Site Evaluation and Restoration Plan

112 Fire Route 335a, Trent Lakes

Norman Lee & Associates Ltd.

11 November 2024

→ **The Power of Commitment**

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1. Introduction

1.1 Location and Background

GHD Limited (GHD) has been retained by Norman Lee to prepare a Site Evaluation Report and Shoreline Restoration Plan for a new cottage on an existing vacant lot of record. The property is located at 112 Fire Route 355a in the Municipality of Trent Lakes along the shoreline of Salmon Lake (Site).

The following information was provided to the applicant on June 20, 2024 by the planner at the Municipality of Trent Lakes:

> *The following studies will be required to rezone the parcel for residential use, Site Evaluation – an environmental consultant can perform this study, a stage 1 stage 2 archaeological study, and a shoreline restoration plan. The site evaluation and shoreline restoration plan may be able to be combined into one study by a qualified individual.*
>
> *Those three items will be required as part of a complete application submission along side your site plan, and ZBA application.*
>
> *A condition of approval for the passing of a by-law will request that the property owner enter into a development agreement that shall take the recommendations from the site evaluation and arch study as well as enforcing the shoreline restoration plan.*

To meet these requirements, GHD conducted a site visit to collect information on the natural heritage features of the Site, with a focus on lake trout habitat and restoration opportunities.

1.2 Description of Proposed Works

The shoreline lot is currently vacant with a single-family cottage proposed on the property. The proposed development includes a house, septic bed, 30 x 80 foot auxiliary building, dock and upland boathouse with a marine railway access. Upgrades to the access driveway may also be completed.

2. Scope and Limitations

2.1 Scope of work

The Site Evaluation Report scope of work includes the following natural heritage features are possible on or within 120 m of the property (Study Area).

– Wetlands
– Significant woodland
– Habitat of threatened or endangered species
– Salmon Lake- highly sensitive lake trout lake (Municipality of Trent Lakes Official Plan)
– Fish habitat

This report will only deal with the suitability of the site from a biological perspective and the constraints due to the presence of the key natural heritage features. Any other approvals or constraints due to zoning, geomorphology, flood and fill regulations, health regulations, archaeology, slope stability studies, minimum distance separation or other

approvals for the municipality and other agencies are the responsibility of the owner. In addition, this report will identify development constraints, mitigation measures and shoreline enhancement opportunities. This report will address project compliance with the PPS and Municipality of Trent Lakes Official Plan.

2.2 Limitations

This report: has been prepared by GHD for Norman Lee & Associates Ltd. and may only be used and relied on by Norman Lee & Associates Ltd. for the purpose agreed between GHD and Norman Lee & Associates Ltd. as set out in section 1 of this report.

GHD otherwise disclaims responsibility to any person other than Norman Lee & Associates Ltd. arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

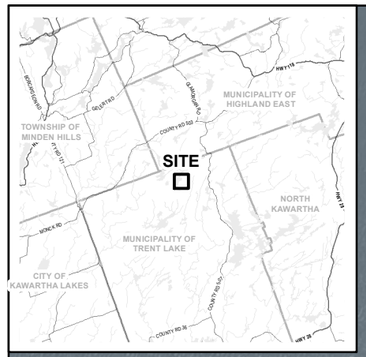
The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 1 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.



Legend

- Existing Dock Location
- SFQ - Surface Water Quality Point
- 30 M Shoreline Setback
- Ontario OHN Shorelines
- Site Boundary
- Property Line
- Boathouse
- Proposed Development
- Wetland Community
- Vegetation Community
- Restoration Area
- Assessment Parcel

Aquatic Habitat Zone

- HZ-01
- HZ-02

Fill to be removed – replaced with bridge or boardwalk

SFQ001

HZ-01

HZ-02

2 ES22
1,723 m²
0.17 ha

Rip-Rap to be Removed

2 ES22
1,591m²
0.16 ha

3 No Code - Area of Fill
677 m²
0.07 ha

Proposed 30 x 80 ft AUX Building

HZ-02

Proposed Building

5 W1
8,983m²
0.90 ha

1 ES25.1
27,718m²
2.77 ha

Existing Access Road

30 M Shoreline Setback

4 ES34
762m²
0.08 ha

85

160

146

ELC Types - 1st Approximation

Field Guide to Forest Ecosystems of Central Ontario (Chambers et al 1997)
Field Guide to Wetland Ecosystem Classification for Northwestern Ontario (Harris et al 1996)

ELC Code	Eco Site - Vegetation Type Description
ES25.1	Sugar maple – Beech – Red Oak: dry to moderately fresh soils
ES22	White Cedar - Other Conifer: dry to moist soils
ES34	White Cedar - Lowlands Hardwoods: very moist to wet soils
W1	Open Water Marsh: mixed mineral substrate

Paper Size ANSI B

0 22 44 66

Meters

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

GHD

NORMAN LEE & ASSOCIATES
112 FR 355A, MUNICIPALITY OF TRENT LAKES
SITE EVALUATION AND RESTORATION PLAN

Project No. **12648908**
Revision No. **-**
Date **Oct 21, 2024**

TERRESTRIAL AND AQUATIC FEATURES

FIGURE 1

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Print date: 21 Oct 2024 - 16:47

Data source:
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3. Study Rationale

This section identifies federal, provincial, and other regulatory legislation, policies, official plans (OP) and OP amendments that are applicable and relevant to the study area and the immediate vicinity. This includes policies that triggered the study.

3.1.1 Federal Legislation

3.1.1.1 Fisheries Act, 1985 (R.S.C., 1985, c. F-14)

The purpose of the Fisheries Act is to maintain healthy, sustainable and productive Canadian fisheries through the prevention of pollution, and the protection of fish and their habitat. The Fisheries Act provides protection provisions for fish and fish habitat in the form of standards, codes of practice, and guidelines for projects in and near water. These provide guidance on how to avoid and mitigate impacts to fish and fish habitat and comply with the Fisheries Act to avoid causing the death of a fish or harmful alteration, disruption or destruction (HADD) of fish habitat from your work, undertaking or activity.

Projects affecting waterbodies that support fish and fish habitat must comply with the provision of the Fisheries Act. The proponent is responsible for determining if the project is likely to cause impacts to fish and fish habitat and if these impacts can be avoided or mitigated. The proponent must gather information on the type and scale of impact on the fishery and assess if the impacts will result in the death of fish or a HADD of fish habitat. A Request for Review (RFR) to be submitted to Fisheries and Oceans Canada (DFO) if impacts cannot fully be avoided. Following DFO review, if it is assessed that the impacts cannot be avoided or mitigated and will result in death of fish or a HADD of fish habitat, an authorization under Subsection 35 (2) of the *Fisheries Act* must be obtained from the DFO. Projects that have the potential to obstruct fish passage or affect flows needed by fish require an authorization.

3.1.1.2 Migratory Birds Convention Act

The purpose of the Migratory Birds Convention Act (MBCA 1994) is to implement the Convention by protecting and conserving migratory birds — as populations and individual birds — and their nests.

No work is permitted to proceed that would result in the destruction of active nests (i.e., nests with eggs or young birds) or the wounding or killing of bird species protected under the MBCA and/or Regulations under that Act.

3.1.1.3 Provincial Planning Statement 2024

The *Provincial Planning Statement* (PPS), which took effect October 20, 2024, is a consolidated statement of the Ontario government's policies on land use planning (MMAH 2024). The PPS 2024 is a streamlined land use planning policy framework that replaces the Provincial Policy Statement (2020) and A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2019) while building upon housing-supportive policies from both documents. The PPS 2024 is issued under Section 3 of the *Planning Act* and all decisions affecting land use planning matters `shall be consistent with' the PPS 2024 (MMAH 2024). Municipalities use the PPS 2024 to develop their official plans and to guide and inform decisions on other planning matters.

