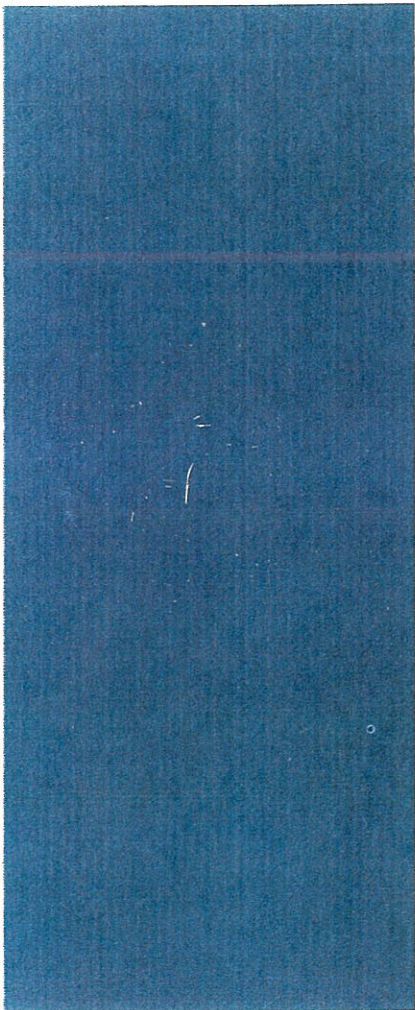


SCOPED ENVIRONMENTAL IMPACT STUDY

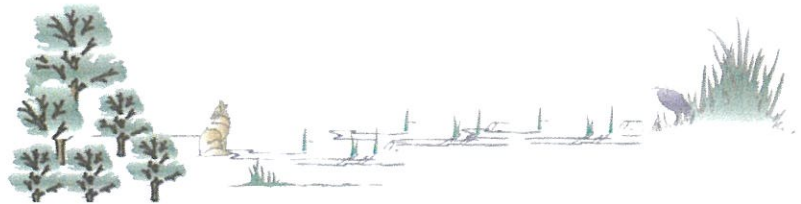


**PART OF WEST HALF OF LOT 11,
CONCESSION 12, GEOGRAPHIC
TOWNSHIP OF INNISFIL, CITY OF
BARRIE, COUNTY OF SIMCOE**

Prepared for:

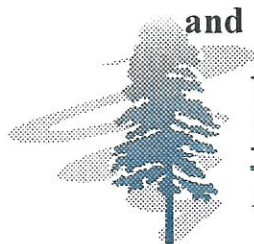
Huronia Barrie Land Inc.

March 2020



Cunningham Environmental Associates

and



Michalski Nielsen
ASSOCIATES LIMITED

ENVIRONMENTAL PLANNING BIOPHYSICAL ANALYSIS
LAKE CAPACITY ASSESSMENT RESOURCE MANAGEMENT



March 30, 2020

Huronie Barrie Land Inc.
590 Alden Road, Suite 211
Markham, Ontario L3R 8N2

Re: Barrie Annex/Innisfil – Huronie Road – Wetland delineation; Our File 2515

Dear Mr. and Mrs. Forrest:

Enclosed please find our report entitled **Scoped Environmental Impact Study - Part of West Half of Lot 11, Concession 12, Geographic Township of Innisfil, City of Barrie, County of Simcoe**, (March 2020).

Should you have any questions, or if further clarification is required, do not hesitate to call.

Yours truly,

MICHALSKI NIELSEN ASSOCIATES
LIMITED

Per:

A handwritten signature in black ink, appearing to read 'Michael Michalski'.

Michael Michalski
Senior Advisor and Limnologist

CUNNINGHAM ENVIRONMENTAL
ASSOCIATES

A handwritten signature in black ink, appearing to read 'David G. Cunningham'.

David Cunningham
Terrestrial Ecologist

MM/be

Enc.

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Letter of Transmittal

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ON ADJACENT LANDHOLDINGS (SOURCE:
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PROPERTY (SOURCE: RUDY MAK SURVEYING
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**APPENDIX C – EMAIL EXCHANGES BETWEEN LAKE SIMCOE
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2019**

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HERITAGE	INFORMATION	CENTRE
DATAQUERY WEBSITE		

1 INTRODUCTION

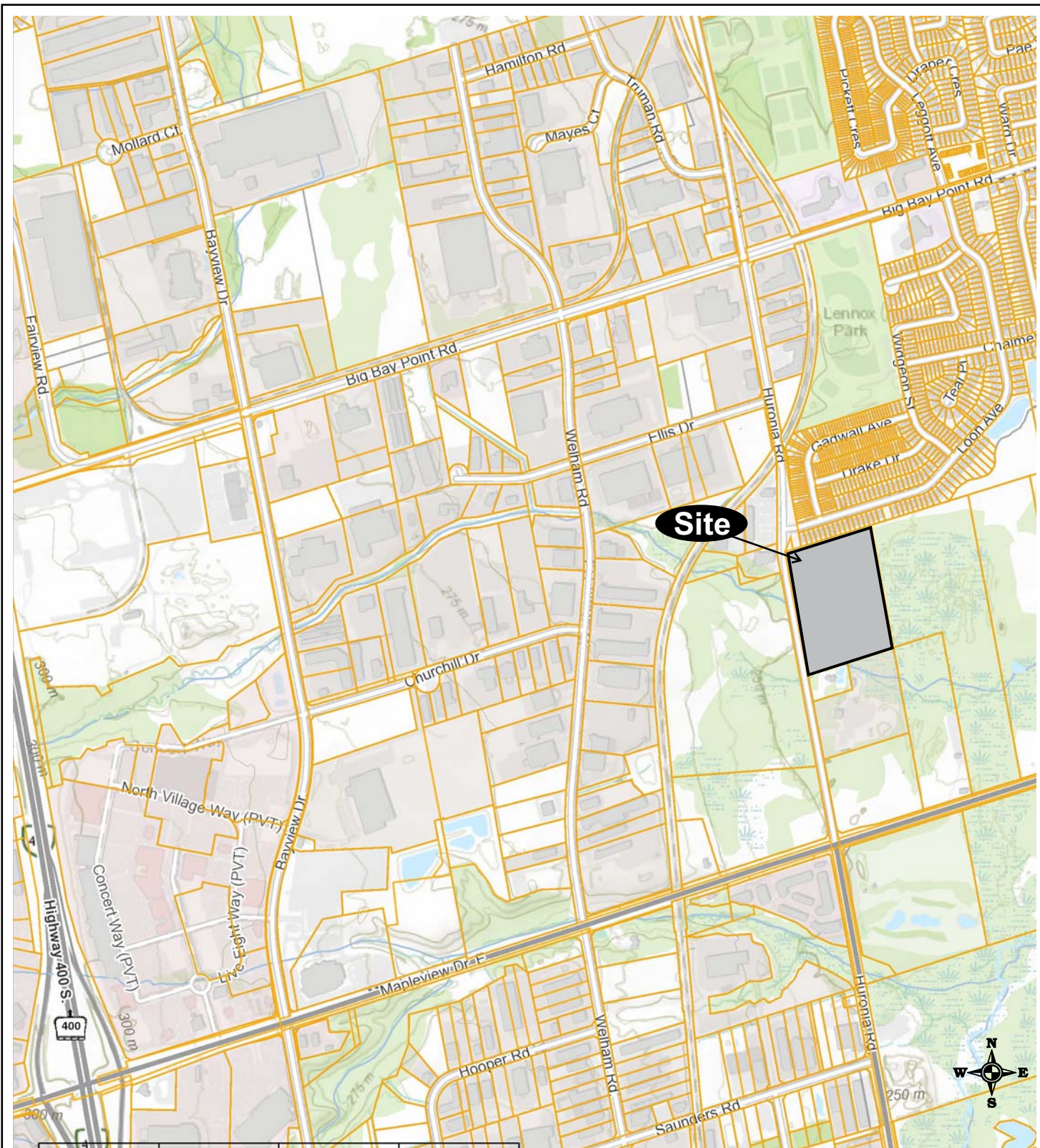
1.1 **Background**

On September 13, 2019, Michalski Nielsen Associates Limited was retained by Huronia Barrie Land Inc. to undertake a **Scoped Environmental Impact Study (SEIS)** in support of a proposed Official Plan Amendment (OPA) and Zoning Bylaw Amendment (ZBA) of property located on the eastern side of Huronia Road about 50 metres (m) south of Loon Avenue (**Figure 1**). This assignment is a continuation of a retainer that commenced in October of 2015 on behalf of previous owners. The legal description of the landholding is Part of the West Half of Lot 11, Concession 12, Geographic Township of Innisfil, City of Barrie, County of Simcoe; the municipal address is 521 Huronia Road, City of Barrie. The property is approximately 6.2 hectares (ha) in area, with about 296.8 metres (m) of frontage on Huronia Road. The current designation in **The City of Barrie Official Plan (City OP)** is General Industrial and Environmental Protection Area (Schedule A – Land Use, **Figure 2**); the proposed designation is Residential.

Initially, the primary environmental concern was that most of the property was mapped as part of the Provincially Significant Lovers Creek Wetland (PSW). In conversations with Graham Findlay, Management Biologist, Huronia Resources Management Team, Ministry of Natural Resources and Forestry (MNRF), we were informed that two wetland boundary maps had been prepared, one by the MNRF, and a second by an environmental consulting firm. The two maps were divergently different in terms of locations of individual wetland features, as well as boundary. On October 20, 2015, the boundary was ground truthed by David Cunningham (Terrestrial Ecologist with Cunningham Environmental Associates) and Graham Findlay. On January 27, 2016, a revised boundary within the subject property was issued by the MNRF (**Appendix A**); the boundary was also surveyed by Rudy Mak Surveying Ltd. (**Appendix B**).

The findings from the investigation resulted in an area of developable land in the property's northwestern quadrant. Other targeted surveys that were undertaken included breeding birds (i.e., both dawn and dusk), amphibians and botanical. Also, the habitats of known Species at Risk (SAR) were researched and evaluated prior to and during the field investigations; this included Endangered and Threatened species, as well as species of Special Concern.

A second issue related to setting out and confirming the terms of reference (ToR) for this **SEIS**. In this regard, Section 3.5.2.4 (b) of the **City OP** is quite clear on the process. It states, “. . . A standard Terms of Reference for an EIS will be established by the City in consultation with the appropriate conservation



<https://www.maps.simcoe.ca/public/>

Figure 1. Study Site Location

Scale 1:NTS*

Huronia Barrie Land Inc.

West Half Lot 11

Concession 12

Geographic Township of Innisfil

City of Barrie

County of Simcoe



subject property

Michalski Nielsen
ASSOCIATES LIMITED



Cunningham Environmental Associates

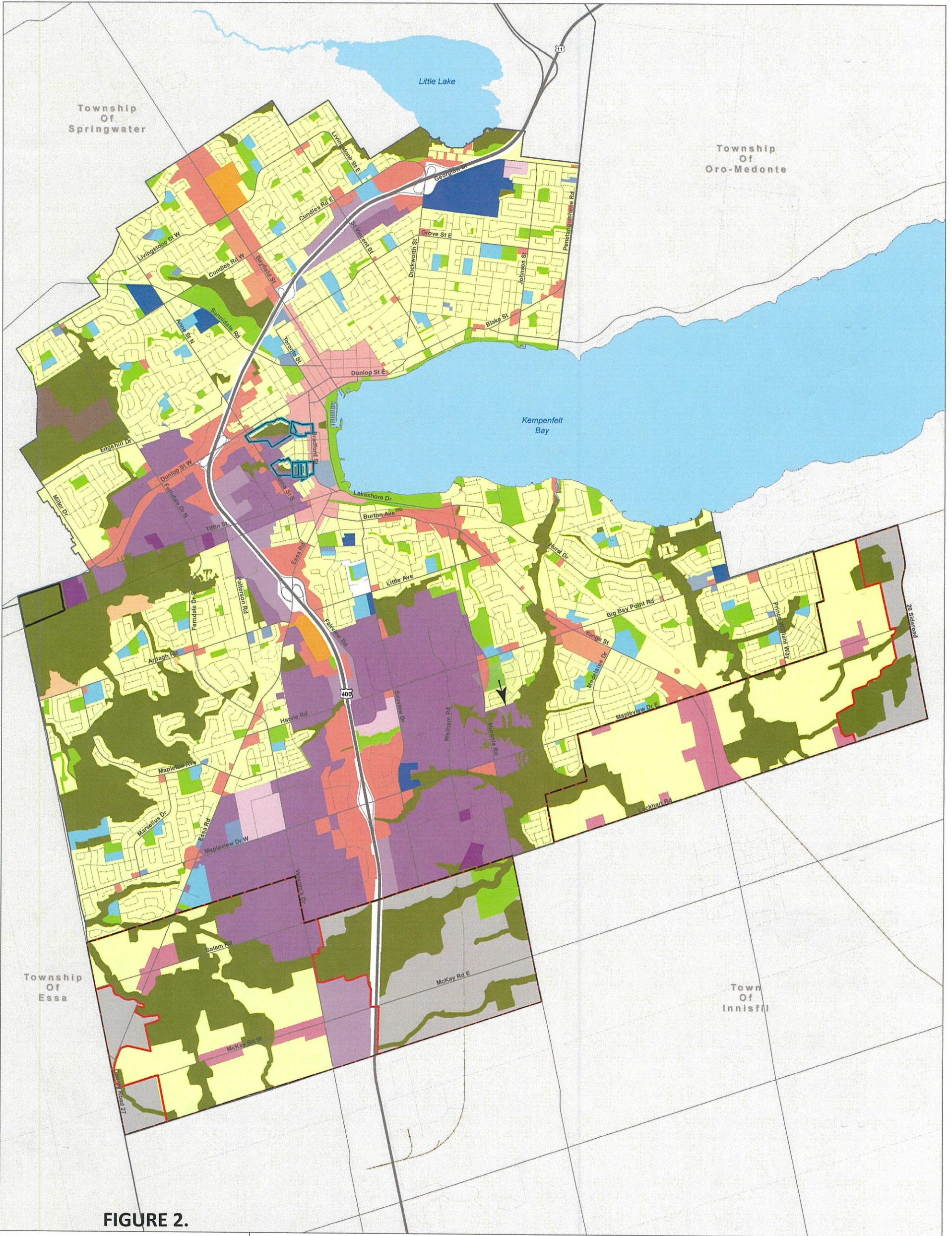


FIGURE 2.

OFFICIAL PLAN **Schedule A** **Land Use** **Office Consolidation** **January 2018**

	Residential		Institutional		Waste Disposal Area - Non decision per section 4.7.2.8
	City Centre		Educational Institutional		City Boundary
	General Commercial		Major Institutional		Application Before the Ontario Municipal Board (OMB)
	Community Centre Commercial		Open Space		Secondary Plan Boundary
	Regional Centre Commercial		Environmental Protection Area		Settlement Area Boundary
	Mixed Use Nodes and Corridors		Special Rural Area		
	Business Park		Water Treatment Centre		
	Highway 400 Industrial		Waste Management Facility		
	General Industrial		Future Urban		
	Restricted Industrial				

Barrie

1:20,000

0 0.5 1 2 km

N

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authority, and may be scoped through the development process to reflect a specific feature or function at the discretion of the City in consultation with the applicable conservation authority. Additional Natural Heritage Resources identified through a site specific EIS will be categorized by level and will be subject to the policies of this section. An amendment is not required for minor amendments to Schedule H.” Schedule H – Natural Heritage Resources (i.e., which is an overlay to Schedule A – Land Use) shows that the property is characterized as having both Level 1 and Level 1 With Existing Development Designation Subject to 3.5.2.4 (d) Resource Features (**Figure 3**). Development of the ToR was an iterative process with staff of the Lake Simcoe Region Conservation Authority (LSRCA); it involved a series of conference calls and email exchanges. The relevant documents are set out in **Appendix C** and include the following.

- Notes on June 21, 2016 conference call prepared by Michael Michalski (June 21, 2016).
- Notes on June 21, 2016 conference call prepared by Kate Lillie, Natural Heritage Ecologist (LSRCA) (June 24, 2016).
- Email responding to Kate Lillie’s June 24, 2016 email, prepared by Michael Michalski (June 28, 2016).
- Email responding to Michael Michalski’s June 28, 2016 email, prepared by Kate Lillie (June 30, 2016).
- Memorandum to Kate Lillie from Michael Michalski (July 25, 2016).
- Email from Kate Lillie to Michael Michalski (July 28, 2016).
- Email from Nicola Mitchinson (i.e., then the landowner’s Planning Consultant) to Charles Burgess, summarizing the results of a December 1, 2016 meeting with staff of the LSRCA regarding a proposed width of the buffer (December 7, 2016).
- Letter from Michael Michalski to Charles Burgess (May 28, 2018).
- Draft Terms of Reference for a **Scoped Environmental Impact Study**.
- Email chain commencing with Nicola Mitchinson’s email of May 28, 2018 to Charles Burgess (then, Manager Planning, LSRCA), and ending with Nicola Mitchinson’s email to Celeste Kitsemetry, Planner, Planning and Building Services Department, City of Barrie (June 19, 2018).

Following acceptability of the ToR on May 31, 2018 by the LSRCA, completion of the **SEIS** was placed on hold pending the subject property being purchased by Huronia Barrie Land Inc. On being re-retained, the principal author of this **SEIS** was informed that the City of Barrie’s Planning and Building Services

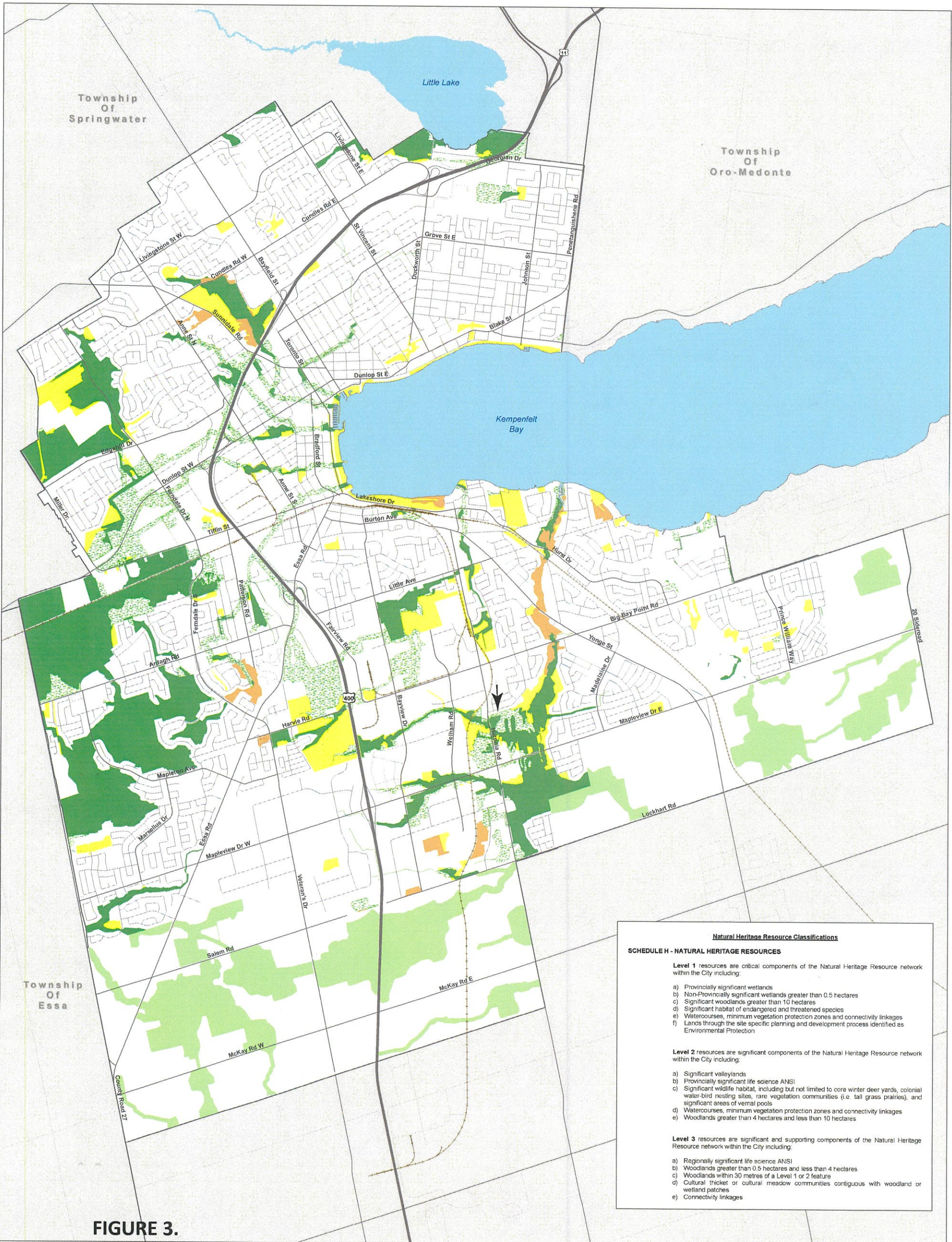
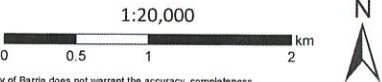


FIGURE 3.

OFFICIAL PLAN
Schedule H
Natural Heritage
Resources
Office Consolidation
January 2018

- Level 1
- Level 3
- Level 1 with Existing Development Designation Subject to 3.5.2.4 d
- Natural Heritage System Salem and Hewitt's Secondary Plan Areas
- Level 2



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Department required that the ToR be confirmed. Further consultation with the LSRCA resulted in Kate Lillie's email of October 31, 2019 (**Appendix D**).

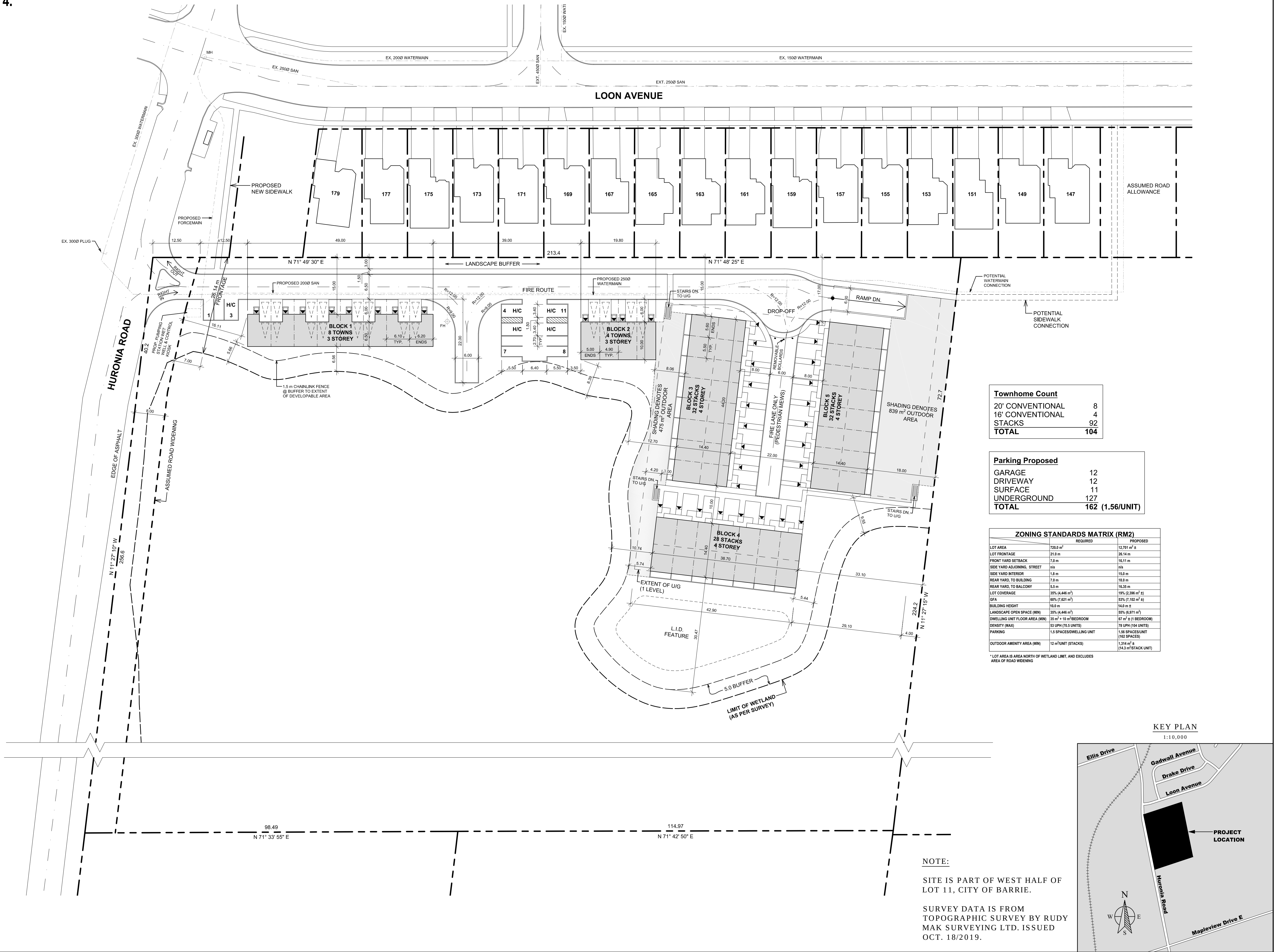
This **SEIS** is divided into a number of sections as follows:

- **Introduction**, locates the subject property, and establishes the environmental context, particularly with reference to the boundary of the PSW, and confirmation of the ToR;
- **Environmental Development Policies/Regulations**, summarizes the relevant environmental policies and LSRCA regulations relating to the proposed development applications;
- **Approach**, describes the sources of background information and data collection methods for vegetation communities, wildlife and wildlife habitats, inclusive of Species at Risk (SAR), as per Ontario's *2007 Endangered Species Act (ESA 2007)*;
- **Existing Conditions**, presents site specific conditions relating to terrestrial resources, wildlife and wildlife habitat, and SAR;
- **Resource Significance**, evaluates the biological and/or ecological significance for the various natural heritage features on the subject property;
- **Proposed Development Plan, Impact Evaluation and Mitigation**, identifies the types of biological and physical constraints to development and confirms the Site Plan (**Figure 4**); and
- **Policy Compliance, Concluding Remarks and Recommendations**.

1.2 Acknowledgements

The vegetation and wildlife components of this **SEIS** were undertaken by David Cunningham (Terrestrial Ecologist) who also provided related text, graphics, and photographs. Michael Michalski (Limnologist and Senior Advisor) directed all technical aspects of the assignment, and prepared, integrated and edited draft and final versions of the **SEIS**, inclusive of sections or parts of sections on: environmental policies; resource significance; impact assessment and mitigation; policy compliance; and conclusions and recommendations.

Figure 4.



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This drawing is not to be scaled.

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For greater clarity the Designer shall not be liable, directly or indirectly, in any manner whatsoever by any party by reason of the use of the drawings and materials referred to Herein.

