BRIGGS LAKE CHAIN ASSOCIATION

2006 Lake Association of the Year

2013 Conservation Project Workshop

Shoreland Education Restoration Project

A Minnesota DNR Shoreland Habitat Program

and

Healthy Lakes Mini - Grants

A Briggs Lake Chain Association Conservation Program

Gene and Barb Graff— Elk 2008

Sue Golding — Julia — 2009

Jack and Carol Kufner - Julia 2009

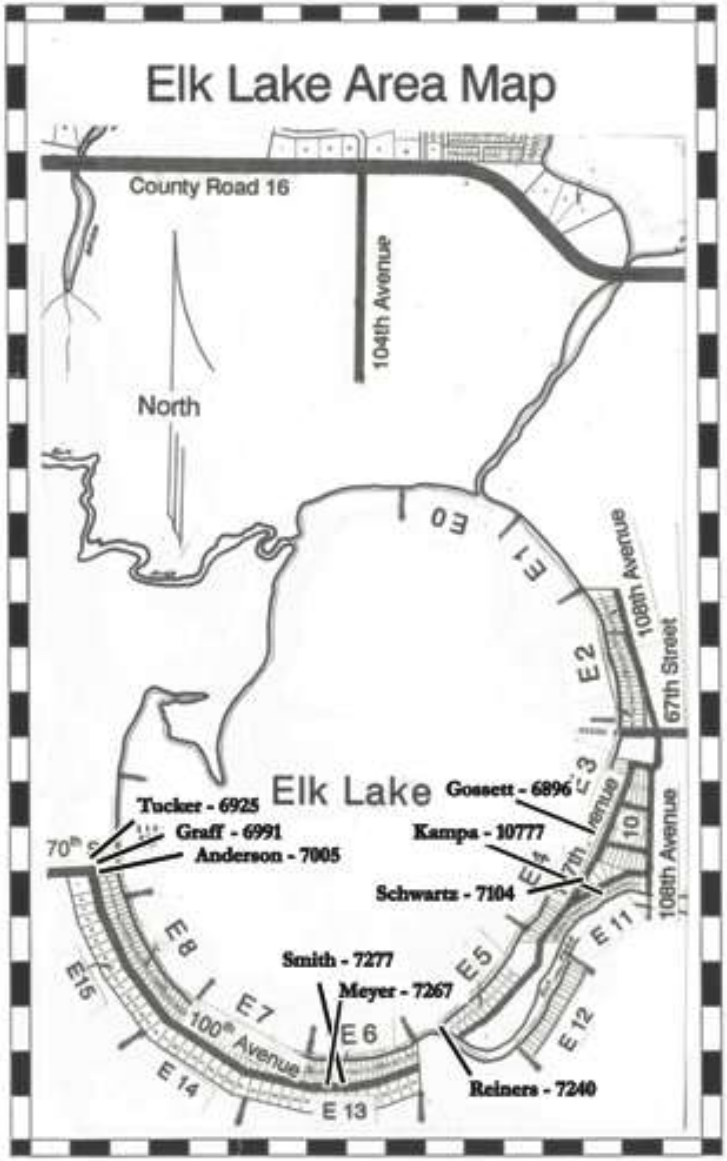
Mike Flanery — Julia — 2009

BLCA Conservation Projects

2003 - 2012

BLCA Conservation Projects

2003 - 2012



RUSH LAKE

Walt and Adelle Munsterman	5453 114th Ave.	shoreland restoration	2003
Doug and Susie Brown	5000 114th Ave.	shoreland restoration	2006
Stan and Nancy Berg	5338 114th Ave.	raingarden	2007
Kelly and Bruce Kinney	5421 114th Ave.	shoreland restoration	2012
Thomas Godlewski	10760 57th St.	conservation project	
Penny Houtz and Doug Seiler	11408 114th Ave.	conservation project	
Paul and Janet Beardon	11420 54th Ave.	conservation project	

LAKE JULIA

Kenzie and Mary Ann Phelps	4480 115th Ave.	shoreland restoration	2005
Pat and Randy Peterson	11791 42nd St.	shoreland restoration	2006
Sue and Terry Golding	11519 42nd St.	shoreland restoration	2009
Mike Flanery	4268 115th Ave.	shoreland restoration	2009
Jack and Carol Kufner	4808 115th Ave.	shoreland restoration	2009
Ruth and Brad Thom	11257 42nd St.	shoreland restoration	2012
Marcella Maier	4396 115th Ave.	conservation project	
Jack and McKelvey	4324 115th Ave.	conservation project	

BRIGGS LAKE

Tom and Marilyn Koontz	4397 109th Ave.	shoreland restoration	2005
John and Laura Schnell	4585 109th Ave.	shoreland restoration	2006
Jeff and Jane Chounard	4379 109th Ave.	shoreland restoration	2007
Duncan and Kelly Pennie	10666 55th St.	shoreland restoration	2011
Karen and Mac Nielsen	5408 100th Ave.	shoreland restoration	2011
Cam and Kim Mattson	9829 55th St.	conservation project	
Starr	5671 55th St.	conservation project	
Steve and Virginia Demeules	10874 55th St.	conservation project	
Matt and Robin Tomaszewski	11005 42nd St.	conservation project	

BIG ELK LAKE

Darrell and Barb Tucker	6925 100th Ave	shoreland restoration	2004
Darrell and Barb Tucker	6925 100th Ave	raingarden 2005	
Darrell and Barb Tucker	6925 100th Ave	dry creek bed 2007	
Darrell and Barb Tucker	6925 100th Ave	run-off dicertment 2007	
Gary and Judith Anderson	7005 100th Ave.	shoreland restoration	2007
Gene and Barb Graff	6991 100th Ave.	shoreland restoration	2008
Ken and Anne Gossett	6896 107th Ave.	shoreland restoration	2011
Wayne Smith	7277 100th Ave	shoreland restoration	2012
Greg and Paula Kampa	10777 70th Ave.	shoreland restoration	2012
Paul and Laurian Reiners	7240 107th Ave.	conservation project	
Larry and Nancy Meyer	7267 100th Ave.	conservation project	
Terry and Cindy Schwartz	7104 107th Ave.	conservation project	

BRIGGS LAKE CHAIN ASSOCIATION

2006 Lake Association of the Year

2013 Shoreland Education Restoration Project

Workshop Agenda

April 20, 2013

8:30 **Refreshments**

8:45 **Welcome and introductions**

Why are we here?

Barb Tucker BLCA Healthy Lakes Committee

John Schnell BLCA Healthy Lakes Committee

9:15 **Basics of Lakeshore Restoration and Lessons from Previous Projects**

Tiffany Determann Sherburne Soil and Water Conservation District

Previous BLCA project recipients

10:30 **Break**

10:45 **Basics of Lakeshore Restoration [continued]**

11:15 **Financial Assistance**

What's available and how you get it

Kenzie Phelps, BLCA Healthy Lakes Committee

11:45 **Questions???**

and Expectations

12:00 **Adjourn**

BRIGGS LAKE CHAIN ASSOCIATION
2006 Minnesota Lake Association of the Year

Conservation Projects Workshop
April 20, 2013

WHY ARE WE HERE TODAY?

1. Learn about the benefits of shoreland restoration and other conservation efforts

2. Learn how the Overfly Project and conservations efforts are connected

3. Learn the basics of doing a conservation project:
   Shoreland buffers
   Rain gardens
   Runoff diversion

4. Introduce SERP II [Shoreland Education Restoration Project], Healthy Lakes Mini Grants, SWCD Funds

5. Learn how to get grant money

6. Plan a clear next step

News Release
For Immediate Release
April 11, 2013

Briggs Lake Chain Association Continues Conservation Programs

PALMER TOWNSHIP-- Briggs Lake Chain property owners will benefit again this year from funds provided to the lake association for shoreland restoration and other conservation projects, thanks to support from the Minnesota Department of Natural Resources Shoreland Habitat Program, Sherburne Soil and Water Conservation District and the BLCA.

With the Briggs Lake Chain [Big Elk, Briggs, Rush and Julia] and the Elk River still on Minnesota's "impaired waters" list, the Briggs Lake Chain Association [BLCA] has increased it's focus on shoreland restoration and other conservation projects. The lake association's ongoing Flyover Project has also highlighted the clear need for property owners to do their part in improving water quality. The Briggs Lake Chain Association will administer funds from the DNR, SWCD and BLCA to property owners and provide education and assistance to establish these conservation projects.

"We now have good data about the causes of poor water quality, and several sources of funds to assist property owners to do their part to protect and improve the lakes," BLCA president Dan Merchant said. "We all have the responsibility to do what we can to deal with poor water quality. What we do now has a big impact on the future of the lake chain. We must act wisely for our current lake users, as well for our children and their children. We know what to, but it takes everybody's participation"

The BLCA, with assistance from the Sherburne Soil and Conservation District and MN DNR, has over the past several years helped fund and establish over 20 restoration and rain garden projects. The SERP [Shoreland Education and Restoration Project] grant extends through June 2013. As part of SERP, the BLCA is holding an introduction and planning workshop for interested property owners on April 20. The workshop is free, and will be held at the Palmer Town Hall from 8:30 AM to noon. At the conclusion of the workshop property owners will know how to start their projects and have a clear next step. BLCA members who have already established restoration projects will provide technical assistance and labor for each new project.

About the Briggs Lake Chain Association
The BLCA is an active, volunteer lake association made up of residents on Big Elk Lake, Briggs Lake, Lake Julia, and Rush Lake. In existence for over 50 years, the BLCA has been a steward for the care and improvement of the chain of lakes. In 2006 MN Waters recognized the BLCA as the "Lake Association of the Year" for all of Minnesota. In addition to shoreland restoration, the association also has ongoing programs to monitor water quality, manage curly leaf pondweed [an invasive aquatic species known for aggressively clogging lake waters], and address septic and other runoff problems identified in the Flyover Project.

Contacts:
Dan Merchant, BLCA President smerchant@frontiernet.net
Kenzie Phelps, BLCA Healthy Lakes Committee kenziephelps@gmail.com

BLCA

Briggs Lake Chain Association

BLCA

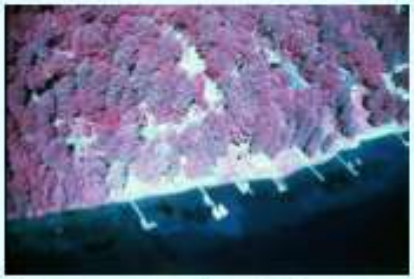
The Flyover Process

The Flyover study is a step in the process of turning around the water quality in our chain of lakes.

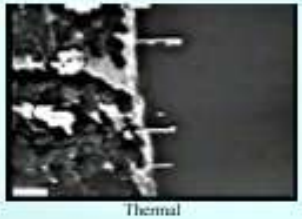
- Healthy Lakes Committee recognized the flyover could be an effective way to assess the role of individual property owners in the decline of our lake quality
- Problems on individual properties could be identified so they can be fixed
- The BLCA sponsored and planned the A. W. Research Laboratories, Inc. (AWRL) Flyover study, with financial assistance from Sherburne County and Palmer Township

BLCA

Example Report

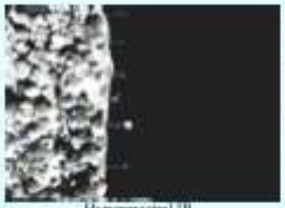


Thermal



Thermal

Visible



Hyperspectral IR

Hyperspectral WP

Influence on Lake

Map Position	Septic Point Source	Septic Non-point Source	Runoff Point Source	Runoff Non-point Source	Toxic Point Source	Toxic Non-point Source
14.1		X		X		
14.2		X		X		
14.3		X		X		

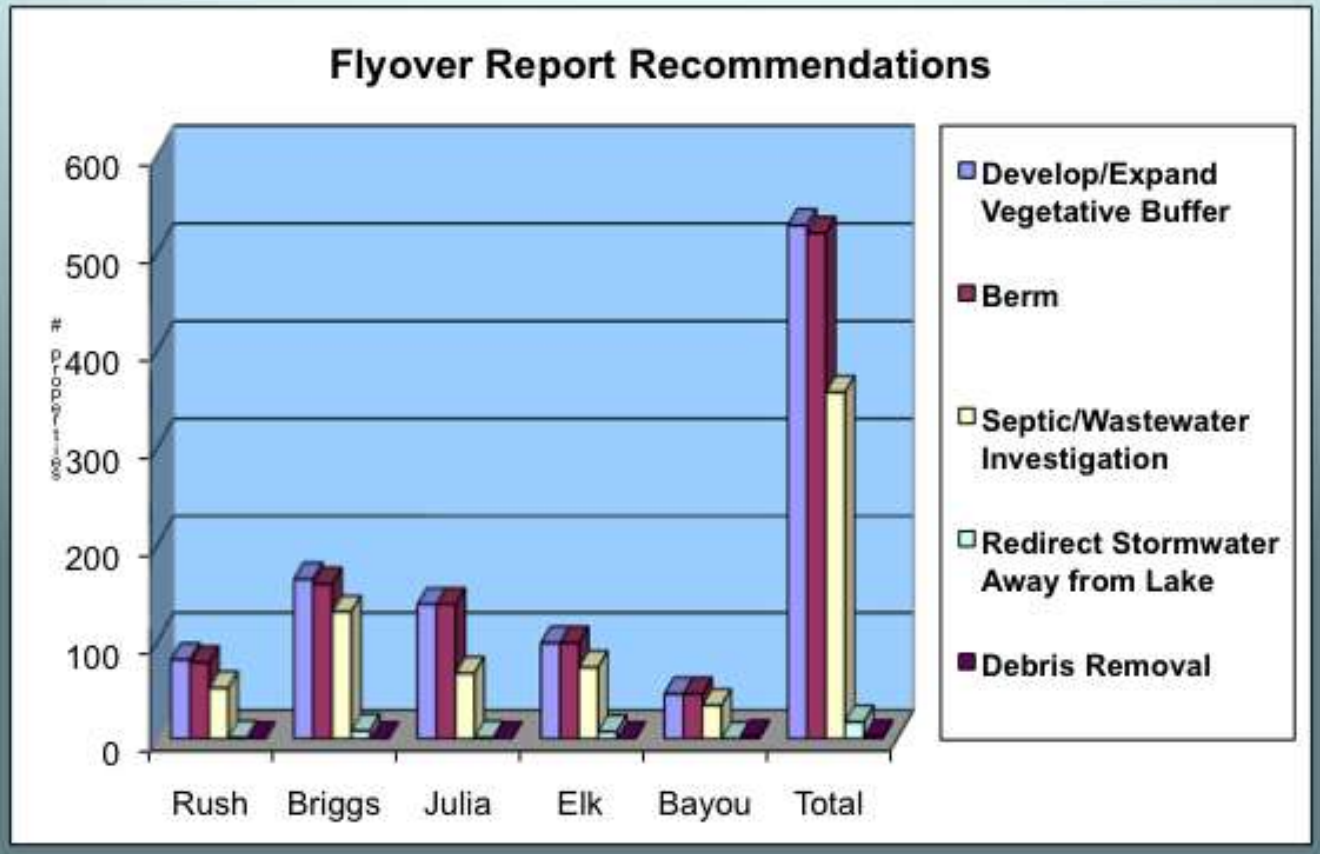
Ordinance Non-conformity

Map Position	Lake Setback	Percent Impervious	Lot Line Setback	Fill/Dredge in Lake bed	Vegetative Buffer less than 100 feet	Other
14.1	X				X	
14.2	X				X	
14.3	X				X	

Recommendations

Map Position	Septic/Wastewater Investigations	Develop/Expand Vegetative Buffer	Berm	Redirect Stormwater away from lake	Debris Removal
14.1	X	X			
14.2	X	X			
14.3	X	X			

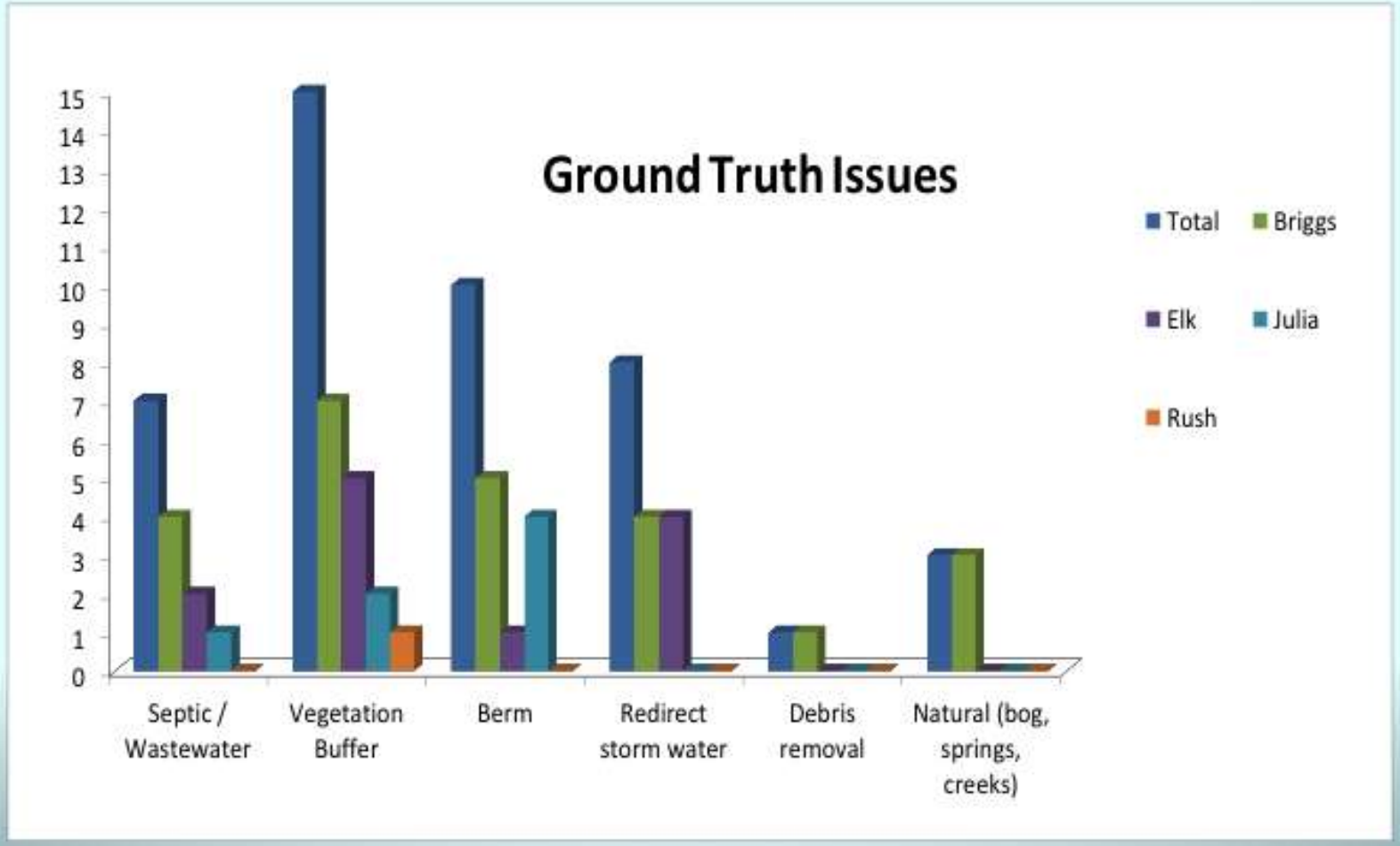
Flyover Report Recommendations



BLCA

Groundtruthing

- Nobody's property on our lakes is perfect
- HLC volunteers will need to be trained by AWRL
- HLC volunteers hope to look at properties with the owners' cooperation and together examine the property for potential problems, and determine if there is a problem, the extent and source of the problem
- Implementation of the Recommendation and the "Notes" part of the analysis for these confirmed problems is CRUCIAL to getting the full value of the flyover study. Groundtruthing is essentially an on-site validation of concerns identified in the examination of the aerial images. It involves an on-site consultation with a trained volunteer and a validation of the data for that site.
- A HLC priority is to groundtruth the properties of the HLC members first then people who volunteer/sign up


Ground Truth Issues
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Septic / Wastewater
Vegetation Buffer
Berm
Redirect storm water
Debris removal
Natural (bog, springs, creeks)
Total
Briggs
Elk
Julia
Rush

BLCA

Property Owners Mission

- Use the AWRL report and groundtruthing to validate point and non-point sources of nutrients destined for the lake
- Prioritize actions to minimize the adverse impacts of the pollution
- Successful efforts will help in attaining the ultimate goal of improved water quality, along with cleaner and healthier environment for everyone to enjoy

Stewardship

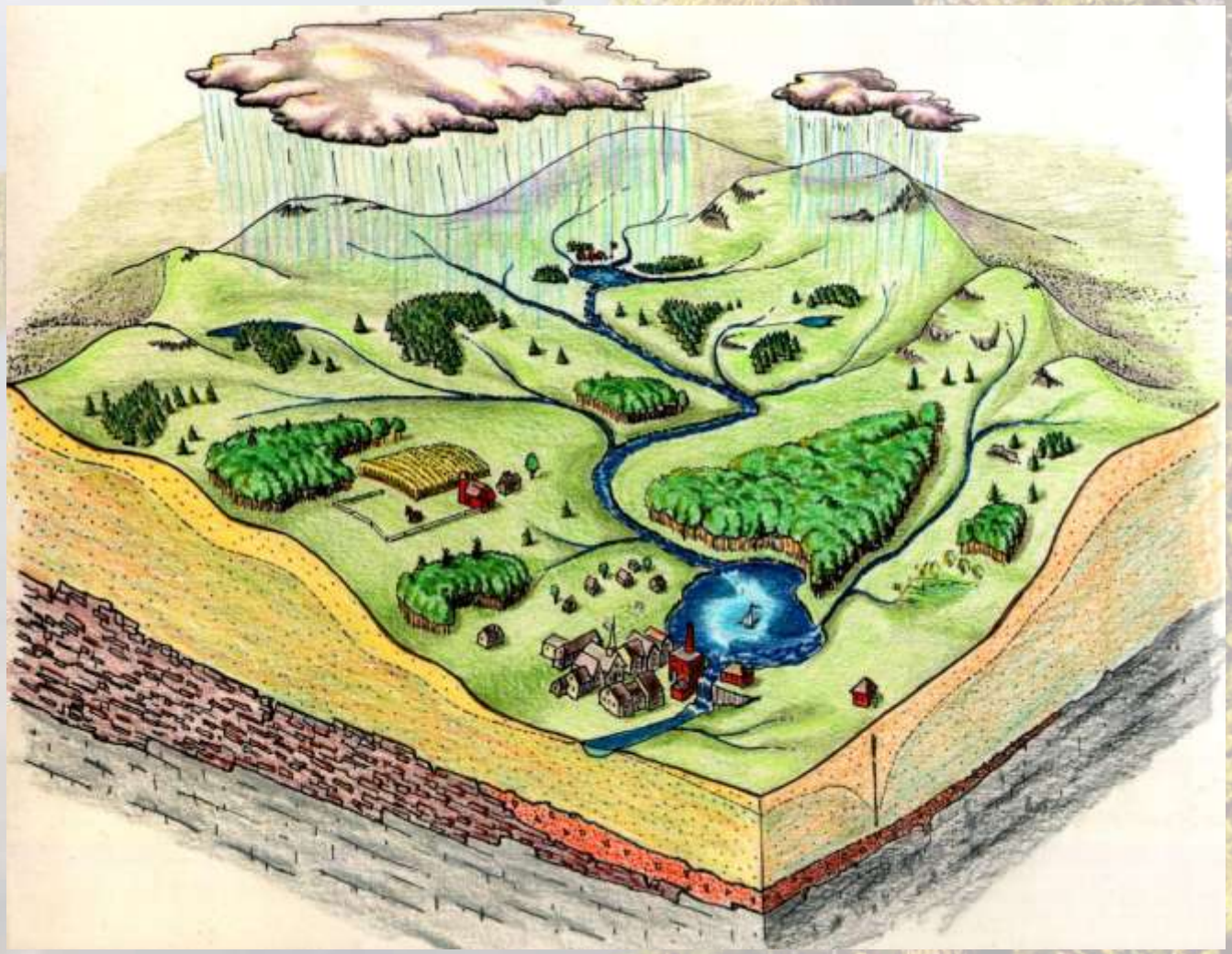
Stewardship means doing what I can to conserve what does not belong to me alone, holding in trust that which exists before, during, and after my time, caring for, to the best of my ability, what is beyond and greater than myself.

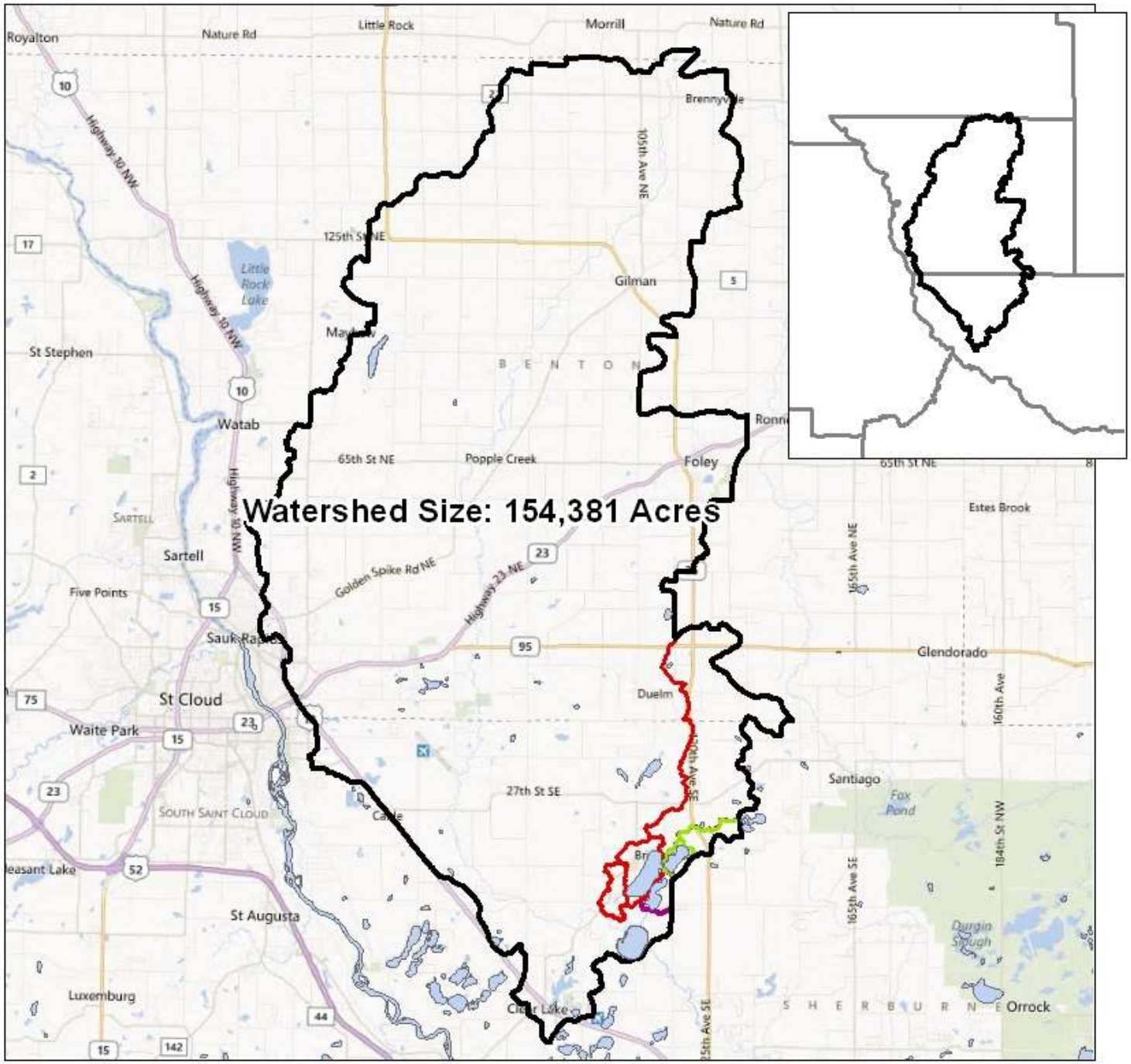
OBJECTIVES

- Understand the cumulative consequences of residential development on water quality
- Gain knowledge of practices to stop or reverse human impacts
- Expand on shoreline buffer process

Everyone Lives in a Watershed

A watershed is an area of land that drains to a lake or river.
Runoff carries sediment and pollutants to our lakes and streams.