The Study Area is located within Ecoregion 5E. Policy Section 4.1 of the PPS 2024 outlines policies for Natural Heritage, and portions relevant to this project include:

1. Natural features and areas shall be protected for the long term.
2. The diversity and connectivity of natural features in an area, and the long-term *ecological function* and biodiversity *of natural heritage systems*, to be maintained, restored or, where possible, improved, recognizing linkages between and among *natural heritage features and areas*, *surface water features* and *ground water features.*

3. *Natural heritage systems* shall be identified in Ecoregions 6E & 7E, recognizing that *natural heritage systems* will vary in size and form in *settlement areas, rural areas,* and *prime agricultural areas.*
4. *Development and site alteration* shall not be permitted in:
    a. *significant wetlands* in Ecoregions 5E, 6E and 7E; and
    b. significant coastal wetlands.
5. Development and site alteration shall not be permitted in:
    a. significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
    b. *significant woodlands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
    c. *significant valleylands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
    d. significant wildlife habitat;
    e. significant areas of natural and scientific interest; and
    f. coastal wetlands in Ecoregions 5E, 6E and 7E1 that are not subject to policy 4.1.4.b),

    unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.
6. Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.
7. Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.
8. Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 4.1.4, 4.1.5, and 4.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

3.1.2 Local and Other Regulatory Bodies

3.1.2.1 Municipality of Trent Lakes Official Plan Amendment (OPA No. 46 - adoption of the Township of Galway-Cavendish and Harvey Official Plan)

The Site is located within an identified Recreational Dwelling Area and Rural (Schedule ‘A3 –Land Use & Transportation Plan Galway, Township of Galway-Cavendish & Harvey Official Plan). Section 5.1.10 describes the land use policies associated with natural environmental features and areas, such as wetlands, fish habitat such as highly sensitive trout lakes, and significant habitat of endangered and threatened species. The presence of natural environmental features on and/or adjacent to the Site acts as triggers for this Site Evaluation.

4. Study Approach

4.1 General Approach

This Site Evaluation report was prepared as per the Municipality of Trent Lakes Official Plan, and consisted of three phases:

In the first phase, we collected and reviewed available information on the Site including recent aerial photography, key natural features GIS mapping, DFO Species at Risk (SAR) mapping, County of Peterborough Official Plan and Municipality of Trent Lakes Official Plan and schedules and other correspondence, data or files available. Secondary sources included the Ontario Breeding Bird Atlas website, e-bird records and i-naturalist records.

Our second phase consisted of a site visit by our fisheries biologist and terrestrial/wetland biologist in August 2024. The site visit documented the following: current site conditions, aquatic habitat assessment of the shoreline, existing aquatic vegetation within the shoreline areas, impacts to natural heritage features from previous onsite works, any recent plant regeneration, Ecological Land Classification and incidental wildlife. Biologists also conducted a plant inventory and an assessment of habitat for potential SAR and search for butternut trees and black ash if any, on Site. The field staff focused on the potential development envelope including the proposed locations for the accessory building, dwelling, septic bed, upland boathouse, docks and other amenity spaces.

As a site restoration plan is also advised as part of this submission, biologists documented changes when on Site to shoreline substrate, vegetation, evidence of tree clearing or disturbances to soil. This effort was focused on the shoreline and 30 m shoreline setback zone. Disturbed areas and opportunities for restoration were noted when on Site and areas delineated.

The third phase was the preparation of this Site Evaluation report which details existing site conditions, including aquatic vegetation and fish habitat, SAR habitat, vegetation communities and any significant natural heritage features. For any ecological impacts on the natural features and shoreline resulting from the proposed cottage lot development, the report outlines mitigation measures and provides recommendations regarding buffers/setbacks, for revegetating, naturalizing, and maintaining vegetation within the setback, as deemed necessary. This report also includes general mitigation measures and recommendations for protecting the lake and wildlife habitat, fish habitat, sensitive species and other natural features on or adjacent to the Site. A figure is included to illustrate all verified natural features, any sensitive species/features and buffers and restoration options/opportunities found on the Site.

A restoration plan is included in this report as a separate section. The restoration plan includes documentation of disturbed areas or altered landscapes, and options for restoration/enhancement or rehabilitation. This may include recommendations for plantings and other works along the shore. A diagram will be appended to the Site Evaluation report showing the details of our Restoration Plan.

4.2 Detailed Methodologies

4.2.1 Vegetation

All vegetation encountered on the Site was inventoried during the site visit. Delineation and classification of the vegetation community types was based on the Field Guide to Forest Ecosystems of Central Ontario (Chambers et al., 1997) and the Wetland Ecosystem Classification for Northwestern Ontario (Harris et al., 1996). General notes on disturbance, topography, soil types, soil moisture and state of each community were also compiled. All vegetation communities in the Site were included.

Rare, significant or uncommon species were searched for. Species significance or rarity on a national, provincial, regional or local level was based on published literature and standard status lists. These included SARA (2023), COSEWIC (2023), SARO (2024) and Oldham (1999).

4.2.2 Birds and Wildlife

While GHD was on Site conducting surveys of vegetation communities, observations of any wildlife encountered were recorded (including mammals, amphibians and reptiles). Documentation included notes about the species detected, their location and the type of encounter (i.e., direct sightings and indirect evidence such as calls, tracks, scat, burrows, dens, trails and browse).

4.2.3 Fish and Aquatic Habitat

An aquatic habitat assessment was conducted for the shoreline of Salmon Lake. following standardized provincial aquatic methods from the Ontario Stream Assessment Protocol, Section 4, Module 11 (Stanfield L., 2017) and Ontario Ministry of Transportation (MTO) Environmental Guide for Fish and Fish Habitat Protocol Section 4.0 (MTO, 2009). Aquatic habitat was quantified and characterized based on local substrate composition, vegetation, flow influence and condition, sediment transport, cover, channel morphology, groundwater indicators, riparian habitat, barrier presence and form, land use and landscape influences, human modifications and unique features. Appropriate assessment types were assessed on-site based on feature type using professional judgment.

Surface Water Quality

In addition, surface water quality parameters were measured on the Site using a Horiba U-52 Water Quality Meter. Parameters collected included temperature, pH, conductivity, turbidity, dissolved oxygen, total dissolved solids and salinity. The Canadian Water Quality Guidelines for the Protection of Aquatic Life (Canadian Council of Ministers of the Environment 2024) were used to interpret water quality data.

Fish Community

Fish community surveys were not conducted by GHD, however exisiting fish community data was obtained from Ontario Ministry of Natural Resources Aquatic Resource Area (ARA) (MNR 2024).

5. Existing Conditions and Discussion

5.1 Terrestrial

A terrestrial field assessment was completed by a GHD terrestrial biologist on August 15, 2024. Terrestrial features were assessed within the development area only, with focus on the building envelope, shoreline riparian zones and existing disturbances. Ecological land classification (ELC) assessment for Region 5E was completed along with a botanical inventory. Habitat for SAR was also searched for during the assessments.

