

Green Mountain Conservation Group is a nonprofit, 501(c)(3) charitable organization established in 1997.

### **Mission Statement:**

Green Mountain Conservation Group protects the lakes, rivers and groundwater of the greater

Ossipee Watershed, its aquifer, land, and associated natural resources to ensure prosperous

communities and a healthy ecosystem for all.



### Our key programs are R.E.A.L.



Our mottos are "Healthy water, healthy communities!" and "Water knows no boundaries!"



# A public and private partnership to improve the water quality of the Danforth Ponds



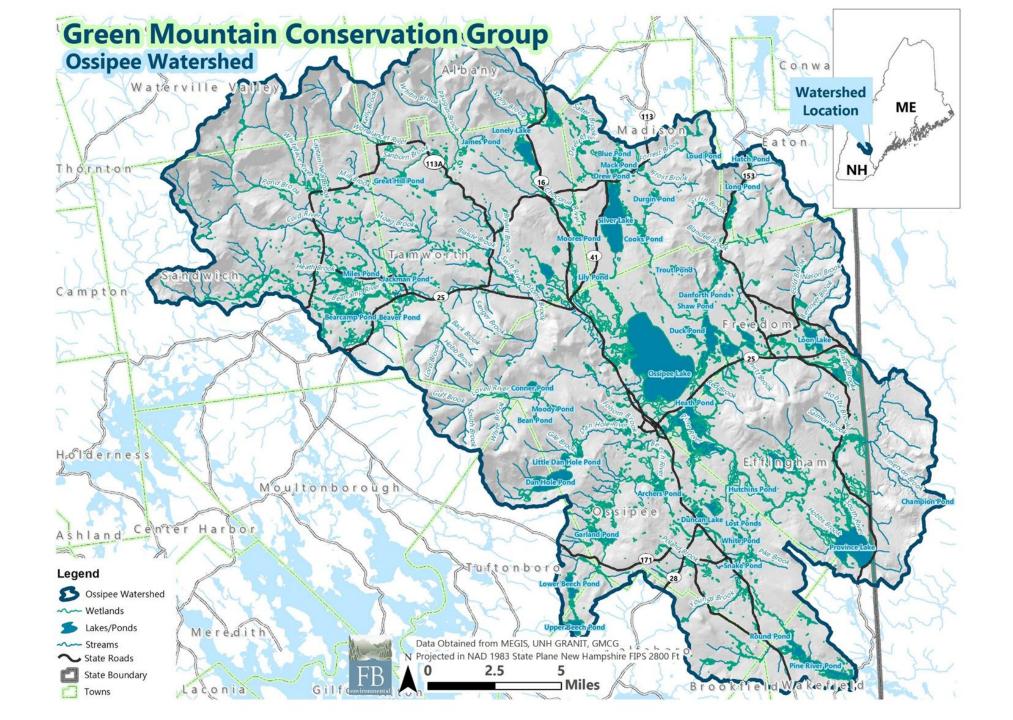


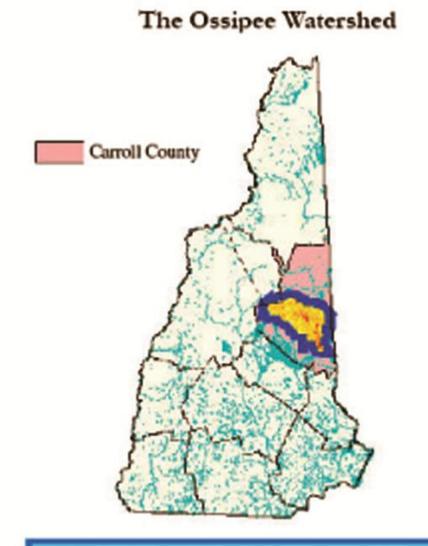




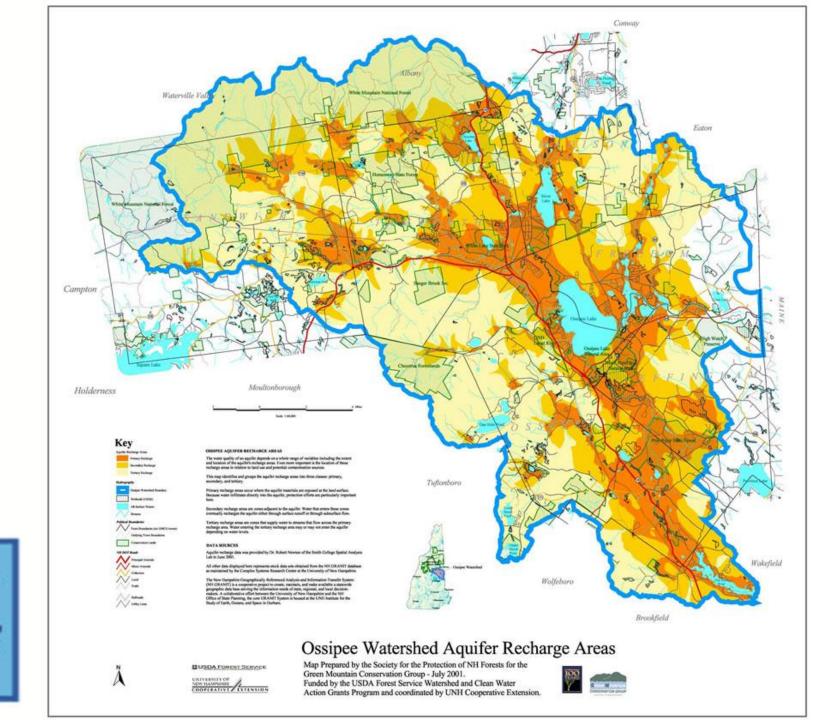








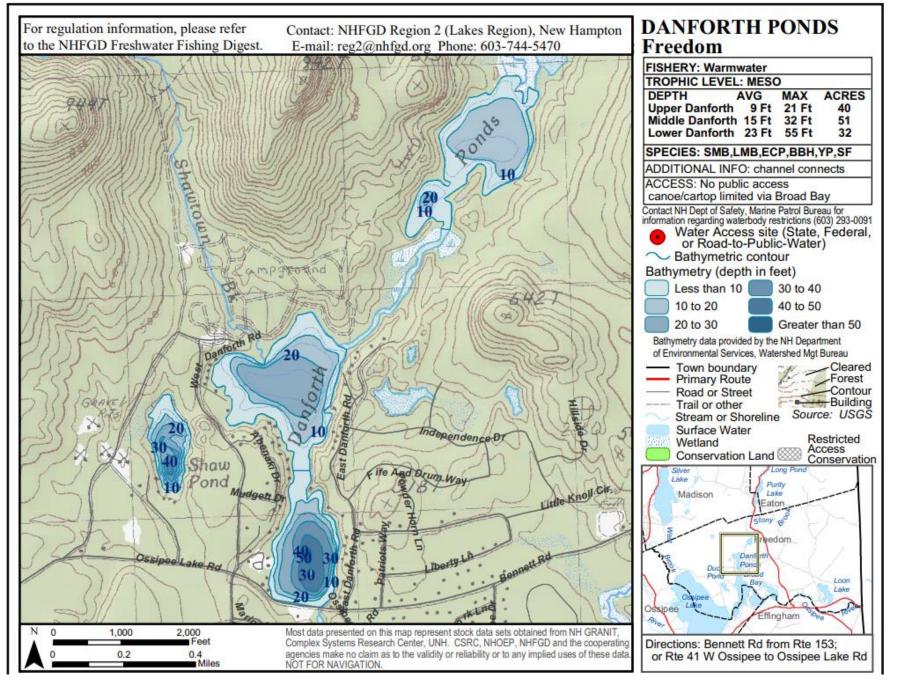
The Ossipee Watershed is situated atop the largest and deepest stratified drift aquifer in New Hampshire, a critically important drinking water source. Since this aquifer consists mainly of layers of sand and gravel, it recharges quickly with rainwater and is also vulnerable to contamination.



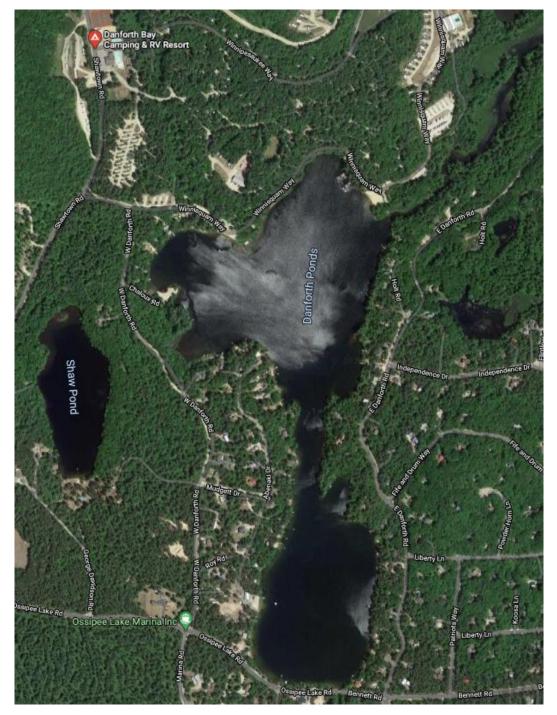
### Danforth Ponds, Freedom, New Hampshire



Parcel mosaic from NH GRANIT (https://granitview.unh.edu/)

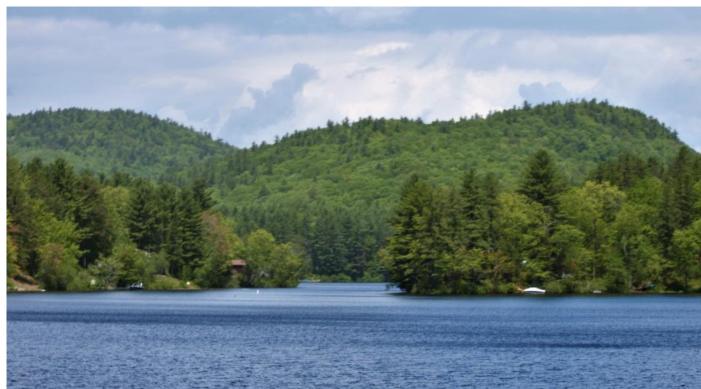


#### 123 acres total









# Impaired water quality on the Danforth Ponds



- History of cyanobacteria bloom warnings since 2018
- Listed by the EPA in 2022 as an "impaired water body"

