

SHORELINE RESTORATION PLAN

- ALASDAIR and JULI PATTON -

**76 Clearview Drive (Crystal Lake), Trent Lakes
Lot 60, Registered Plan 11, Geographic Township of Galway
County of Peterborough, Ontario**

July 8, 2024

Reference No.: R24-1147

Prepared for
Municipality of Trent Lakes

On Behalf of
Alasdair and Juli Patton



GRACE & ASSOCIATES INC.
Geological & Environmental Consultants

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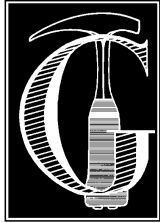
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July 8, 2024

Municipality of Trent Lakes
760 Peterborough County Road 36
Trent Lakes, Ontario
K0M 1A0

Attention: Adele Arbour MCIP, RPP, Planner

Re: Shoreline Restoration Plan - Alasdair and Juli Patton
76 Clearview Drive (Crystal Lake), Trent Lakes
Lot 60, Registered Plan 11, Geographic Township of Galway
County of Peterborough, Ontario

1.0 INTRODUCTION

Grace & Associates Inc., in conjunction with our associate biologists Blazing Star Environmental (BSE), have been retained by Alasdair and Juli Patton, to prepare a shoreline restoration plan for the proposed redevelopment of the waterfront cottage. The following sections provide an overview of the prevailing site conditions and planting plan. Details of the site investigation and planting plan prepared by BSE is presented in Appendix A.

The Municipality of Trent Lakes has requested the shoreline restoration plan since the proposed redevelopment is considered infill development along the shoreline according to the definitions of the Growth Plan for the Greater Golden Horseshoe (OMMAH 2020). The subject property and proposed works are located within 120 metres of a key natural heritage feature within the Natural Heritage System for the Growth Plan.

The proposed shoreline restoration planting plan presented in this report is designed to prevent erosion and sedimentation of the Crystal Lake shoreline and to restore the littoral area to benefit lake health and their dependent species.

2.0 SITE CONDITIONS

The redevelopment will consist of the construction of a new single storey cottage within the same footprint of the existing cottage, in addition to the construction of a new garage, porch, and deck (Refer to Appendix B - Survey and Appendix C - Discovery Dream Homes Site Plan). This area between the redevelopment and shoreline consists of upland forest and sandy rock shoreline. The soil series and surface texture of the site is Chandos Sandy Loam with regular natural drainage and the hydrological group is moderate. The subject property is located in plant hardiness zone 5a, and seed zone 31 (OMAFRA 2016).

The shoreline and upland are forested with young community with some mature trees (tree species include Eastern White Cedar, Balsam Fir, Red Pine, Eastern White Pine, American Elm, Basswood, Silver Maple and White Birch, while the ground cover is occupied with common woodland species and predominantly lesser periwinkle further up the slope. The eastern portion of the site contains a channel that flows into Crystal Lake. Concrete steps and retaining wall are located at the base of the hill.

3.0 PLANTING PLAN

Site assessments, in conjunction with our associate biologists Blazing Star Environmental, were completed to ascertain the prevailing soil and vegetation communities on the subject property in order to provide a suitable planting plan specific to the prevailing site conditions (Refer to Figure 1 - Restoration Plan).

The proposed planting plan is to be directed about 15 metres towards the cottage to the east and about 20 metres towards the cottage to the west. The premise is to maintain the existing use of the shoreline (dock, fire pit) and tree cover where possible, while providing reduced sediment and nutrient run-off to fish habitat, in addition to improving the native biodiversity. The improvements will be directed to the western portion of the site along the channel and areas that are dominated by non-native species.

These planting areas ‘Planting Zone A’ is currently lawn and a suitable area for shrub and moisture tolerant wildflower planting. ‘Planting Zone B’ is located within the existing forest and is suitable for woodland wildflowers and herbs (Refer to Figure 1 - Restoration Plan and Appendix A).

Due to the presence of existing young and mature trees, a minimum of 6 native shrubs are recommended to be planted to enhance the site to increase the shoreline’s protection against erosion, improving rainwater infiltration and interception, and create wildlife habitat. In addition, where tree removal occurs during the redevelopment of the site, it is recommended that these trees be replaced with native species on a one-to-one basis.

The selected shrub, flower and herb species presented within Appendix A are native to the Nogies Creek watershed and are compatible with the soil and sunlight conditions of the site. A diversity of plant species was selected by our associate biologists to provide structural and biological diversity for wildlife that may use the property.

The recommended tree species selected for this planting include:

- Bebb’s Willow (*Salix bebbiana*)
- Buttonbush (*Cephalanthus occidentalis*)
- Red-osier Dogwood (*Cornus stolonifera*)
- Steeplebush (*Spiraea tomentosa*)
- White Meadowsweet (*Spiraea alba*)

The shrub, flower, native flower and herb species selected for this planting include:

- Bottle Gentian (*Gentiana andrewsii*)
- Canada Anemone (*Anemone canadensis*)
- Cardinal Flower (*Lobelia cardinalis*)
- Monkey Flower (*Mimulus ringens*)
- White Turtlehead (*Chelone glabra*)

- Wild Columbine (*Aquilegia canadensis*)
- Wintergreen (*Gaultheria procumbens*)
- Woodland Strawberry (*Fragaria vesca*)

Should trees be required to be planted to replace those removed for redevelopment of the site, the following tree species selected for this planting include:

- Eastern White Cedar (*Thuja occidentalis*)
- Eastern White Pine (*Pinus strobus*)
- Silver Maple (*Acer saccharinum*)

Note: tree, shrub, flower, and herb species may be selected dependent on availability within the local garden supply stores and the personal preference of homeowners.

