

CPA PROJECT APPLICATION

Community Preservation Committee
66 Westford Street
Carlisle, MA 01741
TEL: 978-369-6155 (Town Clerk) FAX: 978-371-0594

Please type your responses to the following questions:

1. Project Overview, Contact Information, Signatures

Project Name: Greenough H & H study and Greenough Pond Management Plan

Project Applicant: Sylvia Willard, Conservation Administrator

Amount Requested: \$30,000

Sponsoring Board or
other organization(s)
(as applicable): Carlisle Conservation Commission

Primary Contact Person:

Name: Alex Parra

Address: 31 Bellows Hill Road, Carlisle, MA 01741

Phone Number: (978) 407-8618

Email Address: alexparra902@gmail.com

Purpose: (please select all that apply)

- Community Housing
- Historic Preservation
- Open Space
- Recreation

Project location or address: 750 Curve Street, Carlisle, MA 01741

Signature of Applicant: Carlisle Conservation Commission

Print name: Dan Wells, Chair

Date: 3/14/2024

Signature of Chairman of
Sponsoring Board
or other organization
(as applicable):



Print name: Dan Wells

Date: 3/1/2024

2. Project Summary

At the February 29, 2024 the Conservation Commission voted to request an additional \$30,000 be requested to fund a watershed H&H study to seek information to potentially allow for a pond level management plan for Greenough Dam. This request seeks \$30,000 to fund this study.

3. Project Description

This application requests funding for a Hydrologic and Hydraulic (H&H) study of the Pages Brook watershed contributing water to Greenough Pond. The purpose is to gain information for safely allowing management of the Greenough Pond Spillway to retain adequate water levels during late spring, summer and early fall months when stream flows into Pages Brook are low. Maintaining adequate water levels would be accomplished by adjusting the flow from the new spillway on Greenough dam by adding boards. The Commission is very aware of concerns by upstream property owners who have been experiencing flooding in recent years and who fear that adjusting the Greenough Pond water level may exacerbate a flooding problem for them. Equally, there are residents near the pond concerned about how unusually low the pond level drops and also a concern received from Mass Fish and Wildlife Service who in 2020 were unable to access some Wood Duck boxes on the pond that they have been able to access for regular monitoring since the early 1950's.

4. Responsible Parties

Who will implement the project? Is there a project manager? Please list the name and contact information of these persons and any additional responsible parties – i.e. property owner, consultant (if applicable).

Sylvia Willard, Conservation Administrator

5. Timeline

When will the project begin? When will it be completed? Are there multiple stages for the project?

Once funded and a surficial hydrologist selected, the project can commence as soon as his/her schedule allows. It will conclude when the hydrologist indicates that enough data has been collected for a plan for preparation of spillway management can be prepared. Details of the study are attached as Attachment A.

6. Project Purpose

State the purpose of the project and indicate how the project meets the general and specific criteria for funding CPA projects (see "Criteria for Project Consideration & Recommendation by CPC"). How will the project benefit the Town of Carlisle? Address current and/or future community needs? Impact Carlisle's citizens? Preserve Carlisle's character? Why should this project be funded this year?

The purpose of this project is to acquire information helpful to the Conservation Commission to manage adequate water levels in Greenough Pond with a margin of safety for the upstream

residents concerned that such adjustments may put their property at risk. The site is complicated by three upstream constrictions west of the pond which constrict the flow of Pages Brook before it enters the pond. These constrictions may also influence upstream flooding and should be evaluated along with any possible spillway management. Delaying this study another year will delay the project and will also cause continued worry by all who have raised concerns.

7. Community Support

What is the nature and level of community support for this project?

The pond is used by many people for year-round fishing, wildlife observation, official wildlife monitoring by the Commonwealth, for kayaking and, in winter, ice skating. Being able to adjust the water levels for a healthy pond without causing upstream property damage is important for both recreation and wildlife.

Over the past few years concerns have been raised by residents regarding both how low the pond water is during the low water season and concern upstream that managing the pond level may negatively impact their properties, both well and septic. Although the Commission has not yet reached out to them, it is likely that support will be strong.

8. Jurisdiction or Ownership of Project Site:

Indicate if the applicant has jurisdiction or ownership of the project site. If applicable, attach a copy of the deed or purchase agreement for the property.

The Greenough Conservation land is owned by the Town of Carlisle through its Conservation Commission. It was purchased in 1973 with town, state and federal funding sources. See Book 2086 Pg. 60 Middlesex North Registry of Deeds.

9. Permitting Requirements and Endorsements

List permits or endorsements needed for completion of project, including any special permit, variance or other approval required by any Town of Carlisle Board or Committee. the Commission has not sought specific endorsements for this project as yet, however it does have several complaints that have been submitted regarding concerns about low pond water and also concerns/fear about managing the water in the pond. Having data and a plan will be helpful.

There are no permitting requirements for the H&H study. However, it is the intent that no final decision regarding proceeding with managing the spillway adjustment project (funded through the previous Greenough Pond Project) would take place without approval from MassDEP (through an Amended Order of Conditions) and from the Natural Heritage and Endangered Species Program. It will not occur without a management plan and a public meeting. Note that Greenough Dam is not a dam that is jurisdictional to the Office of Dam Safety and no permit is required from that agency.

10. Project Budget

Attach a project budget. Expenditures and estimate of costs must be clearly identified and back-up documentation provided. If the project is expected to last more than one year, delineate the budget for each year. Distinguish between hard and soft costs. List any additional or alternate funding sources for the project. **CPA funds cannot be used for maintenance.** If ongoing maintenance is required, who will be responsible and how will it be funded? Indicate anticipated annual income (if any).