# **Cyanobacteria in Danforth Ponds since 2018**



### Cyanobacteria Bloom History

Identifier: MiddleDan.Freedom NHDES Updated: March 27, 2025

### Middle Danforth Pond

### Freedom, NH

Type of Notification	Date Issued	Date Removed	# of Days Issued	Dominant Taxa	Initial Cyanobacteria Cell Density (cells/mL)
Warning	8/16/2018	8/22/2018	6	Oscillatoria/Planktothrix	too numerous to count (TNTC)
Warning	8/24/2018	9/26/2018	33	Oscillatoria/Planktothrix	too numerous to count (TNTC)
Warning	8/9/2019	8/13/2019	4	Oscillatoria/Planktothrix	285,200
Warning	8/18/2020	9/11/2020	24	Planktothrix	2,500,000
Watch	7/21/2021	**	**	**	**
Watch	8/10/2021	**	**	**	**
Warning	8/26/2021	9/2/2021	7	Planktothrix, Dolichospermum Iemmermannii	>70,000
Watch	9/7/2021	**	**	**	**
Watch	11/8/2021	**	**	**	**

# Danforth Ponds listed as "impaired" by EPA in 2022

Separation United States Environmental Protection Agency	1		Search EPA.gov			
Environmental Topics 🗸 🛛 Laws & Reg	ılations $\checkmark$ Report a Violation $\checkmark$	About EPA 🗸				
Home / Impaired Waters and TMDLs						
Impaired Waters and TMDLs	<b>Region 1 Impai</b>	ired Waters and 303(	(d) Lists by			
Program Vision	State					
Impaired Waters and TMDLs throughout the U.S	Under Section 303(d) of the Clean Water Act (CWA), states, territories, and authorized tribes (referred to as 'states' below) are required to develop, and update every two years, lists of waters - rivers, lakes, coastal waters and estuaries - that are impaired (or threatened) by one or more pollutants. Impaired waters are waters that do not meet Water Quality Standards (WQSs) even after point sources of pollution (e.g., municipal and industrial discharges) have installed required levels of pollution controls. In addition to listing impaired waters, each state prioritizes TMDLs for development.					
Technical Tools and Resources						
Contact Us About Impaired Waters and TMDLs						
	listing methodology to EPA. At EPA's requ	adily available information" when developing their lists. A nest, states must provide "good cause" for not including c Igland states please go to the links below under "New Eng	or removing a water from the list. To			
	EPA Listing Information:					
	Guidance for Assessment, Listing, and     EPA National TMDL Technical Support	<u>d Reporting Requirements Pursuant to Sections 303(d), 3</u> t Documents	05(b) and 314 of the Clean Water Act			
	EPA Approval Doc Impaired Waters/3	umentation for the New E 303(d) Lists	ngland States'			

Visit at: <u>https://www.epa.gov/tmdl/region-1-impaired-waters-and-303d-lists-state#iw-nh</u>

# **Friends of the Danforth Ponds**

The Friends of Danforth Ponds was formed in 2021 as a sustainable effort to promote strategies for a healthier Danforth Ponds by collaborating with homeowners, town officials, and conservation groups.

Through long-term planning and action, homeowner education, and the adoption of comprehensive Best Management Practices, the Friends of Danforth Ponds' primary focus is the preservation of water quality.

Our continuing endeavors will ensure a thriving Danforth Ponds where recreation is enjoyed, plants and wildlife flourish, and economic well-being is guaranteed for future generations of homeowners and their families.





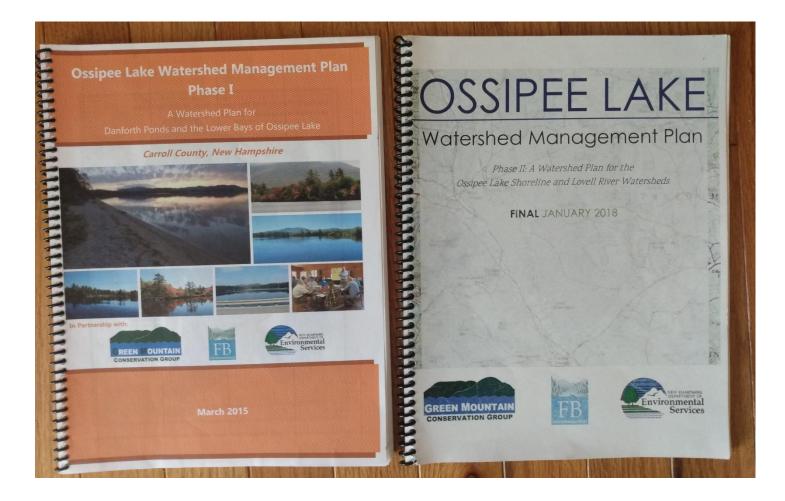
# Friends of the Danforth Ponds



In 2023, The United States Environmental Protection Agency awarded a \$100,000 proposal submitted by Green Mountain Conservation Group (GMCG) and the Friends of the Danforth Ponds (FDOP) to follow through on recommended measures to restore water quality on the Danforth Ponds which is designated as "impaired" by the New Hampshire Department of Environmental Services.

# **Ossipee Lake Watershed Management Plan**

Provides comprehensive guidance for actions needed to preserve water quality into the future.

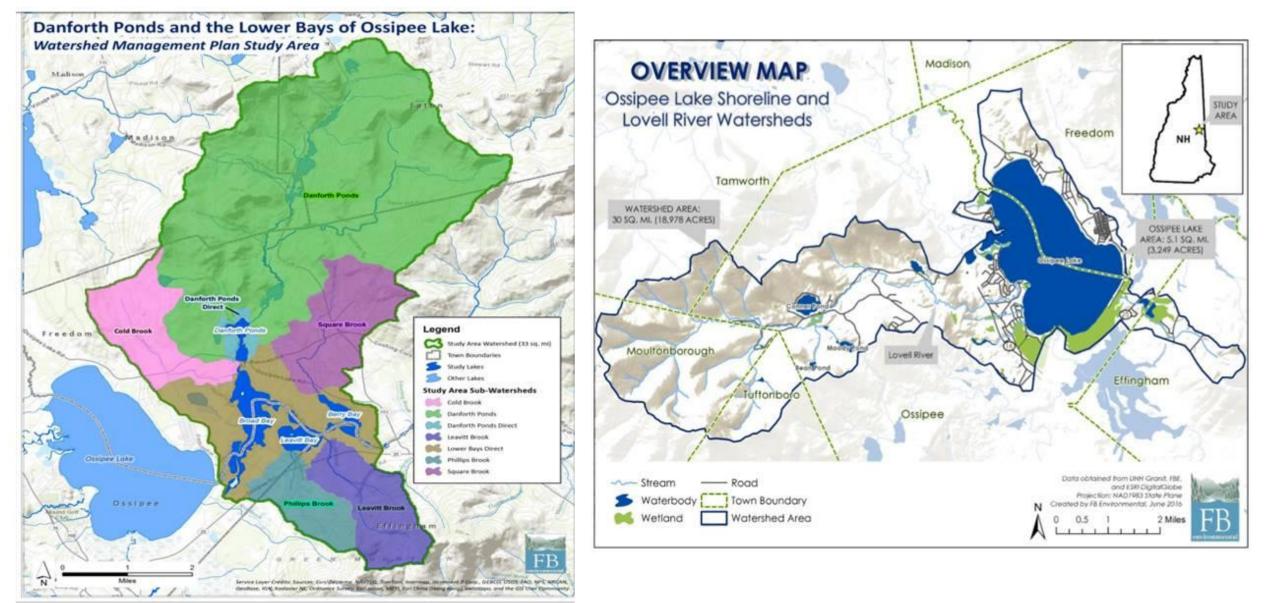


### Available online at http://www.gmcg.org/watershed\_management\_plan/

### **Focus Areas of the Watershed Management Plan**

WMP Phase 1 (2015)

WMP Phase 2 (2018)



# **Shoreline Survey Results**

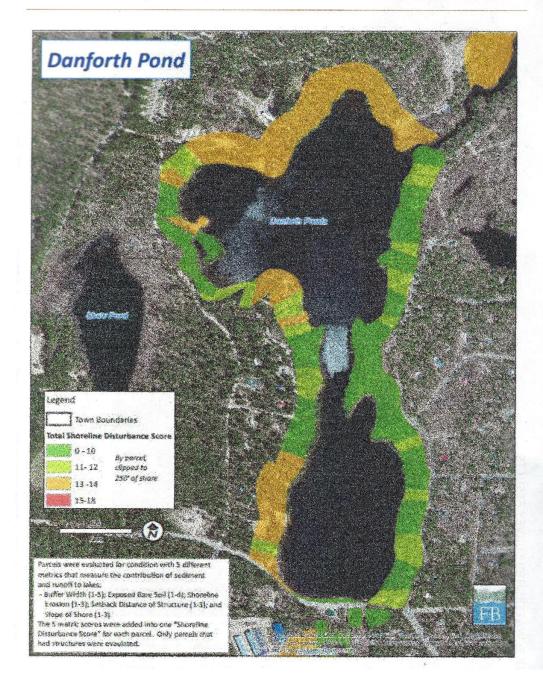
Parcels were evaluated by environmental engineers from Forest Bell Associates for five difference metrics that measure the contribution of sediment and runoff:

- Buffer Width (1-5)
- Exposed Bare Soil (1-4)
- Shoreline Erosion (1-3)
- Slope of Shore (1-3)

The metric scores were added into one "Shoreline Disturbance Score" for each parcel. Only parcels that had structures were evaluated.

				Danfo	rth Pond		i nga Ng	
ID#	Town - Map# - Lot#	Shoreline*	Buffer (1 - 5)	Bare Soil (1 - 4)	Shoreline Erosion (1 - 3)	Setback Distance (1 - 3)	Slope (1 - 3)	Total
1	FR-32-4	B,P,ST	3	4	1	3	2	13
2	FR-32-5	В	4	4	1	2	2	13
13	FR-33-16	B,P	3	4	1	2	3	13
16	FR-33-13	R,ST	4	4	1	3	2	14
17	FR-33-12	R, ST	4	3	1	3	2	13
18	FR-33-11	B,P	4	4	1	* 3	2	14
23	FR-33-6	B,SP,L	5	3	2	3	1	14
26	FR-33-3	B,L	4	4	1	3	2	14
29	FR-60-1	B,P,T	4	4	1	3	2	14
63	FR-32-2	B,P	4	4	1	3	1	13
	The particular the second second							

\* B=Beach, R = Riprap/Retaining Wall, N = Natural, D = Mostly or all docks, L = Mostly Lawn, T = Trees, P = Plants, ST = Some trees



# Watershed Management Plan Key Recommendations for protecting future water quality

A reduction in phosphorus and nonpoint source pollution can be achieved through these key actions:

# **POLLUTANT CONTROLS**

Implement Stormwater Control Measures (SCMs) at high impact sites.

