Lake Wise Evaluation Date: July 23rd 2024
Evaluator: Vicki Pattison-Willits (Lake Wise Inland Lakes Seasonal Technician)

Will Lyman – Caspian Lake

Address: 168, Aspenhurst, Greensboro, VT, 05841

Overall Results:

Congratulations, Will & Anastasia! Your property passed all 4 sections of the Lake Wise Assessment, earning you a Lake Wise Award! You have a beautiful lakefront property, that has been enjoyed by your family and friends for many years. The property is being managed sensitively, with the lake environment clearly in mind. This report includes a few minor recommendations we discussed during the assessment that will further help to reduce stormwater and runoff into the lake and promote shoreland vegetation and habitat. Your proactive approach and ongoing dedication to lake friendly living significantly contribute to the sustainability and health of the lake ecosystem. Thank you to you and your family for being great stewards of Caspian Lake for all who enjoy it! I hope the present and future generations of your family, and friends continue to enjoy this special place in the many years to come!

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Driveway Area: Lake friendly driveways are those that are minimized, not eroding, have proper surface materials, shed water quickly, avoid water running down the driveway, and divert as much runoff as possible to stable vegetated areas & away from the lake/other surface waters. Best management practices and maintenance save money in the long-term, prevent repairs/replacement & reduce flash flood damage.

The Driveway section of the Lake Wise Evaluation passed all the criteria! The driveway and parking area are appropriately sized for the camp, set well back from the lake and consist of natural pervious materials including gravel. You mentioned you have previously experienced significant issues with heavy stormwater runoff and associated surface damage (washout and sedimentation) during major rainfall events. Issues have largely been mitigated through the more recent installation of a culvert which diverts surface water during high flow volume under the driveway and disperses it into a vegetated area. In the last year the road and driveway have also been resurfaced with the addition of appropriate surface materials which is great. The driveway materials and culvert appear to be holding up well with only a couple of isolated areas of very minor erosion and wash out issues observed, following the major rainstorms experienced prior to my visit. Furthermore, stormwater runoff, is directed as sheetflow to heavily vegetated areas and wooded areas that line the road, driveway and parking area which act as a buffer.

For future maintenance, regular upkeep of the driveway and parking area will help prevent erosion and other issues. Given the level and minimal nature of your driveway and parking area, simple measures like adding more pervious materials such as gravel and fines (silt and clay particles) when needed should suffice to maintain its condition over time. The Lake Wise Driveways and Lake Roads information sheet and Gravel Road Maintenance Manual provide great advice on driveway maintenance to ensure long-term low impact lake access.

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During my assessment, you noted that the three water bars previously installed up the road, in collaboration with your neighbors have deteriorated (i.e. become filled in). Reinstating these or incorporating open-top culverts could effectively manage stormwater during heavy rainfall and reduce the frequency of road resurfacing. Additionally, the observed (very minor) area of washout and sedimentation near the parking area in the photo could also be managed using similar simple interventions if this continues to be a problem area.

Open-top culverts or water bars on the steepest parts of the road and driveway are cost-effective options, easy to construct, maintain and replace as required over the years. These structures are designed to prevent the volume and velocity of stormwater flow from increasing and eroding the surface by directing water runoff towards turnouts/rock aprons or stable vegetated areas (e.g., wooded areas along the road and your driveway) for absorption and capture sediment preventing it from entering the lake. When planning, it is best to begin improvements at the top or steepest point of your road/driveway (working in conjunction with neighbors as needed). Install structures further down if you continue to experience erosive events.

Example of **water bar** (top) and **open-top culvert** with rock apron (left). These are diagonal channels across pathways/driveways that intercept stormwater runoff and divert it to a stable area for infiltration.

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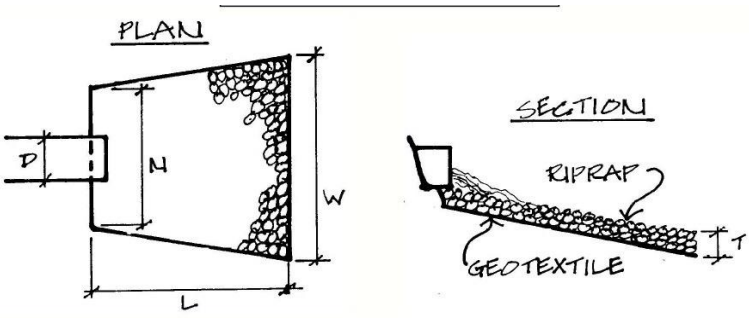
The culvert is functioning well and was recently cleared and flushed which is great. Continue managing the culvert as you have been. My only, recommendation for the future is to ensure that the existing rock apron at the culvert outlet is also cleared out to maintain its functionality. The basin has filled in with sediments after the heavy rainfall we have received this summer (and probably from flushing), which is a positive sign that these stormwater BMPs are working well to capture fine suspended particles. To further stabilize this area, you might also consider additional stormwater practices, e.g. extending the existing bed (seen in the rear of the picture) or creating a small more densely vegetated zone at this point (vegetated filter strip or rain garden) to help receive and treat the runoff.



(from the Lake Wise Info Sheet on Turnouts and Rock Aprons).

Rock Apron Maintenance:
Inspect the rock apron after large rain events and in the spring. If any damage occurs, repair as soon as possible to stop channelized flow. If it becomes filled up with sediment over time, remove to maintain function. If it is constructed with stone, remove, wash out sediment, and replace with clean stone. If erosion is occurring downstream of the practice, stabilize the area and replant with native vegetation.

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<u>Structures and Septic Systems</u> : This section reviews how stormwater is managed around your property's structures, particularly runoff from rooflines and impervious surfaces. It also assesses waste and water management, including septic systems and grey water capture. Your property successfully passed all criteria and overall looks great!

