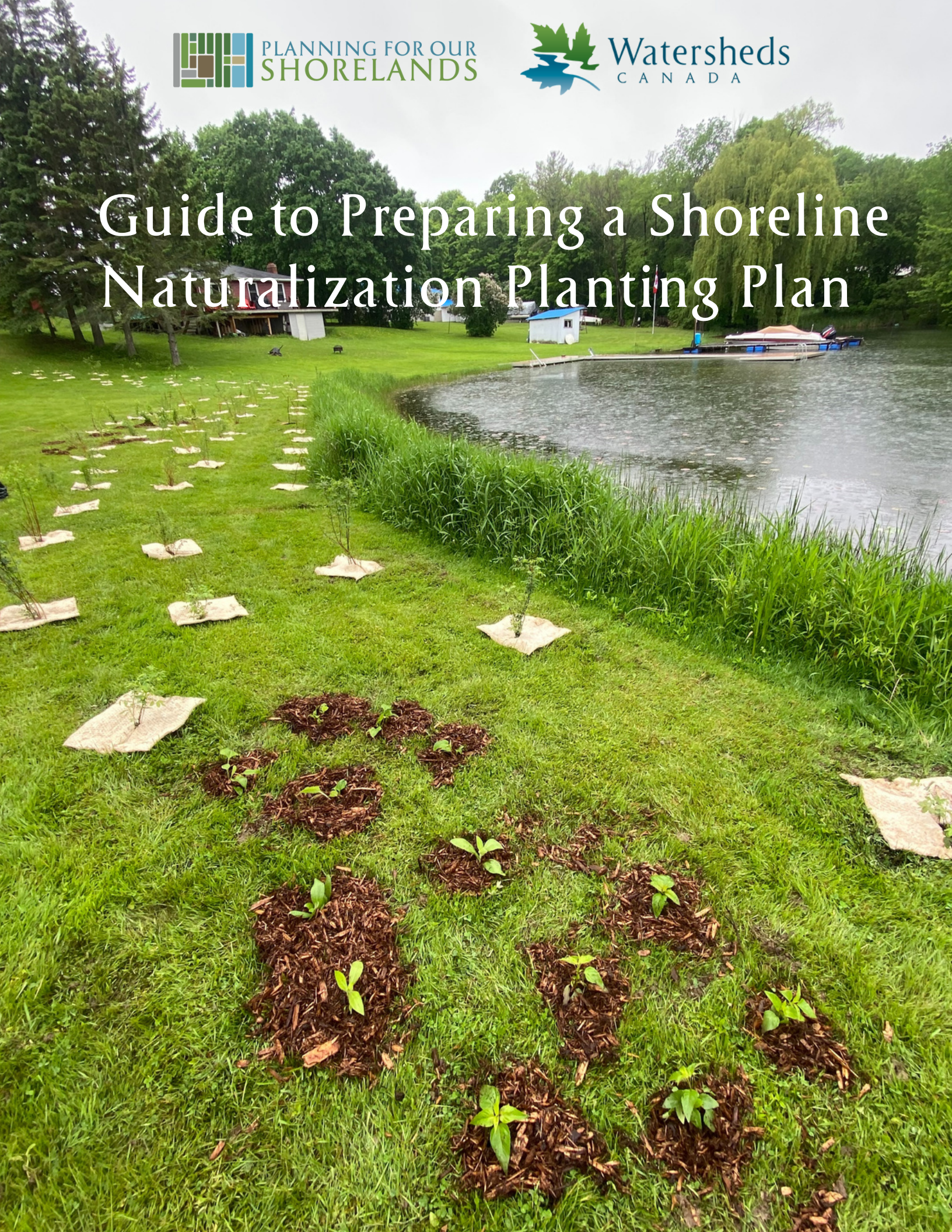
PLANNING FOR OUR SHORELANDS

Watersheds CANADA

Guide to Preparing a Shoreline Naturalization Planting Plan



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This planting template was reviewed by the Planning For Our Shorelands program steering committee:

- Cataraqui Conservation Authority
- Federation of Ontario Cottagers' Associations
- Friends of the Tay Watershed Association
- Janet Taylor
- The Land Between
- Mark Snider
- Mary Rae
- Watersheds Canada

Additional consultation was provided by Calvin Blewitt, Chloe Lajoie, and Nicole Dubé.