See Attachment A, email to Alex Parra and Sylvia Willard from Weston and Sampson's surficial Hydrologist, Andrew Walker.

11. Attachments

List all attachments, including, but not limited to, photos, plans, maps, quotes, costs, estimates, and letters of endorsement.

Attachment A

2004 Greenough Pond photo by JoRita Jordan

Attachment A

Below is a copy of email from Weston and Sampson
dated 2/18/2024
sent to Sylvia Willard & ALEX PARRA

Sylvia,

The Greenough H&H study would be similar in nature with Tasks 1, 2, 5, and 6 still being applicable. The optional Task 2.5 might still be applicable, but Tasks 3, 4, and 4.5 likely would not.

The cost estimate comes in around \$23,200 with a likely range of \$15-30k.

Hope that helps.

From: Walker, Andrew <walkera@wseinc.com>
Sent: Wednesday, February 28, 2024 1:33 PM
To: Sylvia Willard <swillard@carlislema.gov>
Cc: Blair, TJ <BlairT@wseinc.com>
Subject: Cranberry Bog Dam #1 H&H Study

Sylvia,

Pleasure talking with you and Alex this morning. Here is an outline of what an H&H study might entail as well as a rough cost estimate. Everything I describe in the bulleted tasks below is included in the "Estimate" price unless otherwise noted. Please be aware that these cost estimates are preliminary in nature and for rough planning purposes only. A formal proposal from Weston & Sampson may deviate from these values although I have done my best to provide an accurate estimate.

Existing Data Review

- Review of existing reports, design drawings, inspection reports, and downstream flow data (assumed to be flow data, not water level data)

Survey

- One day of field work
- Use of hand-held GPS units to survey the hydraulic restrictions that control the split flow to both impoundments as well as a few key locations further upstream, at the project dam site, and potentially downstream
- No in-pond bathymetry included

Additional Data Gathering (Optional, not necessarily needed)

- *Having never seen the existing flow data, it may be useful to install automated pressure transducers in the project impoundment as well as the other western impoundment in order to more accurately estimate how the response to upstream releases*

- *It may also be useful to monitor water levels in the upstream impoundment to better understand what is discharged from there*

H&H Model

- ~~Develop a rainfall-runoff model that includes the upstream flow split to more accurately estimate the 50-year design flood at the project dam~~
- ~~Developed in HydroCAD using methods typically required/encouraged by the Office of Dam Safety~~
- ~~Will include the upstream flow split~~
- ~~Potentially calibrated based on historical flow data collected downstream to increase accuracy~~

Dam Rehab Alternatives Analysis

- ~~Evaluate non-auxiliary spillway alternatives such as increasing capacity of the two existing outlets, raising the dam crest, or armoring the dam crest to safely allow overtopping flow~~
- ~~The results of this analysis could inform a redesign of the dam rehab plans, but note that that work is not included anywhere in this outline as it would likely be completed by your existing engineer~~

ODS Coordination (optional)

- ~~Coordination with ODS and your existing engineer regarding the results of the H&H study and how it might impact the currently proposed rehab design and associated permit~~
- ~~Limited to 16 hours of coordination~~

O&M Plan

- Coordination re goals of outlet operations related to pond levels and downstream water levels
- Develop an O&M plan regarding the management of the two drop inlet outlets and long-term water level monitoring
- Will require additional extended duration H&H model simulations, potentially building off of the H&H Model developed above in Task 3, but that's unclear at the moment

Reporting & Meetings

- Develop a technical memo or report summarizing development of the model(s) and its findings
- Up to 12 hours of meetings with client, regulators, and stakeholders

And here is the cost breakdown (below). I expect a solid H&H study could be completed for around \$32k. The two optional tasks are listed separately and may increase the total price closer to \$40k. A smaller firm might be able to do it for cheaper, something closer to the Low estimate. You may also find that when firms sink their teeth into it a bit more, that the unknowns and political aspect causes proposals to come in a bit higher. The High estimate is just 50% more than my best Estimate.

I hope this helps.

Andy

#	Task	Labor	Expenses
1	Existing Data Review	\$ 2,100	
2	Survey	\$ 3,600	\$ 400
2.5	Additional Data Gathering	\$ 3,700	\$ 1,400
3	H&H Model	\$ 5,000	
4	Dam Rehab Alternatives Analysis	\$ 2,400	
4.5	ODS Coordination	\$ 4,300	
5	O&M Plan	\$ 7,800	
6	Reporting & Meetings	\$ 9,700	
		Low	Estimate High
	Labor	\$ 20,196	\$ 30,600 \$45,900
	Expenses	\$ 1,980	\$ 1,980 \$ 2,970
	Total	\$ 22,176	\$ 32,580 \$48,870
	Optional	\$ 5,280	\$ 8,000 \$12,000
	Max Total	\$ 27,456	\$ 40,580 \$60,870

Andrew Walker, PH, CFM
 TECHNICAL LEADER (HYDROLOGY)
 direct: 603-570-6322



Weston & Sampson
 100 International Drive, Suite 152, Portsmouth, NH 03801
 tel: 603-431-3937
westonandsampson.com

[Facebook](#) | [Twitter](#) | [LinkedIn](#)

The contents of this e-mail and any attachments are the property of the Weston & Sampson companies. The e-mail contents are only to be used by the intended recipient of the e-mail. If you are not the intended recipient, then use, disclosure, copying, distribution or reliance on the e-mail is prohibited. All professional advice from us should be obtained in writing (not e-mail).

The contents of this e-mail and any attachments are the property of the Weston & Sampson companies. The e-mail contents are only to be used by the intended recipient of the e-mail. If you are not the intended recipient, then use, disclosure, copying, distribution or reliance on the e-mail is prohibited. All pro