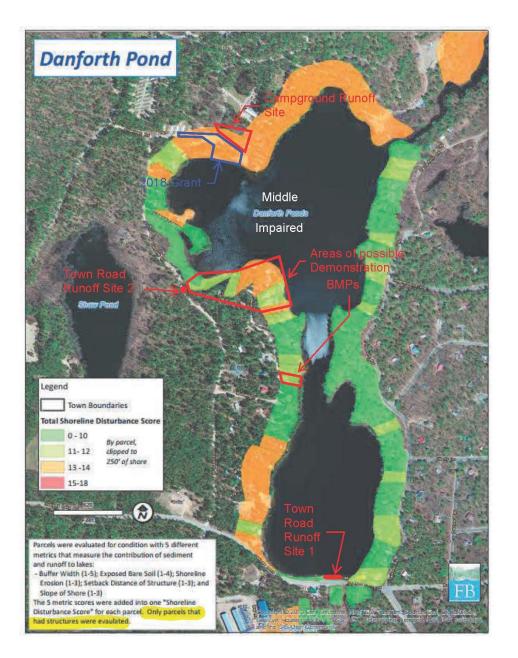
## **EDUCATION**

Inform landowners on SCMs, and best management practices with an emphasis on septic system maintenance.

## **FUTURE PLANNING**

Recommend adjustments to town zoning rules for new and redevelopment of shoreline property

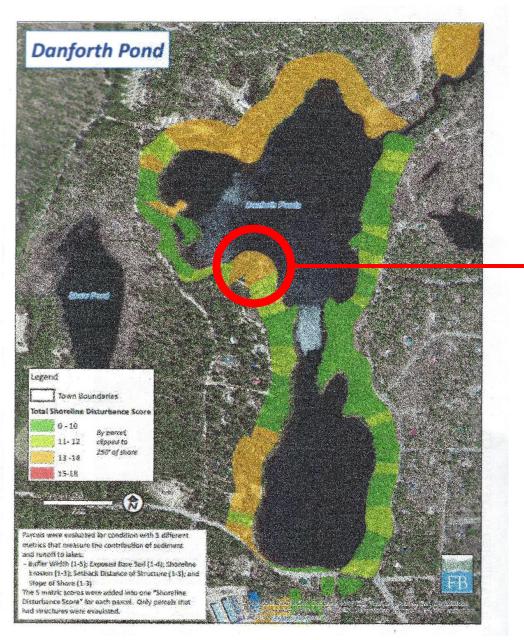
# Identifying high priority sites for storm water control



- North end of Middle Danforth Pond, owned by Danforth Bay Camping Resort.
- A cluster of private homes at the midpoint of Middle Danforth Pond.

3. South end of Lower DanforthPond along Ossipee Lake Road(Freedom town road).

# **Stormwater Control Measures: High priority private home sites**



A neighbored on Middle Danforth shared a disturbance score of "high" in the Watershed Management Plan.



## Identifying stormwater runoff at shorefront properties



High point of shared drive on Middle Danforth Pond.



## Identifying project sites at shorefront properties



Representatives from Soak Up the Rain New Hampshire (SoakNH) visited the sites with FDOP and GMCG in August of 2023 to help identify erosion issues and offer technical assistance and design recommendations.

Rob Livingston Nonpoint Source Specialist

&

Lisa Loosigian

Soak Up the Rain NH Program Coordinator

Watershed Management Bureau

Water Division, NH Department of Environmental Services

## What are Stormwater Control measures (SCMs)?

*Stormwater Control Measure (SCM)* is a term used to describe a type of water pollution control. SCMs can be categorized into four basic types:

**Storage practices:** ponds; rain barrels; catch basins.

**Vegetative practices:** rain gardens; buffers; channels; green roofs, wetlands; functional landscaping with native plants.

**Filtration/Infiltration and diversion practices:** filtering with stones; water bars with rubber razors; infiltration ditches and trenches; rain gardens; porous pavement; dry wells; swales.













## **Identifying stormwater runoff at shorefront properties**





# **Step 1 : Identifying stormwater runoff at project sites**



Midpoint from driveway to beach

Runoff meeting beach

# **Building SMCs- Implementation steps**

1. Identify erosion locations

2. Select the best SCM design for the job

3. Submit permits and notifications

4. Gather materials, tools

**5. Prepare** site for installation day and place temporary erosion control measures (silt sock)

6. Mobilize volunteers7. Install the SCM design

Check SCMs after major storms and beginning of each spring and **perform maintenance as required**.

## **Private Home Site Project Flow Chart – READ ONLY**

Step 1 - Identify erosion problem spots and select BMP location.

- During a rain observe if water from roof, downspouts, driveway, patio, sidewalks, trails or elsewhere travels to water body during a heavy rainfall.
- When looking to mitigate runoff water take topography, underground utilities, septic or well systems, trees and rocks, buildings and property lines into consideration when making your determination.

Step 2 - Select a stormwater BMP to best address the type of runoff and erosion problem with help from these resources:

- NH Soak Up the Rain program's "Do-it-yourself stormwater solutions for your home" publication.
- NH Lakes website resources.
- Maine DEP website's Conservation Practices for homeowners' factsheets.

#### Step 3 – Permits, notification, and abutting property owner agreements

- As work may be within 250" of a protected water body, review with Freedom Zoning Officer and NHDES
- If the project is significant, it may require a Shoreland, Permit by Notification from NHDES.
- You can review most projects by phone with NHDES Help Desk to make that determination. If no NHDES permit is required, you will just need a Freedom Erosion Control Permit from Freedom to place erosion control measures before work starts and until the completed work is stabilized. In addition, at least 3 business days prior to any digging Dig Safe must be notified.

#### Step 4 - Install the BMP

- Gather materials, tools, mobilize volunteers to complete the BMP construction and installation.
- Once area is stabilized with erosion control measures have Freedom Zoning Officer review completed work so that erosion control measures can be removed.

#### Last

Check BMP after major storms and beginning of each spring and **perform maintenance as required**. Clean out leaves, pine needles, adjust if needed etc.

### SOAK provided design recommendations for specific locations

#### Group: Soak Up the Rain Danforth Ponds

Town: Freedom

Date of Visit: 8/1/23

Site #5



#### **Observations**

Although significant erosion was noted on the gravel road, in many cases the runoff was not reaching the pond. In one area, where the gravel road runs close to a sandy access area, it appeared that runoff, sediment, and other material was moving across the area into the pond.



#### Recommendations

<u>Note</u>: Before doing any work in the 250' protected shoreland area, check with the NHDES Shoreland Program to see if a permit is needed. See information in the resources section below.

To address runoff from road to sandy access area, consider the following:



• Observe which areas of the gravel road contribute flow to the pond. Intercept the flow with a water bar, such as a rubber razor, to direct flow off the road. Rubber razors allow vehicles to drive over them but prevent runoff from continuing down slopes. Often these diversion devices are back-filled with stone to help convey runoff into a depressed area or stone filled pit. See Figure 1 for an example of an area to install a water bar. (It's unclear if this particular location was sending flow to the access area discussed here.) See the attached and linked Water Bars and Rubber Razor fact sheets for more guidance.

Figure 1. Water bars are set at an angle to the slope and designed to prevent runoff from traveling further down the slope. At the edge of the road, install lumber set on edge protruding as needed to prevent runoff from enter access
area. This may cause some ponding behind it which could be addressed by adding clean drainage stone. Be
aware that this could present a tripping hazard. See Figure 2 for approximate location. See Figure 3 for a similar
practice observed at another waterbody. (Please note that Soak Up the Rain NH focuses on the residential
stormwater management and does not normally address road runoff issues. This recommendation is based on
previous observations.)



Figure 2. Install lumber edging to prevent road runoff from spilling into access area and into the pond.



Figure 3. Example of lumber edging along a gravel road noted at another NH lake.

#### Resources

Soak Up the Rain New Hampshire Website (link is subject to change): www.soaknh.org

Water Bars fact sheet (link is subject to change): <u>https://www4.des.state.nh.us/SoakNH/wp-content/uploads/2020/03/water-bar.pdf</u>

Rubber Razor fact sheet: https://www.pwd.org/sites/default/files/rubber\_razors.pdf

NHDES Shoreland Program information:

- Learn more about the protected shoreland program and find contact information here: https://www.des.nh.gov/land/waterfront-development/protected-shoreland.
- Try the "Do you need a Shoreland Permit?" tool here: <u>https://www.surveymonkey.com/r/shoreland</u>
   See Shoreland's Ergupative Acked Questions including activities that do not require a permit here.
- See Shoreland's Frequently Asked Questions including activities that do not require a permit here: <u>https://www.des.nh.gov/protected-shoreland-faq</u>

### **SOAK** handbook – Do-it-yourself water bar instructions

### WATER BAR

A device used on gentle slopes along paths, driveways and roads to divert runoff into vegetated areas. It helps to reduce erosion and runoff.



#### NHDES SOAK UP THE RAIN PROGRAM | DES.NH.GOV | SOAKNH.ORG

#### SIZING AND DESIGN

STEP 1 – Determine slope. Find the slope of the land where the water bars will be located. Follow the steps below to determine slope. See Figure 1.

a. Place one stake at the uphill end of the slope and another at the downhill end (Figure 1).

b. Tie a string to the uphill stake at ground level. Use a string level to level the string between the two stakes and tie string to downhill stake.



49

- c. Measure the length of the string between the stakes. This is the run or length.
- d. On the downhill stake, measure the height from the ground to the string. This is the rise or height.
- e. Divide the rise by the run and then multiply the result by 100. This is the slope.

SLOPE (%) = (RISE  $\div$  RUN) X 100

#### STEP 2 - Determine how many water bars are needed.

- a. Compare your percent slope to the waterbar spacing in Table 1 to determine how far apart the water bars should be.
- b. Divide the length of your path by the spacing between water bars from Table 1 to get the number of water bars you will need. Round to the nearest whole number.

LENGTH OF PATH / WATER BAR SPACING = # WATER BARS

S	Measuring tape
S	Shovels
S	Saw
S	6" x 6" Pressure treated or
	other rot-resistant timbers or logs
S	Two 18" lengths of 1/2"
	steel rebar (per water bar)
S	3/4" Washed stone
S	Mulch

EQUIPMENT & MATERIALS

#### Table 1 - Suggested water bar spacing

Percent Slope	Spacing between water bars (ft)
2%	250
5%	130
10%	80
15%	50
25% +	40

TIP: Alternatively, you can place the water bars to target erosionprone areas.

#### New hampshire homeowner's guide to stormwater management - DO-IT-YOURSELE STORMWATER SOLUTIONS

#### STEP 3 – Determine material needs.

Timbers or Logs: Water bars should be installed at about a 30 degree angle to the path and should extend six inches off both sides of the path. Measure the width of your path at the angle you intend to install them. To determine the length of timbers or logs you will need, multiply the number of water bars by the width of the path plus one foot.

#### NUMBER OF WATER BARS x (PATH WIDTH + 1ft) = TIMBER LENGTH (ft)

Washed Stone: Each bar should have a trench about 12 inches wide and six inches deep along the entire uphill length and an apron, or small dry well, at the outlet end. Allow about one cubic foot for the apron for each bar. To determine the volume of washed stone needed, multiply the number of bars by the volume needed for each bar using the equation below (assumes a twelve-inch wide and six-inch deep trench). If needed, multiply the result by 0.037 to convert cubic feet to cubic yards.

