

Little Sebago Lake Watershed Survey Report

Part II—South of Lyons Point



**Cumberland County Soil and Water Conservation District
Little Sebago Lake Association
Maine Department of Environmental Protection**

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When combined with many other similar sites from throughout a watershed, even erosion from small sources such as this can have a significant impact on lake water quality.

Introduction

This report is specifically designed for citizens living in the Little Sebago Lake Watershed. It provides the results and analysis of a watershed survey conducted on the portion of the Little Sebago Lake Watershed south of Lyons Point . A survey of the northern portion of the watershed was completed in the spring of 2003. The surveys are conducted in response to evidence compiled over many years that has shown a gradual decline in the lake's water quality.

WATERSHED

All the land that surrounds a lake that drains or sheds its water into the lake through streams, ditches, directly over the ground surface or through ground water.

The Little Sebago Lake Association has tested water quality in Little Sebago Lake for more than 25 years. In recent years, water clarity and dissolved oxygen levels in the lake have shown some improvement. However, the Maine Department of Environmental Protection's (DEP) statistical analysis of the long term data shows that despite periodic fluctuations, the lake is under stress. Long term trends show that in some portions of the lake, the clarity of the water is decreasing. Also, the amount of oxygen in the bottom water of some portions of the lake has decreased, risking the

survival of cold water fish and the delicate water chemistry balance in the lake. Based on observations at other Maine lakes, these trends forecast a future decline in water quality. For these reasons, plus its regional significance, Little Sebago Lake appears on the list of **Nonpoint Source Priority Watersheds**.

Why is the Water Quality at Risk?

The biggest pollution culprit in Little Sebago Lake and other Maine's lakes is **nonpoint source (NPS) pollution**. NPS is found in storm water runoff from rain and snowmelt. During and after storms and snowmelt, soil (and hitch-hiking nutrients like phosphorus and nitrogen) washes into lakes from the surrounding landscape by streams and overland flow.

NONPOINT SOURCE POLLUTION

Also called NPS or polluted runoff. Pollution from diffuse, seemingly insignificant sources (such as erosion, roads, septic systems) that, when combined, add up to a significant amount of pollution to a watershed.



Runoff from the driveway and rooftops on this property combine to transport significant sediment into Little Sebago Lake.

An example of the powerful impact that storm water runoff can have on water quality is the improvement in Little Sebago Lake's water clarity and bottom water dissolved oxygen levels documented in 2001 and 2002. These improvements occurred during the years of lowest rainfall in recent history. One could safely say that this reduced rainfall resulted in less NPS, and thus an improvement in some water quality parameters.

In an undeveloped, forested watershed, storm water runoff is slowed and filtered by tree and shrub roots, grasses, leaves, and other natural debris on the forest floor. It then soaks into the uneven forest floor and filters through the soil. In a developed watershed, however, storm water does not always receive the filtering treatment the forest once provided. It gathers with other runoff shed from impervious surfaces like rooftops, compacted soil, gravel camp roads and pavement, speeds up, and becomes a destructive erosive force.

Why is Stormwater Runoff a Problem?

The problem is not necessarily the water itself, it's the nutrients and the sediment in the storm water runoff that can be bad news. Large volumes of sediment can settle out in the lake, creating an ideal substrate for nuisance and invasive aquatic plants such as variable-leaved water milfoil. **Phosphorus**, a nutrient that is common on land and in storm water runoff, is a primary food for all plants, including **algae**. In natural conditions, the scarcity of phosphorus in a lake limits algae growth. However, when a lake receives extra phosphorus from the watershed, algae growth increases dramatically. Sometimes this growth causes choking blooms, but more often it results in small, insidious changes in water quality that, over time, damage the ecology, aesthetics and economy of lakes.



Excess **phosphorus** can “fertilize” a lake and lead to nuisance **algal blooms**.

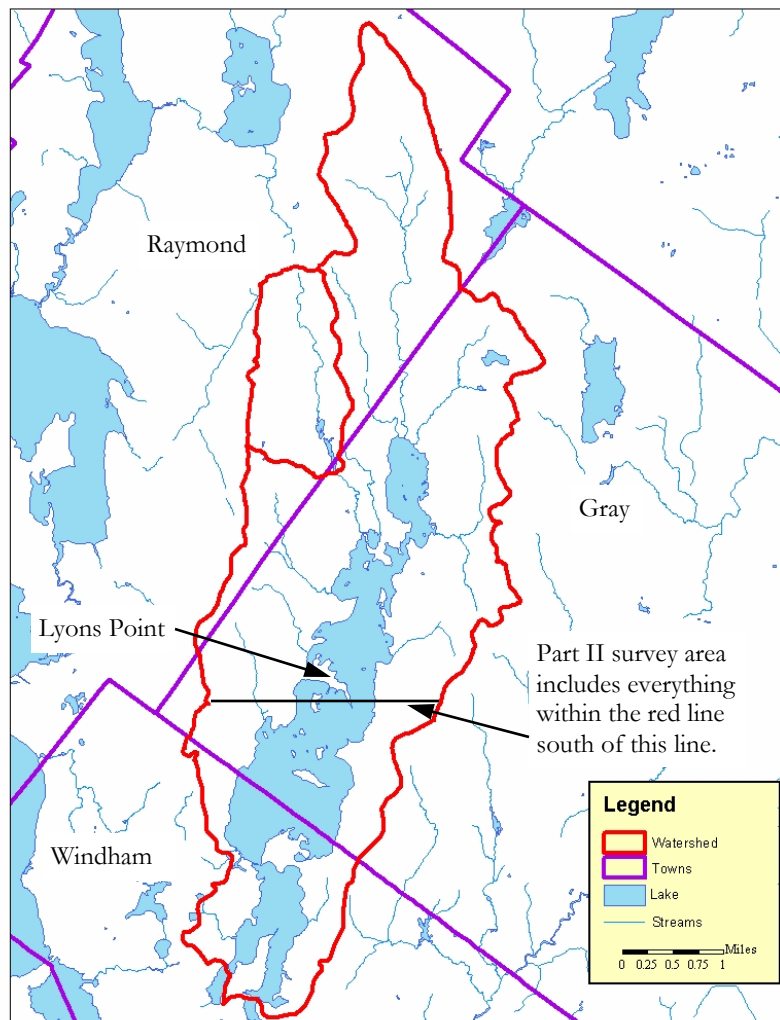


Figure 1. The Little Sebago Lake Watershed

Why should we protect the lake from polluted runoff?

- ◆ The lake is already host to variable-leaved water milfoil, an invasive aquatic plant. This plant and other invasive plants thrive in shallow areas with silty bottoms. Sediment deposited into the lake from erosion creates the ideal environment for these plants to thrive.
- ◆ The lake contains valuable habitat for fish, birds and other wildlife.
- ◆ Little Sebago Lake provides recreational opportunities to watershed residents and to visitors. It is an important contributor to the local economy.
- ◆ A 1996 University of Maine study demonstrated that lake water quality affects property values. For every meter (3 ft) decline in water clarity, shorefront property values can decline as much as 10 to 20 percent! Declining property values affect individual landowners as well as the economics of the entire community.
- ◆ Once a lake has declined, it can be difficult or impossible to restore.



Variable-leaved water milfoil thrives in silty areas caused by sediment deposition.

What is being done to protect the lake from polluted runoff?

The Little Sebago Lake Association (LSLA) is one of the most proactive and well-organized lake associations in the region, and is dedicated to addressing the NPS issues facing the lake. Its board and members work with agencies and watershed residents to promote conservation efforts within the watershed. The LSLA also tests water quality in Little Sebago Lake as part of the Maine Volunteer Lake Monitoring Program.

During the spring and summer of 2003, the LSLA worked with the Cumberland County Soil & Water Conservation District (SWCD) and DEP to conduct this watershed survey on the southern portion of the lake—south of Lyons Point. This effort completes the survey of the entire watershed, following the survey of the northern portion of the watershed in 2002. Volunteer watershed surveys have been found to be one of the most effective ways to protect lake water quality by getting citizens involved in identifying existing and potential sources of polluted runoff.

The Purpose of the Watershed Survey

The primary purpose of the watershed survey was to:

- ◆ Identify and prioritize existing sources of polluted runoff, particularly soil erosion sites, in the Little Sebago Lake Watershed.
- ◆ Raise public awareness of the connection between land use and water quality, and the impact of polluted runoff.
- ◆ Inspire people to become active stewards of the watershed.
- ◆ Use the information gathered as one component of a long term lake protection strategy.
- ◆ Make general recommendations to landowners for fixing erosion problems on their properties.

The purpose of the survey was NOT to point fingers at landowners with problem spots, nor was it to seek enforcement action against landowners not in compliance with ordinances. It is our hope that through future projects we can work together with landowners to solve erosion problems on their property, or help them learn how best to accomplish solutions on their own.

Local citizen participation was essential in completing the watershed survey and will be even more important in upcoming years. Through the leadership of the Little Sebago Lake Association, and with assistance from groups and agencies concerned with lake water quality, the opportunities for stewardship are limitless!

The Survey Method

The survey was conducted by volunteers with the help of trained technical staff. Volunteers were trained on survey techniques and erosion identification during a two hour classroom workshop in May 2003. Following the classroom training, the volunteers and technical staff spent the remainder of the day in the field documenting erosion on the roads, shoreline, streams, and foot trails in their assigned sectors using cameras and standardized forms. The teams worked together throughout the remaining summer to complete their sectors. Trained technical staff conducted follow-up examinations of sites in the summer and fall of 2003 to verify data accuracy and to calculate estimates, where possible, of the pollutant loading from each site.



The data collected was entered into a computer database to create a spreadsheet, and the documented erosion sites were plotted on maps using GIS (Geographic Information Systems). The sites were broken out into categories (driveways, roads, private residences) and ranked based on their impact on the lake, the technical ability needed to fix the problem, and the estimated cost of fixing the problem. Maps and a description of sites and associated ranks are discussed in the next section of this report. A copy of the spreadsheet that contains all collected data is located in Appendix A.

Summary of Watershed Survey Findings

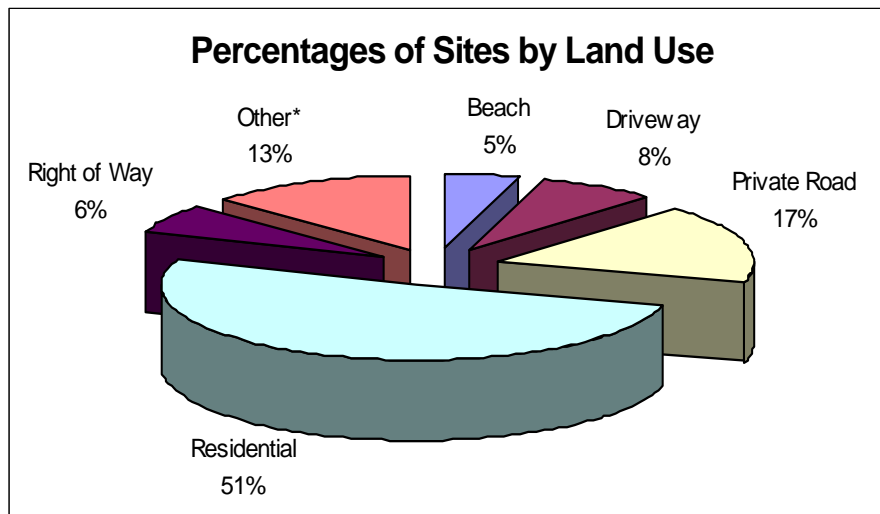
Volunteers and technical staff identified 119 sites in the southern portion of the Little Sebago Lake Watershed that are currently impacting or have the potential to impact water quality of the lake. The data are outlined in the following pages in a variety of maps, tables and charts designed to summarize the problems documented and compare their relative impact on the lake. Also, information in Appendices A and B describe in more detail the locations of the sites documented through the survey.

Each documented site was placed into one of nine land use categories and ranked with a relative impact on the lake. Table 1 represents the tally of sites in each category as well as their impact rank. The different levels of impact are defined on the following page. The pie chart in Figure 2 below depicts the percentage of sites documented in each category. The majority of sites were associated with residential areas (49%).

Table 1. Summary of site categories and impacts

Land Use	High Impact	Medium Impact	Low Impact	Total
Beach	2	1	3	6
Boat Access	0	2	3	5
Construction	4	1	2	7
Driveway	1	2	7	10
Private Road	2	5	15	22
Residential	2	22	43	67
Right of Way	3	4	1	8
Town Road	1	0	3	4
Trail	0	1	0	1
Total	15	38	77	130

Figure 2.



