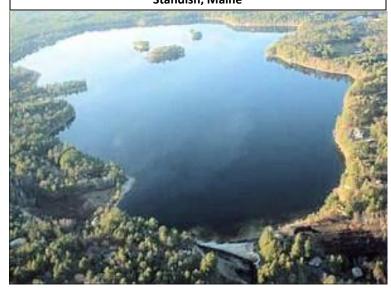


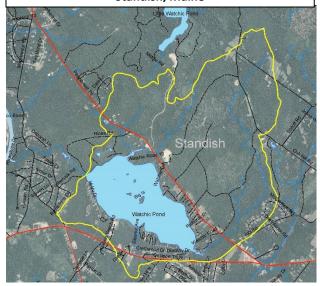
## **Final Project Report**

Watchic Lake Watershed
Watchic Lake Protection Project, Phase I
#20210007

WATCHIC LAKE Standish, Maine



WATCHIC LAKE WATERSHED Standish, Maine









**Grantee: Watchic Lake Association\* (WLA)** 

**Grantee Contact: Paul McNulty, President Watchic Lake Association** 

Start Date: January 1, 2021

**Project Completion Date: December 31, 2022** 

FPR Submitted Date: December 22, 2022

This project was funded in part by the United States Environmental Protection Agency under Section 319 of the Clean Water Act. The funding is administered by the Maine Department of Environmental Protection in partnership with EPA. EPA does not endorse any commercial products or services mentioned.

\*The Watchic Lake Association is all-volunteer, donor funded, organization dedicated to protecting Watchic Lake and the watershed.

### **Project Overview**

### **Project Purpose**

**Project purpose** is to protect Watchic Lake water quality by significantly reducing the pollutant load into the lake. This project was planned to address 5 priority NPS road sites (2 town roads and 3 private roads) and at least 6 and up to 10 residential shorefront NPS sites. The project will raise public awareness through newsletters, emails, website, presentations at the lake association's annual meetings, and a buffer planting workshop. The project will also strengthen local involvement and awareness of watershed protection efforts within the Town of Standish.

Watchic Lake is at risk. The lake is approximately 0.75 miles wide and 1.4 miles long and has two main inlet tributaries, Page Brook and Paine Brook. The lake outlets at the northwest corner of the lake at Watchic Brook, a dam-controlled outlet, which drains to the Saco River. The Watchic Lake watershed is part of the larger Saco River watershed and has many wetlands bordering the streams and the lake. Water quality is increasingly at risk, as development around the lake has been extensive in recent years, with increasing numbers year-round shoreland residents, housing developments in the watershed, and other land uses such as small agricultural areas, and gravel and logging operations.

### **Project Highlights and Successes**

The project began in early 2021 with various communications to Watchic Lake and Town of Standish stakeholders. The general reception of the plan was positive as apparent based on the number of projects evaluated.

To ensure engagement with and education of a wide variety of Watchic Lake stakeholders, projects were planned and successfully completed with three groups of stakeholders: 1) the Town of Standish, 2) Watchic Lake Road Associations and 3) Watchic Lake shoreland property owners.

Projects were completed on three private roads, one town road, and four residential properties. Property owner and town engagement was very good. To maximize grant-funded project benefits and cover cost increases due to inflation, cash match from all participants exceeded their initial commitments.

### Challenges and Changes in Scope

The main challenge was ensuring that various project participants fully understood and agreed to the Cost Share Agreements. The Hi-Vu Road Association, as more details became known about the projects scope and costs, requested a change in scope from road/culvert improvements to beach access improvements. In the case of the Town of Standish, the most important project (Dolloff Road) required more work than planned so funds from a smaller less important project (Oak Road) were shifted to Dolloff Road. Two residential properties bowed out, one because the owner moved and one due to lack of clarity on property lines. These funds were applied to completing one additional phase at the Kiwanis Beach project. Last, but not least, inflation reared its head, requiring some additional match funding from the WLA and property owners.

#### **Key Personnel**

- Addie Halligan, Environmental Specialist, Watershed Management Unit, Bureau of Water Quality, Maine DEP
- Alaina Chormann, Environmental Specialist, Watershed Management Unit, Bureau of Water Quality, Maine DEP

- Maggie Mills, Maggie Kelly and Laura Diemer, FB Environmental, Environmental Consultants
- Chris Baldwin, District Engineer, Cumberland County Soil and Water
- David Bradbury, lead engineer for the WLA
- Paul McNulty, lead project manager for the WLA
- Agnes Wiggin, WLA financial admin
- Martha Drew, WLA LakeSmart coordinate
- Roger Mosley, Town of Standish Public Works

### Task Summary

### Task 1 - Project Administration

Watchic Lake Association administered the project according to the service contract with DEP. The WLA hired a consultant, FB Environmental (FBE) to oversee this task and all other project tasks. Cumberland County Soil & Water District (CCSWD) served as a subgrantee to provide engineering support for the project.