[1ft<sup>3</sup> + (0.5ft<sup>2</sup> x LENGTH (ft))] x NUMBER OF BARS = WASHED STONE NEEDED (ft<sup>3</sup>)

#### INSTALLATION

STEP 1 - Dig. Dig a trench for the wood timber or log that is at approximately a 30° angle across the path. The trench should be deep enough so the top of the timber or log will be almost flush with the trail on its downhill side, once in place. Be careful to dig only as deep as needed to set the timber to make sure that the soil under the water bar is stable (Figures 1 and 2).

STEP 2 - Prepare timbers. Prepare materials by cutting the timbers or logs to the appropriate length according to the design. Many lumber suppliers will cut them to length for you. Remember that each timber should extend six inches on each side. Drill <sup>1</sup>/<sub>2</sub>-inch diameter holes approximately six inches from the ends of each timber.

STEP 3 - Install timbers. Install the timber or log by placing it snug against the downhill side of the trench. The timber should be level and have no high points or voids under it.

STEP 4 - Secure timbers. Secure the timber with rebar stakes, making sure that the rebar is pounded down flush or slightly recessed with the top of the timber to avoid any sharp edges.

#### STEP 5 - Backfill the water bar.

a. Dig a 12-inch wide and six-inch deep trench along the uphill side of the timber.

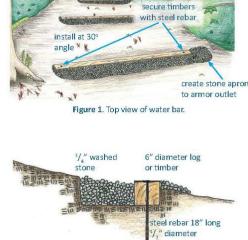


Figure 2. Side view of water bar.



### RUBBER RAZORS

~managing runoff on gravel roads and driveways~ press







Also Called: Rubber Razor Blades, Rubber Blades, Rubber Waterbars

**Purpose:** Rubber Razors divert water off gravel driveways and camp roads into stable vegetated areas.

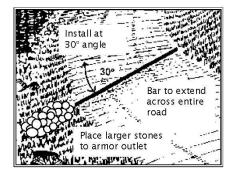
These structures are well suited for seasonal roads that are not plowed. They can be plowed over if the location is clearly marked and the plow operator lifts the plow blade slightly.

**Installation:** Install the rubber razor at a 30 degree angle to the road edge and point the outlet toward a stable vegetated area.

Pack gravel around the rubber razor to make sure it is securely installed.

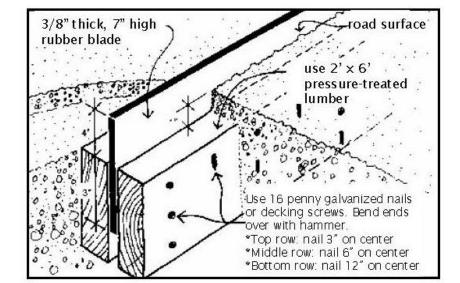
Armor the outlet with a flared grouping of stones to slow down the water before it enters the buffer.

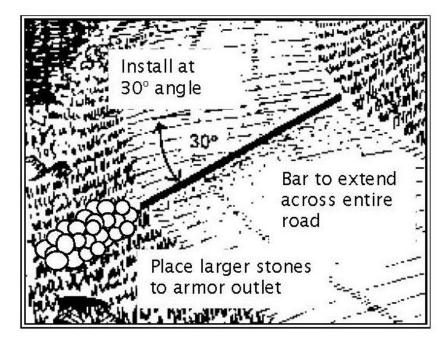
**<u>Materials</u>:** Rubber razors are constructed using new or used conveyor belts. These may be obtained at no or low cost from industrial sources. Contact your Soil and Water Conservation District for additional sources. Lumber can be purchased at any local hardware store. 3/8" thick, 7" high rubber blade ubber blade ubber blade ubber blade ubber treated ubber to a solution of the solution of the

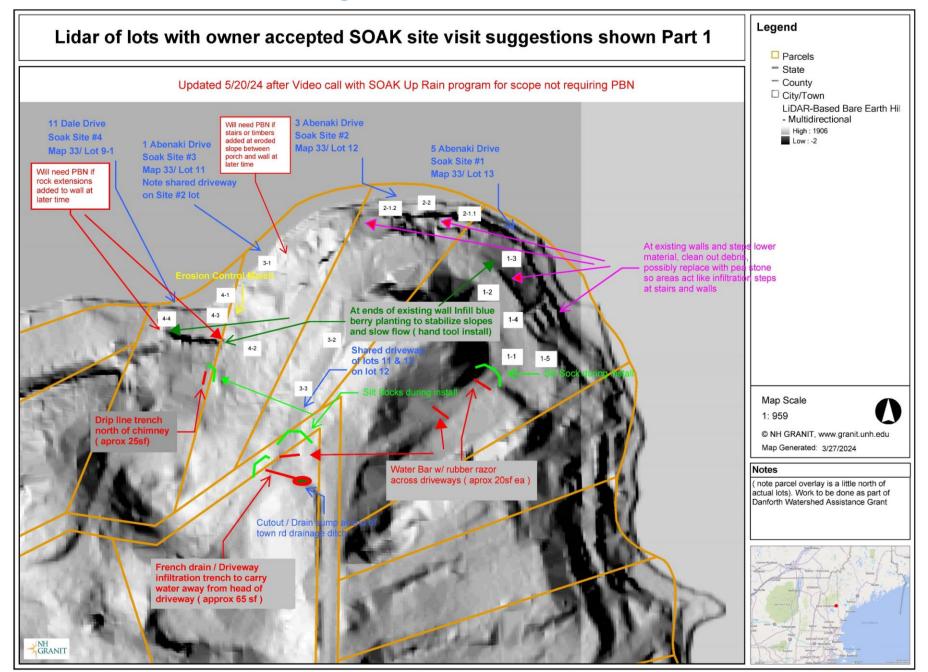


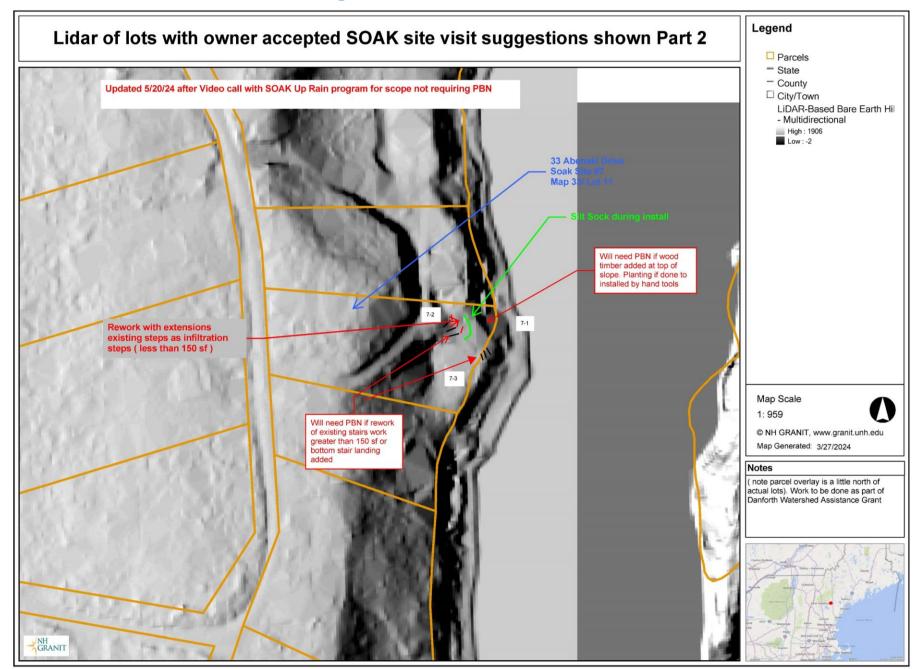
**Maintenance:** To maintain these structures, periodically remove accumulated debris from behind the razor.

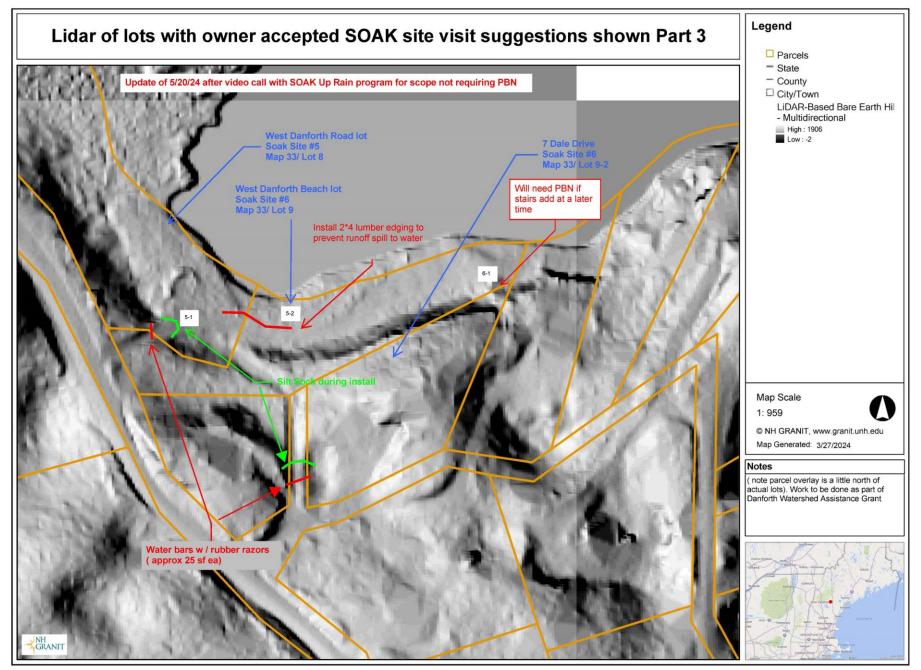
Part of the **Conservation Practices for Homeowners** Factsheet Series, available at: Maine DEP (800.452.1942); http://www.maine.gov/dep/blwq/docwatershed/materials.htm Portland Water District (207.774.5961); http://www.pwd.org/news/publications.php











# **Building SMCs- Implementation steps**

1. Identify erosion locations

**2. Select** the best SCM design for the job

3. Submit permits and notifications

4. Gather materials, tools

**5. Prepare** site for installation day and place temporary erosion control measures (silt sock)

6. Mobilize volunteers

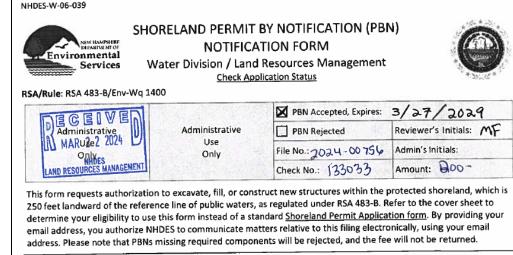
7. Install the SCM design

Check SCMs after major storms and beginning of each spring and **perform maintenance as required**.

## **Permitting and notifications**

Before breaking any ground permits where submitted to the town zoning officer for "permission to install erosion control within the 250ft shorefront" as well as a "Shoreland Permit by Notification" (PBN) to the Water Division at NHDES.