Watershed Size: 154,381 Acres
Royalton
Nature Rd
Little Rock
Morrill
Nature Rd
Highway 10 NW
125th St NE
105th Ave NE
Gilman
Little Rock Lake
St Stephen
Watab
65th St NE
Popple Creek
Foley
Estes Brook
Sartell
Golden Spike Rd NE
Highway 23 NE
Five Points
Sauk Rapids
Glendorado
St Cloud
Waite Park
Duelm
160th Ave
Santiago
27th St SE
South Saint Cloud
Fox Pond
184th St NW
St Augusta
Luxemburg
Orrock
Sherburne

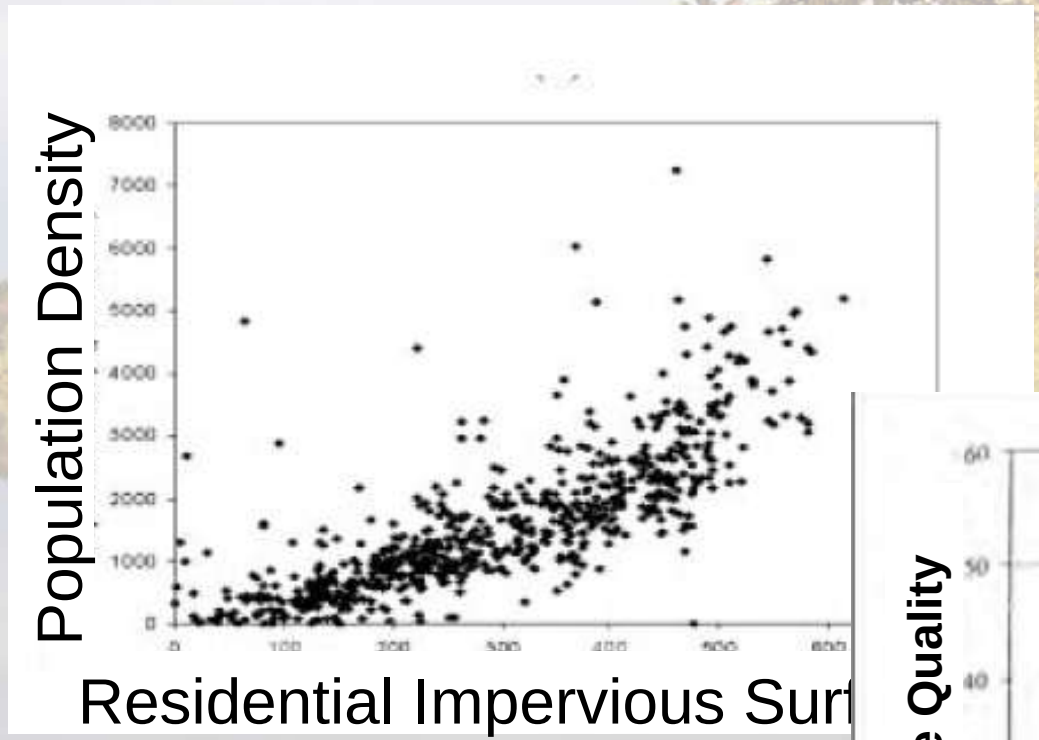
IMPERVIOUS SURFACE

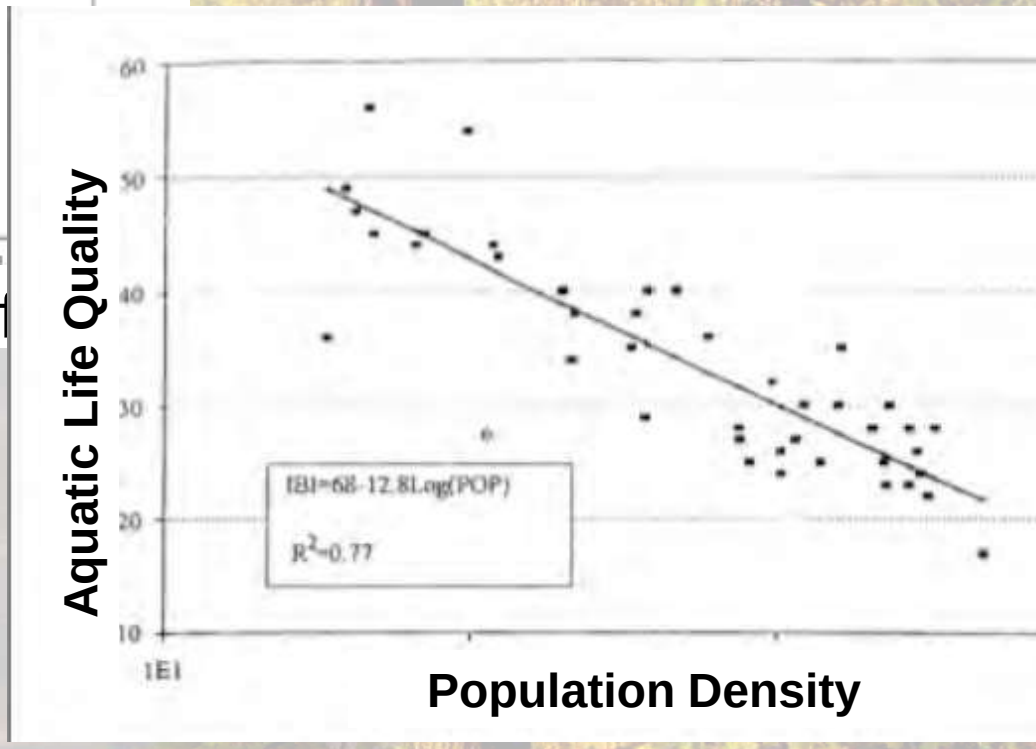
A surface that does not permit the absorption of fluids

Such as: Rooftops, walkways, patios, driveways, parking lots, lawns

- Eliminate rainwater infiltration and groundwater recharge (increases runoff)

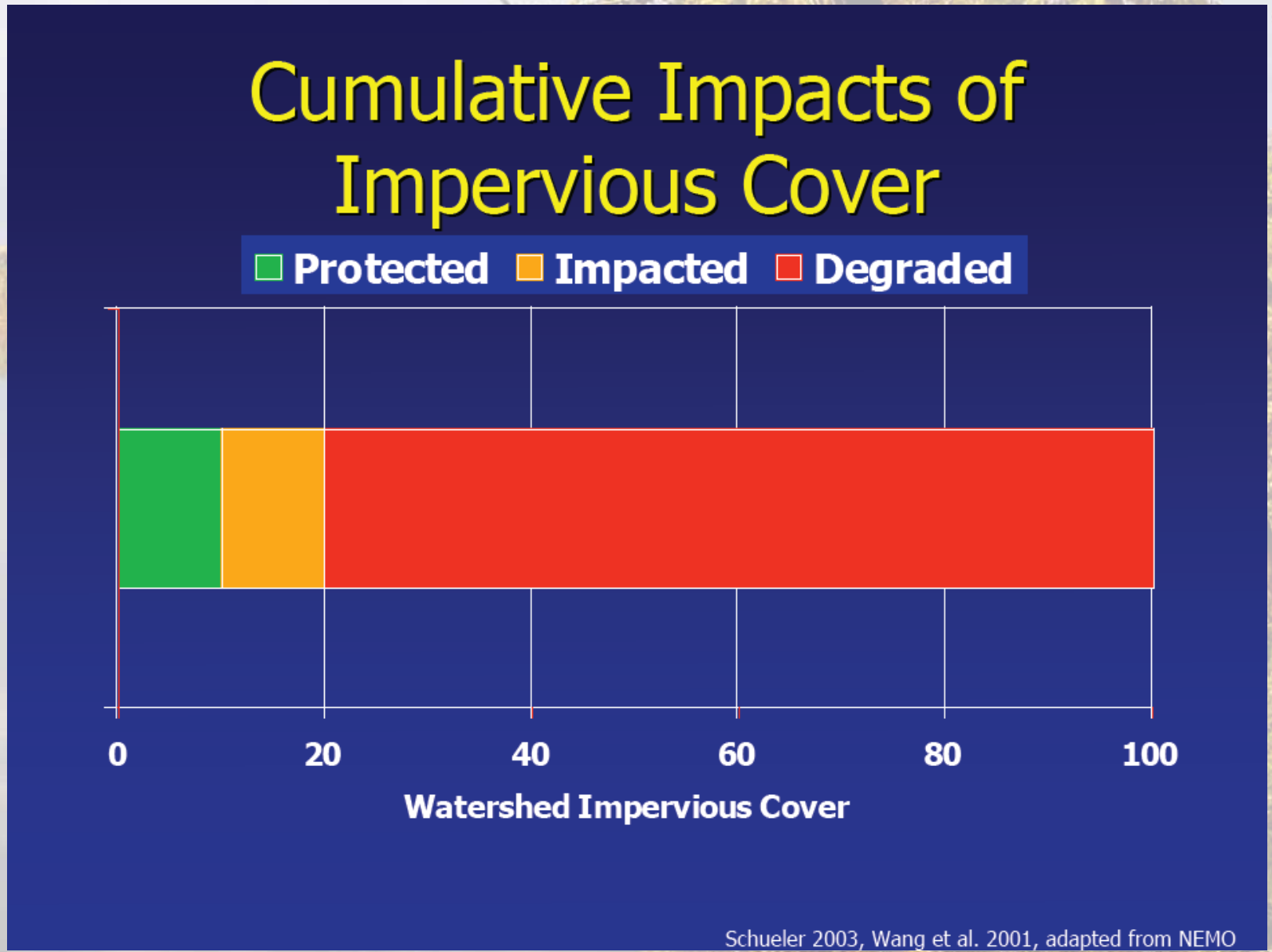
POPULATION V.S. IMPERVIOUS SURFACE



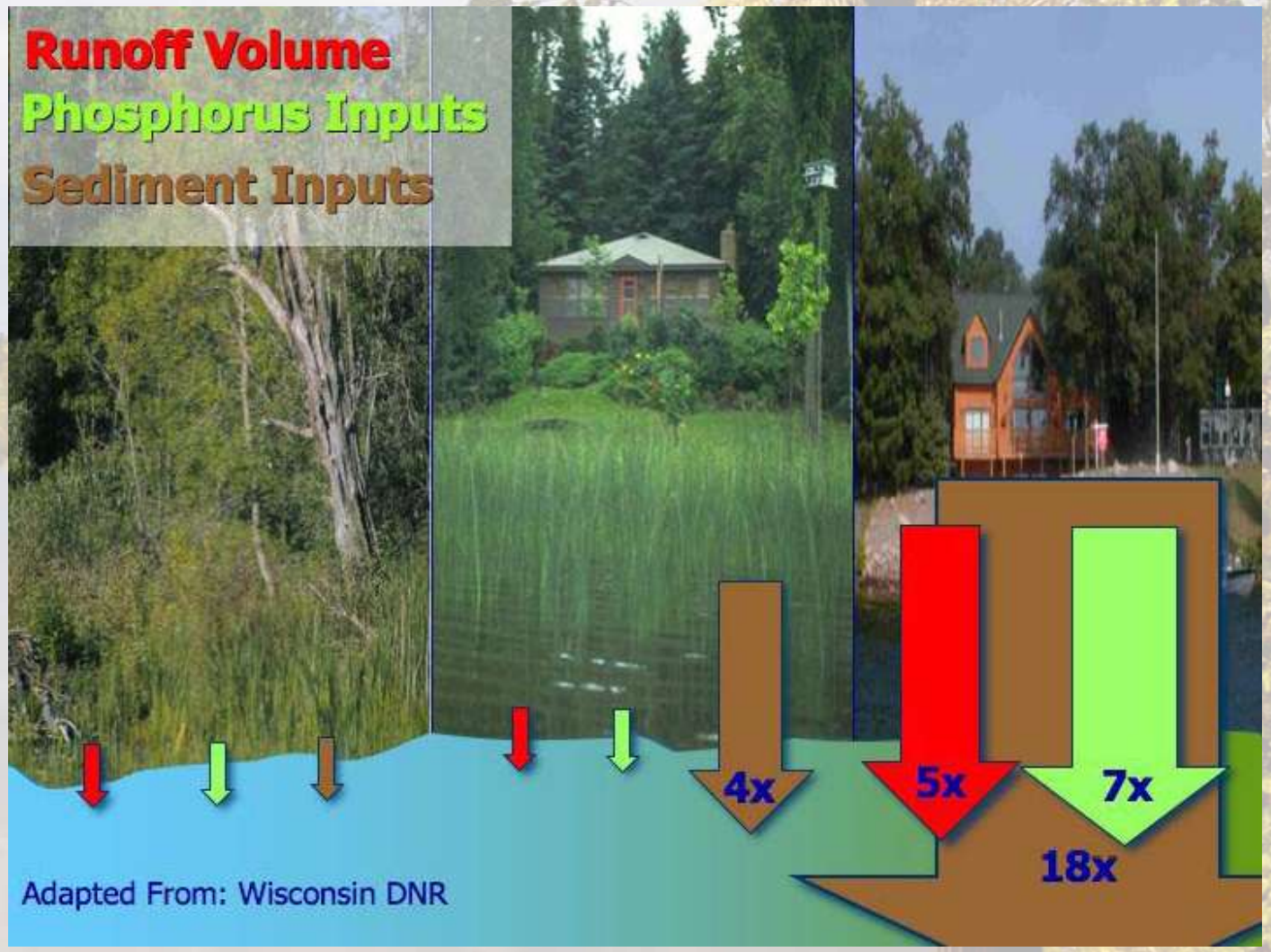


MN DNR

Level at which significant impact is Observed:
Impervious Surface Coverage: 10-20%
Housing Density: > 1 unit/acre



Natural vs. Developed Land Use



7 X more Phosphorus after Development

CALCULATING IMPERVIOUS SURFACE

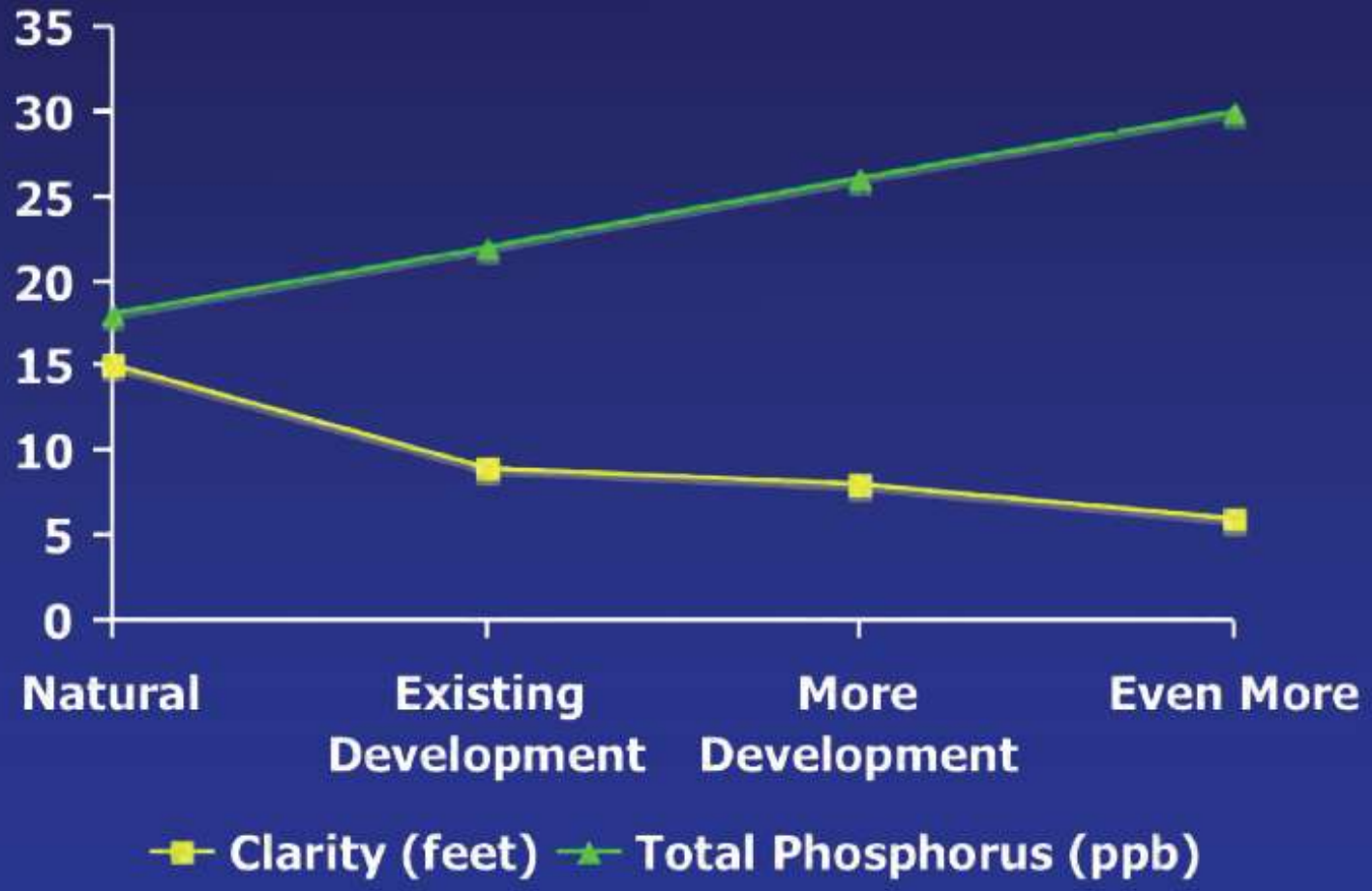
Use Beacon Website

http://beacon.schneidercorp.com/

Parcel: 1.1 Acres
Impervious: .36 Acres
32% Impervious

Image from the Metropolitan Design Center Image Bank.

Build-out Predictions



Itasca County Lake Sensitivity Project, Rian Reed, Minnesota DNR

Leaking/Failing Septic Systems

- Excess nutrients
  - nitrogen and phosphorus

Standard septic systems are designed to remove pathogens NOT nutrients

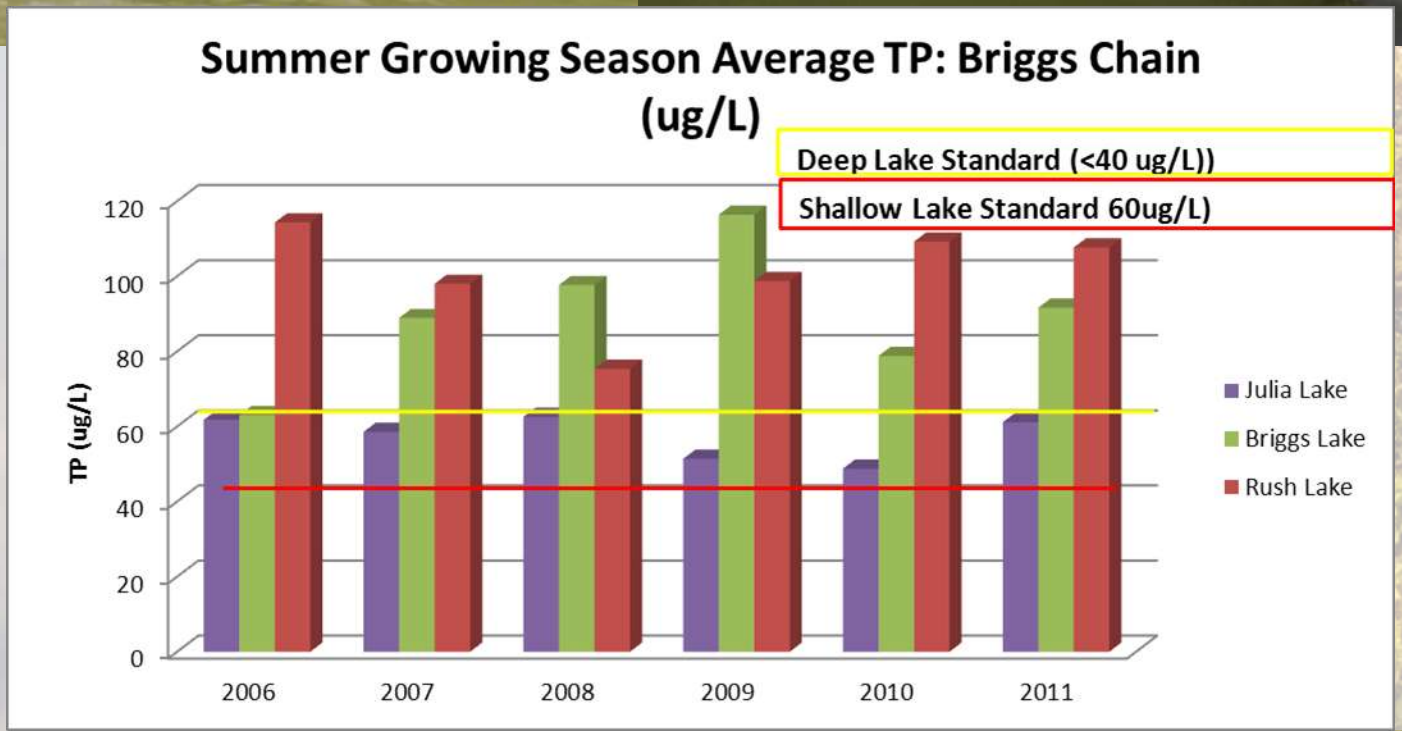
Impacts of Motorized Watercraft on Lakes

Effective Mixing Depth

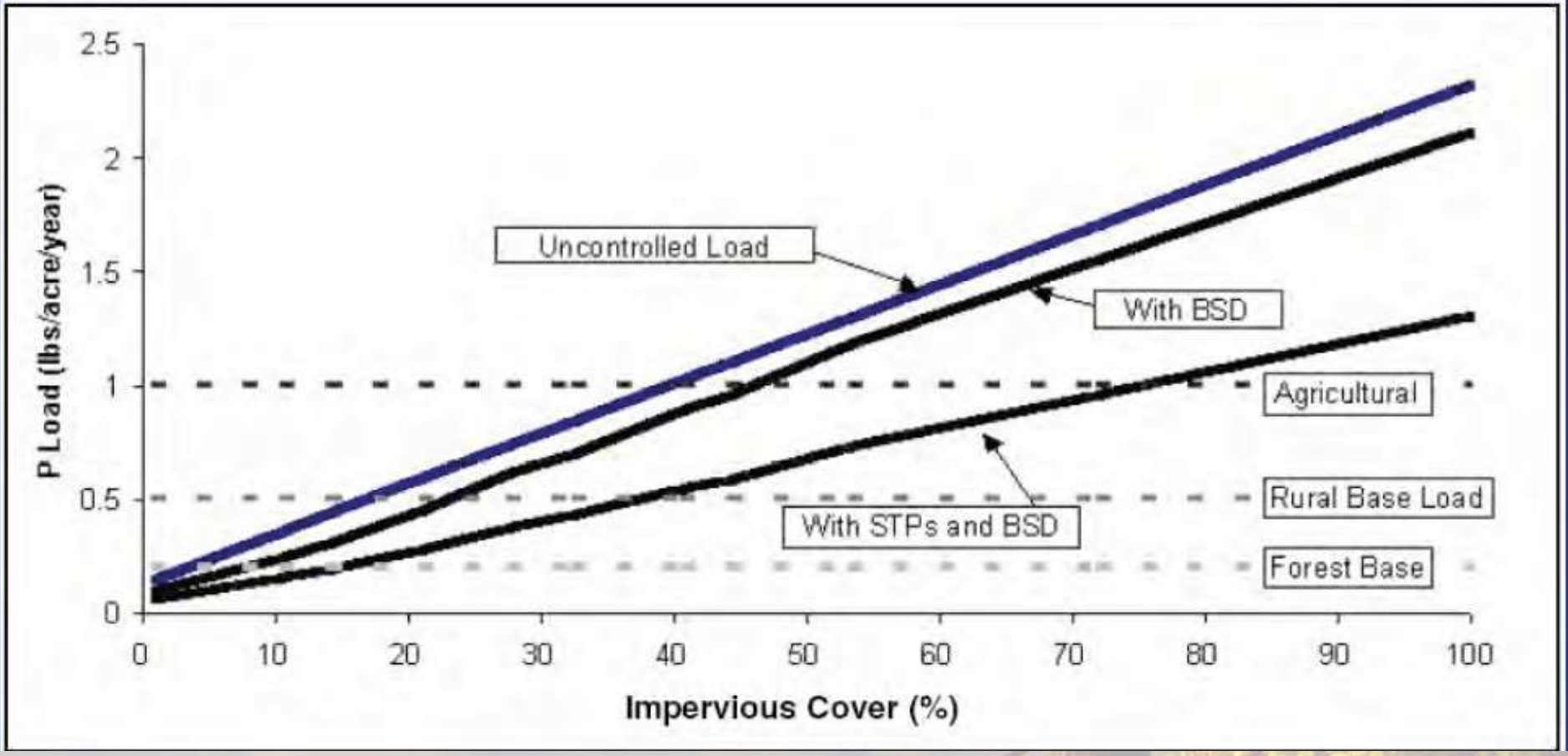
Horse-power	Mixing Depth (feet)
10	6
28	10
50	15
100	18

MN State Impaired Waters:
Julia Lake
Briggs Lake
Rush Lake
Big Elk Lake

TOO MUCH NUTRIENTS



Phosphorus Pollution increases with % Impervious Cover



GUIDE TO STEWARDSHIP

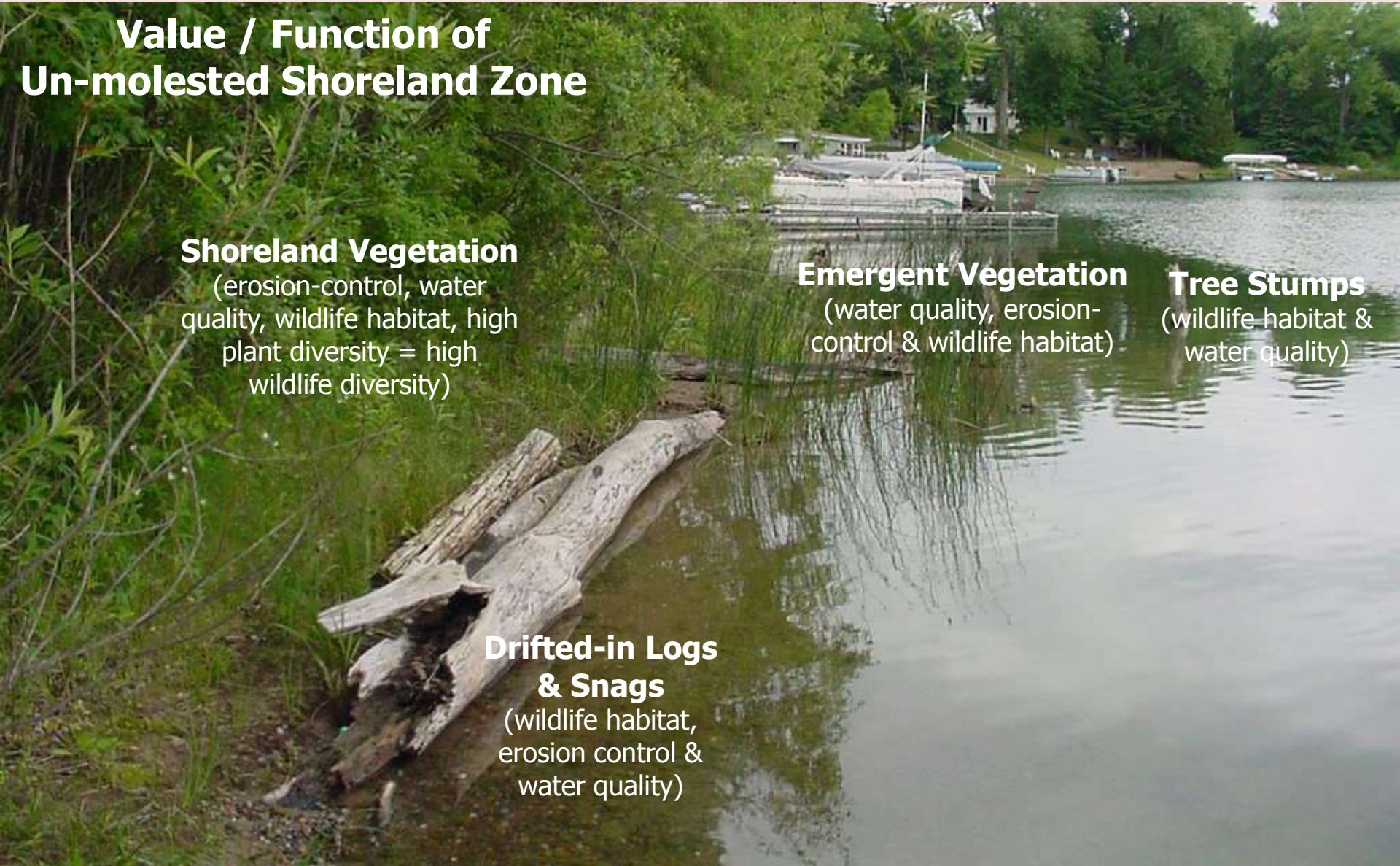
- Shoreline Buffers
- Minimize Impervious Surfaces
- Runoff Control (Rain Gardens, berms, infiltration trench, swales, cistern)
- Septic System Maintenance
- Boating Guidelines
- Filter Strips
- Others

Natural Shoreland Buffers

with Native Plant Communities

Buffers are areas or strips of land maintained in permanent vegetation to help control pollutants and other environmental problems. Native plants are recommended.