ISSUES

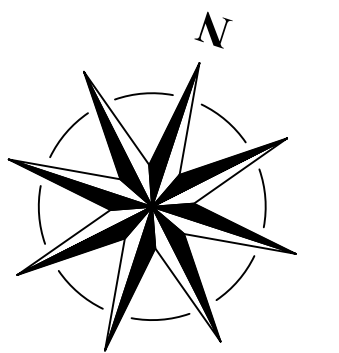
NO. DATE DESCRIPTION

1	02/25/2020	ISSUED FOR REVIEW
2	02/25/2020	ISSUED FOR COORDINATION
3	03/13/2020	ISSUED FOR OPA & ZBA

NO. DATE DESCRIPTION

REVISIONS

We Merchandise Space Inc.
590 Alden Road, Suite 211 Markham, Ont. L3R 8N2
Tel. 905.752.6776 Fax. 905 752 6781
www.forrestgroup.ca



CLIENT:

HURONIA BARRIE LAND INC.
590 ALDEN ROAD, SUITE 211,
MARKHAM, ON

PROJECT:

PROPOSED TOWNHOME COMMUNITY
521 HURONIA ROAD
BARRIE, ON.

DRAWING:

SITE PLAN

Designer: PR	Project number: 5214	DRAWING NO: A1
Drawn by: CW	Date: NOV. 2019	
Checked by: PR	SCALE: 1 : 500	

2 ENVIRONMENTAL DEVELOPMENT POLICIES/REGULATIONS

2.1 2014 Provincial Policy Statement

The **2014 Provincial Policy Statement (PPS)** came into effect on April 30, 2014, and applies to all land use planning applications either commenced or in process on that date. As an overriding policy, the **PPS** states that natural areas shall be protected in the long term. In this connection, it states that development and site alteration shall not be permitted in PSWs, and in the habitat of Endangered and Threatened species, except in accordance with provincial and federal requirements. With respect to Significant Woodlands and Significant Wildlife Habitat (SWH), no development or site alteration is permitted within these features, unless no negative impacts can be demonstrated. The **PPS** then goes on to say that development and site alteration may be permitted on adjacent lands to PSWs, Significant Woodlands and SWH, provided that the ecological functions of the adjacent lands are evaluated, and it is demonstrated that there will be no negative impacts on their features or functions. As well, the policy document reiterates the need for planning authorities to protect, improve or restore the quality/quantity of water by identifying resource systems consisting of groundwater features, hydrologic functions, natural heritage features and areas and surface water features, and maintaining linkages between these features and functions.

Policy 2.2.1 (h) is also important to the proposed residential development. It states that, “. . . Planning authorities shall protect, improve or restore the quality and quantity of water by ensuring that stormwater management practices minimize stormwater volumes and contaminant loads, and maintain or increase the extent of vegetative and pervious surfaces.” The part of the policy that is relevant in this circumstance relates to “contaminant loads”, and not stormwater volumes.

2.2 Lake Simcoe Protection Plan

There are four policies in the **Lake Simcoe Protection Plan** that relate to Settlement Areas, which would include the subject property, as follows.

6.32 – DP Policies 6.32 – 6.34 apply to existing settlement areas and areas of Lake Simcoe adjacent to these lands, including the littoral zone, and these areas are not subject to policies 6.1 – 6.3, 6.5, 6.11 and policies 6.20 – 6.29.

Of importance to the subject property, Policies 6.20 – 6.24 exclude the subject property for policies dealing with Key Natural Heritage and Key Hydrologic Features.

-
- 6.33 – DP An application for development or site alteration shall, where applicable:
- a. increase or improve fish habitat in streams, lakes and wetlands, and any adjacent riparian areas;
 - b. include landscaping and habitat restoration that increase the ability of native plants and animals to use valleylands or riparian areas as wildlife habitat and movement corridors;
 - c. seek to avoid, minimize and/or mitigate impacts associated with the quality and quantity of urban run-off into receiving streams, lakes and wetlands; and
 - d. establish or increase the extent and width of a vegetation protection zone adjacent to Lake Simcoe to a minimum of 30 metres where feasible.
- 6.34 – DP Where, through an application for development or site alteration, a buffer is required to be established as a result of the application of the PPS, the buffer shall be composed of and maintained as natural self-sustaining vegetation.

Policies 6.33 – DP (b) and (c), and 6.34 – DP are addressed in **Section 7** of this **SEIS**.

2.3 The City of Barrie Official Plan

As indicated in **Section 1.1**, Schedule A – Land Use in the **City OP** designates the subject lands as General Industrial and Environmental Protection Area (**Figure 2**). Schedule H constitutes a Natural Heritage Resource overlay to Schedule A. The subject property is characterized by Level 1, Level 1 With Existing Development Designation Subject to 3.5.2.4 d), and Level 2. Accordingly, the following policies are relevant to the subject property.

3.5.2.4 (a)

- i) **Level 1** resources represent critical components of the Natural Heritage Resource network. No development shall be permitted within these areas.
- Environmental Protection Area policy 4.7.2.2 would apply to all properties identified as Level 1.
 - The City will strive to designate all properties identified as having a Level 1 Natural Heritage Resource as Environmental Protection.
 - An Environmental Impact Study (EIS) will be required for any development or site alteration within 120 metres of an area identified as Level 1 on Schedule H.

Level 1 resources are critical components of the Natural Heritage Resources network within the City of Barrie including:

- a) Provincially significant wetlands;
 - b) Non-provincially significant wetlands greater than 0.5 hectares;
 - c) Significant woodlands greater than 10 hectares;
 - d) Significant habitat of endangered and threatened species;
 - e) Watercourses, minimum vegetation protection zones and connectivity linkages;
 - f) Lands through the site specific planning and development process identified as Environmental Protection.
- ii. **Level 2** resources represent significant components of the Natural Heritage Resource network. The features and function of these areas should be retained, however, there is potential for development if no negative impact can be demonstrated or mitigated.
- An EIS will be required to be completed for any development or site alteration in or within 120 metres of an area identified as Level 2 on Schedule H.

Level 2 resources are significant components of the Natural Heritage Resource network within the City including:

- a) Significant valleylands;
 - b) Provincially significant life science ANSI;
 - c) Significant wildlife habitat, including but not limited to core winter deer yards, colonial water-bird nesting sites, rare vegetation communities (i.e., tall grass prairies) and significant areas of vernal pools;
 - d) Watercourses, minimum vegetation protection zones and connectivity linkages;
 - e) Woodlands greater than 4 hectares and less than 10 hectares.
- c) To ensure the effective management and retention of the features and functions identified on Schedule H, a Natural Heritage Resource will not be reclassified to a lesser level of protection if the feature is intentionally damaged or destroyed. The restoration and rehabilitation of the Natural Heritage Resource to the satisfaction of the City and applicable conservation authority may be required.
- (d) Notwithstanding the land use limitations applicable to properties identified as Level 1 in Section 3.5.2.4 (a) i), where an existing designation permits other forms of development, such development may proceed subject to the policies of Level 2 in Section 3.5.2.4 (a) ii) and the appropriate planning application processes.
- (e) Where practical, the City will work with adjoining jurisdictions to provide connectivity and protection for the Natural Heritage Resources identified on Schedule H.

From the above, it is apparent that the lands proposed for development are Level 1 with Existing Development Designation Subject to 3.5.2.4 (d); these lands constitute the woodland part of the Environment Protection Area in Schedule A – Land Use. According to the Natural Heritage Resource Classification system, the feature is a Significant Woodland. The criterion for determining woodland significance is wooded areas that are greater than 10 hectares (Schedule H, **City OP**).

Section 4.7 of the **City OP** provides additional policies on Environmental Protection Areas. Those that are relevant to the subject application are as follows.

4.7.1 GOALS

- (a) To protect, conserve and manage the Environmental Protection Area lands as a permanent and long term public resource.
- (c) To protect, preserve and enhance land with environmentally significant natural features and ecological functions and to maintain and improve where possible, the diversity of natural features or ecological functions for which an area is identified.
- (d) To maintain Environmental Protection Areas as viable and natural ecosystems through the protection of the wildlife and aquatic habitats, the maintenance of the flood control and storage capacities of the flood plain, and the enhancement of the water quality and the natural water filtration capability of the system.
- (e) To identify significant natural features and their associated ecological functions in the City as part of an overall Natural Heritage Strategy and identify natural connections between the features which shall be maintained and improved as environmental corridors and ecological linkages where possible.

4.7.2 POLICIES

Lands designated as Environmental Protection Areas on Schedule A include, but are not limited to:

- (a) Provincially or locally significant features or functions such as those areas containing the following:
 - i) aquifer recharges, headwaters;
 - ii) wetlands;
 - iii) rare species including unique plants;
 - iv) important ecological functions;
 - v) significant habitat of threatened and endangered species;
 - vi) *areas of natural and scientific interest life science and earth science*;
 - vii) significant woodlands;
 - viii) *significant valleylands*;

-
- ix) *significant wildlife habitat;*
 - x) surface water features, valley and stream corridors; and
 - xi) fish habitats.
- (b) The City currently contains within its boundaries portions of three Provincially Significant Wetlands. These are the Willow Creek/Little Lake Wetland, the Lovers Creek Wetland and the Bear Creek Wetland identified on Schedule H. The area known as the Allandale Lake Algonquin Bluffs Area of Natural and Scientific Interest located in the southern portion of the Ardagh Planning Area is of Provincial significance and is also to be protected from uses that would detract from its environmental value.
- (c) Natural hazard lands and sites including areas of flood plain, erosion, steep slopes and unstable soils.

4.7.2.2 PERMITTED USES

- (a) Environmental Protection Areas are intended primarily for preservation and conservation in their natural state. Such uses as passive outdoor recreation, forestry, and wildlife management may be permitted where appropriate.
- (b) No buildings or structures shall be permitted in Environmental Protection Areas other than those necessary for flood or erosion control or for conservation purposes as approved by the City in consultation with the applicable *agencies*. Ancillary or accessory uses to permitted uses shall be located on adjacent lands outside of Environmental Protection Areas, unless their location within the Environmental Protection designation is efficient, cost effective and in the public interest, and consistent with protection of the environment; in all cases ancillary and accessory uses shall be developed in accordance with Provincial Policy.

4.7.2.3 GENERAL POLICIES

- (a) Development and site alteration in Provincially Significant Wetlands and *the significant* habitat of threatened and endangered species is contrary to the Provincial Policy Statement and will not be considered *with the exception of public works/utilities subject to Section 5.1.2.1 of this Plan*.
- (b) The redesignation of Environmental Protection Areas *to a designation that permits development and site alteration* shall be discouraged.
- (c) Where an application is made to redesignate Environmental Protection lands other than Provincially Significant Wetlands and the habitat of threatened and endangered species, the City shall require the completion of an Environmental Impact Study to the satisfaction of the City in consultation with the Ministry of Environment, the applicable Conservation Authority and any other relevant agency.
- (d) An amendment to the Environmental Protection Area designation shall only be considered where the results of an environmental study clearly demonstrate that there will be no negative impacts on the natural features or ecological functions for which the Environmental Protection Area has been identified *with the exception of provincially significant wetlands and habitat of threatened and endangered species*.

-
- (e) Development and site alteration shall not be permitted in fish habitat areas except in accordance with Provincial and Federal requirements.
 - (f) Environmental Protection Areas shall not be acceptable as part of the dedication for parkland as required under the *Planning Act*. The City shall seek to acquire such lands by dedication from land owners.
 - (g) All lands dedicated to the City shall be conveyed in a physical condition satisfactory to the City. Where a valley or stream corridor area is to be dedicated, it shall include the watercourse and associated riparian vegetation, floodplain or erosion hazard lands, top of bank and any additional lands deemed necessary to protect ecological functions, or for pedestrian corridors, wildlife habitat, natural area viewing, and maintenance operations.
 - (h) Where lands under private ownership are designated Environmental Protection Area, these lands shall not be utilized for the purposes of density calculations for the developable portions of the subject property.

4.7.2.4 ADJACENT LANDS

- (a) Development and/or site alteration may be permitted on lands adjacent to Environmental Protection Areas if it has been demonstrated through an Environmental Impact Study (EIS) that it will not negatively impact the natural features or ecological functions for which the area is identified. The diversity of natural features in the area and the natural connections between them should be maintained and improved where possible.
- (b) *Adjacent lands are defined by the MNR Natural Heritage Reference Manual as being located 120 metres from a provincially significant wetland and endangered and threatened species habitat, 50 metres from significant woodlands, significant valleylands, significant wildlife habitat, and areas of natural and scientific interest and 30 metres from fish habitat*
- (c) Where the Conservation Authorities have undertaken *mapping and regulations* are in place, approval for any development must be obtained from the relevant Authority.
- (d) The City may consider the reduction or re-allocation of development densities in order to preserve existing woodlots, mature trees and other natural areas and features which are not identified within the Environmental Protection Area designation.
- (e) Where additional buffer areas or connecting links required to maintain ecological function outside of lands designated Environmental Protection re recommended to protect the natural features and functions within lands designated Environmental Protection, these lands shall be designated and zoned Environmental Protection.

4.7.2.5 SURFACE WATER FEATURES, WATERCOURSES AND VALLEY LANDS

- (a) Development and site alteration shall be restricted in or near sensitive surface water features and their related hydrological functions will be protected, improved, or restored.

-
- (b) Mitigating measures and/or site alternative development approaches may be required in order to protect, improve, or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions.
 - (c) Valley and stream corridors shall be protected from development and integrated as part of the natural heritage system network accommodating wildlife and pedestrian movement and passive areas.
 - (d) In reviewing any development proposal adjacent to a valley and stream corridor, the City will require the protection and/or enhancement of the feature and its functions to facilitate a natural, open space corridor. The feasibility of rehabilitating watercourses to a natural state will be considered at the time of such review.
 - (e) Development limits shall be established by the limit of the valley or stream corridor which shall include the watercourse, and associated riparian vegetation, floodplain or erosion hazard lands, top of bank and any additional lands, such as buffers deemed necessary to protect ecological functions. All lands associated with the valley and stream corridor shall be zoned Environmental Protection and shall not form part of the development.
 - (f) Where a watercourse supports warm or cold water fish habitat, an appropriate riparian vegetation zone shall be required. Land uses within the vegetation zone shall be restricted to those which maintain or enhance the natural features and ecological functions of the area.
 - (g) Emphasis shall be placed on the potential development of Lovers, Bear, Hewitt's, Sophia, Kidd's, Bunker's, Dymont's, Hotchkiss and Whiskey Creeks, as linear open space corridors. As part of the municipal approvals process, the City shall seek to acquire these areas.
 - (h) *Development and site alteration shall not be permitted in significant valleylands unless it has been demonstrated by the proponent, to the satisfaction of the City, that there will be no negative impacts on their natural features and ecological functions*

4.7.2.6 WOODLANDS AND HEDGEROWS

- (a) Development and site alteration shall not be permitted in significant woodlands unless it has been demonstrated that there will be no negative impacts on the natural features and ecological functions.
- (b) Woodlands shall generally be defined as a contiguous wooded area, of no less than 0.2 ha, irrespective of ownership, maturity, composition, and density in accordance with the City's Tree Preservation By-law.
- (c) Where an Environmental Protection Area consists of a woodland, the City will control development adjacent to this area to prevent destruction of trees.

4.7.2.7 WILDLIFE HABITAT

- (a) *Development and site alteration shall not be permitted in significant wildlife habitat unless it has been demonstrated by the proponent, to the satisfaction of the City, that there will be no negative impacts on their natural features and ecological functions.*

2.4 Ontario Regulation 179/06: Lake Simcoe Region Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses

Because the entire subject property is within 120 m of a PSW, it is governed by Ontario Regulation 179/06 under the *Conservation Authorities Act* (**Figure 5**). A permit from the LSRCA will be required prior to any site alteration or development. Relevant sections of the Regulation are as follows.

In the late spring of 2006, the Generic Regulation 179/06 under the *Conservation Authorities Act* came into effect for the LSRCA. Relevant sections are as follows.

Development prohibited

2. (1) Subject to section 3, no person shall undertake development, or permit another person to undertake development in or on the areas within the jurisdiction of the Authority that are,
 - d) wetlands; or
 - e) other areas where development could interfere with the hydrologic function of a wetland, including areas within 120 metres of all provincially significant wetlands, and areas within 30 metres of all other wetlands, but not including those where development has been approved pursuant to an application made under the Planning Act or other public planning or regulatory process.

Permission to develop

3. (1) The Authority may grant permission for development in or on the areas described in subsection 2 (1) if, in its opinion, the control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development. (2) The permission of the Authority shall be given in writing, with or without conditions.

Alterations prohibited

5. Subject to section 6, no person shall straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse or change or interfere in any way with a wetland.

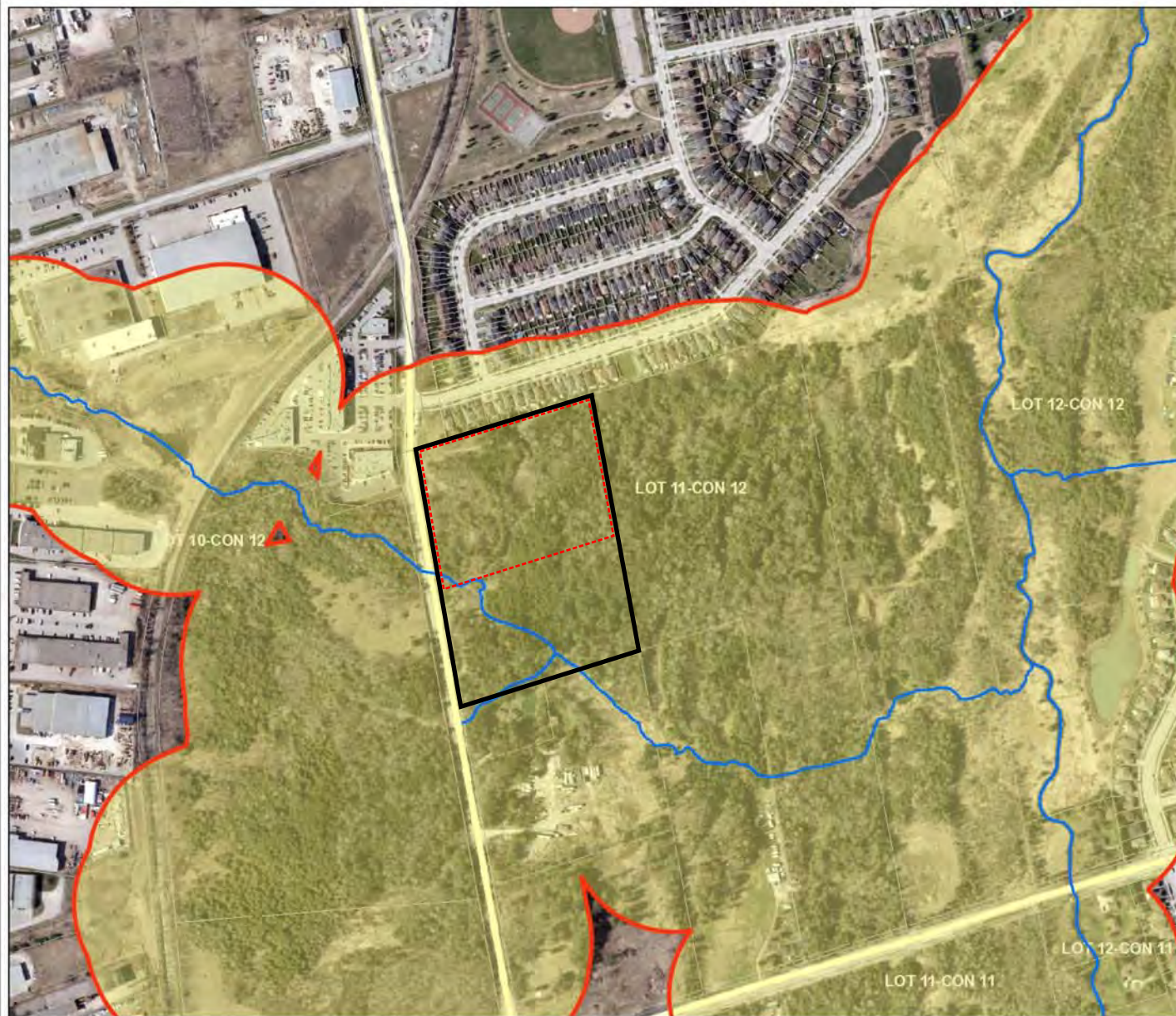
Permission to alter

6. (1) The Authority may grant a person permission to straighten, change, divert or interfere with the existing channel of a river, creek, stream or watercourse or to change or interfere with a wetland.
 - (2) The permission of the Authority shall be given in writing, with or without conditions.



Lake Simcoe Region
conservation authority

521 Huronia Road, Barrie



Features

- Regulation Map Index
- LSRCA Watershed Boundary
- Lake Simcoe
- Watercourse
- Regulated Area Boundary
- Regulated Area
- Assessment Parcel
- Lot and Concession
- Roads**
 - Hwy 400 Series
 - Highway, Arterials
 - Local Road
- Railway

FIGURE 5.

property boundary
& study area (internal)

Printed On:
9/18/2017



WGS_1984_Web_Mercator_
Auxiliary_Sphere

Mapped By: DGC

This product was produced by the Lake Simcoe Region Conservation Authority and some information depicted on this map may have been compiled from various sources. While every effort has been made to accurately depict the information, data/mapping errors may exist. This map has been produced for illustrative purposes from an interactive web mapping site. LSRCA GIS Services DRAFT printed 2017. © LAKE SIMCOE REGION CONSERVATION AUTHORITY, 2017. All Rights Reserved. The following data sets of Assessment Parcel, Roads, Upper & Lower Tier Municipalities, Wetlands are © Queens Printer for Ontario. Reproduced with Permission, 2017. The Current Regulation Limit and Boundary data sets are derived products from several datasets. © First Base Solutions, Inc., 2008, 2013, 2016 Orthophotography

Scale 1: 7,077



2.5 **2007 Endangered Species Act**

The *ESA 2007* came into effect in Ontario in 2007, and provided for immediate protection of all species on the Species at Risk in Ontario (SARO) list. This protection is afforded under Section 9(1) of the *Act*, which reads as follows:

Prohibition on killing, etc.

9.(1) No person shall,

- a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;
- b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,
 - (i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;
 - (ii) any part of a living or dead member of a species as referred to in subclause (i),
 - (iii) anything derived from a living or dead member of a species referred to in subclause (i); or
- c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b)(i), (ii) or (iii). 2007, c.6, s.9(1).

Additionally, the *ESA* affords habitat protection to species on the SARO list. The relevant portions of the *Act* are found under Sections 10(1) through 10(3) and are reproduced as follows.

Prohibition on damage to habitat, etc.

10(1) No person shall damage or destroy the habitat of,

- (a) a species that is listed on the Species at Risk in Ontario List as an endangered or threatened species; or
- (b) a species that is listed on the Species at Risk in Ontario List as an extirpated species, if the species is prescribed by the regulations for the purpose of this clause. 2007, c.6, s. 10(1).

Also important is the definition of habitat under the *ESA*, which is described under Section 2(1) as follows.

- “Habitat” means,
 - (a) With respect to a species of animal, plant or other organism for which a regulation made under clause 55 (1) (a) is in force, the area prescribed by that regulation as the habitat of the species, or
 - (b) With respect to any other species of animal, plant or other organism, an area on which the species depends, directly or indirectly, to carry on its life processes, including life processes such as reproduction, rearing, hibernation, migration or feeding, and includes places in the area describe din clause (a) or (b), whichever is applicable, that are used by members of the species as dens, nets, hibernacula or other residence; (habitat).
- Definition of “habitat”, cl. (b)
 - (2) For greater certainty, clause (b) of the definition of “habitat” in subsection (1) does not include an area where the species formerly occurred or has the potential to be reintroduced unless existing members of the species depend on that area to carry on their life processes. 2007,c.6, s.2 (2).

It is important to note that the landowner, as well as the individual or organization carrying out any activities on those lands, are both subject to the enforcement and penalty provisions of the *ESA* should Sections 9 or 10 be contravened.

The Ministry of Natural Resources and Forestry (MNR¹) provides a document entitled **Categorizing and Protecting Habitat Under the *ESA*** that outlines the overall approach and considerations that it uses in determining whether a proposed activity is likely to damage or destroy habitat protected under subsection 10(1). The following is provided from that document.

Not every activity that occurs within or near habitat will damage or destroy that habitat. Determining whether a proposed activity is likely to damage or destroy the habitat of an endangered or threatened species requires the consideration of the activity details, which parts of habitat are likely to be altered by the activity, and how the alteration may affect the species’ ability to carry out its life processes.

3.1.1 Damaging Habitat

An activity that damages the habitat of a species is one that alters the habitat in ways that impair the function (usefulness) of the habitat for supporting one or more of the species’ life processes.

¹ Note that the Ministry of Natural Resources (MNR) changed to the Ministry of Natural Resources and Forestry in 2014, and for purposes of this **EIS**, the acronyms are interchangeable.

3.1.2 Destroying Habitat

An activity that destroys the habitat of a species is one that alters the habitat in ways that eliminate the function (usefulness) of the habitat for supporting one or more of the species' life processes.

In some cases, the anticipated alteration that a proposed activity will have on habitat may be so minor that the function of the habitat for supporting the species' life processes will not become impaired or eliminated. In such cases the activity would not contravene subsection 10(1) of the ESA and would not require authorization under the Act with respect to this provision. In other cases, the alteration may be more significant such that the function of the habitat for supporting one or more of the species' life processes may become impaired or eliminated. Such activities would contravene subsection 10(1) of the ESA and would require authorization under the Act prior to proceeding.

While in most projects, mitigation measures can be implemented to protect against killing, harming or harassing a living member of a protected species, in many geographic areas it is more difficult to carry out a project without damaging, or having some influences on, the habitat of all SARO listed species. MNRF has a permitting process which allows activities which would otherwise be prohibited under Sections 9 or 10 of the **ESA 2007**, which is described under Section 17. The most relevant portions of that Section, as it pertains to this project, are included as follows:

Permits

- 17.(1) The Minister may issue a permit to a person that, with respect to a species specified in the permit that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species, authorizes the person to engage in an activity specified in the permit that would otherwise be prohibited by section 9 or 10. 2007, c.6, s. 17(1).

Limitation

- (2) The Minister may issue a permit under this section only if,
- (a) the Minister is of the opinion that the activity authorized by the permit is necessary for the protection of human health or safety;
 - (b) the Minister is of the opinion that the main purpose of the activity authorized by the permit is to assist, and that the activity will assist, in the protection or recovery of the species specified in the permit;
 - (c) the Minister is of the opinion that the main purpose of the activity authorized by the permit is not to assist in the protection or recovery of the species specified in the permit, but,

-
- (i) the Minister is of the opinion that an overall benefit to the species will be achieved within a reasonable time through requirements imposed by conditions of the permit,
 - (ii) the Minister is of the opinion that reasonable alternatives have been considered, including alternatives that would not adversely affect the species, and the best alternative has been adopted, and
 - (iii) the Minister is of the opinion that reasonable steps to minimize adverse effects on individual members of the species are required by conditions of the permit.

Section 17(2)(c)(i) establishes the principle of “overall benefit” in providing an opportunity to allow projects to proceed where there has been an holistic approach to understanding the relationship of that project to the environment, where the habitat of species regulated under the *ESA* has been properly considered, and where the proponent has designed the project in a manner that achieves an overall benefit to such species.