- WLA completed sub-agreements with both FBE and CCSWCD and submitted to DEP for review and as project deliverables.
- FBE and WLA collaborated via spreadsheets to track project progress, expenses, and matching funds, and submitted them to DEP.
- FBE used the DEP NPS Site Tracker spreadsheet tool to accumulate and record information about NPS sites.
- FBE and WLA collaborated to submit reports (semi-annual progress reports and the final project report).

### Task 2 – Steering Committee

A steering committee was formed to guide project activities and met three times during the grant period (7/14/2021, 10/5/2021, and 5/31/2022). This committee included representatives from the WLA (Paul McNulty, David Bradbury, Owen Smith, and Agnes Wiggin), the Town of Standish (Roger Mosely), environmental consultants (Maggie Mills, Laura Diemer and Maggie Kelly of FBE), watershed residents (Monica Mahoney and Bob Babcock), local LakeSmart volunteers (Nancy McNulty and Martha Drew), and ME DEP (Addie Halligan).

#### Task 3 – BMP Installations at NPS sites

Five priority NPS road sites were identified in the 2019 watershed survey to be addressed. Four sites were completed and NPS reports submitted and approved by DEP.

- **Dolloff Road** (43.764934, -70.588611). In September of 2022, the Town of Standish completed this project with a stabilized culvert inlet and outlet by riprapping the road shoulder above the culvert to trap winter sand and added riprap protection at the existing culvert inlet and outlet (thus reducing runoff into Watchic Lake). The town installed an asphalt swale on the northeastern side of the road that outlets into a riprap apron.
- Intersection of Watchic Road 3 and Hartford Lane, Standish Completed August 2022. Several improvements were made, including installing a 300-foot vegetated swale along the west side of the road, a sediment basin near the western end of the swale, a 100-foot culvert under the road to manage overflow from the swale, and a rock sandwich culvert to allow the adjacent wetland to flow

and filter underneath the road instead of overtopping the road.

- Watchic Road 15, Standish. Completed October 2022. The location and layout of Watchic Road 15 allowed significant runoff to directly enter the lake and made for a challenging remediation project. Best Management Practices improvements included installing two catch basins, resurfacing the road to properly direct runoff, adding an infiltration walking path with infiltration steps at the water's edge, and erosion control mulch to further filter and slow runoff.
- Hi-Vu Road, Standish. Completed October 2022. Once total cost of the initially planned project became clear, the members of the Hi-Vu Road Association requested a change to the project. Working together with the Hi-Vu Road Association, the DEP, FB Environmental, and the WLA developed a plan to address a next highest priority issue on the road. Pedestrian access to the lake from Hi-Vu Road had deteriorated over the years, allowing stormwater to run down a steep hill and directly into the lake. The Hi-Vu Road Association, leveraging DEP funds, and technical and permitting assistance from the WLA and FB Environmental, installed a series of infiltration steps, mulch, and native plants to capture stormwater and allow it to settle into the ground and not run directly into the lake.

All cost-share recipients completed a cost sharing agreement prior to construction. \$36,333 was sourced from the grant and \$44,305 (55%) from owners and town cash and in-kind match.

### Task 4 – Residential Matching Grants for BMP Installation

Eleven properties were evaluated for support, and six were ultimately selected. Two of the six properties stepped back from their projects late in the process, one because the property owner moved and the other because of a property line dispute between two property owners. Funds from these two properties were applied to a larger Kiwanis Beach project.