5.1.1 Ecological Land Classification and Botanical Inventory

The Site contained a total of 5 ELC communities, with 62 plant species identified in total (Appendix B). The general layout of the Site contains upland forest, and a slope leading to the lowland portion of the Site and shoreline of Salmon Lake. The ELC communities are briefly described below:

Community 1 - ES25.1 (Sugar maple – Beech – Red Oak: dry to moderately fresh soils)

This upland community is dominated by mature sugar maple (*Acer saccharum)* with an 80% canopy cover. Other tree species included red oak (*Quercus rubus)*, black cherry (*Prunus serotina)*, eastern white cedar (*Thuja occidentalis)* and yellow birch (*Betula allegheniensis)*. This community also includes the slope leading to the shoreline of Salmon Lake. Rock outcrops and boulders also characterized this community, leading to exposed bedrock and shallow, rocky soils. Understory vegetation was dominated by purple-flowering raspberry (*Rubus occidentalis)*, Allegheny blackberry

(*Rubus allegheniensis*) and wild sarsaparilla (*Aralia nudicaulis)*. This community contained several structures including a temporary trailer.

Areas of disturbance were also noted in this community, including a cleared portion where the proposed house is to be located. Several soil cores were attempted in the proposed house location and proposed septic bed to check for wetland soil presence but unable to due to presence of bedrock within 5 cm of the surface. The cleared locations were experiencing some wet meadow plant colonization due to the removal of cover soils and vegetation, allowing water to pool without sufficient drainage.

Photo 1: Community 1 ES25.1, showing mature maple forest and access road, photo facing west (Photo date: August 15, 2024).

Photo 2: Slope leading to shoreline, note disturbed area (red arrow), photo facing northwest (Photo date: August 15, 2024).

Photo 3: Community 1 ES25.1, cleared area for house and septic bed envelope, photo facing west. (Photo date: August 15, 2024)

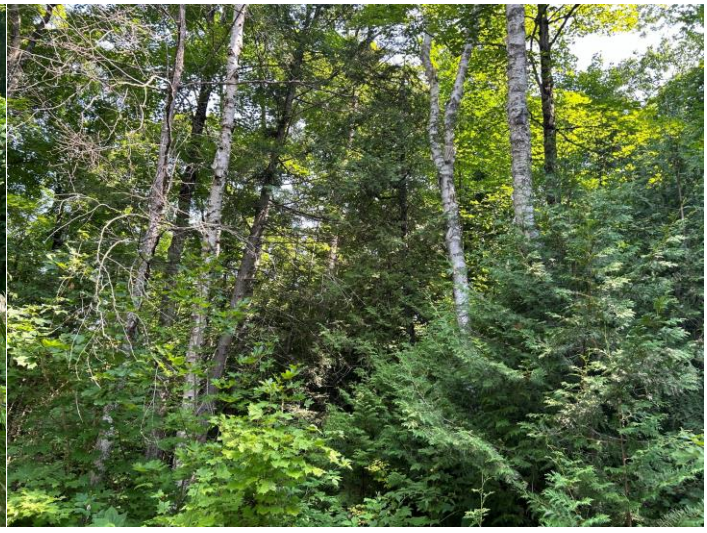

Photo 4: ES25.1, area of trees to be removed to suit placement of auxiliary building, photo facing east. (Photo date: August 15, 2024)

Community 2 - ES22 (White Cedar – Other Conifer: dry to moist soils)

This dry coniferous community is located on the sloped portions of the Site adjacent to the north shoreline of Salmon Lake and on peninsula. The community is dominated by mature eastern white cedar (*Thuja occidentalis)* with greater than 80% canopy cover, and sporadic balsam fir (*Abies balsamifera)* and eastern hemlock (*Tsuga canadensis)*. Groundcover was typical of these ecosites and consisted of low blueberry (*Vaccinium angustifolium)*, creeping snowberry (*Gaultheria hispidula)*, bluebead lily (*Clintonia borealis)* and wintergreen (*Gaultheria procumbens)*.

Photo 5: Community 2 ES22, on the peninsula showing path leading to floating dock, photo facing north (Photo date: August 15, 2024)

Community 3 - No Code – Area of fill

This community was located at the base of the peninsula (southeast). The community contains a substrate of gravely sand but with a thin layer of riprap fill. This low area is only inundated in the spring but contains species typical of wet substrate. Several wetland and aquatic species were recolonizing within this filled area and were emerging through the gravel and along the edges adjacent to Salmon Lake. Species included black spruce (*Picea mariana)*, eastern white cedar, sensitive fern (*Onoclea sensitiva)*, marsh fern (*Thelypteris palustris)*, narrow-leaved meadowsweet *(Spiraea alba)* and swamp milkweed (*Asclepia incarnata)*.

Photo 6: Placement of fill to create raised connection to peninsula. Note infiltration of wetland plant species on sides. Photo facing north (Photo date: August 15, 2024)

Community 4 - ES34 (White Cedar – Lowland Hardwoods: very moist to wet soils)

This community was a small coniferous swamp located in the southwestern portion of the Site, this community was dominated by eastern white cedar, red maple (Acer rubrum) and white birch *(Betula papyrifera)*. The soil substrate was organic and peaty but punctuated by sporadic boulders. The vegetation was typical of organic wetlands.

Photo 7: Coniferous swamp of Community 4. (Photo date: August 15, 2024)

Community 5 - W1 (Open Water Marsh: mixed mineral substrate)

This community was the open water portion of the Site where aquatic shoreline assessments were conducted included several submergent and floating species, with only emergent species found directly adjacent to the shoreline. Some of these species include: bullhead pond-lily (*Nuphar variegata)*, water celery (*Vallisneria americana)*, Eurasian water-milfoil (*Myriophyllum spicatum)* and Canada waterweed (*Elodea canadensis)*. See Section 5**.2.1** (Habitat Zone 1) for photographs of this shoreline community.

5.1.2 Species at Risk

No SAR flora or fauna were observed while conducting field assessments. Habitat for at risk bat species may be present for foliage roosting bats. No bat cavity trees of foliage cluster were identified.

Potential breeding habitat for SAR birds was also noted, particularly for eastern wood-pewee, Canada warbler and wood thrush. However, given the ongoing disturbance and human presence, the likelihood of breeding for these species is low.

GHD assessed all cleared areas for the potential for SAR turtle nesting habitat but did not locate appropriate loose substrates for nesting opportunities, or predated nests. SAR turtles may inhabit Salmon Lake and use the shoreline as basking habitat. In addition, SAR snakes may similarly use the Site for basking and refugia, however no appropriate hibernacula were identified despite the presence of large boulders.

Species listed on the Natural Heritage Information Centre (NHIC) website include; common snapping turtle (Special Concern-Ontario), eastern ribbonsnake (SC-Ontario), northern musk turtle (SC-Ontario), eastern wood-pewee (SC-Ontario), Blanding's turtle (SC-Ontario), five-linked skink (SC-Ontario) and black ash (Endangered-Ontario).

5.2 Fish and Aquatic Habitat

An aquatic habitat assessment was completed by a GHD aquatic ecologist on August 15, 2024. The shoreline of Salmon Lake within the Site was classified into two habitat zones. Habitat zones were assessed and differentiated based on presence of barriers, substrate composition, morphology, riparian habitat, percent cover and unique features. The habitat zone location has been illustrated in **Figure 1** and habitat characteristics have been summarized in **Appendix C**. Salmon Lake water levels fluctuate throughout the year resulting in significant low water levels during the fall and early winter.

5.2.1 Habitat Zone 1

During the time of the assessment, within habitat zone 1 the riparian habitat had minimal natural riparian vegetation. Habitat zone 1 encompassed the majority of the shoreline, the banks were stabilized by large boulders with the exception of a small portion of the shoreline located at the northeastern portion of the shoreline that had placed rip rap (**Photo 8 and Figure 1**).