The Planning For Our Shorelands program presents webinars and best practices resources to address common and very complex problems facing waterfront communities today by promoting an ecosystem-based approach in land use decision-making. By restoring shoreland vegetation, creating opportunities for environmental net gains, and promoting sustainable development practices, Planning for our Shorelands highlights natural climate solutions as holistic and resilient solutions to these common waterfront challenges. This program is led by Watersheds Canada, a national charitable organization (863555223RR0001): https://watersheds.ca/

This project was undertaken with the financial support of the Government of Canada.
Ce projet a été réalisé avec l'appui financier du gouvernement du Canada.

Purpose of this Guide

This guide is meant for people who want to naturalize and enhance the shoreline area of their waterfront property, and those who are required to naturalize the shoreline area as a condition of a township's approving plans to develop or redevelop their property.

The guide explains the different parts of a resilient shoreline and why it is important to have lots of natural native vegetation in this area. The guide then takes you through the process of how to assess your property's site conditions and to consider factors like a sewage system so that you can choose the right plants for your property. It also includes a sample planting plan so that you can see how it works.

How to Complete Your Planting Plan

The following pages will provide the applicant with a step-by-step outline to help them in assessing their property's site conditions and clearly demonstrate ways vegetation will be increased as a result of their plan. You may wish to refer to the Shoreline Restoration Guide to help in the design of your natural waterfront property.

'Vegetation', in terms of this document, refers to woody plants (trees and shrubs) because of their deep root systems and ability to limit erosion, provide shade, and buffer adjacent water bodies from surface runoff pollution. Grasses and wildflowers do not have the ability to provide the same benefits due to their shallow root systems. Therefore, the plants proposed in your plan should emphasize trees and shrubs, although there may be wildflowers for aesthetic purposes.

The planting plan is divided into the following four parts:

Part 1: Draw your Planting Area

You will need to draw a bird's eye view of your property, including all existing and proposed development and natural vegetation. This will be a visual representation of your property when your project is completed. It is recommended that you consult your municipality's planning department to ensure your plan complies with municipal standards. It may also be necessary to consult with other applicable agencies (e.g., Conservation Authority, Parks Canada, Ontario Ministry of Natural Resources and Forestry).

Part 2: Assess Planting Area Conditions

You will need to go out onto your property and assess the site conditions of each proposed planting area identified in Part 1, including the soil, sun exposure, and slope. Make sure it has not rained in the past 3 days to properly determine the moisture level. You will need to dig a small hole (using an auger or shovel) to determine the soil type and depth.

Part 3: Choose Plants

Once you have an understanding of the general site conditions of each planting area you can begin choosing the plants best suited to your area. Consult the Natural Edge Native Plant Database to filter through native plants appropriate to your region and site conditions.

Part 4: Maintenance Plan

Lastly, you will be asked to outline your five-year buffer maintenance plan to ensure your plants reach maturity and address the control of any invasive species. See Watersheds Canada's free, Canada-wide Native Plant Care Guide for tips. The form can be found on page 15 of this document.

To assist with with its completion, the applicant may wish to refer to page 8 for a sample plan.

Considerations Before Planting

Wastewater Treatment Systems

The simplest way to address a wastewater treatment system in your planting plan is to keep the area clear of plants (especially trees and shrubs) as a mowed area. A study by the University of Minnesota recommends that woody plants (shrubs and trees) should be kept at least 6m from a septic system. Be sure to clearly indicate the location and dimensions of your mowed area in your Planting Area drawing (Part 1).