- 26 Watchic Crossroad. Completed August 2022. Improvements were made to the steps leading to
  the lake, not only reducing stormwater runoff into the lake, but also making for a much more
  attractive and comfortable access to the dock
- **Kiwanis Beach, 40 Kiwanis Beach Rd, Standish.** Completed October 2022. Improvements included installing a broad-based dip from the bathhouse to the pre-existing terraced rain garden. The inlet to the rain garden was better defined and armored. A grassy slope was installed to slow runoff travelling down the slope. The pre-existing 22'x44' wide rain garden was redesigned and replanted to better capture and infiltrate runoff. A depression was constructed in the center of the rain garden.
- 254 Pequawket Trail, Standish: Completed August 2022. A broad-based dip of approximately 12'10" was installed to both filter runoff and divert it from the driveway into an infiltration garden (about 15' x 14'); which captures, slows, and filters runoff from the broad-based dip. The garden slopes slightly downhill and an armored outlet to direct any excess runoff to a broad-based dip crossing to a vegetated buffer.
- Watchic Rd 7, Standish: Completed November 2022. A pathway was installed that runs from the top of the house to the dock in a meandering fashion. The path now directs foot traffic to the lake, prevents soil erosion, absorbs water, and reduces the rate of flow. The rest of the bare area was covered in mulch. Special attention was paid to the path surface to allow the owner, who is wheelchair bound, to use the path.

All cost-share recipients completed a cost sharing agreement prior to construction. \$7,000 was sourced from the grant and \$13,992 (67%) from owner cash and in-kind match.

#### Task 5 – Education and Outreach

Education and outreach were key components of the project's success. Task goals were to (1) inform Watchic Lake watershed residents about watershed protection and lake stewardship, (2) provide project updates, and (3) encourage the watershed residents to implement BMPs to control NPS pollution:

- Updates and educational information were posted on a project-specific webpage on the WLA website, through two paper mailings to 240 watershed residents and four emails to WLA members and lake residents. See:
  - Watershed protection plan main page
  - Grant Announcement
  - Work Plan Details
  - USPS and email newsletters and updates
- Three press releases were written published on our website and distributed to local new outlets and environmental organizations. See:
  - o <u>Watchic Lake Gets Water Quality Boost</u>
  - o Watchic Lake Roads and Properties Act to Help the Lake
  - o Grant Projects Forecast to Significantly Reduce Harmful Runoff into Watchic Lake
- LakeSmart volunteers evaluated 11 properties in 2021 and two in 2022. which helped identify landowners who may be interested in the residential matching grant opportunity. Six property owners signed up. LakeSmart info was provided at two annual meetings and on the WLA website. See LakeSmart on Watchic Lake.
- Two public presentations on the grant were made at the WLA annual meetings, the first on 7/7/2021 and 7/9/2022. All provided project updates and promoted key messages. See:
  - WLA Annual Meeting 2021
  - WLA Annual Meeting 2022
- WLA hosted a buffer planting workshop to inform shoreline residents on techniques and benefits of using vegetated buffers to filter stormwater. This was done in August 2022.
  - Buffer Vegetation workshop
- WLA did not host a Lakes Alive Event, (a hands-on lake learning event run by Maine Lakes Society), as the Maine Lakes Society canceled this offering.

#### Task 6 – Pollutant Load Reduction Estimates

Through this project, an estimated 2.33 tons of sediment and 1.99 pounds of phosphorus, and 4.19 pounds of nitrogen will be prevented from washing into Watchic Lake each year. 112.5 feet of streambank or shoreline will be protected. Sediment loss estimates were based on EPA Region 5 Load Estimation Model. A 2022 Pollutants Controlled Report (PCR) was submitted on December 7, 2022. Complete calculations for all sites can be found in Appendix B.

## III. Deliverables Summary

Tasks	Deliverable Dates	
Task 1: Project Administration		
Contract with CCSWD	1/21/2021	
Contract with Environmental Consultant (FBE)	2/18/2021	
Match tracking spreadsheet	As requested, See Appendix E	
NPS Progress Report April 2021	5/17/2021	
NPS Progress Report October 2021	10/27/2021	
NPS Progress Report April 2022	5/16/2022	
Final Project Report (also October 2022 NPS Progress report)	This report - December 2022	
NPS Site Tracking Tool	12/6/2022 Screenshot in Appendix A	
Task 2: Steering Committee		
No specific deliverables Meetings held and minutes submitted		
Task 3: BMP Installations		
Site A9(a) on Watchic Road 3	NPS Site Report Approved 10/25/2022	
Site A9(b) on Hartford Lane (Off Watchic Rd 3)	NPS Site Report Approved 10/25/2022	
Site A11 on Watchic Road 15	NPS Site Report Approved 10/20/2022	
Site A6 on Hi Vu Road	NPS Site Report approved 12/6/22	
Sites B2 and B3 on Dolloff Road	NPS Site Report Approved 10/27/2022	
Task 4: Residential Matching Grants for BMP		
Summary of four residential matching grants completed in 2022	Summary submitted 12/7/2022	
Task 5: Education and Outreach		
Updates and educational information will be posted on a project-	12/1/2021. Added to website 1)	
specific webpage on the WLA website	announcement of grant, 2) overview of grant, 3) work plan, and 4) various RFPs	
Updates and educational information through two paper mailings to 240 watershed residents	6/20/2021 and 6/21/2022	
Updates and educational information through four emails to WLA members and lake residents.	12/10/2020, 3/10/2021, 10/5/2021, 8/4/2022, 10/12/2022	
Three press releases will be written and distributed to local new outlets	10/20/2022, 11/7/2022, 12/19/2022	