The in-water substrate was dominated by boulder and cobble with some gravel, sand and fine organics. The overhead cover was considered minimal containing some shrubs, trees and one existing dock (**Photo 9**). The instream cover was minimal consisting of boulders, large woody debris and small woody debris. The vegetation community along the shoreline was dominated by a mix of eastern white cedar, black spruce, marsh fern and sensitive fern. Refer to the ELC information for the riparian habitat details.

Photo 8: Habitat Zone 1, showing shoreline and riparian habitat. Photo facing northwest (Photo date: August 15, 2024).

Photo 9: Photo showing existing dock, photo facing west (Photo date: August 15, 2024).

5.2.2 Habitat Zone 2

During the time of the assessment, within habitat zone 2 the riparian habitat had moderate natural riparian vegetation. The connection between the mainland and the peninsula had been overlain with a layer of rip rap to create better access route. . The rip rap was located along the central area by the shoreline. (**Photo 10 and 11**).

The in-water substrate was dominated by fine organics with some sand and gravel. The overhead cover was considered minimal containing shrubs, non woody vegetation and woody debris. The in-water cover was moderate consisting of submergent, emergent and floating vegetation. Vegetation in this Habitat Zone was characteristic of a marsh, with species such as narrow-leaved meadowsweet, sedges, broad-leaved arrowhead (*Sagittaria spp)* and floating and emergent vegetation. Refer to the ELC information for the riparian habitat details.

Photo 10: Habitat Zone 2, showing wetland area between peninsulas. Photo facing southwest (Photo date: August 15, 2024)

Photo 11: Habitat Zone 2, showing placed gravel between peninsulas. Photo facing northwest (Photo date: August 15, 2024).

Overall, Salmon Lake provides direct and indirect fish habitat for a wide diversity of fish species within the lake. Specifically, it provides food supply, cover, overwintering, spawning habitat, nursery habitat, hydrological and nutrients inputs. These attributes are important for the cold-water fish community of Salmon Lake, especially Lake Trout (*Salvelinus namaycush*) which have been documented in the Esson Lake (MNR 2024).

Salmon Lake is designated as a cold-water Lake, highly sensitive or at capacity for Lake Trout. In lakes, Lake Trout spawning has been reported to occur where lake bottoms consist of rubble (25mm or larger in diameter) in depths ranging from 0.15-55m (Marcus, Hubert, & Anderson, 1984). Lake Trout spawning habitat was not identified on the Site, however it was identified along the shorelines east and west of the Site and along the shoreline of the island west of the Site. The closest identified spawning habitat was approximately 175 m northwest along the island.

Fish habitat in Ontario is managed federally by the Minister of Fisheries and Oceans Canada and therefore, the Fisheries Act applies to the Site. The literature review found that no critical habitat or SAR are found within the Site (DFO 2024).

Surface Water Quality

Surface water quality parameters were collected within the Site and are included in **Appendix D**. Surface water quality was collected at the floating dock as identified in **Figure 1.**

The surface water quality parameters collected within the Site were within the acceptable range for aquatic life. The baseline surface water quality data may be used for construction and/or post construction effectiveness monitoring, if needed.

Fish Community

All fish community data was collected using background data sources. Salmon Lake fish community is composed of fish species that range from preferring cold to warm water thermal regimes. The thermal regime as listed on the MNR ARA data is cold water. Cumulatively, eight fish species have been documented in Salmon Lake including, common shiner (*Luxilus cornutus*), golden shiner (*Notemigonus crysoleucas*), lake trout (*Salvelinus namaycush*), largemouth bass (*Micropterus salmoides*), pumpkinseed (*Lepomis gibbosus*), rock bass (*Ambloplites rupestris*), smallmouth bass (*Micropterus dolomieu*) and yellow perch (*Perca flavescens*) (MNR 2024). The fish species are common and are widely distributed throughout southern Ontario.

6. Impact Assessment

6.1 Terrestrial

Potential impacts to the terrestrial landscape include vegetation removal to widen the access road, tree clearing to accommodate installation of an auxiliary building, septic bed, proposed cottage and upland boathouse with marine railway. Tree removals have already occurred within the house building envelope and septic tank envelope.

The building envelope for the cottage, septic and driveway is already open with some thinning of trees on the lakeside to create an opening in the forest. The location of the house and septic does not have an impact on the larger woodlands adjacent to the lot and retained on the balance of the lot. The building envelope and shoreline residential use has been limited to the extent possible. This will be the part of the property where construction will occur. The building envelope will be landscaped as part of the final phase of construction. The landscaping combined with the restoration plan will result in no negative impacts on the forest ecology or wildlife use of the property.

The location of the storage auxiliary building is located at the end of the driveway and in a partially disturbed area. Additional clearing will be completed to accommodate installation of the pad and structure in the 30 x 80 foot area, plus some access and grading zones. As long as the tree clearing is completed outside of the breeding bird and bat timing windows, no impacts on the forest ecology or wildlife use of the property is anticipated.

A 30 m buffer from the shoreline has been recommended and is advised by the Municipality and PPS. The fish habitat and sensitive lake trout habitat is discussed below. In addition, the 30 m shoreline buffer does provide habitat for wildlife, an ecotone for aquatic reptiles and amphibians and acts as a wildlife corridor. The maintenance of tree cover and ground cover in that zone is important to protect these functions.

Creation of pathways to docks, the peninsula and other walking routes to be limited in width and maintain existing soil and ground cover, where possible.

Vegetation removals can impact breeding birds and roosting bats. Any further vegetation removal to occur outside of established active seasons for both birds and bats. The active breeding season for birds in this part of Ontario is from April 1 to August 31 (ECCC, 2024). Therefore, no vegetation removal to occur within this time period in order to comply with the federal Migratory Birds Convention Act. The active bat season for tree roosting bats as indicated by MECP is between May 1 to August 31 for this part of Ontario, and thus, no vegetation removal can occur within this time period.

Site construction activities may impact reptiles and amphibians who may seek cover or basking opportunities in vegetation, and under machinery and tools. To reduce opportunities for reptiles and amphibians to seek cover in work areas, all building envelopes and active work areas are recommended to have silt-fencing installed around work perimeters. Silt-fencing will limit the reptile and amphibian access to these work areas. Fencing is recommended to be installed in the inactive reptile and amphibian period (October 31 to April 15) (Government of Ontario, n.d.).

6.2 Fish and Aquatic Habitat

The development includes a proposed cottage, septic tank, boathouse with an associated marine railway, auxiliary building and sitting area along the shoreline of habitat zone 1. The shoreline form and function will be protected by a 30 m buffer from the high-water mark with the exception of the proposed sitting area along the shoreline, boathouse and associated marine railway and the rehabilitation works (**Figure 1**). Any proposed work along the shoreline may require a permit for alteration of shorelines from the Ministry of Natural Resources. There are no anticipated impacts from the proposed cottage, with the structures situated 30 meters back from the shoreline.

There is one existing floating dock that was tied to the shore during the time of our assessments, it is recommended that a proper dock attachment for stability be installed at this location.

The proposed works below the high-water mark which include removal of rip-rap and the construction of a marine railway associated with the upland boathouse. To protect sensitive fish spawning in-water work can only occur between July 15-October 1. It is recommended that consultation with DFO occur before any in-water work commences to attempt to avoid harm or death to fish and fish habitat. During this phase of the project, it is recommended that a qualified biologist be retained to review the in-water work details to assess if a formal DFO Request for Review is needed or if the work falls under the existing DFO Code of Practices therefore resulting in the submission of a notification form. DFO Code of Practices can be found here **Standards and codes of practice**.