* Other sites include Construction (5%), Boat Access (4%), Town Road (3%), and Foot Trails/Paths (1%)

Little Sebago Watershed Survey
Phase II Erosion Sites

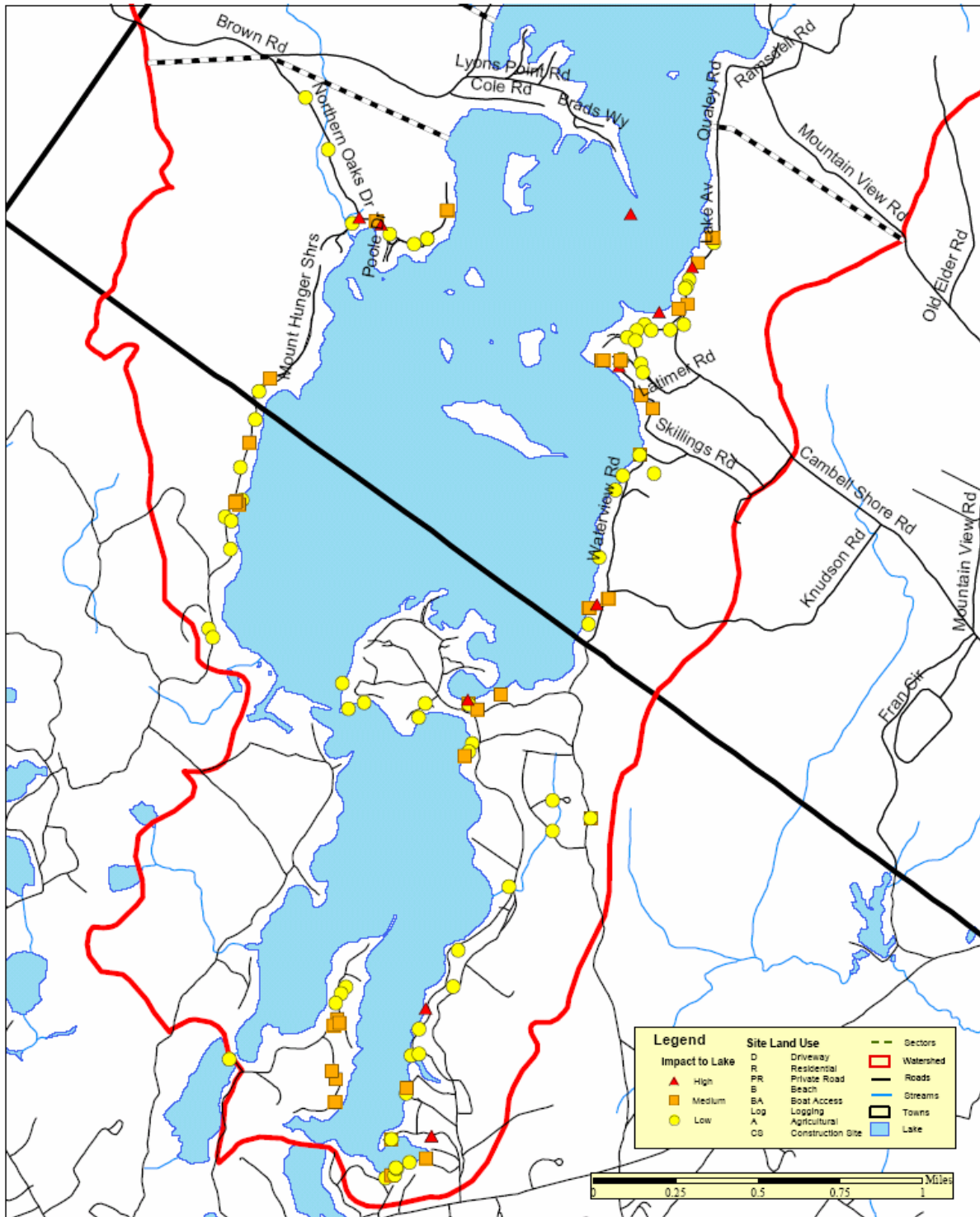


Figure 3. Survey Area with Points Representing Documented Sites

All of the documented sites were rated for their relative impact to water quality, and the costs and technical level of potential fixes. Figures 4, 5, and 6 depict these ratings.

Figure 4.

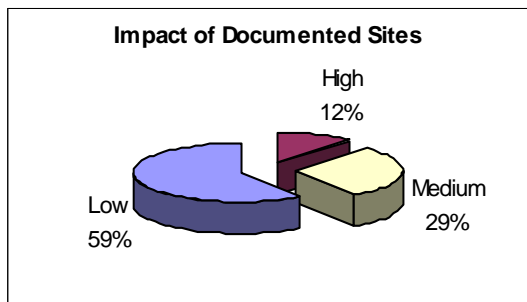


Figure 5.

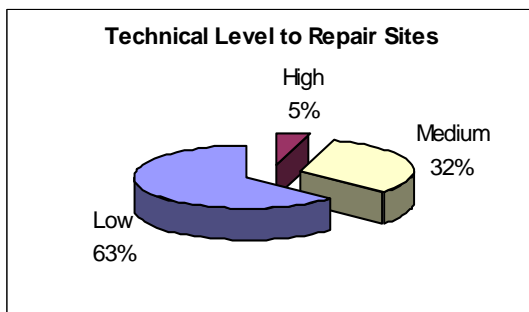
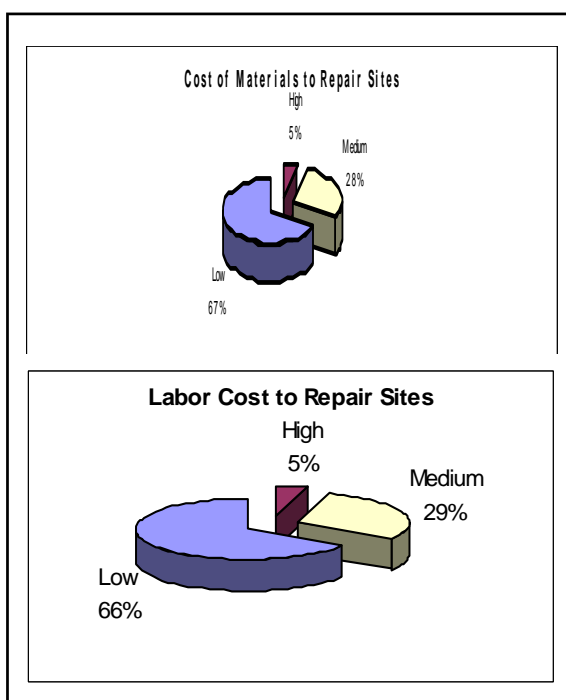


Figure 6.



Impact was based on slope, soil type, amount of soil that’s eroding, proximity to water or buffer, and size of buffer.

- “Low” impact eroding sites are those with limited soil transport off-site.
- At “medium” impact sites, sediment is transported off-site, but the erosion doesn’t reach a high magnitude.
- “High” impact sites are large sites where there is significant erosion that flows directly into a stream, lake or ditch.

Technical level to install describes the degree of technical expertise needed to address a problem.

- A “low” tech level requires little or no specific technical assistance. For example, seeding and mulching an area of bare soil would require little technical expertise.
- Sites with a “medium” tech level need to be visited by a technical expert who can make detailed recommendations.
- A “high” tech level requires an engineered design.

Cost is an important factor in planning for restoration. It is useful to consider costs for materials and labor individually, so as to not miss any “hidden” costs.

- “Low” cost sites were estimated to cost less than \$500 to fix.
- An estimate of \$500 to \$2,500 was rated “medium”.
- If the estimated cost to fix a site exceeded \$2,500, a “high” rating was assigned.

Residential

Of the 59 sites associated with residential areas documented through the survey, 40 were low impact, 18 were medium impact, and 1 was high impact. The majority of the sites can be fixed with little technical expertise and low cost.

Common Problems Identified:

- Slight or moderate surface erosion
- Bare and sparsely vegetated soil
- Lack of vegetated buffer along shoreline
- Direct flow of runoff to lake
- Roof runoff causing erosion

Typical Solutions to these Problems:

- Seed and mulch bare soil
- Establish or enhance buffer
- Limit foot traffic in eroding areas
- Install dripline trench to catch roof runoff
- Install waterbar, open-top culvert, rubber razor or other runoff diverter
- Place mulch or stone on footpaths

Below is an actual example of residential polluted runoff on Little Sebago Lake, as well as a description of the problems and possible solutions for this site.



Since this site was documented during the survey, the landowners have taken steps to stabilize this site. Each step taken helps reduce the amount of soil that reaches the lake.

Problems:

- Moderate bank erosion from roof runoff.
- Bare soil with surface erosion.
- Direct flow of sediment to lake.

Solutions:

- Install a stone-filled dripline trench to manage roof runoff.
- Plant trees and shrubs to enhance buffer.
- Create stable, meandering foot path.
- Seed or mulch bare soil areas.
- Seek proper permits from DEP and Town.

Residential areas were associated with nearly half (49%) of the identified sources of polluted runoff in the southern portion of Little Sebago Lake. These problems pose a significant threat to lake water quality. Fortunately, most of these sites can be corrected with easy, low cost fixes.

Driveways

Of the 10 driveways documented to have problems, 6 were low impact, 3 were medium impact, and one was high impact. Most of the sites could be fixed with low cost and technical expertise.

Common Problems Identified:

- Slight to moderate surface erosion
- Direct flow to lake or ditch
- Poor shaping
- Poor (too sandy) surface material
- Slight ditch erosion

Recommended Solutions:

- Crown driveways so that water flows to either side
- Build up driveway with cohesive surface material
- Install diverters such as waterbars, open top culverts or rubber blades to get water off driveway
- Install turnouts to direct water into wooded depressions

Below is an actual example of polluted runoff from a driveway on Little Sebago Lake, as well as a description of the problems and possible solutions for this site.



Problems

- Moderate surface erosion.
- Poor driveway shaping and ruts cause water to concentrate and erode the surface.

Solutions

- Add new surface material.
- Reshape and crown driveway so water moves quickly from the surface.
- Install diverters such as waterbars, open top culverts or rubber razors to get water off driveway.

Preserve water quality and save time, money, and wear and tear on your vehicle by having a well crowned driveway. Use adequate surface material and add diversions to direct runoff into buffers.

It's great for watershed residents and it's great for the lake!

Private Roads

Of the 19 private road sites documented through the survey, 12 were low impact, 5 were medium impact and 2 were high impact. The problems are more expensive to fix and most require technical assistance.

Common Problems Identified:

- Slight to moderate surface erosion
- Direct flow to lake or stream
- Moderate to severe ditch erosion
- Poor (too sandy) surface material
- Unstable culvert inlet and outlet
- Clogged ditches and culverts
- Slight to moderate shoulder erosion
- Plow or grader berms
- Hillside failure

Recommended Solutions:

- Crown and reshape road to get water off road
- Install diverters such as waterbars, open top culverts or rubber blades to get water off road
- Build up road with cohesive surface material
- Clean out culverts
- Clean, reshape and armor ditches with stone or grass
- Remove grader berms and winter sand to allow proper drainage
- Formalize culverts and stabilize ends with stone, plunge pool

Below is an actual example of polluted runoff from a private road on Little Sebago Lake, as well as a description of the problems and possible solutions for this site.



Problems:

- Grader or plow berm limits stable escape for water from road
- Moderate road shoulder erosion
- Direct flow of road material to stream.

Solutions:

- Attempt to get more water off of the road before it reaches this low point.
- Reshape and crown road.
- Create turnouts, plunge pools, and level-lip spreader to collect water and settle out sediment.

Unpaved roads are one of the biggest sources of pollution to Maine lakes.

While a one time fix may cost more up front, it will reduce lake pollution and reduce maintenance costs on your road and vehicle.

Right of Ways

Of the 7 Right of Way sites documented through the survey, one was low impact, 4 were medium impact and 2 were high impact. Most sites would benefit from technical assistance, yet have relatively low to medium cost.

Common Problems Identified:

- Bare soil
- Slight to severe surface erosion
- Slight to moderate ditch erosion
- Shoreline erosion
- Lack of vegetation
- Direct flow of sediment to lake

Recommended Solutions:

- Add better surface material
- Reshape or crown if used for vehicular traffic
- Install runoff diverters, such as waterbars, open-top culverts, or rubber razor blades.
- Stop raking
- Establish or enhance shoreline buffer

Below is an actual example of polluted runoff on a Right of Way in the Little Sebago Lake watershed, as well as a description of the problems and possible solutions for this site.



Problems:

- Moderate surface erosion.
- Direct flow of sediment and winter sand into stream.