3 APPROACH

3.1 Collection of Background Information

In preparing this **SEIS**, existing information pertaining to the natural environmental features was obtained mostly from the Natural Heritage Information Centre (NHIC) dataquery web-site for significant natural areas and site element occurrence records for rare species (NHIC 2020), and Land Information Ontario (LIO), including contacts with the MNRF Midhurst District. The **Ontario Breeding Bird Atlas (OBBA)** web-site was reviewed for general data on typical breeding birds in the area (**Bird Studies Canada et al.** 2006). An on-site meeting was conducted with Graham Findlay (Habitat Management Biologist) on October 20, 2015, as well as procurement of file information (e.g., wetland maps). In addition to the NHIC and LIO web-sites, various published natural environmental reports, figures, lists and **City OP** schedules for the subject property and local geographical area were reviewed. These included but were not limited to the following:

- **Life Science Areas of Natural and Scientific Interest in Site District 6-8 - A Review and Assessment of Significant Natural Areas in Site District 6-8** (Hanna 1984);
- **Natural Heritage Resources of Ontario: Bibliography of Life Science Areas of Natural and Scientific Interest (ANSIs) in Ecological Site Regions 6E and 7E, Southern Ontario** (Riley *et al.* 1997);
- **Ontario Breeding Bird Atlas Square 17PK01** (**Bird Studies Canada et al.** 2006);
- **Lovers Creek Wetland Complex Data Record and Map** (Wolfe *et al.* 2010);
- **Google Earth Pro Coloured Orthophotography** (2010, 2014, 2015, 2016, 2017, 2019)
- **Simcoe County GIS Orthophotography and Overlays** (2020);
- **Natural Heritage System for the Lake Simcoe Watershed – Phase 1: Components and Policy Templates** (2007); and
- **Lake Simcoe Protection Plan** (2009).

As described earlier, discussions and correspondence with City of Barrie and LSRCA staff were undertaken to establish a Terms of Reference (TOR), as well as a Table of Contents (TOC) for this **SEIS**. In addition, applicable development policies, guidelines, and LSRCA's Ontario Regulation 179/06 pertaining to wetland attributes, functions and buffers were reviewed.

3.2 Vegetation Surveys, Delineation and Confirmation of Part of Lovers Creek Wetland Complex

As part of the site reconnaissance and botanical inventories, coloured orthophotographs were obtained and interpreted to ascertain the general biophysical (e.g., drainage, topography, soils) and vegetation communities and floristics (e.g., cultural, terrestrial, wetland and aquatic) characteristics on and abutting the subject property, with an emphasis on the north half, and in particular in the proposed development area.

Based on aerial photograph interpretation and site visits conducted on June 23 and October 20, 2015; and May 5, June 28, July 29 and September 2, 2016. The boundaries and types of general vegetation communities were delineated and mapped onto an aerial photograph base. Partial boundaries of some of the on-site PSW features were refined in-situ with Graham Findlay on October 20, 2015. This included flagging relevant wetland unit boundaries with orange flagging tape (#W1-#W14 and #W30-#W35) with their locations eventually plotted onto a Plan of Survey (Rudy Mak Surveying Ltd 2018) (**Appendix B**). The wetland unit boundaries at these specific locations assisted in establishing the potential development areas on-site, from which to design the Site Plan (**Figure 4**).

As agreed by LSRCA staff, data collected by Azimuth Environmental Consulting Inc. for a previous landowner could be included in this **SEIS**. The data included vegetation communities and flora which were collected on May 12, June 8 and June 12, 2006; and May 22, June 27 and August 19, 2014 based on digital files provided by Azimuth.

3.3 Identification and Characterization of Vegetation Communities (ELCs)

The botanical inventories (i.e., vegetation communities and floristics) included the cultural, terrestrial and wetland feature within the northern half of the subject property, as well some abutting features and respective land uses. Classification of the vegetation communities and boundaries were determined according to species composition and physiognomic characteristics. The boundaries were delineated through aerial photograph interpretation and revised and/or confirmed through ground-truthing during all site inventories. Dominant plant species (e.g., trees, shrubs, vines and herbaceous) observed during the 2015 and 2016 site inventories of the relevant cultural, terrestrial and wetland features were noted and recorded, including a compilation of representative photographs. The botanical database was supplemented with information collected by Azimuth in 2006 and 2014. Given that the main woodland

features were predominantly comprised of eastern white cedar (*Thuja occidentalis*) and poplars (*Populus tremuloides*, *P. balsamifera*, *P. grandidentata*), a master plant species list was compiled by feature type, namely cultural, terrestrial and wetland for the northern half of the subject property.

The delineation and characterization of the vegetation communities followed the MNRF Ecological Land Classification (ELC) system and codes. Where applicable, these communities are described following the terminology of the ELC system, an **Ecological Land Classification for Southern Ontario – First Approximation and Its Application** (Lee *et al.* 1998), with updated codes contained in Lee (2008). In addition to the ELC system, additional characterization of the on-site vegetation communities was aided through a review of the **Natural Heritage Resources of Ontario: Vegetation Communities of Southern Ontario** (Bakowsky 1997).

As defined in Lee *et al.* (1998), an Ecosite, “is a mappable landscape unit defined by a relatively uniform parent material, soil and hydrology, and consequently supports a consistently recurring formation of plant species which develop over time (vegetation chronosequence).” Within each ecosite landscape unit, there are a variety of vegetation types. A vegetation type, “is a part of an ecosite, and represents a specific assemblage of species which generally occur in a site with a more uniform parent material, soils and hydrology, and a more specific stage within a chronosequence.”

The classification of the general vegetation communities is characterized according to species composition and physiognomic characteristics. The nomenclature for the flora observed is consistent with and relied on the following published authorities:

- Lycopodiaceae to Aspleniaceae – Cody, W. J., and D. F. Britton. 1989. **Fern and Fern Allies of Canada**. Publication 1829/E, Agriculture Canada, Research Branch, Ottawa.
- Taxaceae to Orchidaceae – Voss, E. G. 1972. **Michigan Flora. Part 1: Gymnosperms and Monocots**. Cranbrook Institute of Science and University of Michigan Herbarium. Bulletin 55.
- Saururaceae to Cornaceae – Voss, E. G. 1985. **Michigan Flora. Part 2: Dicots**. Cranbrook Institute of Science and University of Michigan Herbarium. Bulletin 59.
- Pyrolaceae to Compositae – Voss, E. G. 1996. **Michigan Flora. Part 3: Dicots**. Cranbrook Institute of Science and University of Michigan Herbarium. Bulletin 61.
- Newmaster, S. G., A. Lehela, P. W. C. Uhlig, S. McMurray, M. J. Oldham, and Ontario Forest Research Institute. 1998. **Ontario Plant List**. FRI Paper No. 123.

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- Bradley, D. J. 2013. **Southern Ontario Vascular Plant Species List**. 3rd Edition. Science & Information Branch Southern Science and Information Section. Ontario Ministry of Natural Resources, Peterborough, Ontario. SIB SSI SR-03, 78 p.

The rarity or significance for vegetation communities and vascular plants (floristics) on the subject property was determined from standard status lists, published literature, the NHIC and LIO data-query web-sites (NHIC 2020, LIO 2020). Sources for flora included Bakowsky (1997), Committee on the Status of Endangered Wildlife in Canada (2020), Province of Ontario (2007), Oldham and Brinker (2009) and Riley *et al*, (1989). Rare plant species included those listed and/or regulated under the Province of Ontario (2007 *ESA*), as amended. The determination for plant species rarity consisted of a straightforward comparison of the subject property plant species with those listed in the source references.

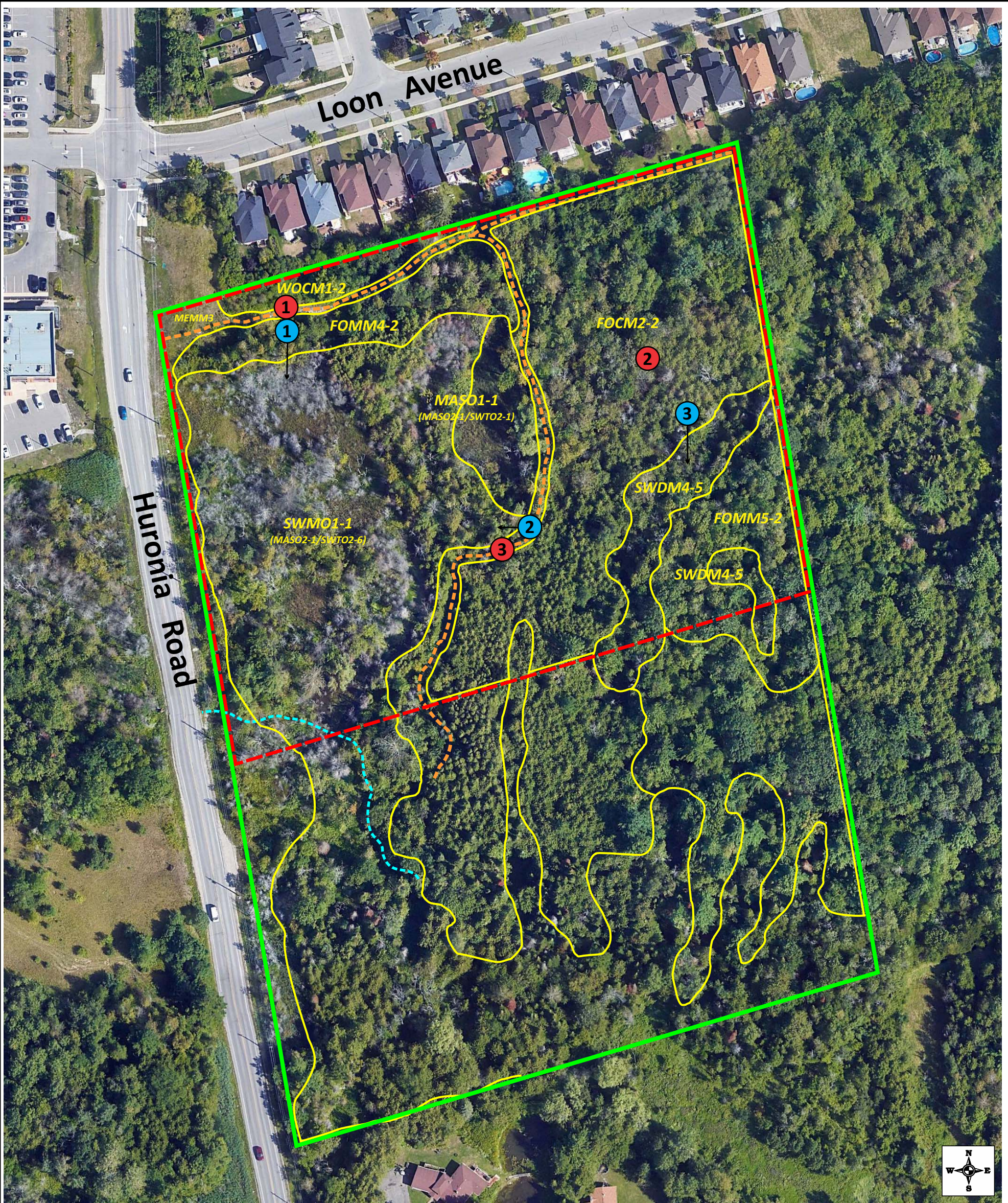
3.4 Evening Amphibian Call Surveys

Incidental observations of amphibians and formal surveys were recorded during all day-time and night-time field surveys pertaining to the wetland boundary flagging, and vegetation communities and floristics and wildlife surveys (June 23 and October 20, 2015; and May 5, June 28, July 29 and September 2, 2016). Amphibian use on and abutting the subject property (northern half) was supplemented by field data provided by Azimuth (May 12, June 8 and 13, 2006; and May 22, June 27 and August 19, 2014).

Evening calling amphibian (e.g., frogs and toads) surveys were undertaken on: May 22, 2014; and May 5 and June 28, 2018, following the methods of the **Marsh Monitoring Program (Bird Studies Canada 2009)**. Surveys were undertaken at one (1) on-site fixed station on May 22, 2014, and two (2) different on-site stations on May 5 and June 28, 2018. The locations of each evening amphibian call station are shown on **Figure 6**.

3.5 Dawn Breeding Bird Surveys

Dawn breeding bird surveys were completed between a start time of 06:30 hr and an end time 08:30 hr on June 28, 2016, with a survey duration of at least 10 minutes by David Cunningham. Previous breeding bird surveys by Azimuth were undertaken between a search time of 06:15 hr and 07:50 hr on June 8, 2006 and 05:45 hr and 07:30 hr on June 13, 2006, at one (1) fixed breeding bird point count station, as illustrated on **Figure 6**. During all floral and faunal inventories (i.e., by roving routes), the presence of bird species both on and off-site were noted. Surveys were undertaken during favourable weather



*www.google.com/earth/earth-pro

Scale 1:4000 (approx.)

Figure 6. Dawn Breeding Bird Count Stations
Evening Amphibian Call Stations

Huronia Barrie Land Inc.
West Half Lot 11
Concession 12
Geographic Township of Innisfil
City of Barrie
County of Simcoe

- subject property boundary (approx.)
- - - study area
- - - Lover's Creek Tributary
- ① Dawn Breeding Bird Point Count Station
- ← ② Evening Amphibian Call Station

- FOCM2-2 Dry-Fresh White Cedar Mineral Coniferous Forest
- FOMM4-2 Dry-Fresh White Cedar- Poplar Mixed Forest
- FOMM5-2 Dry-Fresh Poplar-White Cedar Mixed Forest
- WOCM1-2 Dry-Fresh White Cedar Coniferous Woodland
- MEMM3 Dry-Fresh Native Mixed Regeneration Thicket
- SWMM1-1 White Cedar Hardwood Mineral Mixed Swamp
- SWMO1-1 White Cedar Hardwood Organic Mixed Swamp
- MASO1-1 Cattail Organic Shallow Marsh
- SWDM4-5 Poplar Mixed Deciduous Swamp

conditions (i.e., calm wind, partly sunny to cloudy conditions and no precipitation) following the survey methods and breeding evidence codes of the **Ontario Breeding Bird Atlas (Bird Studies Canada et al. 2006)**.

All bird species seen, heard or through evidence of presence (i.e., nests, feathers) on or adjacent to the subject property (northern half) were tallied. Observations were coded using the behavioural codes of the **OBBA** (e.g., S – Singing Male, P – Pair, etc.). Weather conditions during each survey included air temperature, wind speed and direction, cloud cover, and precipitation.

3.6 Other Wildlife

Mammals: Incidental observations of mammals were recorded during all day-time and night-time field surveys pertaining to the wetland boundary flagging, and vegetation communities and floristics and wildlife surveys (June 23 and October 20, 2015; and May 5, June 28, July 29 and September 2, 2016). Mammal use on and abutting the subject property (northern half) was supplemented with field data provided by Azimuth (May 12, June 8 and 13, 2006; and May 22, June 27 and August 19, 2014).

Reptiles: Incidental observations of reptiles were recorded during all day-time and night-time field surveys related the wetland boundary flagging, and vegetation communities and floristics and wildlife surveys (June 23 and October 20, 2015; and May 5, June 28, July 29 and September 2, 2016). Reptile use on and abutting the subject property (northern half) was supplemented by field data undertaken and provided by Azimuth (May 12, June 8 and 13, 2006; and May 22, June 27 and August 19, 2014).

Standard lists and published literature used but not limited to determine the status or rarity of fauna included Committee on the Status of Endangered Wildlife in Canada (2020), Province of Ontario (2007), Ministry of Natural Resources and Forestry (2008), **Bird Studies Canada et al. (2006)**, Cadman *et al.* (2007), Lake Simcoe Region Conservation Authority (2007), Austen *et al.* (1994), Dobbyn (1994) and Plourde *et al.* (1988). The determination for wildlife species rarity consisted of a straightforward comparison of the subject property wildlife species with those listed in the source references.

3.7 Fish and Fish Habitat

No fish habitat or fish biomass inventories were undertaken of the Lovers Creek tributary which traverses part of the subject property in a northwest to southeast direction, nor was such an investigation warranted given that the creek is well-removed from the proposed development area. Fisheries data was garnered

from **Barrie Creeks, Lovers Creek, and Hewitt's Creek Subwatershed Plan** (Lake Simcoe Region Conservation Authority 2012), **City of Barrie Master Drainage Plan** (Draft C.C. Tatham & Associates Ltd. 2017) and Hawke *et al.* (2010).

It is to be noted that not all species reported in Lovers Creek are or may be specific to the subject property, given the likelihood of fish barriers. The permanent coldwater tributary is one of many, all connected to the main branch of Lovers Creek which eventually drains to Kempenfelt Bay. Regardless, the tributary is an inclusion within the PSW and/or the City of Barrie's Environmental Protection Area designation; it is well buffered from the proposed development area.

4 EXISTING CONDITIONS

4.1 Land Use

For purposes of this **SEIS**, the subject property consists of the Huronia Barrie Land Inc. property, located on the West Half Lot 11, Concession 12, Geographic Township of Innisfil, City of Barrie, in the County of Simcoe (Rudy Mak Surveying Ltd. 2018). The parcel lies approximately 700 m north of the intersection of Huronia Road and Mapleview Drive East. Huronia Road borders the subject property to the west, with as-built single-family residential lots along Loon Avenue to the north. Scattered as-built residential lots and light industrial uses (i.e., sand and gravel operation) and vacant woodland/wetland features lie to the south. To the east lies vacant woodland and wetland features.

There are no structures on-site, with most of the land use consisting of upland and lowland mixed and coniferous woodland, old field, cultural mixed woodland and thicket, and wetland units of the PSW Complex (Hawke, Eplett and Stevenson 2010). There is a tributary of Lovers Creek which traverses the west quadrant of the subject property on the parcel's southern half and drains in a northwest to southeast direction.

Proposed access to the subject property is off of Huronia Road. **Photograph 1** shows the south view along Huronia Road near the proposed entrance and **Photograph 2** shows the north view towards the signalled intersection with Loon Avenue. Land use to the west of Huronia Road is an as-built commercial plaza (**Photograph 3**). Land uses to the north include a vacant parcel (i.e., mowed grassland and shrubs) owned by the City of Barrie (**Photograph 4**), along with as-built residential lots along the southern edge of Loon Avenue (**Photographs 5 and 6**). Land use to the east is primarily vacant land comprised of wetland units of the PSW and contiguous lowland and upland coniferous and mixed woodlands (**Photograph 7**).

4.2 Vegetation

4.2.1 Regional Vegetation

The subject property is within Site District 6E-8 and abuts the eastern edge of Site District 6E-6, which is part of the large Site Region 6E. Site District 6E-8 consists of a wide band extending from south of Lake Simcoe, eastward to the Bay of Quinte, including Lake Scugog, Rice Lake and the southern section of the Kawartha Lakes. It is generally described as an area of drumlinized till with local areas of water-lain silt and clay. The majority of the site district is contained within the Peterborough Drumlin Field, a



Photograph 1. Southward view of Huronia Road at proposed property access



Photograph 2. Northward view of Huronia Road and signalized intersection with Loon Avenue



Photograph 3. Westward view from proposed subject property entrance of commercial land use (plaza) on west side of Huronia Road



Photograph 4. View of a small block of manicured grass and scattered shrubs (e.g., staghorn sumac, common buckthorn, choke cherry) owned by the City of Barrie, on the north side of the proposed subject property access road



Photograph 5. View of as-built residential lots (2 storey brick dwellings), part of south side of Loon Avenue subdivision, that abuts the property to the north



Photograph 6. View of as-built residential lots (2 storey brick dwellings), part of south side of Loon Avenue subdivision, that abuts the property to the north



Photograph 7. View of vacant land to the east of the subject property, showing a wetland unit of Lover's Creek Wetland Complex (PSW) and coniferous and mixed woodland features



Photograph 8. View of west edge of a narrow band of woodland dominated by eastern white cedar and trembling aspen (FOMM4-2), on a gentle slope along north edge of white cedar-hardwood organic mixed swamp (SWMO1-1)

physiographic region typified by drumlinoid hills, drumlin fields and eskers, interrupted by intervening wide river valley basins with muck, spillway and sand deposits (Chapman and Putnam 1984).

Based on a forest classification by Rowe (1972), the subject property lies within the Huron-Ontario Section of the Great Lakes-St. Lawrence Forest Region. The original forest cover consisted primarily of hardwoods, such as sugar maple (*Acer saccharum*) and beech (*Fagus grandifolia*). Other woody associates include basswood (*Tilia americana*), white ash (*Fraxinus americana*), red ash (*Fraxinus pennsylvanica*), yellow birch (*Betula alleghaniensis*), red maple (*Acer rubrum*), red oak (*Quercus rubra*), white oak (*Quercus alba*) and bur oak (*Quercus macrocarpa*). Conifers such as eastern hemlock (*Tsuga canadensis*), eastern white pine (*Pinus strobus*), and balsam fir (*Abies balsamea*) are typical within the tolerant hardwood types. Species such as largetooth aspen (*Populus grandidentata*), butternut (*Juglans cinerea*), bitternut hickory (*Carya cordiformis*), hop hornbeam (*Ostrya virginiana*), and black cherry (*Prunus serotina*) are scattered throughout. Species associated with river-bottoms and swamp sites include blue-beech (*Carpinus caroliniana*), silver maple (*Acer saccharinum*), slipper elm (*Ulmus rubra*), rock elm (*Ulmus thomasi*), and black ash (*Fraxinus nigra*). Eastern white cedar (*Thuja occidentalis*) is ubiquitous to swampy depressions and on old fields.

The original landscape in many parts of southcentral Ontario has been cleared for settlement and cultivation, and consequently, contiguous, extensive forest tracts are relatively uncommon. Tableland woodlands remaining within settlement (i.e., urban) areas are usually disturbed and/or in various stages of successional growth.

4.2.2 Site Vegetation and Floristics

The terrestrial vegetation communities on the subject property (i.e., northern half) consists mainly of mixed and coniferous (FOCM2-2), mixed (FOMM4-2), and deciduous mixed (FOMM5-2) upland woodlands, that are contiguous on-site and off-site to the south and east. The wetland communities are all part of the PSW. The boundaries of the wetland features that are germane to the proposed development were flagged and GPSd with MNRF Midhurst District Office staff on October 20, 2015.

The location and extent of the cultural, terrestrial and woodland features and their characterization were delineated within the subject property, as schematically illustrated on **Figure 7**. The ELC vegetation mapping and boundaries of the terrestrial and cultural features were initially delineated through aerial photograph interpretation and later verified through ground-truthing.



*www.google.com/earth/earth-pro

Scale 1:4000 (approx.)

Figure 7. Ecological Land Classification Units
(Vegetation Communities)

Huronia Barrie Land Inc.
West Half Lot 11
Concession 12
Geographic Township of Innisfil
City of Barrie
County of Simcoe

- subject property boundary (approx.)
- - - study area
- - - Lover's Creek Tributary
- FOCM2-2 Dry-Fresh White Cedar Mineral Coniferous Forest
- FOMM4-2 Dry-Fresh White Cedar- Poplar Mixed Forest
- FOMM5-2 Dry-Fresh Poplar-White Cedar Mixed Forest
- WOCM1-2 Dry-Fresh White Cedar Coniferous Woodland

- SWMM1-1 White Cedar Hardwood Mineral Mixed Swamp
- SWMO1-1 White Cedar Hardwood Organic Mixed Swamp
- MASO1-1 Cattail Organic Shallow Marsh
- SWDM4-5 Poplar Mixed Deciduous Swamp
- MEMM3 Dry-Fresh Native Mixed Regeneration Thicket

The subject property (i.e., northern half) with the exception of the PSW is a combination of: upland coniferous (FOCM2-2); mixed (FOMM4-2); and deciduous mixed (FOMM5-2). The main wetland feature is a relatively large block of mixed treed swamp (SWMO1-1), with a sub-component (inclusion) of mixed forb organic shallow marsh (MASO2-1), and mixed willow organic thicket swamp (SWTO2-6). Other wetland features include cattail organic shallow marsh (MASO1-1), in combination with mixed forb organic shallow marsh (MASO2-1), mixed willow organic thicket swamp (SWTO2-6); and poplar mixed deciduous swamp (SWDM4-5). Cultural features include a sumac deciduous shrub thicket (CUT1-1), a dry-fresh white cedar coniferous woodland (WOCM1-2), and a dry-fresh mixed meadow (MEMM3) – namely the east-west and north-south trails.

The constituent vascular plant species, characterized and recorded in the cultural, terrestrial and wetland features are documented in the plant list contained in **Appendix E**. Given that the proposed development area is essentially comprised of two upland woodland features (i.e., coniferous FOCM2-2 and mixed FOMM4-2), both of which are relatively homogeneous (i.e., similar heights, strata, age classes and distribution densities), it is our professional opinion that a separate plant species for all of the cultural, terrestrial and wetland features (i.e., on the north half of the subject property) are not warranted, as it would not provide any added-value to the database.

The following sub-sections provide summary descriptions of the subject property cultural, terrestrial and wetland features, including their ELC characterization, approximate boundaries and inherent plant species composition in the overstorey, understorey, shrub and groundcover strata, where applicable. **Figure 7** is a schematic illustration of the ELC communities, which in conjunction with **Table 1** the following text, and representative photographs, provides a qualitative descriptive summary of the cultural, terrestrial and wetland features germane to the proposed development area.

Terrestrial Vegetation Communities

Dry-Fresh White Cedar – Poplar Mixed Forest (FOMM4-2): Photographs 8, 9, 10 and 11 show various views within this narrow band of upland mixed woodland situated along a gentle slope; it borders the relatively large block of PSW (SWMO1-1). Dominant trees include pole-sized to early successional eastern white cedar and scattered trembling aspen and large-toothed aspen. Other woody associates include black cherry, choke cherry (*Prunus virginiana*), Manitoba maple (*Acer negundo*), white birch, Scots pine (*Pinus sylvestris*), white spruce (*Picea glauca*), common apple (*Malus domestica*), staghorn sumac (*Rhus typhina*) and white pine.