*It should be noted that some wastewater treatment systems require a smaller setback from plants than others. See the Septic Smart Guide for further tips and information.

Local Planting Programs Options

1. Visit Watersheds Canada's Natural Edge program to see if there is a delivery partner in your area that can assist you in creating a planting plan.
2. Find your local Conservation Authority to see if they have a planting program.
3. Contact your municipality to see if there are other planting programs in the area to assist you.

To assist with your plan, you are encouraged to consult an organization with a shoreline planting program. See list of program options above.

Resilient Shorelines

The **Littoral Zone** extends from the water's edge to where sunlight no longer penetrates to the bottom of the water. This is where docks are built, and people swim. However, we share this area with an incredible array of biodiversity as up to 90% of lake species (e.g., pike, ducks, otters, and turtles) are born, raised, fed, or live in the littoral zone.

The **Shoreline** is the edge where the land and water meet. The mix of plants, shrubs, and trees form an intricate web of roots, foliage, and fallen limbs that hold the waterfront together and fend off erosion from wind, rain, boat wakes, ice, etc.

The **Riparian Zone**, also known as the Ribbon of Life, extends inland from the shoreline for at least 15 metres and may be flooded during high water periods. It is a natural buffer protecting the shoreline, water quality, and natural habitat both on land and in the water. It is made up of trees, shrubs and grasses that absorb excess nutrients (e.g., fertilizers) and pollutants (e.g., seepage from septic systems, oil, gas, pesticides, etc.) before they can contaminate the water.

The **Upland Zone** is a drier forested area with better drainage compared to the riparian zone. The deep roots of trees stabilize the slope, the foliage buffers the effects of wind, the canopy cools its surroundings, and plants provides habitat for deer, birds, porcupines, grouse, rabbits, and many other creatures.

Supported by:
Janet Taylor
Mark Snider
Glenn Tunnock
Mary Rae

Cataraqui conservation

FCA
Federation of Ontario Cottagers' Associations

Watersheds CANADA

The Land Between

Choosing Your Plants

Choosing plants can be overwhelming. But it doesn't have to be! This section will provide useful information to help with choosing the appropriate plants for your plan (Part 3 on pg.19). It may be useful to have this page beside you while filling out Part 3 of this form.

To ensure the highest survival rate, plantings should be done when the plants are dormant (early spring or late fall). This is especially true for bareroot stock. However, it can be noted that potted stock can be planted later in the spring as the roots are completely covered by soil and thereby protected from higher temperatures.

Note: Although wildflowers can be incorporated into the plan, a focus should be placed on woody plants (e.g., trees and shrubs). Pay attention to where you want your viewpoints to be and ensure low-growing shrubs are planted in these areas. If an area is subject to spring flooding, ensure flood tolerant plant species are chosen for these areas.

You may wish to consult the Natural Edge Native Plant Database when identifying suitable plant species.

Type	Picture	Overview
Bareroot	 Buttonbush	Soil Depth: As they are generally smaller in size, bareroot is more easily planted in shallow soil compared to potted stock. If your planting site is rocky (e.g., riprap), bareroot is preferred. Planting Density: Generally, 1 plant per square metre. When to Plant: Early spring or late fall when natural areas are dormant. Plant right after frost has left the ground in the spring, and right before the ground freezes in fall. Plants should be planted within a couple days of obtaining them. If more time is needed before planting, they can be potted in the meantime. Cost: Typically cheapest option to buy but takes longer to reach maturity.

Plug stock	 Cardinal Flower	Soil Depth: Since they are smaller plants, they are often planted in shallow soils. Planting Density: Generally, 1 plant per square metre. When to Plant: Mid-spring or mid-fall. Avoid planting when you are still experiencing frost outside as the frost can damage the plant. A good practice is to plant outside of your area's first and last frost dates. Cost: Comparable to bareroot but depends on the plant species and size.
Potted	 Red Osier Dogwood	Soil Depth: Thrives in medium to deep soil. Planting Density: Generally, 1 plant per 2 square metres. When to Plant: Mid-spring or early to mid-fall. When vegetation is blooming in the spring and when vegetation still has most of its foliage in the fall are the ideal times to plant. Cost: Generally more costly but will fill out and reach maturity the quickest.