LakeSmart volunteers will evaluate 2-3 properties per year, which will help identify landowners who may be interested in the residential matching grant opportunity. The volunteers will share a brochure that summarizes the opportunity.	11 Properties evaluated in June 2021 6 properties approved July 2021 Brochure posted on website and email
Two public presentations on the grant at the WLA annual meeting each	7/10/2021 at WLA Annual Meeting
year, which will provide project updates and promote outreach	7/9/2022 at WLA Annual Meeting
messages.	
WLA will host one buffer planting workshop to inform shoreline	8/13/2022 Buffer planting workshop
residents on techniques and benefits of using vegetated buffers to filter	demonstrating best practices at
stormwater.	LakeSmart award properties
Task 6 – Pollutant Load Reduction Estimates	
Results will be provided using DEP's "Pollutants Controlled Report"	Submitted 12/6/2022. See Appendix
(PCR), which will be submitted to the MDEP	В.

### IV. Project Outcomes

### **Major Outcomes**

Three high-impact private road NPS sites were addressed and done so with positive support from the road associations. Road association members played an active role in supporting the projects and have plans to continue ongoing maintenance.

The WLA and the Town of Standish developed a positive working relationship, and the town completed culvert work on one road, reducing runoff into the watershed.

Eleven residential property owners who requested evaluations for the grant were educated about LakeSmart and ways to help protect the lake. Six properties were selected for projects, and technical plans were drawn up with and for them. Four properties used these plans to make improvements. The two properties that could not complete their projects during the grant period, are still keen to use their plans for future improvements to their properties.

The wider Watchic Lake audience (250 properties and about 500 people), learned about ways to help protect the lake, and how the Maine DEP and US EPA supports those efforts.

### **Environmental Benefits**

Pollutant Load Reduction Estimates for NPS Sites Treated with BMPs. Analysis from FB Environmental.

Water Body Name	Sediment Tons/\(\frac{1}{\text{U}}\)	Phosphorus Pounds/\(\frac{1}{\text{VL}}\)	Nitrogen Pounds/\(\frac{1}{\text{VL}}\)	Streambank or Shoreline Protected Feet
Paine Brook	0.312	0.265	0.530	32
<u>Watchic</u> Lake	2.013	1.725	3.663	80.5
Totals	2.33	1.99	4.19	112.5

#### Lessons Learned

More early face to face communication with influential property owners (key is figuring out who really is the most influential) would have helped speed project completion and reduce changes in scope.

Given the large amount of administrative time required, focusing our funds on fewer, larger projects might have been in order.

# Although we hit some bumps in the road, many things worked quite well, and we'd suggest they be continued in future projects, including:

The WLA was fortunate to have as one our volunteers an engaged and experienced engineer who had worked on many large construction projects. David Bradbury was instrumental in securing good pricing and overseeing the larger projects during the construction phases.

Grant technical and administrative assistance from FBE was a major time saver, especially as the Grantee (the WLA) was new to grant management.

Our DEP grant administrator (Addie Halligan) was experienced and was great at offering rapid and helpful feedback. This helped the WLA avoid pitfalls and complete better projects

The WLA was fortunate to have an exceptional treasurer (Agnes Wiggin) and enough cash to enable us to pays bills in a timely fashion and carry the expense until we received DEP repayments.