Table 1. List of Vegetation Communities (ELCs) on Huronia Barrie Land Inc. (521 Huronia Road) Property

ELC Code	Vegetation Type	Summary Description
FOCM2-2	Dry-Fresh White Cedar Mineral Coniferous Forest	- this coniferous woodland feature is located along the southern edge of the east-west trail and to the east of the north-south trail, and comprises most of the proposed development area - the dominant canopy tree is eastern white cedar, along with understory associates of trembling aspen, white birch, black cherry, and white elm - scattered white spruce, yellow birch, eastern hemlock, balsam fir, beech and white ash are also present but in small numbers - shrub and vine species include choke cherry, hawthorn, and common buckthorn - the eastern white cedar distribution is dense, characterized by pole-sized to early successional specimens - common groundcover species include wild sarsaparilla, yellow avens, thyme-leaved speedwell, wild lily-of-the-valley, Jack-in-the-pulpit, poison ivy, sweet coltsfoot, tall goldenrod, woodland strawberry, Canada anemone, Virginia creeper, and Philadelphia fleabane - there is also a small inclusion that consists of a shallow depression/trough, that is not part of the PSW as it is small, lacks aquatic plants, and standing water for breeding amphibians
FOMM4-2	Dry-Fresh White Cedar – Poplar Mixed Forest	- this narrow band of upland mixed coniferous woodland along a gentle slope borders part of the PSW unit SWMO1-1 - dominant tree species include eastern white cedar and trembling aspen - other woody associates, shrubs and vines include black cherry, choke cherry, Manitoba maple, white birch, Scots pine, white spruce, common apple, staghorn sumac and white pine - typical groundflora include helleborine, sensitive fern, spinulose wood-fern, bull thistle, coltsfoot, heart-leaved aster, common aster, common sow-thistle, common cucumber, graceful sedge, eastern bracken fern and deadly nightshade
FOMM5-2	Dry-Fresh Poplar Mixed Forest	- this small stand of trembling aspen with an understory of eastern white cedar lies along the southern edge of SWDM4-5 - the sparse to barren groundcover is similar to that found in FOMM4-2 and FOCM2-2, along with a sparse to barren groundcover

WOCM1-2/CUT1-1	Dry – Fresh White Cedar Coniferous Woodland/Sumac Deciduous Shrub Thicket	- this narrow band of coniferous cultural woodland in combination with deciduous shrub thicket, situated along the northern edge of the east-west trail - trees and shrubs in this combined wooded feature include eastern white cedar, trembling aspen, black cherry, Scots pine, staghorn sumac, Manitoba maple, wild red raspberry, tartarian honeysuckle, common buckthorn, choke cherry, white pine and balsam poplar - The groundcover consists of weed, grasses and forbs such as tall goldenrod, Canada goldenrod, common dandelion, New England aster, timothy, wild grape field horsetail and common burdock
MEMM3	Dry-Fresh Mixed Meadow	- the vegetation cover along the east-west trail and north-south trail and their edges consists primarily of weeds, grasses and herbaceous forbs, with other portions comprised of exposed sandy soils - representative groundflora includes bouncing-bet, white sweet-clover, daisy fleabane, common ragweed, wild carrot, common plantain, quackgrass, bird's-foot trefoil, Canada bluegrass, clammy ground-cherry, sweet coltsfoot, black-eyed Susan, bull thistle, heal-all, creeping buttercup, common buttercup, heath aster, Jerusalem artichoke, common mullein, cow vetch, common scouring-rush, nodding ladies'-tresses, common gerardia, paniced aster and path rush
SWMM1-1	White Cedar-Hardwood Mineral Mixed Swamp	- a relatively large block of treed swamp characterized as white cedar-hardwood mixed swamp as staked in-situ with NVCA on May 5, 2016 and is a revision to the NHS ELC mapping - eastern white cedar dominates in the overstory and understory - other woody vegetation scattered black ash, green ash, trembling aspen, hybrid willow, balsam poplar, white elm, yellow birch, white birch, Scotch pine and scattered white pine - there is an inclusion of SWTM3-6 (mixed willow mineral deciduous thicket dominated by pussy willow, hybrid willow, Missouri willow, red-osier dogwood, maple-leaved viburnum - typical groundflora includes sensitive fern, lady fern, ostrich fern, Jack-in-the-pulpit, foam flower, bulblet fern, fragrant bedstraw, wild lily-of-the-valley, spinulose wood-fern, large-leaved aster, fringe loosestrife, grass-leaved goldenrod, helleborine, tall meadowrue and wild basil

SWMO1-1/MASO2-1/SWTO2-6	White Cedar-Hardwood Organic Mixed Swamp/Mixed Forb Organic Shallow Marsh/Mixed Organic Thicket Swamp	- this relatively large pocket of mixed treed swamp with inclusions of mixed forb shallow marsh and mixed willow thicket swamp - typical trees include eastern white cedar, trembling aspen, balsam poplar, white elm, red maple, balsam fir, yellow birch, white pine, tamarack, white spruce, hybrid willow, and crack willow - shrub and vine species include red-osier dogwood, winterberry, meadowsweet, Bebb's willow, Missouri willow, pussy willow, slender willow, riverbank grape, Virginia creeper, hog-peanut and wild cucumber - typical groundflora includes reed canary grass, Canada bluejoint grass, narrow-leaved cattail, wild mint, spotted water hemlock, panicked bulrush, soft-stemmed bulrush, purple-stemmed aster, fringed loosestrife, sensitive fern, lady fern, ostrich fern, marsh fern, water horsetail, water horehound, smallflower hairy willowherb, hairy willowherb, elecampane, fowl manna grass, blue vervain, sweet flag, blue flag, common duckweed, marsh cinquefoil, water plantain, beggar-ticks, marsh marigold, boneset, spotted Joe pye-weed, spotted jewelweed, royal fern, Bebb's sedge, awl-fruited sedge, meadow sedge, hop sedge, dark green bulrush and common rush
MASO1-1/MASO2-1/SWTO2-1	Cattail Organic Shallow Marsh/Mixed Forb Organic Shallow Marsh/Mixed Green Willow Organic Thicket Swamp	- along the western edge of the north-south trail and contiguous with SWMO1-1 is a relatively large pocket of characterized as cattail organic shallow marsh, dominated by narrow-leaved cattail - other wetland feature inclusions are MASO2-1 and SWTO2-6 - other cattail marsh species include broad-leaved cattail, hybrid cattail, along with various asters, goldenrods, aquatic forbs, grasses and sedges - shrubs and vines include willows, winterberry, red-osier dogwood, maple-leaved viburnum, riverbank grape, Virginia creeper, hog-peanut, virgin's-bower and speckled alder
SWDM4-5	Poplar Mixed Deciduous Swamp	- trembling aspen, white elm and scattered eastern white cedar dominate this shallow depression/trough which is situated along the southern edge of the main proposed development area - the sparse to barren groundcover contains sensitive fern, marginal wood-fern, marsh fern, deadly nightshade, wild mint, coltsfoot, poison ivy, spotted jewelweed, Bebb's willow and field horsetail



Photograph 9. View inside part of dry-fresh white cedar-poplar mixed forest (FOMM4-2) along south of proposed access road, showing a dense distribution of pole-sized to early successional cedars and a barren groundcover



Photograph 10. View inside part of FOMM4-2, situated along a gentle slope, with sparse to barren groundcover, comprised of field horsetail and sensitive fern, spinulose wood-fern and helleborine



Photograph 11. View of eastern portion of FOMM4-2, with associates of white ash, balsam fir, black cherry, white birch, white pine, choke cherry and Scots pine



Photograph 12. View inside northern edge of dry-fresh white cedar coniferous forest (FOCM2-2), dense distribution of pole-sized cedars, with an understorey of poplars and scattered white elm, white birch, black cherry and white spruce

Typical species in the sparse to barren groundcover stratum (i.e., due to lack of light penetration through a dense canopy) include helleborine (*Epipactis helleborine*), sensitive fern (*Onoclea sensibilis*), spinulose wood-fern (*Dryopteris carthusiana*), bull thistle (*Cirsium vulgare*), coltsfoot (*Tussilago farfara*), common sow-thistle (*Sonchus oleraceus*), common dandelion (*Taraxacum officinale*), heart-leaf aster (*Symphyotrichum cordifolium*), common cucumber (*Echinocystis lobata*), graceful sedge (*Carex gracillima*), eastern bracken fern (*Pteridium aquilinum*), and deadly nightshade (*Solanum dulcamara*).

Dry-Fresh White Cedar Coniferous Forest (FOCM2-2): This upland woodland feature is situated along the southern edge of the east-west trail and to the east of the north-south trail. It lies within the proposed development area as established through the PSW boundary delineation undertaken on October 20, 2015, and extends a fair distance to the south, outside of the proposed development area.

The dominant canopy and understorey tree species is eastern white cedar (**Photographs 12, 13, 14, 15, and 16**). Other woody associates in the understorey include trembling aspen, white birch, black cherry, and white elm, along with scattered white spruce, yellow birch, eastern hemlock, balsam fir, beech and white ash. The shrub stratum is sparse and contains choke cherry, hawthorn (*Crataegus spp.*), and common buckthorn (*Rhamnus carthartica*). As **Photographs 13 and 16** show, there are patches containing cedar blowdowns due to wind-throw.

The groundcover stratum is sparse to barren, similar to that found in FOMM4-2. Other species found include wild sarsaparilla (*Aralia nudicaulis*), yellow avens (*Geum aleppicum*), thyme-leaved speedwell (*Veronica serpyllifolia*), wild lilly-of-the-valley (*Mainthemum canadense*), Jack-in-the-pulpit (*Arisaema triphyllum*), poison ivy (*Rhus radicans*), Philadelphia fleabane (*Erigeron philadelphicus*), sweet coltsfoot (*Petasites frigidus*), tall goldenrod (*Solidago altissima*), lady fern (*Athyrium filix-femina*), tall buttercup (*Ranunculus acris*), Canada anemone (*Anemone canadensis*), woodland strawberry (*Fragaria vesca*), and Virginia creeper (*Parthenocissus quinquefolia*).

There is also an inclusion of a shallow depression/trough, not included in the PSW, due to its small size, and lack of aquatic plants and standing water for amphibian breeding.

Dry-Fresh Poplar Mixed Forest (FOMM5-2): This upland woodland feature lies to the southern of the proposed development area and abuts the southern edge of the PSW. Trembling aspen is dominant in the canopy, with eastern white cedar dominant in the understorey (**Photographs 17 and 18**). The sparse shrub stratum contains similar species to those found in FOMM4-2 and FOCM2-2.



Photograph 13. View inside part of FOCM2-2 showing wind-throw and dense distribution of pole-sized cedars, and a sparse to barren groundcover



Photograph 14. A view inside FOCM2-2 showing the dense distribution of pole-sized cedars and lack of any groundcover, due to poor light penetration



Photograph 15. View of part of FOCM2-2 within proposed development area, showing lack of a groundcover stratum, along with small openings in the canopy



Photograph 16. View of typical wind-throw and downed cedars within FOCM2-2, along with scattered poplars in the understorey



Photograph 17. View inside part of dry-fresh poplar mixed forest (FOMM5-2) dominated by trembling aspen and large-toothed aspen, with an understorey of cedars, and a sparse to barren groundcover



Photograph 18. Inside view of FOMM5-2 with a poplar canopy, a dense understorey of pole-sized cedars, along with a sparse to barren groundcover



Photograph 19. View along south edge of dry-fresh white cedar coniferous woodland (WOCM1-2), with sumac deciduous shrub thicket (CUT1-1), along north edge of proposed road access



Photograph 20. View of sumac deciduous shrub thicket (CUT1-1), with scattered pole-sized black cherry, integrated with WOCM1-2

Dry-Fresh White Cedar Coniferous Woodland (WOCM1-2)/ Sumac Deciduous Shrub Thicket (CUT1-1): **Photograph 19** shows a portion of a narrow band of cultural woodland (WOCM1-2) which borders the northern edge of the east-west trail, the proposed access road alignment. **Photography 20** shows part of the sumac deciduous shrub thicket (CUT1-1) which is integrated into WOCM1-2, particularly along its edges at the interface with the east-west trail. Trees and shrubs include eastern white cedar, trembling aspen, black cherry, Scots pine, staghorn sumac, Manitoba maple, wild red raspberry (*Rubus idaeus*), tartarian honeysuckle (*Lonicera tatarica*), common buckthorn, choke cherry, white pine and balsam poplar. The groundcover stratum consists of weeds, grasses and herbaceous forbs similar to those species found in MEMM3. Typical species include tall goldenrod, Canada goldenrod (*Solidago canadensis*), common dandelion, New England aster (*Symphyotrichum novae-angliae*), timothy (*Phleum pratense*), wild grape (*Vitis riparia*), field horsetail, and common burdock (*Arctium minus*).

Dry-Fresh Mixed Meadow (MEMM3): The vegetation cover along the east-west trail and the north-south trail consists primarily of weed, grasses and herbaceous forbs, with other portions comprised of exposed sandy soils (**Photographs 21, 22 and 23**). In addition to those groundcover species found in WOCM1-2 and CUT1-1, the following species were found along both trails:

<i>Saponaria officinalis</i>	bouncing-bet
<i>Melilotus affinis</i>	white sweet-clover
<i>Erigeron annuus</i>	daisy fleabane
<i>Ambrosia artemisiifolia</i>	common ragweed
<i>Trifolium campestre</i>	low hop clover
<i>Daucus carota</i>	wild carrot
<i>Plantago major</i>	common plantain
<i>Elymus repens</i>	quackgrass
<i>Lotus corniculatus</i>	bird's-foot trefoil
<i>Matericaria discoidea</i>	pineappleweed
<i>Plantago lanceolata</i>	English plantain
<i>Centaurea maculosa</i>	spotted knapweed
<i>Bormus inermis</i>	awnless brome grass
<i>Dactylis glomerata</i>	orchard grass
<i>Poa compressa</i>	Canada bluegrass
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Physalis heterophylla</i>	clammy ground cherry
<i>Petasites frigidus</i>	sweet coltsfoot
<i>Echium vulgare</i>	viper's bugloss
<i>Rudbeckia hirta</i>	black-eyed Susan
<i>Cirsium vulgare</i>	bull thistle
<i>Prunella vulgaris</i>	heal-all



Photograph 21. Westward view of trail along north edge of property, part of proposed access road alignment, characterized as dry-fresh mixed meadow (MEMM3), along with exposed sandy soils and a weedy groundcover stratum



Photograph 22. View of west-east trail (MEMM3) at back of houses along Loon Avenue, showing weedy groundcover along with scattered cedar and willow shrubs, bordering north edge of FOCM2-2



Photograph 23. View of north-south trail at junction between FOMM4-2 and FOCM2-2



Photograph 24. View on October 20, 2015 of a relatively large block of white cedar-hardwood organic mixed swamp (SWMO1-1), part of the provincially significant Lover's Creek Wetland Complex

<i>Ranunculus repens</i>	creeping buttercup
<i>Ranunculus acris</i>	common buttercup
<i>Symphyotrichum ericoides</i>	heath aster
<i>Helianthus tuberosus</i>	Jerusalem artichoke
<i>Verbascum thapsus</i>	common mullein
<i>Parthenocissus quinquefolia</i>	Virginia creeper
<i>Equisetum hyemale</i>	common scouring-rush
<i>Vicia cracca</i>	cow vetch
<i>Spiranthes cernua</i>	nodding ladies'-tresses
<i>Agalinus gerardia</i>	common gerardia
<i>Symphyotrichum lanceolatum</i>	panicked aster
<i>Juncus tenuis</i>	path rush

Wetland Vegetation Communities

White Cedar – Hardwood Organic Mixed Swamp (SWM01-1): This relatively large block of essentially treed and shrub thicket swamp lies in the northwestern corner of the subject property (**Photographs 24, 25 and 26**). There are also subcomponent inclusions characterized as a mixed forb organic shallow marsh (MASO2-1) and a mixed willow organic thicket swamp (SWTO2-6), as shown on **Photographs 27 and 28**. The northern edge of this PSW unit was flagged at its interface with the abutting upland mixed woodland (FOMM4-2) – wetland flagging tape #W1 to #W14.

Typical trees include: eastern white cedar, trembling aspen, balsam poplar, white elm, red maple, balsam fir, yellow birch, white birch, white pine, tamarack (*Larix laricina*), white spruce, hybrid willow (*Salix x rubens*), and crack willow (*Salix fragilis*). Shrub and vine species include red-osier dogwood (*Cornus stolonifera*), winterberry (*Ilex verticillata*), meadowsweet (*Spiraea alba*), Bebb's willow (*Salix bebbiana*), Missouri willow (*Salix eriocephala*), pussy willow (*Salix discolor*), slender willow (*Salix petiolaris*), riverbank grape, Virginia creeper, hog-peanut (*Amphicarpa bracteata*) and wild cucumber.

Pland species in the groundcover stratum include:

<i>Phalaris arundinacea</i>	reed canary grass
<i>Calamagrostis canadensis</i>	Canada bluejoint grass
<i>Typha angustifolia</i>	narrow-leave cattail
<i>Mentha arvensis</i>	wild mint
<i>Cicuta maculata</i>	spotted water hemlock
<i>Solanum dulcamara</i>	deadly nightshade
<i>Scirpus microcarpus</i>	panicked bulrush
<i>Scirpus validus</i>	soft-stemmed bulrush



Photograph 25. View of mixed forb organic shallow marsh (MASO2-1), an inclusion within SWMO1-1, part of the provincially significant Lover's Creek Wetland Complex



Photograph 26. View of SWMO1-1 on September 2, 2016, which fronts onto Huronia Road, part of the provincially significant Lover's Creek Wetland Complex



Photograph 27. View of mixed forb organic shallow marsh (MASO2-1) and mixed willow organic thicket swamp (SWTO2-6), inclusions with SWMO1-1, part of the provincially significant Lover's Creek Wetland Complex



Photograph 28. View of cattail sward, groundcover under a canopy of eastern white cedar, in parts of SWMO1-1, an inclusion within the provincially significant Lover's Creek Wetland Complex

<i>Symphyotrichum paniculatum</i>	panicled aster
<i>Symphyotrichum puniceum</i>	purple-stemmed aster
<i>Lythrum salicaria</i>	fringed loosestrife
<i>Onoclea sensibilis</i>	sensitive fern
<i>Athyrium filix-femina</i>	lady fern
<i>Matteuccia struthiopteris</i>	ostrich fern
<i>Thelypteris palustris</i>	marsh fern
<i>Equisetum fluviatile</i>	water horsetail
<i>Equisetum hyemale</i>	common scouring-rush
<i>Lycopus americanus</i>	water horehound
<i>Epilobium parviflorum</i>	smallflower hairy willowherb
<i>Epilobium hirtum</i>	hairy willowherb
<i>Inula helenium</i>	elecampane
<i>Glyceria striata</i>	fowl manna grass
<i>Verbena hastata</i>	blue vervain
<i>Acorus calamus</i>	sweet flag
<i>Iris versicolor</i>	blue flag
<i>Lemna minor</i>	common duckweed
<i>Potentilla palustris</i>	marsh cinquefoil
<i>Alisma triviale</i>	water plantain
<i>Veronica anagallis-aquatica</i>	American water speedwell
<i>Bidens frondosa</i>	beggar-ticks
<i>Caltha palustris</i>	marsh marigold
<i>Eupatorium perfoliatum</i>	boneset
<i>Eutrochium maculatum</i>	spotted Joe pye-weed
<i>Impatiens capensis</i>	spotted jewelweed
<i>Osmunda regalis</i>	royal fern
<i>Carex bebbii</i>	Bebb's sedge
<i>Carex stipata</i>	awl-fruited sedge
<i>Carex granularis</i>	meadow sedge
<i>Carex lupulina</i>	hop sedge
<i>Scirpus atrovirens</i>	dark green bulrush
<i>Juncus effusus</i>	common rush

Cattail Organic Shallow Marsh (MASO1-1): Along the western edge of the north-south trail and contiguous with SWMO1-1 is a relatively large pocket characterized as cattail organic shallow marsh (**Photographs 29, 30, 31 and 32**). Inclusions within the PSW are pockets and edges of mixed forb organic shallow marsh (MASO2-1) and mixed willow organic thicket swamp (SWTO2-6).

Narrow-leaved cattail (*Typha angustifolia*) is the dominant groundcover in the majority of the wetland feature, along with broad-leaved cattail (*Typha latifolia*), hybrid cattail (*Typha x glauca*), along with various asters, goldenrods, aquatic forbs, grassed and sedges. Shrub and vines species include willows



Photograph 29. Relatively large pocket of cattail organic shallow marsh (MASO1-1), along with mixed willow organic thicket swamp (SWTO2-6), on west edge of north-south trail, part of PSW Lover's Creek Wetland Complex



Photograph 30. View of mixed forb organic shallow marsh (MASO2-1), with stagnant pooled water, and aquatic plants such as poison hemlock, water plantain, water smartweed, beggar-ticks, and common duckweed



Photograph 31. View of cattail sward, that dominates cattail organic shallow marsh (MASO1-1) feature, part of PSW Lover's Creek Wetland Complex



Photograph 32. October 20, 2015 view of part of MAMO1-1, bordered to the west by SWMO1-1, all part of the PSW Lover's Creek Wetland Complex

(*Salix bebbiana*, *Salix discolor*, *Salix petiolaris*, *Salix eriocephala*), winterberry, red-osier dogwood, maple-leaved viburnum (*Viburnum acerifolium*), riverbank grape, Virginia creeper, hog peanut, Virgin's-bower (*Clematis virginiana*), and speckled alder (*Alnus rugosa*).

Typical species in the groundcover stratum include some of those found in SWMO1-1, but with much less diversity, as most of this wetland feature (MASO1-1) consists of dense cattail swards, with willow thicket shrub edges.

Poplar Mineral Deciduous Swamp (SWDM4-5): Trembling aspen, white elm and scattered eastern white cedar dominate this shallow depression/trough whose northern edge is at the interface with the proposed development area to the north (i.e., wetland flagging tape W30 – W35) (**Photographs 33, 34, 35 and 36**). There is a similar, albeit smaller unit of wetland just to the southeast, and inclusion in FOMM5-2. The sparse to barren groundcover stratum contains sensitive fern, marginal wood-fern (*Dyopteris marginalis*), marsh fern, deadly nightshade, wild mint, coltsfoot, poison ivy, spotted jewelweed, Bebb's willow, field horsetail. This wetland very shallow wetland trough contained no standing water (just mucky saturated soils) during the amphibian breeding season.

4.2.2 Floristics

During all site visits, detailed botanical inventories were conducted within the cultural, terrestrial and wetland features that lie within the study area. A master vascular plant species list is contained in **Appendix E**. The presence of any federal, provincial and/or regional rarities or Species of Conservation Interest are discussed in **Section 5.1**.

4.3 Wildlife and Wildlife Habitat

The vegetation communities and land uses identified and inventoried within the subject property study area are comprised mainly of coniferous and mixed upland woodland and various wetland features (i.e., all part of the PSW). A tributary of Lovers Creek flows in a northwest to southeast direction at its contact point with the western side of the landholding. The tributary lies within and is part of the PSW, and far-removed from the proposed development area.

Permanent summer residents on and off-site and migrant wildlife species have adapted to the present on-site features, and to the surrounding land uses (i.e., commercial and residential) to the north, south and west. The existing on site and abutting cultural and natural features provide typical life-cycle



Photograph 33. View of part of poplar mineral deciduous swamp (SWDM4-5), a very shallow depression/trough that contains no standing water during amphibian breeding season, located along south edge of proposed development



Photograph 34. View of sparse groundcover stratum in shallow depression/trough, characterized as SWDM4-5, boundary flagged with MNRF on October 20, 2015, part of the PSW, situated along south edge of development area



Photograph 35. View of part of SWDM4-5, a shallow depression/trough of poplars, cedar and white elm with a sparse to barren groundcover of field horsetail, sensitive fern, grasses and sedges



Photograph 36. View of wind-throw within part of SWDM4-5, showing poplars, cedar and white elm, with a sparse groundcover, a narrow shallow depression/trough, part of the PSW

opportunities such as nesting, resting, feeding, roosting and cover (i.e., from potential predators). All of the species observed or heard on the subject property, and on abutting lands are ubiquitous to the local geographical area, and all have been recorded in the **OBBA** breeding bird square that overlaps the property (i.e., Square Summary 17PK01).

The following subsections summarize the wildlife inventories undertaken during 2015 and 2016; these are supplemented with data provided by Azimuth collected in 2006 and 2014.

Birds: **Table 2** contains a list of the bird species observed on the Huronia Barrie Land Inc. property. The observations were garnered from Azimuth data collected for a previous landowner(s) on May 12, June 8, and June 13, 2006, and May 22, June 27 and August 19, 2014. This original data base was supplemented from site reconnaissance and floral and faunal inventories undertaken on June 23 and October 20, 2015; and May 5, June 28, July 29 and September 2, 2016 by the authors of this **SEIS**. In addition to the one Azimuth dawn breeding bird point count station (**Figure 6**), two additional stations were added on the June 28, 2018 survey. The **OBBA** data from the Ontario 2001-2005 surveys (Square Summary 17PK01) was reviewed to garner an understanding of the local bird species in and around the subject property (**Bird Studies Canada et al.** 2006).

A total of forty-four bird species were directly sighted. All species observed are considered year-round residents and/or summer breeders, either utilizing parts of the subject property or were seen flying overhead. Some of the bird species flying overhead likely utilize the abutting PSW and woodland features, and possibly Kempenfelt Bay.

Typical species observed, heard or evidence of presence noted on-site and abutting the subject property in the woodland features include: northern cardinal (*Cardinalis cardinalis*); mourning dove (*Zenaida macroura*); American crow (*Corvus brachyrhynchos*); blue jay (*Cyanocitta cristata*); chipping sparrow (*Spizella passerina*); American goldfinch (*Carduelis tristis*); common grackle (*Quiscalus quiscula*); black-capped chickadee (*Parus atricapillus*); brown-headed cowbird (*Molothrus ater*); hairy woodpecker (*Picoides villosus*); red-breasted nuthatch (*Sitta canadensis*); American robin (*Turdus migratorius*); downy woodpecker (*Picoides pubescens*); cedar waxwing (*Bombycilla cedrorum*); and red-eyed vireo (*Vireo olivaceus*).

Species flying overhead include Canada goose (*Branta canadensis*), ring-billed gull (*Larus delawarensis*), and turkey vulture (*Cathartes aura*).

Table 2. List of Bird Species 521 Huronia Road, City of Barrie

			Conservation Ranking ¹					June 8, 2006 ²	June 13, 2006 ³	June 28, 2016 ⁴
Family	Scientific Name	Common Name	GRANK	SRANK	COSEWIC	MNRF	TRACKED			
ANATIDAE	<i>Branta canadensis</i>	Canada Goose	G5	S5			N			FO ⁵
ANATIDAE	<i>Anas platyrhynchos</i>	Mallard	G5	S5B,SZN			N	P		
ARDEIDAE	<i>Ardea herodias</i>	Great Blue Heron	G5	S4			N			FO
BOMBYCILLIDAE	<i>Bombycilla cedrorum</i>	Cedar Waxwing	G5	S5B			N			X
CARDINALIDAE	<i>Cardinalis cardinalis</i>	Northern Cardinal	G5	S5			N	X	S	S
CARDINALIDAE	<i>Passerina cyanea</i>	Indigo Bunting	G5	S5B,SZN			N	S		
CATHARTIDAE	<i>Cathartes aura</i>	Turkey Vulture	G5	S4B,SZN			N		X	FO
CHARADRIIDAE	<i>Charadrius vociferus</i>	Killdeer	G5	S5B,SZN			N		S	
COLUMBIDAE	<i>Zenaida macroura</i>	Mourning Dove	G5	S5B,SZN			N	X		H
CORVIDAE	<i>Corvus brachyrhynchos</i>	American Crow	G5	S5B,SZN			N	X	S	V
CORVIDAE	<i>Cyanocitta cristata</i>	Blue Jay	G5	S5			N	X	S	H
EMBERIZIDAE	<i>Melospiza melodia</i>	Song Sparrow	G5	S5B,SZN			N	S	S	H
EMBERIZIDAE	<i>Zonotrichia albicollis</i>	White-throated Sparrow	G5	S5B,SZN			N		S	
EMBERIZIDAE	<i>Spizella passerina</i>	Chipping Sparrow	G5	S5B,SZN			N	S		S
FRINGILLIDAE	<i>Carduelis tristis</i>	American Goldfinch	G5	S5B,SZN			N	X	S	S
HIRUNDINIDAE	<i>Tachycineta bicolor</i>	Tree Swallow	G5	S4B			N			C
HIRUNDINIDAE	<i>Hirundo rustica</i>	Barn Swallow	G5	S5B,SZN			N		X	
ICTERIDAE	<i>Quiscalus quiscula</i>	Common Grackle	G5	S5B,SZN			N	X	X	C
ICTERIDAE	<i>Agelaius phoeniceus</i>	Red-winged Blackbird	G5	S5B,SZN			N	S	S	P
ICTERIDAE	<i>Molothrus ater</i>	Brown-headed Cowbird	G5	S5B,SZN			N		S	H
LARIDAE	<i>Larus delwarensis</i>	Ring-billed Gull	G5	S5B,S4N			N			FO
MIMIDAE	<i>Dumetalla carolinensis</i>	Gray Catbird	G5	S4B			N			P
PARIDAE	<i>Poecile atricapillus</i>	Black-capped Chickadee	G5	S5			N			P
PARULIDAE	<i>Geothlypis trichas</i>	Common Yellowthroat	G5	S5B,SZN			N	S	S	C
PARULIDAE	<i>Seiurus aurocapillus</i>	Ovenbird	G5	S5B,SZN			N	S	S	
PARULIDAE	<i>Vireo gilvus</i>	Warbling Vireo	G5	S5B			N			C
PARULIDAE	<i>Setophaga petechia</i>	Yellow Warbler	G5	S5B			N			S
PASSERIDAE	<i>Passer domesticus</i>	House Sparrow	G5	SNA			N			X
PHASIANIDAE	<i>Meleagris gallopavo</i>	Wild Turkey	G5	S4			N	X		X

PICIDAE	<i>Colaptes auratus</i>	Northern Flicker	G5	S5B,SZN			N		S	C
PICIDAE	<i>Picoides villosus</i>	Hairy Woodpecker	G5	S5			N		S	H
SCOLAPACIDAE	<i>Actitis macularia</i>	Spotted Sandpiper	G5	S5			N			H
SITTIDAE	<i>Sitta canadensis</i>	Red-breasted Nuthatch	G5	S5B,SZN			N		S	
STRIGIDAE	<i>Bubo virginianus</i>	Great Horned Owl	G5	S5			N	X		
STURNIDAE	<i>Sturnus vulgaris</i>	European Starling	G5	SNA			N			X
TROGLODYTIDAE	<i>Troglodytes aedon</i>	House Wren	G5	S5B,SZN			N	S	S	
TURDIDAE	<i>Hylocichla mustelina</i>	Wood Thrush	G5	S5B,SZN	THR	SC	N		S	C
TURDIDAE	<i>Turdus migratorius</i>	American Robin	G5	S5B,SZN			N		S	FY
TYRANNIDAE	<i>Contopus virens</i>	Eastern Wood-pewee	G5	S4B	SC	SC	Y			C
TYRANNIDAE	<i>Myiarchus crinitus</i>	Great Crested Flycatcher	G5	S5B,SZN			N	S	S	
TYRANNIDAE	<i>Tyrannus tyrannus</i>	Eastern Kingbird	G5	S5B,SZN			N		S	
VIREONIDAE	<i>Vireo olivaceus</i>	Red-eyed Vireo	G5	S5B,SZN			N	S	S	C

Observed during previous site visits but not during the breeding season in 2005/2006

ALCEDINIDAE	<i>Ceryle alcyon</i>	Belted Kingfisher	G5	S5B,SZN			N
PHASIANIDAE	<i>Bonasa umbellus</i>	Ruffed Grouse	G5	S5			N
PICIDAE	<i>Picoides pubescens</i>	Downy Woodpecker	G5	S5			N

¹ Conservation Rankings: From Ontario Ministry of Natural Resources, Natural Heritage Information Centre (http://nhic.mnr.gov.on.ca/nhic_.cfm)

² Search Time 06:15 to 07:50hr; Observer Melissa Fuller - Azimuth Environmental Consulting Inc.