Watersheds Canada's Staff Picks

To attract pollinators, consider sprinkling native wildflowers throughout your planting plan. Consult the free Natural Edge Wildflower Garden Guide for plant descriptions.

Staff	Plant Name	Picture	Description
Chloe	Swamp Rose		"It has beautiful pink flowers that bloom in the summer. Plant it away from pathways as they have thorns. It's a fairly low growing plant, so it won't obstruct your view of the water. It loves wet conditions so you can plant it right on the shoreline."
Chloe	Red Osier Dogwood		"It can grow in most soil conditions. It has a beautiful red bark all year round and is very effective at erosion control. Wildlife love the berries, too!"
Barbara	Buttonbush		"It is an amazingly versatile plant that likes to grow right at the shore in wet conditions. It has the most amazing white honey-smelling button flowers that attract pollinators. Ducks and other water birds love to eat the seeds."
Barbara	Ninebark		"It is the only shrub that I could get to grow on my sandy, sunny slope. This is a hardy shrub that is drought tolerant and good for erosion control and harsh conditions."
Melissa	Sweet Gale		"It is a water-loving shrub with leaves that give off a sweet fragrance when rubbed. They grow in wet, rocky locations or along boggy areas. It is not very large and is often used for bordering ponds, foot paths, or property edges. Flowers form in spring before leaves emerge. They are easy to maintain and make a wonderful habitat for many birds and small wildlife. The leaves can even be dried and made into tea!"
Melissa	Tamarack		"It is a deciduous conifer that has needles that change to a rich golden colour before losing its needles each fall. It does well in wet conditions and is such a beautiful tree."

Appendix A: Sample Planting Plan

Part 1: Draw Your Planting Area

Acceptable drawings include hand drawings (see example on pg. 9) or edited site plans so long as the identified items below are clearly shown.

Note: Shoreline plantings are considered No Mow Zones. However, this can also include other areas on the property that will be left natural (e.g., rocky areas with low survival rates that will be left to naturalize on their own).