Solutions:

- Install rubber razor blades along the Right of Way.
- Enhance/clean out the existing waterbar.
- Add surface material and crown.

Remember, it's the cumulative impact of all the sites that causes water quality to decline.

Sites in Other Categories

Boat Access Sites

Five boat access sites were documented; two with medium impact and three with low impact. Problems identified at these locations included slumping or eroding banks on either side of the ramps, and moderate surface erosion where the ramps meet the lake. These problems can be fixed by adding better surface material and establishing a crown on the ramp, and adding some sort of paved speed bump, waterbar, or infiltration trench to divert the water. Additionally the banks can be armored with vegetation or rock. The cost and technical level necessary to fix these sites are low to moderate.

Town Roads

Of the five town road sites documented in this survey, one was a high impact site, and four were low impact. Three sites involved culverts and catch basins with large amounts of road sand. Annual maintenance is critical for structures designed to capture road sand. Unless properly maintained, these structures may become sources, rather than sinks, for sediment.

Trails

One eroding trail beach access site with medium surface erosion was documented. Moderate trail surface erosion, along with bare soil and a lack of buffer were noted. Problems at these sites were often caused by runoff problems uphill, including roof runoff. The installation of a roof drip line trench, along with stopping raking, would help to control this erosion. On the trail itself, the path could be mulched, and runoff diverters can be placed along the trail.

Construction Sites

Six construction sites were noted as having impacts on the watershed; Three with high impact, one with moderate impact, and two with low impact. Bare soil on construction sites is inevitable, however, proper use of silt fences, hay bales, and other temporary erosion control measures is effective at limiting the impact of construction activity on the watershed. Maintenance of temporary measures, seeding and mulching disturbed areas, and frequent visits by trained code enforcement personnel are also critical to ensuring protection of the lake from the disturbance associated with construction.

Examples of Good Watershed Protection Techniques

Survey teams identified many sites that showed good watershed protection techniques. These good practices included good vegetated buffers, and well maintained driveways, roads, and ditches. This photo (at right) for example, depicts a good example of a properly designed driveway. Note that this driveway includes a stable substrate (pavement) and an open-top culvert that direct runoff into the buffer area to the right. The Maine DEP and Cumberland County SWCD have created numerous demonstration projects that showcase good watershed protection practices. Many of those demonstration projects are located on lakes near Little Sebago Lake. Contact the Maine DEP and SWCD for more details (page 18).



Build a Better Buffer

Survey volunteers noted many sites throughout the watershed that lacked buffers. Because no active erosion was present, these sites were not documented in this survey. Still, over 70 locations were noted as lacking a sufficient or any buffer. This overall lack of buffers around Little Sebago Lake should be of concern for the residents of the Little Sebago Lake Watershed.

The west side of the lake, in particular, has very flat topography. Furthermore, many properties had beaches that abutted expansive lawns. While these factors may seem to reduce the flow of stormwater runoff, it still reaches the lake. Lawns alone cannot provide sufficient water quality protection. The grasses used in common lawn mixes are shallow-rooted. While they provide some protection against surface erosion, they can't provide adequate protection over the long haul. Buffers are the key to reducing the transport of polluted runoff to Little Sebago Lake.



Numerous lakeshore properties had little or no vegetation at the water's edge. Lawns alone do little to prevent polluted stormwater from reaching the lake.

What is a buffer?

Buffers are areas of trees, shrubs, groundcover, and a duff layer that catch sediment and nonpoint source pollution before they reach the lake. Vegetation situated between the built environment and the water trap sediments, excess nutrients and other pollutants, prevent erosion, and help to stabilize sloped areas and the shoreline.

How do buffers work?

- ⇒ The tree and shrub canopy intercepts raindrops and reduces their impact on the soil.
- ⇒ Leaf surfaces collect rain and allow for evaporation.
- ⇒ Shorter plants, groundcover, and the duff layer filter sediment and pollutants from runoff.
- ⇒ Root systems hold soil in place and absorb water and nutrients.
- ⇒ An uneven soil surface allows rain and snowmelt to puddle and infiltrate.



Often folks feel that once a buffer is in place, they will lose control of their access to the water—both physically and visually. Not so! Traffic can be directed by the use of appropriately placed shrubs and trees, which can be trimmed so that views of the water are preserved. In fact, buffers can be designed to protect against noise and enhance privacy for lakefront residents.





The photo at left shows an excellent example of trail access to the lake. The trail winds through this buffer, essentially eliminating any direct path for runoff to reach the lake.

You can reduce the effects of polluted runoff, protect the quality of Little Sebago Lake, and improve property values....simply by establishing new vegetated buffers and enhancing existing ones!

Using Soils to Help the Watershed

Understanding the soils in your watershed helps with planning erosion control measures, as well as choosing plants that will thrive. The soils in the Little Sebago Lake Watershed are mostly sandy gravelly loams that are very permeable and very well drained. These soils are moderately acidic.

Plant types of vegetation that can handle drought conditions and acidic soils. The following plants are examples of those well suited to Little Sebago lake properties, are a good addition to any buffer planting, and are readily available at local nurseries.

Native Plant Recommendations		
<u>Shrubs</u>		<u>Perennials</u>
◆ Blueberry (High & Lowbush)	 Blueberry	◆ Black Eyed Susan
◆ Bearberry	Black Eyed Susan 	◆ Cinnamon Fern
◆ Bayberry	 Snowberry	◆ Yarrow
◆ Sweet Fern		◆ Purple Coneflower
◆ Sheep Laurel		◆ Scarlet Bee Balm
◆ Snowberry		◆ Hay Scented Fern
◆ Blue Rug Juniper	Bee Balm 	◆ Solomon Seal
		◆ Mint

Phosphorus Free Fertilizer Dealers

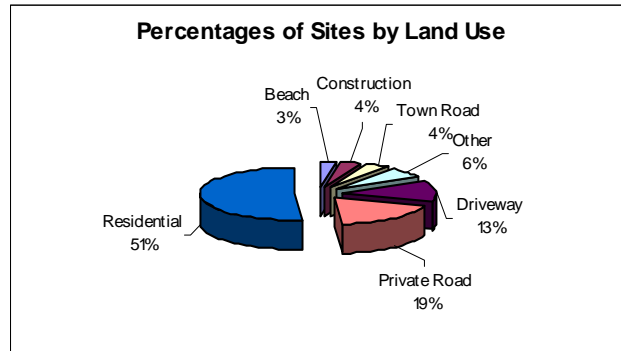
Most soils in Maine have enough phosphorus to keep a lawn healthy. If you must fertilize, use phosphorus free fertilizer. Retailers include:

Home Depot	149 Mt. Auburn	Auburn	777-0042
Hansen's Farm Market	74 County Road	Gorham	839-9060
O'Donal's Nurseries	6 County Road	Gorham	839-4262
Ossipee Trail Garden Ctr.	333 Ossipee Trail	Gorham	839-2885
Ace Cooks Hardware	P.O. Box 299	Gray	657-4204
True Value	P.O. Box 577	Raymond	655-7320
Coastal Hardware	708 U.S. Rte One	Yarmouth	846-3861

Key Findings from the Watershed Surveys

With the completion of this survey, the entire Little Sebago Lake Watershed has now been surveyed for nonpoint source pollution. What have we found?

- ⇒ Of the 312 sites identified by the two surveys, 160 (51%) were residential sites.
- ⇒ Of these sites, most of the sites can be fixed with low to medium technical expertise and cost.
- ⇒ Attention should be given to all sites, since the **cumulative** impact of all the sites causes water quality to decline.



- ⇒ In addition to the surveyed sites, numerous waterfront properties were observed to have little or no vegetated buffer at the water's edge. It is important to note that buffers of shrubs and trees do a much more effective job than bare ground or grass to keep polluted runoff from entering Little Sebago Lake.

Although 312 sites may sound like a daunting number, fixing the problems in the watershed is highly feasible. Education, coupled with hands-on instruction, can go a long way to increase the awareness and use of BMPs. A variety of simple, cost-effective conservation practices can help solve many erosion problems and protect Little Sebago Lake from polluted runoff. Simple and seemingly small actions taken by many residents will add up quickly to make a big effort in protecting and improving the health of the lake!



Timeline for NPS Work in the Little Sebago Lake Watershed	
Watershed Survey north of Lyon's Point	Completed 2003
Watershed Survey south of Lyon's Point	Completed 2004
Conduct implementation project to address sites in northern watershed	2004
Pursue funds for shoreline survey for buffer evaluation	2004
Pursue funds for implementation project in southern watershed	2005
Reevaluate accomplishments and remaining issues, discuss need for additional funds	2006

Next Steps ~ Where Do We Go From Here?

Fixing the sites identified in this survey will require efforts by individuals, the Little Sebago Lake Association, road associations and municipal officials.

Individual Citizens

- Prevent runoff from washing sediment into the lakes. Detain runoff in depressions or divert flow to vegetated areas. Call the Cumberland County SWCD or DEP for free advice.
- Minimize the amount of cleared land and road surfaces on your property.
- Stop mowing and raking, and let lawn and raked areas revert back to natural plants. Deep shrub and tree roots help hold the shoreline.
- Avoid exposing bare soil. Seed and mulch bare areas.
- Don't bring in sand or rebuild beaches without permits and technical assistance.
- Call the Town Code Enforcement Officer before cutting vegetation within 250' of the shore.
- Maintain septic systems properly. Pump septic tanks (every 2 to 3 years for year round residences; 4-5 years if seasonal) and upgrade marginal systems.
- Join the Little Sebago Lake Association.

Little Sebago Lake Association

- Continue to increase and empower the association's membership, and provide educational materials and guidance to members of the Little Sebago Lake watershed community.
- Continue to partner with agencies, municipalities, Districts, and others to jointly seek funding and implement projects to protect the lake water quality.
- Organize workshops and volunteer "work parties" to start fixing identified erosion problems and teach citizens how to fix similar problems on their own properties.
- Educate municipal officials about lake issues and work cooperatively to find solutions.

Road Associations (or private roads without associations)

- Minimize road runoff by doing regular, comprehensive maintenance. Form a road association if one does not already exist.
- Get a copy of "Camp Road Maintenance Manual – A Guide for Landowners." and share it with contractors working on and/or plowing the road. This reference is a "must-have" for anyone managing a gravel road. (Call the DEP at 822-6300 to order a free copy.)
- For more extensive problems, contact the Cumberland County SWCD or DEP to get help.

Municipal Officials

- Enforce shoreland zoning ordinance to ensure protection of Little Sebago Lake.
- Conduct regular maintenance on town roads in the watershed, and fix town road problems identified in this survey.
- Participate in and support long term watershed management projects.
- Promote training for road crews, boards, commissions, and other decision-makers.

Permitting ABC's

Protection of the Little Sebago Lake Watershed is ensured through the good will of residents around the lakes and through laws and ordinances created and enforced by the State and Towns.

How do you know when you need a permit?

- Construction, clearing of vegetation and soil movement within 250 feet of the lake shore falls under the Shoreland Zoning Act, which is administered by the Towns through the Code Enforcement Officer and the Planning Board.
- Soil disturbance within 75 feet of the lakeshore or stream also falls under the Natural Resources Protection Act, which is administered by the DEP.

To ensure that permits for projects that will not result in significant disturbance are processed swiftly, the DEP has established a streamlined permit process called **Permit by Rule**. These one page forms (shown below) are simple to fill out and allow the DEP to quickly review the project.

The Natural Resources Protection Act seeks to establish reasonable regulation in order to assure responsible development that does not harm Maine's precious natural systems.

~from Protecting Maine's Natural Resources~Volume 1, DEP 1996

The project partners encourage you to contact the DEP and Town Code Enforcement Officer if you have any plans to construct or relocate a structure, clear vegetation, create a new path or driveway, stabilize a shoreline or otherwise disturb the soil on your property. Even if projects are planned with the intent of enhancing the environment—such as installing some of the practices mentioned in this report—contact the DEP and Town to be sure. See the last page of this report for contact information.

6/99 DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)
PERMIT BY RULE NOTIFICATION FORM
 (For use with DEP Regulation, Chapter 305)

PLEASE TYPE OR PRINT IN BLACK INK ONLY (3 COPIES, PLEASE BEAR DOWN)

Name of Applicant: <u>Kimberland County SINCID</u>	Name of Owner: <u>Norm & Michelle Groleau</u>
Mailing Address: <u>381 Main St. Suite 3</u>	Town/City: <u>Gorham</u>
State: <u>Maine</u> Zip Code: <u>04038</u>	Daytime Telephone No: <u>207 839-7839</u>
Name of Wetland, Water Body or Stream: <u>Subsidiary Lake</u>	
Detailed Directions to Site: <u>121 Outlet Road, Rte. 26 North turn right onto Outlet Road. 121 Outlet Road is on the left 4 to 5 houses before you reach Barefoot Beach.</u>	
Town/City: <u>New Gloucester</u>	Map #: _____ Lot #: _____ County: _____
Description of Project: <u>Installation of a drywell to allow infiltration of roof runoff.</u>	Part of a larger project? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

(CHECK ONE) This project: does does not involve work below mean low water.