Buffers - Shoreline Revegetation
with Native Plant Communities

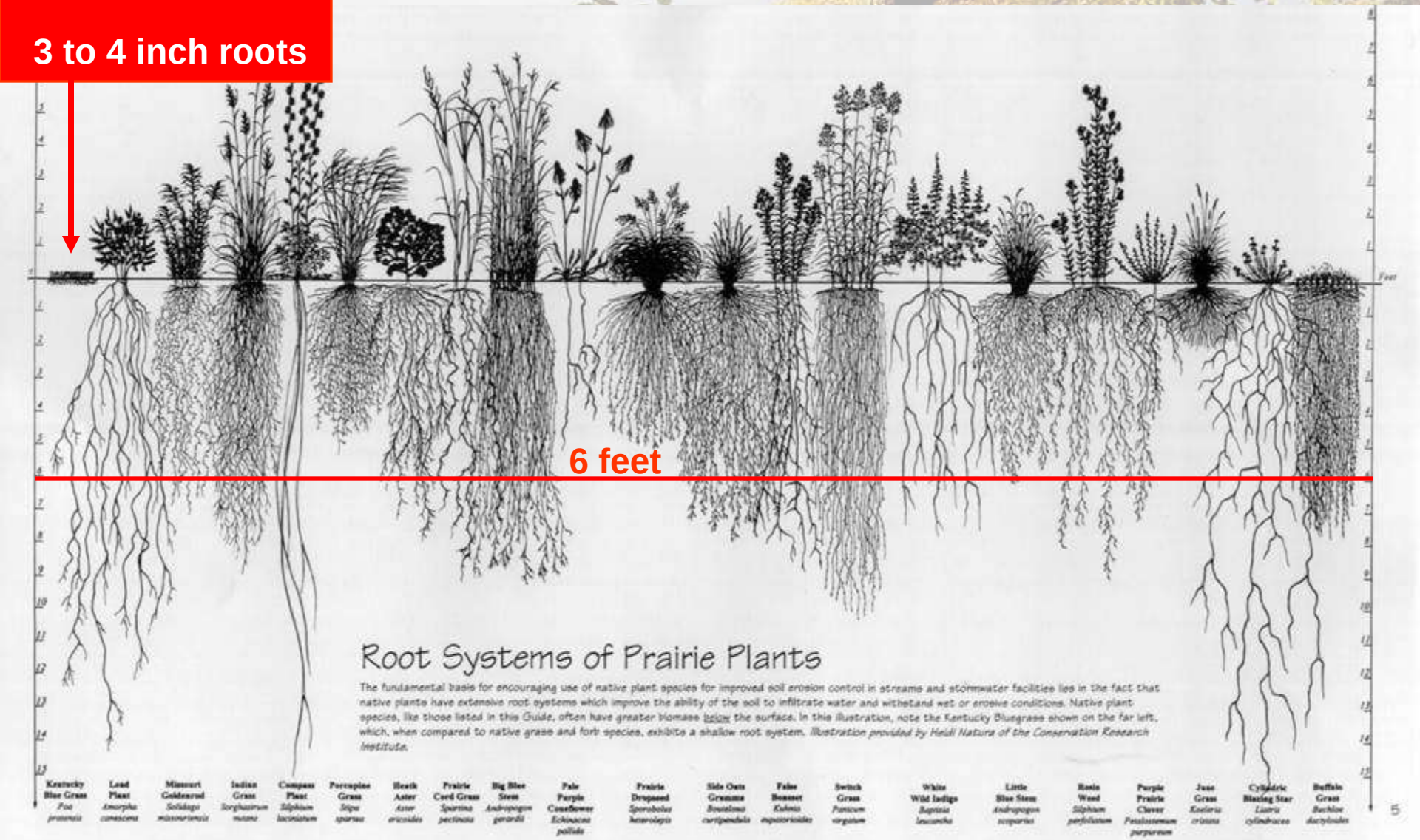


Roxanne Esperenza / MnDNR

Why Native Plants?

Blue Grass

3 to 4 inch roots



Conservation Research Institute

BENEFITS OF A NATIVE SHORELINE STABILIZATION

- Stabilize shoreline & reduces erosion
- Reduce wave impact
- Reduce impacts from upland runoff
- Traps sediments
- Filter nutrients & pollutants
- Enhances water infiltration and storage
- Increases wildlife habitat
- Acts as a travel corridor for wildlife
- Discourages nuisance levels of wildlife
- Create a natural aesthetic
- Reduces lawn maintenance
- Control insects naturally
- Attracts Frogs, Turtles & Butterflies = Attracts Kids

CMWD


DO I NEED A BUFFER?

HOW WILL I KNOW IF I NEED A BUFFER?

HOW WILL I KNOW IF I NEED A BUFFER?

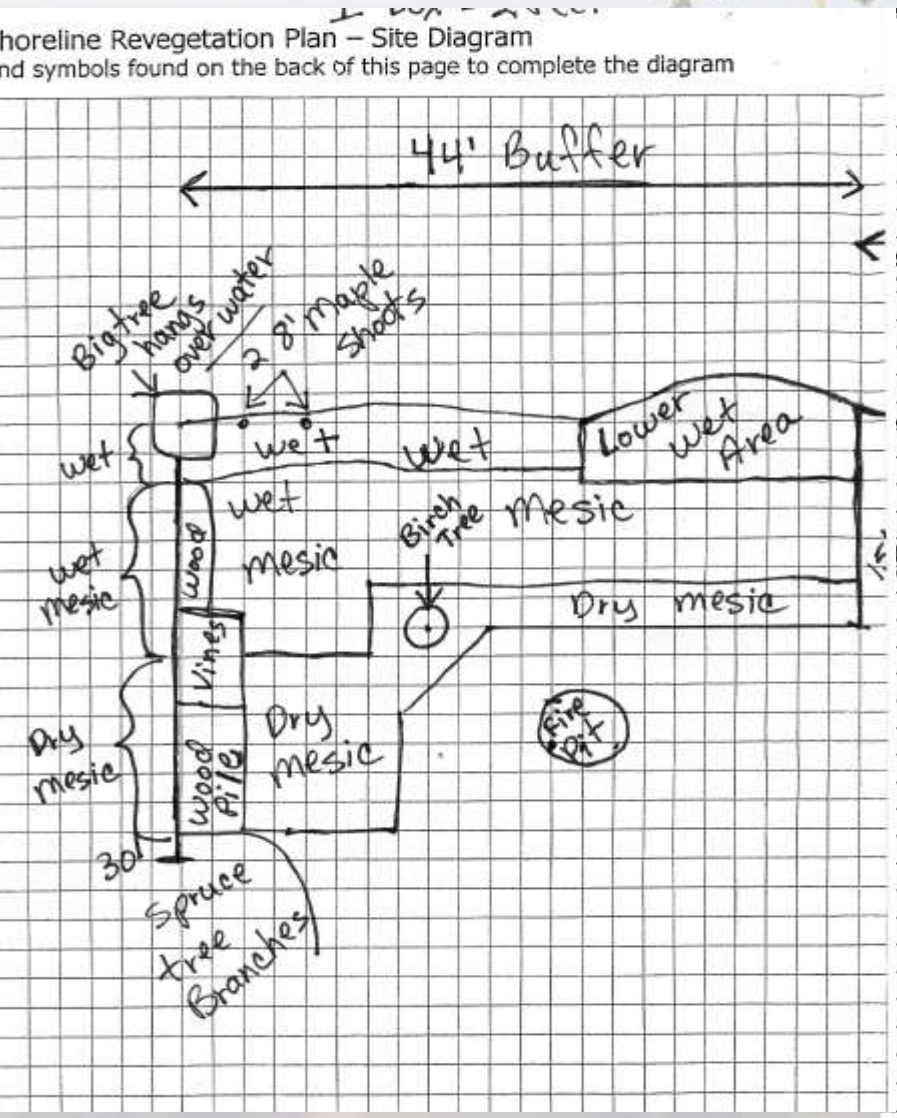
HOW WILL I KNOW IF I NEED A BUFFER?

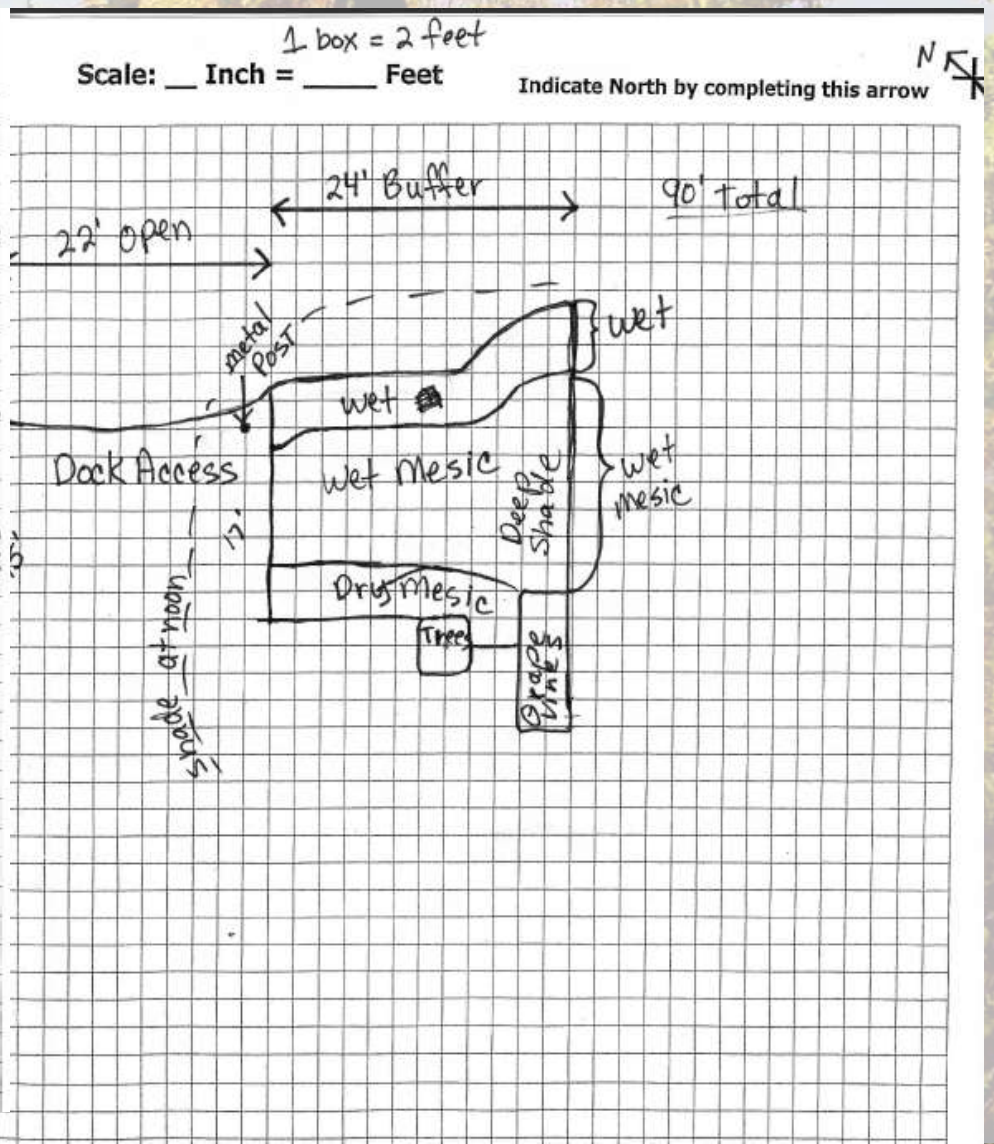
WHAT TO EXPECT

- Contact Representative from BLCA or SWCD
- Site Evaluation (current and planned design)
- Plant Selection & Design (what's your vision?)
- Permits
- Site preparation
- Installation
- Maintenance (~3 yrs)

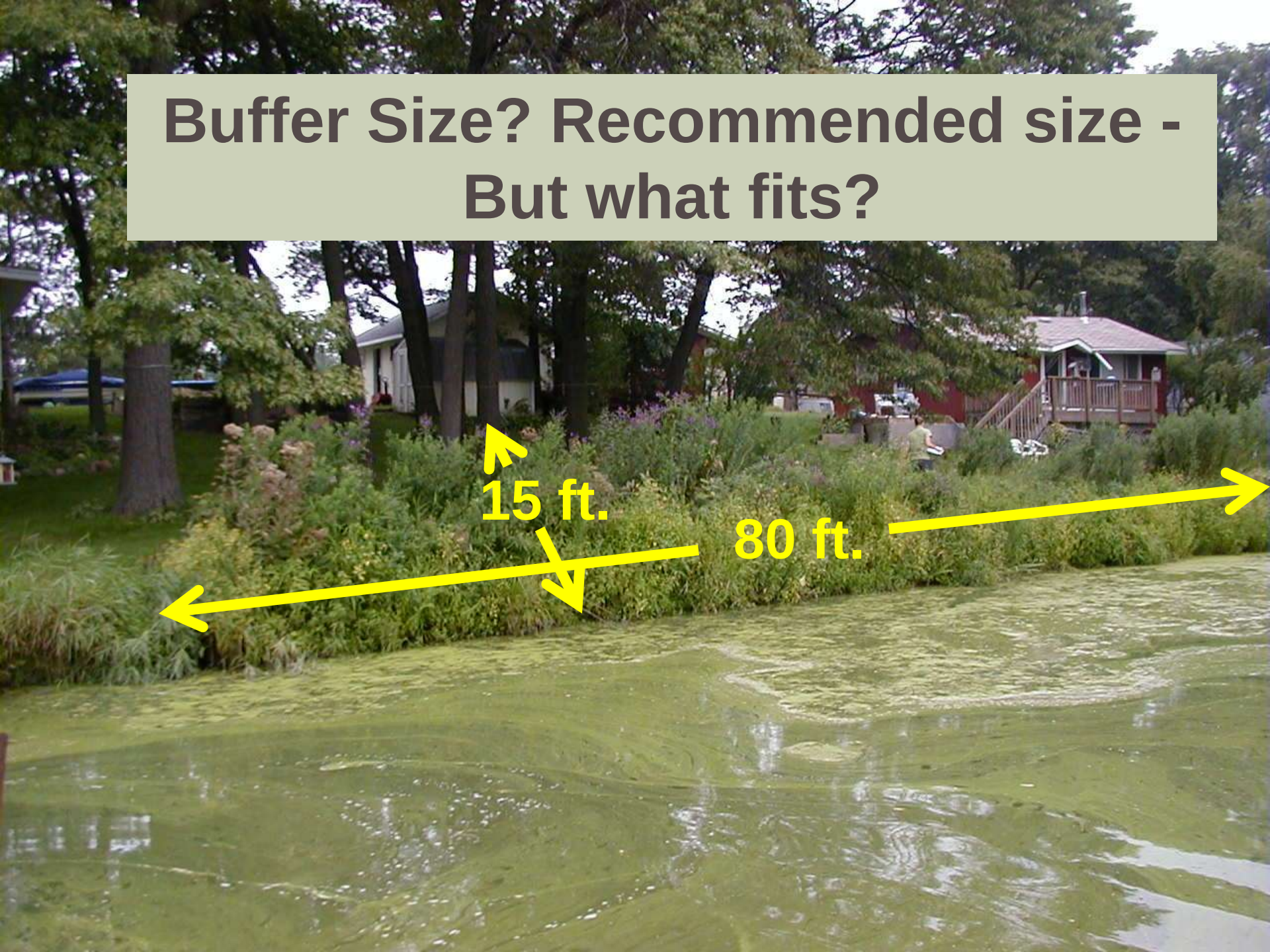
Site Evaluation

Shoreland sketch (current conditions & your buffer vision)

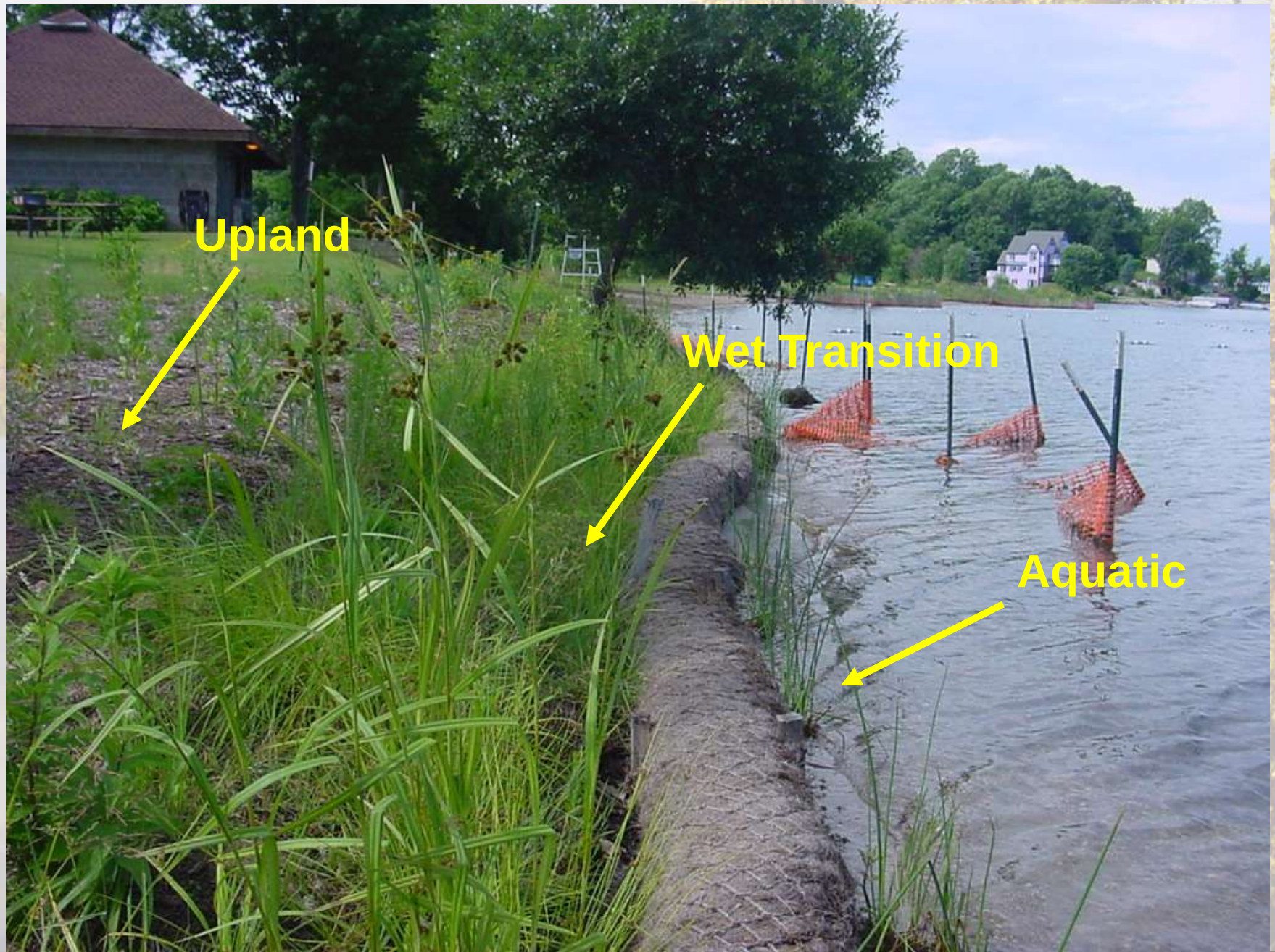




Buffer Size? Recommended size - But what fits?



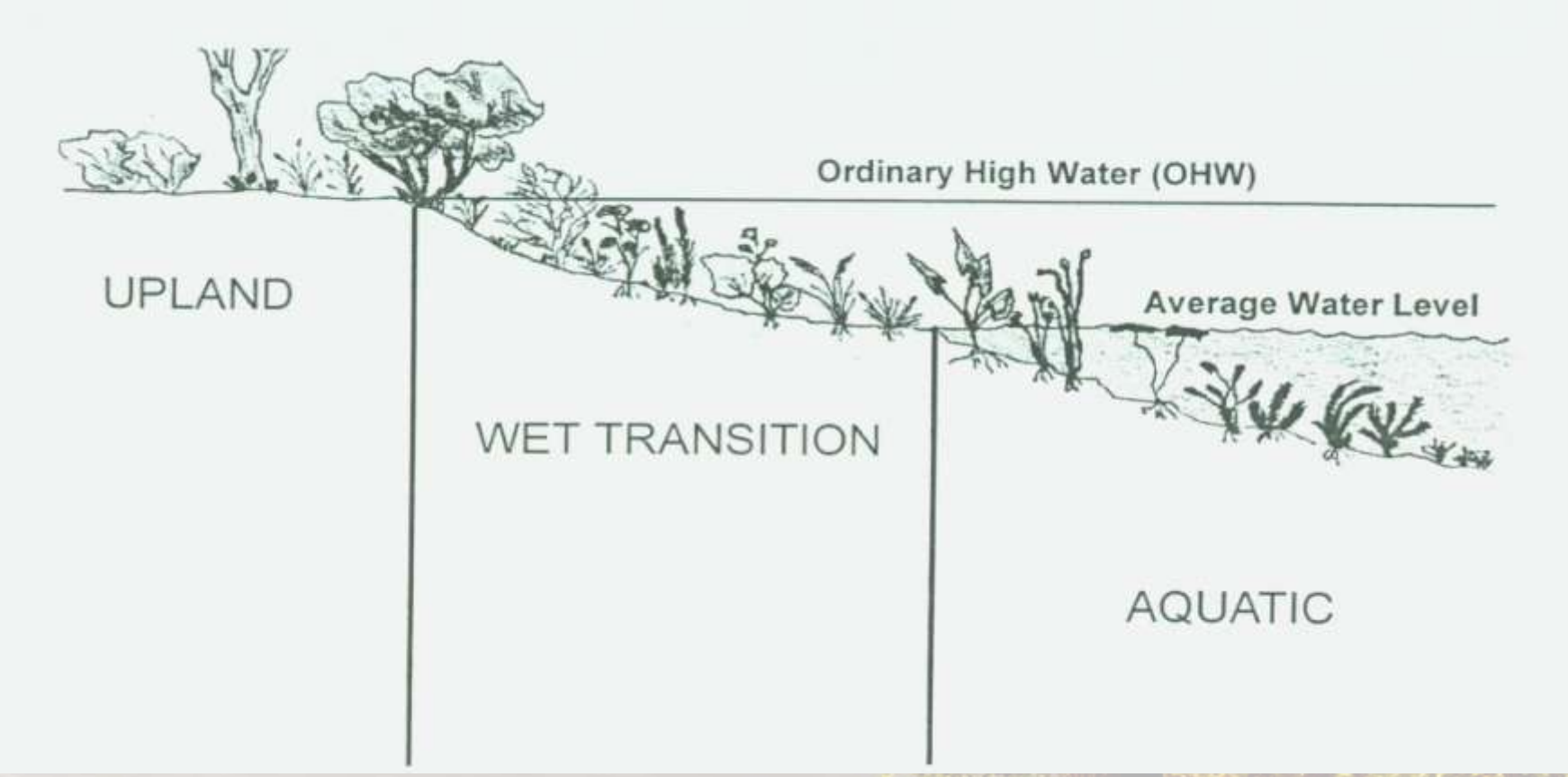
PLANT SELECTION



PLANT SELECTION

- A 50/50 mix of grasses/sedges and wildflowers
- Inventory the Lakeshore – what native plants are there?
- Woody plants should be considered

PERMITS



OHW – The point where vegetation changes from predominantly aquatic to predominantly terrestrial

Site Preparation

Eliminate turf grass and non-native vegetation

Glyphosate herbicide – Rodeo required close to water


Apply 2 inches of mulch prior to planting seedling plugs.

STAKE EROSION BLANKET OVER MULCH IN FLOOD PRONE SHORELAND

Planting seedling plugs

OR STOP MOWING AND SEE WHAT COMES IN


A FEW THINGS I KNOW

GEESE WILL EAT YOUNG PLANTS

SO WILL MUSKRATS

Prairie Cord Grass vs. Reed Canary Grass

BORDERS

Brick Edging

“Bullet” Edging

Trench-Master
(Edging Trencher)

Designed & Installed by:
Natural Shore Technologies


Briggs Lake
Before
No home for
wildlife here


After

Phelps, Lake Julia

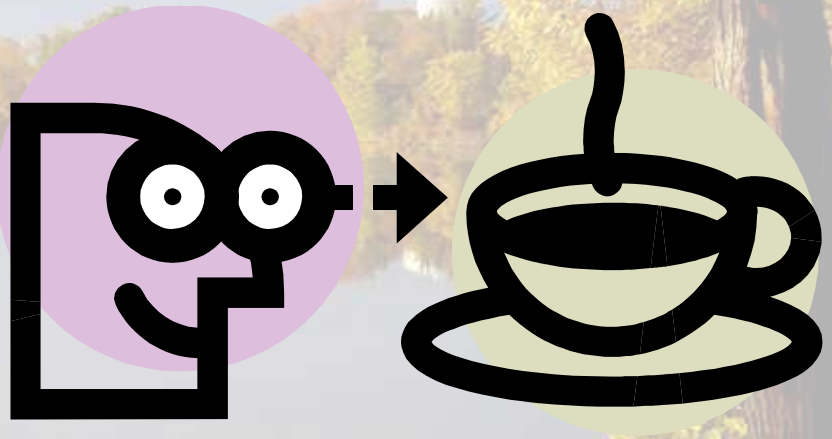

Schnell, Briggs


Tucker, Big Elk


Koontz, Briggs Lake
WATER
QUALITY
PROJECT


Golding

MOVING ON....

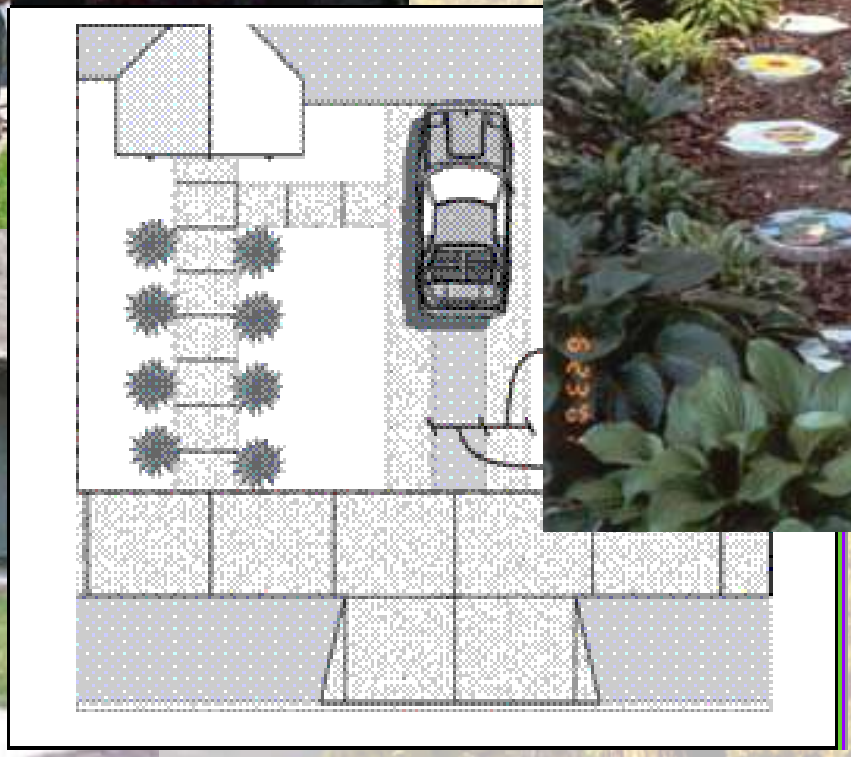


MINIMIZE IMPERVIOUS SURFACE

Parcel: 1.1 Acres
Impervious: .36 Acres
32% Impervious

Use Beacon Website

PERVIOUS PAVERS/ASPHALT

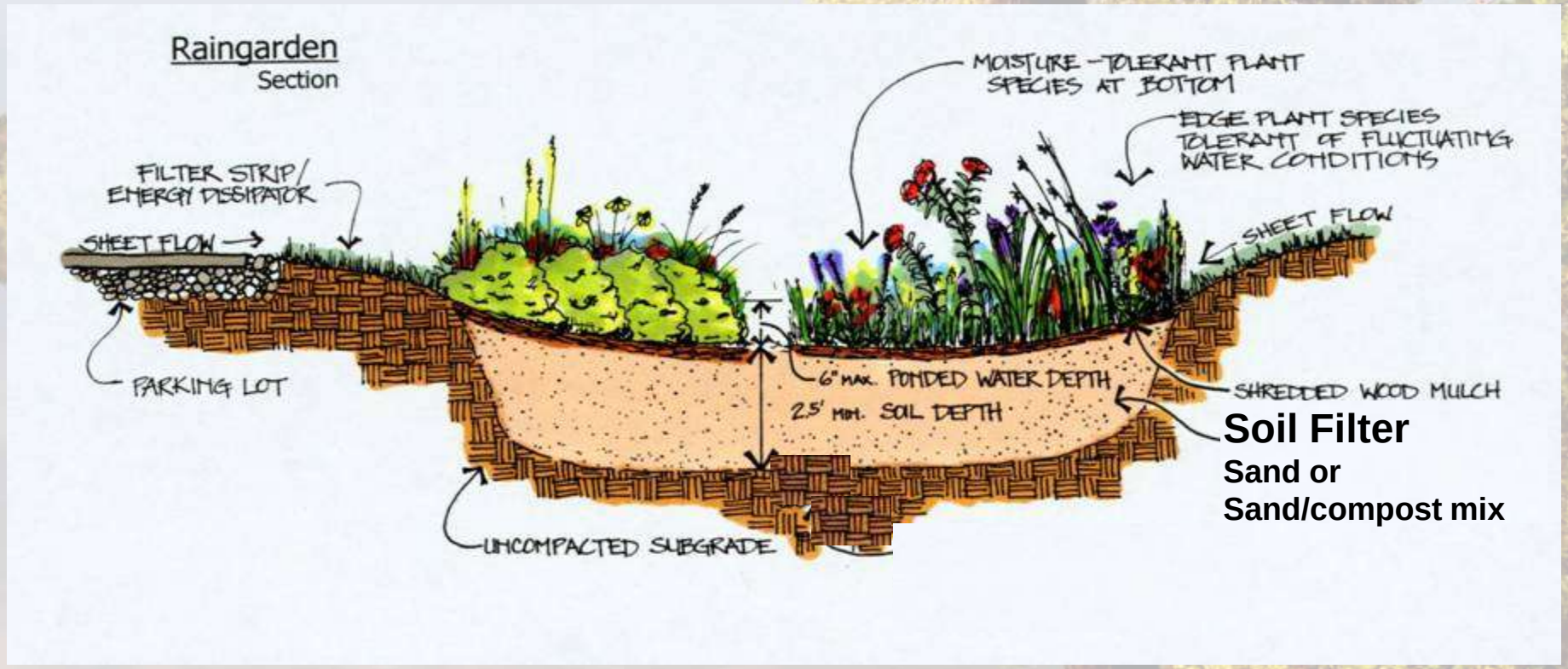


RAIN GARDENS

- Natural Landscape Features
- Captures runoff from impervious surfaces
- Protects and preserves nearby lakes, streams and wetlands