Fish habitat can be created or enhanced within the littoral zone of this property as well. Placement of aquatic plants, typically from transplanting nearby established native aquatic plants and adding pea gravel to the littoral zone area can be used to enhance the spawning and food production areas of the littoral zone.







Details of the planting methodology, planting locations, local source of plants, and ongoing maintenance of the selected plants is presented in the attached restoration planting plan prepared by Blazing Star Environmental for the subject property (Refer to Appendix A).

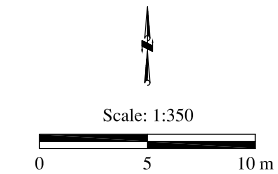


**LOT
RE-DEVELOPMENT**

76 Clearview Drive, Trent Lakes
 Lot 60, Registered Plan 11
 Geographic Township of Galway
 County of Peterborough, Ontario

LEGEND

-  Property Boundary
-  Existing Structure
-  Proposed Footprint
-  Planting Zone A
-  Planting Zone B
-  Proposed Shrub Location



Imagery Base, dated June 21, 2022: Esri, Maxar, Earthstar Geographics, and the GIS User Community.

- Property boundary and existing and proposed structures obtained from:
- Discovery Dream Homes, Project 23-047, Site Plan, dated December 11, 2023, overlain on.
 - Coe Fisher Cameron, Land Surveyors, Site Plan of Part of Lot 60, Registered Plan No. 11 and Part of Shore Road Allowance (Part 10, Plan 45R-5466), Geographic Township of Galway, Municipality of Trent Lakes, dated August 25, 2023.

TITLE
RESTORATION PLAN

CLIENT
Alasdair and Juli Patton



| | | |
|-------|------------|------------------------|
| DRAWN | R24-1147 | FIGURE NO. 1 |
| DATE | July, 2024 | |

4.0 STATEMENT OF QUALIFICATIONS

This document was prepared by Grace & Associates Inc., a geological and environmental consulting firm that provides services to meet the demands of government regulations within an urban setting. Grace & Associates Inc. specializes in the principle disciplines of the earth sciences - geology, hydrogeology and engineering. Relocated to Lindsay in 1991 from Brooklin (Whitby), the firm has undertaken numerous geological and environmental studies throughout Ontario, Eastern Canada and South America during the past thirty-three (33) years. Our services have been provided on many of these studies on behalf of other respected engineering firms, private companies and individuals.

Our environmental consultants have extensive experience in environmental and geological studies, and are constantly upgrading their knowledge of current environmental practices and legislation. The study outlined herein was conducted by an experienced environmental geologist who has received the professional designations of *Professional Geoscientist* by the Association of Professional Geoscientists of Ontario, *Certified Environmental Consultant* by the Environmental Assessment Association and is a *Certified Engineering Technician* by the Ontario Association of Certified Engineering Technicians and Technologists.

The site investigation was conducted by our associate biologist, Ms. Tessa Radimer, Ecologist with Blazing Star Environmental. Ms. Radimer is a qualified Biologist/Ecologist with experience completing Environmental Impact Studies and Species at Risk assessments throughout Ontario.

5.0 STATEMENT OF LIMITATIONS

This report was prepared by Grace & Associates Inc. for Alasdair and Juli Patton and the Municipality of Trent Lakes. Any use of this report by a third party, or reliance upon it for a decision based upon it, is the sole and exclusive responsibility of the third party. Grace & Associates Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of any decisions, actions made, or reliance based upon this report.

Notwithstanding any provisions with this study to the contrary the obligations and liabilities to Grace & Associates Inc. under the study, whether based upon breach of contract, tort, including negligence, infringement of patents and indemnities, trade secrets or other intellectual property rights, fundamental breach or otherwise, shall be limited in the aggregate to an amount not exceeding the total amount of the fee payment to Grace & Associates Inc. pursuant hereto.

This letter report is based upon the best information available to Grace & Associates Inc. within the time constraints and scope of the assessment. Material presented within this report reflects the best professional judgement of Grace & Associates Inc. personnel given the amount of information available at the time of preparation. This report has been produced using the information supplied by Alasdair and Juli Patton, including Site Plan Survey completed by Coe Fisher Cameron, Land Surveyors and Architechtural Plans completed by Discovery Dream Homes.

- o O o -

We trust that information and comments presented herein are sufficient for your present requirements. Should you have any questions, or require additional information, please do not hesitate to contact the undersigned.

Respectfully submitted,
GRACE & ASSOCIATES INC.