Septic: You have a relatively new permitted mound septic system, that was installed in 2014, in collaboration with a licensed engineer and in full compliance with Agency of Natural Resources regulations. Your septic tank, pumps, and mound with a secondary tank system, are set as far back from the shoreline as possible considering the overall size of the plot and location of the cottage. All aspects of the system are inspected every year with filters cleaned and tank pumped annually as well – this is great! Regular inspection and pumping are recommended, with systems ideally inspected every 1 to 3 years and pumped every 3 to 5 years, depending on various factors like tank size, household size, and water usage. Your current schedule seems perfect for your needs, but you can always review this with your preferred contractor.

There were some minimal signs of erosion on the path close to the septic system, but you thought this might be related to recent upland work. It may be good to just keep an eye on this over the next year, and if need be, reinforce the pathway using pea gravel or similar (see recreation notes). There is little woody vegetation where the septic system and mound are located which is also good. Active management of the ground above septic systems/leach fields by encouraging shallow-rooting vegetation - e.g., native grasses, ferns and flowering plants - and periodic mowing is advisable to prevent root intrusion into septic pipes. For ongoing septic maintenance, we recommend referencing resources such as the Homeowners Guide to Onsite Wastewater Systems and EPA advice webpage (https://www.epa.gov/septic/frequent-questions-septic-systems).

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Septic systems are a common wastewater treatment option for lakeside property owners, which eventually return clean water to the water table.

Best Practices for Septic System Management:

- Inspect every 1 to 3 years and pump every 3 to 5 years.
- The frequency of pumping, does depend on several factors including: tank size, number of people, water use habits and the amount of solids accumulated in the tank. Regular inspections are key to catching potential issues before they become failures.
- Maintain shallow-rooting grasses and flowers over the septic and leach field area. Avoid planting trees to prevent root intrusion and clogging of pipes. Keep surface water, like runoff from downspouts, away from the septic system.
- Avoid driving or building on top of the septic or leachfield / mound areas.
- Repair or replace leaking plumbing fixtures to prevent overloading the system.
- Conserve water with low-flow fixtures and mindful water use.

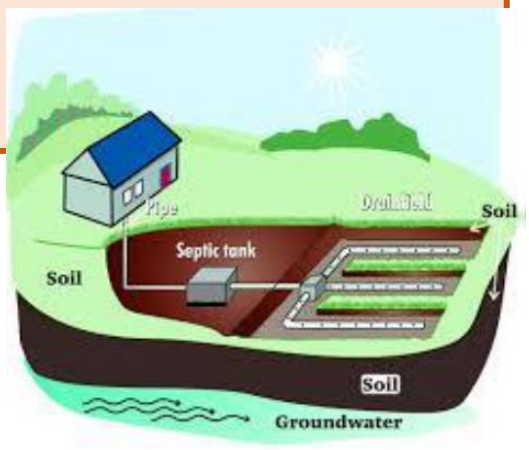
These steps will help extend the life of your system and ensure it continues functioning properly.

Here are some good tips, especially for visitors who may stay with you at the cottage:

Limit what goes down the drain:

• Do not put household cleaners, paint, solvents, medications, and other chemicals down the drain.
• Limit the use of antibacterial products: they can reduce the effective loading of "good" working bacteria in the septic tank.
• Use only the recommended amounts of liquid non-phosphorus detergents and cleaners.
• Prevent food particles, grease, lint, coffee grounds, plastics, and other non-degradable solids from getting into the system.
• Use single-ply toilet paper for the best decomposition.

From Landowner's Guide to Lake Stewardship
(Crow Wing County, Minnesota, August 2008, pgs. 8-9).



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Structures: This section passed and overall looks great, with the footprint of the cottage, deck, pathways and other associated impervious surfaces making up a small percentage of the overall plot size. There are a few recommendations outlined here that will help to further reduce excess stormwater runoff, especially from the roof of the cottage, particularly given the increasing frequency of intense rainfall events Vermont is experiencing.

Your most effective BMP is the amazing raingarden to the front of the cottage which is effectively capturing and infiltrating stormwater flowing from both upland impervious areas and the roof of the cottage. Water soaks into the ground, while the native plants and soils filter out any pollutants including phosphates and sediments before they can reach the lake. Beautiful!

Other existing Best Management Practices (BMPs: The stone-lined drip-line trenches and mainly natural vegetative buffers with ferns, grasses, and shrubs are effectively managing runoff from much of the roofline and helping protect the property. These measures are a solid foundation for stormwater management, and there are only a few areas where small improvements will help this further.

It would be beneficial to install BMPs in areas (e.g. to the rear of the cottage) where stormwater is not currently captured and infiltrated. Furthermore, ensuring that any small gutter sections (e.g. over the steps to rear of cottage) are connected properly to downspouts and redirected to a stable vegetated buffer or a dry well would help better manage rooftop runoff before it enters the lake. Additionally, I recommend ensuring that the outflow pipe from the rain garden under the cottage drains into a dry well or a more stable vegetated buffer as it is quite close to the lake. These minor adjustments will further protect the property from moisture buildup and help reduce the impact of pollutants in the runoff.

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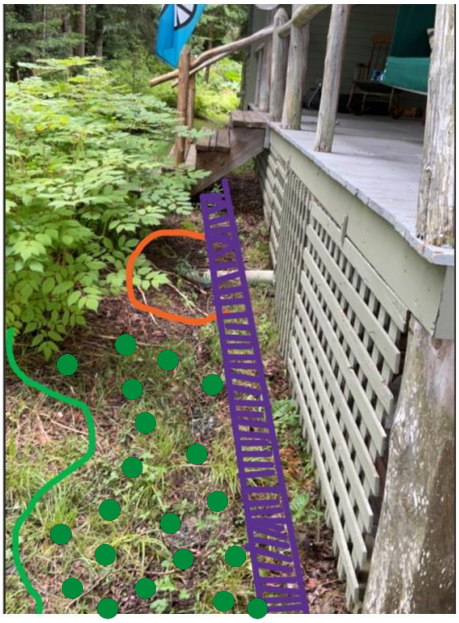
Where rooftop runoff is not captured and infiltrated through an existing BMP this can increase splash back on to the exterior of the cottage, which can contribute to moisture and dirt building up on the siding. Importantly, rooftops can also harbor pollutants like bird droppings and chemicals from roofing materials. Directing water towards areas that allow for flow dissipation and absorption helps manage runoff and these pollutants.