Rain garden - Runoff Treatment

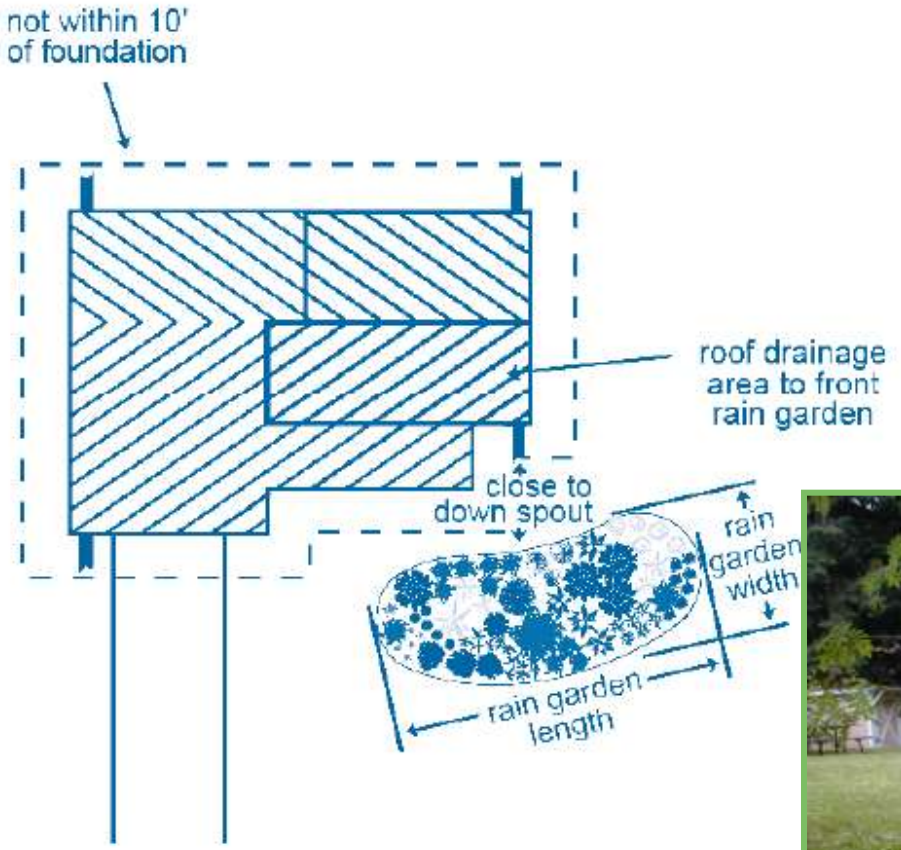
Evapo-transpiration (Treatment by Plants)



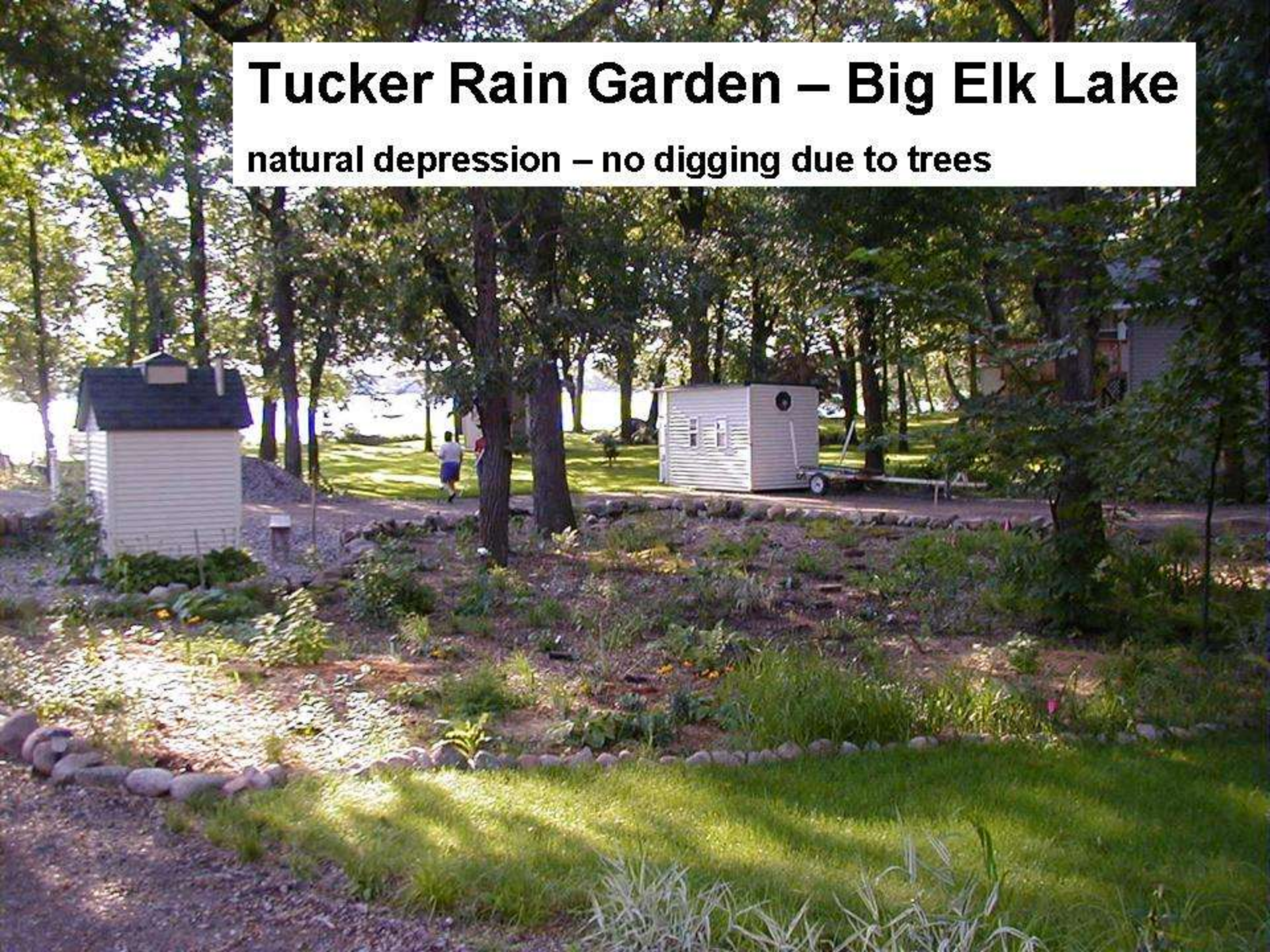
Infiltration

(Treatment by Plants & Soil Microbes)

Rain Garden Guidelines

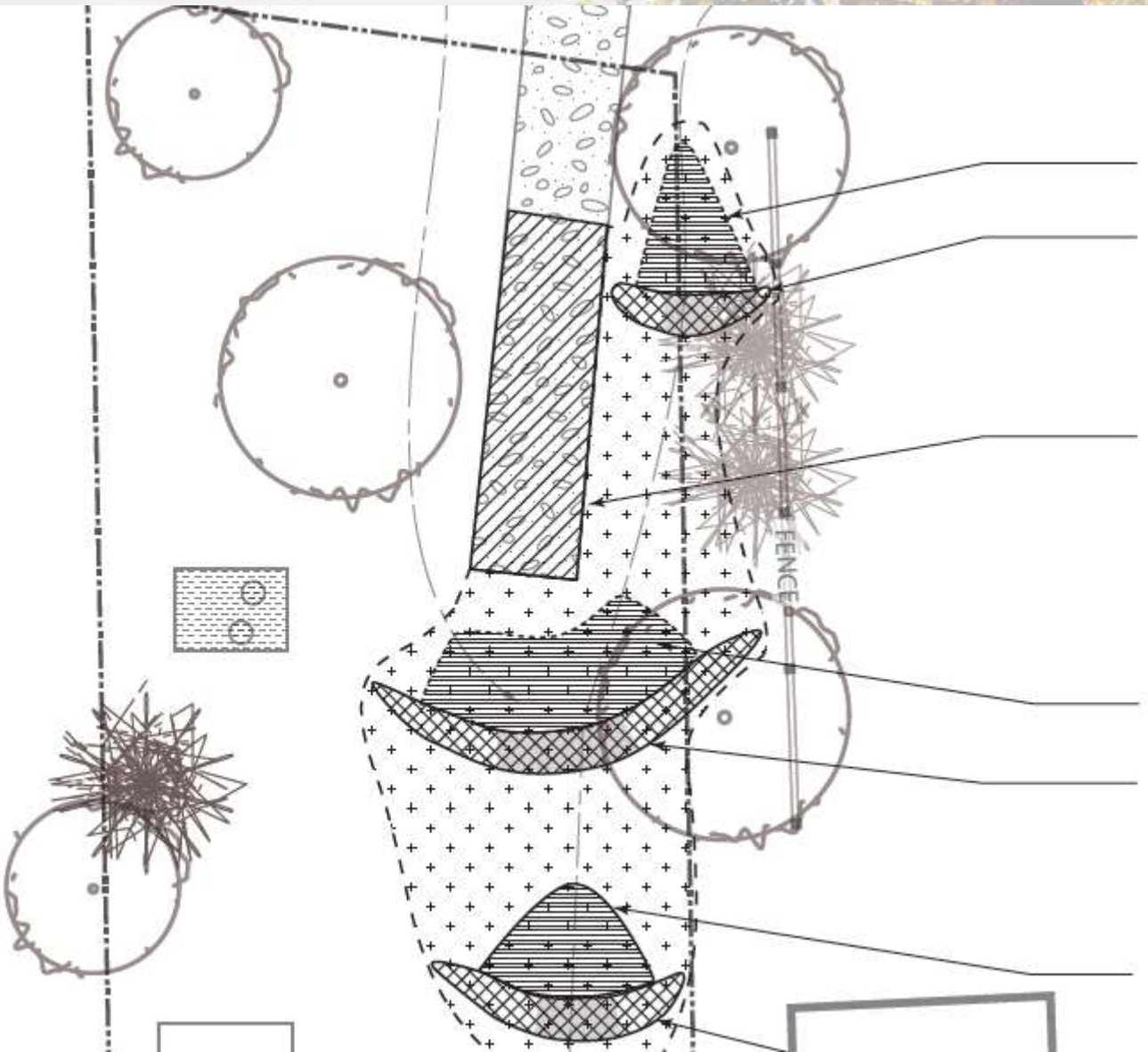


Filtering sediment - flow over turf


Tucker Rain Garden – Big Elk Lake
natural depression – no digging due to trees

BERMS

BERMS



TEMPORARY PONDING AREA 1

GRASS BERM 1
LENGTH = 11'
MAX WIDTH = 3'
MAX HEIGHT = 8"
(BERM OVERFLOW LOCATION SHOWN IN GRAY)

ADDITIONAL GRAVEL TO EXISTING ENTRANCE DRIVE
ADD APPROXIMATELY 4" OF GRAVEL (COMPACTED) TO PORTION OF DRIVEWAY (HATCHED AREA) SO RUNOFF WILL TRAVEL AROUND DRIVEWAY INSTEAD OF ERODING THE SOUTH EDGE OF THE DRIVE.

TEMPORARY PONDING AREA 2

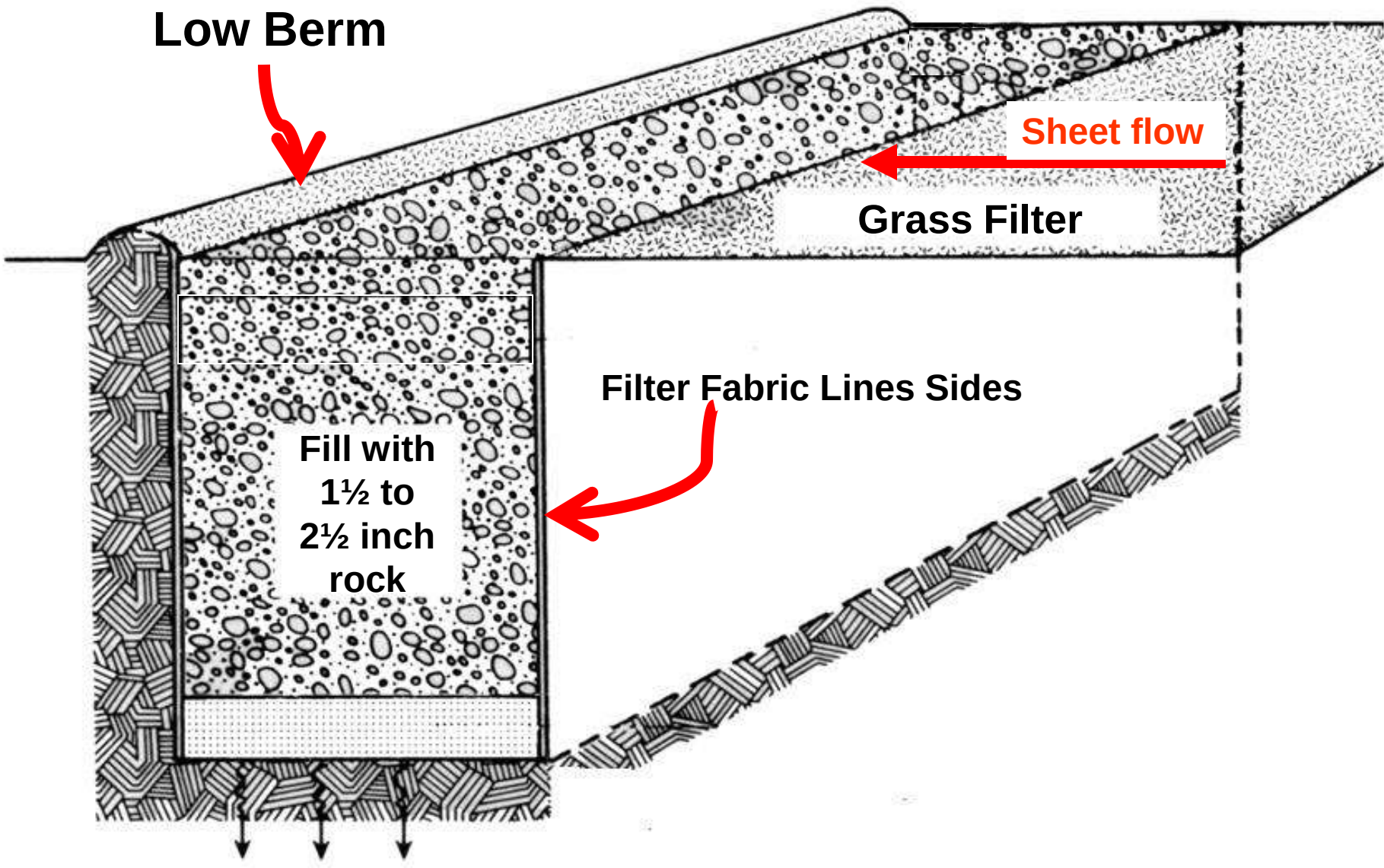
GRASS BERM 2
LENGTH = 30'
MAX WIDTH = 3'
MAX HEIGHT = 8"
(BERM OVERFLOW LOCATION SHOWN IN GRAY)

TEMPORARY PONDING AREA 3

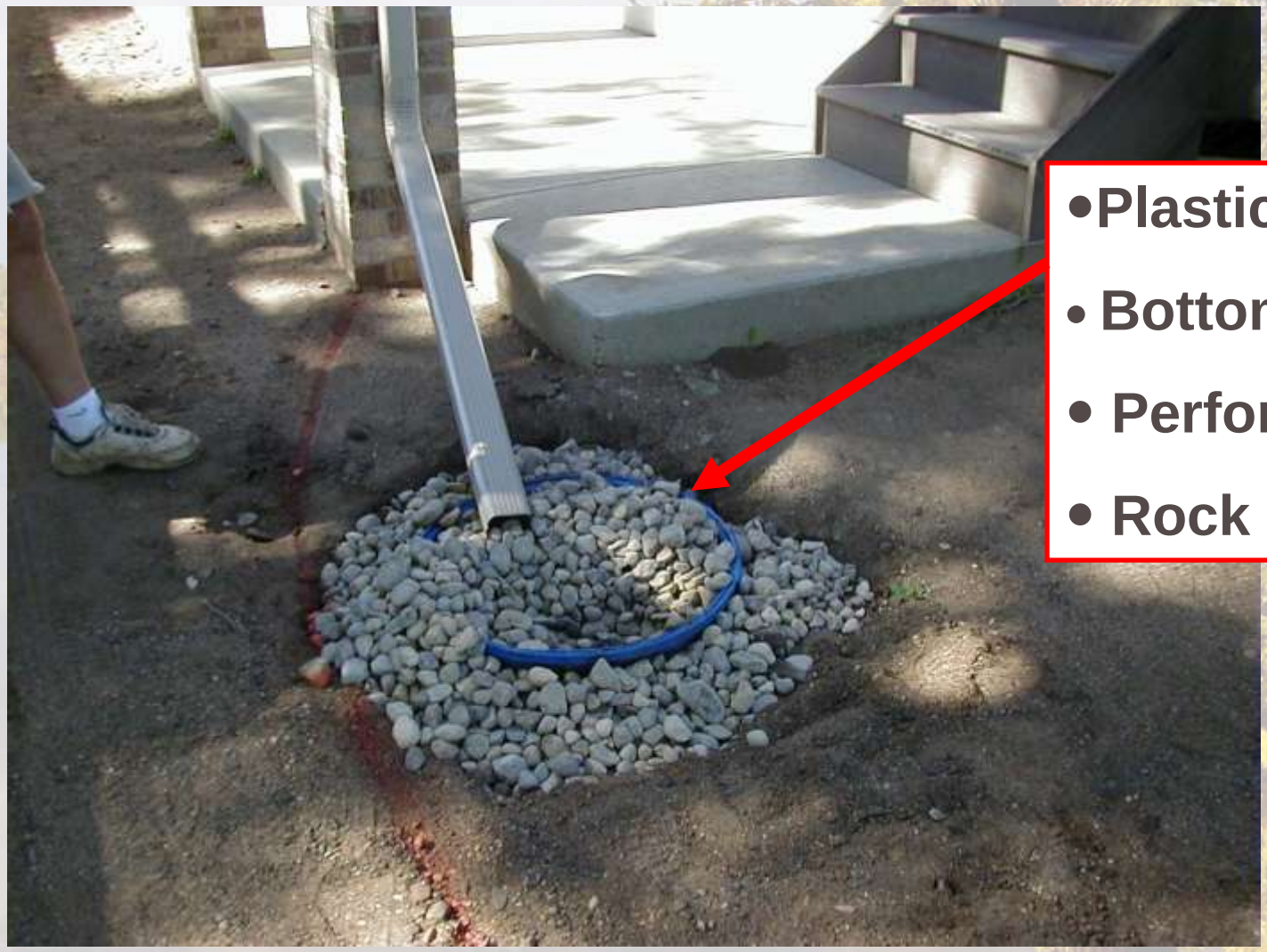
VEGETATED WATERWAY

Filter Strip

Infiltration Trench:



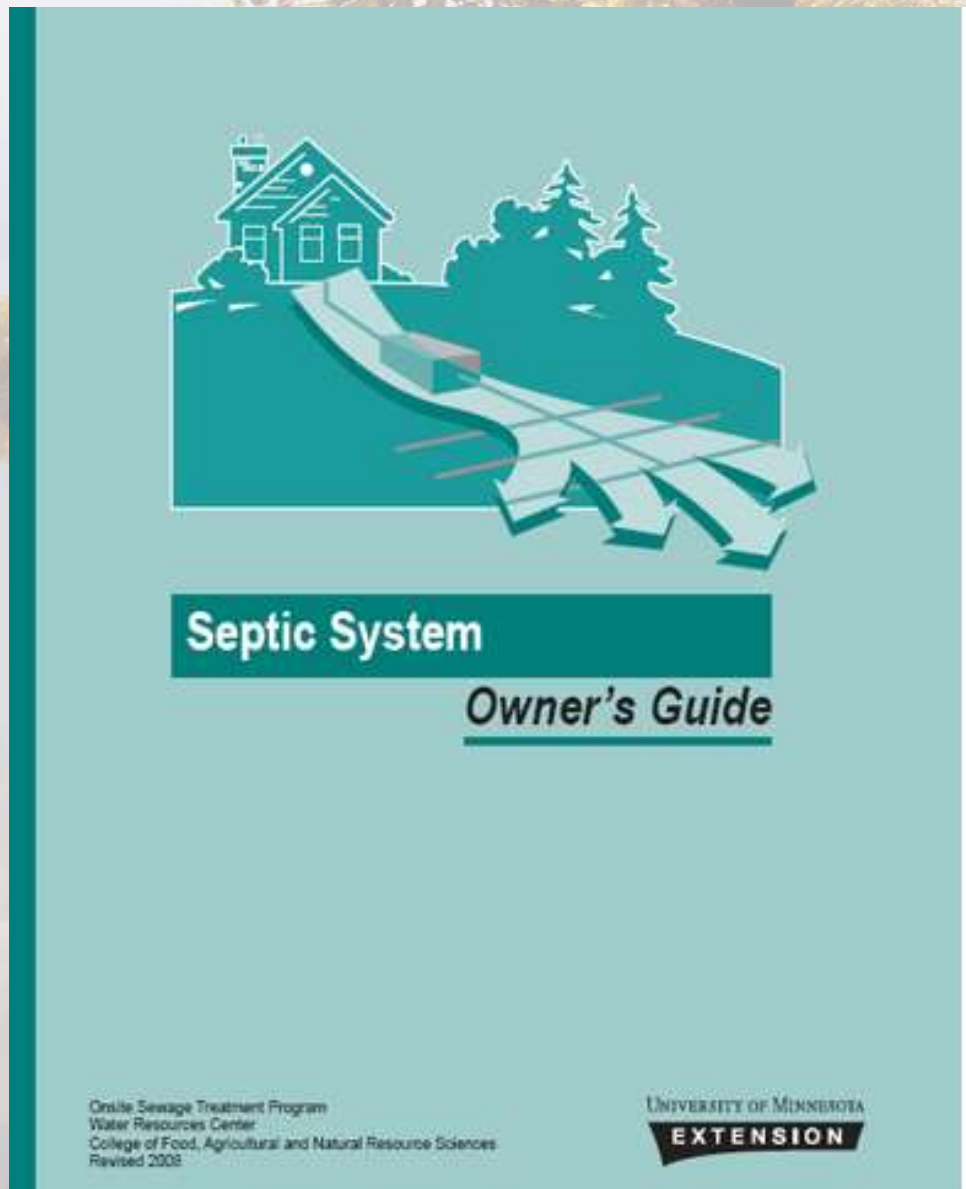
Cistern Example



- Plastic Drum
- Bottom removed
- Perforated sides
- Rock filled

RAIN BARRELS

SEPTIC SYSTEM MAINTENANCE/UPGRADE



LOW IMPACT BOATING

- Keep your boat properly trimmed- an engine in the water makes much less noise and creates less wake.
- Keep your engine well-tuned, it will run more efficiently, pollute less and be quieter.
- Try an electric motor- it's almost silent and virtually pollution-free.
- Observe state regulations and be aware of individual, lake specific restrictions
- What's the hurry? Boating slowly makes less wake, less noise, reduces pollution and is less disruptive to wildlife and other people-plus you'll see more and enjoy the lake longer.
- When using a motor, stay out of shallow areas where a churned bottom can adversely affect water quality and disrupt vegetation and fish spawning grounds…..

U of M Extension: Shoreland Education

http://www.extension.umn.edu/Shoreland/factsheets.html (Lake Home and Cabin Kit)

Tips & Ideas on developing your property

www.lakesuperiorstreams.org

Minnesota Shoreland Management Resource Guide

www.shorelandmanagement.org

Restore Your Shore

http://www.dnr.state.mn.us/restoreyourshore/index.html

www.bluethumb.org


Questions???

Cost Share Available!!!!

Cost share funds can be used by public or private landowners within Sherburne County to implement projects that assist in one or all of the following:

1)Protect or restore quality of lakes and rivers

2)Innovative approaches to treat stormwater at the source

Funding:

75% match of eligible expenses with a maximum level of $1,000 per project. In-kind labor done by the home owner can be sued for 25% match at a rate of $15.00 per hour.

+ AgBMP Low Interest Loans for SSTS

Eligible Expenses:

Raingardens

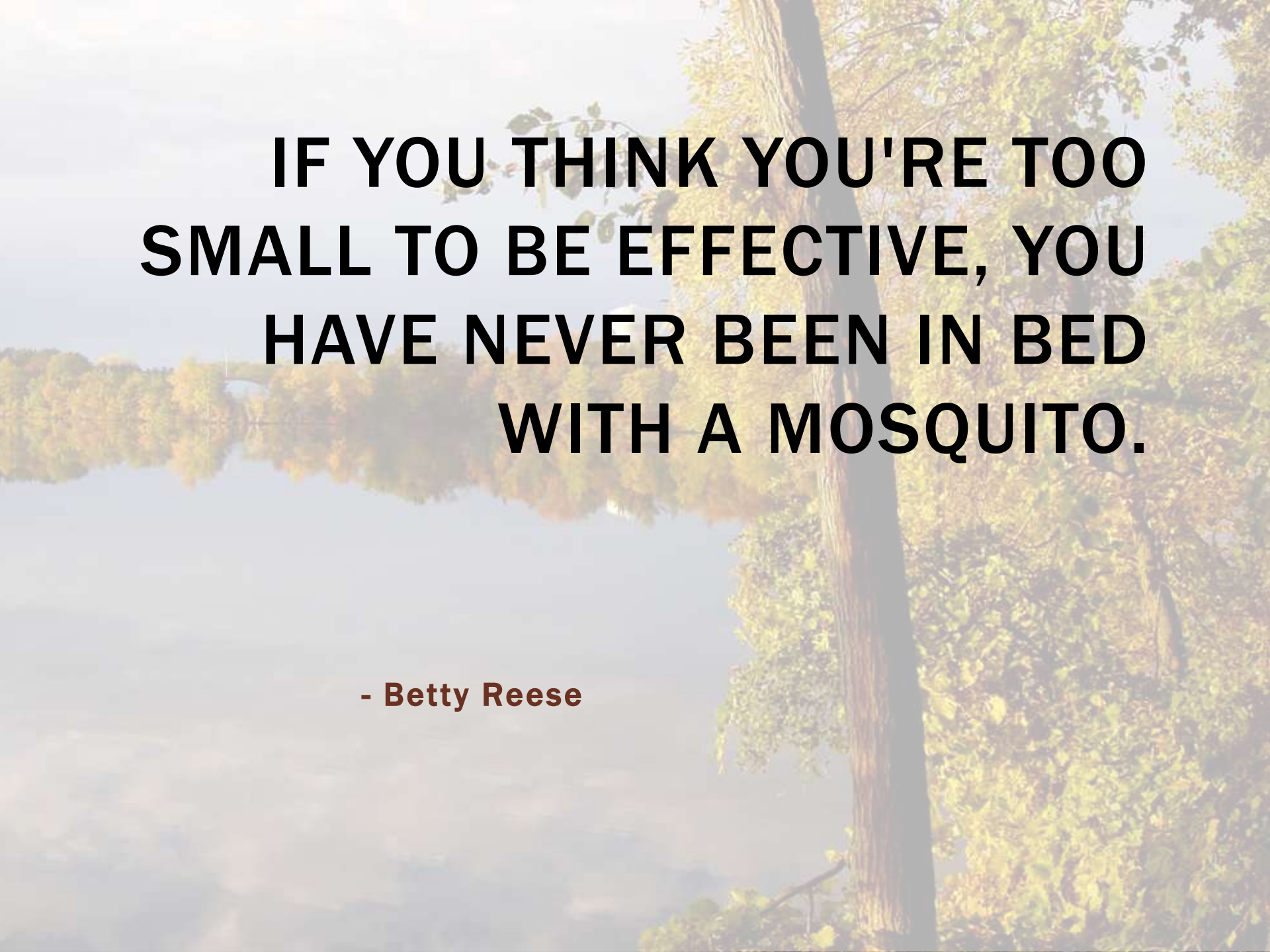
Shoreline restoration

Native buffers

Innovative Stormwater BMPs

Contact Information

- Sherburne Soil and Water Conservation District
  - 14855 Hwy 10
  - Elk River, MN 55330
  - 763-241-1170 ext. 3
  - tdeterman@sherburneswcd.org
  - www.sherburneswcd.org


IF YOU THINK YOU'RE TOO SMALL TO BE EFFECTIVE, YOU HAVE NEVER BEEN IN BED WITH A MOSQUITO.
- Betty Reese

Keeping Our Shores: Shoreland Best Management Practices

http://www.extension.umn.edu/distribution/naturalresources/components/08307a.html#1

Planting a Shoreland Buffer of Native Plant Communities

Basic Information and Fact Sheets

Sherburne Soil and Water Conservation District

April 25, 2011

Contents

Permits for work within shorelands

Projects within shoreland districts frequently require permits

Shoreland districts are areas within 1,000 feet of the Ordinary High Water Level (OHWL) of a lake and within 300 feet of the OHWL of a river or stream. See the DNR website below for information on how the OHWL is determined.

The **DNR** requires permits for many projects affecting the area waterward of the OHWL.

Sherburne County requires permits for alterations within the shore impact zone. The shore impact zone is one half the structure set back from the OHWL for a given lake or stream. Permits are also required for alterations to bluffs which drain toward a lake or stream. For information on shore and bluff impact zones, see the Sherburne County website below or call your local zoning office. Other areas within the shoreland district may also require permits for alterations.

To determine which permits are required for your project, contact:

MN DNR Division of Waters at (320) 255-2984.

In unincorporated areas: Contact Sherburne County Zoning at (763) 765-4450 or (800) 438-0578.

Within the City of Elk River: call (763) 635-1000.