Property Location: 1234 Sunflower Dr. Perth, ON L1L 1X1

Planting Plan Prepared by (person/ organization): Gale Sumac

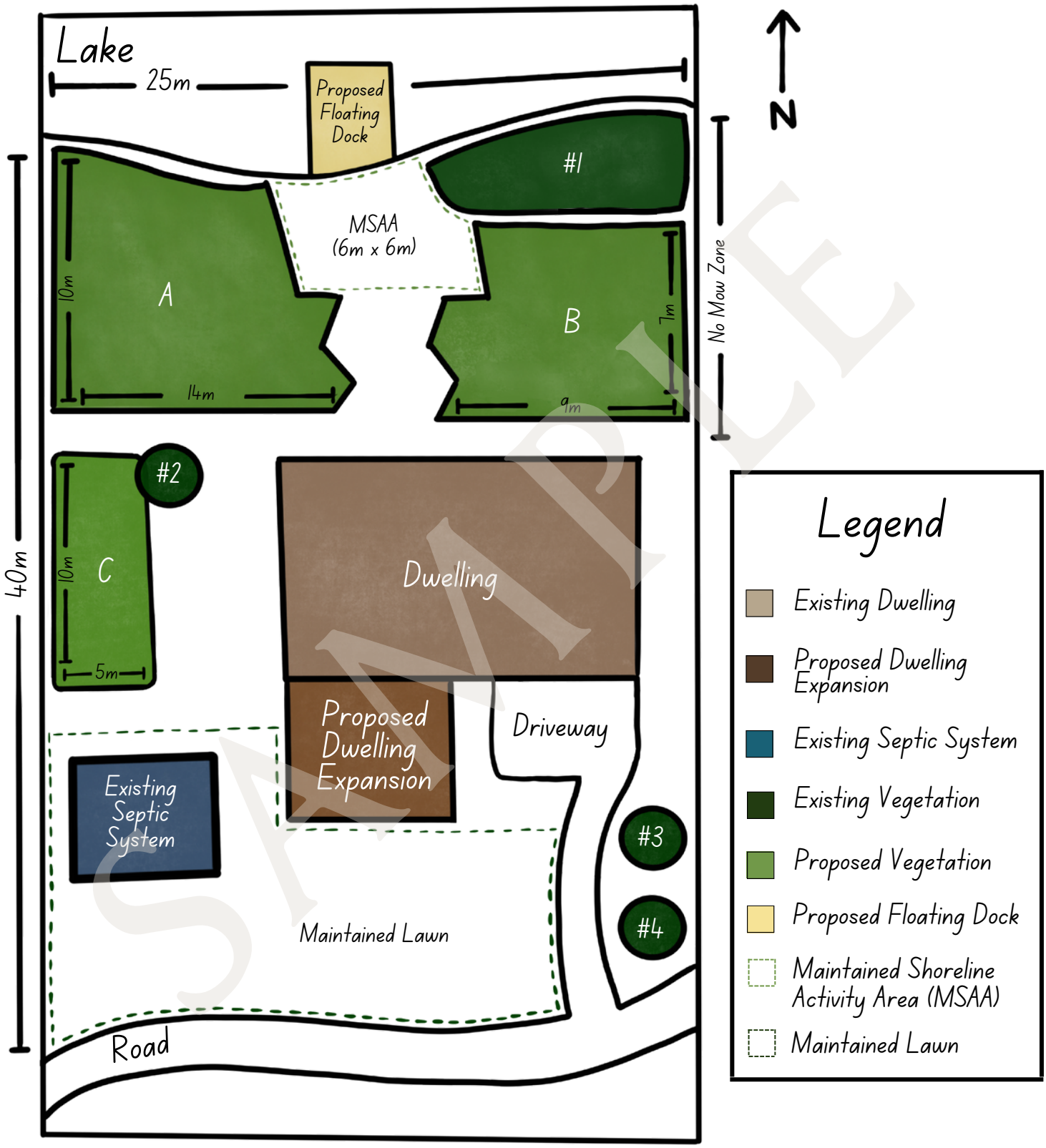
Include a sketch identifying the location and dimensions of the listed items, where applicable:

- ☑ North arrow
- ☑ High water mark/ shoreline
- ☑ Lot lines (rear, front, and side)
- ☑ Legend
- ☑ Dwelling
- ☑ Septic System
- ☑ Existing and proposed shoreline structures (e.g., docks, gazebos, etc.)
- ☑ Hardened areas (e.g., patios, driveway, seating areas, etc.)
- ☑ Shoreline clearing/ activity area
- ☑ Existing/ Proposed pathway to the water (winding, curved paths are best)
- ☑ Existing vegetation
- ☑ Mow zone/ Maintained lawn area
- ☑ No mow zones (NMZ)
- ☑ Proposed planting areas

Attached on the following page.

Planting Completion Date (MM/DD/YYYY): 08/22/2022

Planting Completed By (person/ organization): Gale Sumac


Lake
25m
Proposed Floating Dock
#1
MSAA (6m x 6m)
A
10m
14m
B
7m
9m
N
No Mow Zone
40m
#2
C
10m
5m
Dwelling
Proposed Dwelling Expansion
Driveway
Existing Septic System
#3
#4
Maintained Lawn
Road
Legend
Existing Dwelling
Proposed Dwelling Expansion
Existing Septic System
Existing Vegetation
Proposed Vegetation
Proposed Floating Dock
Maintained Shoreline Activity Area (MSAA)
Maintained Lawn

Provide Details of the Existing Vegetation on Your Property

For each area of existing vegetation indicated in your drawing above, please describe the type of plants, number of plants, and the dimensions of each area.