Gutter systems with a downspout disconnection are a particularly cost-effective solution for areas where rooflines overhang entrance ways, steps/stairs and decking, and water concentrates causing splash back, dampness, runoff and slippery surfaces. To better manage concentrated flows of stormwater from the roof, ensure that:

❖Gutter systems are kept clear of leaves and debris;
❖Downspouts are securely connected to gutter systems and
❖Downspouts direct run off (are disconnected) to an effective retention area. This will ensure stormwater is properly infiltrated, filtered and dispersed or reused.
Different options include:

- **Rocky infiltration zones** (e.g. dry well),
- **Rain barrels** for water reuse (a great option as the cottage is in use a lot of the summer and collected water can be reused efficiently in your front garden beds).
- **Stable vegetated buffers** (rain gardens or native garden beds similar to those established around the cottage already).

Similarly, it would be better for the outflow pipe that runs under the cottage from the rain garden to discharge water into a dry well or stable vegetated buffer so water is not directed straight to the lake.

Alternatively (or in addition to dripline trenches and gutters etc.) extend the beautiful **beds of native and native friendly flowers and plants** to create more densely vegetated buffers, particularly in areas where there is evidence of damp and erosion. Mulched beds with a mix of native shrubs and berry bushes, together with groundcover (including grasses, perennial/annual and biennial flowers, forbs and ferns) will help capture more runoff, reduce backsplash and keep moisture away from the cottage sides.

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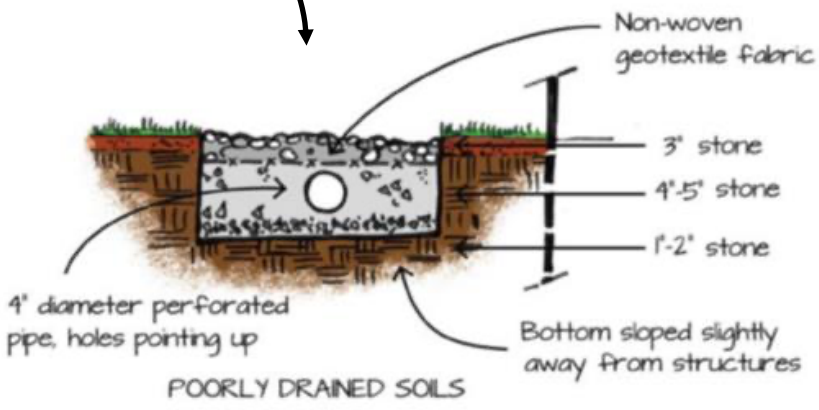
Dripline Trenches: In addition to clearing any winter debris from roofs and surrounding areas during your annual spring maintenance, monitor roof dripline areas for signs of erosion or pooling before considering further action. If needed, installing infiltration (dripline) trenches (stone-lined infiltration channels) could be an effective next step. This BMP is cost-effective, easy to install & maintain, and efficiently captures roof runoff, especially in areas without gutter systems or with limited vegetative buffers.

Example of an existing **dripline (infiltration) trench** on your property that could be installed to the rear of the cottage (previous photos).

Maintenance.
Periodically remove accumulated debris and weeds from the surface of the trench. Inspect the trench after large rain events and in the spring. If clogged, as indicated by slowly draining or pooling water, the top layer of stone may need to be removed, washed, and replaced.



Dripline (infiltration) trenches are shallow, stone-lined channels that collect and infiltrate stormwater runoff from developed areas. including walkways, driveways, parking lots, and roofs. Infiltration trenches improve water quality and can be scaled for implementation at small or large sites.

As you have very wet soils, before considering this practice, make sure your soil drains well enough to support it.

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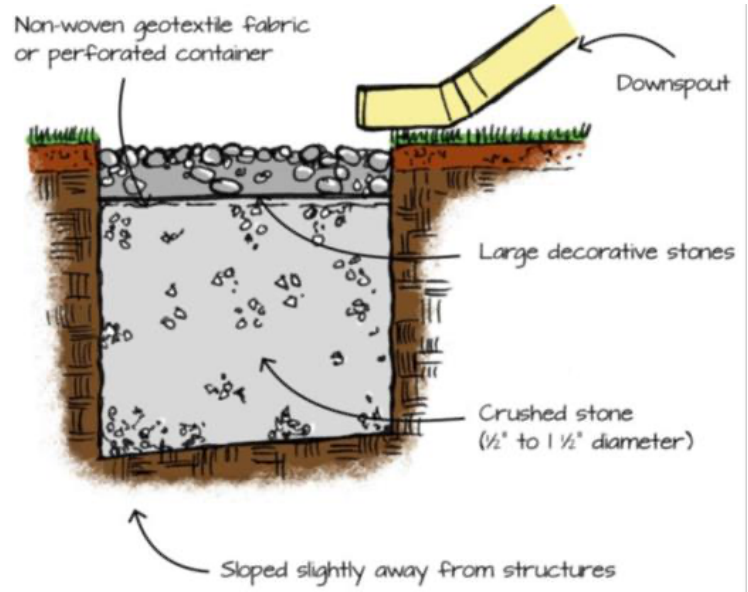
Example of dry wells. These are subsurface storage areas that allow for the infiltration of concentrated stormwater. Typically, they are small cylindrical holes in the ground that are filled with stone. They are only 2-3' deep and do not require much space to install. They are more effective in well draining soils. You have silty clay loam soils so it would be worth checking the infiltration capacity of your soil first. Running the pipe to a more heavily vegetated area may be a better option.