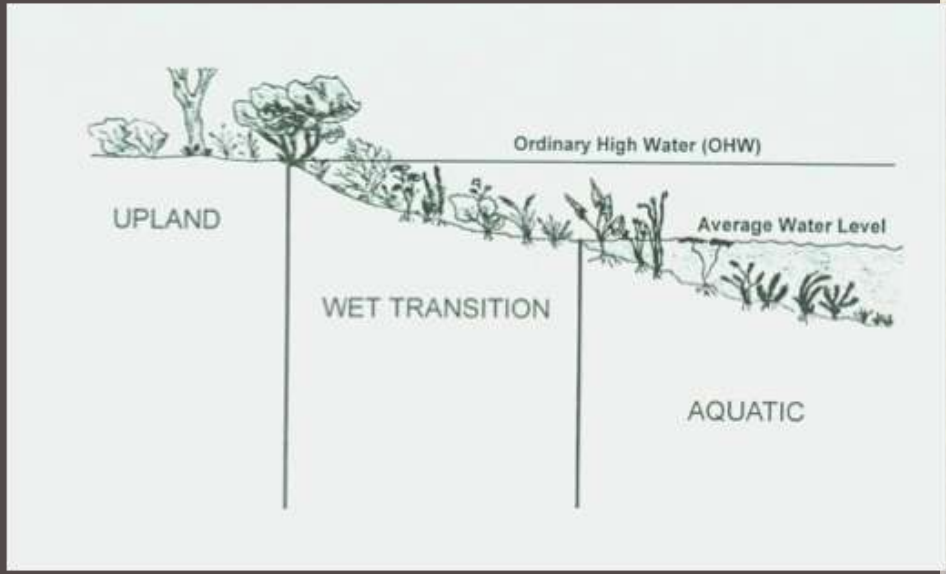
Within other incorporated areas, contact the city's planning and zoning office.

If your project includes the **planting or transplanting of aquatic vegetation** below the OHWL, a **MN DNR Permit to Restore Aquatic Vegetation** is required. Call (320) 616-2450 for information. A copy of the application is included in the back of this information packet.

The DNR's web site provides information on permits and types of projects that can be done without a DNR permit. See:
http://www.dnr.state.mn.us/waters

Sherburne County Shoreland Ordinances can be found at: www.co.sherburne.mn.us/zoning.

Shoreland Zones and the Ordinary High Water Level (OHWL)



The Ordinary High Water Level (OHWL) is the highest water level, which has been maintained for a sufficient period of time to leave evidence upon the landscape. The OHWL is commonly the point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For streams and rivers, the ordinary high water level is usually the top of the bank of the channel.

Examples of Shoreline Buffers of Native Vegetation

Donnelly's, Lake Orono

Phelps, Lake Julia

Revised April 25, 2011

Phelps, Lake Julia

Phelps, Lake Julia
Revised April 25, 2011

Koontz, Briggs Lake – Before, 2005

Koontz, Briggs Lake, After, August, 2007

Revised April 25, 2011

Tucker, Big Elk Lake, Before, 2004

Tucker, Big Elk Lake, September, 2006

Revised April 25, 2011

Design Guidelines for Shoreland Revegetation Projects

1. Generally, a larger buffer will provide more benefits for water quality and wildlife.

2. Length guidelines: We recommend that the length of the shoreline buffer extend for at least 100 feet along the shoreline or if the lot width is 100 feet or less, the shoreline buffer should extend along the entire property shoreline with the exception of a 12 foot wide access. The access may be for a dock, sand beach or other use.

3. Width guidelines (landward from the shoreline): Roadways, play areas, building setbacks often create constraints on the practical width of a buffer on a residential lot. Where possible, we recommend that the average width of the upland plus transition zones be at least 15 feet. Landowners may also want to consider phasing their project over 2 or more years to develop a larger buffer. The potential for runoff at the site should be considered when assessing the acceptable buffer width.

4. Plant materials can be herbaceous or woody and must be considered native to the Ecoregion. Multiple species should be included. When herbaceous plants are established, at least 50% of the total plants should be grasses and sedges. The potential for bank erosion should be assessed when selecting species. Species with greater potential for erosion control should be selected where conditions warrant.

5. The buffer should include upland and transitional vegetation.

6. Emergent aquatic vegetation may be included where site conditions are suitable. The planted aquatic zone may be less than the total buffer length along the shoreline. Increasing the area of aquatic plants will be encouraged where aquatic plants successfully establish. Methods to prevent aquatic plant losses due to muskrats, carp and wave action should be included in the design.

7. Sedimentation and soil erosion must be controlled during installation and establishment.

Notes to Design Guidelines:

1. The width guidelines stated are regarded as minimal and performance for water quality and habitat benefits will vary depending on site conditions and species requirements. Guidelines on riparian buffers from some sources recommend widths of 30+ feet to ensure riparian buffer benefits.
2. A recent study conducted by Westwood Professional Services on buffer filtering performance showed that 5 foot wide filter strips can remove 43 to 53% of the phosphorus from the runoff created by a 2 year storm event. A 20 foot width can remove 56 to 88%. Performance is related to the steepness of the slope.
3. The condition of vegetation up slope from the buffer will affect the overall filtering of pollutants. For example, denser, vigorous turf up slope from the buffer will help filter runoff and reduce the pollutants reaching the shoreland buffer.
4. For many residential shorelines, it is not practical to install a buffer width capable of adequately filtering runoff. Treating runoff up slope from the buffer should be considered if a large volume of runoff is expected due to the percent of impervious area, steepness of slope or size of the contribution area. Infiltration systems such as rain gardens or water diversions should be implemented at these sites in addition to a shoreland buffer.
5. The presence of an ice ridge along the shoreline will enhance the performance of the buffer by reducing the quantity of runoff to the lake.
6. Wildlife habitat recommendations usually specify a minimum of a 35 foot buffer width. However, informal observations for recently established shoreland buffers with widths varying from 15 to 25 feet have shown an increase in frogs, turtles, humming birds and butterflies compared to the pre-existing mowed turf conditions. Habitat that provides for seasonal food sources and temporary cover may not be suitable for reproduction of a species.
7. To provide bank erosion benefits, the buffer width should extend landward at least as far as the maximum wave run-up at ordinary high water levels.

Shoreline Revegetation – Site Prep and Planting

The first step is to spray the existing vegetation with a glyphosate herbicide. For spraying near water, it is best to use a glyphosate herbicide that is labeled for aquatic use such as Rodeo.

Site Prep:

1) Plan on a lead time of about 17 days between the first spraying and the start date of planting. For sites with an abundance of reed canary grass, it is advisable to do a couple of herbicide applications in the fall prior to the planting year.

2) Cut the vegetation to be treated to a maximum height of 4 inches.

3) Wait a couple of days so the vegetation starts to grow again. For the herbicide to work the vegetation should be actively growing.

4) Spray the unwanted vegetation. Wait about a week and spray again.

5) Plant 10 days after the last spraying.

6) If reed canary grass is present, it is best to do two treatments; one in the fall and one in the following year prior to planting.

7) It is not necessary or desirable to till the soil.

Planting:

1) After site prep, spread 2 inches of shredded wood mulch.

2) If an erosion blanket is needed, apply the blanket over the wood mulch and stake down.

3) Plant seedling plugs by cutting small openings in the blanket. Then clear away enough mulch to plant into the soil.

4) Be sure to plant plugs so that the roots are into the soil below the mulch.

5) Begin watering within a couple of hours of starting to plant. Do not let the plugs begin to wilt.

6) Regular watering is essential in the early stages particularly in hot weather.

Plant Spacing Guide

Spacing planned	Divide square feet by this number To determine number of plants
1 ft	1
1½ ft	2.22
2 ft	4.0
2½ ft	6.25
3 ft	9.1
4 ft	16.66

Mulch Coverage Guide

Cubic yards = (inches of mulch ÷ 12) X square feet ÷ 27

For 2 inch depth:

Cubic yards = 0.167 X square feet ÷ 27

Turf grass and other unwanted vegetation in the planting area are treated with glyphosate herbicide. Use a product labeled for aquatic use such as Rodeo© if spraying herbicide close to the water.

Apply 2 inches of shredded wood mulch over the planting area prior to planting plugs or potted plants.

If high water or flooding is possible, a straw erosion control blanket is staked over the mulch prior to planting to prevent the mulch from being washed out. The blanket should have bio-degradable netting. Synthetic photo degradable netting often lasts many years and animals can get caught in the netting.

If seedlings have become "root bound" in the container, gently pull apart the roots.

Place plant I.D. markers next to several plants of each species to help with identification later.

Wave Breakers are often needed to Protect Seedlings From Waves When Planting Along a Shoreline

On a shoreline, native plantings should be protected from being washed out by waves until they are well established. Low cost materials for constructing a temporary wave breaker include pine trees thinned from a plantation or tree farm and brush bundles of tree trimmings. Rolls made from coconut fiber are a more expensive alternative.

Pine Tree Examples:

Koontz, Briggs Lake, 2005

Koontz, Briggs Lake, 2007

Revised April 25, 2011

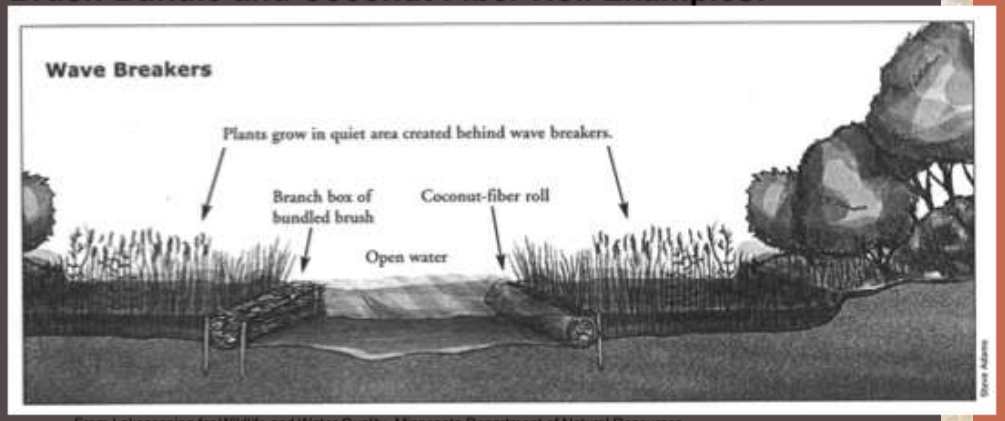
Phelps, Lake Julia, 2005

Phelps, Lake Julia, 2006

Revised April 25, 2011

Godlewski, Rush Lake 2008. In this example the pine trees have been compressed by bundling them with cord. This method creates a denser and more effective wave breaker. A 2 foot wire fence has been installed on the outside to exclude muskrats from the planting.

Brush Bundle and Coconut Fiber Roll Examples:



From Lakescaping for Wildlife and Water Quality, Minnesota Department of Natural Resources

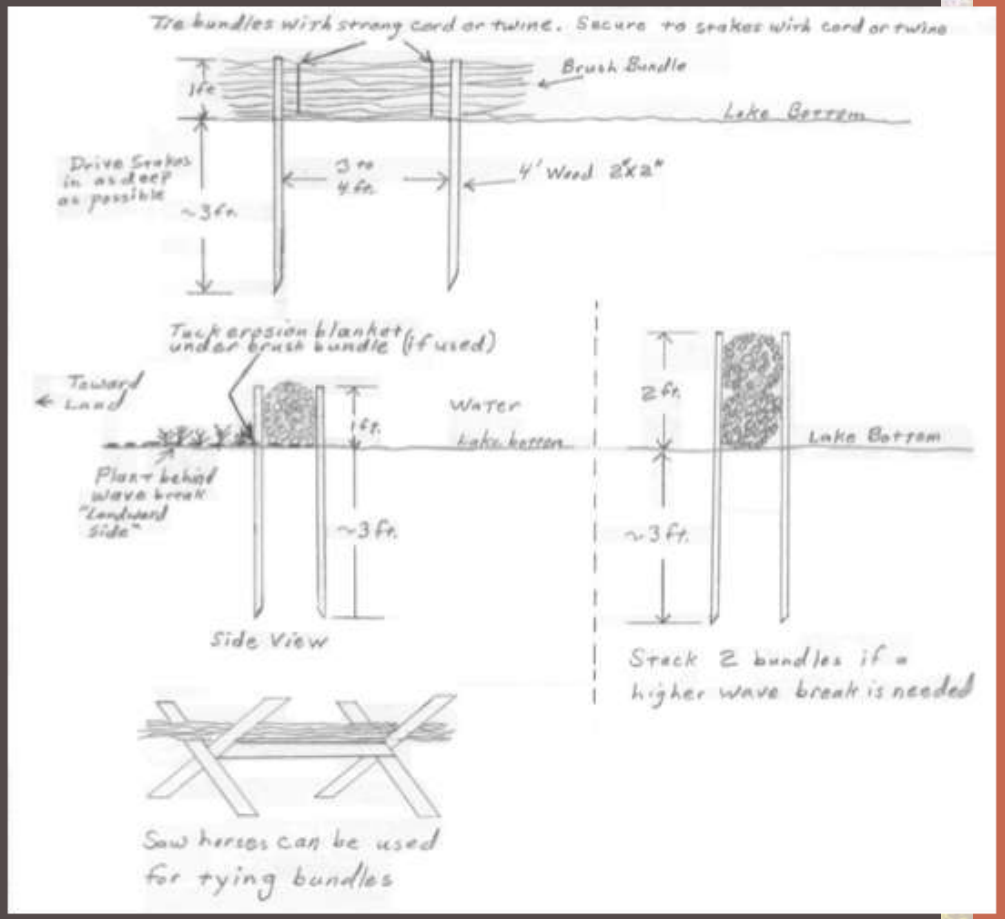
Installing coconut-fibre rolls

Coconut-fiber rolls installed

Brush Bundles being installed with 4 foot hardwood stakes

Constructing a Brush Bundle Wave Break

Brush from trimming trees and shrubs are used.
Do not use brush from exotic species such as Buckthorn when seeds or berries are present.
Use 4 foot 2" X 2" stakes or 1" X 1" hardwood stakes for anchoring bundles.
Space stakes at 3 to 4 foot intervals depending on the length of the bundles.



Preventing Animals from Damaging Your Shoreline Planting

Canada geese are attracted to freshly planted seedling plugs and can consume an entire planting.

Brightly colored flagging tape and lathe has been used as an effective goose deterrent.

Flagging tape and lathe are available at hardware stores and home improvement stores. Bird scare tape made of shiny mylar ribbon can also be purchased at some hardware stores.

Muskrats will eat aquatic plants.

Place temporary wire fence around aquatic plants to exclude muskrats.

Native Plant Nurseries

This list of nurseries does not imply any endorsement or recommendation

Codes: R-Retail, W-Wholesale, M-Mail Order;
T-Trees, S-Shrubs, FE-Ferns, FO-Forbs, G-Grasses, W-Wetland Plants

Dragonfly Gardens (R; T, S, FE, FO, G, W) 491 State Highway 46 P.O. Box 192 Amery, WI 54001 715-268-4666 www.dragonflygardens.net catalog available	**Out Back Nursery** (R; T, S, FE, FO, G, W) 15280 110th Street South Hastings, MN 55033 651-438-2771 www.outbacknursery.com catalog available
Hild & Associates (W; FE, FO, G, W) 326 Glover Road South River Falls, WI 54022 715-426-5131 www.hildnatives.com catalog available	**Prairie Moon Nursery** (R; T, S, FE, FO, G, W) Route 3 Box 163 Winona, MN 55987-9515 507-452-1362 www.prairiemoonnursery.com catalog available
Landscape Alternatives (R, W; FE, FO, G, W) 25316 St. Croix Trail Shafer, MN 55074 651-257-4460 www.landscapealternatives.com catalog available	**Prairie Restorations** (R; T, S, FE, FO, G, W) Box 327 Princeton, MN 55371 763-389-4342 www.prairieresto.com catalog available
North American Prairies (R, W; T, S, FO, G, W) 11754 Jarvis Avenue Annandale, MN 55302 320-274-5316 www.northamericanprairies.com catalog available	**Hayland Woods** (R; T, S, FE, FO, G) 6549 Keystone Road Milaca, MN 56353 320-983-6354 catalog available
Natural Shore Technologies (R, W; FO, G, W) 6275 Pagenkopf Road Maple Plain, MN 55359 612-703-7581 www.NaturalShore.com catalog available	**Minnesota Native Landscapes, Inc.** 8740 77th St NE Otsego, MN 55362 Ph 763-295-0010 Fax 763-295-0025 www.nativelandscapes.com

Revised April 25, 2011

Suppliers: Landscaping and Erosion Control Products

Brock White Company 580 41st Ave. North St. Cloud, MN 56303 320-251-5060	**Brock White Company** 12785 Elk Lake Road Elk River, MN 55330 763-441-2004
Natural Shore Technologies 6275 Pagenkopf Road Maple Plain, MN 55359 612-703-7581 www.NaturalShore.com catalog available	

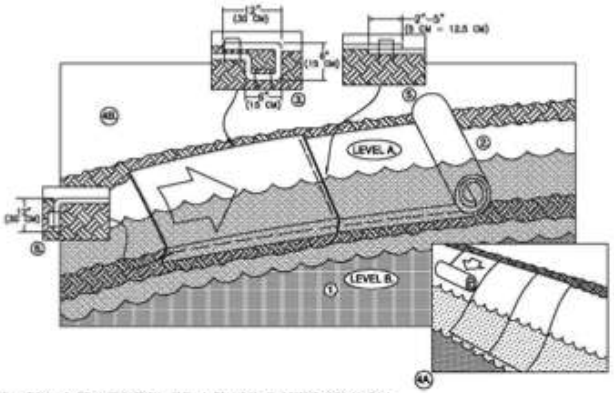
Installing an erosion control blanket on a slope to prevent erosion and soil loss

1. The blanket should have bio-degradable netting. Synthetic photo degradable netting often lasts many years and animals can get caught in the netting.
2. Roll the blanket down the slope from top to bottom.
3. Overlap the edges.
4. Insert wood, bio-degradable plastic or metal stakes to secure the blanket.
5. Dig a narrow trench along the top about 6 inches deep and insert the edge of the blanket to prevent runoff from flowing under the blanket.

Revised April 25, 2011

NORTH AMERICAN GREEN
EROSION CONTROL Products Engineered SOLUTIONS
A tensar Company
14649 HIGHWAY 41 NORTH
EVANSVILLE, IN 47725
800-772-2040
www.nagreen.com

Erosion Control Blanket: Shoreline Installation



1. FOR EASIER INSTALLATION, LOWER WATER FROM LEVEL A TO LEVEL B BEFORE INSTALLATION.
2. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
3. BEGIN AT THE TOP OF THE SHORELINE BY ANCHORING THE BLANKET IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF BACK OVER SEED AND COMPACTED SOIL. SECURE OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE BLANKET.
4. ROLL RECP's EITHER (A.) DOWN THE SHORELINE FOR LONG BANKS, (TOP TO BOTTOM) OR (B.) HORIZONTALLY ACROSS THE SHORELINE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
5. THE EDGES OF ALL HORIZONTAL AND VERTICAL SEAMS MUST BE STAPLED WITH APPROXIMATELY 2" – 5" (5 CM – 12.5 CM) OVERLAP.

   NOTE:
   * SEAM OVERLAP SHOULD BE SHINGLED ACCORDING TO PREDOMINANT EROSIVE ACTION.
6. THE EDGE OF THE BLANKET AT OR BELOW NORMAL WATER LEVEL MUST BE ANCHORED BY PLACING THE STAPLES/STAKES IN A 12" (30 CM) DEEP X 6" (15 CM) WIDE ANCHOR TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART IN THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING (STONE OR SOIL MAY BE USED AS BACKFILL.)

   NOTE:
   * IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.

Erosion Control Blanket: Slope Installation

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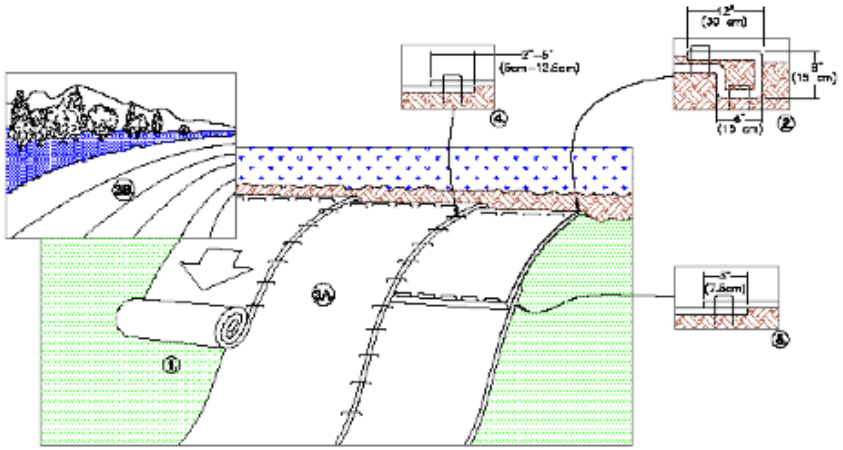
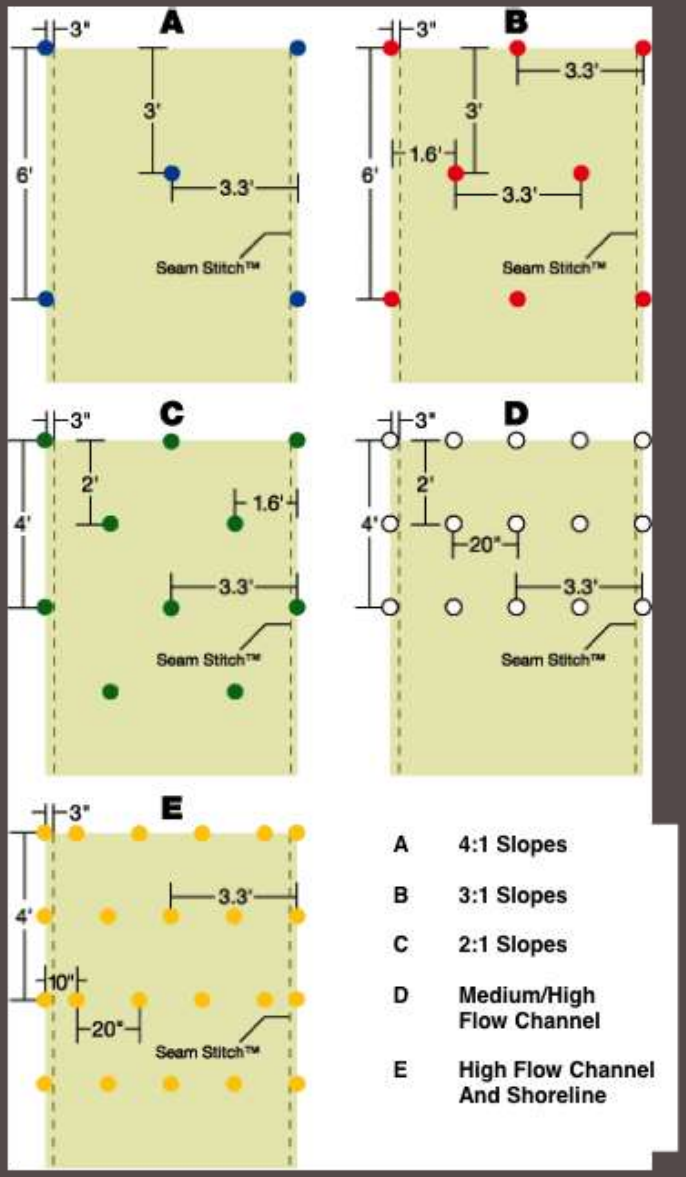


1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.6cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE:
IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

14649 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47725
USA 1-800-772-2040 CANADA 1-800-448-2040
www.nagreen.com

Staple Patterns: 6.67' Wide Erosion Control Blanket



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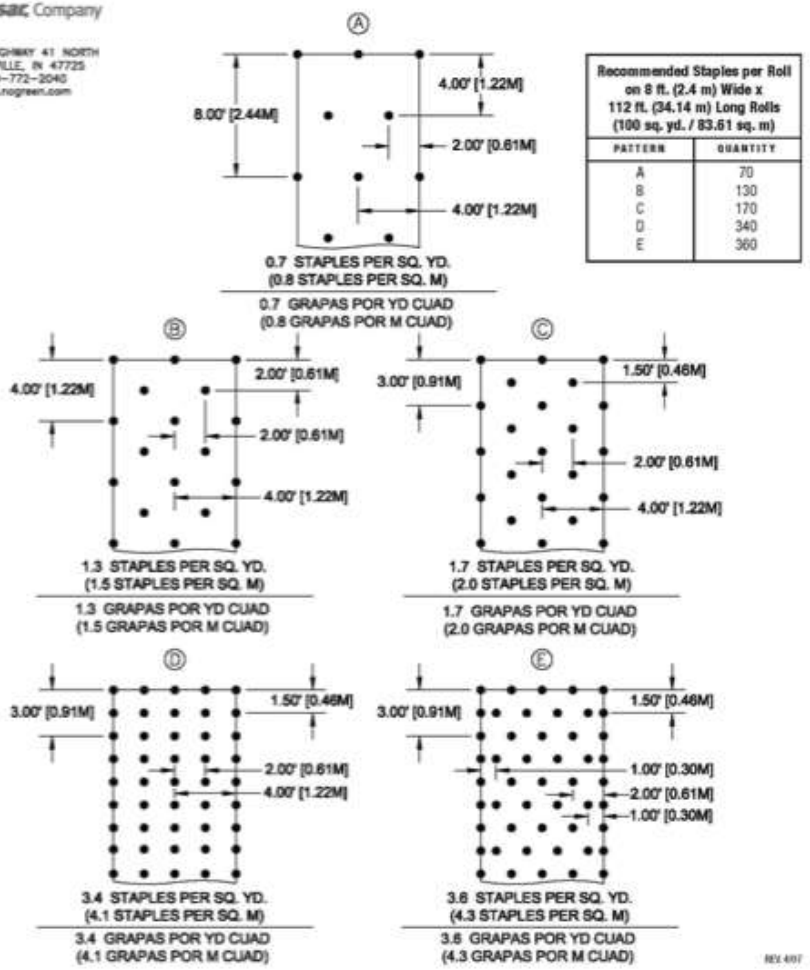
A tensar Company
14649 HIGHWAY 41 NORTH
EVANSVILLE, IN 47725
800-772-2040
www.nagreen.com

Staple Patterns: 8' Wide Erosion Control Blanket

Recommended Staples per Roll on 8 ft. (2.4 m) Wide x 112 ft. (34.14 m) Long Rolls (100 sq. yd. / 83.61 sq. m)	
PATTERN	QUANTITY
A	70
B	130
C	170
D	340
E	360



Revised April 25, 2011

Resources for Shoreland Revegetation Planning

- Minnesota's Bookstore www.minnesotasbookstore.com:
  - Lakescaping for Wildlife and Water Quality, MnDNR,
  - Restore Your Shore, MnDNR, interactive multimedia program on CD. Features restoration information including plant lists and interactive plant selection based on site characteristics.
    - Does not run if "Quick Time Media Player" is on your computer
    - Fixes. (1) Uninstall Quick Time Media Player or (2) change settings in Quick Time Media Player so it does not "Play movies automatically".
    - **Now available on line** – see below
- Restore Your Shore, MNDNR, On line at www.dnr.state.mn.us/restoreyourshore or search: mndnr.gov/restoreyourshore.
- Native Plant Nursery web sites:
  - Prairie Restorations
  - Dragonfly Gardens
- Web searches: use scientific name of plant

APPLICATION TO COLLECT AND/OR TRANSPLANT AQUATIC VEGETATION

Please Print or Type

Applicant's Name (First, M.I., Last)	Home Residence Telephone Number ( )
Home Address (No. & Street, RFD, Box No., City, State, Zip Code)	Lake Residence Telephone Number (if different) ( )
Lake Address (No. & Street, RFD, Box No., City, State, Zip Code)	Work Telephone Number (daytime) ( )

Lake Name Where Plants are to be Transplanted

Lake Name or Bay	County	

Types and Sources of Plants to be Transplanted (attached additional pages if needed)

Common Name of Plant	**Scientific Name** (required)	**No. Plants & Type of Plant material**	**Source of Plants** Lake Name & County and/or Company Name & Address

REASON FOR PROJECT *(explain why this project is desired)*

Sketch proposed collection and transplant area on back of this application or on a separate sheets of paper. Indicate compass direction "North"; location on lake (shore, point, bay, etc.); dimensions of proposed collection and transplant areas with names and total frontages of each property owner. Include fire number, noteworthy landmark, and enough detail so that the property can be located for possible inspection.

MAKE SURE THAT YOU HAVE INCLUDED THE FOLLOWING INFORMATION: Sketch/Maps ☐ Plant List ☐ Source of Plants ☐ Signature ☐

I hereby make application for a permit to collect and transplant aquatic vegetation as described below. I understand that the collection and transplanting of aquatic vegetation is subject to rules and regulations of the Commissioner of Natural Resources. I understand that an Aquatic Plant Management Specialist may wish to inspect the above areas before, during, and/or after work is completed and that by making this application I give permission to the specialist to enter my property to make such inspection at reasonable times. I understand that an annual report may be required on all work done and results achieved.

Applicant's Signature	Date

INSTRUCTIONS

For Completing an Application to Transplant and/or Collect Aquatic Vegetation

Please read the entire application carefully and provide all information requested. Also, print legibly or type when completing this form. Your cooperation helps DNR staff prevent the introduction of species that could cause problems in the lake. If you have questions regarding the permit application, please contact your Regional Fisheries office.

1. **Name and Address**: Give your complete name and address (including your Zip Code), for both your home residence *and your lake residence* (if different). Provide all relevant telephone numbers including a number where you can be reached during business hours.