Thomas P. Grace C.E.T., B.Sc., P.Ge.
Environmental Geologist
Principal

Report Distribution: 1 digital report file - Municipality of Trent Lakes
 1 digital report file - Alasdair and Juli Patton, Proponents

APPENDIX A

BLAZING STAR ENVIRONMENTAL
SHORELINE RESTORATION PLANTING PLAN

Restoration Planting Plan for 76 Clearview Drive, Kinmount



Prepared by:
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L1G 2P3

Prepared for:
Alasdair & Julie Patton

Date submitted: July 2, 2024

Contributors

Report prepared by:

X



Tessa Radimer
Ecologist

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Cayla Darling
Ecologist

Purpose

The Municipality of Trent Lakes requires this planting plan as a component of the cottage removal and single-story replacement to occur within the same building footprint, as well as the construction of a new garage, porch, and deck on the property (the Site). This planting plan is mandatory due to the project footprint being within 30 metres (m) of a key natural heritage feature (i.e., Crystal Lake) within the Natural Heritage System of the Growth Plan for the Greater Golden Horseshoe. The purpose of this restoration planting is to prevent the spread of invasive species, improve native plant biodiversity, and to restore the littoral area to benefit lake health and dependent species.

Existing Site Conditions

The Site is located in plant hardiness zone 5a, and seed zone 31. The soil series of the Site is Chandos Sandy Loam (OMAFRA, 2024).

On the western side of the Site, the shoreline and upland area are forested. It is a mostly young community, with a few scattered mature trees. Tree species observed include Eastern White Cedar (*Thuja occidentalis*), Balsam Fir (*Abies balsamea*), Red Pine (*Pinus resinosa*), Eastern White Pine (*Pinus strobus*), American Elm (*Ulmus americana*), Basswood (*Tilia americana*), Silver Maple (*Acer saccharinum*), and White Birch (*Betula papyrifera*). By the shore, the forest ground vegetation is approximately 25%, consisting of common woodland species. Further up the slope, the groundcover is approximately 75% and dominated entirely by Lesser Periwinkle (*Vinca minor*).



Photo 1: Looking east at the forest community along the shoreline on-site.

The central portion of the shoreline is lawn, with a border of concrete steps also functioning as erosion prevention. A few moisture-tolerant shrubs are beginning to grow along its edge. There is also a large firepit on the lawn. Areas of exposed soil in the lawn are sandy loam. Uphill from the lawn there are gardens, exposed bedrock, and a slope also dominated by Lesser Periwinkle.



Photo 2: Lawn community and fire pit on the Site, bordered by concrete steps along the shoreline.



Photo 3: Looking north from the lawn to the cottage on-site.

The eastern border of the Site is treed, with similar species composition to the western portion, comprised primarily of cedar, pine, and maple. There is a channel on this side flowing into Crystal Lake. Near the mouth of the lake, the channel is wide with a concrete border on the lawn-side and a forested slope to the east. Upstream, the channel narrows and becomes less defined.



Photo 4: Looking east at the treed border of the Site and the mouth of the channel draining into Crystal Lake.



Photo 5: Upstream reach of the channel on the eastern border of the Site.

Crystal Lake provides habitat for diverse fish species including Brown Bullhead (*Ameiurus nebulosus*), Cisco (*Coregonus artedii*), Lake Trout (*Salvelinus namaycush*), Lake Whitefish (*Coregonus clupeaformis*), Pumpkinseed (*Lepomis gibbosus*), Smallmouth Bass (*Micropterus dolomieu*), Walleye (*Sander vitreus*), White Sucker (*Catostomus commersonii*), and Yellow Perch (*Perca flavescens*) (Land Information Ontario, 2023). The shoreline of the property spans approximately 43 m along Crystal Lake. There is a floating dock located near the centre of the shoreline. A wide channel drains into Crystal Lake to the east. The lake depth off the shore on-site is approximately 0.8 m. Very minimal aquatic vegetation was observed near the shore.

Planting Plan

In order to maintain the landowner's use of the shoreline (i.e., access to dock, firepit) while ensuring continued shoreline stability, improved native biodiversity, and improved shoreline habitat, we have recommended that planting efforts be directed along the west border of the channel and in areas that have become dominated by non-native species. These plantings will also serve to reduce sediment and nutrient run off into the lake, thereby improving fish habitat in the adjacent Crystal Lake. These planting areas extend approximately 15 m towards the cottage to the east and 20 m towards the cottage to the west. 'Planting Zone A' is currently lawn and a suitable area for shrub and moisture tolerant wildflower planting. 'Planting Zone B' is located within the existing forest and is suitable for woodland wildflowers and herbs. These planting areas are shown on Figure 1 below.



Figure 1: Site plan and planting locations on-site. 'Planting Zone A' (blue) represents areas suitable for planting shrubs and moisture/light tolerant wildflower species. 'Planting Zone B' (green) represents areas suitable for woodland flower and herb planting.

A minimum of 6 shrubs are recommended to be planted in the approximate locations described in Figure 1. Additionally, if tree removal occurs within the building footprint, it is highly recommended to replace the number removed to enhance the shoreline and forest habitat. Suitable replacement species include several of the native trees already present on-site: Eastern White Cedar, Eastern White Pine, and Silver Maple. Recommended native shrub and wildflower species selected for this shoreline restoration planting are provided in Table 1, Table 2, and Table 3. Photos of each species are provided in Appendix A and Appendix B. The plants selected are native to the Nogies Creek (containing Crystal Lake) watershed and are suited for the soil and moisture conditions observed on the Site.