SECTION 1 - PROPERTY OWNER (RSA 483-B:5-b; Env-Wq 1406.17)

## Silt sock – controlling runoff during construction



Silt socks where staked in place below each work site before digging began to prevent further runoff during construction.

## The silt sock in action – controlling runoff during construction



The silt socks where put to the test when it rained heavily the days before installation day. They helped to prevent more runoff and damage to dig sites while they were still opem.

### **Digging the trenches with machine help**



### Preparing the work sites with erosion control and materials





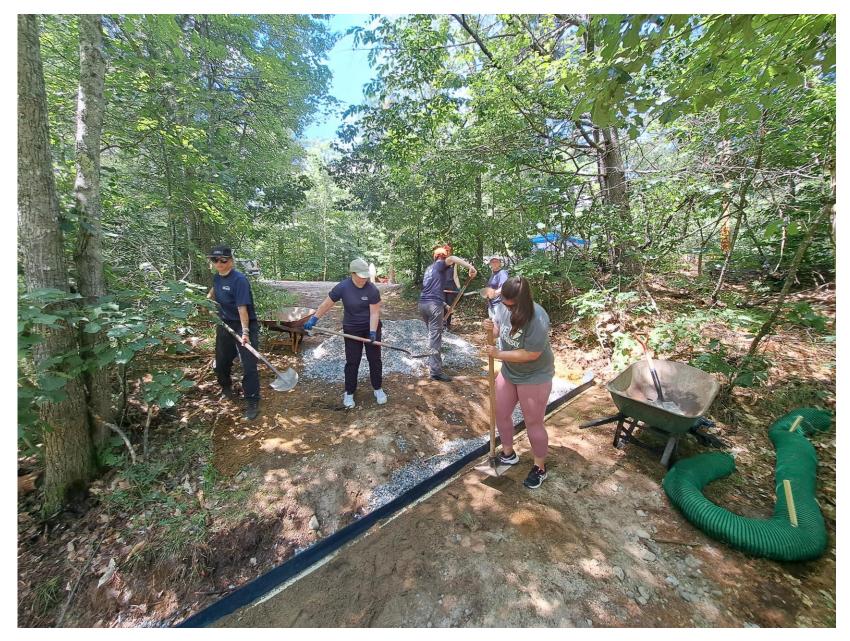
## **Group work day! Installing water bars and filling trenches**



















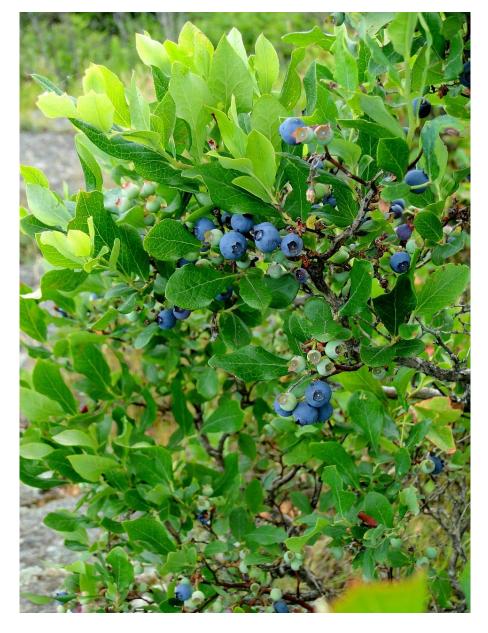
### **Raised diversion wall at shared beach drive**





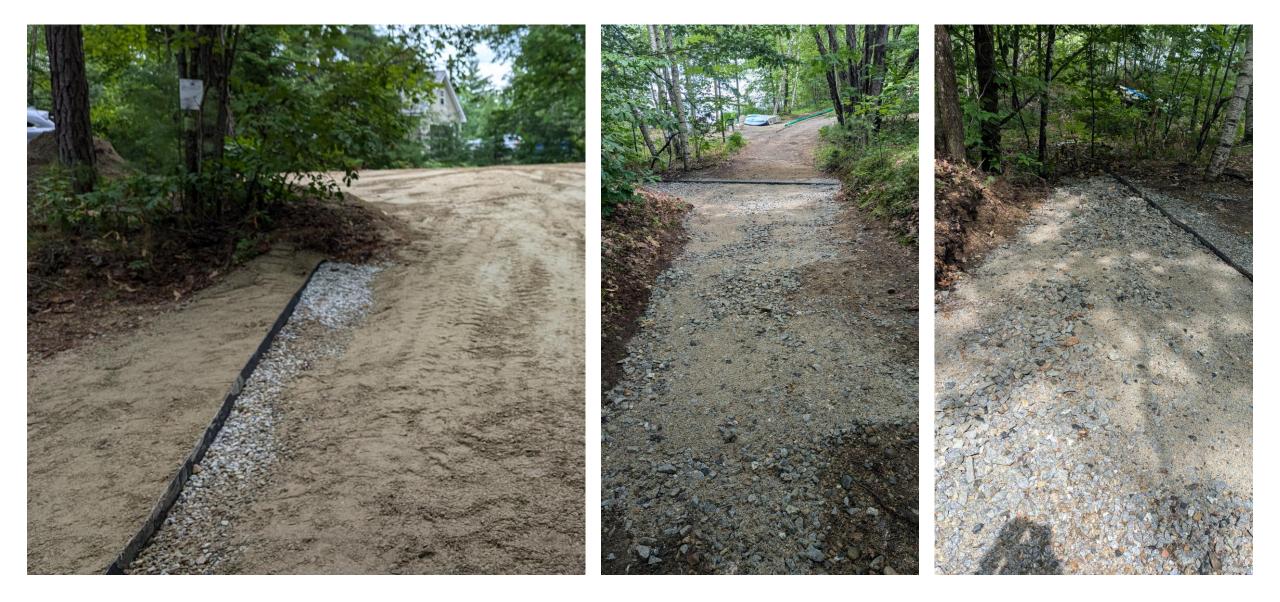
## Native highbush blueberry plantings







### **Finished water bars and trenches**



### **Best Management Practices Brochure**



### **BEST MANAGEMENT PRACTICES PROTECT:**

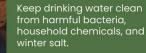


### NATURAL RESOURCES

By mitigating the amount of phosphorus and nitrogen loading into a water body you can help prevent bacteria and algae blooms.



### **PUBLIC HEALTH**





### Keep drinking water clean from harmful bacteria.



plant life.



### **ABOUT US**

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Through long-term planning and action, homeowner education, and the adoption of comprehensive Best Management Practices, the Friends of Danforth Ponds' primary focus is the preservation of water quality.

Our continuing endeavors will ensure a thriving Danforth Ponds where recreation is enjoyed, plants and wildlife flourish, and economic well-being is guaranteed for future generations of homeowners and their families.

### **CONTACT US**



friendsofdanforth@gmail.com

Friends of Danforth Ponds P.O. Box 384 Freedom, NH 03836

### Friends of Danforth Ponds



**TOP 10 BEST MANAGEMENT PRACTICES FOR HEALTHY WATERS** 

### **Best Management Practices Brochure**

### **ATTENTION** WATERFRONT **PROPERTY OWNERS!**

New Hampshire surface waters are experiencing increased outbreaks of cyanobacteria blooms that pose serious risks to human health, pets, and aquatic life and are indicators of a decline in the health our favorite lakes and streams. Your property could be contributing to the problem! Please review these Top 10 Best Management Practices for Healthy Waters and consider some simple, affordable steps you can take to reduce erosion and stormwater runoff on your waterfront property.

More resources are available at https://www.epa.gov/soakuptherain



### **TOP 10 BEST MANAGMENT PRACTICES FOR HEALTHY** WATERS



Install one or more rain barrels to control excessive storm water runoff from roofs and autters and conserve fresh water for use in gardens and times of draught.



Plant rain gardens in locations were storm water runoff collects with native water loving plants to soak up the rain, stabilize soils, and create habitat for pollinators and other wildlife.



Waterbars are an effective solution to slow down storm water runoff, prevent erosion, stabilize soils, and maintain smooth driveways and roads.



Traditional asphalt driveways and parking lots do not allow rain water to soak into the ground, exacerbating erosion. Instead opt for pervious pavers which allow water to infiltrate into the ground.

Allowing native plants to



Properly maintain your septic system, especially by pumping SEPTIC SYSTEMS



every few years. A leaky septic will allow bacteria and household chemicals to pollute ground and surface waters.



Wash your car with non-toxic and biodegradable soap on our lawn rather than on your friveway so that excess water and detergents can soak into the grass.

AVOID SOAPS



fertilizers that contain eliminate the application of pesticides on your lawn and



contain nutrients such as nitroaen that can feed bacteria water. Do not dump into nearby streams, lakes or storm water gutters. Leave grass clippings as mulch on your lawn.



Excess or too much winter salt application is toxic to plants, animals, and ground water. Use alternatives like sand and shovel as much as possible before considering using salt.

WINTER SALT





Funding for this project was provided in part by a Watershed Assistance Grant from the NH Department of Environmental Services with Clean Water Act Section 319 funds from the U.S. Environmental Protection Agency



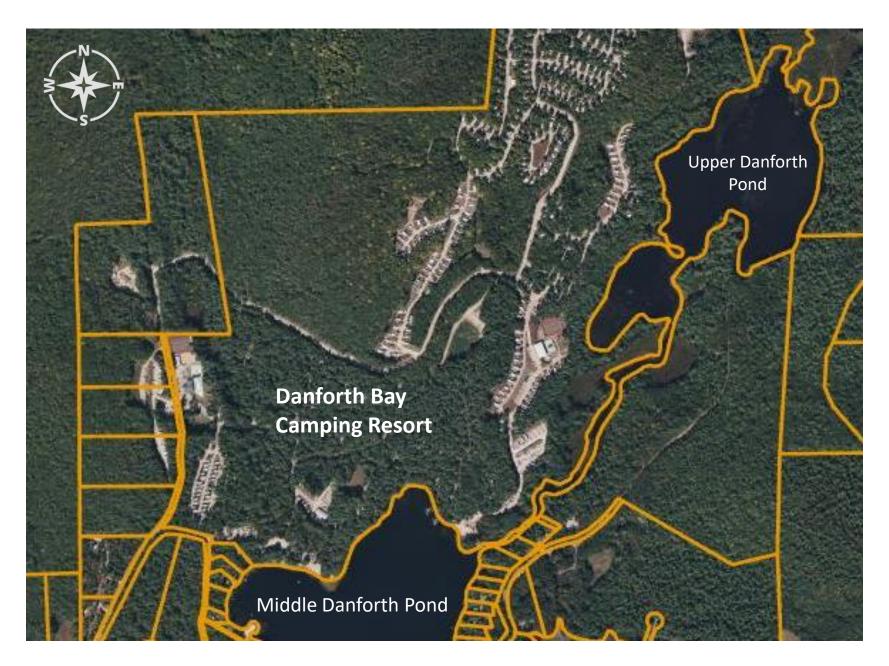
This brochure is also made possible by support from the Green Mountain Conservation Group www.amca.ora



