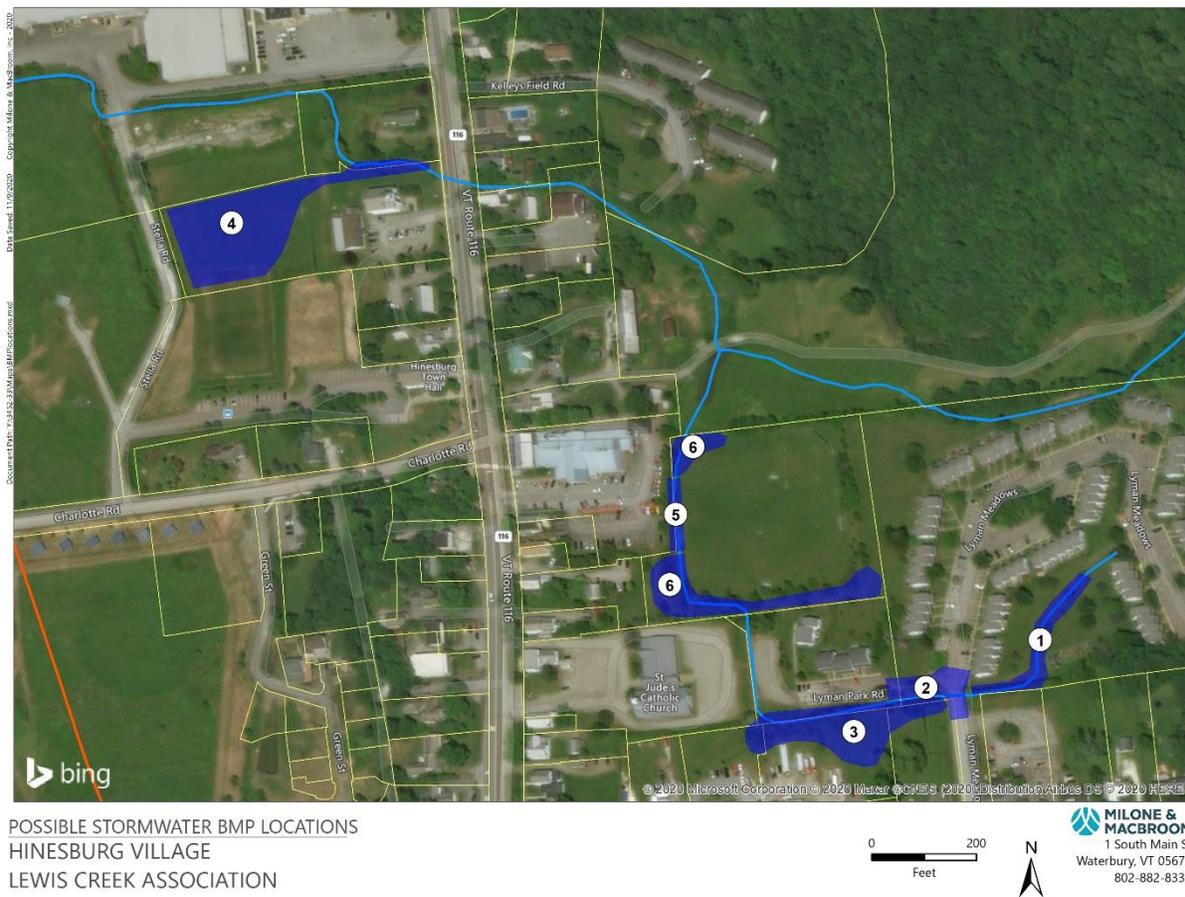


Figure 1: Investigated project locations.