I am filing notice of my intent to carry out work which meets the requirements for Permit by Rule (PBR) under DEP Regulation, Chapter 305. I have a copy of PBR Sections checked below. I have read and will comply with all of the standards.

<input checked="" type="checkbox"/> Sec. (2) Soil Disturbance	<input type="checkbox"/> Sec. (8) Shoreline Stabilization	<input type="checkbox"/> Sec. (14) Piers, Wharves & Pilings
<input type="checkbox"/> Sec. (3) Inside Pipes	<input type="checkbox"/> Sec. (9) Utility Crossing	<input type="checkbox"/> Sec. (15) Public Boat Harbors
<input type="checkbox"/> Sec. (4) Replacement of Structures	<input type="checkbox"/> Sec. (16) Stream Crossing	<input type="checkbox"/> Sec. (16) Coastal Sand Dune Projects
<input type="checkbox"/> Sec. (5) REPEALED	<input type="checkbox"/> Sec. (11) State Transportation Facilities	<input type="checkbox"/> Sec. (17) Transfers/Permit Extension
<input type="checkbox"/> Sec. (6) Movement of Rocks or Vegetation	<input type="checkbox"/> Sec. (12) Restoration of Natural Areas	<input type="checkbox"/> Sec. (18) Maintenance Dredging
<input type="checkbox"/> Sec. (7) Coastal Pipes	<input type="checkbox"/> Sec. (13) FAW Creation/Enhance/Repair Quality Improvement	

I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules. I also understand that this permit is not valid until approved by the Department or 14 days after receipt by the Department, whichever is less.

I have attached all of the following required submittals. NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS:

- Attach a check for \$50 (non-refundable) made payable to: "Treasurer, State of Maine".
- Attach a U.S.G.S. topo map or Maine Atlas & Gazetteer map with the project site clearly marked.
- Attach photographs showing existing site conditions (unless not required under standards).

Signature of Applicant: [Signature] Date: 7/28/00

Keep the bottom copy as a record of permit. Send the form with attachments via certified mail to the Maine Dept. of Environmental Protection. Office as evidence of _____ or further authorization by DEP will be issued after receipt of notice. Permits are valid for two years. Work carried out in violation of any standard is subject to enforcement action.

AUGUSTA DEP STATE HOUSE STATION 17 AUGUSTA, ME 04333-0017 (207)287-2111	PORTLAND DEP 312 CANCO ROAD PORTLAND, ME 04103 (207)852-6300	BANGOR DEP 106 HOGAN ROAD BANGOR, ME 04401 (207)741-4570	PRESQUE ISLE DEP 1235 CENTRAL DRIVE PRESQUE ISLE, ME 04769 (207)764-9477
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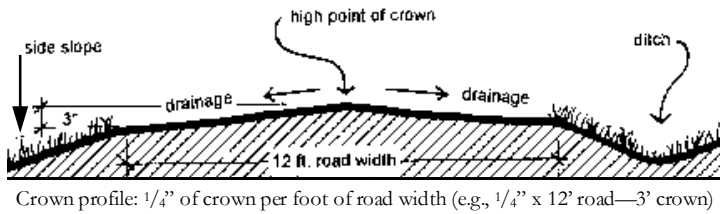
OFFICE USE ONLY	GL#	Staff	Staff
PBR #	FF	Acc. Date	Del. Date
	Date		After Photos

DEPLW-27-899

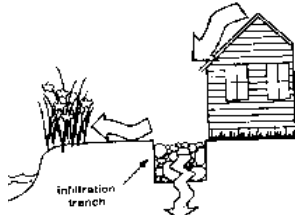
How to apply for Permit by Rule with DEP:

1. Fill out a notification form before completing any work on the ground. Forms are available from your town code enforcement officer or the Maine DEP offices in Portland or Augusta.
2. The permit will be reviewed by DEP within 14 days. If you do not hear from DEP within 14 days, you can assume your permit is approved and you can proceed with work on the project. If you bring the permit directly to a DEP office, you could get your permit approved immediately.
3. Follow the proper standards for keeping soil erosion to a minimum during construction, such as installing silt fence. It is important that you obtain a copy of the standards so you will be familiar with the law's requirements.

Glossary of Common Conservation Measures

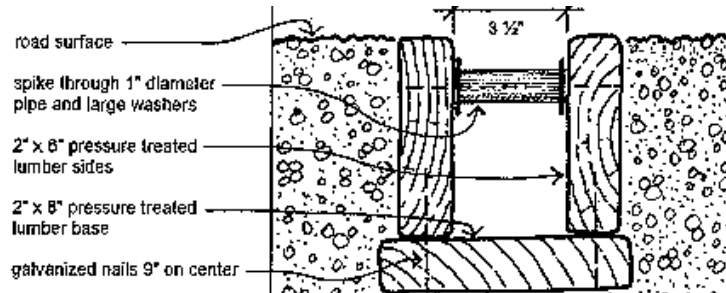


Crown—High point that runs lengthwise along the center of a road or driveway. The high point slopes gently away from the center toward the outer edge of the road, allowing water to drain off the road and preventing erosion of the road surface.

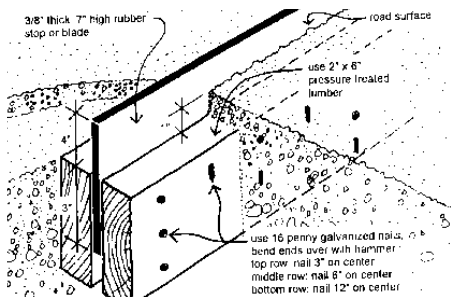


Dripline Trench—Rock-filled trench beneath the roof edge dripline that collects and stores roof runoff until it soaks into the ground. Helps control erosion and reduce wear on the house by preventing backsplash. A typical trench is 6-8" deep and 12-18" wide and filled with 3/4" stone. Can also be used along the edges of driveways to encourage infiltration of runoff.

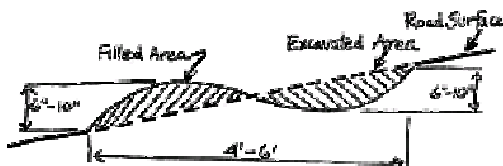
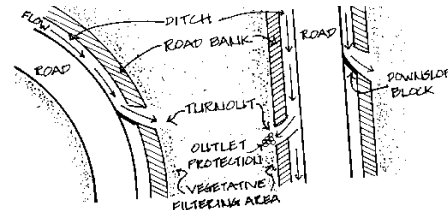
Open Top Culvert—Box-like structure that collects and diverts road surface runoff away from a sloped driveway or camp road. They are seldom recommended for year-round roads due to the likelihood of plow damage. Install at a 30° angle to the road and direct the outlet into a stable buffer. Clean out leaves and debris periodically.



Rubber Blade—Structure that protrudes above the road surface high enough to intercept and collect water, while allowing traffic to pass over it. It is generally not used on seasonal roads and driveways because of the likelihood of plow damage. Install at a 30° angle to the road and direct the outlet into a stable buffer. The rubber conveyor belts can be purchased at some hardware stores or Portland Rubber Company (774-3993).

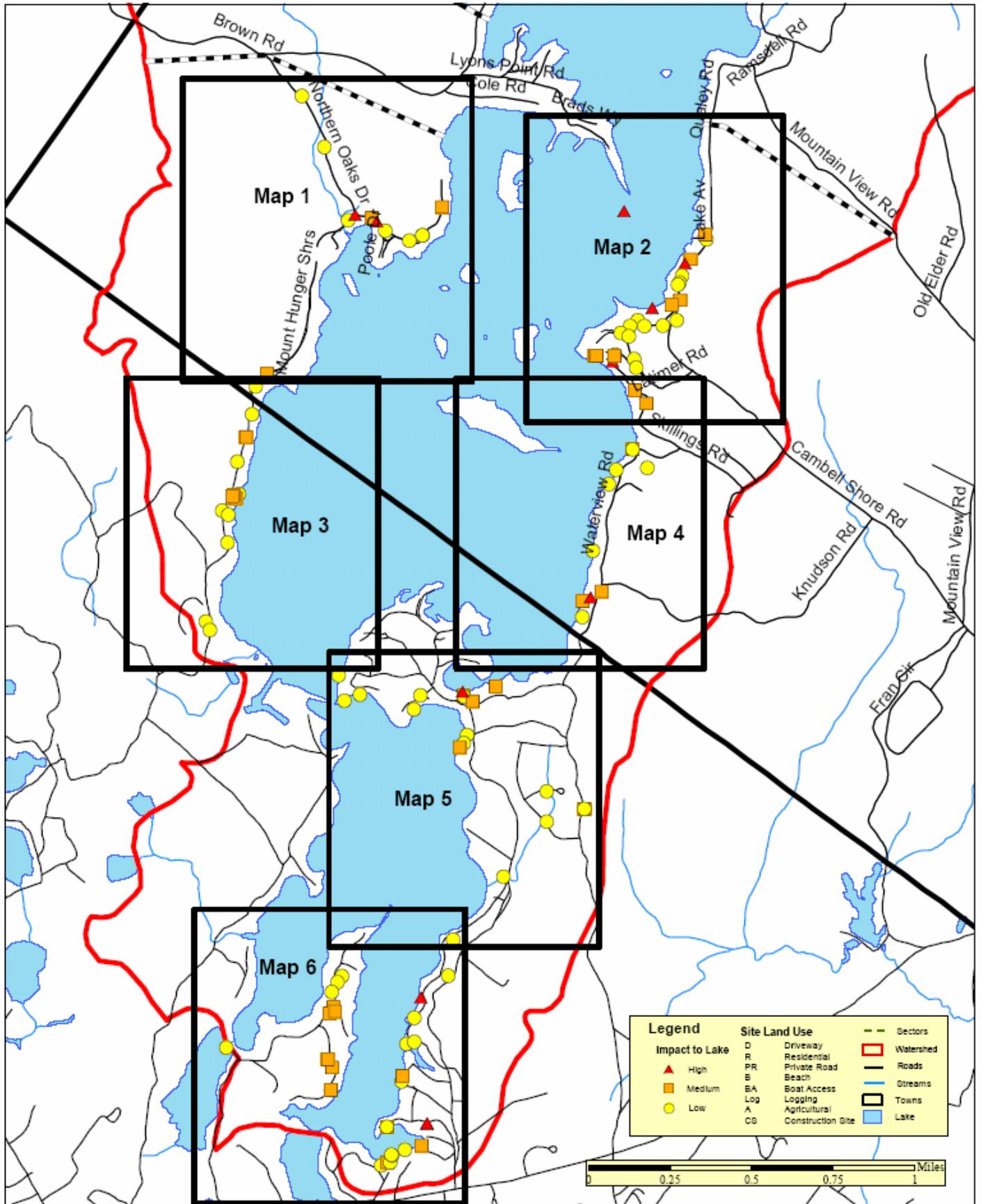


Turnout—A conservation practice used to direct runoff from a ditch (or road ruts) into a vegetated buffer. The turnout should have a flared end section that is level and lined with rock to spread out the flow.