The rip rap that had been historically placed in the water will be removed. Removal will occur at the base of the peninsula and the bay on the north shore of the property. It is recommended that the removal of the rip rap occur by hand during the fall and early winter when water levels are low or in the dry, resulting in the rip rap being out of the water which will avoid in-water work. There are no anticipated impacts from the removal and restoration of these areas if mitigation measures are implemented. Refer to **Section 7.0 Restoration Plan** for details.

A detailed sediment and erosion control plan must be prepared for all construction activities to use reasonable professional effort to make sure that disturbed soils are not transported off-site and do not negatively impact aquatic life, fish, and fish habitat.

7. Restoration Plan

7.1 Shoreline

On the north end of the property, rip rap and boulders are anticipated to be placed, and the addition of a sitting area is proposed right along the shoreline. The rocks along the shoreline will aid in the creation of natural fish habitat within the system, that was previously removed with the placement of fill. Additional plantings of wet tolerant species are proposed to restore the natural condition after the removal of fill and placement of boulders along the shoreline. It is recommended that the in-water habitat be left to re-naturalize on its own overtime. The shoreline buffer will be enhanced by replacing fill on the north shore with boulders, reverting it back to natural conditions.

GHD recommends planting with native vegetation to stabilize the disturbed soils and enhance the shoreline riparian function. To protect water quality, the landowner will plant vegetation in the buffer zone, providing additional protection to the shoreline and lake.

7.2 Crossing to Peninsula

To access the peninsula, rip rap was placed, disrupting the natural shoreline that was present within the system. The material placed will require to be removed. Due to the sensitivity of the area the removal will need to incorporate mitigation measures to best protect the existing features including vegetation. After removal of the material, restoration of the area will need to occur including some plantings to restore the damaged area. There is a low connection point between the mainland and the peninsula. A thin layer of rip rap has been added to that connection point. To restore the habitat and limit impacts to the wetland plants and wildlife use, the following recommendations are made.

Remove rip rap carefully and instead install a low boardwalk or wooden crossing structure. This will protect the natural vegetation and allow wildlife to cross under. It will also provide access year-round, even in higher spring water levels. As this low area is susceptible to wave action, placement of some river-run clean stone above shoreline and on the approach to the crossing structure would help to stabilize those areas. No rock is to be placed below the high-water mark. It is recommended that a qualified biologist be retained to review the boardwalk design details to assess if a formal DFO Request for Review is needed or if the work falls under the existing DFO Code of Practices therefore resulting in the submission of a notification form

7.3 Open Woodland

Portions of the woodland have already been opened to create a building envelope for the cottage and septic bed. Further removal may be needed to facilitate access road widening, placement of a 30’ x 80’ auxiliary building, and inland boathouse and marine railway. The tree removals for the auxiliary building and access road will occur in the larger extant woodland (ES25.1), while removals for the boathouse and marine railway will occur in the dry cedar forest community (ES.22).

Offsetting the tree removals for the auxiliary building and shoreline development to occur after all construction has been completed. A selection of tree species to be planted in disturbed areas on Site to maintain woodland function and integrity remains. Recommended tree species are to be native species that are currently found within proximity of the Site and hardy to the soil type and bedrock conditions. Eastern white cedar to be planted in all disturbed areas contiguous with ES22 and the shoreline. Sugar maple, eastern white cedar, and red oak to be planted in all disturbed areas on the slope and ES25.1. In addition to these plantings, shrub plantings to also be planted to supplement base ground cover, a recommended shrub would be Downy serviceberry.

Low growing species in a native woodland seed mix (Ontario Seed Company product #8275, www.oscseeds.com) to be planted in open areas where disturbance had occurred (green hatched area on Figure 1). Landscaping of Site post-construction to use native tree, shrub and garden plants, where possible.

Table 1 Recommended Tree Species

Tree species	Scientific Name	Number to be planted	Size of stock
Eastern white cedar	Thuja occidentalis	12	1-2 gallon potted stock
Red oak	Tsuga canadensis	5	1-2 gallon potted stock
Sugar maple	Acer rubrum	12	1-2 gallon potted stock
Downy serviceberry	Amelanchier arborea	5	1-2 gallon potted stock

8. Policies and Legislative Compliance

The following section describes how the proposed development will be in conformance with the relevant federal, provincial and other regulatory legislation, policies, official plans and OP amendments that are applicable and relevant to the Site and the immediate vicinity.

8.1 Federal Legislation

8.1.1 Fisheries Act

The proposed works will require in-water work along the shoreline of Salmon Lake within the Site and may have the potential to cause the harmful alteration, disruption, or destruction (HADD) of fish habitat. The project detailed design is needed to fully assess the potential impacts to fish and fish habitat with respect to the Fisheries Act.

However, to comply with the Fisheries Act, all project work near and below the high-water mark must follow the protective provisions of the Fisheries Act by implementing the *DFO Measures to Protect Fish and Fish Habitat*. If all project undertakings can: prevent the death of fish, maintain riparian vegetation, carry out work on land only, maintain fish passage, ensuring property sediment control, and preventing entry of deleterious substances in water, then a Fisheries Act review and Authorization may not be needed.

If proposed in-water works cannot integrate the DFO protective measures and have the potential to cause the harmful alteration, disruption, or destruction of fish habitat (such as infilling of the watercourse) a DFO Request for Review document must be submitted to DFO for formal project assessment to assess the next steps in project compliance.

Additional project details are needed to assess project compliance with the Fisheries Act.

8.1.2 Migratory Birds Convention Act

The core breeding period in Ontario for migratory birds under the MBCA for Bird Conservation Region 13 (i.e., the one the Site lies within) extends from April 1 to August 30 (Government of Canada, 2022). As such clearing of the trees and other vegetation for development cannot occur during this timing window.

8.2 Provincial Legislation

8.2.1 Endangered Species Act, 2007

No provincially threatened or endangered species were identified on the Site during field visits. Records from the general area identified several species (mentioned earlier) that could potentially use the property. Several recommendations are made to mitigate any negative effects to a SAR if they are found on-site.

8.2.2 Provincial Planning Statement, 2024

The Site contains wetland and shoreline, therefore Sections 2.1.4, 2.1.5, 2.1.6, 2.1.7 and 2.1.8 of the PPS apply. Section 5 and 7 of this report, contains recommendations that allow the proposed development to proceed in a manner consistent with these sections of the Provincial Planning Statement (PPS). The Site does not contain coastal wetlands and valleylands or ANSI's.

8.3 Local and Other Regulatory Bodies

8.3.1 County of Peterborough

This Site Evaluation Report and Shoreline Restoration Plan has been prepared in accordance with direction provided in the County of Peterborough Official Plan for such studies (i.e., Section 4.1.3.1 General). This Site Evaluation Report and Shoreline Restoration Plan follows the Country of Peterborough Official Plan as it demonstrates: a) no development has been proposed in wetlands or watercourses and there will be no negative impacts on other natural features or ecological functions for which the area is identified as long as the recommendations and mitigation measures outlined in Section 7.0 are implemented.

8.3.2 Municipality of Trent Lakes Official Plan Amendment (OPA No. 46 adoption of the Township of Galway-Cavendish and Harvey Official Plan

The development is proposed outside of the natural heritage features. The shoreline setback of 30 m is recommended, and the building envelope is a minimum of 30 m from the shoreline at the closest point. In addition, GHD has recommended the post-construction setbacks/riparian habitat will be enhanced through natural revegetation and native plantings within the existing buffer.