The groundcover of 'Planting Zone B' is almost entirely dominated by Lesser Periwinkle, a highly invasive non-native species. It should be removed, according to best practices provided in Appendix C prior to planting. A few Dog-strangling Vine (*Vincetoxicum rossicum*) individuals were also observed on the Site. These individuals should also be removed wherever observed. Within 'Planting Zone B', the native

plants outlined in Table 3 should be planted in areas from which Lesser Periwinkle or other invasive species have been removed.

Table 1: Selected native shrub species, their size, and environmental requirements that may be used in 'Planting Zone A' outlined in Figure 2 above.

| Common Name | Latin Name | Height (m) | Spread (m) | Light | Water | Soil | Benefit to Wildlife |
|-------------------|----------------------------------|------------|------------|--------------------|--------------|-------------------------|---|
| Bebb's Willow | <i>Salix bebbiana</i> | 2-5 | 3 | Full sun, part sun | Moist – Wet | Sand, clay, loam | Attracts pollinators, browse for mammals (e.g., White-tailed Deer, Moose) |
| Buttonbush | <i>Cephalanthus occidentalis</i> | 1.5-5 | 2 | Full sun, part sun | Moist – Wet | Sand, loam, clay, rocky | Attracts pollinators, food source for waterfowl |
| Red-osier Dogwood | <i>Cornus stolonifera</i> | 1.5-4 | 2 | Full sun, part sun | Medium – Wet | Sand, loam, clay | Cover for birds, browse for mammals (e.g., White-tailed Deer, Moose) |
| Steeplebush | <i>Spiraea tomentosa</i> | 1 | 1 | Full sun, part sun | Medium – Wet | Sand, loam, rocky | Attracts pollinators, butterfly/moth host plant |
| White Meadowsweet | <i>Spiraea alba</i> | 0.5-2 | 0.5-1.5 | Full sun, part sun | Medium – Wet | Sand, loam, clay | Food source for mammals (e.g., White-tailed Deer, Snowshoe Hare) |

(Watersheds Canada, n.d.a); (Watersheds Canada, 2024a); (Watersheds Canada, 2024c); (Watersheds Canada, n.d.b); (Minnesota Wildflowers, 2024f)

Table 2: Selected native flower and herb species, their size, and environmental requirements that may be used in 'Planting Zone A' outlined in Figure 2 above.

| Common Name | Latin Name | Height (m) | Spread (m) | Light | Water | Soil | Benefit to Wildlife |
|----------------|---------------------------|------------|------------|---------------|-------------|-------------|---|
| Bottle Gentian | <i>Gentiana andrewsii</i> | 0.3-0.6 | 0.3-0.5 | Part sun, sun | Moist – wet | Sand, loam | Attracts pollinators (i.e., Bumble Bees), butterfly/moth host plant |
| Canada Anemone | <i>Anemone canadensis</i> | 0.3-0.6 | 1 | Dry - Wet | Full shade, | Sand, loam, | Attracts pollinators, |

| Common Name | Latin Name | Height (m) | Spread (m) | Light | Water | Soil | Benefit to Wildlife |
|------------------|---------------------------|------------|------------|-----------------------|----------------------|------------------|---|
| | | | | | part shade, full sun | clay, rocky | butterfly/moth host plant |
| Cardinal Flower | <i>Lobelia cardinalis</i> | 0.3-1.5 | 0.3-0.6 | Part shade, sun | Moist | Sand, loam | Attracts pollinators (e.g., Hummingbirds) |
| Monkey Flower | <i>Mimulus ringens</i> | 0.3-1 | 0.25-0.3 | Moist - wet | Part shade, full sun | Sand, loam, clay | Attracts pollinators |
| White Turtlehead | <i>Chelone glabra</i> | 0.6-1.2 | 0.4-0.75 | Part shade - full sun | Medium - Moist | Sand, loam, clay | Attracts pollinators, butterfly/moth host plant |

(Natural Shore, 2024); (Watersheds Canada, 2024b); (Minnesota Wildflowers, 2024d); (Minnesota Wildflowers, 2024e); (Minnesota Wildflowers, 2024a)

Table 3: Selected native flower and herb species, their size, and environmental requirements that may be used in 'Planting Zone B' outlined in Figure 2 above.

| Common Name | Latin Name | Height (m) | Spread (m) | Light | Water | Soil | Benefit to Wildlife |
|---------------------|------------------------------|------------|------------|----------------------------------|----------------|-------------------------|--|
| Canada Anemone | <i>Anemone canadensis</i> | 0.3-0.6 | 1 | Full shade, part shade, full sun | Dry - wet | Sand, loam, clay, rocky | Attracts pollinators, butterfly/moth host plant |
| Wild Columbine | <i>Aquilegia canadensis</i> | 0.5 | 0.5 | Part sun, shade | Dry - Moist | Sand, loam, rocky | Attracts pollinators (e.g., Hummingbird) |
| Wintergreen | <i>Gaultheria procumbens</i> | 0.05-0.2 | 0.05-1 | Part shade, shade | Dry - Moist | Sand, loam | Food source for birds and mammals (e.g., Ruffed Grouse, White-tailed Deer) |
| Woodland Strawberry | <i>Fragaria vesca</i> | 0.1-0.3 | 0.2-0.3 | Part shade Shade | Normal - Moist | Sand, loam | Food source for birds and mammals (e.g., Ruffed Grouse, Black Bear) |

(Watersheds Canada, 2024d); (Minnesota Wildflowers, 2024c); (Minnesota Wildflowers, 2024b)

Planting Instructions

Planting should occur during or immediately following construction. If possible, spring planting is recommended. Spring planting allows plants a full season for root establishment before overwintering herbivory. If spring planting is not feasible, plant trees and shrubs in the fall before frost first sets in (September to mid-November).