³ Weather: Temperature 10°C, Wind Nil, Cloud Cover 20%, Precipitation Nil, Search Time 05:45 to 07:30hr; Observer Melissa Fuller - Azimuth Environmental Consulting Inc.

⁴ Weather: Temperature 10oC, Wind Nil, Cloud Cover 20%, Precipitation Nil, Search Time 06:00 to 07:45hr; Observer David G. Cunningham - Cunningham Environmental Associates

⁵ Point Count Survey Duration - 10 minutes/station

Highest level of breeding evidence detected based on Ontario Breeding Bird Atlas (OBBA) criteria and Breeding Evidence Codes

Conservation Rank - from Ontario Ministry of Natural Resources & Forestry, Natural Heritage Information Centre, Species at Risk in Ontario Lists and Environment Canada/COSEWIC Lists

S-rank - S1 - Extremely Rare, S2 - Very Rare, S3 - Rare to Uncommon, S4 - Common, S5 - Very Common NAR - Not at Risk

G-Rank - G1 - Critically Imperiled, G2 - Imperiled, G3 - Vulnerable, G4 - Apparently Secure, G5 - Secure

Breeding Evidence Codes: Entry examples **S,S** - Singing Male detected during first survey and second survey; **S** Singing male detected during first survey only ,**S** Singing male detected during second survey

Breeding Evidence Breeding Evidence Codes

None FO - Species observed Flying Over showing no signs of use of subject or adajcent lands

Observed X - Species observed, no evidence of breeding

Possible H - Species observed in its breeding season in suitable nesting habitat

Note S or C - Singing male(s) present (S), or breeding calls heard (C), in suitable nesting habitat in breeding season

Probable P - Pair observed in suitable nesting habitat in nesting season

Probable D - Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation.

Probable V - Visiting probable nest site

Probable A - Agitated behaviour or anxiety calls of an adult

Probable B - Brood Patch on adult female or cloacal protuberance on adult male

Probable N - Nest-building or excavation of nest hole.

Confirmed DD - Distraction display or injury feigning.

Confirmed NU - Used nest or egg shells found (occupied or laid within the period of the survey)

Confirmed FY - Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight

Confirmed AE - Adult leaving or entering nest sites in circumstances indicating occupied nest

Confirmed FS - Adult carrying fecal sac.

Confirmed CF - Adult carrying food for young.

Confirmed NE - Nest containing eggs.

Confirmed NY - Nest with young seen or heard

Note : Possible if only one observation of S or C, Probable if evidence of S or C in same place on two or more dates a week or more apart

Only two bird species were observed or heard on-site that are designated either as Special Concern and/or Threatened on either a federal and/or provincial level. A wood thrush (*Hylocichla mustelina*) was heard calling during the breeding season in the upland mixed woodland to the south and east of the proposed development area. This species is threatened on a federal level (SARA 2002) and is a Special Concern species in the Province (2007 ESA). The other species is eastern wood pewee (*Contopus virens*), which is Special Concern under both legislations. It was heard calling in the woodland features east of the subject property study area.

Mammals: A total of twelve (12) mammal species were observed, heard, or evidence of presence noted on the subject property study area and/or on abutting lands (**Table 3**). Typical species noted include: coyote (*Canis latrans*); beaver (*Castor canadensis*); white tailed deer (*Odocoileus virginianus*); northern raccoon (*Procyon lotor*); eastern gray squirrel (*Sciurus carolinensis*); eastern chipmunk (*Tamias striatus*); and red squirrel (*Tamiasciurus hudsonicus*). None of these species is listed as a sAR, under the federal (SARA 2002) or provincial (2007 ESA) legislations.

Herpetofauna: **Table 4** contains a list of (7) herpetofauna (e.g., amphibians and reptiles) detected on his subject property. The locations of the amphibian call count stations are illustrated on **Figure 6**. A call count station (#1) was surveyed by Azimuth on May 22, 2014 and two call count stations (#2 and #3) were surveyed by David Cunningham on May 5 and June 28, 2016. American toad (*Bufo americanus*); gray tree frog (*Hyla versicolor*); spring peeper (*Pseudacris crucifer*); western chorus frog (*Pseudacris triseriata*); northern leopard frog (*Rana pipiens*); and snapping turtle (*Chelydra serpentina*).

Bats: No formal bat snag surveys and/or acoustic bat investigations following MNRF protocols were undertaken. Given the small footprint of the proposed development area and its location along the southern edge of the as-built residences on Loon Avenue, such surveys in our opinion were not warranted. It is also our view based on similar habitats and proposed residential developments in coniferous/mixed woodlands that the relatively immature tree habitats within the proposed development area (i.e., FOMM4-2, FOCM2-2 and WOCM1-2/CUT1-5) do not present high quality potential maternity roost habitat, and a notable lack of suitable snag/cavity trees observed during the floral and faunal surveys.

4.3.1 Wildlife Habitat and Corridors

The woodland features in combination with the PSW form a contiguous mosaic of relatively undisturbed habitats for birds, mammals, amphibians and reptiles and their life cycles (i.e., nesting, roosting and

Table 3. List of Mammal Species 521 Huronia Road, City of Barrie

Family	Scientific Name	Common Name	GRANK	SRANK	SARO	SARA	Tracked	Observed
CANIDAE	<i>Canis latrans</i>	Coyote	G5	S5			N	X
CASTORIDAE	<i>Castor canadensis</i>	Beaver	G5	S5			N	X
CERVIDAE	<i>Odocoileus virginianus</i>	White-tailed Deer	G5	S5			N	X
DIDELPHIDAE	<i>Didelphis virginiana</i>	Virginia Opossum	G5	S4			N	X
ERETHIZONTIDAE	<i>Erethizon dorsatum</i>	American Porcupine	G5	S5			N	X
LEPORIDAE	<i>Sylvilagus floridanus</i>	Eastern Cottontail	G5	S5			N	X
MEPHITIDAE	<i>Mephitis mephitis</i>	Striped Skunk	G5	S5			N	X
PROCYONIDAE	<i>Procyon lotor</i>	Raccoon	G5	S5			N	X
SCIURIDAE	<i>Sciurus carolinensis</i>	Grey Squirrel	G5	S5			N	X
SCIURIDAE	<i>Marmota monax</i>	Groundhog/Woodchuck	G5	S5			N	X
SCIURIDAE	<i>Tamias striatus</i>	Eastern Chipmunk	G5	S5			N	X
SCIURIDAE	<i>Tamiasciurus hudsonicus</i>	Red Squirrel	G5	S5			N	X

Table 4. List of Amphibian and Reptile Species 521 Huronia Road, City of Barrie

Family	Scientific Name	Common Name	GRANK	SRANK	SARO	SARA	Tracked	Observed
ANURA	<i>Pseudacris maculata</i>	Western Chorus Frog +*	G5TNR	S3	NAR	THR	Y	X
ANURA	<i>Bufo americanus</i>	American Toad *	G5	S5			N	X
ANURA	<i>Hyla versicolor</i>	Gray Treefrog *	G5	S4			N	X
ANURA	<i>Odocoileus virginianus</i>	Spring Peeper +*	G5	S5			N	X
ANURA	<i>Procyon lotor</i>	Green Frog **	G5	S5			N	X
ANURA	<i>Sciurus carolinensis</i>	Northern Leopard Frog *	G5	S5	NAR		N	X
ANURA	<i>Sylvilagus floridanus</i>	Wood Frog **	G5	S5			N	X
CRYPTODEIRA	<i>Chelydra serpentina</i>	Snapping Turtle *	G5	S3	SC	SC	Y	X
SQUAMATA	<i>Thamnophis sirtalis sirtalis</i>	Eastern Gartersnake *	G5T5	S5			N	X

+* seen or heard May 5, 2016 with breeding codes 2-3 during May 5, 2016 survey in SWMO1-1 and MASO1-1

* seen or heard June 28, 2016 with breeding codes 1

** seen or heard July 29, 2016

no evening amphibian breeding calls in FOCM2-2 (proposed development area - no vernal pools) during May 5 and June 28, 2016 surveys

no evening amphibian breeding calls in SWDM4-5 (no water for breeding) during May 5 and June 28, 2016 surveys

feeding, migration). These features woodland and wetlands also extend to varying degrees to the west (Huron Road), northeast (Lovers Creek valleylands), east (Lovers Creek ravine) and south (of Mapleview Drive), thereby providing an extensive array of abundant and diverse corridors/linkages, particularly along the Lovers Creek system. There are no existing or potential corridors/linkages to the north due to the presence of the as-built residential lots along Loon Avenue and other side streets.

4.4 Fish and Fish Habitat

As previously stated, no fish biomass and/or fish habitat assessments were undertaken on the Lovers Creek tributary which traverses part of the subject property in a northwest to southeast direction, more or less on the south half. The tributary is classified as a coldwater system. **Photographs 37 to 40** show various aspects of the Lovers Creek tributary situated in the southwestern corner of the study area. The following is a list of fish species known within the Lovers Creek Subwatershed.

- rainbow trout (*Oncorhynchus mykiss*);
- brook trout (*Salvelinus fontinalis*);
- central mudminnow (*Umbra limi*);
- common white sucker (*Catostomus commersoni*);
- northern redbelly dace (*Phoxinus eos*);
- finescale dace (*Phoxinus neogaeus*);
- brassy minnow (*Hybognathus hankinsoni*);
- hornhead chub (*Nocomis biguttatus*);
- river chub (*Nocomis micropogon*);
- emerald shiner (*Notropis atherinoides*);
- common shiner (*Luxilus cornutus*);
- blackchin shiner (*Notropis heterodon*);
- blacknose shiner (*Notropis heterolepis*);
- rosyface shiner (*Notropis rubellus*);
- bluntnose minnow (*Pimephales notatus*);
- fathead minnow (*Pimephales promelas*);
- blacknose dace (*Rhinichthys atratulus*);
- longnose dace (*Rhinichthys cataractae*);
- creek chub (*Semotilus atromaculatus*);



Photograph 37. Upgradient view of a reach of Lover's Creek tributary, an inclusion within SWMO1-1, just to the west of the north-south trail



Photograph 38. Downgradient view of a reach of Lover's Creek tributary, an inclusion in SWMO1-1, flows in a northwest to southeast direction across most of the southern portion of the subject property, just west of north-south trail



Photograph 39. View of a reach of Lover's Creek tributary further west, part of SWMO1-1



Photograph 40. Similar view of a reach of Lover's Creek tributary, an inclusion within SWMO1-1, part of the PSW Lover's Creek Wetland Complex

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- pearl dace (*Margariseus margarita*);
 - silver shiner (*Notropis photogenis*);
 - brown bullhead (*Ameriurus nebulosus*);
 - brook stickleback (*Culaea inconstans*);
 - rock bass (*Ambloplites rupestris*);
 - pumpkinseed (*Lepomis gibbosus*);
 - smallmouth bass (*Micropterus dolomieu*);
 - largemouth bass (*Micropterus salmoides*);
 - rainbow darter (*Etheostoma caeruleum*);
 - Iowa darter (*Etheostoma exile*);
 - mottled sculpin (*Cottus bairdi*);
 - slimy sculpin (*Cottus cognatus*);

It is to be noted that not all species found in Lovers Creek are or may be specific to the subject property, as the watercourse is a tributary of the main branch of the Creek. Regardless, the tributary is an inclusion within the PSW and Environmental Protection Area designation.

5 RESOURCE SIGNIFICANCE

5.1 Vegetation Communities and Floristics

Extensive botanical surveys were conducted on July 23 and October 20, 2015 and on May 5, June 28, and 29 and September 2, 2016. Additional digital data were provided by Azimuth based on their site inventories conducted on behalf of other landowners on May 12, June 8 and 12, 2006; and May 22, June 27 and August 19, 2014. From these and other sources, an assessment of the resource significance of the on-site (study area) vegetation communities and their inherent plant species (floristics) was undertaken. In this regard, it is our professional opinion and as supported by the database and **City OP** schedules (**Figures 2 and 3**), that the wetland vegetation communities within the study area (SWMO1-1, MASO1-1 and their inclusions of MASO2-1 and SWTO2-6, along with SWDM4-5) are designated as provincially significant wetland features. The upland terrestrial woodland feature FOMM5-2 and parts of FOCM2-2 are illustrated as Significant Woodland (SW) on **City OP** Schedule H (**Figure 3**). The portion of FOCM2-2 within the proposed development area and FOMM4-2 are designated as General Industrial (**Figure 2**) and Level 1 with Existing Development Designation Subject to 3.5.2.4 d (**Figure 3**). In addition, the entire subject property and its features (cultural, terrestrial and wetland [PSW]) are regulated by the LSRCA under Ontario Regulation 179/06 (Figure 5).

5.2 Wildlife

As previously noted in **Section 4.3 Wildlife and Wildlife Habitat**, the majority of the birds, mammals, reptiles and amphibians noted on or abutting the study area are ubiquitous to the local geographical area.

5.3 Species of Conservation Interest

In terms of SAR, namely floral SAR and faunal SAR, no provincially Endangered or Threatened species as designated under the 2007 *ESA* were seen or heard on-site, either in the study area, on the remainder of the subject property, or on abutting lands to the east and south.

As mentioned in **Section 4.2.2**, only two bird species were observed or heard on-site that are designated either as Special Concern and/or Threatened on either a Federal and/or Provincial level. A wood thrush (*Hylocichla mustelina*) was heard calling during breeding season in the upland mixed woodland to the south and east of the proposed development area. This species is designated Threatened on a Federal level (**SARA 2002**) and is a Special Concern species in the Province (*ESA 2007*). The other bird species is eastern wood pewee (*Contopus virens*), which is designated as a Special Concern species under both

legislations. It was heard calling in the woodland features east of the study area. According to the **OBBA (Bird Studies Canada et al. 2006)** survey protocols, level of breeding evidence, and **OBBA 17PK01** square summary, both species are considered “possible” to “probable” breeders in this area.

The presence of snapping turtle was noted (i.e., broken eggshells) in the sandy substrate along the east-west trail, part of MEMM3. This species has been designated Special Concern in Ontario. It has no general or specific habitat protection at present. Tracked square records (Squares 17PK0610 and 17PK0611) from the NHIC dataquery web-site are contained in **Appendix F**.

Despite our comments in **Section 4.3** on the presence of bats and related habitat, it is possible that a number of species of bats (i.e., all Endangered under the *2007 ESA*) and their habitats could be present on that part of the property to be developed. No surveys were undertaken as part of this **SEIS** to determine either bat presence or habitat (e.g., the quality and quantity of bat snags per hectare). Instead of undertaking such surveys, the Ministry of the Environment, Conservation and Parks (MECP), which is now responsible for administering the *2007 ESA*, recognizes a timing window for tree cutting and clearing; if these activities are confined to the period between October 15th and April 15th, there will be no impact on bat habitat. In effect, this period avoids the active season for bats, when they would be hibernating and not using the woodland/PSW features. To minimize potential impacts on bats and bat habitat, a number of mitigation measures are recommended in **Section 6.4.2**.

5.4 Significant Wildlife Habitat

The results of the wildlife field inventories conducted by David Cunningham and supplemented with Azimuth data identified cultural, wetland and woodland features (e.g., attributes), their ecological functions and inherent faunal presence. Candidate SWH criteria used to identify and assess the potential designation of a feature or mosaic of features are outlined in Ecoregion 6E Criterion Schedule (Ministry of Natural Resources and Forestry 2015). For the purposes of this **SEIS**, a SWH assessment was not undertaken, nor warranted in our professional opinion, given that the majority of natural features on-site lie within the PSW, and/or are part of the SWH designation, both of which preclude development. Also, the entire subject property also lies within the regulated area of the LSRCA under Ontario Regulation 179/07, with the majority of the lands more or less protected and which will remain intact, with the exception of the proposed development area which is designated as General Industrial in the **City OP (Figure 2)**. The LSRCA is in agreement that the proposed development area is also not subject to the natural environment policies of the **Lake Simcoe Protection Plan** (Policies 6.20 to 6.29). The limits of

the proposed development area were determined through the pertinent wetland features boundary flagging conducted on October 20, 2015 and the application of an appropriate buffer.

5.5. Fish and Fish Habitat

The reach of the Lovers Creek tributary that is within the study area is classified as part of a coldwater creek system. The portion of the reach in the study area is far removed from the proposed development area and well buffered by a myriad of terrestrial (mixed and coniferous woodland) land/wetland features. It is also an inclusion and protected within the PSW and Environmental Protection Area of the **City OP**.

6 PROPOSED DEVELOPMENT PLAN, IMPACT EVALUATION AND MITIGATION

6.1 Development Opportunities and Constraints

Based on a review of background data and planning documents, site inventories and discussions with staff of the LSRCA, the northwestern corner of the property has development capabilities. This is recognized in Schedule A of the **City OP** with a General Industrial designation and the Schedule H overlay showing a development designation subject to policy 3.5.2.4 (d). The area of developable land amounts to 1.3 ha, which would be subject to an appropriate buffer to the adjacent PSW. Clearly, the wetland feature which is downgradient from the developable area is an unambiguous environmental constraint.

6.2 Development Proposal

Details of the proposed residential development are shown in **Figure 4**. To summarize, the intent is to develop the property with 104 townhome units, mainly stacked. Parking will be available for 162 vehicles, most of which will be underground. The development will be accessed from Huronia Road. A 5.0 wide buffer of existing vegetation to protect the downgradient PSW is recommended; justification of same is provided in **Section 6.4.1**. As indicated in **Figure 4**, there will be no site alteration or development within the PSW.

The following sections summarize the identification and assessment of impacts on the natural environmental features within and external to the development area. Measures and recommendations are proposed to mitigate potential negative impacts, particularly to the PSW's attributes and functions. Inherent in our recommendations is the notion that mechanisms are in place whereby specific measures can be implemented.

6.3 Development Issues

The environmental implications of implementing the proposed 104 townhouse units are identified below. Most of the issues are interrelated to varying degrees, and are inclusive of the following.

- Partial loss of ELC units FOMM5-2 and parts of FOCM2-2. Parts of these will remain untouched within the development footprint in the buffer that protects the PSW.
- Potential encroachment into a small part of the on-site Significant Woodland.
- Short term displacement of local wildlife species, and diminishment of concomitant breeding, feeding and roosting habitat due to loss of the above woodland ELC units.

-
- Short term construction impacts (i.e., noise, dust and lighting) on wildlife species composition, populations and their habitats, primarily in the remaining woodland ELC units and contiguous PSW.
 - Effects of treated stormwater on surface water quality in the downstream PSW and Lovers Creek.
 - Potential uncontrolled encroachment of humans and pets into the PSW/Significant Woodland Complex.

6.4 Impacts on Vegetation and Wildlife/Wildlife Habitat

The **Site Plan (Figure 4)** shows proposed land-uses within the wooded uplands. No special mitigation is proposed or warranted to address the reduction of these wooded areas (i.e., ELC units FOCM2-2 and FOMM4-2). This will be offset to some degree through landscape treatment to buffer residences on Loon Avenue to the north, and an Ecological Offsetting Plan (**Section 6.4.2**). As indicated above, there will be no direct impact (i.e., site alteration or development) on the PSW and its 5.0 m buffer. All of the PSW attributes and functions that currently exist within the subject property will be protected. No vegetation communities or individual plant species of conservation interest were observed in that part of the subject property to be developed. To ensure that the ecological integrity of the PSW and related Significant Woodland are protected in the long term, it is recommended that:

- **a 5.0 m natural buffer be implemented and enforced between the proposed development and the boundary of the Lovers Creek Provincially Significant Wetland, as shown in Figure 4; and**
- **the 5.0 m buffer should not be altered or disturbed and trees should not be cut or cleared within it except for safety (i.e., dead trees or trees of poor health).**

The LSRCA has in place an approved **Ecological Offsetting Plan** for removing woodlands and wetlands. The **Plan** provides two options: woodland replacement; or cash-in-lieu. Development of the 104 townhome units will require the removal of trees. In this regard, it is recommended that:

- **the applicant enter into discussions with the Lake Simcoe Region Conservation Authority to confirm an appropriate approach to tree removal and compensation.**

Impacts to wildlife attributes and functions associated with the developable upland will be direct, resulting primarily from the removal of vegetation cover. Nesting, feeding and resting locations for birds, mammals and herpetofauna within the tableland features will be diminished. Also, development may

result in the mortality of some wetland fauna such as frog species that could potentially disperse from the PSW during the late spring and summer. Mortality would be attributable primarily to an assumed increase in domestic pets, although road traffic could also be a factor. Given this potential implication, development adjacent to the PSW might not be in complete compliance with the **PPS**, particularly with respect to a strict interpretation of the no negative policy on PSW features or functions. However, we are of the view that it is not possible to construct and utilize the proposed development, while at the same time have absolutely no impacts on some features and functions of the PSW (e.g., migration routes that exist under present conditions). In short, very small negative impacts, to the smallest degree possible will be unavoidable. As a result, approval of the residential subdivision will necessitate some accommodation or discretion on the matter of negative impacts on wetland features, and for that matter, Significant Woodland attributes. Such very small impacts in our opinion are in keeping with the intent of the **PPS** and are acceptable. It is important to note that such impacts might similarly occur even if the proposed development is theoretically set further back from the PSW, say 120 m from its boundary.

Besides the small reduction of wildlife habitat and populations on the tablelands (i.e., adjacent lands to the PSW and Significant Woodlands), there will be a slight shift from early successional woodland dependent to edge dependent species, as well as a minor increase in species tolerant of an urban setting. The diminishment of wildlife habitat and concomitant reduction in local wildlife populations within the development footprints cannot be adequately mitigated. Landscape treatment, particularly in the buffer south of the Loon Avenue lots will assist in offsetting the reduction in wildlife habitats. Urban tolerant wildlife, particularly bird species (e.g., black-capped chickadee, American robin, mourning dove, chipping sparrow, European starling, house sparrow, northern cardinal, downy woodpecker, etc.) will remain after the development has been constructed and occupied.

Construction impacts that may affect the remaining upland vegetation cover (i.e., primarily the 5.0 m buffer) usually results from heavy equipment damaging tree trunks and branches, soil compaction, siltation, dust and noise. These short term duration impacts can be partially mitigated through the use of silt and construction fencing and chemical or natural dust suppressants. In this regard, it is recommended that:

- **silt/sediment fencing supplemented with a heavy duty construction fence be installed along the outer (i.e., northern) edge of the 5.0 metre buffer and maintained in good working order throughout the construction period.**

Human intrusions into the PSW/Significant Woodland complex presently exists, as evidenced by the many man-made paths (**Photographs 21 – 23**). To assist in reducing these influences, the above-mentioned silt/sediment and heavy duty construction fences should be replaced with a permanent black vinyl coated chain link fence, 1.5 m in height, which will diminish physical encroachment by landowners and household pets. At the same time, other attributes of the PSW offer meaningful social and educational benefits (e.g., birdwatching, nature appreciation, wildlife photography, etc.) should be encouraged. Accordingly, it is recommended that:

- **for long-term protection of the 5.0 buffer and contiguous Lovers Creek Provincially Significant Woodland, the earlier mentioned silt/sediment fence at the outer (i.e., northern) edge of the 5.0 metre buffer be replaced with a permanent black vinyl coated chain link fence 1.5 metres, to be located on property owned by the condominium corporation; and**
- **given that the Lovers Creek Provincially Significant Wetland is of Provincial interest and is within a designated Environmental Protection Area of the City of Barrie, the applicant prepare a “Stewardship/Homeowners’ Manual” to be registered on title and be distributed by the condominium corporation to participating homeowners. The document will provide educational material regarding the significance and sensitivity of the features and their functions to disturbances from residential development, as well as information on the conservation role/action that individual landowners can take. The intent is to provide the document to prospective purchasers of the 104 townhome units. Examples of inclusions are:**
 - **natural features associated with the Provincially Significant Wetland and Environmental Protection Area;**
 - **refuse/yard waste composting;**
 - **fertilizer and pesticide use (i.e., inclusive of herbicides, insecticides and pesticides);**
 - **impacts of noise and lighting;**
 - **trail use;**
 - **domestic pet impacts and controls; and**
 - **control of invasive plants.**

With respect to trails, **Photographs 21 – 23** are examples of existing trails and openings within and external to the development area. The subject application provides an opportunity to formalize the trail system within the Environmental Protection Area. In our opinion, a passive recreational trail would minimize impacts of uncontrolled human/pet incursion into the PSW and related Environmental Protection Area. Accordingly, it is recommended that:

- **the City of Barrie in consultation with the Lake Simcoe Region Conservation Authority consider the design and implementation of a low-impact footpath/walkway originating**

from the existing north/south pathway, and having the potential to be linked into the City's outdoor recreational program northeastwards, and elsewhere. Such a pathway would obviously contribute to educational and passive recreational opportunities, which are not otherwise available to the public at this location .