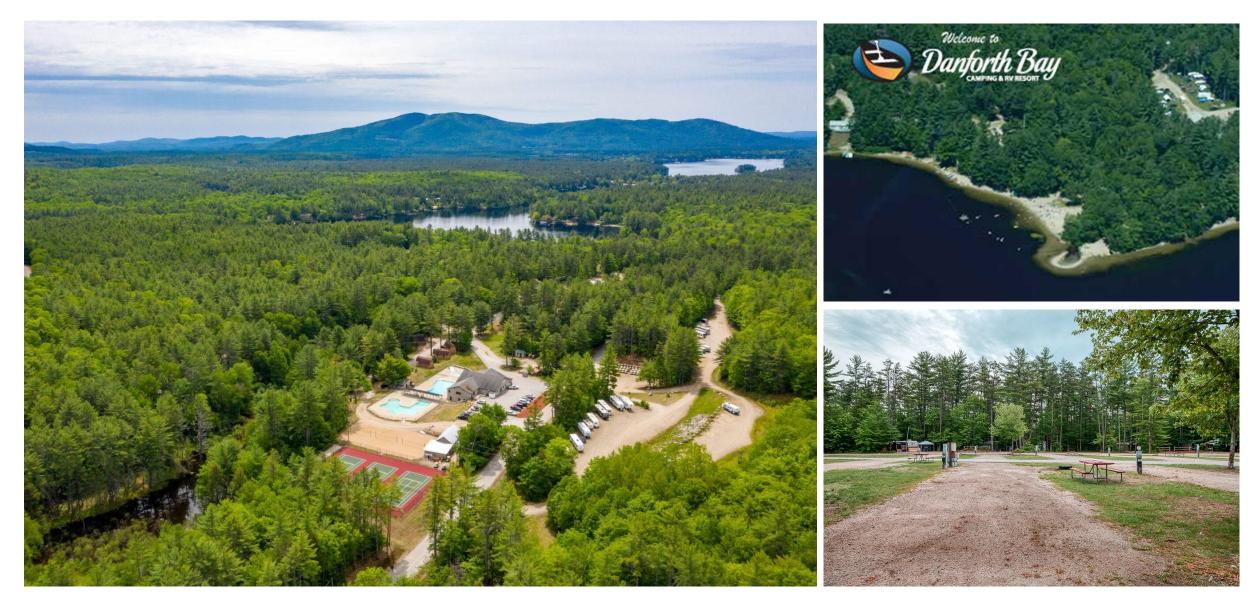
enter your groundwater. Organic matter and clippings



### **Stormwater Control Measures at Danforth Bay Camping Resort**



### **Stormwater Control Measures at Danforth Bay Camping Resort**



### **Danforth Bay Camping Resort – project site before photos**







### **Danforth Bay Camping Resort – Back Bay Blvd. Improvement Project**



## Larger scale projects: Working with private contractors and engineers

To address the complex erosion issues at Danforth Bay Camping Resort, design/engineering assistance was determined to be necessary, and we followed NHDES-approved procurement procedures, to issue a **Request for Qualifications (RFQ) to select a contractor.** 

This process was followed resulting in the selection of design and engineering assistance for Waterstone Engineering.



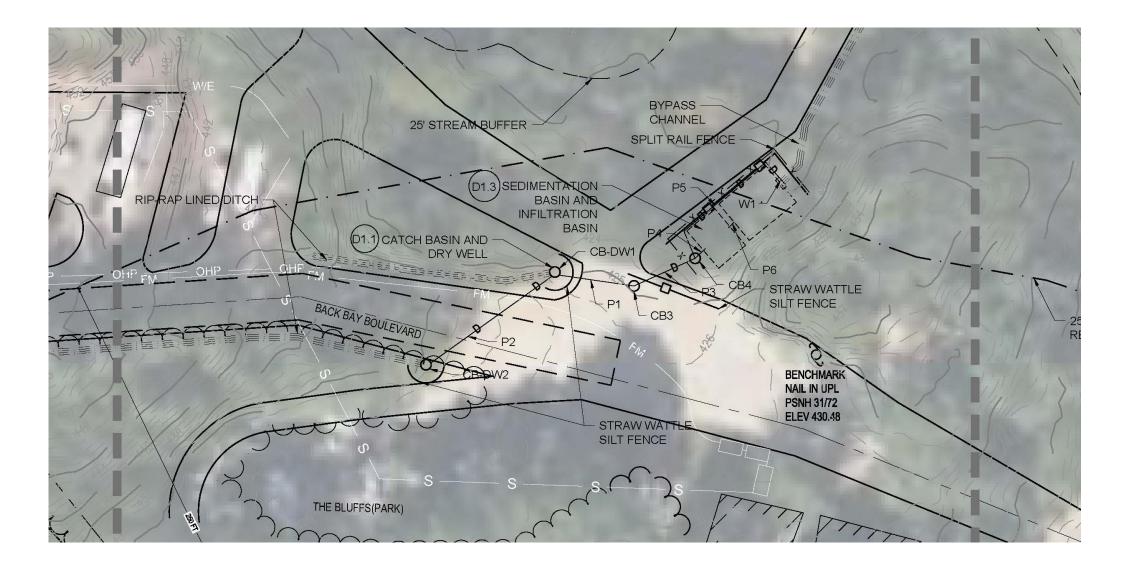
### **Rob Roseen**

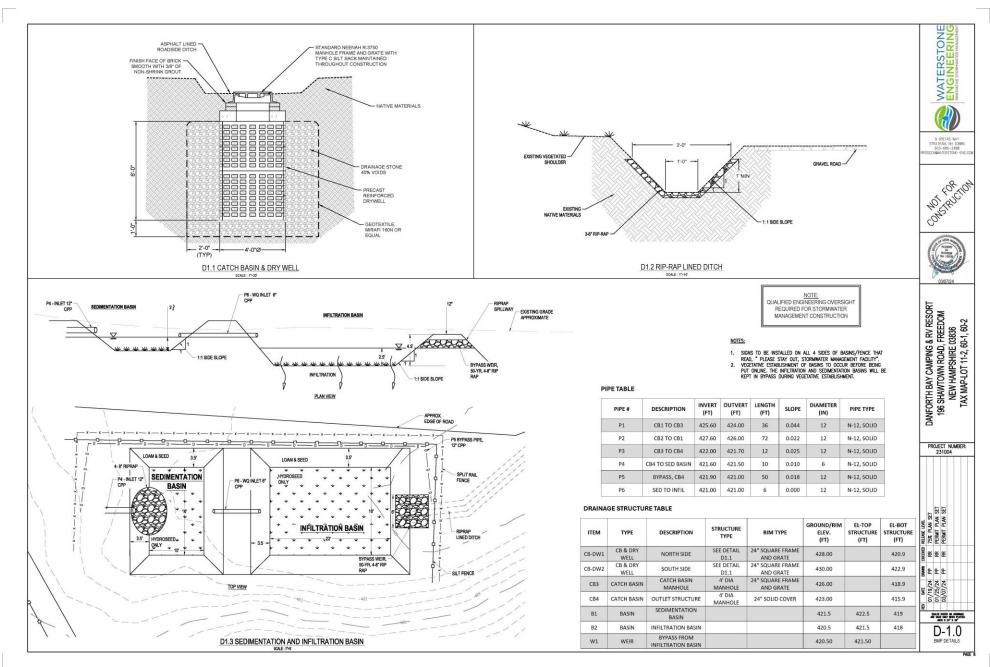
Principal and Owner at Waterstone Engineering, PLLC

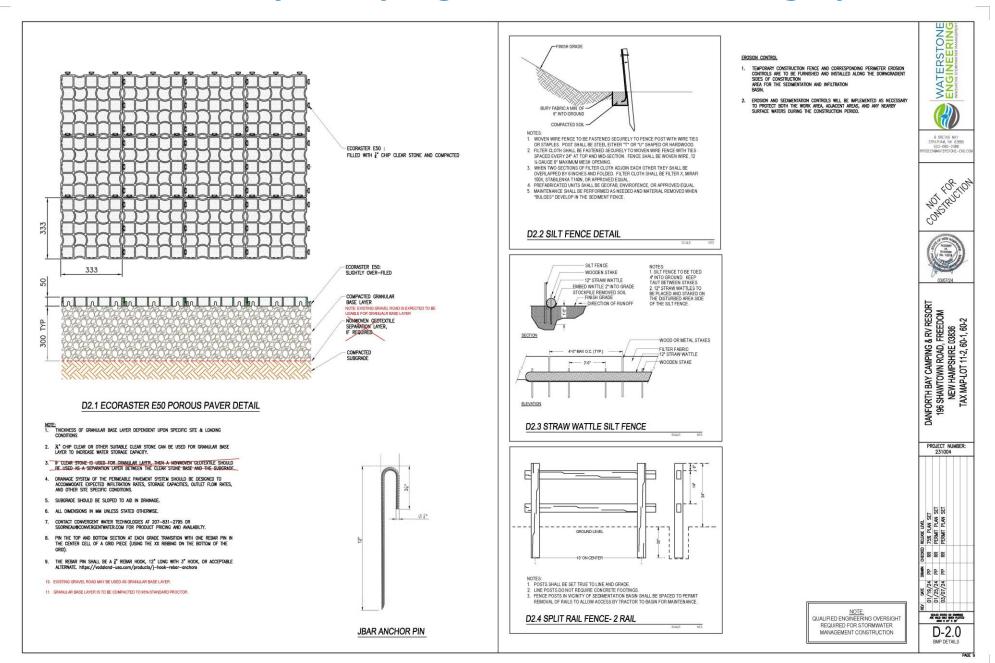
Waterstone Engineering is a small niche engineering consulting company specializing in the design, planning, and permitting for stormwater management and nutrient controls.

http://www.waterstone-eng.com/









Back Bay Boulevard Construction Photos Winter 2024-2025





Figure 1: Erosion Control Installation

Figure 2: Erosion Control Installation

Back Bay Boulevard Construction Photos Winter 2024-2025





Figure 1: Erosion Control Installation

Figure 2: Erosion Control Installation

Back Bay Boulevard Construction Photos Winter 2024-2025





Figure 4: Materials – Catchbasins and Drywells

Figure 3: Erosion Control Installation

Back Bay Boulevard Construction Photos Winter 2024-2025





Figure 4: Materials – Catchbasins and Drywells

Figure 3: Erosion Control Installation

Back Bay Boulevard Construction Photos Winter 2024-2025 Back Bay Boulevard Construction Photos Winter 2024-2025



Figure 5: Materials – Drainage Stone

Figure 6: Materials – Ecoraster Grid Pavers

Back Bay Boulevard Construction Photos Winter 2024-2025





Figure 7: Installation CB-DW1

Figure 8: Installation CB-DW1 (right) and CB-DW2 (left)