Dig holes 1.5 times the size of the container, with a flat bottom so there are no air pockets under the planted shrub. When planted, ensure there is a 1-2-inch lip between the top of the container soil and the ground, so water remains around the plant longer for absorption (i.e. the plant should be sunken slightly below the surrounding ground). This will ensure surface water does not flow away from the plant before absorbing into the ground. When filling the hole, pack the soil in the sides and a little on top to just cover the plant base. Step around the base of the plant after it's planted to pack in the plant and the soil. To ensure the plant is packed in well enough, perform a gentle but firm pull test. The plant should remain solidly in the ground when gently pulled upwards. Water each plant immediately after planting to help with establishment.

Shrubs should be planted spaced >1.5 m apart to provide adequate room for growth. To emulate a natural thicket edge, species should be placed randomly (i.e. avoid straight line of shrubs). A guideline of shrub placement is included on Figure 1, however this can be adjusted based on small-scale site specifications and to provide a non-linear placement of shrubs.

Container-grown stock are recommended over bare root trees and shrubs because their survival rates are higher and potted shrubs can be planted at any time during the growing season if adequate water is provided. Select 3-gallon potted plants to increase chance of survival and to provide more immediate shoreline stabilization function.

It is recommended to utilize flower and grass plugs when planting to maximize establishment success. Using plugs will save time and money, since there will be no fall preparation and can be planted in early spring after the last frost. In the planting area, holes can be dug an inch or two wider and deeper than the size of the plug. After the plug is placed into the hole, pack down soil in the remaining space. Plugs will need to be spaced depending on each species-specific requirement.

Most of the plants selected (see Tables 1-3) are adapted to shallow soil depths such as found on the property, however if desired, planting areas can be supplemented with additional soil to improve plants' early growth and chance of success.

Plant Maintenance

Mulch around the base of the plant promotes faster growth by suppressing competitive vegetation and retaining moisture. Since the plantings are along a lake shoreline, loose mulch should be avoided as it may be transported into the water

during heavy rain events. Instead, place a coir mat at the base of each shrub. Coir mats are made from coconut fibre and are biodegradable (Toronto Region Conservation Authority, 2004).

In addition to watering plants immediately after planting, they should be watered during dry periods for the first two years after planting (Toronto Region Conservation Authority, 2004).

Each spring for three years after the initial planting, replace any dead shrubs with one of the listed shrub species (Table 1).

Once established, native flowers and herbs will require very little maintenance. Within the first year of planting, it is recommended to more frequently water and weed the areas around the flowers and herbs.

Best Management Practices

Vegetation Removal and Landscaping

Vegetation removal should be limited to the building footprint (with the exception of targeted invasive species removal). Any tree removal, if required, should occur outside the bat and bird breeding window (i.e., April 1 to September 30). If tree removals must occur within this window, they should be inspected for nesting birds and bat roosts prior to removal. Removed vegetation and yard waste (particularly invasive species) should not be dumped into the forested areas of the Site. As described in the planting plan above, diverse native species should be incorporated into plantings as well as future gardens on the property.

Earthworks

Due to the steep slope on-site, construction activities that require earthworks (i.e., grading, excavation) should be scheduled to avoid days with heavy precipitation to reduce direct run off into Crystal Lake.

Clean Equipment Protocol

Planting equipment and machinery have the potential to transfer invasive species onto the Site that can negatively impact the property and its natural habitats. To prevent this, it is important to ensure that machinery and equipment are properly inspected and cleaned before and after planting (and general construction).

Machinery and equipment should be inspected prior to planting if it is being brought in from another property, if plants are being brought from outside the local area, or if access to the property is along dirt roads or trails. After a visual inspection, ensure that clods of dirt, seeds, or any other plant material are removed and disposed of

properly. If any of these are found, vehicles and equipment should be cleaned in an area that minimizes risk of seed dispersal. This should be a sloped area at least 30 m from the water/wetlands (i.e., Crystal Lake and the large swamp across the road from the property), that is gravel or hard surfaced, and free of mud.

Clods of dirt, seeds, and other plant material should be physically removed, and any residual material should be washed away with water using a high-pressure hose. Start from the top of the machine, working towards the bottom and underside.

A final inspection should be completed after cleaning and the process should be repeated after planting (Halloran, Anderson, & Tassie, 2016).