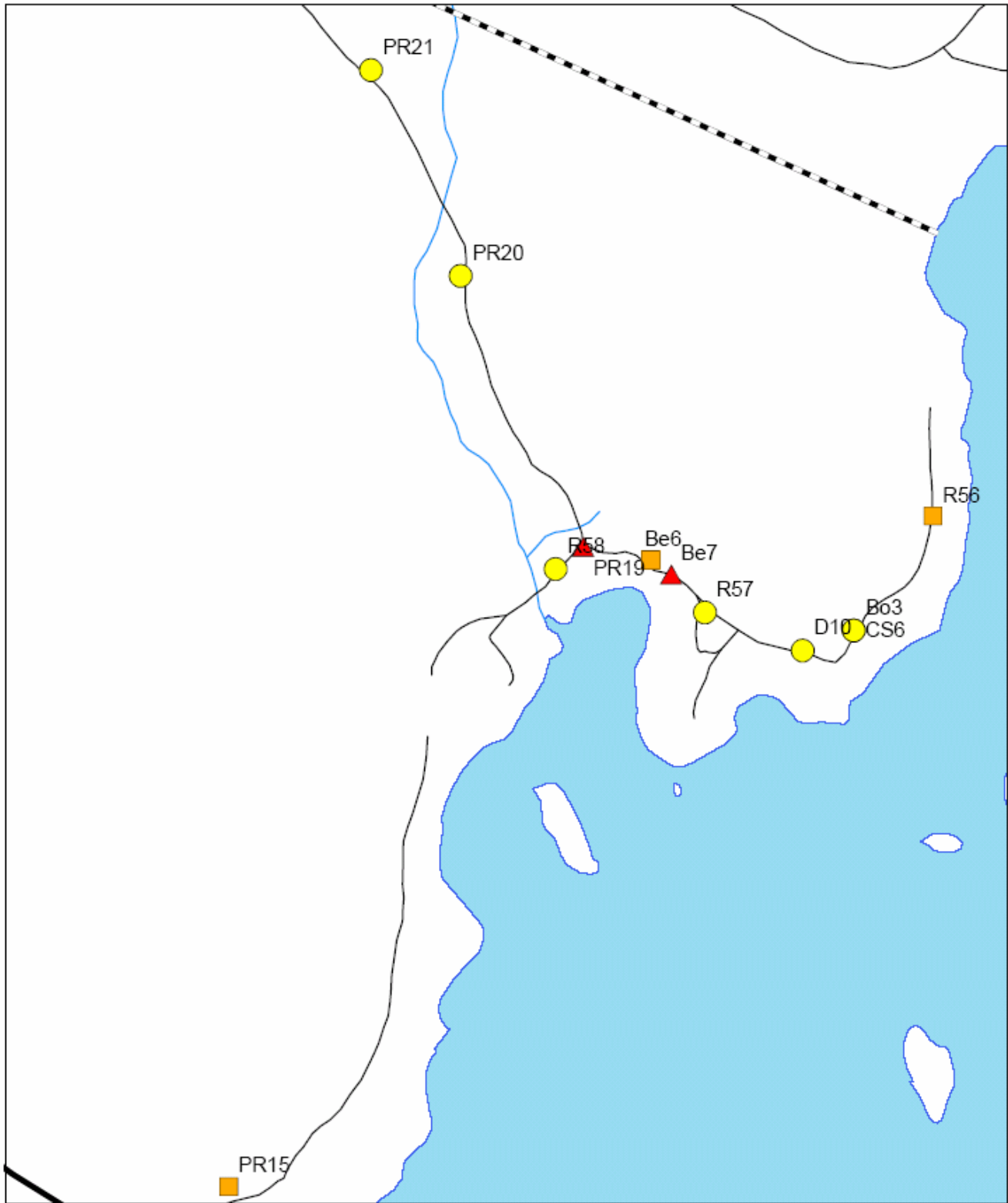


Waterbar—Ridge (like a speed bump) that runs diagonally across a road, driveway or path, typically at a 30° angle. Stops water from running down the road and diverts it to the side. Easy to construct and most appropriate for roads with low traffic volume. Needs to be rebuilt periodically.

Key to Detailed Maps



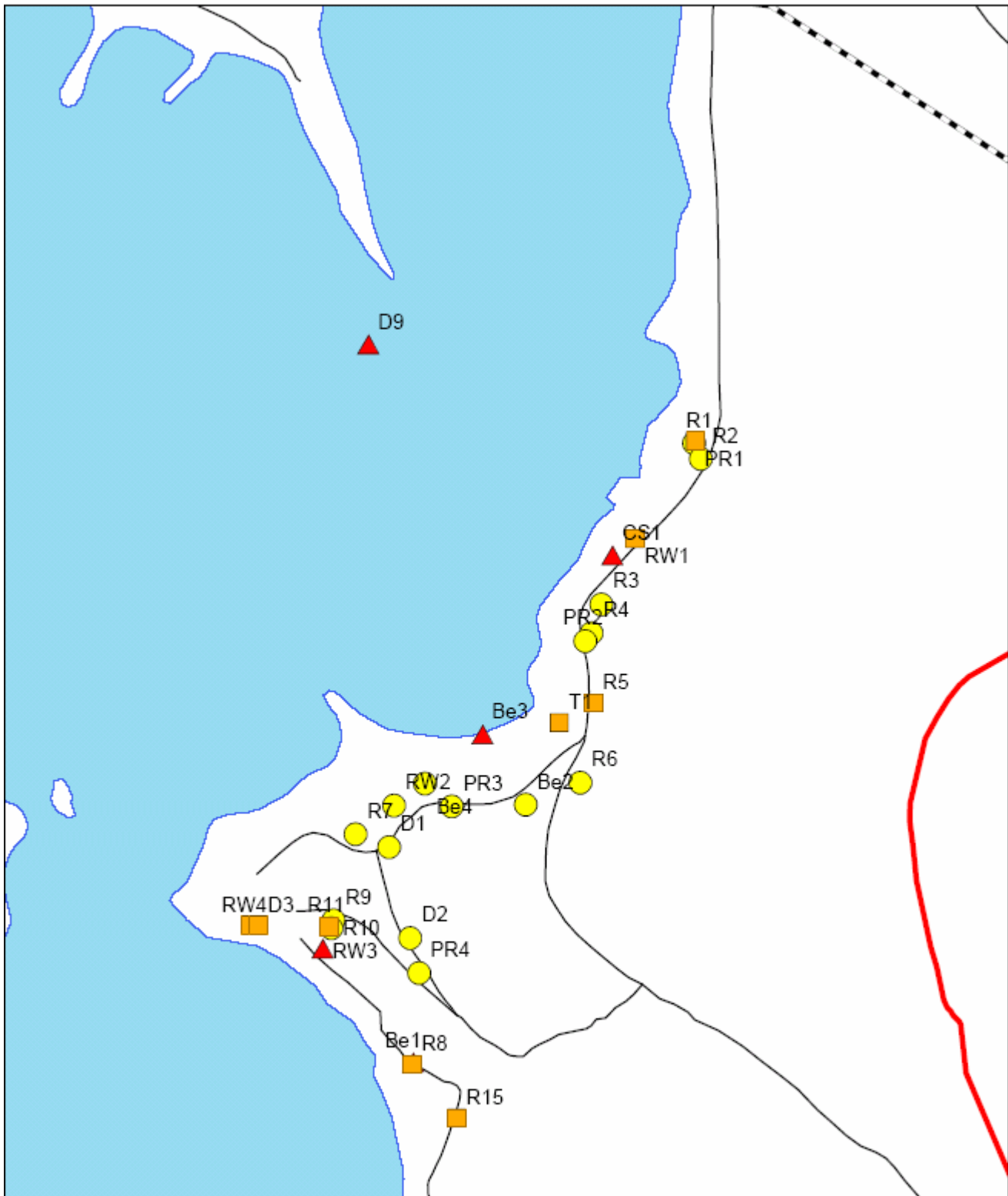
Map 1 - Erosion Sites



0 250 500 1,000 1,500 2,000 Feet

Legend		Site Land Use	Sectors
Impact to Lake	▲ High	D Driveway	--- Sectors
	■ Medium	R Residential	▭ Watershed
	● Low	PR Private Road	— Roads
		B Beach	— Streams
		BA Boat Access	▭ Towns
		Log Logging	▭ Lake
		A Agricultural	
		CS Construction Site	

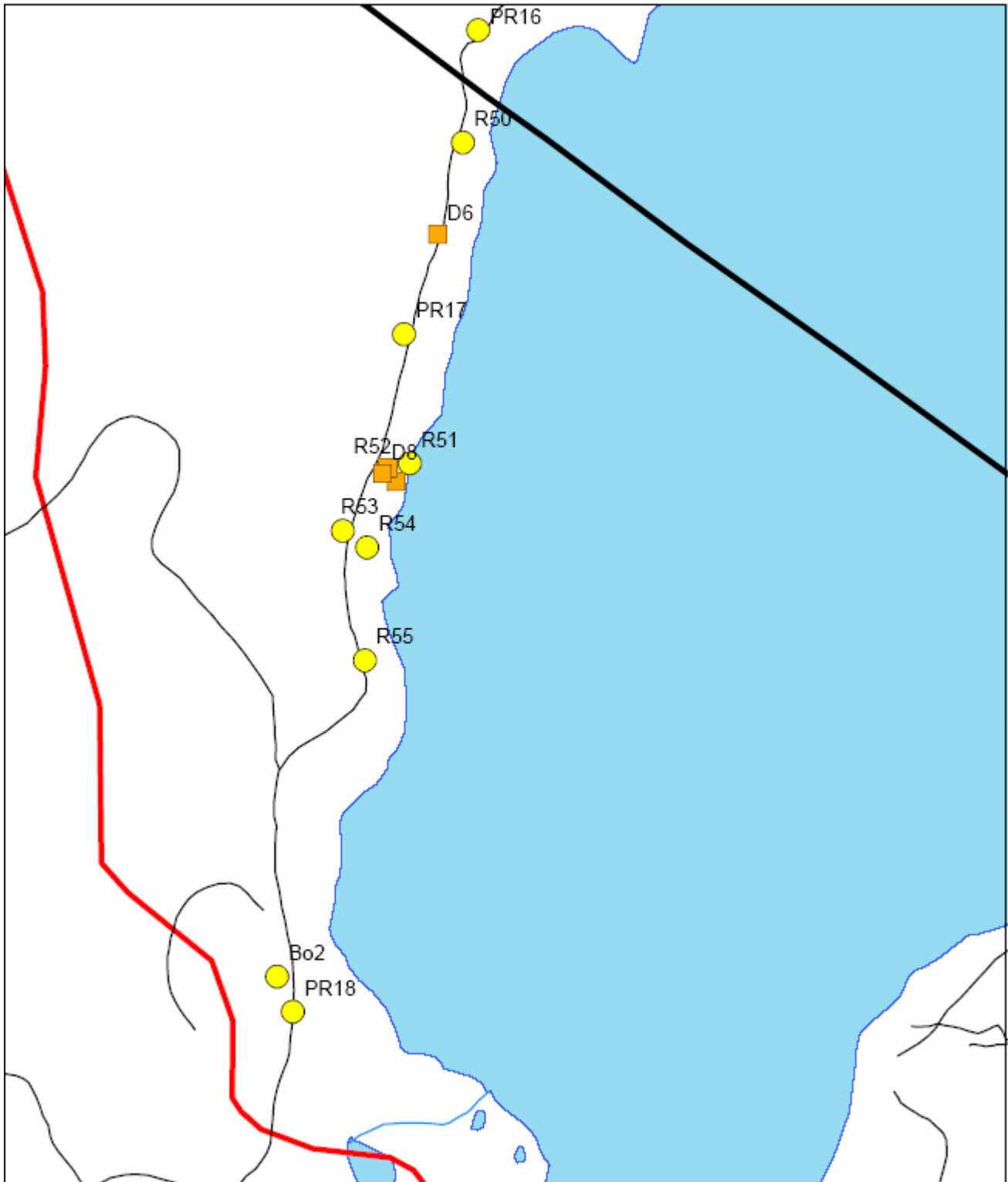
Map 2 - Erosion Sites



0 250 500 1,000 1,500 2,000 Feet

Legend		Site Land Use	--- Sectors
▲ High	Impact to Lake	D Driveway	▭ Watershed
■ Medium		R Residential	— Roads
● Low		PR Private Road	— Streams
		B Beach	▭ Towns
		BA Boat Access	▭ Lake
		Log Logging	
		A Agricultural	
		CS Construction Site	