If the mitigation measures and recommendations outlined in Section 9.0 of this Site Evaluation Report and Shoreline Restoration Plan are implemented, there will be no impact to the fish and fish habitat, wetland or shoreline as a result of the proposed redevelopment.

9. Summary of Recommendations

9.1 General

1. Prior to any Site preparation activities, erosion and sediment control measures to be installed around the perimeter of the construction envelope to ensure sediment laden runoff does not enter adjacent shoreline and fish habitat. The silt fence to be inspected and maintained throughout the construction phase and remain in place until the soils are stabilized and re-vegetated. It will also act as a barrier to turtles and frogs.
2. Any tree clearing needed for construction access prior to construction will be completed outside the Breeding Bird timing window of April 1 to August 30
3. Obtain relevant permits from the Municipality and possibly the Ministry of Natural Resources.
4. Create downspouts that spill out onto grassed or gravel surfaces off the roofs. This will convey the rainfall captured by the roof to the ground where it can infiltrate.
5. The proposed dwelling will maintain a minimum 30 m setback from the high-water mark of the shoreline.
6. No in-water works to occur without permits.
7. In-water work to occur between July 15-October 1 to protect sensitive fish spawning

8. Restoration plan measures for aquatic and upland areas to be implemented.
9. Native species are to be used for all landscaping, where feasible.

9.2 Species at Risk

10. In the active season for turtles (April 1-October 30) a thorough sweep shall be done of the area before beginning work to ensure no individuals are injured and/or killed.
11. Trees over 25 cm diameter to be cut outside of active bat roosting season (May 1-Septempber 30)
12. Silt fencing installed must not have an open plastic mesh or netting as backing that could lead to entanglement of wildlife.

9.3 Sediment and Erosion Control

13. A heavy-duty reinforced silt fence will be installed and maintained along development envelope boundary. This line to be surveyed and staked in the field prior to any Site preparation activities.
14. All sediment and erosion control products will be selected for the Site based on the manufacturer's product specifications. Product installation and maintenance will follow the manufactures guidelines.
15. All sediment and erosion control measures shall be inspected daily during the construction phase and periodically afterwards to ensure they are functioning properly. The sediment and erosion control measures to be maintained and upgraded regularly. Sediment fence shall be checked regularly to ensure they are maintained and working properly.
16. Construction will be undertaken during normal weather conditions, to the extent possible, and will avoid large precipitation events to reduce the risk of sedimentation off-Site.
17. In the event that sediment and erosion control measures are not functioning, the construction supervisor shall order the work to be stopped. No further work shall be carried out until the construction methods and/or the sediment control plan is adjusted to address the sediment/erosion problem(s). Such occurrences to be documented by the Site inspector and provided to a qualified biologist.

9.4 Fish Protection (DFO measures to protect fish and fish habitat)

18. No work in or near water to avoid killing fish by means other than fishing. Where possible.
19. Any new development (cottages/houses, septic, garage) locations will not exceed the pre-existing cottage locations to protect the natural feature form and function.
20. The Project Manager/Contractor shall not allow any deleterious substances as defined in the Fisheries Act (such as silt), caused by the work, to enter or re-enter the lake.
21. Respect MNRF fish timing windows to protect fish (July 15-October 1).
22. No use of explosives in or near water.
23. If work conditions change, such that it is possible that fish or fish habitat may potentially be negatively impacted, all works shall cease until the problem has been corrected or authorization has been obtained from the appropriate authorities.
24. Maintain riparian vegetation.
25. No disturbance of bank material or building structures in the area that may result in erosion or scouring.
26. Maintain fish passage.
27. Prevent soil compaction using mats and pads.

9.5 Operation of Machinery

28. No machinery shall enter the shoreline or watercourse.
29. All heavy equipment, machinery, and tools or the work shall be regularly inspected, maintained and operated to avoid leakage of fuels and liquids and shall be stored in a manner that prevents any deleterious substance from entering the soil or nearby watercourses.
30. Vehicle and equipment refuelling and/or maintenance shall be conducted within a defined staging area 30 m from any waterbody. If 30 m is not achievable a portable spill containment berm may be used. Portable spill containment berms can be rented by companies such as Wise Environmental Solution Inc.
31. Any part of a vehicle and/or equipment entering the water will be free of fluid leaks and externally cleaned/degreased to prevent deleterious substances from entering the water.
32. Any stockpiled materials will be stored and stabilized away from the water above the high-water mark at a minimum of 30 m. Stockpiles will be enclosed by sediment fencing or installed down gradient for the purpose of preventing movement of sediment away from the stockpile.
33. An emergency spill kit shall be kept on Site and employed immediately to a spill occur. In the case of a spill, the Ontario Spill Action Center shall be notified immediately at 1-800-268-6060. All provincial and federal regulations shall be adhered to.
34. Maintain an adequate supply of clean-up materials on-site. Construction crews will be fully trained in their use to ensure timely and effective responses to spill incidents.

9.6 Concrete Leachate

35. Concrete leachate is alkaline and highly toxic to fish and aquatic life. Measures will be taken to prevent any incidence of concrete or concrete leachate from entering any waterbody.
36. Ensure that all works involving the use of concrete, cement, mortars, and other Portland cement or lime-containing construction materials (concrete) will not be deposited, directly or indirectly (sediments, debris, concrete, concrete fines, wash or contact water) into any waterbody.
37. All concrete, sealants or other compounds used for this project shall be utilized according to the appropriate Product Technical Data Sheet, stating guidelines and methods for proper use, and provided by the manufacturer of the product.

10. Conclusion

GHD Limited has prepared this Site Evaluation and Restoration Plan to address potential environmental interactions associated with a proposed cottage development at 112 Fire Route 355a, Municipality of Trent Lakes, Peterborough County.

Natural features identified in or adjacent to the Study Area included fish and fish habitat and woodland.

The proposed development of this vacant lot will maintain a minimum 30 m setback from the shoreline. It is recommended that the shoreline buffers are enhanced by allowing natural regeneration of native plants and/or native plantings. All proposed works near or in-water shall adhere to the mitigation measures and recommendations listed in Section 5 and 8 of this report. Mitigation measures have been recommended for birds, wildlife and aquatic habitat.

Construction within the proposed development envelope will result in no significant negative impacts on the functions of identified natural features provided the recommendations outlined in Sections 5 and 7 are implemented. GHD's recommendations have been made to address potential impacts to natural features and/or their functions during the Site preparation, construction and post construction period. Additional discussions with the Municipality of Trent Lakes are advised to obtain appropriate permitting.