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Appendix A: Selected Native Shrub Species



*Photo 6: Bebb's Willow. Photo from Minnesota Wildflowers website:
<https://www.minnesotawildflowers.info/shrub/bebbs-willow#lboxg-8>*



*Photo 7: Buttonbush. Photo from Minnesota Wildflowers website:
<https://www.minnesotawildflowers.info/shrub/buttonbush#lboxg-7>*



*Photo 8: Red-osier Dogwood. Photo from Minnesota Wildflowers website:
<https://www.minnesotawildflowers.info/shrub/red-osier-dogwood#lboxq-5>*



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*Photo 9: Steeplebush. Photo from Minnesota Wildflowers website:
<https://www.minnesotawildflowers.info/flower/steeplebush#lboxq-5>*



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*Photo 10: White Meadowsweet. Photo from Minnesota Wildflowers website:
<https://www.minnesotawildflowers.info/flower/white-meadowsweet#lboxg-4>*

Appendix B: Selected Native Flower and Grass Species



*Photo 11: Bottle Gentian. Photo from Minnesota Wildflowers website:
<https://www.minnesotawildflowers.info/flower/bottle-gentian#lboxg-9>*



*Photo 12: Canada Anemone. Photo from Minnesota Wildflowers website:
<https://www.minnesotawildflowers.info/flower/canada-anemone#lboxq-5>*



*Photo 13: Cardinal Flower. Photo from Minnesota Wildflowers website:
<https://www.minnesotawildflowers.info/flower/cardinal-flower#lboxq-5>*

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*Photo 14: Monkey Flower. Photo from Minnesota Wildflowers website:
<https://www.minnesotawildflowers.info/flower/allegheeny-monkey-flower#lboxq-5>*



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*Photo 15: White Turtlehead. Photo from Minnesota Wildflowers website:
<https://www.minnesotawildflowers.info/flower/white-turtlehead#lboxq-4>*



*Photo 16: Wild Columbine. Photo from Minnesota Wildflowers website:
<https://www.minnesotawildflowers.info/flower/red-columbine#lboxg-4>*



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*Photo 17: Wintergreen. Photo from Minnesota Wildflowers website:
<https://www.minnesotawildflowers.info/flower/wintergreen#lboxg-4>*



Photo 18: Woodland Strawberry. Photo from Minnesota Wildflowers website: <https://www.minnesotawildflowers.info/flower/woodland-strawberry#lboxg-4>

Appendix C: Invasive Species Management Best Practices

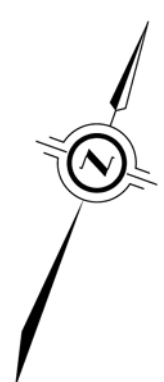
| Species | Recommended Management Technique | Disposal Methods | Post-treatment restoration |
|---------------------|---|---|--|
| Dog-strangling Vine | Dig up individual plants by hand, ensuring entire root crown is removed (small population). | Do not compost. Place removed plants in sealed black garbage bag and leave in sun for 1-3 weeks. Put in garbage or bring to landfill. | Replant the area with native species If any larger areas are encountered, mulch. |
| Lesser Periwinkle | Dig up the plants, ensuring to remove the entire root crown. This is most easily done following a rainfall. | Do not compost. Place removed plants in a sealed black garbage bag and put in garbage or bring to landfill. | Replant the area with native species (see Table 3). Monitor the area for 1-3 years, |

| | | | |
|--|--|--|----------------------|
| | | | removing new shoots. |
|--|--|--|----------------------|

(Anderson, 2012); (Credit Valley Conservation, 2024)