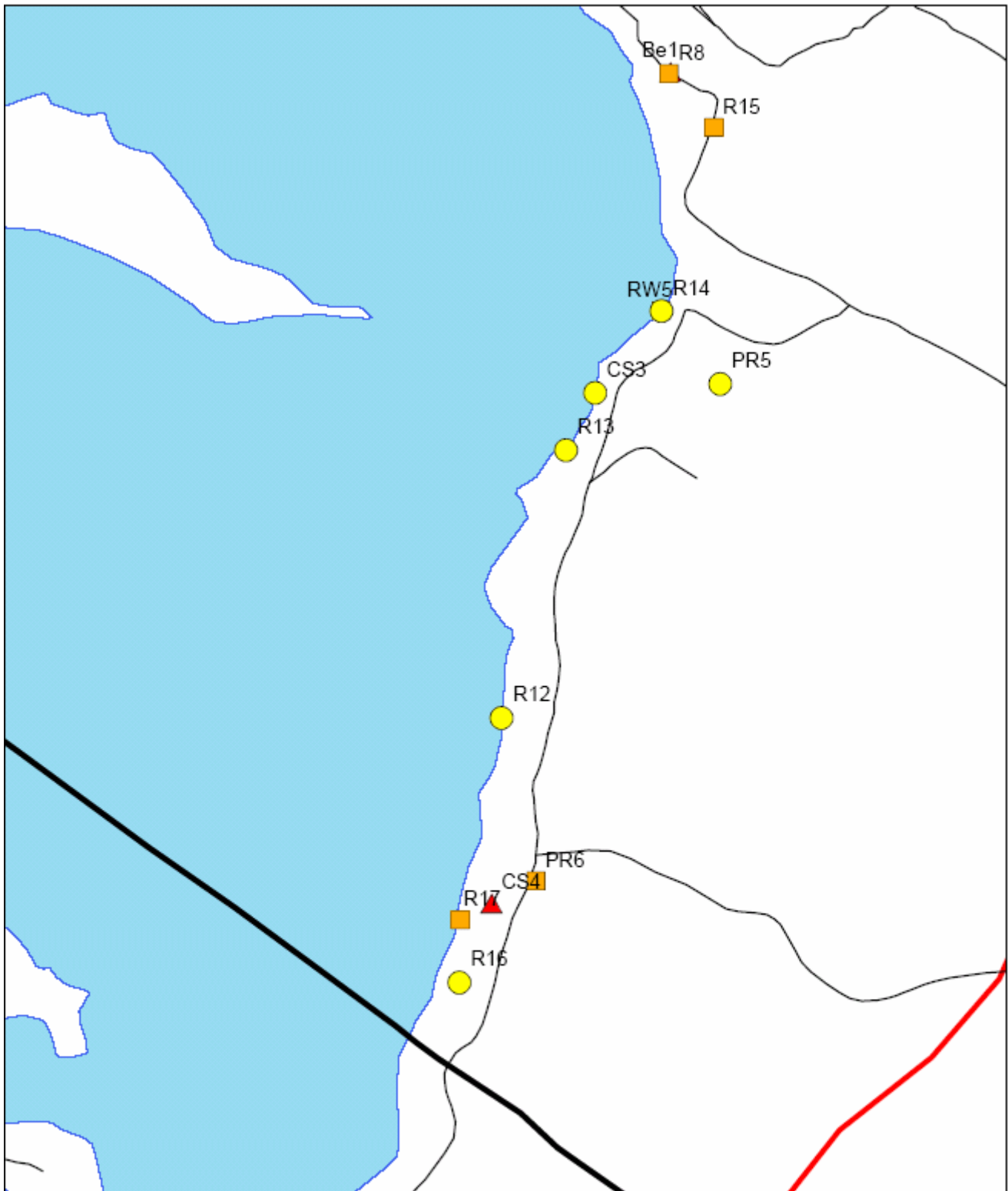
Map 3 - Erosion Sites



0 250 500 1,000 1,500 2,000 Feet

Legend		Site Land Use	--- Sectors
Impact to Lake	▲ High	D Driveway	▭ Watershed
	■ Medium	R Residential	— Roads
	● Low	PR Private Road	— Streams
		B Beach	▭ Towns
		BA Boat Access	▭ Lake
		Log Logging	
		A Agricultural	
		CS Construction Site	

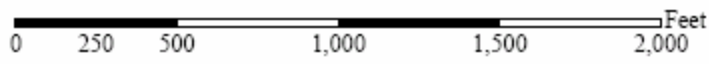
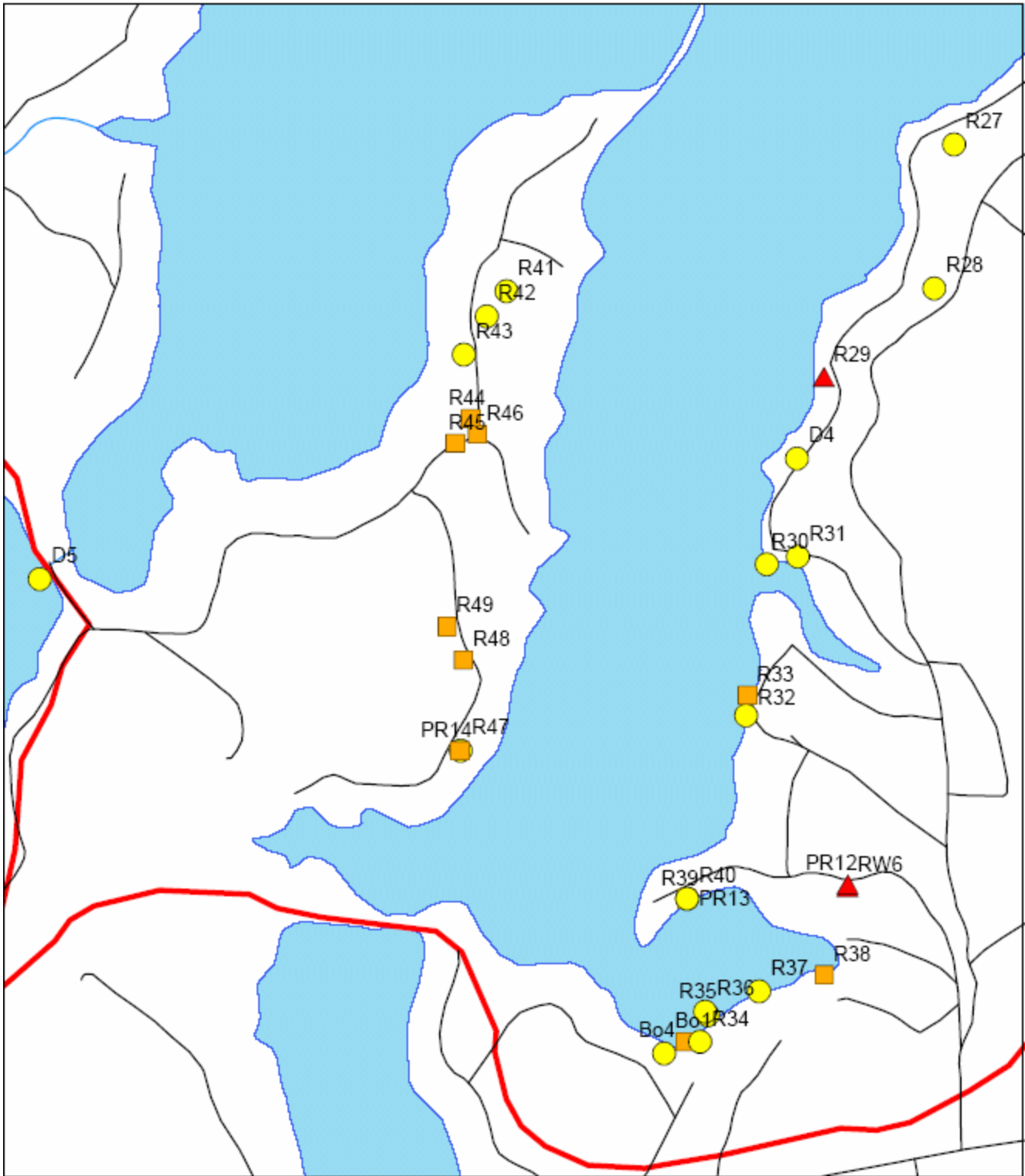
Map 4 - Erosion Sites



0 250 500 1,000 1,500 2,000 Feet

Legend		Site Land Use	--- Sectors
▲ High	PR	Private Road	▭ Watershed
■ Medium	B	Beach	— Roads
● Low	BA	Boat Access	— Streams
	Log	Logging	▭ Towns
	A	Agricultural	▭ Lake
	CS	Construction Site	

Map 6 - Erosion Sites



Legend		Site Land Use	
▲ High	Impact to Lake	D Driveway	--- Sectors
■ Medium	Impact to Lake	R Residential	▭ Watershed
● Low	Impact to Lake	PR Private Road	— Roads
		B Beach	— Streams
		BA Boat Access	▭ Towns
		Log Logging	▭ Lake
		A Agricultural	
		CS Construction Site	

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
R1	1	3	L-03	13	Residential	Slight ditch erosion, roof runoff, bare soil, slight surface erosion	armor ditch with stone, install stone filled dripline trench	25' x 1'	low	low	low	low	
R2	1	4	L-03	9	Residential	Slight ditch erosion, roof runoff, bare soil, slight surface erosion	armor ditch with stone, install stone filled dripline trench, establish buffer, seed/mulch, no raking		low	low	low	low	recently planted shrubs at shoreline
PR1	1	5	L-03	8	Private Road	unstable culvert inlet/outlet, severe ditch erosion, moderate road shoulder erosion	stabilize inlet/outlet, slope stabilization, armor ditch with stone or grass, riprap	1/4 mile	medium	medium	medium	medium	
RW1	1	6	L2	6	Right of way	bare soil and roots, moderate surface erosion	add better surface material, build up if using for boat access, install runoff diverters, install steps if no longer used for boat launch	15' x 150'	medium	medium	medium	medium	
CS2	1	7	L2	77	Construction Site	moderate ditch erosion, bare soil, shoreline erosion, lack of buffer, moderate surface erosion, unstable construction site with very poor BMPs	stabilize inlet/outlet, proper erosion control for construction site and stream stabilization, establish shoreline buffer, riprap, steps, terrace, runoff diverters.	entire lot	high	medium	medium	medium	
R3	1	8	L2	23	Residential	bare soil, lack of shoreline buffer, moderate surface erosion	install stone filled dripline trench, plant vegetation, seed and mulch, less raking		low	low	low	low	
R4	1	9	L2	65	Residential	roof runoff, bare soil, slight surface erosion	install dripline trench under deck, mulch, no raking, runoff diverters		low	low	low	low	
PR2	1	10	L2	between 65 & 66	Private Road	crushed/broken culvert, clogged culvert, moderate ditch erosion, slight road shoulder erosion	clean out culvert, reshape and clean out ditch, crown road, add vegetation to slope	200'	low	medium	medium	medium	

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
R5	1	11	L2	62	Residential	slight ditch erosion, slight road shoulder erosion, outlet pipe through rock wall discharging washing machine into catch basin, through pipe, under road, into ditch and then lake	armor ditch, reshape shoulder		medium	low	low	low	most of property well vegetated
T1	1	12	L2	57	trail	moderate trail erosion, bare soil, lack of buffer, moderate sheet surface erosion, roof runoff	install dripline trench, establish buffer, mulch, stop raking, terrace, waterbar, reshape driveway	300'	medium	medium	low	medium	
R6	1	13	L2	55	Residential	roof runoff, bare soil, slight surface erosion	install stone filled dripline trench, establish shoreline buffer, mulch, stop raking, terrace		low	low	low	low	
Be1	1	14	L2	53	Beach	bare soil, lack of buffer, slight road shoulder erosion, slight surface erosion	extend buffer, plant trees/shrubs/groundcover		low	low	low	low	
Be2	1	15	L2	52	Beach	moderate ditch erosion, bare soil, lack of buffer, slight surface erosion	Install plunge pool?, armor with stone, detention basin?, rip rap	long gully from road to lake	high	medium	medium	medium	gully well vegetated; needs outlet improvements
Be3	1	16	L2	44	Beach	bare soil, shoreline erosion, slight to moderate surface erosion	establish shoreline buffer, seed and mulch, no raking		low	low	low	low	
RW2	1	17	L2	43 and 40	Right of way	slight ditch erosion, bare soil, slight surface erosion	add better surface material, reshape or crown, mulch, no raking		low	low	low	low	some efforts have been made with fire bricks and cobble stone

Map ID	Map Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
R7	1	18	L2	38?	Residential	slight ditch erosion, bare soil, shoreline erosion, lack of buffer, moderate surface erosion	install stone filled drip-line trench, establish shoreline buffer, mulch, no raking, terrace, runoff diverters	500 sq ft	low	low	low	low	
PR3	1	19	L2	41-51	Private Road	moderate road shoulder erosion, road sand, moderate surface erosion	add better surface material, build up road, install turnouts, reshape or crown, waterbar?	400 ft on road	low	medium	low	medium	
D1	1	20	L2	31	Driveway	slight road shoulder erosion, bare soil, moderate surface erosion	add better surface material, plant vegetation, seed and mulch, vegetate	15' x 75'	low	low	low	low	
D2	1	21	L2	29	Driveway	bare soil, moderate surface erosion	add better surface material, plant vegetation, seed and mulch, no raking	800 sq ft	low	low	low	low	
RW5	1	22	L2	2A	Beach	severe ditch erosion, shoreline erosion, moderate surface erosion, unstable bottom, large plume of sand in lake	detention basin, riprap, broad based stone lip, *Technical Assistance Visit Recommended*		high	high	high	high	
R12	1	23	L2	29	Residential	bare soil, lack of shoreline buffer, moderate surface erosion	establish shoreline buffer, seed and mulch, no raking, terrace, install stone filled dripline trench	1500 sq ft	medium	low	medium	low	some natural shoreline buffer
PR4	1	24	L2	Next to 2A	Private Road	moderate road shoulder erosion, plow or grader berm, road sand, moderate surface erosion	add better surface material, build up road, remove grader berms, reshape or crown road	450 linear feet on road	low	low	medium	low	