Back Bay Boulevard Construction Photos Winter 2024-2025



Figure 9: Installation CB-DW2

Back Bay Boulevard Construction Photos Winter 2024-2025

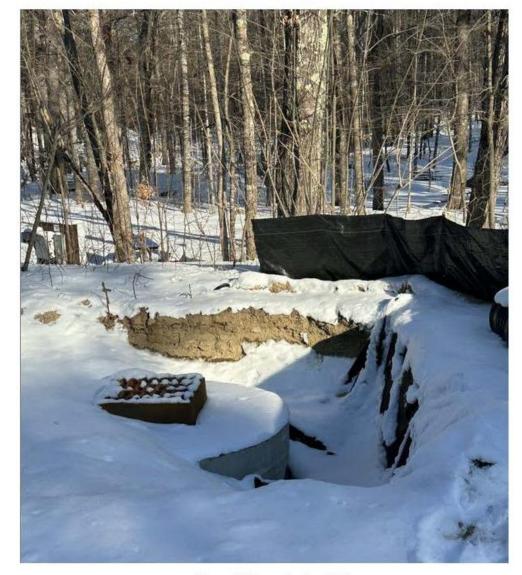


Figure 10: Installation CB3

Back Bay Boulevard Construction Photos Winter 2024-2025



Back Bay Boulevard Construction Photos Winter 2024-2025



Figure 11: Installation CB4

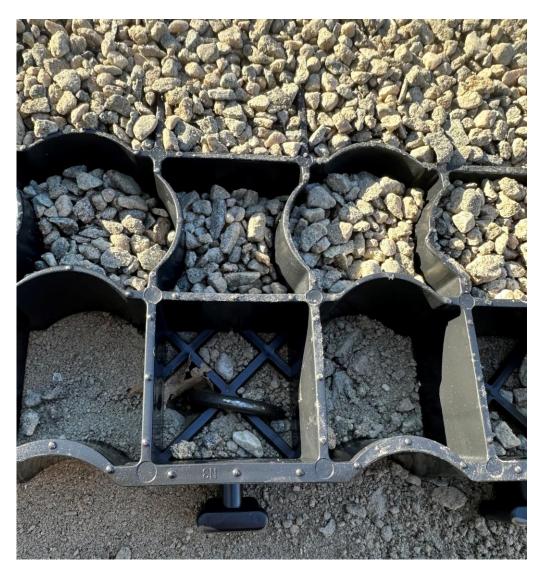
Figure 12: Installation CB4

# Danforth Bay Camping Resort – SCM construction phase Installing Ecoraster



## Danforth Bay Camping Resort – SCM construction phase Installing Ecoraster









# Danforth Bay Camping Resort – SCM construction phase April 2025







### **Issues:**

- Excess salt and sand
- Lack of stormwater control measures
- Undersized culverts

### Focus:

Control stormwater runoff through the implementation of best management practices

### Goals:

Reduce the flow of phosphorus, salt, and other pollutants.





### **Project stages:**

- 1. Engage Town leaders Board of Selectmen, Town Administrator, and Road Agent
- 2. Develop a Statement of Work (SOW) to obtain a design
- 3. Issue a Request for Qualifications (RFQ), Statement of Work, Project Schedule, and Selection Criteria
- 4. Develop and Award Contract for a Concept Design and Final Design



**Process:** 

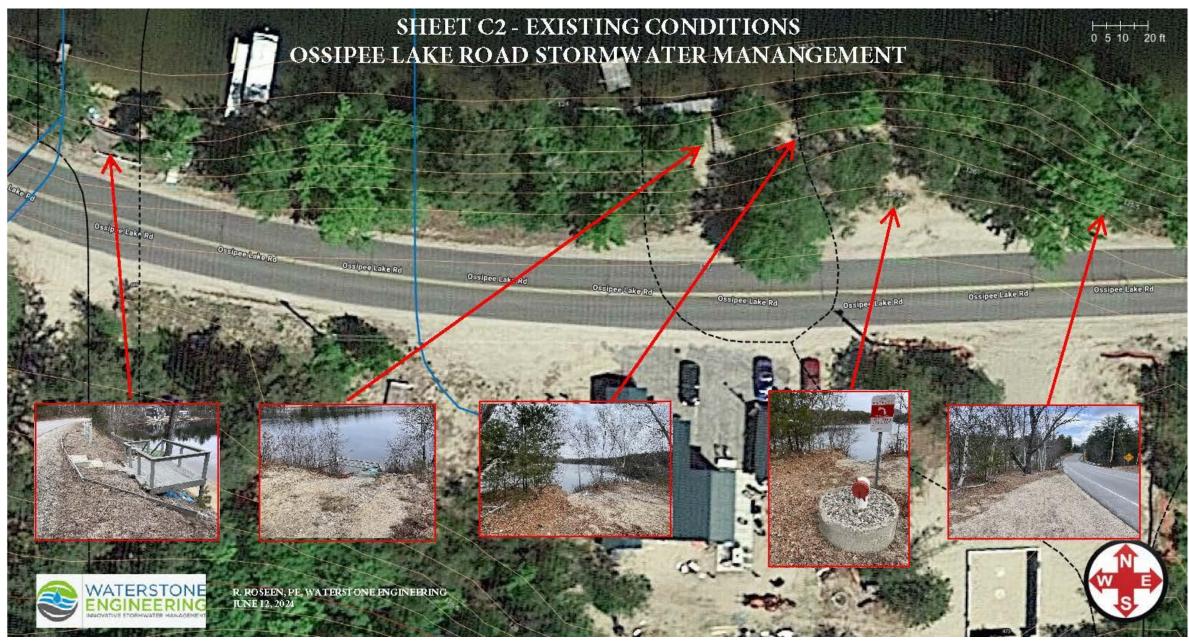
Discuss Concept Design with Town Leadership Obtain Final Design Review Design and Cost Sharing Agreement with Town Contract with Town

### **Anticipated Results:**

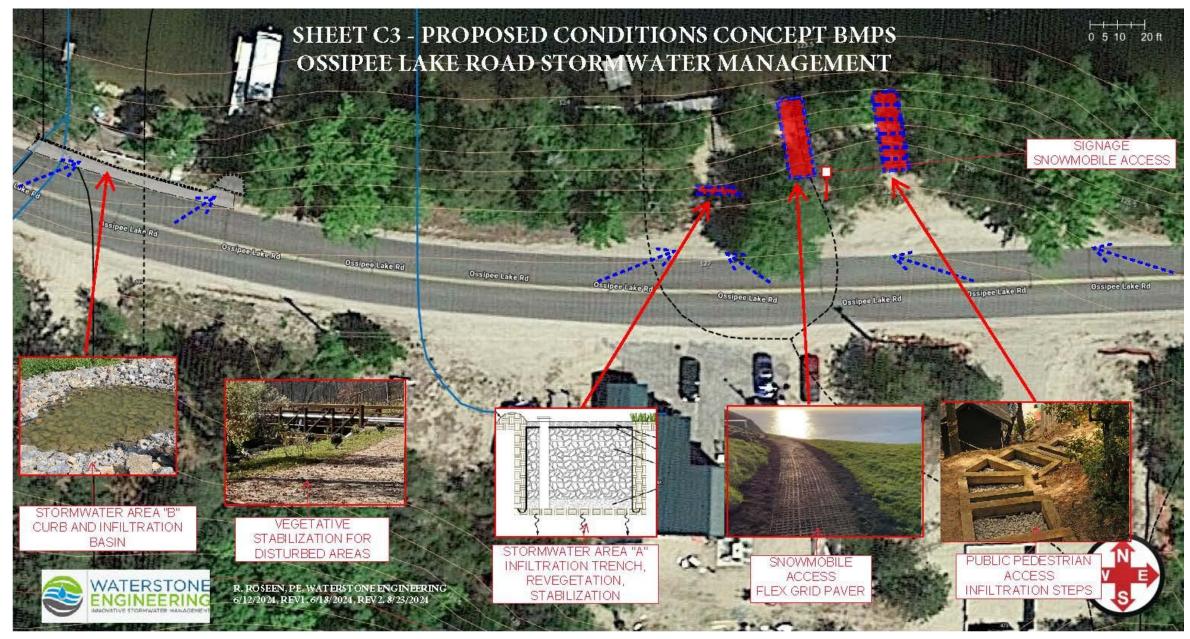
Snowmobile Path Ground stabilization and Razor Bar Increased Native Vegetation



# **Ossipee Lake Road - – SCM design plans**



# **Ossipee Lake Road - – SCM design plans**



### **Danforth Ponds septic system initiative**



Followed the suggestions outlined in the Watershed Management Plan.

Initiatives were designed to educate homeowners on the vital role our septic systems play in the water quality of Danforth Ponds.

### **2025 Danforth Ponds Septic Census**



### 2025 Danforth Ponds Septic Census

#### BIUGX

The Friends of Danforth Ponds and the Green Mountain Conservation Group are promoting a wide range of actions that each homeowner can take to address the declining water quality of Danforth Ponds. Emphasizing recommended septic maintenance is one of our top priorities because outdated septic systems have been identified as one of the top overall contributors to the decrease in lake health. Did you know that a malfunctioning system can release excessive nutrients, bacteria, viruses, and toxic chemicals into our water? The Green Mountain Conservation Group received an EPA Grant through the New Hampshire Department of Environmental Services to improve Danforth Pond's water quality and aid homeowners with the high cost of septic maintenance. Unless an the grant period is extended, all available assistance will expire on 6-30-2025.

A comprehensive census of existing septic systems within 250 feet of Danforth Ponds and the connecting brooks/channels is being conducted to obtain a better understanding of the surrounding systems and their potential impact on our water quality. Your answers to the questions will provide a clearer picture on which areas to prioritize to best serve the Danforth Pond community. By answering a few brief questions, you may be eligible to participate in a program designed to encourage routine septic maintenance, repair or replacement of an outdated system in failure or close to failure. **The Questionnaire will take only 5 minutes to complete. Your individual responses will remain strictly confidential and never shared**. We greatly appreciate your time and cooperation. Please reach out to the friendsofdanforth@gmail.com with any questions.

Approximate year your house was built? \*

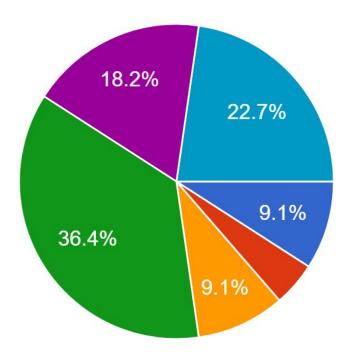
Short answer text

# 1. Conducted a Septic System Survey of existing waterfront septic systems:

A comprehensive census of existing septic systems within 250 feet of Danforth Ponds watershed was conducted to obtain a better understanding of the surrounding systems and their potential impact on our water quality.