Project Summaries

Project #1 to create bio-retention areas at Lyman Meadows and Lyman Park had initial support from some members of the two homeowners' associations. However, neither homeowners' association had time to discuss the topic at their monthly association meetings to come to a conclusion/ranking. Their major concerns were regarding finances, as neither had money to spend on projects (both were planning to undertake some paving projects this fall). We plan to continue discussions with both groups to encourage action, and hope that bio-retention areas on their properties will be a potential future project. There are several potential areas to capture and filter runoff in a bio-retention area around these properties. The main target locations would be where water already accumulates along a swale network. Bio-retention in this area would capture runoff high up in the subwatershed and reduce the volume of water reaching downstream properties. It is recommended to maintain a relationship with the homeowners' associations and work to designate bio-retention areas on the properties.



Photo 1: Potential bioretention area between Lyman Park and Lyman Meadows (Project #1).

Project #2 to complete intersection improvements (culvert replacement, re-grading, and vegetated filter strips along impervious surfaces) at the intersection of Lyman Meadows and Lyman Park was discussed with landowners. Representatives of the homeowners' associations showed some initial support but no final conclusion or ranking possible from the HOAs. We were able to use our hired engineering firm, Milone & MacBroom, to visit the area prior to the planned paving project, to determine if the culvert was at a proper elevation, and to provide some initial recommendations that may prove helpful before they begin paving.

The culvert is set at the right elevation. To lower the culvert could start upstream erosion. The culvert is unfortunately located where the swale transitions from steep to shallow slope and is therefore prone to collect sediment and debris carried from upstream. It is recommended to improve drainage in the areas and reduce transport of gravel by crowning the roads, removing large puddles, and creating vegetated filter strips between the pavement and drainage swales.



Photo 2: Culvert under Lyman Meadows Road (Project #2).

Project #3 to create bio-retention downstream of the culvert on a portion of Hart & Mead property was discussed with landowners. The discussion brought up some concerns from the landowners about how they use the property. We investigated regulations with the town and our engineer and gave them some ideas about the size of the bio-retention area. In the end, these landowners chose not to participate at this time, but were open to further discussions once they finalize plans for their property in the future. This project continues to be ranked high (#3 in 2015 study) and should continue to be pursued based on continued interest from the landowners.



Photo 3: Area behind Hart and Mead (Project #3).

Project #4 the wetland restoration behind United Church was explored. The project had strong support from the United Church (ranked highest to pursue based on their willingness to consider putting a project as described on their land, as well as their willingness to participate actively in the process of designing the project, and willingness to have this area of their land be an Ahead of the Storm site). It has the potential for treating large amounts of water (and has the additional benefit of restoring a wetland for the benefit of native plants and animals).

Given the landowner responses, as well as the potential for treating a large amount of water, we chose to move forward the wetland restoration project behind the United Church for concept design. This project will have a wide range of benefits. Field data was collected, basemapping prepared, and a concept design and cost estimate completed for the wetland restoration design (Figures 2, 3, &4). A grant application has been submitted to provide funding to complete final design for the wetland restoration with the support of the United Church and Town.

The concept design includes restoration and naturalization of almost one acre of impacted former wetland that had been used as agricultural land for over 100 years, then used as a lawn and an informal recreation field. The area has been regraded and ditched, compacted and maintained as a lawn. The area will be excavated to remove fill. A variety of wetland habitats will be recreated with a variety of wetland natural vegetation. Runoff from upstream properties is currently channelized in a straight ditch with berms on both sides and takes an unnatural path to the LaPlatte River. This project will realign the channel flow paths to meander through the restored wetland area. The playground and community gathering spaces will be moved out of the flood paths and improved to increase flood resiliency. The design contemplates pedestrian access with grass and boardwalk paths near and within the restored areas.



Photo 4: Lawn behind United Church (Project #4).