APPENDIX B

SURVEY
COE FISHER CAMERON - LAND SURVEYORS



FOR CONSTRUCTION PURPOSES ONLY

CIVIC ADDRESS: 76 CLEARVIEW DRIVE
 OWNER: ALASDAIR PATTON
 BUILDER:
 BUILDING PERMIT No. _____
 ROLL No. _____

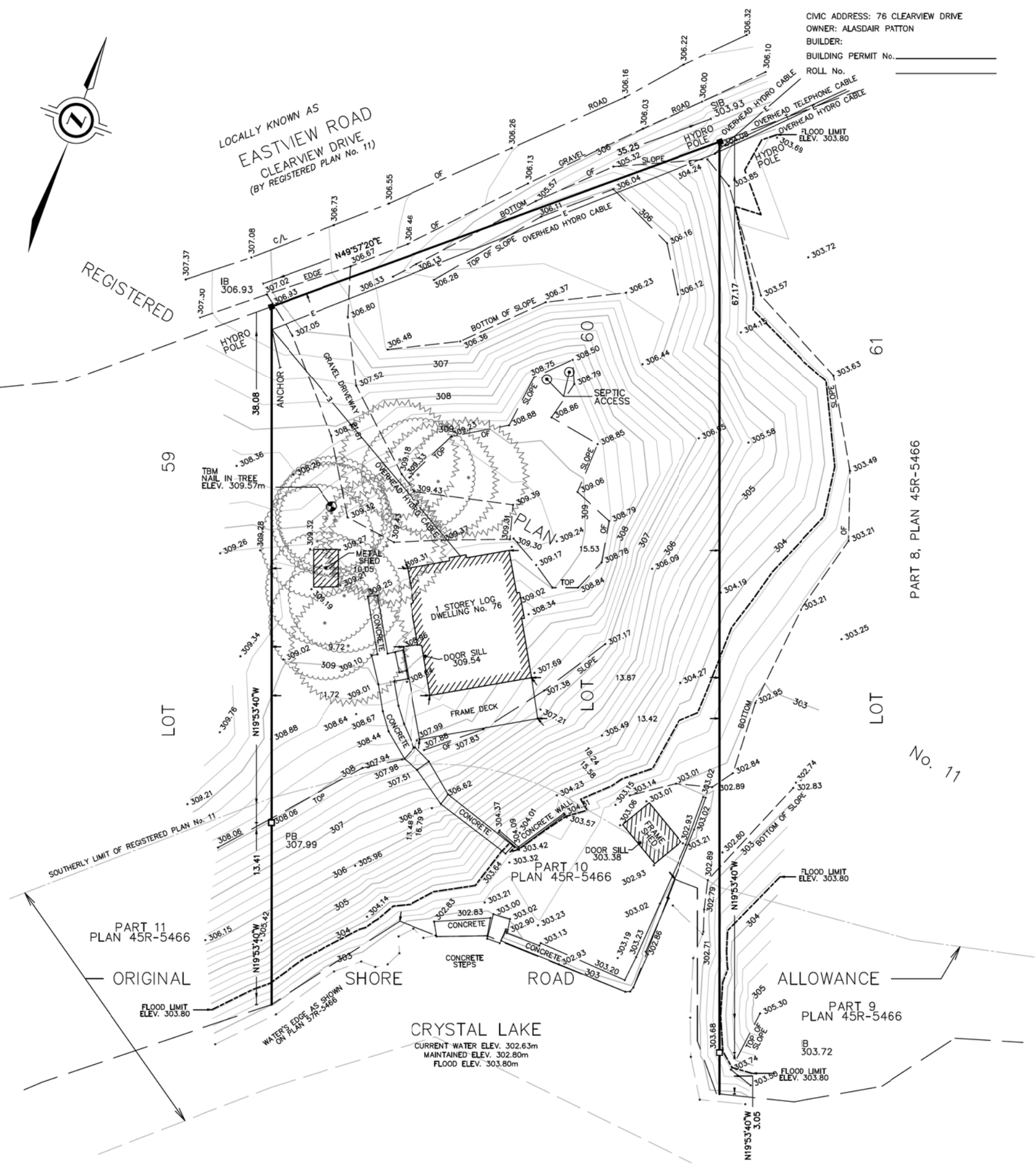
SITE PLAN OF
LOT 60
REGISTERED PLAN No. 11
AND PART OF SHORE ROAD
ALLOWANCE (PART 10, PLAN 45R-5466)
 GEOGRAPHIC TOWNSHIP OF GALWAY
 MUNICIPALITY OF TRENT LAKES

SCALE 1 : 200

COE FISHER CAMERON, A DIVISION OF J.D. BARNES LIMITED
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METRIC DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

- LEGEND:**
- ⊕ - FOUND SURVEY MONUMENT
 - ⊙ - SET SURVEY MONUMENT
 - SIB - STANDARD IRON BAR
 - IB - IRON BAR
 - 249.36 - GROUND ELEVATION



| | |
|---------------|-----------------------|
| ZONING | SHORELINE RESIDENTIAL |
| LOT AREA | 1771.0 SQ. m. |
| BUILDING AREA | * SQ. m. |
| | |

| No. | DATE | DESCRIPTION |
|-----------|------|-------------|
| REVISIONS | | |
| | | |
| SHEET 1 | | |

ELEVATIONS:
 ELEVATIONS SHOWN HEREON ARE GEODETIC DERIVED BY GPS OBSERVATIONS AND ARE REFERRED TO NAIL IN A TREE HAVING AN ELEVATION OF 309.57m. (CGVD-1928:1978).

COE FISHER CAMERON SURVEYING
 LAND SURVEYORS MAPPING
 GIS
 A Division of J.D. Barnes Limited
 3 COMMERCE PLACE, UNIT 201, LINDSAY, ON K9V 0N5
 T: (705) 324-4152 F: (705) 324-8406 www.jdbarnes.com