11. References

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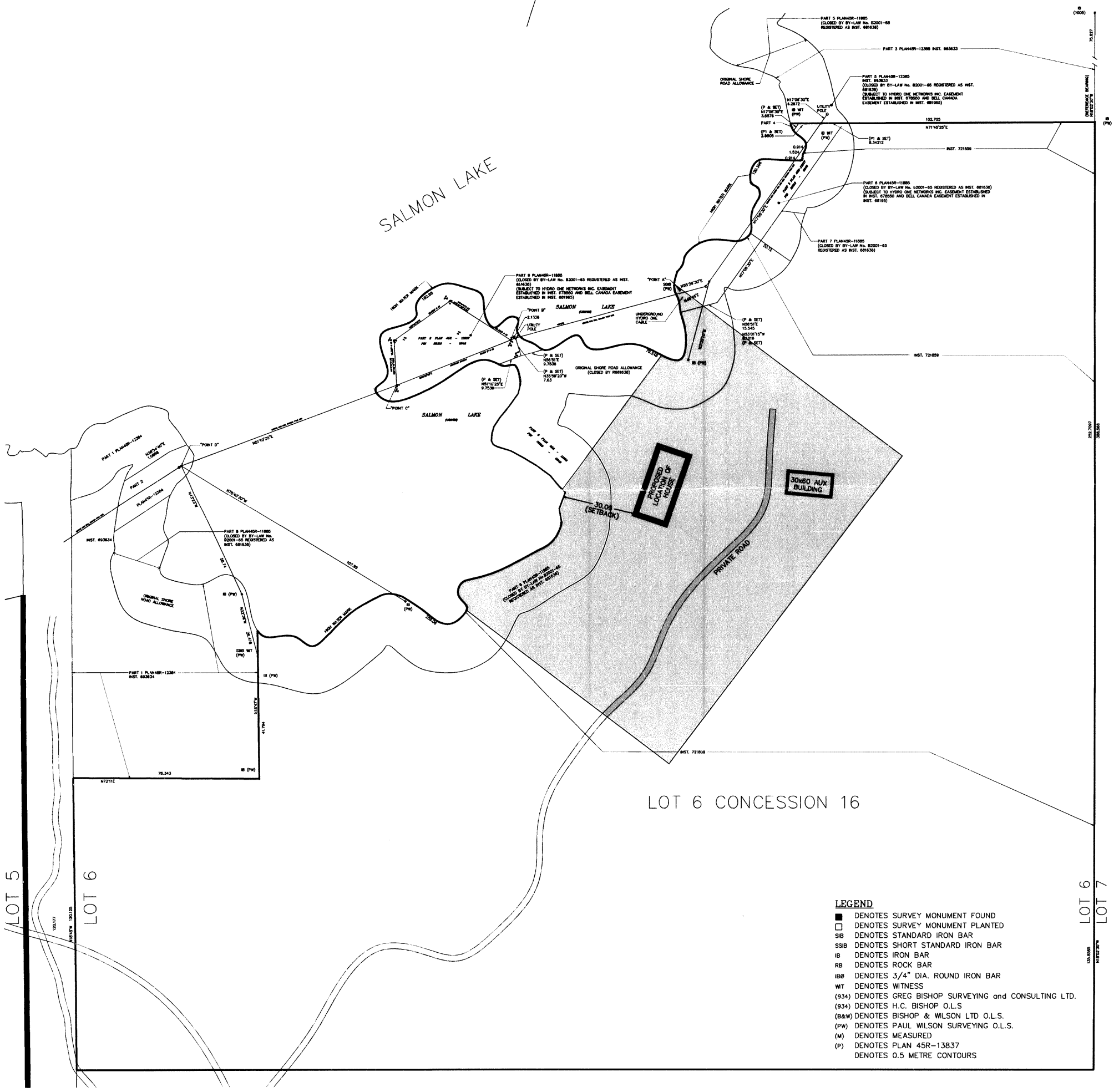
Appendices

Appendix A

Site Plan

30'x60' shed



LOT 6 CONCESSION 16

LEGEND

- ■ DENOTES SURVEY MONUMENT FOUND
- □ DENOTES SURVEY MONUMENT PLANTED
- SIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- IB DENOTES IRON BAR
- RB DENOTES ROCK BAR
- IBØ DENOTES 3/4" DIA. ROUND IRON BAR
- WIT DENOTES WITNESS
- (934) DENOTES GREG BISHOP SURVEYING and CONSULTING LTD.
- (934) DENOTES H.C. BISHOP O.L.S
- (B&W) DENOTES BISHOP & WILSON LTD O.L.S.
- (PW) DENOTES PAUL WILSON SURVEYING O.L.S.
- (M) DENOTES MEASURED
- (P) DENOTES PLAN 45R-13837
- DENOTES 0.5 METRE CONTOURS

Appendix B

Plant List

Appendix B Plant Distribution By Community

Families and genera for the plant species found in this appendix are listed in taxonomic order. The species are listed alphabetically within each genus.

Three standard reference works were used for the botanical nomenclature and taxonomy (Newmaster et. al., 1998; Gleason and Cronquist 1991; Voss 1980; 1985). Other published works for botanical names included; ferns (Cody and Britton 1989); grasses (Dore and McNeill 1980); orchids (Whiting and Catling 1986); shrubs (Soper and Heimburger 1982) and trees (Farrar 1995).

Community 1 **ComID:** 5661 **ELC Code:** ES25.1

Common Name	***Scientific Name***	**Remarks**
CLUBMOSS FAMILY	*LYCOPODIACEAE*	
shining clubmoss	*Huperzia lucidula*	
HORSETAIL FAMILY	*EQUISETACEAE*	
field horsetail	*Equisetum arvense*	
CYPRESS FAMILY	*CUPRESSACEAE*	
eastern white cedar	*Thuja occidentalis*	
BEECH FAMILY	*FAGACEAE*	
red oak	*Quercus rubra*	
BIRCH FAMILY	*BETULACEAE*	
yellow birch	*Betula alleghaniensis Britt.*	
ROSE FAMILY	*ROSACEAE*	
common strawberry	*Fragaria virginiana*	
black cherry	*Prunus serotina*	
Alleghany blackberry	*Rubus allegheniensis*	
purple-flowering raspberry	*Rubus odoratus*	
EVENING PRIMROSE FAMILY	*ONAGRACEAE*	
hairy willow-herb	*Epilobium hirsutum*	
MAPLE FAMILY	*ACERACEAE*	
sugar maple	*Acer saccharum ssp.saccharum*	
TOUCH-ME-NOT FAMILY	*BALSAMINACEAE*	
spotted jewelweed	*Impatiens capensis*	
GINSENG FAMILY	*ARALIACEAE*	
wild sarsaparilla	*Aralia nudicaulis*	
NIGHTSHADE FAMILY	*SOLANACEAE*	
bitter nightshade	*Solanum dulcamara*	

ASTER FAMILY	*ASTERACEAE*	
horseweed	*Conyza canadensis L.*	
large-leaved aster	*Eurybia macrophylla*	
bluestem goldenrod	*Solidago caesia*	
coltsfoot	*Tussilago farfara*	
rough goldenrod	*Solidago radula*	
SEDGE FAMILY	*CYPERACEAE*	
Pennsylvania sedge	*Carex pensylvanica*	
wool-grass	*Scirpus cyperinus*	
GRASS FAMILY	*POACEAE*	
Canada bluejoint grass	*Calamagrostis canadensis*	
wood millet	*Milium effusum*	
green foxtail	*Setaria viridis*	
CATTAIL FAMILY	*TYPHACEAE*	
common cattail	*Typha latifolia*	
LILY FAMILY	*LILIACEAE*	
Canada mayflower	*Maianthemum canadense*	

Plant Species Per Community 26

Community 2

ComID: 5662

ELC Code: ES22

Common Name	*Scientific Name*	Remarks
BRACKEN FERN FAMILY	*DENNSTAEDTIACEAE*	
eastern bracken fern	*Pteridium aquilinum*	
PINE FAMILY	*PINACEAE*	
balsam fir	*Abies balsamea*	
black spruce	*Picea mariana*	
eastern hemlock	*Tsuga canadensis*	
CYPRESS FAMILY	*CUPRESSACEAE*	
eastern white cedar	*Thuja occidentalis*	
WAX-MYRTLE FAMILY	*MYRICACEAE*	
sweet gale	*Myrica gale*	
HEATH FAMILY	*ERICACEAE*	
creeping snowberry	*Gaultheria hispidula*	
wintergreen	*Gaultheria procumbens*	
lowbush blueberry	*Vaccinium angustifolium*	
PRIMROSE FAMILY	*PRIMULACEAE*	
starflower	*Trientalis borealis*	
ROSE FAMILY	*ROSACEAE*	
narrow-leaved meadowsweet	*Spiraea alba*	
MAPLE FAMILY	*ACERACEAE*	
red maple	*Acer rubrum*	
GINSENG FAMILY	*ARALIACEAE*	
wild sarsaparilla	*Aralia nudicaulis*	