How to check if a dry well is the best management option? First do a Percolation Test:

Dig a hole 2-3' deep, fill with water and let it drain fully, twice. On the third time, monitor the infiltration rate for 1/2" per hour - if a 2' hole drains within 48 hours, you are good to go!

Here are some great resources for more information on best management practices for stormwater runoff from rooflines.

The Vermont Guide to Stormwater Management for Homeowners and Small Businesses (2018)

Vermont Low Impact Development Guide (2010)

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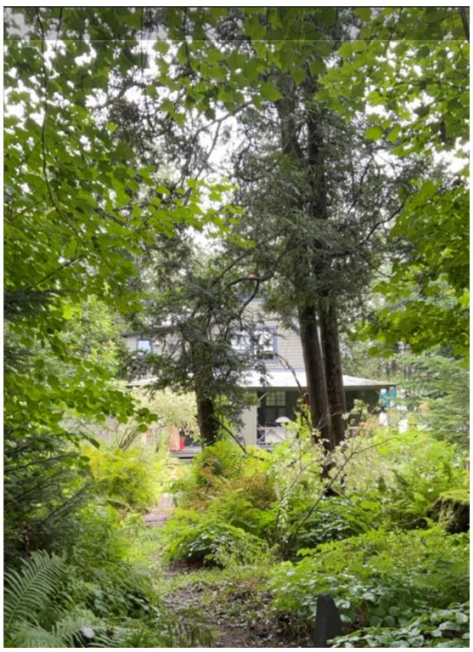
Recreation Area: This section refers to all the managed areas around the home not covered by the other sections. Your property passed this section of the assessment with flying colors!

The recreational area surrounding the cottage is incredibly lake-friendly and beautifully maintained. The formal mown lawn area to the front is minimal and already supports native-friendly groundcover, such as clover. There are also well-established landscaped beds filled with native and native-friendly perennial flowers, plants, and shrubs. The property is bordered by thick wooded buffers with mature coniferous and deciduous trees, and a healthy natural duff layer, which helps support stormwater management and habitat. The rain garden and other naturally vegetated areas to the front, sides and rear are both functional and aesthetic, acting as effective stormwater buffers. Pathways are overall, well-maintained and show minimal signs of erosion, highlighting your excellent care for the property. Keep up the great work!



Resources for Lake Friendly Recreation Areas:

- A Guide to Healthy Lakes using Lakeshore Landscaping
- Native Plant Suppliers
- Vermont Nursery and Landscape Association
- Planning Pathways
- Lake Wise Native Plant List
- Lake Friendly Yard Maintenance
- Managing Invasive Plants
- Rain Garden Lake Wise Information Sheet
- Lake Champlain Basin Program Lawn to Lake

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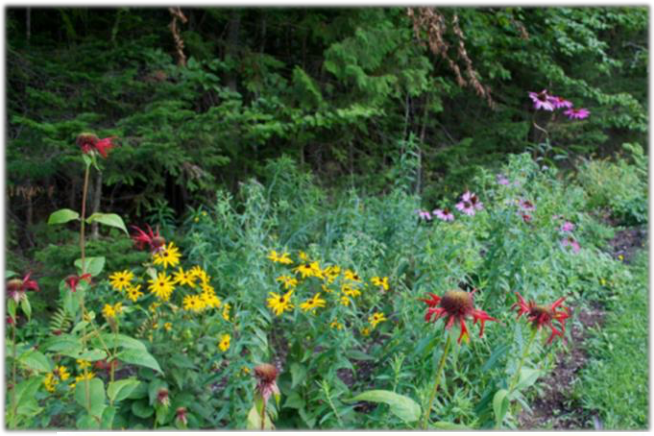
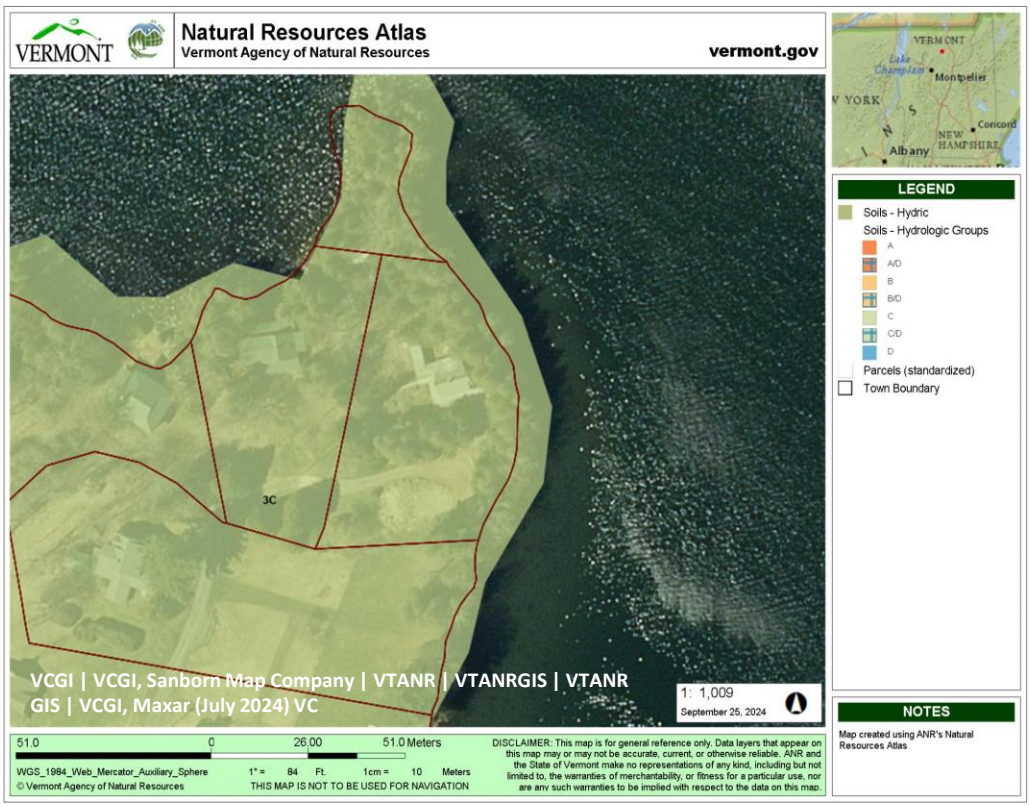
Mow less, low-mow, and no-mow.