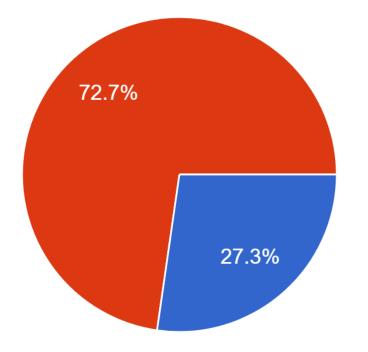
How old is your septic system?

22 responses





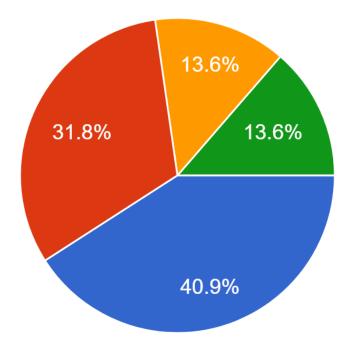
Is your house used year round or seasonally? 22 responses





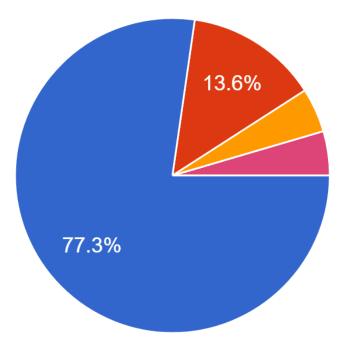
# of months your house is occupied?

22 responses



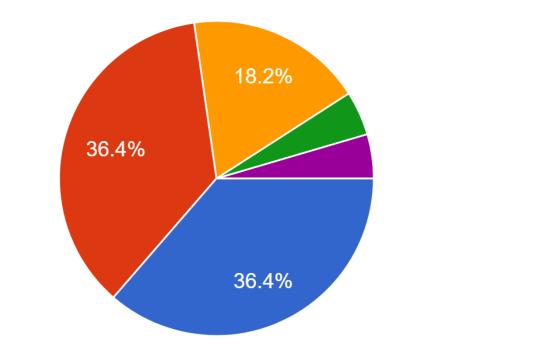


### What type of septic system do you use? 22 responses





When was your septic system last pumped? 22 responses





# **Septic System Care Brochure**



#### **DID YOU KNOW?**

#### Important Facts for Waterfront Homeowners.

- A malfunctioning septic system has been found to release excessive nutrients, bacteria, viruses, and chemicals into our waterways and may drastically reduce property values and negatively impact the sale of a house.
- A cesspool is considered a failed septic system.
- Septic systems contribute approximately 11% to the phosphorous load in NH lakes, according to the NH Department of Environmental Services (DES) Cyanobacteria Plan, released in November 2023. Recently passed legislation, HB 1113, now requires a buyer to engage a NH licensed septic evaluator to conduct an inspection of any septic system that is 250' from the shoreland prior to the sale of a property. If the existing system does not have an approved plan on file with NH DES or was approved prior to 1989, a septic system designer must be hired to determine if the system is functioning properly. A system found to be in failure must be replaced by the buyer of the property within 180 days of the sale transfer.
- According to data compiled by the Freedom Conservation Commission in 2019, only 11 waterfront properties around Danforth Ponds had septic systems installed in the last 30 years. While older systems may be operational, a recent evaluation done at a nearby NH lake found that more than 60% of their septic systems over 25 years needed repair.
- Funding is available through an EPA grant to assist Danforth Pond waterfront property owners with their septic needs. For more information contact the Friends of the Danforth Ponds.

### ABOUT US

The Friends of Danforth Ponds was formed in 2021 as a sustainable effort to promote strategies for a healthier Danforth Ponds by collaborating with homeowners, town officials, and conservation groups.

Through long-term planning and action, homeowner education, and the adoption of comprehensive Best Management Practices, the Friends of Danforth Ponds' primary focus is the preservation of water quality.

Our continuing endeavors will ensure a thriving Danforth Ponds where recreation is enjoyed, plants and wildlife flourish, and economic wellbeing is guaranteed for future generations of homeowners and their families.

Funding for this project was provided in part by the U.S. Environmental Protection Agency (EPA) under Section 319 of the Clean Water Act. The funding is administered by the New Hampshire Department of Environmental Services in partnership with the EPA.





### **CONTACT US**

Friends of Danforth Ponds P.O. Box 384 Freedom, NH 03836

Find us on Facebook @FriendsofDanforthPonds

Learn more about Green Mountain Conservation Group at www.gmcg.org



A 2024 GUIDE FOR THE PROPER CARE AND MAINTENANCE OF SEPTIC SYSTEMS



For property owners on the Danforth Ponds and the Iower Bays of Ossipee Lake 2. Created a Septic Brochure with how to tips for maintaining a healthy septic system and distributed to homeowners.

# **Septic System Care Brochure**

#### THE DO'S AND DON'T'S OF SEPTIC SYSTEM CARE AND MAINTENANCE:

You can control costs by establishing a regular schedule and following a few simple tips. Routine septic system maintenance saves money and prevents unnecessary costly repairs.

#### DO:

#### 1. Inspect and pump your system frequently.

- A septic system should be inspected every 3 years by a licensed septic inspector. A proper inspection can detect blockages, leaks, and structural issues.
- Pump your septic tank every 2 to 5 years.
- Keep records of system maintenance.

#### 2. Use water efficiently.

- Consider purchasing a high-efficiency toilet. Toilets account for 25 to 30% of household water usage.
- Run dishwashers and washing machines only when
- Spread your laundry out over several days. Spacing out your laundry allows your system the proper time to treat waste and avoid flooding.

#### 3. Know where your drainfield and septic tank are located.

- Your drainfield plays an important function by filtering contaminants from the liquid that emerges from your septic tank.
- Consider installing a riser over your septic tank for easy access.
- Keep your absorption field planted with grass. Unusual growth and bright color can indicate a system failure
- Add Root Kill annually to your septic tank to avoid the growth of tree roots.

#### 4. Properly dispose of waste.

- Remember everything that goes down your drain ends up in your septic system.
- Use only septic friendly toilet paper that easily breaks down.
- Use dish soap, household products, and laundry detergent with little or no phosphates.
- Use chlorine bleach sparingly. Consider using chlorinefree bleach instead.

### DON'T:

#### 1. Use a garbage disposal.

#### 2. Use your septic system as a trash can.

Your septic system contains a collection of living organisms that digest and treat household waste. Flushing or pouring toxins down your drain kills organisms and harms your septic system.

Never send any of the following products down your drain:

- Cooking oil, grease, p
- Flushable wipes
- Feminine hygiene pro
- Condoms
- Baby wipes
- Cigarette butts Coffee grinds or cat I
- Pharmaceuticals
- Rid X
- Drain cleaners use
- 3. Park or drive on you

The soil must remain loo

4. Plant trees too close

Planting too close to you into your absorption field its function.

#### 5. Leave your septic to

An empty tank can cause repairs.

6. Pump your septic sy

An empty tank can mask would otherwise be visib

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**INSPECTION & REPAIR COMPANIES:** 

paint, or antifreeze oducts		DJ's Septic & Pumping Wolfeboro, NH	603-569-5286	Pumping
litter		Turner Septic Pumping Conway, NH	603-733-8667	Pumping
boiling water or a drain snake				
ur drainfield.		Lakes Region Septic Brookfield, NH	603-522-6246	Pumping & Repair
ose so water can flow freely.				
<b>e to your drainfield.</b> ur drainfield allows roots to grow d causing unintended damage to		Lamprey Septic Services Moultonborough, NH	603-476-5557	Pumping & Inspection
ank empty over the winter. se issues that lead to costly		JB & Son Sewer & Drain Mirror Lake, NH	603-569-0500	Inspection
ystem before an inspection.				
k issues with your system that ole during an inspection.		Turner Septic Inspections Conway, NH	603-307-4973	Inspection



**3.** The Brochure included a compiled a contact list of local septic industry professionals and negotiated discounts for homeowners.

\*Contact the Friends of the Danforth Ponds for the complete list.

# **Septic Inspection Educational Video**

4. Scheduled and recorded a live demonstration of a septic inspection performed by a licensed New Hampshire septic evaluator. Watch the full 48 minute video at <u>www.gmcg.org</u>



Turner Septic Services performs a septic inspection at a private shorefront residence on Danforth Bay in Freedom, NH. This educational event was hosted by The Friends of the Danforth Ponds and Green Mountain Conservation Group to advocate the importance of proper septic design and maintenance to protect both surface and ground water quality in communities.

# Septic system town hall forum

5. Scheduled a "town hall" forum with a leading septic industry expert in New Hampshire.





Septic Systems and Lake Friendly Living was presented by Gary Spaulding of Advanced Onsite Solutions in Canterbury NH to educate attendees on the importance of routine septic maintenance and offer homeowners the opportunity to ask questions and learn more about their septic systems impact on water quality.

# **Danforth Ponds septic system Cost-Share Rebate Program**



6. Established a Cost-Share Rebate Program to encourage Homeowner's to perform routine Septic Maintenance.

Septic Pumping Rebate covered 1/3 of the cost to pump a system, up to \$100.00 per household.

- Septic Inspection Rebate covers 50% of the cost to inspect a system, up to \$200.00 per household.
- Funding is available to offer rebates to up to 15 homeowners with septic systems 250 feet from the water's edge.
- Only one rebate is available per house.

### **Danforth Ponds septic system Cost Share Grants**



### 7. Offered two Cost Share Grants towards the Replacement of Outdated Existing Septic System.

**Established Eligibility Criteria:** 

- Septic Survey must be on file with the Friends of Danforth Pond.
- The Septic System must be within 250 feet of the water's edge.
- A Septic Inspection must be performed by a licensed New Hampshire Septic Inspector.
- A Septic Evaluations form must be completed by the inspector and submitted with the application.
- Septic System must be in failure, close to failure, or outdated to be eligible to apply for a replacement grant.
- An approved NH DES Septic Design and two estimates for replacement must be submitted with the assistance request application.
- One system replacement grant was awarded in 2024.

# **FDOP achievements and ongoing efforts summer 2025**

 Educating our homeowners by sponsoring a yearly session of "town hall" forums with leading experts in Watershed Management, Water Quality testing results, Best Management Practices, Cyanobacteria, and Septic Systems and Lake Friendly Living.

• Established a working relationship with local conservation groups such as the Green Mountain Conservation Group and the Ossipee Lake Alliance.

- Reached out to homeowners and created a database of local contact information for easier communication
- Continue to distribute a monthly newsletter during the lake season to keep homeowners engaged and informed.
  - Host another community barbeque at the end of the lake season.

### **Special Thanks to**

Robert Roseen, Waterstone Engineering

Jeff Marcoux, Watershed Supervisor Watershed Management Bureau Water Division, NH Department of Environmental Services

Forrest Bell, FB Environmental

Matt Howe, former Executive Director Green Mountain Conservation Group

Steve Hoyt, Danforth Bay Camping Resort



# A public and private partnership to improve the water quality of the Danforth Ponds