Existing Area 1	
Type of Plant	Trees / (Shrubs) / Wildflowers / Grasses
Number of Plants	5
Area Dimensions	10x 3m

Existing Area 2	
Type of Plant	(Trees) / Shrubs / Wildflowers / Grasses
Number of Plants	1
Area Dimensions	1 x 1 m

Existing Area 3	
Type of Plant	(Trees) / Shrubs / Wildflowers / Grasses
Number of Plants	1
Area Dimensions	1 x 1 m

Existing Area 4	
Type of Plant	(Trees) / Shrubs / Wildflowers / Grasses
Number of Plants	1
Area Dimensions	1 x 1 m

Part 2: Assess Planting Area Conditions

For each planting area labeled in Part 1, identify the conditions in the tables below.

Planting Area Condition Descriptions	
Sun Exposure	Throughout the day, what level of sun exposure does the plant area get? High: Direct sun Medium: Partial sun Low: Shaded
Soil Depth	Using a shovel, dig down a few inches (10 in) to see how deep the soil goes. Shallow = < 8 inches Deep = > 8 inches
Soil Type	Conduct a "feel test": Rub some moist soil between your fingers and determine which soil type it feels like. Gritty = Sand Smooth or floury = Silt Sticky = Clay Crumbly = Humus
Moisture Level	At least 3 days after the last rainfall, is the soil's moisture level: High: Very wet Medium: Damp Low: Dry
Slope	Standing a few metres back, consider whether the area is: Flat Gradual Steep

Circle the appropriate conditions. Include any useful notes. If more planting areas are required, use an additional piece of paper to include in your application.

Planting Area A	
Sun Exposure	Direct / Partial / Shaded
Soil Depth	Shallow / Deep
Soil Type	Sand / Silt / Clay / Humus
Moisture Level	High / Medium / Low
Slope	Flat / Gradual / Steep
Notes	*Low plants will be planted near the pathway to keep a view of the water from the dwelling. Taller plants will be planted to the side.*

Planting Area B	
Sun Exposure	Direct / Partial / Shaded
Soil Depth	Shallow / Deep
Soil Type	Sand / Silt / Clay / Humus
Moisture Level	High / Medium / Low
Slope	Flat / Gradual / Steep
Notes	*Wildflowers planted along pathway and in view of the dwelling to maintain view of the water.*

Planting Area C	
Sun Exposure	Direct / Partial / Shaded
Soil Depth	Shallow / Deep
Soil Type	Sand / Silt / Clay / Humus
Moisture Level	High / Medium / Low
Slope	Flat / Gradual / Steep
Notes	*Trees to create shade*

Planting Area D	
Sun Exposure	Direct / Partial / Shaded
Soil Depth	Shallow / Deep
Soil Type	Sand / Silt / Clay / Humus
Moisture Level	High / Medium / Low
Slope	Flat / Gradual / Steep
Notes	

Part 3: Choose Plants

Based on the planting area conditions identified in Part 2, choose plants appropriate for these conditions to include in your plan. You may wish to use the Natural Edge Native Plant Database to identify native plants suitable to your region. The database also has filters along the left-hand side of the page to narrow your options further.