Mowing your lawn less frequently and at a higher blade height lessens the amount of fuel and maintenance needed and increases capacity to slow down and filter stormwater runoff. Allow grass to grow 4 inches or higher and when you mow, raise your blades to 3 inches, allowing the grass to grow longer roots that aerate the soil, reverse compaction, and increase nutrient and water holding capacity. Leave the grass clippings on the lawn to provide a natural fertilizer for grass growth. See **Raise the Blade**.

Convert areas of lawn along the lakeshore or seldom used to meadows or "low-mow" areas that are only mown once every 1 to 3 years to maintain a meadow planting. Mow as late in the fall as possible to protect native bees, birds, and other nesting wildlife. Leave the plant cuttings in place for organic matter and moisture retention. You can seed in native wildflowers or let them return naturally over the years. You can allow volunteer native woody shrubs and trees to grow by simply stopping mowing and turning it into a "no-mow zone" or a selectively mown area to allow for natural succession of native plant communities.



These low-mow and no-mow areas are very effective filters for stormwater runoff and can help protect sensitive areas such as lakeshores, streams, wetlands, and woodland areas from runoff and erosion. They can also be established along ditches, roads, driveways, and other areas to help intercept and filter stormwater runoff close to the source.



Soil Type: The map above shows Hydrologic Groups, indicating the soil type on your property (circled). For future planting, be advised that your property's soils are designated as **Type C**. These are sandy, clay. loam soils. These soils have a low infiltration rate which means they have a very fine structure which impedes the downward flow of water.

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Shorefront and Lake Access: Lakeshore buffers (shoreline and approx. 10-15ft from the top of the bank) act as a protective barrier for the lake from upland stormwater runoff, erosion, and impacts from storms, wave action, and ice push. Natural (or renaturalized) buffers also have many ecological benefits including providing important habitat for both aquatic and terrestrial animals. A buffer area extending at least 15 feet from the top of the bank is recommended to stabilize a shoreland.

This section passed the assessment. Overall, your shorefront, which includes a natural beach area and the peninsula co-owned by seven families is in great shape, particularly considering the heavy rainfall experienced over the last couple of summers and the nature of the land itself, which consists of rocky and shale beds and wet clay and loam-based soils. (Consequently, the shoreline is naturally going to be very wet and spongy.)

The wide lush, vegetative buffer that makes up most of the shorefront, has been left to grow naturally, and is made up of trees, shrubs, ferns, ground cover and a healthy duff layer (leaf litter, twigs, and other organic material). This buffer provides significant protection against wave, wind and ice erosion, stabilizes the bank and helps capture and infiltrate upland stormwater runoff, while the duff layer contributes to soil stability and nutrient cycling. The pathways leading down to the shoreline are well-integrated into the landscape and align beautifully with the natural environment. As such, the property is having a positive impact on lake health and the associated landscape. There are few signs of significant erosion or stabilization issues along the shoreline – just a few loose rocks.

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While you expressed concerns about the lake water level, erosion and bank destabilization, (including the loss of land from the peninsula and your natural beach area), it's important to note that lake shorelines are naturally dynamic environments. Shifting shorelines due to factors like high rainfall & flooding, ice berming in winter and wave erosion are expected. While some minor erosion is natural, there were no significant signs on my visit of destabilization along your shoreline — currently just a few loose rocks that are typical for the area's rocky and shale-based soils. Your shoreline is natural which is the best management practice!

You also mentioned some concerns with wave erosion from wake boats (please see this link for more information on rules , regs and FAQs). If you remain concerned about wave erosion, particularly from wake boats, and bank destabilization, there are potentially additional steps you can take to further stabilize the shoreline, such as extending stone toes and vegetative buffers. I recommend consulting with a shoreline bio-engineering expert for advice. Please also do reach out to Alison Marchione (Lake Shore Ecologist) or Misha Cetner (Environmental Analyst) for additional support and advice.

Links to helpful resources and information for ongoing management of your lake shoreline:

The Shoreline Stabilization Handbook
The Vermont Shoreland Protection Act
Vermont Bioengineering Manual
Bioengineering: Nature-based solutions for living shorelands
Lake Shore Buffers
Conserving and Protecting Lakeshores
Restore Natural Plant Communities

Contact Information:

Alison Marchione:
Email: alison.marchione@vermont.gov
Tel: 802-490-6128

Misha Cetner:
Email: misha.cetner@vermont.gov
Tel: 802-490-6199

List of Professionals Certified in Natural Shoreland Erosion Control Practices

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Wooded Areas & Tree Management: You raised concerns during the assessment about some of the mature trees along the shoreline, particularly those with exposed roots, leaning trunks, and signs of decay. It's important to note that both live and dead trees are essential for maintaining a healthy lakeshore ecosystem. Trees help stabilize the shoreline, provide shade, and contribute to overall water quality by reducing runoff and erosion. Dead and decaying trees are equally vital as they offer habitat for wildlife and continue to support ecosystem functions even after they fall. However, it's understandable to be concerned about the stability of trees with exposed roots or those that lean and the potential future impacts to the bank and shoreline. Consulting a local arborist for professional advice would be a helpful next step to assess tree health and ensure appropriate management without compromising the shoreline. Below, I have included links to various resources and contact information for your county forester, Jared Nunery, who can provide additional guidance on sustainable tree management.