6.4.1 Rationalization of a 5.0 Metre Buffer Width

It is acknowledged that a 5.0 m buffer is not typically applied to a natural heritage feature. In this regard, Kate Lilly, Natural Heritage Ecologist with LSRCA set out her thoughts on how the buffer width should be determined. In her June 30, 2016 email, she wrote, “. . . for the buffer, please don't consider a 10 m buffer as being set. The buffer is something that should be determined through the EIS, it should be based on the assessment of natural features, the ecological function and the anticipated impact from proposed development. We would typically expect to see a 10 m buffer for a wetland in settlement areas, but as we discussed, a continuous 10 m buffer may not be possible here. The EIS should provide recommendations for the configuration of a buffer and substantiate how the proposed buffer is appropriate for the site”. This is exactly the approach that was taken. Based on three seasons worth of field investigations, there were no plants or wildlife species inventoried of provincial, regional or local significance that would warrant a buffer greater than 5.0 m. All of the floral and faunal species are common, widespread and secure in Ontario; none are Endangered or Threatened as per the *2007 ESA*. All of the species recorded are ubiquitous in the City of Barrie's urban landscape.

Kate Lillie's comments are consistent with the direction set out in the **Natural Heritage Reference Manual for Natural Heritage Policies of The Provincial Policy Statement** (Ministry of Natural Resources 2010). It states that the, “. . . identified buffer should be determined once the nature of the development is known and the extent of potential impact can be determined . . . buffers need to ensure no negative impacts be determined as part of the following studies or planning processes.

- an EIS or equivalent study by a proponent and approved by a planning authority;
- a secondary plan or development approval process;
- a comprehensive study; or
- a sub watershed study.

So, by direction from both the LSRCA and the Province, we have determined through field investigations that a 5.0 m buffer is more than sufficient to protect the on-site vegetation communities and the related

wildlife species. In other words, a 10 m buffer is not going to guarantee any more protective functions than would a 5.0 m buffer.

For further protection of the PSW/Significant Woodland features, it is recommended that:

- **all lands designated Environmental Protection Area outside the development footprint be dedicated to the City of Barrie, in keeping with Policy 4.7.2.3 (f) of the City of Barrie Official Plan**

6.4.2 Rationalization of Removal of Part of a Significant Woodland

As indicated earlier, small part of the Significant Woodland in the northwestern part of the property will need to be removed to enable the proposed residential development. This part of the woodland has already been substantially fragmented and disturbed by human activities (e.g., trails and tree cutting). It is clearly not a greenfield situation, given the openings that have occurred over the years. The wooded area at this location does not contain any interior wildlife habitat, nor does it provide habitat for provincially significant flora or fauna (i.e., Endangered or Threatened species). In our opinion, removal of 1.13 ha of woodland fringe already affected by man-made influences would not undermine the ecological integrity of the overall PSW/Significant Woodland complex. Accordingly, there are no compelling environmental reasons why trees cannot be removed. In this connection, it is recommended that:

- **Huronia Barrie Land Inc. obtain a tree removal permit from the City of Barrie to remove all trees from within the development footprint constituting the Site Plan;**
- **tree removal be undertaken between October 31 and March 15, when bat species are hibernating and would not be using potential roosting sites within this woodland. Alternately, Huronia Barrie Land Inc. should be permitted to remove trees outside the October 31 to March 15 timing window, provided that a qualified biologist/ecologist/arborist is in attendance;**
- **to mitigate loss of potential roosting trees, five (5) artificial structures (e.g., bat boxes) be installed on lands that will be assumed by the City of Barrie, preferably in openings in the forest or associated with open-water wetlands;**
- **artificial roosting structures be located a minimum of 3.5 metres from the ground and installed in locations that receive 6 – 8 hours of direct sunlight. If sites with only partial sunlight are available, then locations that receive morning sun are preferable; and**
- **where possible, artificial roosting structures should be installed in proximity to aquatic features (e.g., wetlands, watercourses) as these features have the potential to provide foraging opportunities for bats.**

The above timing window for tree removal not only accommodates the hibernaculum lifecycle of species of bats that are listed as Endangered in the SARO list and potentially may be occurring on the subject property, but it covers breeding birds under provisions of the federal *Migratory Birds Convention Act*.

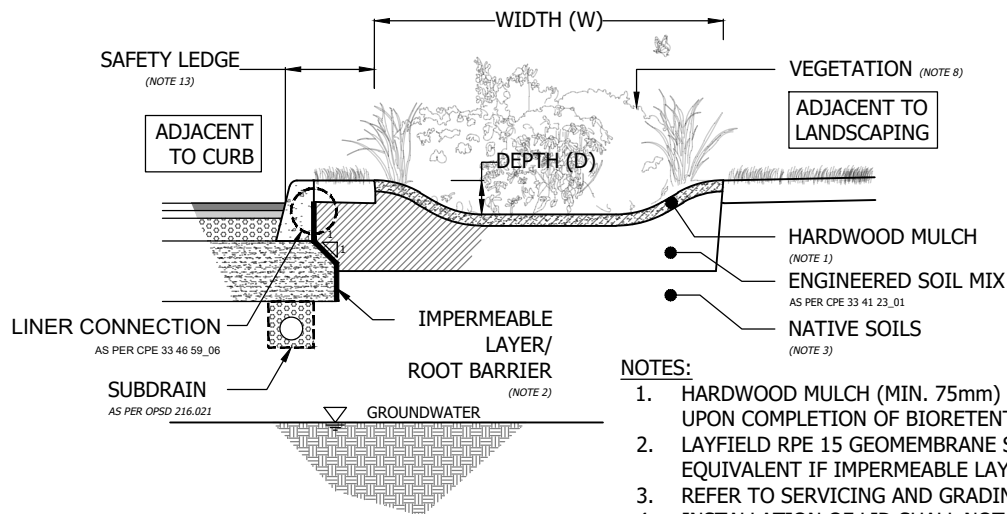
Once the site has been cleared of vegetation creating a developable area of 1.13 ha, trees on the outer (i.e., northern) edge of the 5.0 m buffer will be susceptible to windburn and sunscald, particularly those south of Block One. Accordingly, it is recommended that:

- **as a mitigation measure, an edge management plan be prepared for the exposed outer (i.e., northern) edge of the 5.0 m buffer as part of a formal landscape/compensation plan for the overall development.**

6.5 Stormwater Management

Given the proximity of the downgradient PSW to the proposed development site, implementation of an appropriate stormwater management system is required. As part of a draft Functional Servicing Report prepared by Counterpoint Engineering (January 2019), a proposal for managing stormwater runoff was included. It stated that, “. . . Quality control will be provided by the proposed surface LID features on site, which is a natural strategy that provides enhanced stormwater quality control for site runoff. Storage for quantity control is proposed to a maximum depth of 0.6 m above the bottom ground elevation within each feature. Below grade, a sand/soil media is proposed to filter and provide bioretention benefits.”

Figure 8 is **Figure 9** from the draft Counterpoint Engineering report; it is a conceptional section of the LID/storage features. In our opinion, once the proposed stormwater treatment facility is constructed and operational, there will be no negative water quality impacts on the down gradient PSW/Significant Woodland complex.

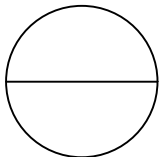


NOTES:

1. HARDWOOD MULCH (MIN. 75mm) SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF BIORETENTION CELL.
2. LAYFIELD RPE 15 GEOMEMBRANE SHALL BE USED OR APPROVED EQUIVALENT IF IMPERMEABLE LAYER IS SPECIFIED.
3. REFER TO SERVICING AND GRADING PLAN FOR OVERFLOW LOCATION
4. INSTALLATION OF LID SHALL NOT OCCUR UNTIL THE SITE IS STABLE AND THERE IS LOW RISK OF EROSION AND SEDIMENTATION TO THE SYSTEM. REFER TO EROSION & SEDIMENT CONTROL PLAN FOR PROTECTION MEASURES. IF INSTALLATION IS REQUIRED PRIOR TO SITE STABILIZATION, THE SYSTEM MUST BE ISOLATED FROM DRAINAGE BY MEASURES SUCH AS TEMPORARY PLUGS, TEMPORARY ASPHALT CURB, BERMS, ETC. TO AVOID CLOGGING BY SEDIMENT. ISOLATION STRATEGY IS TO BE APPROVED IN CONSULTATION WITH THE ENGINEER.
5. REFER TO LANDSCAPING PLAN FOR PLANTING STRATEGY.
6. GROUNDWATER MUST BE GREATER THAN 1.0m FROM BOTTOM OF THE FEATURE. IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION, CONSULT THE REVIEW ENGINEER IMMEDIATELY.
7. A MINIMUM 0.6m FIRM LEDGE SHALL BE PROVIDED WHERE TRAFFIC IS ADJACENT TO CURB.
8. BE CAUTIOUS NOT TO SMEAR THE NATIVE SOIL. THE EXCAVATION SHALL BE COMPLETE USING A BUCKET WITH TEETH AND THE BASE SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 150mm BELOW SUBGRADE.
9. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

SUMMARY:

SOIL LAYER		UNIT	MEASUREMENT
DEPTH	MULCH	mm	75
	ENG SOIL MIX	mm	300
WIDTH (W)		m	19
LENGTH (L)		m	45
PONDING DEPTH (D)		mm	500
INFILTRATION RATE		mm/hr	
GROUNDWATER ELEVATION		mASL	245.2



RAIN GARDEN

TYPICAL CROSS-SECTION

counterpoint
ENGINEERING

COUNTERPOINT ENGINEERING INC.
8395 Jane St., Suite 100, Vaughan, ON L4K 5Y2 Phone 905.326.1404 Fax 905.326.1405

SCALE	N.T.S.	REV	1.0
DWN BY	SDS	DWG	
CHD BY	---		
DATE	3 MAR, 2020		

Figure 8

PROCEDURE:

1. COMPLETE A REPRESENTATIVE SAMPLE SIEVE ANALYSIS ON TOPSOIL TO BE USED FOR MIX DESIGN. ADDITIONAL TESTS MAY BE REQUIRED BY THE DESIGN ENGINEER TO PROVIDE REFLECTIVE RESULTS.

$$Y = \% \text{ FINES } (< 0.05\text{mm})$$

2. MIX SAND, TOPSOIL, AND COMPOST TOGETHER TO PROVIDE UNIFORM MIXTURE AS PER VOLUMES IN TABLE 1, BELOW.

TABLE 1: BIORETENTION MIX % BY VOLUME

% TOPSOIL (T_S)	0.08/Y
% COMPOST ($C_{omp.}$)	$3 (1 - T_S)/29$
% SAND (S)	$1 - C_{omp.} - T_S$

COMPONENTS:

SAND: SAND IS TO BE CLEAN (0.050 - 2.0mm ϕ)

COMPOST: CATEGORY 'A' (CCME)

TOPSOIL: SOIL TAKEN FROM THE TOP 6" OF THE A-HORIZON, HAVING A DARK BROWN TO BLACK COLOUR, GRANULAR STRUCTURE AND CLAY CONTENT LESS THAN 25% VERIFIED WITH A RIBBON TEST < 25mm.

3. TEST MIXTURE AGAINST CRITERIA AND PROVIDE RESULTS TO THE DESIGN ENGINEER.

NOTES:

1. SOIL MIX SHALL ARRIVE PRE-MIXED FROM AN APPROVED VENDOR.

TESTING CRITERIA:

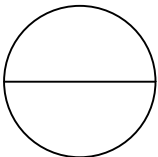
1. PHOSPHORUS SOIL TEST (P-INDEX) VALUE SHALL BE BETWEEN 10 TO 30 ppm. VISIT THE ONTARIO MINISTRY OF AGRICULTURE, FOOD, AND RURAL AFFAIRS WEBSITE (www.omafra.gov.on.ca) FOR INFORMATION ON SOIL TESTING AND A LIST OF ACCREDITED SOIL LABORATORIES.
2. SOILS SHALL HAVE A CATIONIC EXCHANGE CAPACITY (CEC) GREATER THAN 10 MILLIEQUIVALENTS PER 100g (meq/100g).
3. MIXTURE SHALL BE FREE OF STONES, STUMPS, ROOTS, OR OTHER SIMILAR OBJECTS LARGER THAN 50mm.
4. pH SHALL BE BETWEEN 5.5 TO 7.5. LIME CAN BE USED TO RAISE THE pH, OR IRON SULPHATE PLUS SULPHUR CAN BE USED TO LOWER THE pH.
5. THE HYDRAULIC CONDUCTIVITY (K) MUST BE GREATER THAN 25mm/hr.
6. SIEVE ANALYSIS (85-90% SAND, 8-12% FINES, 3-5% ORGANIC)

TABLE 2: TESTING CRITERIA

PROPERTY:	REQUIREMENT
P-INDEX	10 - 30 ppm
CEC	> 10meq/100g
pH	5.5 - 7.5
K	>25mm/hr

TABLE 3: SIEVE ANALYSIS CRITERIA

COMPONENT	REQUIREMENT
SAND (0.050 - 2.0mm ϕ)	85 - 88%
FINES (< 0.050 mm ϕ)	8 - 12%
ORGANIC MATTER	3 - 5%



ENGINEERED SOIL MIX

BIORETENTION SOIL MIX

counterpoint
ENGINEERING

COUNTERPOINT ENGINEERING INC.
8395 Jane St., Suite 100, Vaughan, ON L4K 5Y2 Phone 905.326.1404 Fax 905.326.1405

SCALE	N.T.S.	REV	1.0
DWN BY	SDS	DWG	
CHD BY	---		
DATE	10 SEP, 2019		33 41 23_01

7 POLICY COMPLIANCE, CONCLUDING REMARKS AND RECOMMENDATIONS

7.1 Compliance With Environmental Policies/Regulations

The results of our field investigations and analysis of natural features on and adjacent to the subject property indicate that the landholding can sustained 104 townhomes units, roads and stormwater treatment facilities. The following commentary summarizes how the proposed development complies with the various provincial and local environmental policies and regulations.

7.1.1 **2020 Provincial Policy Statement and *Endangered Species Act 2007***

Provincial policies that apply to the subject application include assurances that no development and site alteration will occur in the PSW or significant habitat of Endangered and Threatened species. With respect to Significant Woodlands, the **PPS** does not prohibit outright development and site alteration within this feature; rather, the test is that no negative impacts must be demonstrated, which is typically through an environmental impact study. Further, the **PPS** states that development and site alteration may be permitted on adjacent lands to a PSW and Significant Woodlands, provided that the ecological functions of the features are evaluated and it is demonstrated that there will be no negative impacts.

As indicated in **Section 6.2**, no part of the residential development will be constructed in the downgradient PSW; the principle of avoidance was paramount in designing the **Site Plan (Figure 4)**. A 5.0 m buffer is recommended to protect the feature. As well, on-site mitigation measures (i.e., silt/sediment curtains coupled with heavy duty construction fences) are recommended on the outer (i.e., northern) limit of the 5.0 m buffer in the short term, that is during the construction and “green-up”. In the long term, that is when the proposed development is built out and fully occupied, it is recommended that the silt/sediment and heavy construction fencing be replaced with a permanent black vinyl coated chain link fence, or other design/type satisfactory to the City of Barrie. This will assist in diminishing encroachment by landowners and household pets into the PSW. A key recommendation that will also contribute to protecting the ecological integrity of the P

SW and related Significant Woodland complex is the preparation of a “Stewardship/Homeowners Manual” and provision of same to potential purchasers and homeowners of the 104 townhome units. This will not only contribute to educational and natural feature interpretation benefits, which are not otherwise available to the public; but, it will reduce uncontrolled human/pet incursions.

Based on field investigations and a review of the NHIC data base, no Endangered and Threatened species were observed on the subject property. However, there is evidence of the western chorus frog (i.e., in the downgradient PSW), wood thrush and eastern wood pewee (i.e., in the canopy of the PSW/significant woodland complex), and snapping turtle eggs (i.e., in the shoulder of the existing access road). These species are Special Concern. Their presence will continue post-development within the PSW/Significant Woodland complex, just as they have adapted to residential development on Loon Avenue to the north and noise and traffic eastwards on Huronia Road.

With respect to the quality of urban runoff, it will be treated with on-site surface LID features, which is a storage and soil infiltration process providing an enhanced level of treatment, thereby complying with policy 2.2.1 h) of the **PPS**.

7.1.2 Growth Plan for the Greater Golden Horseshoe (2006)

Schedule A – Land Use in the **City OP** designates the subject lands as General Industrial and Environmental Protection Area. The proposed residential development will occupy lands associated with the General Industrial designation. The City of Barrie has identified a number of natural features associated with the Environmental Protection Area, including an adjacent PSW, a significant woodland and SWH. These features form, in theory, a protected contiguous mosaic of relatively undisturbed habitat for birds, mammals, amphibians and reptiles and their respective life cycles. They extend to varying degrees to the west (Huronia Drive), northeast (Lovers Creek valleylands), east (Lovers Creek ravine), and south of Maplevue Drive (**Figure 2**). Implementation of a low impact walking trail is recommended in this **SEIS**, to be linked into the City of Barrie’s outdoor recreational program northeastwards and elsewhere. In our opinion, such a trail would minimize impacts of uncontrolled human/pet encroachment into the PSW and related Environmental Protection Area, and would provide educational and passive recreational opportunities, which are otherwise not available to the public at this location. Accordingly, from two perspectives we are convinced that the proposed development complies with conservation elements of the **Growth Plan** (i.e., the identification of a mosaic of linked natural features, and a recommendation to contribute to the City of Barrie’s trail system for the provision of educational and recreational opportunities).

7.1.3 City of Barrie Official Plan

No part of the proposed residential development is within the PSW. The entire development is on adjacent lands, protected by an upland woodland buffer that is 5.0 m in width. A number of mitigation measures to offset potential impacts are recommended to ensure the long-term integrity of the adjacent PSW and it's related to Significant Woodland. In this regard, policies that are relevant to the development proposal are set out in **Table 5**, together with our responding comments. It is our opinion that the contemplated residential development that is shown in **Figure 4** conforms to select environmental policies in Sections **3.5.2.4** and **4.7** of the **City OP**.

7.1.4 Ontario Regulation 179/06: Lake Simcoe Region Conservation Authority Regulation of Development, Interference With Wetlands And Alterations To Shorelines And Watercourses

As indicated in **Section 2.3**, development is not permitted in wetlands, inclusive of PSW's or on adjacent lands (i.e., within 30 m) where it could interfere with the hydrologic function of a wetland. Given that the proposed townhome development is within 120 m of PSW, a permit will be required from the LSRCA prior to any site alteration or development.

7.2 Concluding Remarks and Recommendations

1. Michalski Nielsen Associates Limited was retained on September 13, 2019 by Huronia Barrie Land Inc. to undertake a **SEIS** in support of an OPA and ZBA of a property located on the eastern side of Huronia Road, about 50 m south of Loon Avenue.
2. The legal description of the 6.2 ha landholding is Part of the West Half of Lot 11, Concession 12, Geographic Township of Innisfil, City of Barrie, County of Simcoe. The current land use designation in Schedule a of the **City OP** is Environmental Protection Area and General Industrial (**Figure 2**); the proposed designation is Residential.
3. Schedule H of the **City OP (Figure 3)** is a Natural Heritage Resource Overlay to Schedule A. It shows that the landholding is characterized as Level 1 and Level 1 With Existing Development Designation Subject to 3.5.2.4 d). From a policy perspective, the natural features that need to be addressed include: PSW; significant habitat of Endangered and Threatened species; Significant Woodlands and SWH.

Table 5. City of Barrie Official Plan policies relevant to the proposed development, and related responses.

Policy	Commentary
3.5.2.4 Natural Heritage Resources (a)	(a) The Natural Heritage resources in the City of Barrie are depicted on Schedule H. Schedule H is intended to be used as an overlay to Schedule A: Land Use. Through the implementation of the following policies, schedule H can be used as a guide to promote the protection, enhancement, and restoration of the city’s natural heritage features and functions. (i) Level 1 resources represent critical components of the Natural Heritage Resource network. No development shall be permitted within these areas. • Environmental Protection Area policy 4.7.2.2 would apply to all properties identified as Level 1. • The City will strive to designate all properties identified as having a Level 1 Natural Heritage Resource as Environmental Protection. • An Environmental Impact Study (EIS) will be required for any development or site alteration within 120 metres of an area identified as Level 1 on Schedule H. <i>Comment: As indicated in Schedule H, the principle of development (i.e., General Industrial) has been established on the upland woodland part of the property. The balance is designated Environmental Protection Area. Schedule H which is an overlay to Schedule A confirms the Existing Development Designation subject to 3.4.2.4 (d).</i> ii. Level 2 resources represent significant components of the Natural Heritage Resource network. The features and function of these areas should be retained, however, there is potential for development if no negative impact can be demonstrated or mitigated. • An EIS will be required to be completed for any development or site alteration in or within 120 metres of an area identified as Level 2 on Schedule H. <i>Comment: A SEIS was prepared in support of the proposed townhome units shown in the Site Plan (Figure 4). No negative impacts are anticipated on the features and functions of the adjacent PSW/Significant Woodland complex (Section 6.4.2).</i> (d) Notwithstanding the land use limitations applicable to properties identified as Level 1 in Section 3.5.2.4 (a) i), where an existing designation permits other forms of development, such development may proceed subject to the policies of Level 2 in Section 3.5.2.4 (a) ii) and the appropriate planning application processes. <i>Comment: Because the developable part of the proposed townhomes is within 120 m of the PSW/Significant Woodland complex, a SEIS was prepared.</i>

Table 5 (Cont'd.)

4.7 Environmental Protection Areas 4.7.1 Goals	(a) To protect, conserve and manage the Environmental Protection Area lands as a permanent and long term public resource. <i>Comment: The principle of development (i.e., General Industrial) has already been established for the upland woodland part of the property (Schedules A and H of the City OP). No part of the proposed development will encroach or be located in the downgradient PSW. Removal of an already altered fringe of the Significant Woodland will not undermine the ecological integrity of the feature.</i> (c) To protect, preserve and enhance land with environmentally significant natural features and ecological functions and to maintain and improve where possible, the diversity of natural features or ecological functions for which an area is identified. <i>Comment: No part of the proposed development will encroach or be located in the downgradient PSW. Removal of an already altered fringe of the Significant Woodland will not undermine the ecological integrity of the feature as a whole.</i> (d) To maintain Environmental Protection Areas as viable and natural ecosystems through the protection of the wildlife and aquatic habitats, the maintenance of the flood control and storage capacities of the flood plain, and the enhancement of the water quality and the natural water filtration capability of the system. <i>Comment: No development or site alteration is proposed within the PSW. All wildlife and aquatic habitats associated with the PSW/Significant Woodland complex will be retained. Post-development overland flows will balance pre-development, with infiltration occurring through application of LID technology.</i> (e) To identify significant natural features and their associated ecological functions in the City as part of an overall Natural Heritage Strategy and identify natural connections between the features which shall be maintained and improved as environmental corridors and ecological linkages where possible. <i>Comment: The PSW/Significant Woodland complex and associated wildlife species within the subject property were identified, inventoried and evaluated, with corridors maintained north and southwards.</i>
4.7.2 Policies 4.7.2.1 Definition	Lands designated as Environmental Protection Areas on Schedule A include, but are not limited to: (a) Provincially or locally significant features or functions such as those areas containing the following: i) aquifer recharges, headwaters; ii) wetlands; iii) rare species including unique plants; iv) important ecological functions; v) significant habitat of threatened and endangered species;

Table 5 (Cont'd.)

	vi) <i>areas of natural and scientific interest life science and earth science; (Mod E (ggg)(i))</i> vii) significant woodlands; viii) <i>significant valleylands;</i> ix) <i>significant wildlife habitat;</i> x) surface water features, valley and stream corridors; and xi) fish habitats. <i>Comment: The property is characterized as having a PSW/Significant Woodland complex, fish habitat (i.e., Lovers Creek), with potential significant habitat of Endangered species (i.e., bats).</i> (b) The City currently contains within its boundaries portions of three Provincially Significant Wetlands. These are the <i>Willow Creek/Little Lake Wetland</i>, the <i>Lovers Creek Wetland</i> and the <i>Bear Creek Wetland identified on Schedule H</i>. The area known as the <i>Allandale Lake Algonquin Bluffs Area of Natural and Scientific Interest</i> located in the southern portion of the <i>Ardagh Planning Area</i> is of Provincial significance and is also to be protected from uses that would detract from its environmental value. <i>Comment: The Provincially Significant Lovers Creek Wetland is present on the subject property.</i> (c) Natural hazard lands and sites including areas of flood plain, erosion, steep slopes and unstable soils. <i>Comment: Refer to Hydrogeological Investigation, 521 Huronia Road, Barrie, Ontario, prepared by Terraprobe (January 2020).</i>
4.7.2.2 Permitted Uses	(a) Environmental Protection Areas are intended primarily for preservation and conservation in their natural state. Such uses as passive outdoor recreation, forestry, and wildlife management may be permitted where appropriate. <i>Comment: Outside of the proposed development footprint, the natural features inclusive of the PSW/Significant Woodland complex which is designated as Environmental Protection Area in the City OP will be dedicated to the City of Barrie. This approximates 5.0 ha.</i>

Table 5 (Cont'd.)

	(b) No buildings or structures shall be permitted in Environmental Protection Areas other than those necessary for flood or erosion control or for conservation purposes as approved by the City in consultation with the applicable <i>agencies</i>. Ancillary or accessory uses to permitted uses shall be located on adjacent lands outside of Environmental Protection Areas, unless their location within the Environmental Protection designation is efficient, cost effective and in the public interest, and consistent with protection of the environment; in all cases ancillary and accessory uses shall be developed in accordance with Provincial Policy. <i>Comment: There is no development or site alteration within the boundary of the PSW. Removal of upland vegetation in an already altered fringe of the Significant Woodland will be necessary; this activity will not undermine the ecological integrity of the feature as a whole.</i>
4.7.2.3 General Policies	(a) Development and site alteration in Provincially Significant Wetlands and <i>the significant</i> habitat of threatened and endangered species is contrary to the Provincial Policy Statement and will not be considered <i>with the exception of public works/utilities subject to Section 5.1.2.1 of this Plan</i>. <i>Comment: There will be no development or site alteration in the on-site PSW. No Endangered or Threatened species were identified during field investigations and from a review of background file information. It is assumed that Endangered species of bats and their related habitats potentially occur in the wooded area to be developed. Appropriate recommendations are provided to offset the loss of habitat (Section 6.4.2).</i> (b) The re-designation of Environmental Protection Areas <i>to a designation that permits development and site alteration</i> shall be discouraged. <i>Comment: The proposed residential development will not require a re-designation of any part of the Environmental Protection Area.</i> (c) Where an application is made to re-designate Environmental Protection lands other than Provincially Significant Wetlands and the habitat of threatened and endangered species, the City shall require the completion of an Environmental Impact Study to the satisfaction of the City in consultation with the Ministry of Environment, the applicable Conservation Authority and any other relevant agency. <i>Comment: The proposed residential development will not require a re-designation of any part of the Environmental Protection Area.</i>

Table 5 (Cont'd.)