Support from the Town of Standish – they understood the importance of the project

### V. Summary of Total Expenditures

### Final as of 12/19/2022

	Federal NPS Grant	Local/Non-Fed Match	Total
Funds allocated	\$74,632.00	\$49,802.00	\$124,434.00
Funds expensed	\$74,632.00	\$75,738.24	\$150,370.24
Funds remaining	\$0.00	-\$25,936.24	

### VI. Non-federal Match Documentation / Certification

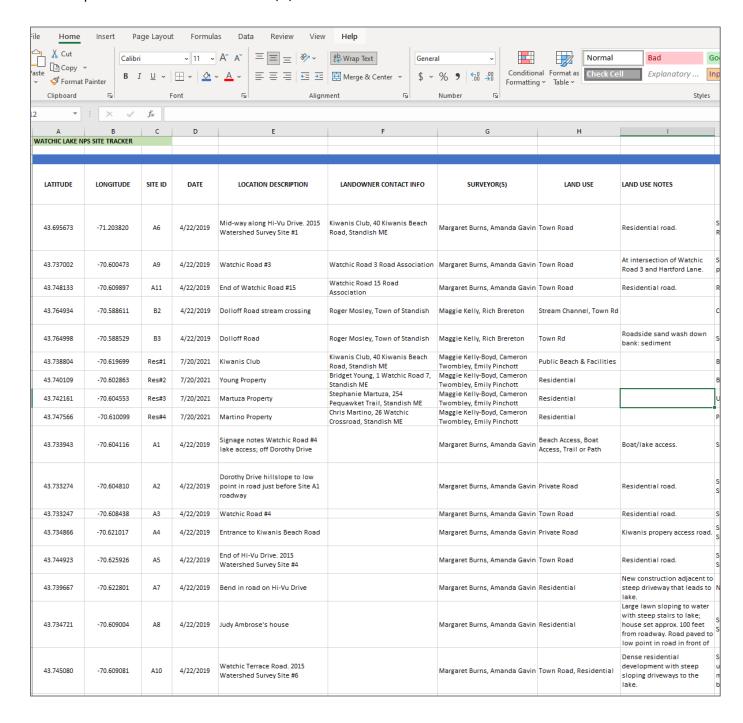
See Appendix C. Non-Federal Match Certification Form.

### VII. Appendices

- A. Screenshot of Updated NPS Site Tracker
- **B. Pollutants Controlled Report**
- C. Non-Federal Match Certification Form

### Appendix A. Screenshot of NPS Site Tracker

Full report submitted to Maine DEP 12/6/2022



### Appendix B. Pollutants Controlled Report

Report submitted to Maine DEP 12/7/2022, Approved 12/19/2022

### **Pollutants Controlled Report**

NPS Grants Program, Maine Department of Environmental Protection

Year: 2022

Project #: 20210007 Project Title: Watchic Lake Protection Project, Phase I

Grantee: Watchic Lake Association DEP Agreement Admin.: Addie Halligan

### 1. Pollutant Load Reduction Estimates for NPS Sites Treated with BMPs

Water Body Name	Sediment Tons/\(\frac{1}{\text{L}}\)	Phosphorus Pounds/√	Nitrogen Pounds/\(\frac{1}{\text{X}}\)	Streambank or Shoreline Protected Feet
Paine Brook	0.312	0.265	0.530	32
Watchic Lake	2.013	1.725	3.663	80.5
Totals	2.33	1.99	4.19	112.5

### 2. NPS Sites, Methods Used, and Pollutants Controlled

Site ID	Brief NPS Site Description	Metho d (See list below)	Sedimen t Tons/\(\frac{1}{\text{X}}\)	Phosphoru s Pounds/\(\frac{\chi}{x}\)	Nitrogen Pounds/\(\frac{1}{\text{L}}\)	Streambank or Shoreline Protected Feet
B2 & B3	Dolloff Road Culvert Stabilization	R5CE E	0.312	0.265	0.530	32
A6 (updated)	Hi-Vu Drive Infiltration Steps, Planting & Mulching	RF/GE E	1.800	1.500	3.100	NA
A9a & A9b	Watchic Road 3 Vegetated Swale and Rock Sandwich	R5/Urb an	0.024	0.024	0.023	NA
A11	Watchic Road 15 Infiltration Steps and Runoff Management	R5/Urb an and R5CE	0.031	0.046		15.5
Residenti al Site #1	Kiwanis Club Broad-Based Dip and Rain Garden	R5/Urb an	0.008	0.016	0.216	NA
Residenti al Site #2	Young Property Infiltration Path and Mulching	R5/Urb an	0.003	0.011	0.074	35
Residenti al Site #3	Martuza Property Infiltration Trench	R5/Urb an	0.001	0.003	-	12
Residenti al Site #4	Martino Property Infiltration Steps	R5/Urb an	<1	0.001	-	18
Totals for			2.33	1.99	4.19	112.5

<sup>\*</sup>Slight differences in total due to rounding. Raw data available if requested.