Jared Nunery: Work Phone: 802-595-5754, jared.nunery@vermont.gov

- The list of county foresters is located on the DEC website here: https://fpr.vermont.gov/forest/list-vermont-county-foresters.
  Orleans NRCD: https://www.vacd.org/conservation-districts/orleans-county/
- This webpage gives a brief overview of private landownership of woodland and has links to other resources: https://fpr.vermont.gov/forest/managing-your-woodlands
- This is a helpful Information sheet on the Vermont Shoreland Protection Act and dealing with Dead, Diseased and Unsafe Trees: https://dec.vermont.gov/sites/dec/files/wsm/lakes/docs/Shoreland/DeadDiseasedUnsafeGuidance.pdf

The **University of Vermont** has a great forestry extension program – it is well worth investigating their webpages for helpful information and links to other resources

- https://www.uvm.edu/extension/forestry

- **Leaning Trees**: Healthy trees that naturally lean over the shoreline provide shade, helping to cool the water, reduce algal growth, and slow the spread of aquatic plants. Additionally, insects falling from the trees become an important food source for fish.
- **Dead Standing Trees**: Standing dead trees, or snags, offer valuable habitat for various wildlife species, including fungi, insects, birds, and small mammals. They contribute to soil health by retaining moisture, adding organic matter, and promoting nitrogen-fixing bacteria.
- **Fallen Trees in Water**: Once a tree falls into the water, it should remain there as it becomes part of the lake's public resource. Submerged or partially submerged logs serve as crucial habitat for aquatic animals, contributing to a balanced and healthy lake ecosystem.

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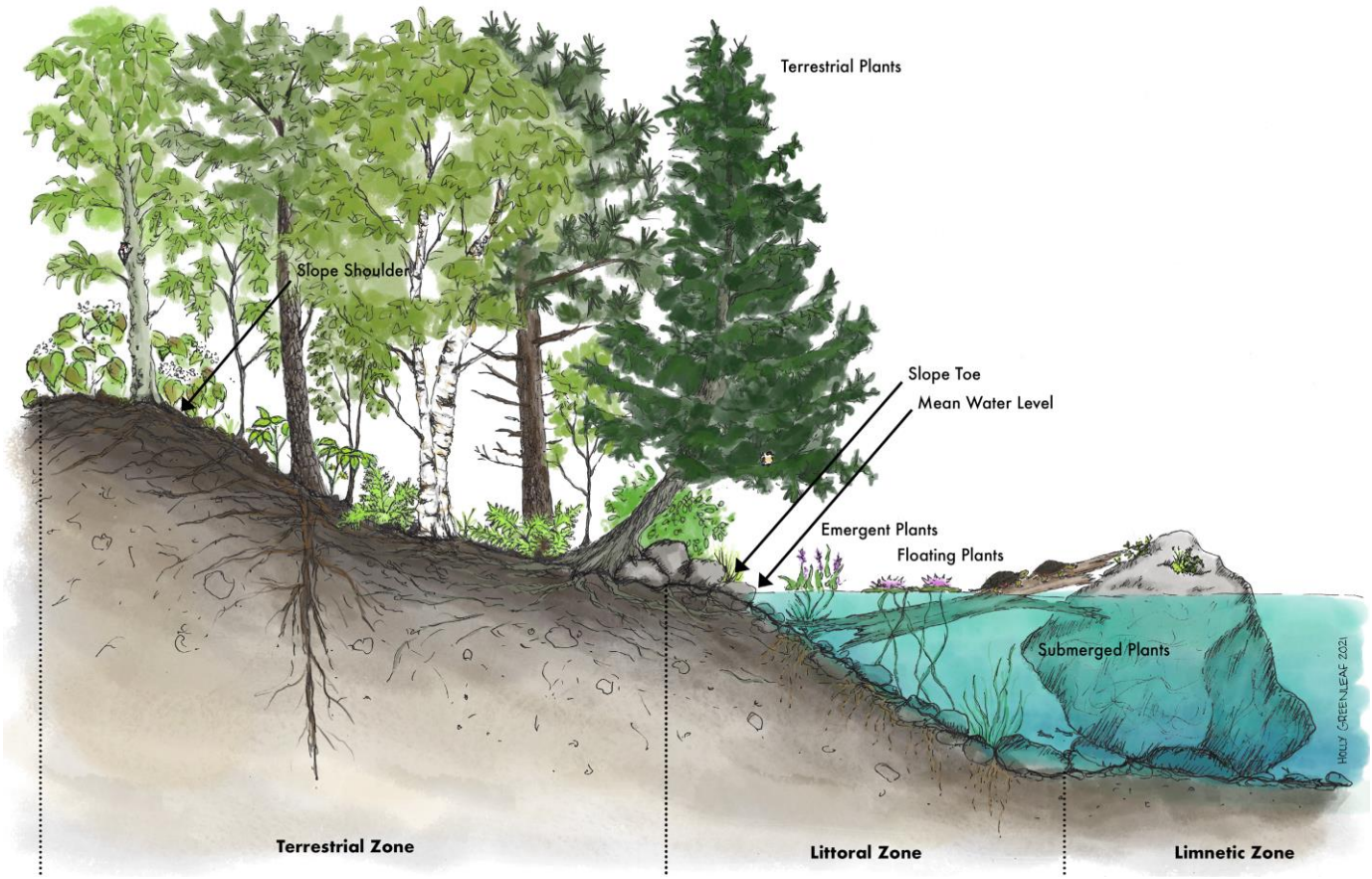
What does a natural Vermont shoreline look like?

In rocky shorelines, such as yours, the transition from the shallow water littoral zone to the upland terrestrial zone may be more abrupt meaning this area is more restricted.