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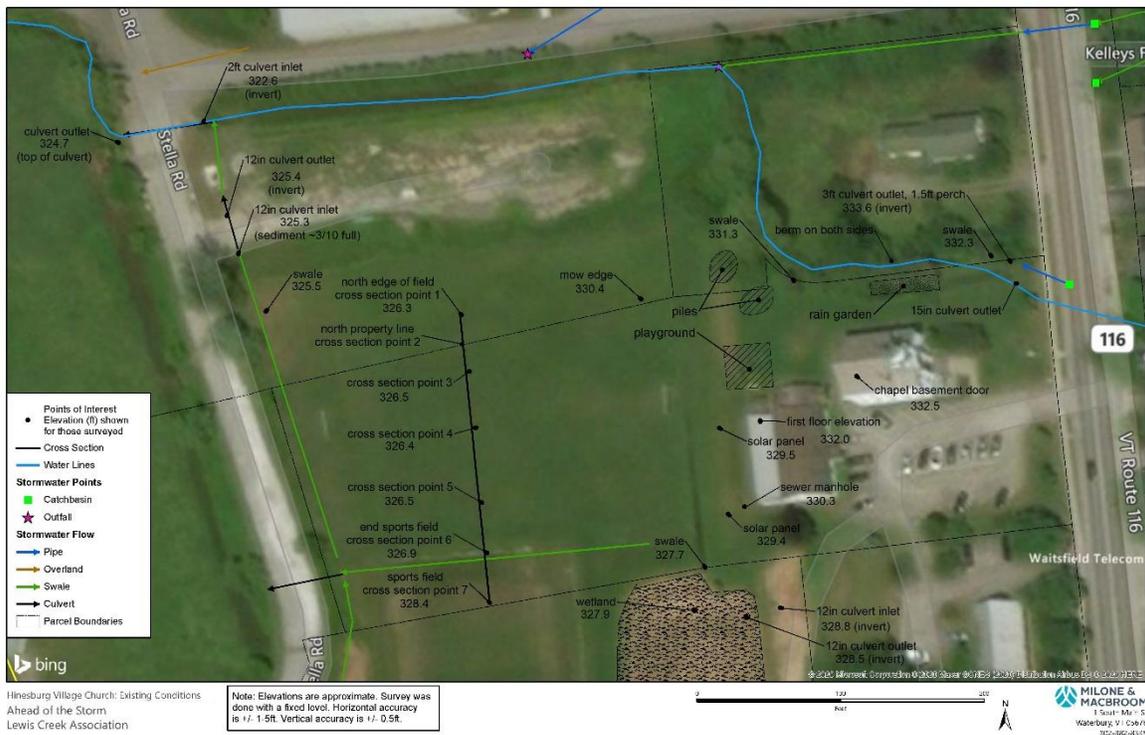


Figure 2: Existing Conditions and data collected at Project #4.