2. **Lake** and **County**: Give the name of the county and the lake into which you will be planting.

3. **Types and Sources of Plant Materials**: Provide *both* the common and scientific name (genus and species) for each plant. Include the type of plant material (seed, rootstock, whole plant, live cutting) and the quantity to be planted. Specify the location where you intend to collect the plants and/or the company from which you intend to order them. The actual plant source must also be identified – that is, the origin of the plant material itself in addition to the vendor name. Plants of local origin are preferred, if possible from within the same watershed or county. Plant materials originating beyond Minnesota and its adjacent states will *not* be permitted. *Provide the above information for all plant species to be used.* Attach additional pages if necessary.

4. **Reason for Project**: Explain why you wish to collect and/or transplant aquatic plants and the objective of your project.

5. **Sketch**: Provide a sketch of the proposed collection and/or transplant area as instructed on the application form. *Include all requested details.*

6. **Signature**. Sign and date your application.

Use the map on the back of this page to locate the county where your project will take place and note the DNR region number. Mail your application to the corresponding Regional Fisheries Office whose address and telephone number are also on the back.

NORTHWEST – REGION 1 – Bemidji (plus Lake Osakis)
Department of Natural Resources
Regional Fisheries Manager
2115 Birchmont Beach Road NE
Bemidji, MN 56601
(218) 308-2623

NORTHEAST – REGION 2 – Grand Rapids
Department of Natural Resources
Regional Fisheries Manager
1201 East Highway 2
Grand Rapids, MN 55744
(218) 327-4414

BRAINERD
Includes: Aitkin (excluding South Big Pine), Crow Wing, Southern Cass County, and Mille Lacs Lake
Department of Natural Resources
Aquatic Plant Management
1601 Minnesota Drive
Brainerd, MN 56401
(218) 828-2735

CENTRAL – REGION 3 – St. Paul
Includes: Anoka, Carver, Chisago, Dakota, Hennepin, Ramsey, Scott, Washington, Goodhue, Wabasha, Olmsted, Winona, Fillmore, and Houston
Department of Natural Resources
Fisheries APM Staff
1200 Warner Road
St. Paul, MN 55106
(651) 259-5816

LITTLE FALLS
Includes: Benton, Isanti, Kanabec, Pine (plus South Big Pine), Mille Lacs (excluding Mille Lacs Lake), Morrison, Sherburne, Stearns, Todd (excluding Lake Osakis), and Wright Counties
Department of Natural Resources
Aquatic Plant Management
16543 Haven Road
Little Falls, MN 56345
(320) 616-2450 – Ext. 235

SOUTHWEST – REGION 4 – New Ulm
Department of Natural Resources
Regional Fisheries Manager
261 Highway 15 South
New Ulm, MN 56073-8915
(507) 359-6026

SHORELAND PLANT INSTALLATION
Instructions and Helpful Hints

Planting above the water line…

Remember: planting in the wet transition area (below the ordinary high water mark) requires a DNR permit (free, but necessary!). Apply several weeks prior to project installation to insure you have the permit in time for planting.

Site Preparation (see detailed discussion in previous workbook section)

- If turf or invasive plants exist:
  - Black plastic (applied 4+ weeks prior to planting)
  - Herbicide (applied 7-10 days prior to planting)
  - ± Mulch (for upland only - do not use mulch in the wet transition zone)

- If bare ground exists:
  - Fiber blanket ± seed (cover crop of oats ± native seed)
  - Mulch (if level upland site)
  - Other erosion control/bioengineering methods

Seeding

- Seeding should be done prior to installing erosion blanket and/or planting plants. (It should not be used with wood mulch.)
- Seed the cover crop, native grass, and native flower seed separately to ensure even coverage.
- Mix native seed with moist sand, peat, or sawdust prior to seeding.
- Seed half of each type of seed at a time, walking back and forth in parallel passes over the entire area distributing hand-fulls of seed. You should gauge your seeding rate to cover the entire area. Similarly, seed the remaining half of the seed walking back and forth in passes perpendicular to the first.

Pre-planting preparation

- Keep plants watered and out of sun and wind until planting.
- Just prior to planting, soak plants to make sure they are well hydrated.
- Mark planting areas according to final design.
- Assemble tools, materials, and watering implements (hose, buckets).
- Organize work crews (If working alone, plant one area at a time *or* if a planting crew is available, assign each 2-3 person team one area to plant.)
- Provide plenty of *water* and food for workers.

General planting considerations

- *Plant in separate stages*: place and plant all the trees first, then the shrubs and ferns, and finally the grasses and flowers. For each stage, place individual plants on the project area according to the final design.
- *If using mulch*, plant trees, shrubs, and ferns first. Then spread the mulch. If adding grasses and flowers, push mulch back from the planting hole area prior to planting.
- *If using an erosion blanket*, install before planting. Separate the weave with fingers or cut a slit with scissors or knife to create a planting hole for plugs and small-container plants. When planting larger plants, make a slit through the blanket parallel to the slope (i.e. *not* across the slope) to create a hole larger than the root-ball. A second cut across the slope (to form a "T" or "X" with the first slit) may be necessary to accommodate a large root-ball. Make sure to secure the blanket after planting.

- *Digging the hole:*
  - Dig a hole at least twice the diameter of and slightly deeper than the root system. A larger hole will allow better root growth, especially in poor soil.
  - Adjust the hole depth so that the plant is at or slightly above the depth that it grew in the nursery by making a mound in the bottom center of the hole to a height such that when the plant rests on the soil mound its stem-root growing point is even with the soil level around it (for well drained soil) *or* slightly higher than the soil level (for poorly drained and heavy soils - this will improve oxygen availability to the roots).
  - Add water to the hole.
  - Save the native soil for backfilling. Break up dirt clods and remove rocks, plants, and other debris that may create air pockets.
  - Be careful not to create sharply defined soil zones within the hole. You will need to rough up the sides of the hole to make an uneven surface and loosen any soil compacted during digging. You may also need to mix potting soil with the native soil before backfilling in order to create a gradual transition between the container soil and the native soil within the hole.
  - A slow-release fertilizer may also be mixed in with the backfill, if needed.

- *Plant:*
  - Hold plant in place in the hole.
  - Begin backfilling around the roots.
  - When hole is three-quarters full, gently tamp soil and fill the hole with water. Allow water to soak into ground before continuing.
  - Add soil until hole is filled to appropriate level.
  - In sandy soil, create a ridge of soil around the hole after planting. When planting on a slope, make a ridge on the down slope side of the hole after planting. These ridges will help hold water and promote infiltration to the roots.
  - Water immediately after planting each plant.

Special considerations for container grown, containerized, balled and burlapped, bare root stock, and cell packs (plugs):

- *Container grown or containerized stock*: Carefully remove all containers at the planting site, including biodegradable papier-mache' pots. To remove a plant from its container, cup one hand around the plant base at the soil level, turn the pot upside down, gently tug on container to dislodge the plant. Cutting the container may be necessary. Newly containerized stock may be only slightly rooted; the container must be removed with great care so as not to disturb the root ball. In contrast, container grown stock may be rootbound. If roots are growing in a spiral around the soil ball, the plant is rootbound. These roots need to be separated or they will eventually girdle the plant. Make vertical cuts in the sides of the ball and criss-cross cuts across the bottom of the ball just deep enough to cut the net of roots. This may seem harsh but the plant will establish better in its new location if this is done. Continue planting as described above.

- *Balled and burlapped stock*: Carefully set the plant in the hole at or slightly higher than it was at the nursery. The root flare and the top of the ball will indicate original planting depth. Take extra care not to loosen or break the soil ball. Fill the hole three-quarters full, tamping to remove air pockets. Cut and remove all twine from around the trunk. Pull burlap away from the trunk and top of ball. Water slowly to saturate the soil ball and to remove air pockets in the backfill. Finish filling the hole with soil. No burlap should remain above the soil surface as it may act as a wick and dry the root ball.

- *Bare root stock*: (For spring planting only!) Examine the stock and prune away any diseased or damaged roots or branches and any extremely long roots. The mound in the planting hole should hold the plant slightly higher than the depth it was growing in the nursery. Straighten the roots and spread them evenly. When backfilling, gently raise and lower the plant to eliminate air pockets.

- *Cell packs*: Small holes for planting are easily made with a cordless drill and bulb planter bit in light soils. A trowel or hand bulb planter may work better in rocky or heavy soil. To remove the plug from the cell pack, use your fingers to push the root-ball up from the bottom. Open up the soil-ball with your fingers, teasing out the roots so they can spread out in the hole. Continue planting as described above.

Special considerations for planting live stakes:

- *Planting live stakes:* (For spring planting only!) Place the stakes in a bucket of water *immediately* after cutting. It is best to plant immediately, but they can be stored in a cool dark place for a few days. Stout stakes may be driven directly into light soil. Otherwise, use a metal bar to drive a pilot hole deep enough to receive 2/3 the length of the live stake, insert the stake and water thoroughly to firm soil around the stake.

After-planting care

- *Same day*:
  - Water again!
  - Provide plant protection. This may include fencing ± signs to reroute foot traffic, fencing individual plants or planting areas to protect from animal damage (plastic tubes can also be used for individual plants), and/or staking tall trees that may be unstable in a wind. Note that most newly planted trees will do better without staking. If staking is necessary, take care to protect the tree from girdling by putting a piece of rubber hose around the wire and a loop to allow movement. Remove the stakes and ties once the tree is established – usually after one year.

- *Year One*:
  - Newly planted plants require routine watering. Soil and weather conditions will dictate how often and how much water to apply. Monitor plants for signs of wilting. Some wilting may be due to transplant shock, so examine the soil moisture 4-8 inches deep to determine the need for water. If the soil feels dry or just slightly damp, watering is needed. Soil type and drainage must also be considered. Well-drained, sandy soil will need more water, more often than a clay soil that may hold too much water. A slow trickle of the garden hose at the base of the plant for several hours or until the soil is thoroughly soaked is the best method. Short, frequent watering should be avoided, as this does not promote deep root growth but rather, the development of a shallow root system that is vulnerable to several environmental stresses.
  - Weeds can crowd out native plants and will deprive them of water, light, nutrients, and space. Check for weeds once every two weeks and pull them out immediately, being careful not to disturb the native plants. Spot treatments of herbicide or biocontrols may be necessary to control invasive species (e.g., reed canary grass, poison ivy, canada thistle, purple loosestrife). Ask if you need assistance in identifying weeds or determining an appropriate control method.

- *Year Two*:
  - Watering is necessary only during periods of severe drought.
  - Thoroughly weed early in the summer. After this initial weeding, check for weeds once a month. Continue to treat for stubborn invasive weed problems, as necessary.
  - Remove plant stakes and ties, if installed for tree protection.
  - Replace plants that did not survive.

- *Year Three and Beyond*:
  - No watering is necessary except during extreme drought conditions.
  - Continue to treat for stubborn invasive weed problems, as necessary.
  - Re-mulch areas that are to be maintained mulched.
  - Prune trees and shrubs, as necessary.

Planting below the water line...

Remember: planting below the ordinary high water mark requires a DNR permit (free, but necessary!). Apply several weeks prior to project installation to insure you have the permit in time for planting.

Establish a temporary protective barrier prior to planting

Note: Use only at high-energy sites. Consult local DNR-Division of Waters to determine if a permit is necessary.

- *Brush bundles (willow wattles, live fascines):* Make one to several long brush bundles to equal the length of the aquatic planting area (increase this amount if they will be stacked). Begin by laying out a long pile of brush or branches on dry ground. Bundle tightly with nylon cord at 4' intervals along the length of the pile. Place the bundle(s) at least 3 feet water-ward of the intended aquatic planting and anchor using long wooden stakes, fence posts, or earth anchors – two every 4' with one on each side of the bundle. If a higher wave break is needed, make additional brush bundle(s) and stack upon the first.
- *Fiber logs:* Place fiber logs end-to-end along aquatic planting area and 3 feet water-ward of planting. Anchor as described above.
- *Plywood:* Erect plywood panels 3 feet waterward of the aquatic planting area. For each panel, drive two pairs of sign (or fence) posts into the substrate, one pair near either end of the panel. Wedge the plywood between the two posts at each end and attach with nuts-bolts-washers, plastic ties, or other method. Repeat for remaining panels along length of planting area.

Planting instructions:

- *Transplanting*: involves collecting clumps of adult plants from a donor site (preferable within the same lake/river/watershed) and planting them directly into a new site. Early season plantings (prior to July 15) will allow better establishment. Randomly select and dig clumps with numerous stems and soil surrounding their roots. This will help weigh down the plant and provide a stable base for the root mass. Place in a container with water when transporting them to the planting site. Try to place transplants at a similar water depth and in similar substrate conditions. All emergent and floating leaf plants must have a portion of their stems/leaves above the water line to survive. When planting, use a spade to pry back lake sediment. Keep the spade in place to hold the sediment away from the plant until the roots and rhizomes can be put in the hole. Then carefully remove the shovel, allowing the sediment to fold over the transplant. Press the sediment gently with your hands to ensure the plant will not

float. A ring of clean rocks placed around the plant will help anchor it until it can become rooted.

- *Container grown or containerized:* Remove plant from container and plant as described for transplants.
- *Pre-vegetated mats or "bricks":* Place on substrate on 4-5 ft. centers and anchor using wooden or metal stakes (attach colored flag or string for easy retrieval) placed every 1-2 feet, depending upon water energy. Plants will become firmly rooted within a few days.

After planting care

- *Year One*:
  - Replant plants or re-anchor mats if they become uprooted.
  - Remove metal stakes at end of season, if used.

- *Year Two:*
  - Replace non-survivors

Briggs Lake Chain Association

2006 Lake Association of the Year

Shoreland Education Restoration Project

Funded by grants from Shoreland Habitat Programs of the MN DNR, Elk River Watershed Association, and by support from the Briggs Lake Chain Association

I am applying for funding from:

❑ MN DNR ❑ Sherburne SWCD ❑ BLCA ❑ other _____

and if accepted, agree to meet all terms of Project Criteria.

Signature_____ Date:_____

Project Checklist and Approval

APPLICANT INFORMATION: BLCA Member: ❑ yes ❑ no

NAME: _____

MAILING ADDRESS: _____

PHONE: (home)_____ (work)_____ (cell)_____

email: _____

ADDRESS OF PROJECT (if different from above) _____

LAKE, RIVER, STREAM where project will be installed: _____

PROJECT INFORMATION AND AGREEMENTS:

Permits / Approvals from:

❑ Sherburne County Zoning ❑ MN DNR ❑ Sherburne SWCD

Accompanying information:

❑ site plan / lake location map ❑ plant list ❑ DNR Landowner Agreement

❑ project budget w/ in-kind ❑ time schedule ❑ site photos

INSTRUCTIONS:

Mail or deliver completed application and attachments to::

Kenzie Phelps SERP Project Cooperator
4480 115th Ave
Clear Lake, MN 55319-9490
743-2663
kenziephelps@gmail.com

BLCA ACTIONS: ❑ ACCEPTED ❑ REJECTED SERP share not to exceed: $ _____

DATE RECEIVED:_____ BY:_____ DATE:_____

PROJECT YEAR: _____

REVISED:4/1/2013

Briggs Lake Chain Association SERP I and II

[Shoreland Education Restoration Project]

Resources and References

Briggs Lake Chain Association

Kenzie Phelps, Project Coordinator, Julia Lake	743-2663	kenziephelps@gmail.com
Wayne Smith, Healthy Lakes co-chair, Big Elk Lake	743-3458	wsmith311@hotmail.com
Dan Merchant, BLCA Pres, Briggs Lake	743-4747	smerchant@frontiernet.net
Barb Tucker, Big Elk Lake	743-5878	queenonelk@yahoo.com
Kelly Kinney, Big Elk Lake	743-7114	brucekelly@midco.net

Sherburne County Zoning

Assnt Zoning Admn: Lynn Waytashek	763-765-4450	lynn.waytashek@co.sherburne.mn.us
Environmental Spec: Lynn Waytashek	763-765-4450	lynn.waytashek@co.sherburne.mn.us
Zoning Specialist: Mark Schneider	800-438-0578	marc.schneider@co.sherburne.mn.us
Sher Co Building Official: Joe St Dennis	800-438-0578	joestdennis@co.sherburne.mn.us

Sherburne Soil and Water Conservation [SWCD]

Water Resources Spec: Tiffany Dterman	763-241-1170 ext132	tdeterman@sherburneswcd.org
District Technician: Gina Hugo	763-241-1170 ext132	gina.hugo@mn.nacnet.net

DNR

Aquatic Plant Mgr: Audrey Kruchinski	320-616-2496	audreykuchinski@dnr.state.mn.us
Fisheries: Paul Diedrich	763-675-3301	
Hydrologist: Roger Stradl	320-255-4279 ext 233	

Websites

Sherburne County	zoning@co.sherburne.mn.us
SWCD	sherburneswcd.org
Mn DNR	dnr.state.mn.us
BLCA	briggslakechainassociation.com

Suggestions and Resources

Controlling rain water	Berms: They don't have to be huge just high ground that stops rain runoff, lets it pool and soak into the ground preventing it from washing nutrients into the lake. Gutter along lakeside roof draining into rain barrel or permeable drainage area would keep roof runoff from washing nutrients into the lake
Grass that grows well under pine trees	Care Free Grass Seed and comes in plain white 25 lbs. bags It is a perennial, grows under pine trees and is sold a Bjerga's Feed Store, 915 Front Street, Brainerd, Mn 56401. Phone is 218 829 4104
Bio logs	Brock White Company sells them in different diameters
Plants	Gina Hugo, Resource Conservationist, Sherburne SWCD Phone: 763-241-1170 ext. 3
Grants	SERP and BLCA Mini Grants Kenzie Phelps kenziephelps@gmail.com
Websites	Restore Your Shore at the MN DNR website (http://www.dnr.state.mn.us) This interactive tool includes Plant Guides and Native Plant Encyclopedia, Shoreland Restoration Guides, Watershed Assessment Tool, Score Your Shore, etc.
University Extension Service	The University of Minnesota's Master Gardeners may be another resource that would be able to provide you with planting suggestions and landscaping ideas. You may contact the University Extension Service at 218-927-7321
Grass	Gerten's, Inver Grove Heights south of Saint Paul, sells seed that likes sandy soil and. They have a website and will ship your order. The staff is very knowledgeable and helpful. A super garden store and gift shop worth a visit. PHONE: 1-866-GERTENS 651-450-1501
DNR Permits	DNR Waters Area Hydrologist(s) for Sherburne County: Roger Stradal, DNR Eco/Waters 940 Industrial Dr. So. # 103, Sauk Rapids, MN 56379, 320-223-7850, Roger.Stradal@state.mn.us
Muskrats	Trapper from Big Lake is Jeff Moenger 763-439-3302

BRIGGS LAKE CHAIN ASSOCIATION

2006 Lake Association of the Year

Shoreland Education Restoration Project

PROJECT CRITERIA

GENERAL:

- Project must be located on shoreland property and reestablish native vegetation along the shoreline
- Preference will be given to projects that include restoring woody vegetation and aquatic plants
- Any and all necessary permits must be obtained by applicant or contractor and submitted with Application
- Landowner must sign the MN DNR Shoreland Habitat Landowner Agreement and abide by all terms of that agreement
- Applications will be evaluated in the order received
- BLCA will accept or reject application based on recommendation of the Healthy Lake Committee
- Projects must be completed on or before June 30, 2013
- Project plantings must be maintained for 10 years
- Only native grasses and plants may be used as vegetation materials
- The applicant must allow on-site inspection and taking of photos
- Applicant agrees to hold BLCA harmless from any and all claims which may arise from installation of the project
- The BLCA assumes no responsibility for accidents, injuries, property damage or losses which may result from the project

GRANT FUNDING:

- Only cash expenditures are eligible for reimbursement
- Funds cannot be used for rock riprap or permanent wave breaks
- Invoices must be submitted with Request for Payment
- Only one project per applicant
- Maximum reimbursement from the DNR will be $2,500.00 per project -- and must have a minimum of 25% of in-kind contribution
- Payment will be reimbursements made after submission and approval of paid invoices
- Bookkeeping and information requirements must be in accordance with the MN DNR *Shoreland Habitat Program Financial Manual*

SHORELAND RESTORATION PROJECT REQUIREMENTS:

- Project should restore at least 75% of the frontage with a buffer zone 25 feet deep/wide
- Projects should not destroy existing desirable habitat or native vegetation
- Only herbicides approved for aquatic use (Rodeo, not Roundup) may be used within 10 feet of the water's edge
- Reviews and approvals will be made by John Hiebert or authorized DNR Representative
- Any modifications to the approved plan must be approved in writing by the DNR
- Payment schedule is as follows:

Up to $2500 at the conclusion of the project: project application, installation, inspection, and approval

A Minnesota Department of Natural Resources Shoreland Habitat Program project

Shoreland Education Restoration Project
2013 Deliverables

One – Planning

- *completed Project Checklist and Approval*
- *lake map with project site shown*
- *site plan showing buildings, shoreline, and plantings*
- *list of species, quantities, and sources of plants*
- *location and type of any mulch or erosion control*
- *show any temporary wavebreaks or toe protection*
- *budget showing labor and materials plus in-kind contribution*
- *project schedule and timeline*
- *photograph(s) of the project area*
- *signed landowner maintenance agreement*
- *copies of all necessary permits*

Two – Planting

- *site preparation and planting per approved plan and list of materials*
- *(any changes require approval from DNR representative before proceeding)*
- *photograph(s) of the completed planting*

Three – Maintenance

- *written project summary*
- *plan for on-going maintenance of the plantings*
- *list of expenditures and funding sources including in-kind labor and materials*

For 2013 all three Deliverables will be submitted together for up to $2500 in reimbursable funds. Submit the above Deloverables and schedule final site inspection visit and approval by DNR representative

Note: see the DNR *Shoreland Habitat Program Financial Manual* for procedures and sample forms.

BLCA 2011 Healthy Lakes Mini Grants

GENERAL:

- Project must provide water quality or conservation benefits.
- Project must be located on shoreland property or directly reduce runoff to the Briggs Lake Chain (Lake Julia, Briggs, Lake, Rush Lake, or Big Elk Lake) or connected waterways.
- Project must be done in 2013 and completed by Octoberr 30, 2013.
- Any and all necessary permits must be obtained by applicant or contractor and copies submitted with receipts for final approval and reimbursement.
- Applications will be evaluated in the order received; preference is given to BLCA Members.
- BLCA will accept or reject application based on recommendation of Healthy Lakes Committee.
- Project plantings must be maintained for at least 3 years (until plants are established)
- Only plants native to Minnesota and the area may be used as vegetation materials.
- The applicant must allow on-site inspection and taking of photos by BLCA representatives.
- Applicant agrees to hold BLCA harmless from any and all claims which may arise from the project.
- The BLCA assumes no responsibility for accidents, injuries, property damage or losses which may result from the project.

Mini Grants

- Only cash expenditures are eligible for reimbursement
- Invoices and copies of permits must be submitted with Request for Payment.
- Only one project per applicant.
- Maximum reimbursement: $500.00.
- Payment will be made after project completion and inspection and all permit requirements satisfied.

PROJECT-SPECIFIC GUIDELINES (may vary according to project):

SHORELAND RESTORATIONS:

- Should be a minimum of 300 square feet in area (larger if possible).
- Plants used must be suitable for the planting location based on SWCD guidelines.
- 90% of invasive plants must be removed and replaced with native species.

RAINGARDENS:

- Should be at least 150 square feet in area.
- Plants used must be suitable for the planting location based on SWCD guidelines.
- May be multiple raingardens in a single project.

FRENCH DRAINS:

- Should be designed to capture all of the runoff from a 24-hour 1 inch rainfall.
- Excess rainfall overflow should be directed away from the lake if possible.
- May be multiple catchments in a single project.

OTHER:

- Should directly reduce run-off to lake or stream and reduce erosion.
- Projects of this nature may require detailed site plans and agency approvals.

PROCESS:

- Property owner attends introductory restoration and conservation workshop [preferred but not necessary]
- Property owner gets preliminary approval and application from BLCA/Healthy Lakes for conservation project.
- Property owner submits signed application with work plan
- BLCA/Healthy Lakes accepts [or rejects] application and sets maximum mini-grant amount
- Property owner obtains permits from county and /or DNR [if required]
- Property owner and others [e.g. contractor, BLCA volunteers, Sherburne Soil and Water, etc] install project
- BLCA/Healthy monitors project installations
- BLCA/Healthy Lakes [and county, where appropriate] does final inspection

Sherburne SWCD
State Cost Share Program

Overview:

Sherburne Soil and Water Conservation District (SWCD) receives cost share funding from the Board of Water and Soil Resources (BWSR) to assist and promote citizens to use Best Management Practices (BMP) to protect and restore the quality of water within Sherburne County.

Purpose:

State Cost Share funds can be used by public or private landowners within Sherburne County to implement projects that assist in one or all of the following:

1) Protect or restore quality of lakes and rivers
2) Innovative approaches to treat stormwater at the source

Funding:

Funding is a 75% match of eligible expenses with a maximum level of $1,000 per project. Applications are accepted year round. COST SHARE FUNDING IS A REIMBURSEMENT!!! After all program requirements have been met, approved of, and project completion; funds will be dispersed to program participant(s). Completion of project MUST be within one (1) year of approved and signed agreement, unless a written extension has been granted by Sherburne SWCD. In-kind Labor done by the home owner can be used for 25%match at a rate of $15.00 per hour with a signed form of completed work. In-kind laborwill not be reimbursed.

Eligibility within Sherburne County Water:

Landowners
Not-for-profit and religious organizations
Local government agencies
Public and private schools
Private Businesses

Eligible Expenses

Sherburne SWCD may fund partial or full amounts of the requested cost share amount. Any project that is under construction or completed at the time of approval is not eligible. All projects must meet NRCS Field office Technical Guide or equivalent. Partial list of eligible projects are below:

- Raingardens
- Shoreline restoration
- Native buffers
- Innovative Stormwater BMP's

Evaluation Criteria:

Sherburne SWCD Staff will determine the eligibility of a project based upon an established set of criteria. The following are the priorities that are within the criteria and are based upon priorities within the Sherburne County Water Plan, in no particular order:

Volume Control
Phosphorus or Sediment Reduction
Functionality
Wildlife Habitat
Public Benefit
Collaboration
TMDL

Application Procedures:

Applicants should contact Sherburne Soil and Water Conservation District and discuss the potential project as the first step. Staff will contact the applicant on the approval status of the application once a decision has been reached. If the application is approved, a meeting will be scheduled to review responsibilities, schedule a site visit to discuss site specifics and contract requirements.

Selection Process:

Sherburne SWCD Staff will determine the eligibility of a project based upon an established set of criteria. A site visit may be necessary to determine consistency with evaluation criteria. The selection process will occur twice a year.

The Sherburne SWCD State Cost Share Program is a competitive grant process; therefore some projects may not be funded.

Cost Share Contract Agreement:

Projects that are awarded funding will enter into an agreement with BWSR. Staff will work with Applicants to fill out the cost share agreement. This agreement will stipulate the responsibilities and obligations.

Upon completion of the project, the applicant must notify Sherburne SWCD Staff for end of project review.

Release of funds to the applicant will be awarded upon approval of the Sherburne SWCD Board of Supervisors.

In addition to a cost share agreement, an operation and maintenance plan will be required that stipulates responsibilities of the applicant for maintenance of the project for the life of the project.

Sherburne SWCD
State Cost Share Application

Name		
Address		
City	State	Zip Code
Project Location (if different from above)		
Nearest Lake of Stream		
Home Phone	Work/Cell	Other Contact Info
Email Address		

Project Information (use additional sheets if necessary)

Water Quality Issues the Project will address		
Contributing Drainage Area	Maximum Size of Practice	Landuse in Drainage Area

Cost-Share Request (if applicable)

Total Project Cost (Attach Itemized list)	Cost Share Request (Max 75% or $1,000)
Collaborators (List Partners and contributing funds, if applicable)	

I certify to the best of my knowledge that the information included in this application is true, complete, and accurate.