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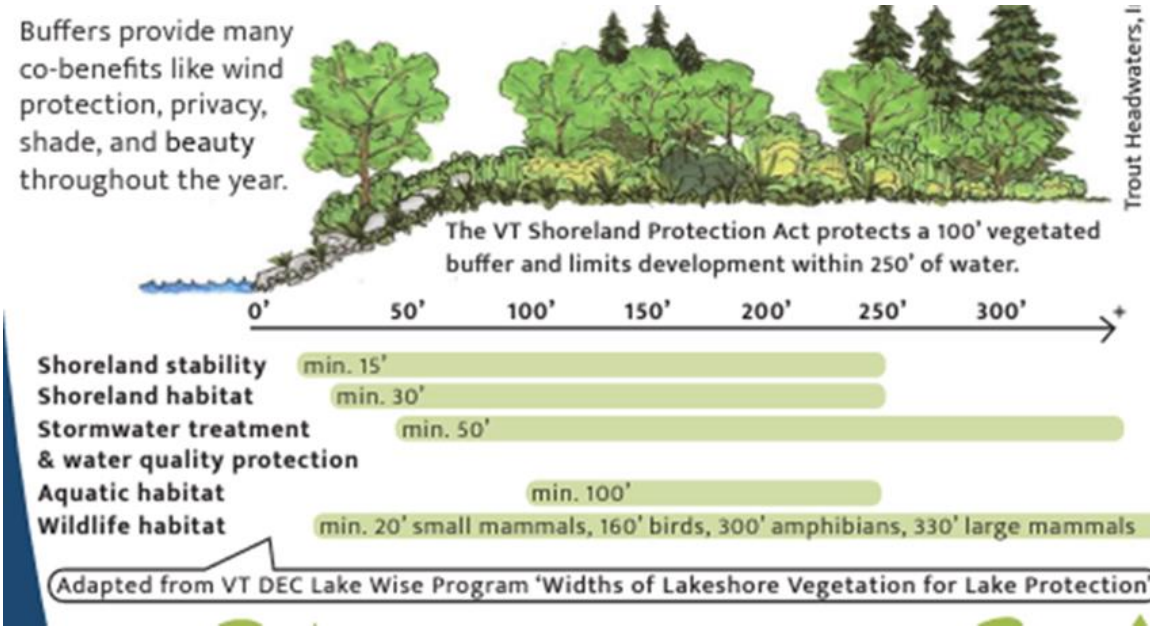
What are Vegetated Buffers?:



Vegetated buffers are areas of undisturbed natural or restored native vegetation along a shoreland. They separate and buffer the lakeshore from developed land surfaces (e.g., more formal recreation areas, roads and buildings etc.). They are important in providing a transition between the lakeshore and human activity. The greater the width of the buffer and the more densely vegetated the more benefits this "living shoreline" provides. A healthy, natural vegetated buffer zone consisting of a multi-layered community of plants has numerous advantages:

- **Stormwater Management:** As native plants grow and mature their roots deepen. In the long-term, this helps filter, infiltrate and slow down stormwater runoff from upland sources and nearby developed areas reducing/ preventing the delivery of sediments and nutrients like phosphorous from being carried into the lake.
- **Bank Stability & Erosion Control:** Deeper-rooting native plants help stabilize slopes, banks, and shorelines, protecting them from fluctuating water levels, wave action, flooding, ice push, and other sources of erosion.
- **Habitat Enhancement:** Vegetated buffers provide habitat and food for terrestrial species, shade the lake to keep waters cooler for fish and other aquatic species, and enhance the near-shore habitat.
- **Flood Resilience:** Vegetated shorelines have been shown to be more cost-effective and resilient to floods compared to hard-engineering structures like retaining walls, which is increasingly important as flood frequency rises.

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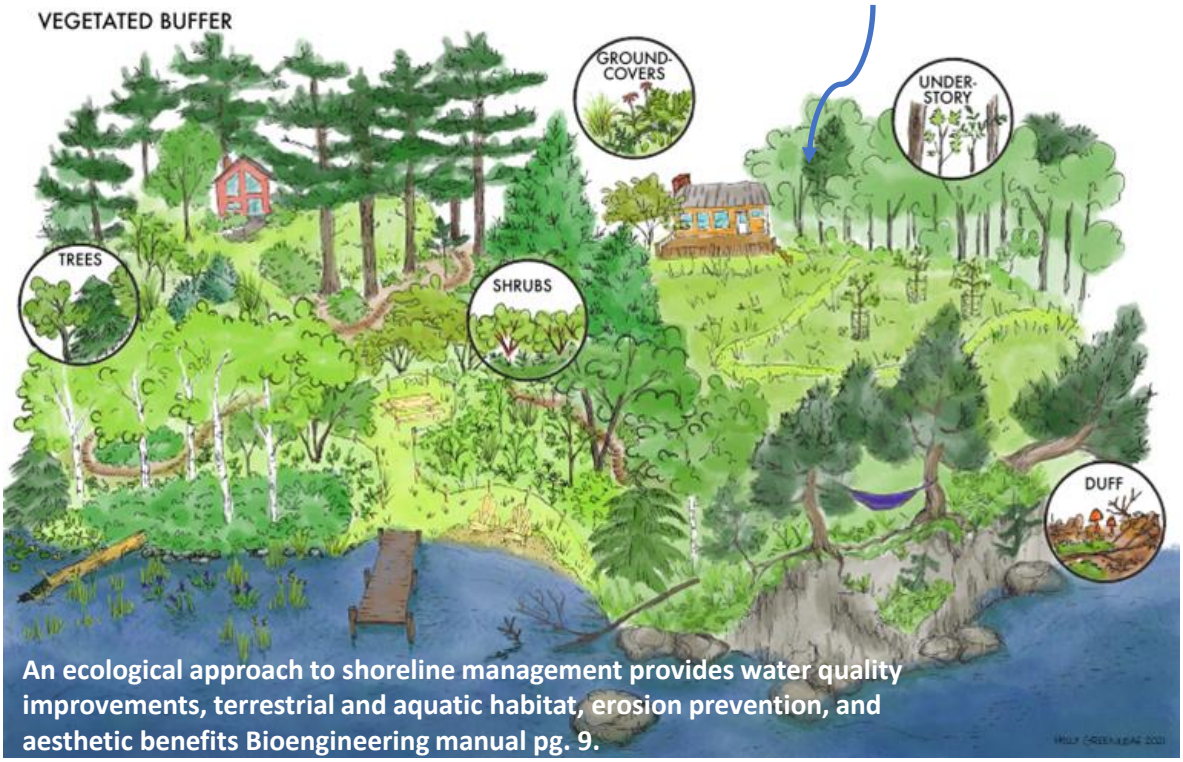
1) Vegetative buffers should be as wide as possible. For sloping banks such as on your property, a minimum width of 15 ft extending beyond the top of the bank is highly recommended as this provides sufficient room for rooting structures to take hold. Your buffer is already great! Wider buffers offer increased water quality benefits, enhanced wildlife habitat protection, and greater resilience against high-energy wave and ice action.