Plant Species	Circle Plant Size *Shallow soil = Bareroot / Plug stock* *Deep soil= Potted*	Mature Plant Height	Number of Plants	Planting Area
Red Osier Dogwood	(Bareroot) / Plug Stock / Potted	<3m	20	A
Meadowsweet	Bareroot / Plug Stock / (Potted)	2-3m	20	A
Sweet Gale	Bareroot / Plug Stock / (Potted)	2-3m	20	A
Fragrant Sumac	(Bareroot) / Plug Stock / Potted	2-3m	15	B
Bush Honeysuckle	Bareroot / (Plug Stock) / Potted	1.5-2m	15	B
Cardinal Flower	Bareroot / Plug Stock / (Potted)	1.5-2m	10	A
Blue Loblelia	Bareroot / Plug Stock / (Potted)	1.5-2m	10	A
Swamp Milkweed	Bareroot / Plug Stock / (Potted)	1.5-2m	10	A
Purple Coneflower	Bareroot / Plug Stock / (Potted)	1.5-2m	8	B
Red Maple	Bareroot / Plug Stock / (Potted)	<3m	3	C
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			

Part 4: Maintenance Plan

Growth Expectations

Naturalization takes time. For faster results, potted plants are best but are more expensive. Expect to start seeing your plants mature after five years. Plants will start to fill in the empty spaces within five to ten years.

Plant survival will increase with regular watering and mulching in the first two years.

GS
Initial

Five-Year Maintenance Plan:
Outline your plan to grow plants to maturity. See Watersheds Canada's Native Plant Care Guide.

Examples:

- ☑ Watering regularly for at least two years (average of 3 times/week depending on weather).
- ☑ Mulching annually for two years around plants to keep moisture in & fend off invasive species.
- ☑ No mowing.
- ☑ In times of extreme weather (flood, drought) monitor plants for browning, wilting, drooping, etc. and adjust watering accordingly.
- ☑ If plants aren't doing well, add additional species that are showing success in the area.
- ☑ Use tree guards or chicken wire to protect trees from being stepped on or being browsed on by wildlife.

Invasive Species Management (if applicable)

- ☑ Monitor for invasive species and remove when spotted.

Conservation Authority contacted to assess Invasive Phragmites and potentially Dog Strangling Vine. Will take actions as recommended.

Gale Sumac
Signature

08/22/2022
Date

Appendix B: Make Your Planting Plan

Part 1: Draw Your Planting Area

Acceptable drawings include hand drawings (see example on pg. 9) or edited site plans so long as the identified items below are clearly shown.

Note: Shoreline plantings are considered No Mow Zones. However, this can also include other areas on the property that will be left natural (e.g., rocky areas with low survival rates that will be left to naturalize on their own).

Property Location:

Planting Plan Prepared by (person/ organization):

Include a sketch identifying the location and dimensions of the listed items, where applicable:

- ☐ North arrow
- ☐ High water mark/ shoreline
- ☐ Lot lines (rear, front, and side)
- ☐ Legend
- ☐ Dwelling
- ☐ Septic System
- ☐ Existing and proposed shoreline structures (e.g., docks, gazebos, etc.)
- ☐ Hardened areas (e.g., patios, driveway, seating areas, etc.)
- ☐ Shoreline clearing/ activity area
- ☐ Existing/ Proposed pathway to the water (winding, curved paths are best)
- ☐ Existing vegetation
- ☐ Mow zone/ Maintained lawn area
- ☐ No mow zones (NMZ)
- ☐ Proposed planting areas

Planting Completion Date (MM/DD/YYYY):

Planting Completed By (person/ organization):

Provide Details of the Existing Vegetation on Your Property

For each area of existing vegetation indicated in your drawing above, please describe the type of plants, number of plants, and the dimensions of each area.

Existing Area 1	
Type of Plant	Trees / Shrubs / Wildflowers / Grasses
Number of Plants	
Area Dimensions	

Existing Area 2	
Type of Plant	Trees / Shrubs / Wildflowers / Grasses
Number of Plants	
Area Dimensions	

Existing Area 3	
Type of Plant	Trees / Shrubs / Wildflowers / Grasses
Number of Plants	
Area Dimensions	

Existing Area 4	
Type of Plant	Trees / Shrubs / Wildflowers / Grasses
Number of Plants	
Area Dimensions	

Part 2: Assess Planting Area Conditions

For each planting area labeled in Part 1, identify the conditions in the tables below.