Signature	Date

Office Use Only:	
Approval:	**Date:**

Sherburne SWCD State Cost Share Criteria

Criteria	Max Points Allowed	Actual Points	Discussion
Watershed Criteria			
Project site Location			Subwatersheds will change based upon the current Watershed planning process through the County, MPCA, and EPA. Check with Sherburne SWCD Staff to get list of affected watersheds.
Rank 1 - Site is directly within a subwatershed with approved TMDL IP	8		
Rank 2 - Site is directly within a subwatershed with an active TMDL Study	6		
Rank 3 - Site is located within an impaired waterbody subwatershed	4		
Rank 4 – Site is located within protected waterbody	3		
Water Quality Impact Criteria			
Impact Type to Waterbody (more than 1 may apply)			Based upon what the project will improve and what is the most detrimental to the waterbody.
Phosphorus Loading	8		
Fecal (*E. coli*) Bacteria Loading	8		
Sedimentation Loading	5		
Volume Control	0-10		Points based upon % reduction discharge from site and total water volume leaving the site. Every 10% of overall reduction is within these criteria onsite is equal to one point.
Natural Resource Criteria			
BMP Type			Different BMPs have varying degrees of benefit to waterbodies. The innovative BMP will be giving points based upon the level of benefit to the receiving waterbody.
Shoreline Restoration	10		
Raingarden	9		
Buffer Strip	6		
Innovative BMP	0-10		
Additional Criteria			
Landowner Contribution			Encouraging landowner contribution should result in better maintenance, satisfaction, ownership, & greater use of public dollars.
Cost-Share Reduction	0-5		
In-kind Contribution	0-5		
Demonstration Site	5		Site available to public without prior notification to landowner.
Educational Site	3		Available for tours with prior notification.
Community Support			Identifying broad based support is beneficial to project short and long term success.
Active Lake Association/Neighborhood	3		
Adjoining neighbors	3		
Other Contributions (other than Landowner)	5		Additional contributions should be encouraged to foster support, extend project dollars, and demonstrate success to additional parties. Grants and funding from outside Sherburne County and landowner.
Violation or Permit Requirement	0	0	**Projects to repair violations or projects that are required by permit are not eligible.**
	TOTAL:		

Briggs Lake Chain Association SERP I and II

[Shoreland Education Restoration Project]

Resources and References

Briggs Lake Chain Association

Kenzie Phelps, Project Coordinator, Julia Lake	743-2663	kenziephelps@gmail.com
Wayne Smith, Healthy Lakes co-chair, Big Elk Lake	743-3458	wsmith311@hotmail.com
Dan Merchant, BLCA Pres, Briggs Lake	743-4747	smerchant@frontiernet.net
Barb Tucker, Big Elk Lake	743-5878	queenonelk@yahoo.com
Kelly Kinney, Big Elk Lake	743-7114	brucekelly@midco.net

Sherburne County Zoning

Assnt Zoning Admn: Lynn Waytashek	763-765-4450	lynn.waytashek@co.sherburne.mn.us
Environmental Spec: Lynn Waytashek	763-765-4450	lynn.waytashek@co.sherburne.mn.us
Zoning Specialist: Mark Schneider	800-438-0578	marc.schneider@co.sherburne.mn.us
Sher Co Building Official: Joe St Dennis	800-438-0578	joestdennis@co.sherburne.mn.us

Sherburne Soil and Water Conservation [SWCD]

Water Resources Spec: Tiffany Dterman	763-241-1170 ext132	tdeterman@sherburneswcd.org
District Technician: Gina Hugo	763-241-1170 ext132	gina.hugo@mn.nacnet.net

DNR

Aquatic Plant Mgr: Audrey Kruchinski	320-616-2496	audreykuchinski@dnr.state.mn.us
Fisheries: Paul Diedrich	763-675-3301	
Hydrologist: Roger Stradl	320-255-4279 ext 233	

Websites

Sherburne County	zoning@co.sherburne.mn.us
SWCD	sherburneswcd.org
Mn DNR	dnr.state.mn.us
BLCA	briggslakechainassociation.com

Suggestions and Resources

Controlling rain water	Berms: They don't have to be huge just high ground that stops rain runoff, lets it pool and soak into the ground preventing it from washing nutrients into the lake. Gutter along lakeside roof draining into rain barrel or permeable drainage area would keep roof runoff from washing nutrients into the lake
Grass that grows well under pine trees	Care Free Grass Seed and comes in plain white 25 lbs. bags It is a perennial, grows under pine trees and is sold a Bjerga's Feed Store, 915 Front Street, Brainerd, Mn 56401. Phone is 218 829 4104
Bio logs	Brock White Company sells them in different diameters
Plants	Gina Hugo, Resource Conservationist, Sherburne SWCD Phone: 763-241-1170 ext. 3
Grants	SERP and BLCA Mini Grants Kenzie Phelps kenziephelps@gmail.com
Websites	Restore Your Shore at the MN DNR website (http://www.dnr.state.mn.us) This interactive tool includes Plant Guides and Native Plant Encyclopedia, Shoreland Restoration Guides, Watershed Assessment Tool, Score Your Shore, etc.
University Extension Service	The University of Minnesota's Master Gardeners may be another resource that would be able to provide you with planting suggestions and landscaping ideas. You may contact the University Extension Service at 218-927-7321
Grass	Gerten's, Inver Grove Heights south of Saint Paul, sells seed that likes sandy soil and. They have a website and will ship your order. The staff is very knowledgeable and helpful. A super garden store and gift shop worth a visit. PHONE: 1-866-GERTENS 651-450-1501
DNR Permits	DNR Waters Area Hydrologist(s) for Sherburne County: Roger Stradal, DNR Eco/Waters 940 Industrial Dr. So. # 103, Sauk Rapids, MN 56379, 320-223-7850, Roger.Stradal@state.mn.us
Muskrats	Trapper from Big Lake is Jeff Moenger 763-439-3302

Native Plant Nurseries

This list of nurseries does not imply any endorsement or recommendation

Codes: R-Retail, W-Wholesale, M-Mail Order;
T-Trees, S-Shrubs, FE-Ferns, FO-Forbs, G-Grasses, W-Wetland Plants

Dragonfly Gardens (R; T, S, FE, FO, G, W) 491 State Highway 46 P.O. Box 192 Amery, WI 54001 715-268-4666 www.dragonflygardens.net catalog available	**Out Back Nursery** (R; T, S, FE, FO, G, W) 15280 110th Street South Hastings, MN 55033 651-438-2771 www.outbacknursery.com catalog available
Hild & Associates (W; FE, FO, G, W) 326 Glover Road South River Falls, WI 54022 715-426-5131 www.hildnatives.com catalog available	**Prairie Moon Nursery** (R; T, S, FE, FO, G, W) Route 3 Box 163 Winona, MN 55987-9515 507-452-1362 www.prairiemoonnursery.com catalog available
Landscape Alternatives (R, W; FE, FO, G, W) 25316 St. Croix Trail Shafer, MN 55074 651-257-4460 www.landscapealternatives.com catalog available	**Prairie Restorations** (R; T, S, FE, FO, G, W) Box 327 Princeton, MN 55371 763-389-4342 www.prairieresto.com catalog available
North American Prairies (R, W; T, S, FO, G, W) 11754 Jarvis Avenue Annandale, MN 55302 320-274-5316 www.northamericanprairies.com catalog available	**Hayland Woods** (R; T, S, FE, FO, G) 6549 Keystone Road Milaca, MN 56353 320-983-6354 catalog available
Natural Shore Technologies (R, W; FO, G, W) 6275 Pagenkopf Road Maple Plain, MN 55359 612-703-7581 www.NaturalShore.com catalog available	**Minnesota Native Landscapes, Inc.** 8740 77th St NE Otsego, MN 55362 Ph 763-295-0010 Fax 763-295-0025 www.nativelandscapes.com

Revised April 25, 2011

Suppliers: Landscaping and Erosion Control Products

Brock White Company 580 41st Ave. North St. Cloud, MN 56303 320-251-5060	**Brock White Company** 12785 Elk Lake Road Elk River, MN 55330 763-441-2004
Natural Shore Technologies 6275 Pagenkopf Road Maple Plain, MN 55359 612-703-7581 www.NaturalShore.com catalog available	

What Permits and Requirements are there in the Shoreland District?

Bluffs

- A topographic feature such as a hill, cliff, or embankment having the following characteristics:
  1. Part or all of the feature is located in a shoreland area;
  2. The slope rises at least 25 ft or more above the OHWL (Ordinary High Water Level).
  3. The grade of the slope from the toe of the bluff to a point 25 ft or more above the OHWL averages 30% or greater;
  4. The slope must drain toward the waterbody.
- The structural setback from the top of a bluff is 30 ft.
- Structures, except stairways & landings, shall not be placed within the bluff impact zone.

Construction Site Permit

- No person shall construct, alter, or move any building or part thereof without first securing a construction site permit. The application shall include a plan showing lot dimensions and the size and location of the building and accessory buildings erected. The permit expires after one (1) year if no construction has begun. "Construction" shall include the installation of footings, slab, foundation, posts, walls or other portions of a building.

Decks

- All additions or expansions to the outside dimensions of an existing nonconforming structure must meet the setback, height, and other requirements of the ordinance. Any deviation from the requirements must be authorized by a variance.

- Deck additions may be allowed without a variance to a structure not meeting the required setback from the ordinary high water level if all of the following criteria and standards are met:
  1. Structure existed on the date setbacks were established;
  2. A thorough evaluation of the property and structure reveals no reasonable location for a deck meeting or exceeding the existing ordinary high water level setback of the structure;
  3. The deck encroachment toward the OHWL does not exceed 15% of the existing setback of the structure from the OHWL or does not encroach closer than 30 ft, whichever, is more restrictive;
  4. The deck is constructed primarily of wood, and is not roofed or screened.
- A building permit is required for a deck. A Shoreland Alteration Permit may be required.

Established Building Line

- When more than one setback applies to a site, structures and facilities must be located to meet all setbacks.
- Where structures exist *on the adjoining lots on both sides of a proposed building site*, structure setbacks may be altered administrative exemption to conform to the adjoining setbacks from the OHWL, provided the proposed building site is not located in a shore impact zone or in a bluff impact zone.
- If there are not dwellings on both sides of a proposed property directly adjacent to the property then the setbacks listed in the Sherburne County Shoreland Ordinance apply.

Grading and Filling Permits

- Grading & filling standards must be incorporated into the issuance of any permit, variance, or conditional use permit for construction of structures, accessory structures, subdivisions, sewage treatment systems and driveways.
- A grading & filling permit is required for (a) movement of more than 10 cubic yards of material on steep slopes or within shore or bluff impact zones; (b) movement of more than 50 cubic yards of material outside of steep slopes, shore & bluff impact zones.
- Alterations must be designed and constructed in a manner that ensures only the smallest amount of bare ground is exposed for the shortest time possible;
- Mulches or similar materials must be used, where necessary, for temporary bare soil coverage, and a permanent vegetation cover must be established as soon as possible;
- Methods to minimize soil erosion and to trap sediments before they reach any surface water feature must be used;
- Altered areas must be stabilized to acceptable erosion control standards consistent with field office technical guides.
- Fill or excavated material must not be placed in a manner that creates an unstable slope;
- Plans to place fill or excavated material on steep slopes must be reviewed by qualified professionals for continued slope stability & must not create finished slopes of 30% or greater.
- Fill or excavated material must not be placed in bluff impact zones.
- Any alterations below the OHWL of public waters must obtain permit from MN DNR.
- Alterations of topography must only be allowed if they are accessory to permitted or conditional uses and do not adversely affect adjacent or nearby properties.
- Placement of natural riprap, including associated grading of the shoreline and placement of a filter blanket, is permitted *(Shoreland Alteration Permit required)* if the finished slope does not exceed 3 ft horizontal to 1 ft vertical, the landward extent of the riprap is within 10 ft of the OHWL, and the height of the riprap above the OHWL does not exceed 3 ft.

Non-Conforming Lots

- A parcel of record shall be a legally buildable parcel provided all the following are met:
  1. Each lot dimension in question measures at least 50% of the applicable requirement for lot width as listed in the Ordinance.
  2. The use is permitted in the Zoning District.
  3. The lot has been in separate ownership from abutting lands at all times since it became substandard.
  4. Lot was created compliant with the official controls in effect at the time.
  5. Sewage treatment and setback standards are met.
  6. A variance from setback requirements may be required before a permit is issued for a lot.

Non-Conforming Structures

- All additions or expansions to the outside dimensions of an existing nonconforming structure must meet the setback, height and other requirements of the Shoreland Ordinance.
- Any deviation from these requirements must be authorized by a variance pursuant to the Ordinance.

Roads, Driveways and Parking Areas

- Visual Screening. Public & private roads & parking areas must be designed to take advantage of natural vegetation & topography to achieve maximum screening from view from public waters.
- Setbacks. Roads, driveways, & parking areas **must meet** structure setbacks & must not be placed within bluff & shore impact zones, when other reasonable & feasible placement alternatives exist. If no alternatives exist, they may be placed within these areas by variance, & must be designed to minimize adverse impacts.

Sand Blankets

- Placement of sand above the OHWL requires a Shoreland Alteration Permit.
- Maximum of 50 ft width or one-half the lot width, whichever is less. 6 inch depth maximum

Septic System Certifications

- A compliance inspection for existing sewage treatment systems must be conducted prior to the issuance of any building permit, conditional use permit or granting or denying of any variance for property located in the

** This is only a partial summary of the Sherburne County Ordinance, a copy of the entire Ordinance is available at www.co.sherburne.mn.us*

Shoreland District, if the existing septic system is older than 10 years. If the system is non-compliant it must be upgraded prior to any building permits being issued.

Setback and Structure Height Information

LAKE	Max Structure Height	Onsite Sewage Treatment System & Structure Setback	Bluff Set-back
General Development	*25'*	*75'*	*30'*
Recreational Development	*25'*	*100'*	*30'*
Natural Environment	*25'*	*150'*	*30'*
RIVER			
St. Francis	*25'*	*150'*	*30'*
Elk	*25'*	*100'*	*30'*
Snake	*25'*	*200'*	*30'*

Stairway, Lifts and Landings

- May not exceed 4 ft in width & landings not exceed 32 sq. ft.
- Canopies or roofs are not allowed on stairways, lifts or landings.
- May be either constructed above the ground on posts or pilings, or placed into the ground, provided they are designed and built in a manner that ensures control of soil erosion
- Must be located in the most visually inconspicuous portions of lots, as viewed from the surface of the public water assuming summer, leaf-on conditions, whenever practical.
- A Shoreland Alteration Permit will be required.

Stormwater Management

- When possible, existing natural drainageways, wetlands, & vegetated soil surfaces must be used to convey, store, filter & retain stormwater runoff before discharge to public waters.
- Development must be planned & conducted in a manner that will minimize the extent of disturbed areas, runoff velocities, erosion potential, and reduce and delay runoff volumes.
- Disturbed areas must be stabilized & protected as soon as possible & facilities or methods used to retain sediment on the site.
- When development density, topographic features and soil and vegetation conditions are not sufficient to adequately handle stormwater runoff using natural features and vegetation, various types of constructed facilities such as diversions, settling basins, skimming devices, dikes, waterways, and ponds may be used.
- Impervious surface coverage of lots must not exceed 25% of the lot area (Includes gravel driveways whether paved or not)

Structure Height

- All structures in residential districts, except churches & non-residential agricultural structures, must not exceed 25 ft.

Vegetation Alterations

- Intensive vegetation clearing within the shore and bluff impact zones and on steep slopes is not allowed.
- In shore and bluff impact zones and on steep slopes, limited clearing of trees and shrubs and cutting, pruning, and trimming of trees is allowed to provide a view to the water from the principal dwelling site and to accommodate the placement of stairways and landings, picnic areas, access paths, livestock watering areas, beach and watercraft access areas, and permitted water-oriented accessory structures or facilities, provided that:
  1. The screening of structures, vehicles, or other facilities as viewed from the water, assuming summer, leaf-on conditions, is not substantially reduced;
  2. Along rivers, existing shading of water surfaces is preserved
  3. The above provisions are not applicable to the removal of trees, limbs, or branches that are dead, diseased, or pose safety hazards.
- A shoreland alteration permit is required for any vegetation alteration.

Water Oriented Accessory Structures

- Each lot may have one water-oriented accessory structure.
- The structure may not exceed 10 ft in height, exclusive of safety rails, & cannot occupy an area greater than 400 sq ft. Detached decks must not exceed 8 ft above grade.
- The setback from the OHWL must be at least 10 ft.
- The structure must be treated to reduce visibility as viewed from public waters and adjacent shorelands by vegetation, topography, increased setbacks or color, assuming summer, leaf-on conditions.
- The roof may be used as a deck with safety rails, but must not be enclosed or used as a storage area.
- The structure or facility must not be designed or used for human habitation and must not contain water supply or sewage treatment facilities.
- A building permit may be required. A Shoreland Alteration Permit will be required.

LAKE FACTS:

Natural Environment Lakes usually have less than 150 total acres, less than 60 acres per mile of shoreline, & less than three dwellings per mile of shoreline. They may have some winter kill of fish; may have shallow, swampy shoreline; are less than 15 ft deep.

Natural Environment Lakes in County include: West & East Hunter Lakes, Cantlin Lake, Lake Diann, Round Lake, & Lake Helene.

Recreational Development Lakes usually have between 60 & 225 acres of water per mile of shoreline, between 3 & 25 dwellings per mile of shoreline, and are more than 15 ft deep.

Recreational Development Lakes in Sherburne County include: Sandy Lake, Birch Lake, Ann Lake, Lake Julia, Briggs Lake, Rush Lake, Pickerel Lake, Long Lake, & Blacks Lake.

General Development Lakes usually have more than 225 acres of water per mile of shoreline & 25 dwellings per mile of shoreline, and are more than 15 ft deep.

General Development Lakes in Sherburne County include: Fremont Lake, Little Elk Lake (Baldwin Township), Big Elk Lake (Clear Lake Township) & Eagle Lake.

Sherburne County Planning & Zoning Department 13880 Highway 10
Elk River, MN 55330
(763)241-2900 or 1-800-438-0578
Fax (763-241-2910

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Shoreland Education Restoration Project

2013 Deliverables

One – Planning

- ☒ *completed Project Checklist and Approval*
- ☒ *lake map with project site shown*
- ☒ *site plan showing buildings, shoreline, and plantings*
- ☒ *list of species, quantities, and sources of plants*
- ☒ *location and type of any mulch or erosion control*
- ☒ *show any temporary wavebreaks or toe protection*
- ☒ *budget showing labor and materials plus in-kind contribution*
- ☒ *project schedule and timeline*
- ☒ *photograph(s) of the project area*
- ☒ *signed landowner maintenance agreement*
- ☒ *copies of all necessary permits*

Two – Planting

- ☒ *site preparation and planting per approved plan and list of materials*
- ☒ *(any changes require approval from DNR representative before proceeding)*
- ☒ *photograph(s) of the completed planting*

Three – Maintenance

- ☒ *written project summary*
- ☒ *plan for on-going maintenance of the plantings*
- ☒ *list of expenditures and funding sources including in-kind labor and materials*

For 2013 all three Deliverables will be submitted together for up to $2500 in reimbursable funds. Submit the above Deloverables and schedule final site inspection visit and approval by DNR representative

Note: see the DNR *Shoreland Habitat Program Financial Manual* for procedures and sample forms.

BLCA 2011 Healthy Lakes Mini Grants

GENERAL:

- Project must provide water quality or conservation benefits.
- Project must be located on shoreland property or directly reduce runoff to the Briggs Lake Chain (Lake Julia, Briggs, Lake, Rush Lake, or Big Elk Lake) or connected waterways.
- Project must be done in 2013 and completed by Octoberr 30, 2013.
- Any and all necessary permits must be obtained by applicant or contractor and copies submitted with receipts for final approval and reimbursement.
- Applications will be evaluated in the order received; preference is given to BLCA Members.
- BLCA will accept or reject application based on recommendation of Healthy Lakes Committee.
- Project plantings must be maintained for at least 3 years (until plants are established)
- Only plants native to Minnesota and the area may be used as vegetation materials.
- The applicant must allow on-site inspection and taking of photos by BLCA representatives.
- Applicant agrees to hold BLCA harmless from any and all claims which may arise from the project.
- The BLCA assumes no responsibility for accidents, injuries, property damage or losses which may result from the project.

Mini Grants

- Only cash expenditures are eligible for reimbursement
- Invoices and copies of permits must be submitted with Request for Payment.
- Only one project per applicant.
- Maximum reimbursement: $500.00.
- Payment will be made after project completion and inspection and all permit requirements satisfied.

PROJECT-SPECIFIC GUIDELINES (may vary according to project):

SHORELAND RESTORATIONS:

- Should be a minimum of 300 square feet in area (larger if possible).
- Plants used must be suitable for the planting location based on SWCD guidelines.
- 90% of invasive plants must be removed and replaced with native species.

RAINGARDENS:

- Should be at least 150 square feet in area.
- Plants used must be suitable for the planting location based on SWCD guidelines.
- May be multiple raingardens in a single project.

FRENCH DRAINS:

- Should be designed to capture all of the runoff from a 24-hour 1 inch rainfall.
- Excess rainfall overflow should be directed away from the lake if possible.
- May be multiple catchments in a single project.

OTHER:

- Should directly reduce run-off to lake or stream and reduce erosion.
- Projects of this nature may require detailed site plans and agency approvals.

PROCESS:

- Property owner attends introductory restoration and conservation workshop [preferred but not necessary]
- Property owner gets preliminary approval and application from BLCA/Healthy Lakes for conservation project.
- Property owner submits signed application with work plan
- BLCA/Healthy Lakes accepts [or rejects] application and sets maximum mini-grant amount
- Property owner obtains permits from county and /or DNR [if required]
- Property owner and others [e.g. contractor, BLCA volunteers, Sherburne Soil and Water, etc] install project
- BLCA/Healthy monitors project installations
- BLCA/Healthy Lakes [and county, where appropriate] does final inspection

Detailed Timeline

DATE/TIME	ACTIVITY	WHO	MATERIALS	HOURS	COST
	Design and Planting Plan				
	Identify planting crew				
	Identify maintenance crew				
	Reed canary control				
	Apply for permits				
	Order plants/seeds				
	Order erosion materials				
	Order mulch/fill/rock				
	Locate/buy tools				
	Arrange for food/drink				
	Contact local news/TV				
	Erosion materials delivery				
	Mulch/fill/rock delivery				
	Herbicide turf				
	Apply mulch/fill/rock				
	Install erosion control				
	Install wattles/bundles				
	Install wave breaks				
	Plant delivery				
Date	**Planting**				
	Install exclosure				
	Watering/weeding				
	Replace plants				
	Inspect/repair structures				
	Send thank you notes				
DATE/TIME	ACTIVITY	WHO	MATERIALS	HOURS	COST

WORK PLAN DRAFT

1. **Project title**
   Flanery Shoreland Restoration Project on Lake Julia

2. **Project Lead [name, phone, e-mail]**
   Mike Flanery
   4268 115th Ave
   Clear Lake, MN
   763-656-7701
   mike.flanery@honeywell.com

3. **Proposed Project Location Information**
   XXX ft of shoreline on Lake Julia at 4268 115th Ave
   Clear Lake, MN

4. **Contact information for DNR and other cooperators**
   Mike Flanery
   Kenzie Phelps, grantee volunteer working with Flanery
   4480 115th Ave Clear Lake, MN
   320-743-2663
   kenziephelps@gmail.com

5. **Type of project**
   Shoreland restoration

6. **Amount of requested grant funds and in-kind match**
   Grant funds xxxxx
   In-kind match xxxxx

7. **Budget**
   see attached budget and schedule

8. **Provide a brief description of the proposed project**
   a. Obtain appropriate permits
   b. Remove water softener cylinders
   c. Cut existing vegetation
   d. Kill turf and other undesirable vegetation [Roundup] 25 ft from water's edge
   e. Install mulch [approx 2 inches thick]
   f. Install netting to prevent erosion of mulch
   g. Plant native plants as per plant list
   h. Water with existing in-ground sprinkling system

9. **Describe the need and justification for the project**
   Project location is a gently sloping area to waters edge. Buried water softener cylinders had been buried by previous property owner to prevent erosion of shoreline. This project will anchor shoreland with native vegetation to prevent bank erosion, filter runoff, and provide wildlife habitat.

10. **Project summary and results**
    Project will be started in July 2009 and completed in August 2009.
    Additional plans may be added in late 2009 or 2010 depending on plant survival from initial planting.

11. **Project methodology or approach**
    Obtain all necessary permits [Flanery]
    Remove water softener cylinders ????
    Cut existing vegetation [Flanery]
    Kill turf and other undesirable vegetation [Flanery]
    Install mulch [Flanery and BLCA volunteers]
    Install netting [Flanery and BLCA volunteers]
    Plant native plants [Flanery and BLCA volunteers]
    Site maintenance, including watering [Flanery]

12. **Dissemination**
    Encourage neighbors and other BLCA members to become involved in lakeshore restoration using the DNR funded SERP.

13. **Maintenance plan**
    Watering newly planted native vegetation by owners. Site inspection in 2009/2010 by BLCA SERP committee; replanting where appropriate

Exhibit C: Shoreline Habitat Landowner Agreement

Landowner:
(Name, address, telephone and email) _____

Project Cooperator:
(Name, address, telephone and email) _____

Location (County): _____

This agreement dated _____ between the Minnesota Department of Natural Resources (DNR), Division of Fish and Wildlife and the _____(Landowner, Project Cooperator) is entered into in order to establish native vegetation along shorelines for the purposes of creating a buffer zone and improving fish and wildlife habitat. Through this Agreement, Landowner will permit the DNR and the Project Cooperator to undertake certain shoreline habitat restoration activities.

This Agreement covers lands in ____, ___, S._____ adjacent and within the following watercourse_____, as specified in the project proposal. The term of this Agreement shall be ten (10) years, from _____ to _____.

The Landowner is responsible for maintaining the project for a period of ten (10) years to ensure that the conservation objective of this practice is met. Minimum maintenance includes watering when needed during the first year or two and removing all invasive and exotic species that encroach on the project as discovered.

The Landowner agrees to the terms of installation, maintenance and monitoring outlined in the approved project proposal.

The Landowner agrees to allow the DNR (and the Project Cooperator) access to the project area for construction, maintenance, evaluation and promotion of the project. The Landowner agrees to make the site available as a demonstration site to the general public.

The Landowner or the Project Cooperator shall secure all necessary permits for the project.

The Landowner will forego the use of fertilizer in the buffer zone created by the project.

The Landowner will forego the chemical control of aquatic plants except for the purposes of controlling algae (which still requires a permit from the DNR's Division of Fisheries).

The DNR assumes no liability for injury or damage, other than that caused by it's own negligence, in the project area. The DNR assumes no jurisdiction over the project area for purposes of controlling trespass, noxious weeds, granting rights-of-way, or other incidents of ownership.

This Agreement will be canceled upon transfer of the property to another owner during this period. This Agreement may be amended by mutual consent of the DNR and the Landowner. The DNR shall have no obligation to restore the land to its original condition upon expiration or termination of this Agreement.

_____ _____
John Hiebert Date Landowner Date

_____
Shoreland Habitat Coordinator, DNR-Fisheries Date

_____
Project Cooperator/title Date

SHERBURNE COUNTY SHORELAND PERMIT APPLICATION

Date: _____

Lot size: _____square feet (one acre = 43,560 square feet)

25% Impervious surface limit: _____square feet

OFFICE USE ONLY	
Fee paid: $100 / $250	Circle: Escrow / Fine / None
Date Rec'd: _____	Received by: _____
PIN: _____	Circle: Approved / Denied_

This permit is intended to help control the alteration of shoreland property in Sherburne County pursuant to Section 14 of the Sherburne County Zoning Ordinance. Each question must be answered before the application will be processed.

Sherburne County Zoning will mail a shoreland permit or denial letter to the property owner.
No work is authorized until the permit is signed by the property owner and contractor and returned to Sherburne County Zoning.

Name of landowner (same as signature below)	
Address of project	
Telephone number	
Name of lake (within 1,000 ft) or name of river (within 300ft)	
Name of contractor	
Address	
Telephone number	

1) DESCRIBE THE REASON/PURPOSE FOR THE PROJECT:_____

_____

2) DESCRIBE VEGETATION TO BE REMOVED AND RE-VEGETATION PLANS:_____

_____

3) DESCRIBE EROSION CONTROL PLANS:_____

_____

4) WILL YOUR PROJECT INVOLVE GRADING, EXCAVATING OR FILLING OF SOILS? YESq NOq
Total excavated: _____cubic yards (yd^3) Total fill: _____yd^3 Total material moved: _____yd^3

5) WILL YOU BE CONSTRUCTING OR ALTERING A STRUCTURE (boat house, gazebo, deck, stairs, other)? YESq NOq
If YES, specify structure(s) and submit plans showing setbacks, height, design

6) WILL YOU ALTER ANY AREAS LOCATED IN OR NEAR A WETLAND? YESq NOq
If YES, verify with the Zoning Office that you are in compliance

7) WILL YOUR PROJECT BE LOCATED WITHIN A FLOODPLAIN? YESq NOq
If YES, verify with the Zoning Office that you are in compliance

8) WILL YOUR PROJECT AFFECT THE DRAINAGE FROM OR RUNOFF TO NEIGHBORING PROPERTIES? YESq NOq

9) HAVE YOU SUBMITTED DETAILED DRAWINGS OF THE PROJECT, including (at least) vegetation to be removed and planted, erosion control, setbacks, lot size, project dimensions, and a cross-section drawing showing slopes? YESq NOq

I certify by my signature below that the information I have provided in this application is true and correct to the best of my knowledge. **I understand that by applying for this permit, I grant the zoning authority access to the property for inspection of the property before and after the alteration takes place.** I also understand that if I knowingly have provided any false information, I may be subject to penalties enforceable by law.

_____ _____
Landowner Date

What Permits and Requirements are there in the Shoreland District?

Bluffs

- A topographic feature such as a hill, cliff, or embankment having the following characteristics:
  1. Part or all of the feature is located in a shoreland area;
  2. The slope rises at least 25 ft or more above the OHWL (Ordinary High Water Level).
  3. The grade of the slope from the toe of the bluff to a point 25 ft or more above the OHWL averages 30% or greater;
  4. The slope must drain toward the waterbody.
- The structural setback from the top of a bluff is 30 ft.
- Structures, except stairways & landings, shall not be placed within the bluff impact zone.

Construction Site Permit

- No person shall construct, alter, or move any building or part thereof without first securing a construction site permit. The application shall include a plan showing lot dimensions and the size and location of the building and accessory buildings erected. The permit expires after one (1) year if no construction has begun. "Construction" shall include the installation of footings, slab, foundation, posts, walls or other portions of a building.

Decks

- All additions or expansions to the outside dimensions of an existing nonconforming structure must meet the setback, height, and other requirements of the ordinance. Any deviation from the requirements must be authorized by a variance.

- Deck additions may be allowed without a variance to a structure not meeting the required setback from the ordinary high water level if all of the following criteria and standards are met:
  1. Structure existed on the date setbacks were established;
  2. A thorough evaluation of the property and structure reveals no reasonable location for a deck meeting or exceeding the existing ordinary high water level setback of the structure;
  3. The deck encroachment toward the OHWL does not exceed 15% of the existing setback of the structure from the OHWL or does not encroach closer than 30 ft, whichever, is more restrictive;
  4. The deck is constructed primarily of wood, and is not roofed or screened.
- A building permit is required for a deck. A Shoreland Alteration Permit may be required.