ASTER FAMILY	*ASTERACEAE*	
daisy fleabane	*Erigeron annuus*	
GRASS FAMILY	*POACEAE*	
Canada bluejoint grass	*Calamagrostis canadensis*	
wood blue grass	*Poa nemoralis*	
LILY FAMILY	*LILIACEAE*	
bluebead lily	*Clintonia borealis*	

Plant Species Per Community 17

Community 3

ComID: 5663 **ELC Code:** None Applicable

Common Name	*Scientific Name*	Remarks
ROYAL FERN FAMILY	*OSMUNDACEAE*	
royal fern	*Osmunda regalis var.spectabilis*	
BEECH FERN FAMILY	*THELYPTERIDAE*	
marsh fern	*Thelypteris palustris*	
WOOD FERN FAMILY	*DRYOPTERIDACEAE*	
sensitive fern	*Onoclea sensibilis*	
PINE FAMILY	*PINACEAE*	
black spruce	*Picea mariana*	
CYPRESS FAMILY	*CUPRESSACEAE*	
eastern white cedar	*Thuja occidentalis*	
WATER-LILY FAMILY	*NYMPHACEAE*	
fragrant water-lily	*Nymphaea odorata spp. Odorata*	
ROSE FAMILY	*ROSACEAE*	
narrow-leaved meadowsweet	*Spiraea alba*	
CARROT FAMILY	*APIACEAE*	
bulbous water-hemlock	*Cicuta bulbifera*	
MILKWEED FAMILY	*ASCLEPIADACEAE*	
swamp milkweed	*Asclepias incarnata*	
NIGHTSHADE FAMILY	*SOLANACEAE*	
bitter nightshade	*Solanum dulcamara*	
FIGWORT FAMILY	*SCROPHULARIACEAE*	
square-stemmed monkeyflower	*Mimulus ringens*	
ASTER FAMILY	*ASTERACEAE*	
devil's beggar-ticks	*Bidens frondosa*	
WATER-PLANTAIN FAMILY	*ALISMATACEAE*	
broad-leaved arrowhead	*Sagittaria latifolia*	
SEDGE FAMILY	*CYPERACEAE*	
porcupine sedge	*Carex hystericina*	
hop sedge	*Carex lupulina*	
wool-grass	*Scirpus cyperinus*	
CATTAIL FAMILY	*TYPHACEAE*	
common cattail	*Typha latifolia*	

Plant Species Per Community 17

Community 4

ComID: 5664

ELC Code: ES34

Common Name	*Scientific Name*	Remarks
WOOD FERN FAMILY	*DRYOPTERIDACEAE*	
sensitive fern	*Onoclea sensibilis*	
CYPRESS FAMILY	*CUPRESSACEAE*	
eastern white cedar	*Thuja occidentalis*	
BUTTERCUP FAMILY	*RANUNCULACEAE*	
early meadow rue	*Thalictrum dioicum*	
BIRCH FAMILY	*BETULACEAE*	
white birch	*Betula papyrifera*	
MAPLE FAMILY	*ACERACEAE*	
red maple	*Acer rubrum*	
TOUCH-ME-NOT FAMILY	*BALSAMINACEAE*	
spotted jewelweed	*Impatiens capensis*	
MINT FAMILY	*LAMIACEAE*	
wild mint	*Mentha arvensis*	
ASTER FAMILY	*ASTERACEAE*	
devil's beggar-ticks	*Bidens frondosa*	
Ontario aster	*Symphyotrichum ontarionis*	
WATER-PLANTAIN FAMILY	*ALISMATACEAE*	
broad-leaved arrowhead	*Sagittaria latifolia*	
SEDGE FAMILY	*CYPERACEAE*	
porcupine sedge	*Carex hystericina*	
Virginia cotton-grass	*Eriophorum virginicum*	
wool-grass	*Scirpus cyperinus*	
GRASS FAMILY	*POACEAE*	
fowl manna grass	*Glyceria striata*	
LILY FAMILY	*LILIACEAE*	
bluebead lily	*Clintonia borealis*	

Plant Species Per Community 15

Community 5

ComID: 5665

ELC Code: W1

Common Name	*Scientific Name*	Remarks
WATER-LILY FAMILY	*NYMPHACEAE*	
bullhead pond-lily	*Nuphar variegata*	
fragrant water-lily	*Nymphaea odorata spp. Odorata*	
WATER-MILFOIL FAMILY	*HALORAGACEAE*	
Eurasian water-milfoil	*Myriophyllum spicatum*	

FROG'S-BIT FAMILY	*HYDROCHARITACEAE*	
Canada waterweed	*Elodea canadensis*	
water celery	*Vallisneria americana*	
PONDWEED FAMILY	*POTAMOGETONACEAE*	
common floating pondweed	*Potamogeton natans*	

Plant Species Per Community 6

Total Number of Plant Species 62

Appendix C

Detailed Aquatic Habitat Observations

Table 1 Detailed Aquatic Habitat Observations-Habitat Zones

Feature Type	Flow Condition	Percent Substrate Composition	Percent Instream Cover	Percent Canopy Cover (%)	Overhead Cover (%)	Watercourse Hydrology	Average Water Depth (m)	Sediment Transportation	Bank Attributes
Shoreline of Salmon Lake Habitat Zone 1	Other: Lake	30% boulder 30% cobble 20% gravel 10% sand 10% fine organics	10% boulders 10% large woody debris 5% small woody debris	0-24	5% shrubs 5% trees 5% docks	Other: Lake	0.3-2	Minimal bank erosion	Natural shoreline
Shoreline of Salmon Lake Habitat Zone 2	Other: Lake	90% fine organics 5% gravel 5% sand	50% submergent vegetation 5% emergent vegetation 5% floating vegetation	25-49	20% shrubs 10% non woody vegetation 5% woody debris	Other: Lake	0.2	Minimal bank erosion	Natural shoreline

Appendix D

Surface Water Quality Results

Appendix D Surface Water Quality Results

Water Quality Parameters	Results	CCME Parameter Range[2]
Date (dd/mm/yy)	15/08/2024	
Time (hh:mm)	12:15	
Water Depth (m)	0.5	
Sample Depth (m)	0.3	
Air Temperature (°C)	25	
Water Temperature (°C)	23.74	
Dissolved Oxygen (mg/L)[1]	9.04	5.5-6 mg/L
Total Dissolved Solids (mg/L)	0.114	
Conductivity (SPC·ms/cm)	0.178	
Salinity (ppt)	0.1	
pH	7.30	6.5-8.5
Turbidity (NTU)	0.3	N/A. Required background NTU for comparison

[1]Dissolved O2 (mg/L) Lowest acceptable dissolved oxygen concentrations. Warm water early life stages = 6mg/L. Warm water other life stages = 5.5 mg/L. Cold water early life stage 9.5mg/L. Cold water other life stage 6.5mg/L. A higher dissolved oxygen reading does not represent an out of compliance value.
[2]Greyed out cells refer to no CCME guidelines associated with water parameter.

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