An ecological approach to shoreline management provides water quality improvements, terrestrial and aquatic habitat, erosion prevention, and aesthetic benefits Bioengineering manual pg. 9.

2) A healthy vegetative buffer consists of multiple vertical layers that mimic natural plant communities. Hardwood forests typically have five tiers or layers of vegetation:

- **Tree Canopy Layer:** Mature trees that regulate temperature, moisture, and provide cover.
- **Understory:** Saplings and small, shade-tolerant trees that replace older trees and add shade.
- **Shrubs:** Both deciduous and evergreen shrubs that provide structure and stabilize the landscape.
- **Ground Cover:** A mix of herbaceous plants, flowers, grasses, sedges, rushes, ferns, and mosses to protect the soil.
- **Duff Layer:** A natural layer of decomposing leaves, twigs, and organic matter that enriches the soil and aids in moisture retention. You can also enhance the duff layer by using compost from your yard or mulch.

Lake Wise Evaluation Date: July 23rd 2024
Evaluator: Vicki Pattison-Willits (Lake Wise Inland Lakes Seasonal Technician)

Summary of Recommendations:

You have a very lovely property that is already very lake friendly. It is always great to see a property that embraces the natural landscape! Congratulations on getting the Lake Wise Award! I don't have very many suggestions for you, but the few possible improvements are summarized below:

1. Improve stormwater runoff, capture and infiltration from the roof by creating dripline trenches around the main cottage or expanding beds with perennials and shrubs.
2. Make sure all outflow pipes discharge water to an effective storage or capture area e.g., rock apron, dry well or stable vegetative buffer.
3. Maintain low mow practices for more formal recreation areas to the front of the cottage & maintain and improve existing pathways as required.
4. Monitor your property for invasive species.
5. Consider putting together a plan for the protection of your property going forward.

Selecting species based on soil moisture - right plant, right place.

Well-drained soils	Wet or moist soils	Shallow, rocky soils	Tolerant of many soils
Trees.	**Trees.**	**Trees.**	**Trees.**
Sugar Maple	Black Willow	Eastern Red Cedar	Red & Silver Maple
Black Cherry	Green Ash	Red Spruce	Yellow & River Birch
American Beech	Northern White Cedar	White Pine	Hemlock
Red & White Oak	Swamp White Oak	Balsam Fir	Basswood
Paper Birch	Cottonwood	Gray Birch	Quaking Aspen
Shrubs.	**Shrubs.**	**Shrubs.**	**Shrubs.**
Witchhazel	Winterberry	Bush Honeysuckle	Serviceberry/Shadbush
Highbush Blueberry	Red & Silky Dogwood	Lowbush Blueberry	Highbush Cranberry
Nannyberry Viburnum	Black & Red Elderberry	Common Snowberry	Gray Dogwood
Hobblebush	Shrub Willows	Sweetfern	Black Chokeberry
Alternateleaf Dogwood	Buttonbush	Mapleleaf Viburnum	Arrowwood Viburnum
Beaked Hazelnut	Sweetgale	Fragrant Sumac	Striped & Mountain Maple
Perennials.	**Perennials.**	**Perennials.**	**Perennials.**
Columbine	Cardinal Flower	Wild Bergamot	New England Aster
Beardtongue	Blue Flag Iris	Butterfly Weed	Goldenrod
Black-eyed Susan	Joe Pye Weed	Mountain Mint	Canada Anemone
Bunchberry	Swamp Milkweed	Common Yarrow	Canada Mayflower
Wild Ginger	Turtlehead	Heath Asters	Sarsaparilla
Christmas Fern	Ostrich Fern	Blue & White Wood Aster	Partridgeberry
Big Bluestem	Bluejoint Grass	Wood Ferns	Cinnamon Fern
Woodland Sedges	Marsh/Meadow Sedges	Indiangrass	Switchgrass

*See our List of Native Plant Suppliers for a more comprehensive list of native plant suppliers! Note: most nurseries, even if they're not on these lists, will have native plants available for sale.

Check out local conservation nurseries for native plant stock (not a complete list):

- **Your Natural Resource Conservation District (NRCD)**
- **Intervale Conservation Nursery, Burlington, VT**
- **Champlain Valley Native Plant Nursery, Poultney, VT**
- **Vermont Wetland Plant Supply, Orwell, VT**
- **Miller Hill Farm, Sudbury, VT**
- **Northeast Pollinator Plants, Fairfax, VT**
- **Full Circle Gardens, Essex Junction, VT**

All official Lake Wise info sheets can be found here. A comprehensive list of other lakeshore-related resources that Lake Wise has compiled can be found here.

Thank you for being a part of the Lake Wise Program! Your proactive efforts will enhance the health and beauty of your property while protecting the lake's ecosystem. Keep up the great work! If you have any questions about this report or the Lake Wise criteria, please contact Vicki Pattison Willits, VTDEC Lake Wise Seasonal Technician 2024 at Victoria.Pattison-Willits@vermont.gov or Alison Marchione, the VTDEC Shoreland Restoration Ecologist at Alison.Marchione@vermont.gov.