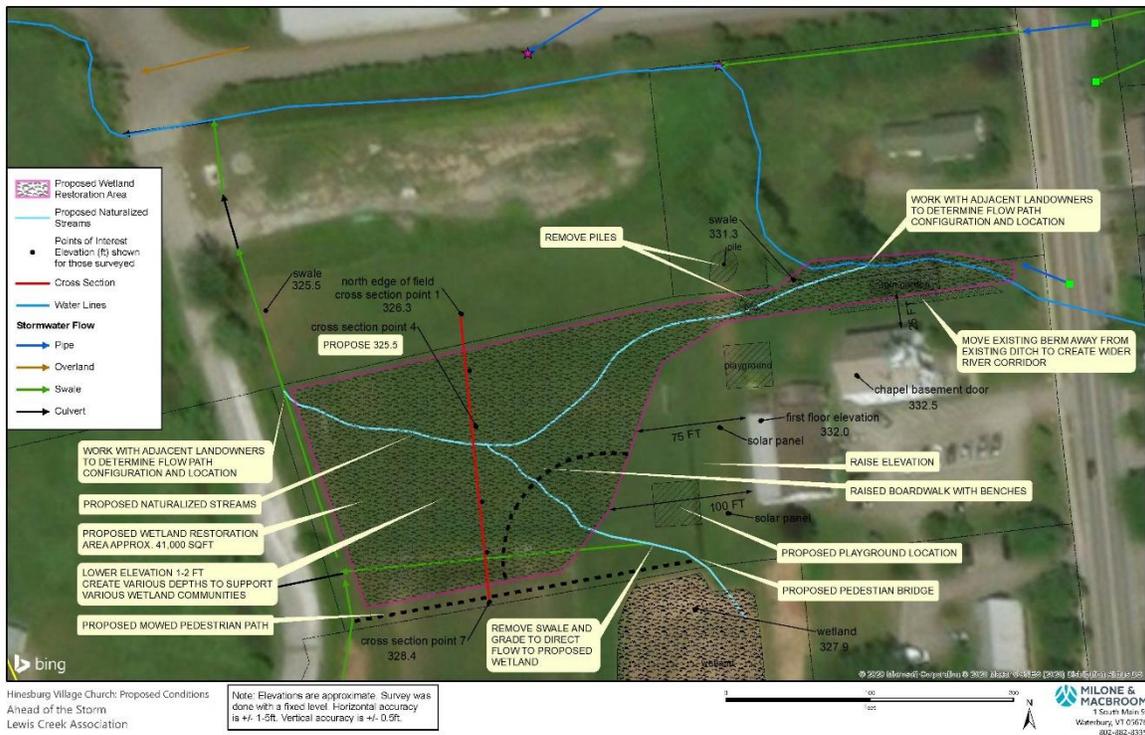


Figure 3: Project #4 concept design layout.



Hinesburg Village Church, Typica, Detail
Ahead of the Storm
Lewis Creek Association

MILONE & MACBROOM
10 South Main St.
Waterbury, VT 05676
802 882 8332

Figure 4: Project #4 concept design details.

Project #5 Lantman’s Market parking lot bio-retention was discussed with market owners. The owners showed some support for swale improvements off the east side of the parking lot, but no interest in improvements within the parking lot area, as they were concerned with the amount of parking space available and were unwilling to give up any parking area. There is currently a narrow swale between the parking lot and park. A joint project is recommended between the market and the Town to widen the swale, increase storage, and add additional native vegetation would improve flood storage, habitat, and water quality. There may still be opportunity to regrade the parking lot and redesign the islands in the parking lot that instead of curbed islands could be depressions to collect stormwater.

Project #6 bio-retention around edges of Lyman Fields was explored. This project was identified in the 2015 study. The park is Town owned. The Town has shown support of the projects by adding these areas to the Hinesburg Official Map, last adopted February 5, 2020. The two stormwater areas at the northwest and southeast corners of the park are shown as official map items 41 and 46. These areas were visited by the engineer and are recommended to remain as future project to pursue. It is also recommended to create a naturalized water connection all the way around the park to create a linear stormwater improvement / stream corridor naturalization project in what is now a ditch.



Photo 5: Swale east of Lantman's Market (Project #5).



Photo 6: Northwest corner of Lyman Park (Project #6).



Photo 7: Southeast corner of Lyman Park (Project #6).

Deliverables Completed

The wetland restoration project at the United Church (Project #4) was progressed to concept design. We prepared and distributed a press release to announce the project, and to increase awareness and knowledge of water quality issues.

Next Steps/Conclusion

We intend to continue discussions with the homeowners' associations at Lyman Meadows and Lyman Park to encourage future projects on their properties, and if this turns into a feasible option, will help support their efforts. We also intend to keep in touch with the Lantman's Market and Hart & Mead landowners, to encourage improvements that might help with water quality. For the wetland restoration project, we have submitted a grant application for LCBP funding this fall to progress to final design, and will assist with grant applications and management to make a wetland restoration a reality.

Budget Accounting

Staff expenses included \$1650, along with \$4000 of contractor expenses. We additionally had \$732.50 of indirect expenses. We had \$400 in match contributed by Andrea Morgante (8 hours @ \$50/hour).