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
RW4	1	25	L2	next to 13	Right of way	severe road shoulder erosion, roof runoff, bare soil, road sand, shoreline erosion, lack of buffer, moderate surface erosion	Install stone filled drip-line trench, add better surface material, reshape and vegetate shoulder, crown road, install runoff diverters, establish shoreline buffer, seed and mulch *Technical Assistance Visit Recommended*	300' + 1000 sq ft	high	medium	medium	medium	some buffer between houses and beach
R9	1	26	L2	17	Residential	roof runoff, bare soil, moderate surface erosion, exposed roots	install stone filled drip-line trench, seed and mulch, no raking, define path for foot traffic, terrace	500 sq ft	low	low	medium	low	
R10	1	27	L2	13	Residential	roof runoff, bare soil, moderate surface erosion, exposed roots	install stone filled drip-line trench, add better surface material to driveway, plant vegetation, seed and mulch, no raking, steps, define path for foot traffic, terrace	500 sq ft	low	low	medium	low	
R8	1	28	L2	24	Residential	slight road shoulder erosion, roof runoff, bare soil, moderate surface erosion	install stone filled drip-line trench, plant vegetation, seed and mulch, less raking	300 sq ft	medium	low	low	low	
RW3	1	29	L2	near 21	Right of way	bare soil, road sand, shoreline erosion, lack of buffer, moderate surface erosion	add better surface material, build up road, reshape or crown road, install broad-based dip, establish shoreline buffer, plant vegetation, no raking	25' on ROW + 250 sq ft	medium	medium	low	low	large trees

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
D3	1	30	L2	20	Driveway	moderate ditch erosion, moderate road shoulder erosion, bare soil, moderate surface erosion	add better surface material, reshape/vegetate shoulder, install water-bar	15' x 40'	medium	medium	low	low	
CS1	1	31	L2	?	Construction Site	bare soil, severe surface erosion, unstable construction site	install proper erosion control, add vegetation, install turnouts, reshape shoulder, terrace, mulch	600+ sq ft	high	medium	medium	medium	
R15	2	1	L1	1	Residential	Slight ditch erosion, shoreline erosion, slight surface erosion. Unstable beach.	Extend buffer	10' x 3'	low	low	low	low	
R14	2	2	L1	12	Residential	Shoreline erosion, lack of buffer, slight surface erosion.	Extend buffer, plant trees, shrubs and groundcovers	10' x 5'	low	low	low	low	
CS3	2	3	L1	15	Construction Site	Bare soil, unstable construction site	Seed and mulch, properly install silt fence	150' x 12'	low	low	low	low	
RW6	2	4	L1	19	Right of way	Bare soil, moderate surface erosion, unstable beach	Install runoff diverters, plant trees, shrubs, and groundcovers, seed and mulch	100' x 6'	medium	medium	low	low	
R13	2	5	L1	19a	Residential	Bare soil, shoreline erosion, lack of buffer, moderate surface erosion	Establish shoreline buffer, plant trees, shrubs and groundcover, seed and mulch	40' x 2'	low	low	low	low	diverter in beach works
PR5	2	6	L1	16-18	Private Road	Moderate road shoulder erosion, slight surface erosion	Install turnouts, reshape/vegetate shoulder, reshape or crown road		low	low	low	low	
R11	2	7	L1	27	Residential	Bare soil, slight and moderate surface erosion, culvert draining into stream	Plant trees, shrubs, and groundcovers, seed and mulch, stop raking	20'x10' high, 15'x5'wide	medium	medium	low	low	
R17	2	8	L1a	2	Residential	Moderate surface erosion	install drywell at base of cement stairs		low	medium	low	low	

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
R16	2	9	L1a	6	Residential	Shoreline erosion, lack of buffer, moderate surface erosion	plant trees, shrubs, and groundcovers	4' x 15'	medium	medium	low	low	
CS4	2	10	L1a	7	Construction Site	Bare soil, moderate surface erosion, potential for severe, unstable construction site	Plant trees, shrubs, and groundcovers, seed and mulch, silt fence needs to be anchored	30' x 100'	high	medium	low	low	
PR6	2	11	L1a	close to 8	Private Road	Bare soil, slight surface erosion	Install plunge pool at culvert inlet, armor ditch, install turnout, reshape/vegetate shoulder, seed and mulch.	120' x 8'	medium	medium	medium	medium	
R24	3	1	60	25a	Residential	Slight surface erosion	Establish shoreline buffer, plant trees, shrubs and groundcover, seed and mulch	30'	low	low	low	low	
R21	3	2	60	6	Residential	Bare soil, lack of buffer, very slight surface erosion	Establish shoreline buffer, plant trees, shrubs and groundcover, seed and mulch. Stop raking.		low	low	low	low	
R25	3	3	59	2	Residential	Bare soil, road sand, lack of buffer, slight surface erosion	Establish shoreline buffer, seed and mulch	15' x 30'	low	low	low	low	
R26	3	4	59	6	Residential	Bare soil, lack of buffer, slight surface erosion	Establish shoreline buffer, no raking	50'	low	low	low	low	
Bo1	3	5	59	between 5a & 6a	Boat access (pvt.)	Slight surface erosion	Install runoff diverters - some kind of paved speed bump to divert water	30' x 10'	medium	medium	medium	medium	
R20	3	6	59	18	Residential	Bare soil, lack of buffer, moderate surface erosion	Establish shoreline buffer, no raking	50' x 50'	medium	low	low	low	
PR8	3	7	59	16	Private Road	Slight surface erosion, direct flow to lake	Establish buffer		low	low	low	low	
PR7	3	8			Town Road	Road sand	Clean up winter sand		low	low	low	low	

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
PR9	3	9			Private Road	Slight ditch erosion, slight road shoulder erosion.	Install turnouts, reshape or crown road		low	medium	low	medium	
R23	3	10	60	18	Residential	Shoreline erosion, lack of buffer, moderate surface erosion, unstable beach	Rip rap - pavers		low	low	low	low	
Be4	3	11	60	16	Beach	Bare soil	Install waterbar on beach trail, no raking	30' x 40'	low	low	low	low	
R22	3	12	60		Residential	Roof runoff	Install stone-filled drip-line trench, drywell gutter at spout		low	low	low	low	
R19	3	13	59	20	Residential	problem with private boat access	Install waterbar - paved speed bump type and extend buffer or remove paved ramp and replace with buffer		medium	medium	medium	medium	
R18	3	14	59	23	Residential	Bare soil, slight surface erosion	Extend buffer, plant trees, shrubs and groundcovers, seed and mulch. Add steps and define path for foot traffic.		medium	medium	medium	medium	
TR4	3	15			Town Road	Clogged culvert - half full of sand. Catch basin connected to stream	Clean out culvert, install turnout. Annual maintenance is critical	.25 mi x 30'	low	low	low	low	
CS5	3	16			Construction Site	Clogged culvert, ditch capacity exceeded	Clean out culvert, install plunge pool, add erosion controls (silt fence).		medium	high	medium	medium	
TR3	3	17			Town Road	Clogged culvert - half full of sand. Catch basin connected to stream	Clean out culvert, install turnout. Annual maintenance is critical		low	low	low	low	
TR2	3	18			Town Road	Clogged culvert - half full of sand. Catch basin connected to stream	Clean out culvert, install turnout. Annual maintenance is critical		low	low	low	low	
TR1	3	19	59	20	Town Road	Culvert, direct drainage to lake	Redesign drainage to outlet in wooded area	5' x 5'	high	high	high	high	

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
PR10	4	2	58		Private Road	Unstable culvert inlet/outlet, culvert too short, road sand	Lengthen and stabilize inlet/outlet of culvert, remove winter sand	20' x 10' on each side of road	low	medium	medium	medium	
R27	4	14	58	7	Residential	Bare soil, shoreline erosion, lack of buffer, slight surface erosion	Establish shoreline buffer, plant trees, shrubs and groundcovers, seed and mulch	100'x100'	low	low	medium	medium	
R28	4	18	58	4	Residential	Shoreline erosion, lack of buffer, slight surface erosion, unstable beach	Establish shoreline buffer, plant trees shrubs, and groundcovers	30' x 50'	low	low	medium	medium	
R29	4	25	57	43	Residential	Bare soil, shoreline erosion, lack of buffer, moderate surface erosion	Extend buffer, plant, seed and mulch. Establish new slope, infiltration trench or terrace.	140' x 75'	high	high	low	medium	
D4	4	28	57	39	Driveway	Moderate surface erosion	Extend buffer, plant, seed and mulch. Add better surface material, install turnouts, reshape/vegetate shoulder	75'	low	low	low	low	
R30	4	30	57	35	Residential	Bare soil, lack of buffer, slight surface erosion	Extend buffer, plant, seed and mulch, no raking	30' x 60'	low	low	low	low	
R31	4	31	57	34	Residential	Bare soil, lack of buffer, moderate surface erosion	Extend buffer, plant, seed and mulch	20' x 65'	low	low	low	low	
R33	4	35	57	25	Residential	Bare soil, slight surface erosion	Extend buffer, seed and mulch, no raking	20' x 30'	low	low	low	low	
R32	4	36	57	26	Residential	Bare soil, lack of buffer	Establish buffer, plant, seed and mulch	30' x 80'	medium	low	medium	medium	
Bo3	5	1	56	9	Boat access	Bare soil, lack of buffer, moderate surface erosion, unstable boat access	Establish shoreline buffer, install infiltration trench, waterbar, improve existing steps	12' x 12'	low	low	low	low	

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
Bo2	5	2	56	11	Boat access	Moderate surface erosion, unstable boat access	Install 2 rubber razor blades	150' x 10'	medium	medium	low	low	
R40	5	3	56	11	Residential	Bare soil, slight surface erosion	Extend buffer, seed and mulch, limit lake access points	50' x 30'	low	low	low	low	stone pathways, hillside plantings
R39	5	4	56	12	Residential	Roof runoff, bare soil	Seed and mulch, install stone-filled dripline trench	30' x 20'	low	low	low	low	veg. buffer on south shore
R38	5	5	56	13	Residential	Bare soil, lack of buffer, slight surface erosion	Establish shoreline buffer, install steps, de-fine path for foot traffic	20' x 20'	low	low	low	low	terraced plantings
R37	5	6	56	14c	Residential	Bare soil, lack of buffer	Establish shoreline buffer, seed and mulch	75' x 20'	low	low	medium	low	terraces, stone walls, veg. on hill
R36	5	7	56	14b	Residential	Bare soil, moderate surface erosion	Plant trees, shrubs, groundcovers, install waterbar, install stone-filled dripline trench, install drywell at gutter spout	50' x 20'	medium	low	low	low	
PR13	5	10	57	5a-5-9	Private Road	Moderate surface erosion	Establish shoreline buffer, install ditch, catch basin, remove grader berms, reshape or crown road	200' x 12'	medium	medium	medium	medium	
RW7	5	11	57	10	Right of way	Severe surface erosion, unstable boat access	Establish shoreline buffer, reshape or crown road, install waterbar	176' x 10'	high	medium	medium	medium	
PR12	5	12	57	5 thru 11	Private Road	Plow or grader berm, moderate surface erosion	Install turnouts, remove grader berms, reshape or crown road	500' x 14'	high	medium	high	high	