	(d) An amendment to the Environmental Protection Area designation shall only be considered where the results of an environmental study clearly demonstrate that there will be no negative impacts on the natural features or ecological functions for which the Environmental Protection Area has been identified <i>with the exception of provincially significant wetlands and habitat of threatened and endangered species.</i> <i>Comment: The proposed residential development will not require an amendment to any part of the Environmental Protection Area.</i> (e) Development and site alteration shall not be permitted in fish habitat areas except in accordance with Provincial and Federal requirements. <i>Comment: Not relevant as there is no fish habitat on that part of the subject property to be developed.</i> (f) Environmental Protection Areas shall not be acceptable as part of the dedication for parkland as required under the <i>Planning Act</i>. The City shall seek to acquire such lands by dedication from land owners. <i>Comment: The intent of Huronia Barrie Land Inc. is to dedicate/convey the Environmental Protection Area lands within the subject property to the City of Barrie.</i> (g) All lands dedicated to the City shall be conveyed in a physical condition satisfactory to the City. Where a valley or stream corridor area is to be dedicated, it shall include the watercourse and associated riparian vegetation, floodplain or erosion hazard lands, top of bank and any additional lands deemed necessary to protect ecological functions, or for pedestrian corridors, wildlife habitat, natural area viewing, and maintenance operations. <i>Comment: The intent of Huronia Barrie Land Inc. is to convey/dedicate the Environmental Protection Area lands within the subject property in their existing condition.</i>
4.7.2.4 Adjacent Lands	(a) Development and/or site alteration may be permitted on lands adjacent to Environmental Protection Areas if it has been demonstrated through an Environmental Impact Study (EIS) that it will not negatively impact the natural features or ecological functions for which the area is identified. The diversity of natural features in the area and the natural connections between them should be maintained and improved where possible. <i>Comment: The development proposal is on adjacent lands to the PSW, with a SEIS prepared to support development as set out in Figure 4 herein.</i> (b) <i>Adjacent lands are defined by the MNR Natural Heritage Reference Manual as being located 120 metres from a provincially significant wetland and endangered and threatened species habitat, 50 metres from significant woodlands, significant valleylands, significant wildlife habitat, and areas of natural and scientific interest and 30 metres from fish habitat.</i> <i>Comment: No comments are needed.</i>

Table 5 (Cont'd.)

	(c) Where the Conservation Authorities have undertaken <i>mapping and regulations</i> are in place, approval for any development must be obtained from the relevant Authority. <i>Comment: The subject property is within 120 m of the PSW, which is regulated by the LSRCA. Accordingly, a permit will be required prior to any site alteration or development.</i> (d) The City may consider the reduction or re-allocation of development densities in order to preserve existing woodlots, mature trees and other natural areas and features which are not identified within the Environmental Protection Area designation. <i>Comment: Policy not applicable to proposed residential plan, as shown in Figure 4.</i> (e) Where additional buffer areas or connecting links required to maintain ecological function outside of lands designated Environmental Protection re recommended to protect the natural features and functions within lands designated Environmental Protection, these lands shall be designated and zoned Environmental Protection. <i>Comment: Policy not required.</i>
4.7.2.5 Surface Water Features, Watercourses and Valleylands	(a) Development and site alteration shall be restricted in or near sensitive surface water features and their related hydrological functions will be protected, improved, or restored. <i>Comment: Proposed residential development will respect and protect adjacent surface water features and related hydrological functions through implementation of a array of mitigation measures (refer to Section 6 herein).</i> (b) Mitigating measures and/or site alternative development approaches may be required in order to protect, improve, or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions. <i>Comment: A number of practical mitigation measures are recommended for implementation in Section 6 herein. All are intended to protect existing on-site and downgradient terrestrial and aquatic features.</i> (c) Valley and stream corridors shall be protected from development and integrated as part of the natural heritage system network accommodating wildlife and pedestrian movement and passive areas. <i>Comment: There are no valley or stream corridors associated with the proposed development footprint. The downgradient tributary to Lovers Creek and its riparian areas are well-removed southwards from the proposed area of development.</i> (d) In reviewing any development proposal adjacent to a valley and stream corridor, the City will require the protection and/or enhancement of the feature and its functions to facilitate a natural, open space corridor. The feasibility of rehabilitating watercourses to a natural state will be considered at the time of such review. <i>Comment: Policy not relevant to the proposed development, as the tributary to Lovers Creek is well-removed southwards.</i> (e) Development limits shall be established by the limit of the valley or stream corridor which shall include the watercourse, and associated riparian vegetation, floodplain or erosion hazard lands, top of bank and any additional lands, such as buffers

Table 5 (Cont'd.)

	deemed necessary to protect ecological functions. All lands associated with the valley and stream corridor shall be zoned Environmental Protection and shall not form part of the development. <i>Comment: Policy not relevant to the proposed development, as the tributary to Lovers Creek is well-removed southwards.</i> (f) Where a watercourse supports warm or coldwater fish habitat, an appropriate riparian vegetation zone shall be required. Land uses within the vegetation zone shall be restricted to those which maintain or enhance the natural features and ecological functions of the area. <i>Comment: Policy not relevant to the proposed development, as the tributary to Lovers Creek is well-removed southwards.</i> (g) Emphasis shall be placed on the potential development of Lover's, Bear, Hewitt's, Sophia, Kidd's, Bunker's, Dymen's, Hotchkiss and Whiskey Creeks, as linear open space corridors. As part of the municipal approvals process, the City shall seek to acquire these areas. <i>Comment: The intent of Huronia Barrie Land Inc. is to dedicate/convey the Environmental Protection Lands within the subject property to the City of Barrie, inclusive of lands adjacent to the tributary of Lovers Creek.</i> (h) <i>Development and site alteration shall not be permitted in significant valleylands unless it has been demonstrated by the proponent, to the satisfaction of the City, that there will be no negative impacts on their natural features and ecological functions</i> <i>Comment: Policy not relevant to the proposed residential development as there are no significant valleylands on the developable part of the property, or on adjacent lands.</i>
4.7.2.6 Woodlands and Hedgerows	(a) Development and site alteration shall not be permitted in significant woodlands unless it has been demonstrated that there will be no negative impacts on the natural features and ecological functions. <i>Comment: Significant woodlands make up a substantial part of the fabric of the adjacent PSW/significant woodland complex. The development proposal calls for the removal of an already altered fringe of the Significant Woodland. The impact will not undermine the integrity of the feature, and is considered an acceptable impact.</i> (b) Woodlands shall generally be defined as a contiguous wooded area, of no less than 0.2 ha, irrespective of ownership, maturity, composition, and density in accordance with the City's Tree Preservation By-law. <i>Comment: Woodlands on the subject property are considered to be Significant Woodlands.</i> (c) Where an Environmental Protection Area consists of a woodland, the City will control development adjacent to this area to prevent destruction of trees. <i>Comment: This SEIS includes a number of recommendations that will prevent destruction of trees (Section 6.4).</i>

Table 5 (Cont'd.)

4.7.2.7 Wildlife Habitat	<i>(a) Development and site alteration shall not be permitted in significant wildlife habitat unless it has been demonstrated by the proponent, to the satisfaction of the City, that there will be no negative impacts on their natural features and ecological functions.</i> <i>Comment: No candidate SWH has been identified for the subject property, and if such habitat is confirmed, it would already be protected within the Environmental Protection Area designation.</i>

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4. The boundary of part of a PSW was verified in consultation with staff of the MNRF, resulting in an area of developable land in the northwestern quadrant of the subject property.
 5. There are no structures on site, with most of the existing land use consisting of upland and lowland mixed and coniferous woodland, old field, cultural mixed woodland, cultural thicket, and wetland units of the PSW. A tributary of Lovers Creek traverses the southwestern part of the property, well-removed from the proposed development area and well-buffered by a mosaic of upland terrestrial and wetland features.
 6. Extensive field inventories and evaluations of natural features have been conducted over the years, with the following results.
 - a) Two upland woodland ELC units dominate the area to be developed (i.e., FOMM5-2 and FOCM2-2). Neither are considered rare or otherwise significant on either a national or provincial level. Similarly, none of the individual plant species on the tablelands are considered Endangered or Threatened on a federal or provincial level.
 - b) Forty-five bird species were identified, and twelve mammals were observed, heard or evidence of presence noted either on the subject property or on adjacent lands. Seven herpetofauna species were observed.
 7. With respect to Species of Conservation Interest, two species associated with the subject property or adjacent lands are Threatened provincially, the western chorus frog and wood thrush. Two species are Special Concern: the eastern wood-pewee; and snapping turtle. Otherwise, all of the birds, mammals and amphibians are ubiquitous to the geographical area. Life cycle habitats existing for wood thrush and eastern wood-pewee, both of which were heard calling from adjacent woodlands, will not be affected by the proposed development. Life cycle habitats for the western chorus frog and snapping turtle are abundant in the PSW; as noted earlier, no development is proposed in this feature, which will be protected by a 5.0 m buffer. That part of the subject property to be developed does not contain any interior forest breeding habitat (i.e., areas greater than at least 100 m from the outer edges of the Significant Woodland), primarily because of its fringe location.
 8. The proposed development includes 104 townhome units and related infrastructure (i.e., roads and parking, below grade potable water and sewage distribution systems, and a stormwater

treatment system). Of importance is that there will be no direct impact (i.e., development or site alteration) on the PSW or City of Barrie designated Environmental Protection Area; all of the ecological functions associated with these features will be protected post-development. The environmental implications of the proposed development are as follows.

- Partial loss of ELC units FOMM5-2 and FOCM2-2.
- Potential encroachment into a small part of the Significant Woodland.
- Short term displacement of local wildlife species, and diminishment of concomitant breeding, feeding and roosting habitat due to diminishment of the above ELC units.
- Short term construction impacts (i.e., noise, dust and lighting) on wildlife species composition, populations and their habitats.
- Effects on treated stormwater on surface water quality in the downgradient PSW and tributary to Lovers Creek.
- Potential uncontrolled encroachment of humans and pets into the PSW/Significant Woodland Complex.

9. A suite of measures to mitigate potential negative impacts are recommended, with particular emphasis on protecting attributes and functions of the PSW/Significant Woodland Complex. These are as follows.

- **A 5.0 m natural buffer be implemented and enforced between the proposed development and the boundary of the Lovers Creek Provincially Significant Wetland, as shown in Figure 4.**
- **The 5.0 m buffer should not be altered or disturbed and trees should not be cut or cleared within it except for safety (i.e., dead trees or trees of poor health).**
- **The applicant enter into discussions with the Lake Simcoe Region Conservation Authority to confirm an appropriate approach to compensation.**
- **Silt/sediment fencing supplemented with a heavy duty construction fence be installed and along the outer (i.e., northern) edge of the 5.0 metre buffer and maintained in good working order throughout the construction period.**
- **For long-term protection of the 5.0 buffer and contiguous Lovers Creek Provincially Significant Woodland, the earlier mentioned silt/sediment fence at the outer (i.e., northern) edge of the 5.0 metre buffer be replaced with a black vinyl coated chain link fence not higher than 1.5 metres, to be located on property owned by the condominium corporation and in keeping with the style and type set out in Section 5.3.5.4 of Zoning Bylaw 53 (Office Consolidation, September 13, 2019).**

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- Given that the Lovers Creek Provincially Significant Wetland is of Provincial interest and is within a designated Environmental Protection Area of the City of Barrie, the applicant prepare a “Stewardship/Homeowners’ Manual” to be registered on title and be distributed by the condominium corporation to participating homeowners. The document will provide educational material regarding the significance and sensitivity of the features and their functions to disturbances from residential development, as well as information on the conservation role/action that individual landowners can take. The intent is to provide the document to prospective purchasers of the 104 townhome units. Examples of inclusions are:
 - natural features associated with the Provincially Significant Wetland and Environmental Protection Area;
 - refuse/yard waster composting;
 - fertilizer and pesticide use (i.e., inclusive of herbicides, insecticides and pesticides);
 - impacts of noise and lighting;
 - trail use;
 - domestic pet impacts and controls; and
 - control of invasive plants.
 - The City of Barrie in consultation with the Lake Simcoe Region Conservation Authority consider the design and implementation of a low-impact footpath/walkway originating from the existing north/south pathway, and having the potential to be linked into the City’s outdoor recreational program northeastwards, and elsewhere. Such a pathway would obviously contribute to educational and passive recreational opportunities, which are not otherwise available to the public at this location .
 - All lands designated Environmental Protection Area outside the development footprint be dedicated to the City of Barrie, in keeping with Policy 4.7.2.3 (f) of the City of Barrie Official Plan.
 - As a mitigation measure, an edge management plan be prepared for the exposed outer (i.e., northern) edge of the 5.0 metre buffer, as part of an overall landscape plan for the proposed development.
 - Huronia Barrie Land Inc. obtain a tree removal permit from the City of Barrie to remove all trees from within the development footprint constituting the Site Plan.
 - Tree removal be undertaken between October 31 and March 15, when bat species are potentially hibernating and would not be using potential roosting sites within this woodland. Alternately, Huronia Barrie Land Inc. should be permitted to remove trees outside the October 31 to March 15 timing window, provided that a qualified biologist/ecologist/arborist is in attendance.
 - To mitigate loss of potential roosting trees five (5) artificial structures (e.g., bat boxes) be installed on lands that will be assumed by the City of Barrie, preferably in openings in the forest or associated with open water wetlands.
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- Artificial structures be located a minimum of 3.5 metres from the ground and installed in locations that receive 6 – 8 hours of direct sunlight. If sites with only partial sunlight are available, then locations that receive morning sun are preferable.
 - Where possible, artificial roosting structures should be installed in proximity to aquatic features (e.g., wetlands, watercourses) as these features have the potential to provide foraging opportunities for bats.

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**APPENDIX A – CONFIRMATION OF BOUNDARY OF
PROVINCIALY SIGNIFICANT LOVERS
CREEK WETLAND WITHIN SUBJECT
PROPERTY AND ON ADJACENT
LANDHOLDINGS (SOURCE: MINISTRY OF
NATURAL RESOURCES AND FORESTRY)**

Michalski Nielsen Associates

From: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Sent: Wednesday, January 27, 2016 12:54 PM
To: Cunningham Environmental Associates; 'Nicola Mitchinson'
Cc: Michalski Nielsen Associates
Subject: RE: Huronia Road Wetland Survey
Attachments: 521HuronRd_Barrie_LoversCkPSW-2016-01-27.pdf;
521HuronRd_Barrie_LoversCkPSW-2016-01-27.pdf

Dave and Nicola attached for your attention is a pdf of the boundary amendment made to the Lover's Creek provincially significant wetland mapping on 521 Huronia Road in Barrie (subject property bounded by the blue line in the attached). The amendment is based on the survey data provided to this office following our October 20, 2015 site meeting. The yellow hatched area represents the area of wetland on the property going forward, amended from the original wetland boundary represented by the pink line.

By this correspondence we confirm acceptance of the wetland boundary interpreted on site in October. The wetland boundary amendment will be submitted to Land Information Ontario shortly.

We trust this is satisfactory. Please call with any further questions.

Regards,

Graham Findlay
Management Biologist
Huron Resources Management Team
Midhurst, MNRF
705-725-7530
705-725-7584 (fax)
graham.findlay@ontario.ca

From: Cunningham Environmental Associates [mailto:cea@cogeco.ca]
Sent: January 26, 2016 3:08 PM
To: 'Nicola Mitchinson'
Cc: Michael Michalski; Cunningham Environmental Associates; Findlay, Graham (MNRF)
Subject: RE: Huronia Road Wetland Survey
Importance: High

Nicola,

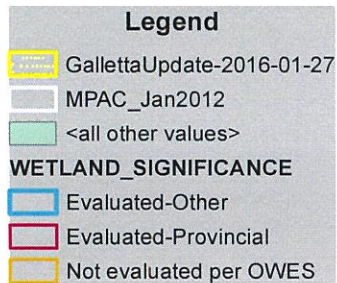
MNRF (Graham Findlay) will overlay (GPS) the partial wetland boundaries on an aerial photo base. We did not stake the remainder of both wetlands as the boundaries to the south and west were not germane to the proposed development area.

Graham will provide a wetland boundary map for these two wetland pockets and extrapolate the remainder of each boundary.

Your OLS needs to provide a .shp file or equivalent to Graham Findlay (MNRF Midhurst Office), as the mapping will be produced by their office.

Regards,

521 Huronia Road, City of Barrie - Lover's Creek PSW Amendment 2016

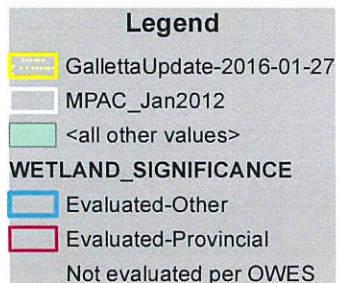
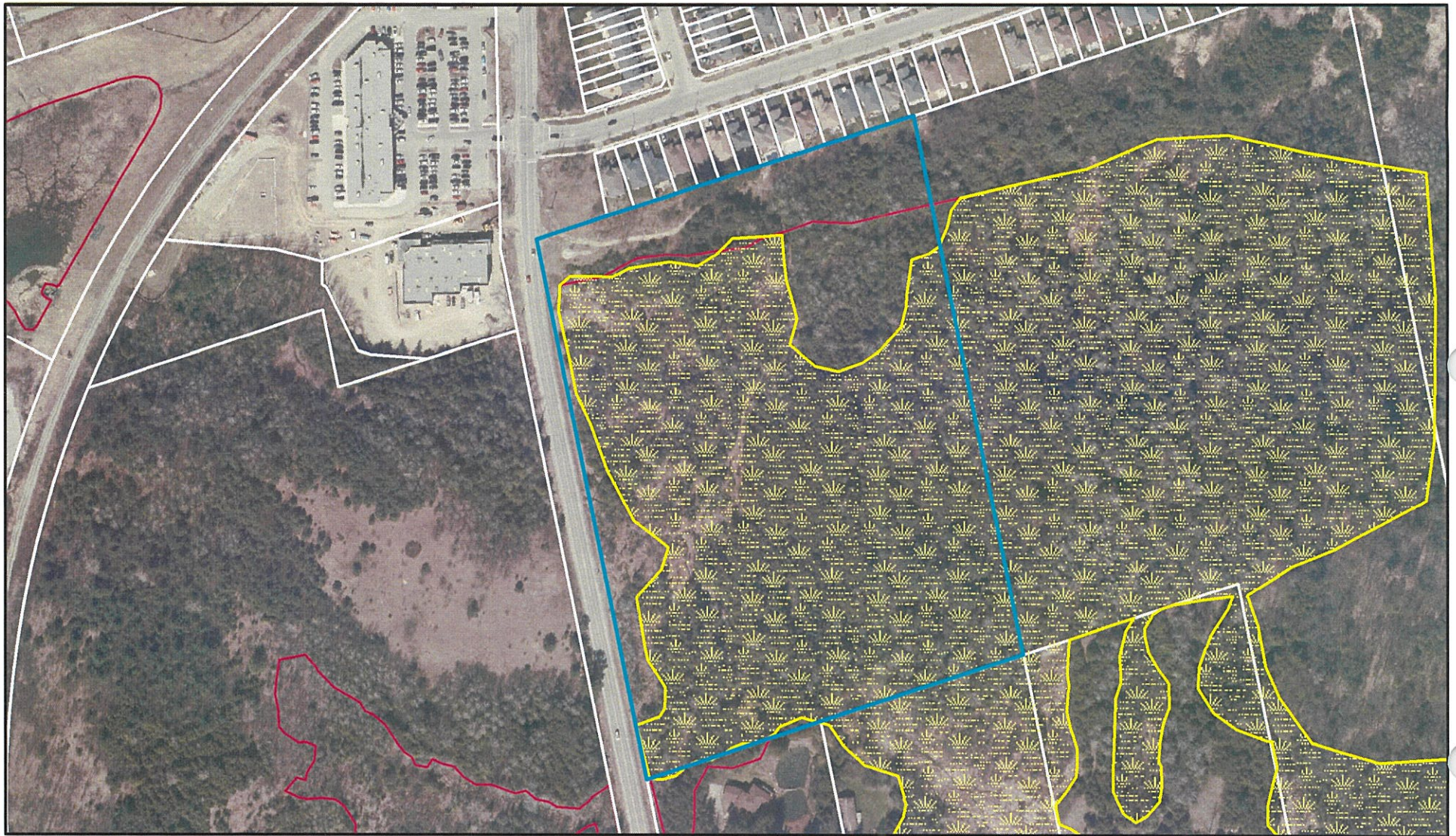


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Note:
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from MNR NRVIS database.



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Michalski Nielsen Associates

From: Michalski Nielsen Associates
Sent: Wednesday, September 21, 2016 11:32 AM
To: 'Findlay, Graham (MNRF)'
Subject: RE: Huronia Road; Our File 2515

Graham, could you please send me the latest wetland boundary in CAD format? Many thanks.

Michael Michalski
Limnologist /Senior Adviser
Phone: (705) 645-1413 /Cell: (705) 644-9587/ info@mna1.ca

Fr

521 Huronia Road, City of Barrie - Lover's Creek PSW Amendment 2016



Legend

 GallettaUpdate-2016-01-27

 MPAC_Jan2012

 <all other values>

WETLAND_SIGNIFICANCE

 Evaluated-Other

 Evaluated-Provincial

 Not evaluated per OWES



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Note:
Wetland, Parcel and Photographic data layers
from MNR NRVIS database.

**APPENDIX B – ACAD FILE OF PROVINCIALY
SIGNIFICANT LOVERS CREEK WETLAND
WITHIN SUBJECT PROPERTY (SOURCE:
RUDY MAK SURVEYING LTD)**

**APPENDIX C – EMAIL EXCHANGES BETWEEN LAKE
SIMCOE REGION CONSERVATION
AUTHORITY AND MICHALSKI NIELSEN
ASSOCIATES LIMITED**



Notes on Conference Call

Date: June 21, 2015

Participating: Kate Lillie, Lake Simcoe Region Conservation Authority
David Cunningham, Cunningham Environmental Associates
Michael Michalski, Michalski Nielsen Associates Limited

Our File: 2515 **Re:** 521 Huronia Road

The following points were discussed during a conference call to confirm the terms of reference for a Scoped Environmental Impacts Study (SEIS) for an official Plan amendment and rezoning of 521 Huronia Road, City of Barrie.

1. The following surveys for natural heritage features were undertaken by Azimuth Environmental Consulting, Inc.
 - List of mammals observed or signs
 - Breeding bird survey
 - Evening amphibian calling survey
 - Plant inventory by species
 - Identification and confirmation of boundary of Provincially Significant Wetland (PSW).
2. An Ecological Land Classification map has been prepared for the subject property.
3. KL indicated that the functions of the PSW and contiguous woodland need to be confirmed, including whether the woodland is significant, as per the 2014 Provincial Policy Statement (PPS), and whether significant wildlife habitat in the context of the 2014 PPS is present.
4. The consultants will contact Graham Findlay in the Midhurst District of the Ministry of Natural Resources and Forestry to confirm the presence of any species of conservation interest.
5. As per direction from Charles Burgess, a buffer width of 10 metres from the boundary of the PSW will be acceptable, with some variation permitted, as long as a balanced width is achieved.
6. It is the understanding of the consultants that none of the policies set out in the Lake Simcoe Protection Plan are applicable because the subject landholding is in a Settlement Area. KL will confirm and advise.

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APPENDIX A –

**EMAIL EXCHANGES BETWEEN LAKE
SIMCOE REGION CONSERVATION
AUTHORITY AND MICHALSKI
NIELSEN ASSOCIATES LIMITED**

Michalski Nielsen Associates

From: Kate Lillie <K.Lillie@lsrca.on.ca>
Sent: Friday, June 24, 2016 12:11 PM
To: Michalski Nielsen Associates; cea@cogeco.ca
Cc: Tony Galletta; Nicola Mitchinson; Charles Burgess; Lisa-Beth Bulford
Subject: RE: Conference Call - 521 Huronia Rd, Barrie

Hi Michael and David,

It was nice to speak with you both on Tuesday regarding the terms of reference for a scoped EIS for 521 Huronia Dr. I was able to provide an update to Charles on the outcome of our discussion and wanted to follow up with everyone regarding a few items that were unresolved as well as to reiterate what was agreed upon for the terms of reference.

1. The LSPP natural heritage policies that would apply to this property include 6.32, 6.33 and 6.34. Additionally, policy 4.8 regarding stormwater management may also apply if the proposed development is considered "major development" (i.e. creation of 4+ lots or a ground floor area of 500 sq m or more).
2. Further to our discussion regarding woodland on the property, the EIS will need to screen for significant natural heritage features and provide an assessment of the function and the broader natural heritage system that they are within. I suspect that the woodland is significant and that there might also be significant wildlife habitat on the property. As per the PPS section 2.1.5, development may be permitted in a significant woodland or significant wildlife habitat so long as it has been demonstrated that there will be no negative impact. This applies to settlement areas. Please keep in mind that the woodland on this property extends beyond the property lines and should be evaluated as a continuous feature. I appreciate that you both expressed concern over this, however, the EIS must demonstrate no negative impact to the wetland (PPS 2.1.8), as well as woodland and wildlife habitat, if significant.
3. I understand that Azimuth completed ecological surveys for the property in 2014. Please ensure that three breeding amphibian surveys were completed as per the Marsh Monitoring protocol, two dawn breeding bird surveys were completed in the spring (May –June), an inventory of vascular plants was collected in the summer, and ELC for the property was completed.
4. I understand that SAR were screened for by Azimuth as well in 2014, but as David mentioned on the phone, this should be completed again to include the most up-to-date information in the EIS.
5. The EIS should include an assessment of the potential impacts of the proposed development on the natural heritage system and related ecological and hydrological functions. It should also provide an appropriate avoidance/mitigation/restoration strategy that addresses potential impacts. This would include recommendations for a vegetation protection zone as well as ecological offsetting. LSRCA generally requires that loss of woodland is mitigated/offset through the replacement of woodland elsewhere at a rate of 2:1 (i.e. 0.5 ha removed = 1.0 ha replaced). There is flexibility in how this can be accomplished and we would be happy to discuss options if needed.
6. The EIS should include a map, with a current high quality orthoimage, that identifies the natural heritage features and shows the limits of the proposed development as well as the recommended VPZ.

If I've missed anything or if you have any questions about what I've provided above, please let me know.

Thanks,

Kate Lillie, B.Sc., EP, ISA
Natural Heritage Ecologist

7. The landowner may not have confirmed the specific land use (i.e., professional office building and parking, residential townhouses, etc.) associated with the development footprint at the time the SEIS is submitted. This is satisfactory to KL.
8. The SEIS must identify impacts of the proposed development on natural heritage features not only on the subject property but in a broader context (i.e., particularly from the perspective of significant woodlands and significant wildlife habitat, should be confirmed either within and/or adjacent to the landholding). As well, the SEIS will need to include a final section on policy compliance, which has already been proposed to the client.
9. The reason for the SEIS is that at present, zoning of the property does not match its designation. Currently, the zoning is rural, which is more of a holding category. The proposed land use plan will be subject to site plan control.

Michalski Nielsen Associates

From: Michalski Nielsen Associates
Sent: Tuesday, June 28, 2016 12:06 PM
To: K.Lillie@lsrca.on.ca
Cc: Nicola Mitchinson; tony; Cunningham Environmental Associates
Subject: Scoped Environmental Impact Study, 521 Huronia Road; Our File 2515
Attachments: 2515 Notes on Conference Call 27 JUN 16 .pdf

Kate : Thank you for your June 24th notes covering the items discussed during our conference call last Tuesday (June 21, 2016). I am enclosing my notes, which were prepared independently of your email. There are a couple of points that need to be addressed at this time.