Planting Area Condition Descriptions	
Sun Exposure	Throughout the day, what level of sun exposure does the plant area get? High: Direct sun Medium: Partial sun Low: Shaded
Soil Depth	Using a shovel, dig down a few inches (10 in) to see how deep the soil goes. Shallow = < 8 inches Deep = > 8 inches
Soil Type	Conduct a "feel test": Rub some moist soil between your fingers and determine which soil type it feels like. Gritty = Sand Smooth or floury = Silt Sticky = Clay Crumbly = Humus
Moisture Level	At least 3 days after the last rainfall, is the soil's moisture level: High: Very wet Medium: Damp Low: Dry
Slope	Standing a few metres back, consider whether the area is: Flat Gradual Steep

Circle the appropriate conditions. Include any useful notes. If more planting areas are required, use an additional piece of paper to include in your application.

Planting Area A	
Sun Exposure	Direct / Partial / Shaded
Soil Depth	Shallow / Deep
Soil Type	Sand / Silt / Clay / Humus
Moisture Level	High / Medium / Low
Slope	Flat / Gradual / Steep
Notes	

Planting Area B	
Sun Exposure	Direct / Partial / Shaded
Soil Depth	Shallow / Deep
Soil Type	Sand / Silt / Clay / Humus
Moisture Level	High / Medium / Low
Slope	Flat / Gradual / Steep
Notes	

Planting Area C	
Sun Exposure	Direct / Partial / Shaded
Soil Depth	Shallow / Deep
Soil Type	Sand / Silt / Clay / Humus
Moisture Level	High / Medium / Low
Slope	Flat / Gradual / Steep
Notes	

Planting Area D	
Sun Exposure	Direct / Partial / Shaded
Soil Depth	Shallow / Deep
Soil Type	Sand / Silt / Clay / Humus
Moisture Level	High / Medium / Low
Slope	Flat / Gradual / Steep
Notes	

Part 3: Choose Plants

Based on the planting area conditions identified in Part 2, choose plants appropriate for these conditions to include in your plan. You can use the free Natural Edge Native Plant Database to identify native plants suitable to your region. Note that the database also has filters along the left-hand side to narrow your options further.

Plant Species	Circle Plant Size *Shallow soil = Bareroot / Plug stock* *Deep soil= Potted*	Mature Plant Height	Number of Plants	Planting Area
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			
	Bareroot / Plug Stock / Potted			

Part 4: Maintenance Plan

Growth Expectations

Naturalization takes time. For faster results, potted plants are best but are more expensive. Expect to start seeing your plants mature after five years. Plants will start to fill in the empty spaces within five to ten years.

Plant survival will increase with regular watering and mulching in the first two years.

Initial

Five-Year Maintenance Plan:
Outline your plan to grow plants to maturity. See Watersheds Canada's Native Plant Care Guide for more tips.

Examples:

- ☐ Watering regularly for at least two years (average of 3 times/week depending on weather).
- ☐ Mulching annually for two years around plants to keep moisture in and fend off invasive species.
- ☐ No mowing.
- ☐ In times of extreme weather (flood, drought) monitor plants for browning, wilting, drooping, etc. and adjust watering accordingly.
- ☐ If plants aren't doing well, add additional species that are showing success in the area.
- ☐ Use tree guards or chicken wire to protect trees from being stepped on or being browsed on by wildlife.

Invasive Species Management (if applicable)

- ☐ Monitor for invasive species and remove when spotted.

Signature

Date

PLANNING FOR OUR SHORELANDS

For more information, contact:

Watersheds Canada

shorelandproject@watersheds.ca

Watersheds CANADA

Watersheds Canada is a federally incorporated non-profit organization and registered Canadian charity (863555223RR0001). We are committed to providing programs in communities across the country to engage and help shoreline owners, students, and community groups enhance and protect the health of their lakes, rivers, and shorelines.

www.watersheds.ca