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
PR11	5	13	56	15	Private Road	winter sand, lack of buffer	Establish buffer, remove winter sand, move snowplow away from water	20' x 20'	low	low	low	low	
R35	5	14	56	16	Residential	Moderate road shoulder erosion, moderate surface erosion, unstable boat access	Establish shoreline buffer, install turnouts, close off portion of road near lake	40' x 20'	medium	medium	low	medium	
R34	5	15	56	16	Residential	Roof runoff, moderate surface erosion	Plant trees, shrubs, and groundcovers, install stone filled dripline trench, mulch	35' x 15'	low	low	low	low	
R49	6	1	66	8	Residential	Bare soil	Plant trees, shrubs, and groundcovers	30' x 30'	low	low	low	low	nice vegetated drip trench
R48	6	2	66	6	Residential	Bare soil	Plant trees, shrubs, and groundcovers	50' x 30'	low	low	low	low	
R47	6	3	66	4	Residential	Bare soil	Extend buffer, plant	30' x 3', 60' x 30'	low	low	low	low	
R46	6	5	66	2	Residential	Bare soil, roof runoff	Plant trees, shrubs, and groundcovers (raised bed on lakeside of stone wall, vegetate roof dripline	50' x 100'	medium	low	low	low	
R45	6	7	66	1	Residential	Bare soil, shoreline erosion, slight surface erosion, unstable beach	Establish shoreline buffer, plant trees, shrubs, groundcovers, install dripline trench, open top culvert	50' x 70'	medium	medium	medium	medium	
R44	6	8	66	lot after 12b	Residential	Bare soil, slight surface erosion	Establish shoreline buffer, plant, seed and mulch, define path for foot traffic	10' x 15'	medium	low	low	low	
R41	6	9	65	10	Residential	Bare soil, lack of buffer, slight	Establish buffer, plant	100' x 40'	low	low	low	low	

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
PR14	6	10	65	36a and 36a1	Private Road	Bare soil, severe surface erosion, hillside failure along road	Reduce slope, stabilize hill, plant trees, shrubs, groundcovers	150' x 15'	medium	high	high	high	
R42	6	11	65	7	Residential	Bare soil, moderate surface erosion	Install runoff diverters, plant trees shrubs, and groundcovers, add infiltration trench after pavement, restrict boat access	300' x 10'	medium	high	high	high	
R43	6	12	65	5	Residential	Bare soil, slight surface erosion	Plant, install waterbar or other runoff diverters	50' x 10'	medium	medium	low	low	
D5	6	13	64	29	Driveway	Bare soil, slight surface erosion	Plant, seed and mulch, armor ditch with stone or grass	10' x 4', 8' x 8'	low	low	low	low	landowners have terraced, planting trees and shrubs
R50	8	1	62	22	Residential	Direct flow to lake, roof runoff, moderate surface erosion, unstable beach	Install stone-lined drip-line trench, install turnout, extend shoreline buffer, install infiltration steps, install waterbar across edge of property to direct road runoff to turnout	150' x 2'	medium	medium	medium	medium	good use of hay as a temporary fix, good native vegetation.
Bo4	9	1	21	31a-1	Boat access	Shoreline erosion	Install turnouts, rip rap, veg.. Shoreline	10' x 5' (x2)	low	low	low	low	paved
R51	9	2	21	28a04	Residential	Roof runoff, lack of buffer, moderate surface erosion	Install stone-lined drip-line trench, install waterbar, establish shoreline buffer	30' x 3'	low	low	low	low	
D6	9	3	21	29	Driveway	Bare soil, direct flow of sediment to stream, moderate surface erosion	Install culvert, ditch, turnout, runoff diverters, plant trees, shrubs, groundcovers	75" x 10'	medium	medium	medium	medium	medium

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
R52	9	4	21	29	Residential	Direct flow of sediment to lake and stream, bare soil, shoreline erosion, lack of buffer, unstable beach	Establish shoreline buffer, plant trees, shrubs and groundcovers along wet area	30' x 5'	medium	medium	low	low	
CS6	9	5	21	30	Construction Site	Direct flow of sediment to stream, bare soil, unstable construction site adjacent to stream	Install drainage culvert, stabilize culvert inlet/outlet, add better surface material to driveway, plant trees, shrubs along stream	75' x 25'	high	high	medium	medium	
R53	9	6	21	30	Residential	Bare soil, lack of buffer, severe surface erosion where stream empties, unstable beach	Establish shoreline buffer, plant trees, shrubs, groundcovers along drainage and on bare sand areas, riprap where drainage empties, install landscape timbers between driveway and water to confine sand		high	medium	medium	medium	great driveway waterbar and surface material
D7	9	7	61	24	Driveway	Direct flow of sediment to lake, moderate surface erosion	install turnouts, install runoff diverters, install landscape timber at bottom of driveway to trap sediment	30' x 10'	low	medium	low	low	
R54	9	8	61	24	Residential	Direct flow of sediment to lake, roof runoff, bare soil, slight surface erosion, unstable beach	Install stone-filled drip-line trench, establish shoreline buffer, define path for foot traffic	40' x 5'	low	low	low	low	
R56	9	9	61	22	Residential	Roof runoff, lack of buffer, unstable boat access	Install dripline trench, dry well at gutter spout, extend buffer, plant groundcovers, stop raking, don't add sand to beach		low	low	low	low	good terraces, plantings

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
R55	9	10	61	28	Residential	Bare soil, moderate surface erosion	Install runoff diverter, extend buffer, plant groundcovers, maintain landscape timber at top of slope		low	low	low	low	lots of duff
R57	9	11	61	21	Residential	Direct flow of sediment to lake, ditch, roof runoff, lack of shoreline buffer	armor ditch with stone, enhance rock lining at edge of driveway, extend buffer	200' x 1'	low	medium	medium	medium	nice terracing
PR15	9	12	61	44	Private Road	Clogged culvert, moderate ditch and surface erosion, plow or grader berm	Clean out culvert, stabilize inlet and outlet, reshape and armor ditch, remove grader berms, riprap ditch a upper end of Lum's culvert	100' x 3'	low	medium	low	medium	
D8	9	13	61	45	Driveway	Direct flow of sediment to ditch, moderate surface erosion	Install drywell at gutter spout, add better surface material	75' x 6'	low	low	low	low	
R58	9	14	61	19	Residential	Bare soil, moderate surface erosion, roof runoff, direct flow of sediment to lake	Install runoff diverters, turnouts, establish shoreline buffer, plant groundcovers, mulch, no raking, fix retaining wall before failure		medium	low	low	low	
RW8	9	15	61	18	Right of way	Slight surface erosion	Install runoff diverters - rubber razor on slope, install infiltration trench behind timber	10' x 150'	medium	low	low	low	
R59	9	16	61	18	Residential	Roof runoff, bare soil, lack of buffer	Establish buffer, no raking, install stone-filled dripline trench, mulch bare areas, no raking, install steps, restrict foot traffic between road and building	100' x 3'	medium	low	low	low	nice rocks

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments
PR16	9	17	61	14	Private Road	Clogged culvert, direct flow to ditch	Clean out culvert, create ditch to culvert, stabilize culvert inlet and outlet		low	low	low	low	natural-lots of duff
R60	9	18	61	11	Residential	lack of buffer, direct flow of sediment to lake	Install runoff diverters, extend buffer, add drip-line trench	20' x 5'	low	low	low	low	nice wa-terfront plantings
R61	9	19	61	8	Residential	Slight ditch erosion, roof runoff, bare soil, slight surface erosion	install runoff diverters, add series of check dams along ditch, add plantings at end of driveway		medium	medium	high	high	lots of ter-racing and planting
R62	9	20	61	3a	Residential	Severe road shoulder erosion, plow or grader berm, roof runoff, lack of buffer, slight surface erosion, unstable beach	Re-establish berm at top of driveway, direct to plunge pool at outlet of cross culvert, extend buffer		low	high	medium	me-dium	lots of natural buffers
PR17	9	21	L-18	1	Private Road	Clogged culvert, slight shoulder erosion	formalize and rip-rap turnout, install plunge pool, clean out culvert, reposition culvert, install ditch, install turnouts	100' x 12'	low	medium	medium	me-dium	
PR18	9	22			Private Road	Moderate road shoulder erosion, plow or grader berm	Install turnout into plunge pool, seed basin with level lip spreader	32' x 12'	medium	medium	medium	me-dium	
PR19	9	23	L-18	25	Private Road	Moderate surface erosion caused by runoff from paved driveway	Install turnouts and build up existing water-bar on adjacent paved driveway and extend into woods	15' x 15'	low	low	low	low	
R63	9	24	L-18	25	Residential	Bare soil, lack of buffer, moderate surface erosion	Add better surface material, install waterbar across top of driveway, establish shoreline buffer	20' x 8'	low	low	medium	low	

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R64	9	25	L-18	26	Residential	Direct flow of sediment to lake, lack of buffer, moderate surface erosion	Establish shoreline buffer, seed and mulch bare soil, install waterbar across top of driveway, add better surface material to driveway						
R67	10	1	L-16	3	Residential	Moderate surface erosion, unstable beach	Establish shoreline buffer, plant, add waterbar to driveway	30' x 35'	low	low	low	low	1 diverter and riprap on steep area
D10	10	3	L-17	34	Driveway	Moderate surface erosion	Establish buffer, plant	75' x 25'	high	low	low	low	good buffer next to dock
CS7	10	4			Construction Site	Severe surface erosion, unstable construction site	install erosion controls (silt fence)	60' x 25'	low	low	low	low	
Bo5	10	5			Boat access	moderate surface erosion	Install water diverters, add better surface material, reshape or crown road	110' x 10'	low	low	low	low	
D9	10	6	L-17		Driveway	moderate surface erosion	Add better surface material, reshape/veg shoulder, plant	75' x 15'	low	medium	medium	medium	good buffer on side of property
R66	10	7	L-17	17	Residential	Slight surface erosion	Plant, define path for foot traffic	25' x 4'	low	low	low	low	pretty view
Be5	10	8	L-17	12	Beach	Moderate surface erosion, direct flow down driveway to lake	Establish buffer, plant, install runoff diverters	50' x 20'	medium	low	medium	medium	
Be6	10	12	L-17	10	Beach	Shoreline erosion, severe surface erosion	Establish buffer, plant, define path for foot traffic	50' x 25'	high	low	low	low	

Map ID	Sector	Site #	Tax Map	Tax Lot*	Land Use	Type of Problem	Recommendations	Area Affected (length x width)	Impact of Problems	Technical Level to Install	Cost of Materials	Cost of Labor	Positive Comments	
R65	10	13	L-17	8	Residential	Slight surface erosion	Plant trees, shrubs, groundcovers	10' x 1'	low	low	low	low	retaining wall has stopped most shoreline erosion	
PR20	10	15			Private Road	Unstable culvert inlet/outlet, clogged culvert, severe erosion	Clean out culvert, stabilize inlet/outlet, armor ditch with stone or grass, clean out ditch, reshape ditch	30' x 10', 20' x 31'	high	medium	medium	medium		
PR21	10	17	6	2	Private Road	Unstable culvert inlet/outlet	Clean out culvert, stabilize inlet/outlet, armor ditch with stone or grass, clean out ditch, reshape ditch	10' x 5'	low	medium	low	medium		
PR22	10	18			Private Road	Moderate road shoulder erosion	Install turnouts, remove winter sand, install ditch, install ditch turnouts	1500' x 30'	low	low	medium	medium	medium	

Where Do I Get More Information?

Contacts

Little Sebago Lake Association

PO Box 912

E-mail: info@littlesebagolake.com

Windham, ME 04092

Web site: www.littlesebagolake.com

Outreach and advocacy within the watershed, provides educational materials and directs individuals to appropriate agencies.

Cumberland County Soil and Water Conservation District

201 Main St. Suite 6, Westbrook, ME 04092

(207) 856-2777

Offers assistance with watershed planning and survey work, environmental education, engineering support, seminars and training sessions, and education on the use of conservation practices.

Maine Department of Environmental Protection

312 Canco Road, Portland, ME 04103

Toll Free (888) 769-1036 or (207) 822-6300

Provides permit applications and assistance, numerous reference materials, technical assistance, environmental education, project funding opportunities, and stewardship activities for lakes.

Maine Congress of Lake Associations (COLA)

1-877-254-2511

E-mail: info@mainecola.org

Web site: www.mainecola.org

The only statewide network of individuals and lake associations devoted solely to the protection and preservation of our lakes.

Publications

The Buffer Handbook: A Guide to Creating Vegetated Buffers for Lakefront Properties. Androscoggin Valley SWCD and Lake and Watershed Resources Management Associates. 1998. 20 pgs. plus inserts.

Camp Road Maintenance Manual: A Guide for Landowners. Kennebec County SWCD and Maine DEP. June, 2000. 54 pgs.

A Homeowner's Guide to Environmental Laws Affecting Shorefront Property in Maine's Organized Towns. Maine DEP. December, 1997. DEPLW-38-B98. 28 pgs.

Maine Shoreland Zoning—A Handbook for Shoreland Owners. Maine DEP. 1999. DEPLW 1999-2. 34 pgs.

Gardening to Conserve Maine's Native Landscape: Plants to Use and to Avoid. University of Maine Cooperative Extension. Bulletin #2500. June, 1999. Folded leaflet.

Remember, the long term health of the watershed depends on you!