Pollutant Controlled Report Page 1 of 3

### Pollutant Load Reduction Estimation Methods

R5/GEE	Gully Erosion Equation for Gully Stabilization
R5/CEE	Channel Erosion Equation for Streambank/Ditchbank/Roadbank Stabilization
R5/Fields	Uses Revised Universal Soil Loss Equation (RUSLE), sediment delivery ratio and
	contributing drainage area for Agricultural Fields
R5/Filter	Uses Relative gross filter strip effectiveness Filter Strips
R5/Feedlot	12 step method for Feedlot Pollution Reduction
R5/Urban	Urban Runoff BMP Pollutant Load Reduction Worksheet

<u>WEPP Model.</u> Water Erosion Prediction Project (WEPP) computer model <a href="http://forest.moscowfsl.wsu.edu/fswepp/">http://forest.moscowfsl.wsu.edu/fswepp/</a>

STEPL. Spreadsheet Tool for the Estimation of Pollutant Load http://it.tetratech-ffx.com/steplweb/STEPLmain\_files/STEPLGuide310.pdf

### Pollutants Controlled Report

NPS Grants Program, Maine Department of Environmental Protection

3. BMP Types - Select BMPs from the list below that best describe those used at NPS sites.

Gravel Roads & Driveways:	Urban, Lake, & Watershed:	Agricultural:
Camp Road Crowning/Ditching	Catch Basin Treatment System Inserts	Access Road
Check Dams	Filter Strip	Contoured Buffer Strip
Culvert Armoring	Infiltration Trench	Conservation Cover
Ditch Stabilization	Mulching	Conservation Crop Rotation
Road Ditch Creation / Improvement	Raingarden / Bioretention Basin	Diversion
Sediment Basin	Roof Runoff Management	Filter Strip
Water bars	Streambank & Shoreline Protection	Grassed Waterway
Other (list below):	Other (list below):	Heavy Use Area Protection
		Lined Waterway (includes rock or grass-lined waterway)
		Sediment Basin
		Stream Crossing
		Stream Exclusion Fencing
		Waste Storage Facility
		Watering Facility
		Other (list below):

Pollutant Controlled Report Page 2 of 3

To the best of my knowledge, the estimates provided by FB Environmental in this report are reason The estimates were determined using the appropriate model(s) and applied according to the proceed prescribed for the model(s). Documentation is attached to this PCR for review by DEP / EPA.  Prepared by:  12/5/2022				
repared by:	Name	12/5/2022 Date		
NED Davieures				
EP Reviewer:	Name	Date		

### Appendix C. Non-Federal Match Documentation / Certification

#### Non-Federal Match Documentation / Certification

NPS Grants Program, Maine Department of Environmental Protection

Grantees need to document matching funds or services contributed to the project. The amount of match required is listed under 'Budget Information' in the project work plan. Grantees must submit this form as part of the Final Project Report to certify that match has been properly documented before closeout of the Grant Agreement.

To efficiently meet documentation requirements, Grantees should accumulate match information as the project proceeds and record information in a table. See *Nonpoint Source Grant Administrative Guidelines* (2016) Appendix A for an example. The following information is needed to adequately document match.

1. Source. Identify the source of the funds or services;

2. Activity. Describe the activity and the amount of activity; and

3. Valuation. Describe the basis for assigning the amount of dollar value to the activity.

Important: This signed certification form must be accompanied by supporting information that documents (source, activity and valuation) the matching funds or services claimed by the Grantee. The Certification Statement alone is not sufficient to document the non-federal match.

#### **GRANTEE INFORMATION:**

Grantee Name: Watchic Lake Association

Address: PO Box 311

Standish, ME 04084

Telephone: 978-337-1246

Contact Person: Paul McNulty, President Watchic Lake Association

#### PROJECT INFORMATION:

Project #: #20210007

Project Title: Watchic Lake Protection Project, Phase I

Match Amount Planned Under the Grant Agreement: \$49,802.00

Match Amount Claimed: \$ 75,738.24

#### **CERTIFICATION STATEMENT:**

I certify that the non-federal match summarized in the attached information was expended in the course of completing work described in the Grant Agreement for the Project referenced above. Supplemental match documentation is available for review in Grantee files.

Paul McNulty On File 12/19/2022

Signature of Grantee – Authorized Official

Date