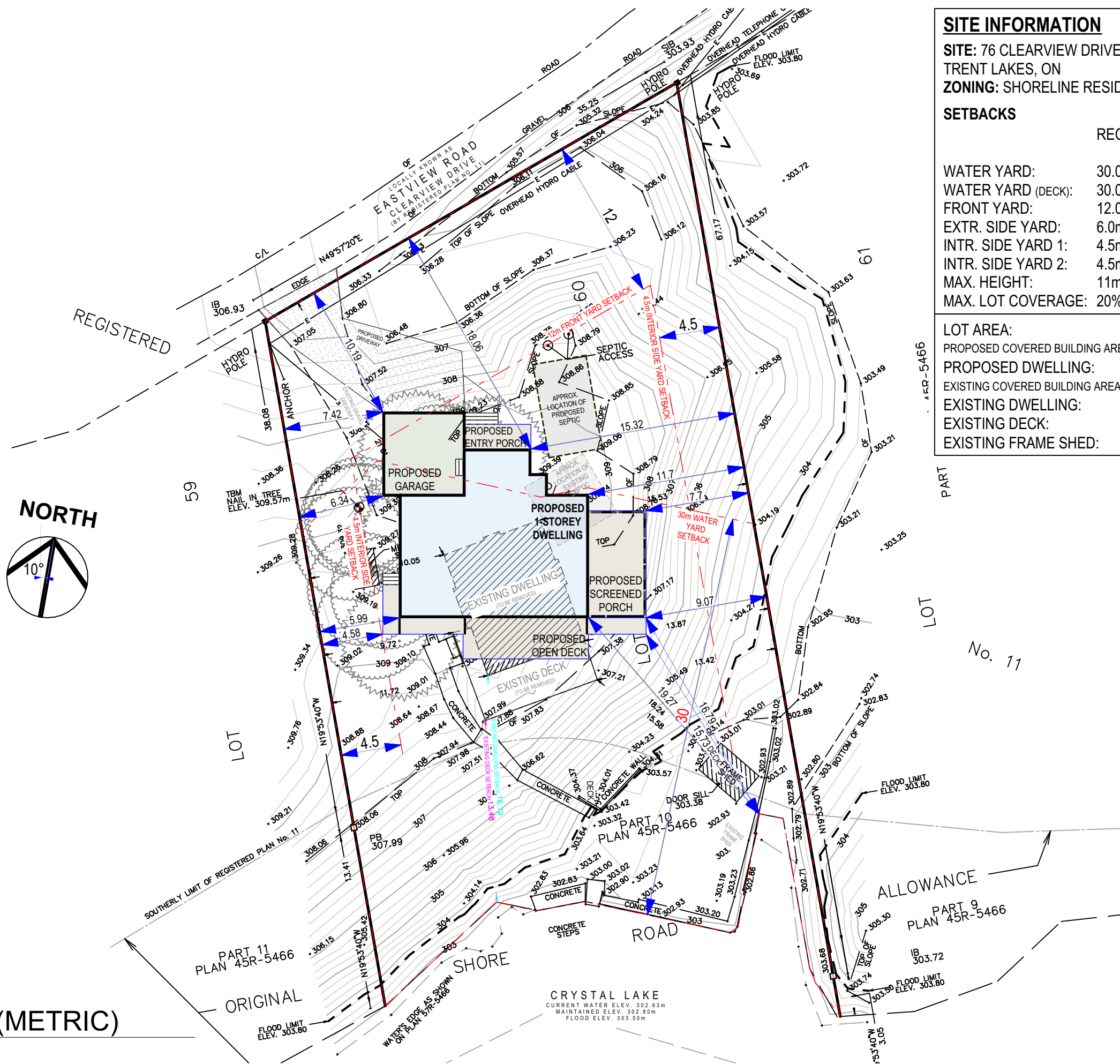
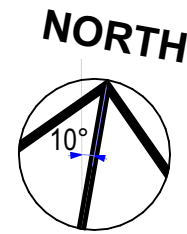
| | | |
|--------------------|-------------------|------------------|
| DRAWN BY: DBR | CHECKED BY: CL | REFERENCE NO.: |
| PLOTTED: 8/25/2023 | | DATED: 8/25/2023 |
| | | 23-17-135-00 |

APPENDIX C

SITE PLAN
DISCOVERY DREAM HOMES

SITE PLAN (METRIC)

SCALE: 1:300



SITE INFORMATION

SITE: 76 CLEARVIEW DRIVE, CRYSTAL LAKE, TRENT LAKES, ON
ZONING: SHORELINE RESIDENTIAL (SR)

SETBACKS

| | REQ'D | PROPOSED |
|--------------------|-------|----------|
| WATER YARD: | 30.0m | 16.79m |
| WATER YARD (DECK): | 30.0m | 15.73m |
| FRONT YARD: | 12.0m | 10.19m |
| EXTR. SIDE YARD: | 6.0m | --- |
| INTR. SIDE YARD 1: | 4.5m | 7.7m |
| INTR. SIDE YARD 2: | 4.5m | 5.99m |
| MAX. HEIGHT: | 11m | 8.33m |
| MAX. LOT COVERAGE: | 20% | 15% |

| | |
|---------------------------------|--------------|
| LOT AREA: | 1771 SQ.M. |
| PROPOSED COVERED BUILDING AREA: | 226.5 SQ.M. |
| PROPOSED DWELLING: | 146.87 SQ.M. |
| EXISTING COVERED BUILDING AREA: | 83.71 SQ.M. |
| EXISTING DWELLING: | 73.91 SQ.M. |
| EXISTING DECK: | 32.27 SQ.M. |
| EXISTING FRAME SHED: | 9.8 SQ.M. |

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PRELIMINARY DRAWINGS NOT FOR CONSTRUCTION

FLOOR AREAS (sq.ft.)

| BASEMENT | |
|-----------------|-----------------------------|
| BASEMENT FLOOR | 1,581 |
| | 1,581 ft² |
| LIVING AREAS | |
| MAIN FLOOR | 1,581 |
| | 1,581 ft² |
| OTHER | |
| GARAGE | 397 |
| | 397 ft² |
| PORCHES & DECKS | |
| COLD STORAGE | 99 |
| ENTRY PORCH | 96 |
| OPEN DECK | 471 |
| SCREENED PORCH | 364 |
| | 1,030 ft² |
| | 4,589 ft² |



Keene, Ontario, Canada
(705) 400-5647

Project:

MODIFIED NADI BAY

Client:

ALASDAIR & JULI PATTON

| | | | |
|-----------|-------------|--------------|-----------|
| Drawn By: | Sales Rep.: | Project No.: | Revision: |
| NS | SS | 23-047 | E |

Date:
December 11, 2023

| | |
|-------------------|---------|
| Ground Snow Load: | Pg No.: |
| 2.7 kPa | 7 of 7 |