Established Building Line

- When more than one setback applies to a site, structures and facilities must be located to meet all setbacks.
- Where structures exist *on the adjoining lots on both sides of a proposed building site*, structure setbacks may be altered administrative exemption to conform to the adjoining setbacks from the OHWL, provided the proposed building site is not located in a shore impact zone or in a bluff impact zone.
- If there are not dwellings on both sides of a proposed property directly adjacent to the property then the setbacks listed in the Sherburne County Shoreland Ordinance apply.

Grading and Filling Permits

- Grading & filling standards must be incorporated into the issuance of any permit, variance, or conditional use permit for construction of structures, accessory structures, subdivisions, sewage treatment systems and driveways.
  A grading & filling permit is required for (a) movement of more than 10 cubic yards of material on steep slopes or within shore or bluff impact zones; (b) movement of more than 50 cubic yards of material outside of steep slopes, shore & bluff impact zones.
- Alterations must be designed and constructed in a manner that ensures only the smallest amount of bare ground is exposed for the shortest time possible;
- Mulches or similar materials must be used, where necessary, for temporary bare soil coverage, and a permanent vegetation cover must be established as soon as possible;
- Methods to minimize soil erosion and to trap sediments before they reach any surface water feature must be used;
- Altered areas must be stabilized to acceptable erosion control standards consistent with field office technical guides.
- Fill or excavated material must not be placed in a manner that creates an unstable slope;
- Plans to place fill or excavated material on steep slopes must be reviewed by qualified professionals for continued slope stability & must not create finished slopes of 30% or greater.
- Fill or excavated material must not be placed in bluff impact zones.
- Any alterations below the OHWL of public waters must obtain permit from MN DNR.
- Alterations of topography must only be allowed if they are accessory to permitted or conditional uses and do not adversely affect adjacent or nearby properties.
- Placement of natural riprap, including associated grading of the shoreline and placement of a filter blanket, is permitted *(Shoreland Alteration Permit required)* if the finished slope does not exceed 3 ft horizontal to 1 ft vertical, the landward extent of the riprap is within 10 ft of the OHWL, and the height of the riprap above the OHWL does not exceed 3 ft.

Non-Conforming Lots

- A parcel of record shall be a legally buildable parcel provided all the following are met:
  1. Each lot dimension in question measures at least 50% of the applicable requirement for lot width as listed in the Ordinance.
  2. The use is permitted in the Zoning District.
  3. The lot has been in separate ownership from abutting lands at all times since it became substandard.
  4. Lot was created compliant with the official controls in effect at the time.
  5. Sewage treatment and setback standards are met.
  6. A variance from setback requirements may be required before a permit is issued for a lot.

Non-Conforming Structures

- All additions or expansions to the outside dimensions of an existing nonconforming structure must meet the setback, height and other requirements of the Shoreland Ordinance.
- Any deviation from these requirements must be authorized by a variance pursuant to the Ordinance.

Roads, Driveways and Parking Areas

- Visual Screening. Public & private roads & parking areas must be designed to take advantage of natural vegetation & topography to achieve maximum screening from view from public waters.
- Setbacks. Roads, driveways, & parking areas must meet structure setbacks & must not be placed within bluff & shore impact zones, when other reasonable & feasible placement alternatives exist. If no alternatives exist, they may be placed within these areas by variance, & must be designed to minimize adverse impacts.

Sand Blankets

- Placement of sand above the OHWL requires a Shoreland Alteration Permit.
- Maximum of 50 ft width or one-half the lot width, whichever is less. 6 inch depth maximum

Septic System Certifications

** This is only a partial summary of the Sherburne County Ordinance, a copy of the entire Ordinance is available at www.co.sherburne.mn.us*

- A compliance inspection for existing sewage treatment systems must be conducted prior to the issuance of any building permit, conditional use permit or granting or denying of any variance for property located in the Shoreland District, if the existing septic system is older than 10 years. If the system is non-compliant it must be upgraded prior to any building permits being issued.

atback and Structure Height Information

LAKE	Max Structure Height	Onsite Sewage Treatment System & Structure Setback	Bluff Set-back
General Development	25'	75'	30'
Recreational Development	25'	100'	30'
Natural Environment	25'	150'	30'
RIVER			
St. Francis	25'	150'	30'
Elk	25'	100'	30'
Snake	25'	200'	30'

Stairway, Lifts and Landings

- May not exceed 4 ft in width & landings not exceed 32 sq. ft.
- Canopies or roofs are not allowed on stairways, lifts or landings.
- May be either constructed above the ground on posts or pilings, or placed into the ground, provided they are designed and built in a manner that ensures control of soil erosion
- Must be located in the most visually inconspicuous portions of lots, as viewed from the surface of the public water assuming summer, leaf-on conditions, whenever practical.
- A Shoreland Alteration Permit will be required.

Stormwater Management

- When possible, existing natural drainageways, wetlands, & vegetated soil surfaces must be used to convey, store, filter & retain stormwater runoff before discharge to public waters.
- Development must be planned & conducted in a manner that will minimize the extent of disturbed areas, runoff velocities, erosion potential, and reduce and delay runoff volumes.
- Disturbed areas must be stabilized & protected as soon as possible & facilities or methods used to retain sediment on the site.
- When development density, topographic features and soil and vegetation conditions are not sufficient to adequately handle stormwater runoff using natural features and vegetation, various types of constructed facilities such as diversions, settling basins, skimming devices, dikes, waterways, and ponds may be used.
- Impervious surface coverage of lots must not exceed 25% of the lot area (Includes gravel driveways whether paved or not)

Structure Height

- All structures in residential districts, except churches & non-residential agricultural structures, must not exceed 25 ft.

Vegetation Alterations

- Intensive vegetation clearing within the shore and bluff impact zones and on steep slopes is not allowed.
- In shore and bluff impact zones and on steep slopes, limited clearing of trees and shrubs and cutting, pruning, and trimming of trees is allowed to provide a view to the water from the principal dwelling site and to accommodate the placement of stairways and landings, picnic areas, access paths, livestock watering areas, beach and watercraft access areas, and permitted water-oriented accessory structures or facilities, provided that:
  1. The screening of structures, vehicles, or other facilities as viewed from the water, assuming summer, leaf-on conditions, is not substantially reduced;
  2. Along rivers, existing shading of water surfaces is preserved
  3. The above provisions are not applicable to the removal of trees, limbs, or branches that are dead, diseased, or pose safety hazards.
- A shoreland alteration permit is required for any vegetation alteration.

Water Oriented Accessory Structures

- Each lot may have one water-oriented accessory structure.
- The structure may not exceed 10 ft in height, exclusive of safety rails, & cannot occupy an area greater than 400 sq ft. Detached decks must not exceed 8 ft above grade.
- The setback from the OHWL must be at least 10 ft.
- The structure must be treated to reduce visibility as viewed from public waters and adjacent shorelands by vegetation, topography, increased setbacks or color, assuming summer, leaf-on conditions.
- The roof may be used as a deck with safety rails, but must not be enclosed or used as a storage area.
- The structure or facility must not be designed or used for human habitation and must not contain water supply or sewage treatment facilities.
- A building permit may be required. A Shoreland Alteration Permit will be required.

LAKE FACTS:

Natural Environment Lakes usually have less than 150 total acres, less than 60 acres per mile of shoreline, & less than three dwellings per mile of shoreline. They may have some winter kill of fish; may have shallow, swampy shoreline; are less than 15 ft deep.

Natural Environment Lakes in County include: West & East Hunter Lakes, Cantlin Lake, Lake Diann, Round Lake, & Lake Helene.

Recreational Development Lakes usually have between 60 & 225 acres of water per mile of shoreline, between 3 & 25 dwellings per mile of shoreline, and are more than 15 ft deep.

Recreational Development Lakes in Sherburne County include: Sandy Lake, Birch Lake, Ann Lake, Lake Julia, Briggs Lake, Rush Lake, Pickerel Lake, Long Lake, & Blacks Lake.

General Development Lakes usually have more than 225 acres of water per mile of shoreline & 25 dwellings per mile of shoreline, and are more than 15 ft deep.

General Development Lakes in Sherburne County include: Fremont Lake, Little Elk Lake (Baldwin Township), Big Elk Lake (Clear Lake Township) & Eagle Lake.

Sherburne County Planning & Zoning Department
13880 Highway 10
Elk River, MN 55330
(763)241-2900 or 1-800-438-0578
Fax (763-241-2910

** This is only a partial summary of the Sherburne County Ordinance, a copy of the entire Ordinance is available at www.co.sherburne.mn.us*

APPLICATION TO COLLECT AND/OR TRANSPLANT AQUATIC VEGETATION

Please Print or Type

Applicant's Name (First, M.I., Last)	Home Residence Telephone Number ( )
Home Address (No. & Street, RFD, Box No., City, State, Zip Code)	Lake Residence Telephone Number (if different) ( )
Lake Address (No. & Street, RFD, Box No., City, State, Zip Code)	Work Telephone Number (daytime) ( )

Lake Name Where Plants are to be Transplanted

Lake Name or Bay	County	

Types and Sources of Plants to be Transplanted (attached additional pages if needed)

Common Name of Plant	Scientific Name (required)	No. Plants & Type of Plant material	Source of Plants Lake Name & County and/or Company Name & Address

REASON FOR PROJECT *(explain why this project is desired)*

Sketch proposed collection and transplant area on back of this application or on a separate sheets of paper. Indicate compass direction "North"; location on lake (shore, point, bay, etc.); dimensions of proposed collection and transplant areas with names and total frontages of each property owner. Include fire number, noteworthy landmark, and enough detail so that the property can be located for possible inspection.

MAKE SURE THAT YOU HAVE INCLUDED THE FOLLOWING INFORMATION: Sketch/Maps ☐ Plant List ☐ Source of Plants ☐ Signature ☐

I hereby make application for a permit to collect and transplant aquatic vegetation as described below. I understand that the collection and transplanting of aquatic vegetation is subject to rules and regulations of the Commissioner of Natural Resources. I understand that an Aquatic Plant Management Specialist may wish to inspect the above areas before, during, and/or after work is completed and that by making this application I give permission to the specialist to enter my property to make such inspection at reasonable times. I understand that an annual report may be required on all work done and results achieved.

Applicant's Signature	Date

INSTRUCTIONS

For Completing an Application to Transplant and/or Collect Aquatic Vegetation

Please read the entire application carefully and provide all information requested. Also, print legibly or type when completing this form. Your cooperation helps DNR staff prevent the introduction of species that could cause problems in the lake. If you have questions regarding the permit application, please contact your Regional Fisheries office.

1. **Name and Address**: Give your complete name and address (including your Zip Code), for both your home residence *and your lake residence* (if different). Provide all relevant telephone numbers including a number where you can be reached during business hours.

2. **Lake** and **County**: Give the name of the county and the lake into which you will be planting.

3. **Types and Sources of Plant Materials**: Provide *both* the common and scientific name (genus and species) for each plant. Include the type of plant material (seed, rootstock, whole plant, live cutting) and the quantity to be planted. Specify the location where you intend to collect the plants and/or the company from which you intend to order them. The actual plant source must also be identified – that is, the origin of the plant material itself in addition to the vendor name. Plants of local origin are preferred, if possible from within the same watershed or county. Plant materials originating beyond Minnesota and its adjacent states will *not* be permitted. *Provide the above information for all plant species to be used.* Attach additional pages if necessary.

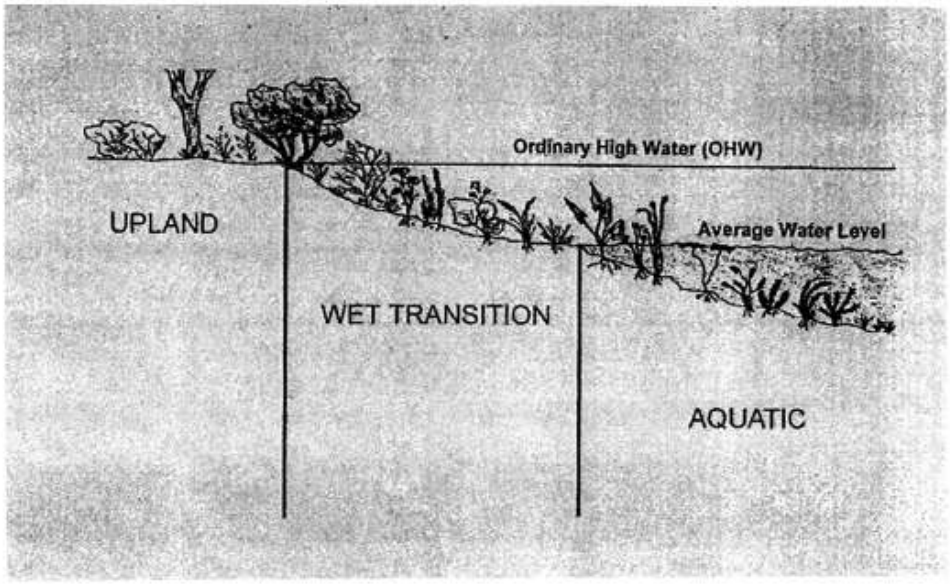
4. **Reason for Project**: Explain why you wish to collect and/or transplant aquatic plants and the objective of your project.

5. **Sketch**: Provide a sketch of the proposed collection and/or transplant area as instructed on the application form. *Include all requested details.*

6. **Signature**. Sign and date your application.

Use the map on the back of this page to locate the county where your project will take place and note the DNR region number. Mail your application to the corresponding Regional Fisheries Office whose address and telephone number are also on the back.

Ordinary High Water Level (OHWL)



The Ordinary High Water Level (OHWL) is the highest water level, which has been maintained for a sufficient period of time to leave evidence upon the landscape. The OHWL is commonly the point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For streams and rivers, the ordinary high water level is usually the top of the bank of the channel.

BLCA Coming Events and Activities

www.briggslakechainassociation.com

The BLCA is proud to announce the following:

- **Shoreland Restoration Workshop**

  What: The workshop will provide an introduction to the basics of restoration, how to do a project, and how to get up to $3000 to help fund the project

  When: April 20, 2013 from 8:30 to noon

  Where: Palmer Township Hall

  Who: Anyone interested in doing a restoration or related conservation project;

  pre-registration not necessary

- **BLCA Sponsored Garage Sales**

  When: May 17 and 18, 2013

  Where: All four lakes and surrounding area: look for the signs

- **Lindner's Spring Plant Sale**

  What: Fundraiser for BLCA Check website for dates, times and location

- **Highway 25 Cleanup**

  When: Saturday, May 11th

  Saturday October 12th

  Where: Meet at Rush Lake access and bring gloves.

- **BLCA Picnic and Band Concert**

  When: Saturday June 8 General meeting at 10:00 AM followed by concert

  Where: Palmer Township Park

  What: General meeting, band concert [St Cloud Municipal Band] and picnic;

  lunch and beverages provided, bring lawn chairs

  What: Check website for topic and details

- **July 4th Activities**

  What: Fireworks!

  When: Check website for date. Time: dusk on beautiful Briggs Lake

  What: Boat Parade

  When: July 4th Check, website for time and location

- **BLCA Flotilla**

When: Friday July 26 at 6:00 PM

Where: Big Elk Lake

When: Saturday June 15 and Friday August 16

Where: Briggs Lake

What: Evening social event on Briggs Lake. Check website for date and location

- **Ground Truth Training**

What: Training for groundtruth volunteers as part of BLCA Overfly Project

When: Saturday June 1, 2013 from 8:30 to 4:00 PM at Palmer Township Hall

- **July General Meeting**

When: Saturday July 13, 2012 at Palmer Township Hall. Check website for topic and time

- **August General Meeting**

When: Saturday August 10, 2012 at Palmer Township Hall

What: General meeting will focus on Lake Improvement Districts the connection to curly leaf pond weed management, water quality and the overfly project

Shoreline Alterations: Natural Buffers and Lakescaping

Where can I find additional information?

Book and Online Resources

Lakescaping for Wildlife and Water Quality (C.L. Henderson, C.J. Dindorf, F.J. Rozumalski, 1999, Department of Natural Resources*) is a book showing techniques to prevent shoreline erosion and restore wildlife habitat, wildflowers, and clean water.

Restore Your Shore (2002, Department of Natural Resources) is a sequel to the lakescaping book. This on-line tool presents ideas to use in protecting and restoring natural shorelands. Visit the *Restore Your Shore* website at: mndnr.gov/restoreyourshore

Score Your Shore is a tool for landowners to evaluate the habitat on their developed lake lots. Visit the *Score Your Shore* website at: mndnr.gov/scoreyourshore

Information about native plants and suppliers is available through the DNR, University of Minnesota Extension Service, and Wild Ones:

- mndnr.gov/gardens/nativeplants/suppliers.html
- extension.umn.edu/distribution/horticulture/DG7447.html
- extension.umn.edu/shoreland
- wildones.org/landscap

Technical assistance is available from local watershed districts and soil and water conservation districts:

- bwsr.state.mn.us/directories

*Available through Minnesota's Bookstore: minnesotasbookstore.com

What can I do to create a more natural shoreline?

A natural shoreline is a complex ecosystem that sustains fish and wildlife and protects the entire lake. Native vegetation along the shore acts as a buffer zone, intercepting nutrients and reducing runoff, erosion, and sedimentation. Aquatic plants provide food and shelter for ducks, songbirds, and other animals while reducing problems caused by Canada geese and burrowing muskrats. Plants growing in and near the water are critical for wildlife and fish habitat and a healthy lakeshore. Tall plants like bulrush, lake sedge, and cattail can reduce the energy of wave action to minimize erosion and help maintain water quality.

Creation of a buffer zone is the essence of the lakescaping concept. A buffer zone is an unmowed strip of native vegetation that extends both lakeward and landward from the water's edge. A buffer zone that extends 25-50 feet from shore is preferable, but even 10-15 feet provides benefits. Installing a buffer zone can restore many functions critical to the health of the lake that may have been eliminated previously by sod, hard structures, or mowing. Planting grasses and flowering plants that are native to your area will diversify and enhance your shoreline and provide a seasonal show of color.

A buffer zone of vegetation provides a natural appearance to your shoreline and protects wildlife habitat, water quality, and fish.

Creating and maintaining natural buffer zones along the shore does not mean your property has to look unkempt. Buffers and upland islands of trees, shrubs, and flowers can bring natural beauty to your yard. Additionally, tall native plants typically have deep root systems. They will slow erosion, decrease ice damage, increase rain infiltration, and act as a barrier to discourage geese from walking on your shoreline property.

Your shoreline is part of a larger community and ecosystem. Individual choices by many have cumulative impacts on a lake and its ecosystem. Your actions can restore or degrade the quality of the ecosystem. Restoring your lakeshore to a more natural condition is important, even if your neighbors are not restoring theirs, because it can help wildlife habitat, water quality, and fish.

Shoreline Alterations: Natural Buffers and Lakescaping

Lakescaping and Erosion Control

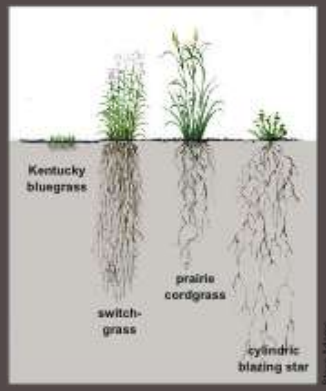
Vegetation is extremely important for controlling erosion. Native trees, shrubs, and grasses dissipate the energy of raindrops, slow the water, and allow it to infiltrate the soil. The DNR and your county soil and water conservation district can help you select the right plants for your project. Listed below are some other erosion-control recommendations.

• Prevent erosion. Preventing erosion by maintaining native vegetation is less costly than fixing an eroded area. Think "root systems." Native plants typically have greater rooting depth and root density. For example, the roots of the little bluestem (*Schizachyrium scoparium*) are about 2-3 feet long and have a great capacity to hold soil. In contrast, the roots of lawn grass are only 2-3 inches long.

• Identify and address the cause of erosion. Causes may include excessive foot traffic on fragile soils, vegetation clearing (both upland and in the lake), yard waste on the bank that kills vegetation, wave action from boat traffic and prevailing winds (especially when water is high), ice heaves, overland runoff down slopes, stairways that channel water, and runoff from impervious surfaces.

• Choose erosion-control methods that are "light" on the landscape. For example, use biodegradable erosion control materials that contain biodegradable netting, not photodegradable plastic netting which can trap wildlife. If wave action is eroding the bottom (toe) of the bank, consider reinforcing only the toe of the bank and planting native vegetation on the remainder.

• Plant aquatic vegetation. In-lake vegetation can help prevent erosion. Native aquatic vegetation disperses wave energy, anchors soil, limits ice heaves, and provides excellent fish and wildlife habitat.



The picture contrasts the shallow (2-3 inches) roots of Kentucky bluegrass to the deep (3-5 feet) and dense roots of native grasses. The root systems of native grasses may be effective for preventing erosion.

Contrast the eroded shoreline lacking vegetation (foreground) with the well-vegetated, uneroded shoreline in the distance.

Lakescaping Design Factors to Consider

Look around your lake and note how nature works to minimize erosion on healthy, more natural shorelines. What types of wildflowers, grasses, trees, and shrubs do you see in your area? Then determine how much of your lakeshore to naturalize, keeping in mind how much you need for lake access, swimming areas, docks, and dock storage areas. Talk to your neighbors, share ideas, and coordinate efforts to increase habitat and natural shorelines. Natural shorelines are gaining acceptance as people understand the important role shorelines play in protecting their lake and a diverse ecosystem. Many lake associations are developing demonstration projects on area lakes.

Steps for Creating a Buffer Zone

Describe your shoreline area, including the following elements:

- Natural features, including existing vegetation and woody debris, fish and wildlife use, and opportunities for links to neighboring habitat;
- Removal of stuctures or construction debris, such as retaining walls or concrete, respectively;
- Location of the house, views, trees, pathways or stairways, docks, and swimming areas;
- Sun, including amount and number of hours of direct sunlight;
- Topography, including ice ridges and slopes (facing directions and steepness);
- Soil characteristics, including type, drainage, texture, and fertility;
- Water, such as natural seeps, wet areas during high water, drainage, wave action, and runoff; and
- Fetch (miles of open water/waves), prevailing winds and ice push.

These elements will help determine what types of erosion control measures (biologs, brush bundles, erosion control fabric) might be needed in order to get vegetation established on the site.

Shoreline Alterations: Natural Buffers and Lakescaping

Think about your preferences. How will the site be used (viewing, swimming, boating, fishing)? What kinds of native trees, shrubs, flowers, and grasses do you like? Consider their color, height, and appearances at different times of the year. The type of vegetation you select may affect the shoreline's ability to withstand erosion.

Develop a design and management plan based on your lakeshore and preferences. Consult references such as the ***Lakescaping for Wildlife and Water Quality*** book or the on-line program ***Restore Your Shore*** (see front page) for assistance on designing your restoration project. You can also look at the DNR Fisheries lake surveys for information. Visit nearby natural areas or other shorelines to get ideas. Obtain any necessary permits from your local unit of government or the DNR. Be realistic about the size of your shoreline project. Start small, if necessary, and add to it in phases.

Planting

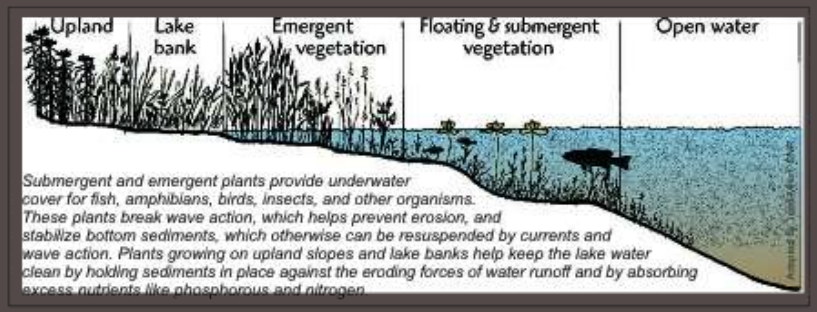
Identify the areas for planting native vegetation and prepare the site for planting. It may be necessary to control non-native, invasive species and turf grass first. Upland plants should be spaced from 1 foot to 3 feet apart; trees and shrubs should be 6 feet to 14 feet apart. If you decide to use an erosion-control blanket, the supplier can help you determine which type to use. After installing the blanket, simply cut a hole in it for each plant. As an alternative to the blanket, mulch could be used to control erosion, retain moisture, and suppress weeds.

If you add aquatic plants, a temporary barrier in the water may be needed to protect new plants until they are established. For guidance on aquatic plantings, please refer to the ***Restore Your Shore*** on-line program or your local Soil and Water Conservation District.

(TOP) Lakefront of home on Lake Marion, Dakota County. (BOTTOM) Closer view of the same lakefront after revegetation.

Maintenance

Your new plantings require some maintenance in the first few years as they become established. Provide from 1 inch to 2 inches of water per week the first season and during dry periods in the second season. Weeding during the first few years helps the plants become established and gives them an edge. Replace vegetation that did not survive by replanting species that were most successful at your site. By the third year, watering is no longer necessary, but you should continue to remove weeds.



Submergent and emergent plants provide underwater cover for fish, amphibians, birds, insects, and other organisms. These plants break wave action, which helps prevent erosion, and stabilize bottom sediments, which otherwise can be resuspended by currents and wave action. Plants growing on upland slopes and lake banks help keep the lake water clean by holding sediments in place against the eroding forces of water runoff and by absorbing excess nutrients like phosphorous and nitrogen.

Shoreline Alterations: Natural Buffers and Lakescaping

(ABOVE) In 2000, start of restoration along Lake Phalen in St. Paul. (RIGHT) View of the same site in 2002.

photos by Bill Bartodziej

Permit Requirements

For most projects constructed *below* the ordinary high-water level* (OHWL) of public waters as determined by the DNR, an individual Public Waters Work Permit is required, but an individual permit is not required for planting buffer zones. Collecting, transplanting, spraying, or removing aquatic vegetation below the OHWL, however, may require a permit from the DNR Fisheries Aquatic Plant Management (APM) Program. Please go to: mndnr.gov/shorelandmgmt/apg/regulations.html for more information on APM Permits.

If you have questions concerning the contents of this information sheet, contact your local DNR Area Hydrologist. Other governmental units (federal, state, city, county, township, and watershed authority) may require a permit for that portion of the project within their jurisdiction, which usually involves work above the OHWL. It is advisable to contact them.

Summary

Maintaining a healthy lake is far less costly than trying to fix a degraded one. If you are fortunate enough to have a natural shoreline, maintain or enhance it as a buffer zone and minimize erosion on the areas used for access or recreation. If your property lacks natural areas, plant native vegetation or let areas grow naturally. You will be surprised at the aesthetic appeal, as well as the energy and time you save, of helping your lake help itself.

*For lakes and wetlands, the OHWL is the highest elevation that has been maintained as to leave evidence on the landscape. It is commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For watercourses, the OHWL is the top of the bank of the channel. For reservoirs and flowages, the OHWL is the operating elevation of the normal summer pool.

DNR Contact Information

DNR Ecological and Water Resources website and a listing of Area Hydrologists:
mndnr.gov/contact/ewr.html
DNR Ecological and Water Resources
500 Lafayette Road, Box 32
St. Paul, MN 55155
(651) 259-5100

DNR Shoreland Habitat Coordinator in St. Paul:
500 Lafayette Road, Box 12, St. Paul, MN 55155, (651) 259-5212

DNR Information Center

Twin Cities: (651) 296-6157
Minnesota toll free: 1-888-646-6367
Telecommunication device for the deaf (TDD): (651) 296-5484
TDD toll free: 1-800-657-3929

Raingardens

The secret to clean water is in the roots!

A raingarden is simply a bowl shaped garden that is built where it will capture rain and snowmelt (stormwater runoff) before it reaches a storm sewer or nearby stream, lake or river.

You can plant a raingarden at home to capture runoff from your rooftop, driveway or street. The runoff soaks into the garden within two days and is cleaned by the plants and the soil.

Raingardens are a beautiful way to keep our favorite lakes and rivers clean. They conserve a steady supply of groundwater and attract birds and butterflies.

? Learn more about raingardens at **www.BlueThumb.org**

Blue Thumb

PLANTING FOR CLEAN WATER®

Why raingardens?

Properly designed raingardens:

- Beautify your landscape
- Reduce pollution to lakes, rivers and streams
- Reduce flooding and erosion
- Attract birds and butterflies
- Protect fish and other aquatic animals

Raingardens DO NOT:

- attract mosquitoes
- hold water more than 2 days
- require more maintenance than other gardens
- cost lots of money

SHERBURNE SOIL & WATER CONSERVATION DISTRICT

Blue Thumb

PLANTING FOR CLEAN WATER®

The Blue Thumb Guide to Raingardens leads you through the basics of designing and installing a raingarden in your yard. $17.95

Find local retailers at www.BlueThumb.org

Live in Sherburne County?

Get free design advice and $$ for native habitat plantings, raingardens and shoreline projects

763-241-1170 x.3 or www.sherburneswcd.org

Raingardens

Plan today, plant tomorrow!


Big Elk Lake Raingarden
SWCD

Raingardens come in all shapes and sizes, and can complement existing landscaping.


Orrock Twp. Raingarden
SWCD

Place your garden where it will capture runoff from your roofline or driveway.


Swallowtail butterflies on coneflower

Native plants and deep-rooted garden perennials are best for raingardens.


Native Plant Roots
Illustration by Heidi Natura

Deep roots help to soak water into the ground and break up compacted soil.


Butterflyweed

Native plants are drought resistant and do not require fertilizer or pesticides.


Union Church, Elk River
SWCD

Raingardens work in both sandy and clay soils and can also be planted in the shade.