First, David Cunningham and I have checked the data bases provided by Azimuth Environmental Consultants. Only one breeding amphibian survey and one breeding bird survey was undertaken, which is not in keeping with the direction set out in your email. We are presently checking with Melissa Fuller of Azimuth to determine whether or not she had been in touch with your office prior to undertaking the field surveys, and it was determined that only one survey for each of the two features would be acceptable. In any event, David and I are of the view that one survey should be sufficient for the following reasons.

1. The subject property is in a settlement area with the principal of development already determined.
2. The width of the buffer from the provincially significant wetland has already been set (i.e., 10 metres with some variation as long as the overall dimension of 10 metre is achieved).
3. The subject environment impact study is "scoped", meaning a full or complete study is not needed.

When David is doing his last field survey, he will be able to undertake a breeding bird survey; this will be completed either this week or next. Even though the years are not the same, we will have one early and one late survey. I trust this will be acceptable to you.

However, you need to be aware that we will only be providing data from a single breeding survey for amphibians. As soon as we hear from Melissa, I will contact you.

The second point relates to the woodland potentially being significant. I am not certain what technical criteria or guidelines would be in play as it is my understanding that the Province (i.e., Ministry of Natural Resources and Forestry) has not yet produced a final document. We need to get this matter resolved.

Subject to hearing back from Melissa, I look forward to your thoughts.

Michael Michalski
Limnologist /Senior Adviser
Phone: (705) 645-1413 /Cell: (705) 644-9587/ info@mnal.ca

Lake Simcoe Region Conservation Authority
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From: Nicola Mitchinson [mailto:nicola.mitchinson@sympatico.ca]
Sent: Monday, June 20, 2016 4:38 PM
To: Kate Lillie
Cc: Michalski Nielsen Associates; cea@cogeco.ca; Tony Galletta
Subject: RE: Conference Call - 521 Huronia Rd, Barrie
Importance: High

Hi Kate,
Further to our emails below, Michael Michalski will call you tomorrow at 9:00 am.
He can only patch in 2 lines, so it will be you, Michael M and David Cunningham on the call.
If Lisa-Beth is able to participate, perhaps you and she could meet in the same office and put Michael and David on speaker phone.
Michael will follow-up with me after your call.
Best regards,
Nicola

NICOLA MITCHINSON, MCIP,RPP
MITCHINSON Planning & Development Consultants Inc.
705.739.7175

From: Kate Lillie [mailto:K.Lillie@lsrca.on.ca]
Sent: Monday, June 20, 2016 1:39 PM
To: Nicola Mitchinson
Subject: RE: Conference Call - 521 Huronia Rd, Barrie

Sounds good – keep me posted.
Lisa-Beth Bulford is the LSRCA Development Planner that will be handling this file. I've let her know about the teleconference as well and she may join too if she's available.
- Kate

From: Nicola Mitchinson [mailto:nicola.mitchinson@sympatico.ca]
Sent: Monday, June 20, 2016 1:23 PM
To: Kate Lillie
Subject: RE: Conference Call - 521 Huronia Rd, Barrie

Hi Katie,
I find it effective to have a discussion first and then follow-up in writing. We do understand that you will have to review and confirm an email version of the ToFR.
I'm checking a couple of other teleconference options. Stay tuned for up-dates
Thank you,
Nicola

Michalski Nielsen Associates

From: Kate Lillie <K.Lillie@lsrca.on.ca>
Sent: Thursday, June 30, 2016 4:14 PM
To: Michalski Nielsen Associates
Cc: Nicola Mitchinson; tony; Cunningham Environmental Associates; Lisa-Beth Bulford; Charles Burgess
Subject: RE: Scoped Environmental Impact Study, 521 Huronia Road; Our File 2515

Hi Michael,

Thanks for following up and I appreciate the concerns you have with a few items that I've requested for the scoped EIS.

For breeding amphibian data, I've asked for three surveys to ensure all species that may be present on the property are accounted for. This information is essential to assessing the ecological function of both the wetland and woodland as several amphibian species spend part of their life cycle in woodlands that are connected to wetlands. I haven't seen the data that was previously collected by Azimuth, so I've asked for what would typically be expected where these types of NH features are present. Are you able to share with me at this point what amphibians were recorded by Azimuth and what conditions were like on the evening their survey was completed? I would consider accepting a single amphibian survey if I can confirm that it was collected during the appropriate window of time under the appropriate conditions.

For the buffer, please don't consider a 10m buffer as being set. The buffer is something that should be determined through the EIS and should be based on the assessment of NH features, their ecological function and the anticipated impact from proposed development. We would typically expect to see a 10m buffer for a wetland in settlement area, but as we discussed, a continuous 10m may not be possible here. The EIS should provide recommendations for the configuration of a buffer and substantiate how the proposed buffer is appropriate for the site.

For the breeding bird surveys, two surveys collected in different years would be acceptable.

For the woodland feature, to determine whether it is significant or not it should be assessed using the criteria set out in the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005 (MNR, 2010) <https://www.ontario.ca/document/natural-heritage-reference-manual>. A screening and assessment for significant wildlife habitat should also be completed using the same manual and the Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E <https://www.ontario.ca/document/significant-wildlife-habitat-ecoregional-criteria-schedules-ecoregion-6e>

Hopefully this clarifies things. I believe this leaves only the amphibian issue unresolved, but I'm confident that we will come to an agreement on this.

Have a great Canada Day long weekend.

Kate Lillie, B.Sc., EP, ISA
Natural Heritage Ecologist
Lake Simcoe Region Conservation Authority
120 Bayview Parkway,
Newmarket, Ontario L3Y 3W3
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k.lillie@LSRCA.on.ca | www.LSRCA.on.ca



Memorandum

Date: July 25, 2016

From: Michael Michalski

To: Kate Lillie

c.c.: Nicola Mitchinson
Tony Galletta
David Cunningham
Charles Burgess

Our File: 2515 **Re:** 521 Huronia Road, City of Barrie

Kate – Further to your email of June 30th, I was in touch with Melissa Fuller of Azimuth Environmental earlier this week about the natural heritage protocols that were applied to the subject property. As I indicated in my June 28th email, only one breeding amphibian survey and one breeding bird survey was conducted. The reason was that the wetland boundary was evaluated as an overriding constraint, being considerably more confining than that which was surveyed by David Cunningham and subsequently confirmed by Graham Findlay of the Ministry of Natural Resources and Forestry. Consequently, Melissa didn't think there was a need to carry out breeding bird and amphibian surveys exactly as set out by the protocols.

For your information, the breeding amphibian survey was undertaken on May 22nd, 2014 about 100 metres east of Huronia Road on the edge of the wetland boundary. Chorus frogs were abundant, with a few spring peepers heard. Weather conditions during the survey were: air temperature – 12°C; wind direction/speed – west/11 kilometres/hour; cloud cover – 50%; precipitation – none; presence of moon – no. The survey commenced at 10:19 p.m. I trust this information is sufficient for you to find a single survey acceptable, given that the subject land is in a settlement area, and we are undertaking a Scoped Environmental Impact Study.

With respect to your comments on the width of the buffer, you requested that we shouldn't consider a 10 metre buffer as being set; rather, it should be determined through the process of undertaking an Environmental Impact Study, etc. The way we understand Charles Burgess' email of June 16th to Nicola Mitchinson is that your agency would generally find acceptable a 10 metre wide buffer, with reductions

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permitted if there are gains elsewhere. Obviously, we will do our best to follow the direction set out in your June 30th email; however, it seems to me that the buffer width of 10 metres plus some potential variation has pretty much been prescribed. I note that there is not a prescribed buffer width in Policies 6.32, 6.33 and 6.34 of the **Lake Simcoe Protection Plan**, which very much is consistent with your direction. In contrast, outside of existing settlement areas, the width of the buffer for all key natural heritage hydrologic features is clearly set out – 30 metres or greater.

I look forward to finalizing the T of R this week and will be in touch to arrange a conference call with you and Charles.

Michalski Nielsen Associates

From: Kate Lillie <K.Lillie@lsrca.on.ca>
Sent: Thursday, July 28, 2016 9:58 AM
To: Michalski Nielsen Associates
Cc: Nicola Mitchinson; tony; Charles Burgess; cea; Lisa-Beth Bulford
Subject: RE: 521 Huronia Road; Our File 2515
Attachments: 2515 Memo Lillie 25 JULY 16.pdf

Hi Michael,

Thanks for your email and memo with further detail regarding the amphibian survey that was completed for the property. I'd like to flag that the presence of chorus frogs and spring peepers may be defining criteria for significant wildlife habitat (amphibian breeding habitat – woodland) depending on their abundance, as per the SWH Criteria Schedules for Ecoregion 6E (MNR, 2015). A second survey would be beneficial in confirming the presence or absence of SWH. However, I know that you'd like to finalize the terms of reference for the EIS as only requiring one amphibian survey. I'm ok with this, but without a second survey, the EIS should assume that chorus frogs and spring peepers are present at an abundance that would confirm SWH. Accordingly, the EIS will need to demonstrate no negative impact.

Your description of how the buffer to the wetland should be determined is correct. If you have any questions or concerns as this project moves forward, feel free to contact me. But for now, I don't see a need to have a second conference call.

Kind regards,

Kate Lillie, B.Sc., EP, ISA
Natural Heritage Ecologist
Lake Simcoe Region Conservation Authority
120 Bayview Parkway,
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From: Michalski Nielsen Associates [<mailto:info@mnal.ca>]
Sent: Monday, July 25, 2016 9:43 AM
To: Kate Lillie
Cc: Nicola Mitchinson; tony; Charles Burgess; cea
Subject: 521 Huronia Road; Our File 2515

Michael Michalski
Limnologist /Senior Adviser
Phone: (705) 645-1413 /Cell: (705) 644-9587/ info@mnal.ca

Michalski Nielsen Associates

From: Nicola Mitchinson <nicola.mitchinson@sympatico.ca>
Sent: Wednesday, December 07, 2016 6:56 PM
To: Charles Burgess; 'Lisa-Beth Bulford'; 'Kate Lillie'
Cc: Michalski Nielsen Associates; cea@cogeco.ca; Tony Galletta
Subject: 521 Huronia Road - Dec 1, 2016 Meeting

Hello all,

Thank you again for meeting with Michael Michalski and I on Dec 1st to discuss the natural heritage buffers applicable to the 521 Huronia Road site in Barrie. It was a productive meeting and we greatly appreciate the Authority's input and ongoing assistance with this project.

The Authority has advised that a 5m buffer can be applied to the proposed development provided the rationale for same is addressed in the associated EIS. The buffer rationale will be provided in addition to the other typical EIS requirements including such matters as: significant natural heritage features/functions, SAR, a water balance analysis (i.e. permeable vs impermeable to ensure the development will not negatively impact ground water), LID techniques to be used, and significant woodlands if/as applicable (including compensation for same).

As requested, I contacted the Owner to authorize a further site visit for LSRCA Staff and Michael M. I am awaiting the Owner's instructions and will advise as soon as possible.

I trust I have captured the discussion and direction provided at our meeting. Please advise if I have missed anything.

Best regards,

Nicola

NICOLA MITCHINSON, MCIP, RPP
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APPENDIX B –

**DRAFT TERMS OF REFERENCE
FOR A SCOPED ENVIRONMENTAL
IMPACT STUDY – 521 HURONIA
ROAD, CITY OF BARRIE**



May 28, 2018

Mr. Charles Burgess, MCIP, RPP
Manager, Planning
Lake Simcoe Region Conservation Authority
120 Bayview Parkway
Newmarket, Ontario
L3Y 3W3

Re: Terms of Reference for Scoped Environmental Impact Study, 521 Huronia Road; Our File 2515

Dear Mr. Burgess:

Further to on-going discussions and communications regarding our clients' interest in obtaining an Official Plan Amendment and Zoning Bylaw Amendment to enable residential development on part of the northwestern corner of 521 Huronia Road, a pre-consultation meeting was held on March 8th, 2018, with staff of the City of Barrie. Nicola Mitchison and David Cunningham (Terrestrial Ecologist who is assisting me on the project) attended on behalf of the landowners. The City expressed an interest in having an approved terms of reference for a **Scoped Environmental Impact Study (SEIS)**.

Shortly after being retained, I participated in a number of conference calls and email exchanges with Kate Lillie, Natural Heritage Ecologist, Lake Simcoe Region Conservation Authority (LSRCA) regarding the contents of a **SEIS**. In this regard, I am enclosing in **Appendix A** copies of the relevant email exchanges for your information, as follows.

- Notes on June 21st, 2016 conference call prepared by Michael Michalski (June 21st, 2016).
- Notes of June 21st 2016 conference call prepared by Kate Lillie (June 24th, 2016).
- Email responding to Kate Lillie's June 24th email, prepared by Michael Michalski (June 28th, 2016).
- Email responding to Michael Michalski's June 28th email, prepared by Kate Lillie (June 30th).

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- Memorandum to Kate Lillie from Michael Michalski (July 25, 2016).
- Email from Kate Lille to Michael Michalski (July 28th, 2016).
- Email from Nicola Mitchinson to Charles Burgess, summarizing results of December 1, 2016 meeting with staff of LSRCA regarding width of buffer (December 7, 2016).

Given the above, I certainly had sufficient materials for completing and submitting the subject terms of reference. However, a review of our files indicated that a final version was not completed nor submitted for your review and subsequent approval. I very much apologize for this oversight. In keeping with the interests of staff of the City, and more specifically Section 3.5.2.4b of the **City of Barrie's Official Plan** which in part states that, "A standard terms of reference for an EIS will be established by the City in consultation with the appropriate conservation authority, and may be scoped through the development process to reflect a specific feature or function at the discretion of the City in consultation with the applicable conservation authority . . .", I am enclosing a draft terms of reference for the **SEIS (Appendix B)**. You should know that all of the field investigations have now been carried out, including the Ministry of Natural Resources and Forestry's on site review of the boundary of the Lover's Creek Provincially Significant Wetland.

To ensure you have an appreciation of what the final product is going to contain, I am also enclosing a table of contents for the **SEIS**, which provides further details beyond the scope of the **SEIS (Appendix C)**.

Would you be good enough to review the attached **Terms of Reference for a Scoped Environmental Impact Study, 521 Huronia Road, City of Barrie** (Draft), and let me know if you have any comments or suggestions for improvement. I would be pleased to amend the document accordingly, and file the same with the City of Barrie. It is my understanding that your approval of the terms of reference, as well as the City's approval is needed prior to our completion of the **SEIS**. Accordingly, your review of the attached at your earliest convenience would be most appreciated.



Michael Michalski
Senior Advisor and Limnologist

MM/be

c.c.: Celeste (Terry) Kitsemetry
Melinda Bessey
Nicola Mitchison
David Cunningham
Tony Galletta

DRAFT TERMS OF REFERENCE FOR A SCOPED ENVIRONMENTAL IMPACT STUDY

521 HURONIA ROAD

A **Scoped Environmental Impact Study (SEIS)** is intended to demonstrate to Council's satisfaction that the proposed Official Plan Amendment and Zoning Bylaw Amendment will have no negative impacts on any significant natural heritage features, as identified in: relevant policies in Section 2.1 Natural Heritage of the 2014 **Provincial Policy Statement**; and Section 3.5.2.4 of the **City of Barrie Official Plan** which addresses the Natural Heritage Overlay policies shown on Schedule H, as well as relevant policies in Section 4.7 on Environmental Protection Areas. Also, the subject property is within an area governed by Ontario Regulation 179/06 under the *Conservation Authorities Act*; a permit from the Lake Simcoe Region Conservation Authority will be required prior to any site alteration or development.

The **SEIS** will include the following.

- A description of the proposal.
- A description of the existing land use(s) not only on the subject property, but on adjacent lands.
- A description of terrain conditions including topography and overland drainage, the presence of vernal pools, and the Lover's Creek Provincially Significant Wetland. An Ecological Land Classification map will be produced for the subject property, and related adjacent lands.
- The land use designation of the subject property, and on adjacent lands, as identified in the **City of Barrie Official Plan**.
- An environmental inventory of the subject property with emphasis on that part proposed for development, inclusive of:
 - vegetation, three spring, summer and fall surveys;
 - amphibians, three surveys;
 - breeding birds, three surveys;
 - Species at Risk, due diligence with respect to habitat on site and on adjacent lands.
- Identification of Species at Risk and related habitats through contacts with the Natural Heritage Information Centre and Ministry of Natural Resources and Forestry records, as well as Michalski Nielsen Associates Limited's field investigations.
- An identification of environmental constraint areas including the Lover's Creek Provincially Significant Wetland and potentially significant wildlife habitat, etc.
- A statement of environmental/ecological significance of features/functions identified for the area to be developed, and adjacent lands.

- A description of the proposed development including servicing, primarily treatment of stormwater runoff.
- An identification of environmental/ecological impacts (both short and long term) resulting from the proposed development.
- A detailed description of appropriate mitigation measures, inclusive of rationalization/justification of buffer or setback distances from the Lover's Creek Provincially Significant Wetland, berm/plantings relating to adjacent residences, treatment of stormwater runoff, etc.
- A discussion of policy/guideline compliances.
- Recommendations, including dedication of that part of the Lover's Creek Provincially Significant Wetland that is within the subject property to a public body.

Michalski Nielsen Associates

From: Nicola Mitchinson <nicola.mitchinson@sympatico.ca>
Sent: Tuesday, June 19, 2018 4:21 PM
To: 'Celeste Kitsemetry'
Cc: 'Charles Burgess'; 'Melinda Bessey'; Michalski Nielsen Associates; cea@cogeco.ca
Subject: RE: 521 Huronia Road - EIS Terms of Ref

Hello Celeste,

Thank you for confirming City acceptance of Michalski Nielsen Associates' EIS Terms of Reference (per the email chain below).

It's great to "close the loop" on this aspect of the project.

Best regards,

Nicola

NICOLA MITCHINSON, RPP, MCIP
MITCHINSON Planning & Development Consultants Inc.
705.739.7175

From: Celeste Kitsemetry [mailto:Celeste.Kitsemetry@barrie.ca]
Sent: Tuesday, June 19, 2018 2:40 PM
To: Nicola Mitchinson
Cc: Charles Burgess; Melinda Bessey
Subject: RE: 521 Huronia Road - EIS Terms of Ref

Good Afternoon Nicola.

Further to our discussion, and the review of the Terms of Reference for the EIS, I concur with the comments and acceptance of the Terms from LSRCA. The key requirement for the City is the clear recommendation on a development limit and mitigation/buffering measures required. The Terms outline that the consultant will review the associated Official Plan and general Planning policy initiatives, including the dedication of EP lands, that the municipality needs to ensure we are making a balanced good planning decision.

Regards,
Celeste

Celeste (Terry) Kitsemetry, RPP
Planning and Building Services Department
Tel: 705-739-4220 ext. 4430

From: Nicola Mitchinson [mailto:nicola.mitchinson@sympatico.ca]
Sent: Thursday, May 31, 2018 11:25 AM
To: Charles Burgess; Celeste Kitsemetry
Cc: Michalski Nielsen Associates; cea@cogeco.ca; 'Melinda Bessey'
Subject: FW: 521 Huronia Road - MORE
Importance: High

Thank you very much Charles. We greatly appreciate the Authority's ongoing assistance with this project. I'll contact Celeste to discuss next steps and will keep you informed as the project advances.

(Note – there was an error in Celeste's email address in your 10:09 am email below, so this email is a "resending" to all of your email below/attachment as well as my response comments above).

Thanks all and best regards,
Nicola

From: Charles Burgess [<mailto:C.Burgess@lsrca.on.ca>]
Sent: Thursday, May 31, 2018 10:09 AM
To: 'Nicola Mitchinson'
Cc: 'ckitsemetry@barrie.ca'; 'Cunningham Environmental Associates' (cea@cogeco.ca); Melinda Bessey
Subject: FW: 521 Huronia Road; Our File 2515
Importance: High

Hi Nicola,

The attached Terms of Reference for the required EIS/NHE for this property are acceptable to the LSRCA. By copy of this email, we are advising the City of these comments.

Charles F. Burgess, MCIP, RPP
Manager, Planning
Lake Simcoe Region Conservation Authority
120 Bayview Parkway,
Newmarket, Ontario L3Y 3W3
905-895-1281, ext. 299 | 1-800-465-0437
c.burgess@LSRCA.on.ca | www.LSRCA.on.ca

Twitter: @LSRCA

Facebook: LakeSimcoeConservation

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From: Nicola Mitchinson [<mailto:nicola.mitchinson@sympatico.ca>]
Sent: Monday, May 28, 2018 11:01 PM
To: Charles Burgess
Cc: Michalski Nielsen Associates; cea@cogeco.ca
Subject: FW: 521 Huronia Road; Our File 2515
Importance: High

Good evening Charles,

Thank you again for meeting with me on May 24th to discuss Michael Michalski's May 1st letter submission regarding background documentation and terms of reference for a scoped environmental impact study (SEIS) for the 521 Huronia Road site, City of Barrie.

You confirmed at our meeting that you support Michael's proposed terms and reference and that the Authority continues to recognize a 5m buffer for this site (notwithstanding Melinda Bessey's Feb 28, 2018 Pre-consultation comments to Celeste Kitsemety (Terry) as Melinda did not have the background information relevant to this file when submitting her comments).

As requested, Michael made minor edits to his submission now dated May 28th (attached) to address your comments, including: specific reference to ecological land classifications (ELC), dedication of the PSW as part of the future recommendations, and deletion of references to LSRCA Watershed Development Policies as these are already covered by references to O Reg 179/06.

You kindly advised that you would forward this email, Michael's revised submission and your support for same to Celeste at the City of Barrie. Please copy me on your email to Celeste.

Thanks and best regards,

Nicola

NICOLA MITCHINSON, RPP, MCIP

MITCHINSON Planning & Development Consultants Inc.

705.739.7175

From: Michalski Nielsen Associates [<mailto:info@mnal.ca>]

Sent: Monday, May 28, 2018 12:19 PM

To: Nicola Mitchinson

Cc: Cunningham Environmental Associates

Subject: 521 Huronia Road; Our File 2515

All the best.

Michael Michalski

Limnologist /Senior Adviser

Phone: (705) 645-1413 /Cell: (705) 644-9587/ info@mnal.ca

**APPENDIX D – EMAIL LILLIE TO MICHALSKI
OCTOBER 31, 2019**



Michalski Nielsen

ASSOCIATES LIMITED

Memorandum

Date: September 30, 2019

From: Michael Michalski

To: Melinda Bessey

c.c.: Peter Rich, Celeste (Terry) Kitsemetry, Eldon Theodore, David Cunningham

Our File: 2515 **Re:** Terms of Reference for Scoped Environmental Impact Study, 521 Huronia Road

Melinda – Further to the telephone messages I left last week, I want to inform you that there are now new owners of lands associated with 521 Huronia Road in the City of Barrie (i.e., The Forest Group Inc.). As well, Eldon Theodore of MHBC Planning, Urban Design and Landscape Architects is the new Planner on the file. Peter Rich of The Forest Group Inc. informed me via Eldon that Celeste Kitsemetry of the City of Barrie's Planning and Building Services Department would like the Terms of Reference (ToR) for the **Scoped Environmental Impact Study (SEIS)** that our firm has been retained to complete be reconfirmed. As well, Celeste wants to be assured that the development area and related setbacks are defined and supported.

In my opinion, both of these tasks have been completed, subject to the rationalization /justification of the development setback from the boundary of the Provincially Significant Wetland which will be included in our **SEIS**. Regarding the ToR, I am enclosing a copy of my letter of May 28, 2018 to Charles Burgess, plus enclosures for your review. As well, you will find attached an email chain starting with Nicola Mitchinson's (then, the landowners' Planning Consultant) email of May 28, 2018 to Charles and finishing with Nicola's email to Celeste confirming the City's acceptance of our ToR.

Regarding the area of developable land, this was determined in collaboration with Graham Findlay (now retired from the Ministry of Natural Resources and Forestry), who confirmed our flagging of the boundary of the Provincially Significant Wetland (see attached graphic). A 5.0 metre buffer from the boundary of the Provincially Significant Wetland was subsequently recognized by your Authority (refer to Nicola's email of May 28, 2018), subject as mentioned above to justification in the **SEIS**).

16 Robert Boyer Lane, Bracebridge, Ontario P1L 1R9
(705) 645-1413 Facsimile: (705) 645-1904 www.mnal.ca E-mail: info@mnal.ca

ENVIRONMENTAL PLANNING BIOPHYSICAL ANALYSIS LAKE CAPACITY ASSESSMENT RESOURCE MANAGEMENT

Given the above and attached, would you be good enough to re-confirm the ToR for the **SEIS** and that the development area and related buffer are supportable to your Authority, with the proviso that the buffer width is to be subsequently justified/re-naturalized.

Should you have any questions or if further clarification is needed, do not hesitate to call.

Michael

Michalski Nielsen Associates

From: Kate Lillie <K.Lillie@lsrca.on.ca>
Sent: Thursday, October 31, 2019 2:44 PM
To: Michalski Nielsen Associates
Cc: 'Celeste Kitsetmetry' (Celeste.Kitsetmetry@barrie.ca); Melinda Bessey
Subject: RE: 521 Huronia Drive; Our File 2515
Attachments: 2515 Burgess Full 28 MAY 18.pdf; RE: 521 Huronia Road - EIS Terms of Ref; RE: Huronia Road Wetland Survey; 2515 Memo Bessey 30 SEP 19.pdf

Hi Michael,

Thanks for following up with us regarding the terms of reference for a Scoped Environmental Impact Study (SEIS) for 521 Huronia Rd. in Barrie. We are in agreement with the proposed scope of work, as described in the attached correspondence, with the addition of a feature-based water balance to demonstrate that hydrologic inputs to the wetland and watercourse will be maintained post-construction.

The appropriate vegetation protection zone (VPZ) to features must be determined through the SEIS. Typically, we would expect a minimum of 10m VPZ for wetland; however, based on previous correspondence from our office, we would accept a 5m VPZ, but this must be substantiated through the SEIS. An effort should be made to maximize the VPZ to the greatest extent possible to better mitigate impacts associated with the proposed development.

If the SEIS can demonstrate policy conformity, we will also require that the loss of features be offset for according to LSRCA's Ecological Offsetting Policy. Please let me know if you have any questions about this or see www.LSRCA.on.ca for more details.

We look forward to reviewing the final SEIS. Should you require anything further, don't hesitate to call or email.

Kind regards,

Kate Lillie, HBSc, EP, ISA
Natural Heritage Ecologist
Lake Simcoe Region Conservation Authority
120 Bayview Parkway,
Newmarket, Ontario L3Y 3W3
905-895-1281, ext. 286 | 1-800-465-0437
k.lillie@LSRCA.on.ca | www.LSRCA.on.ca

Twitter: @LSRCA

Facebook: LakeSimcoeConservation

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From: Michalski Nielsen Associates [<mailto:info@mnal.ca>]
Sent: October 1, 2019 9:37 AM
To: Melinda Bessey
Cc: Celeste Kitsetmetry; Eldon Theodore; Cunningham Environmental Associates
Subject: 521 Huronia Drive; Our File 2515

CAUTION: This email originated outside of LSRCA. **DO NOT** click links or open attachments unless you recognize the sender and trusted content. If in doubt, contact the IT Helpdesk at ITHelpdesk@lsrca.on.ca

Michael Michalski

Limnologist /Senior Adviser

Phone: (705) 645-1413 /Cell: (705) 644-9587/ info@mna1.ca

Michalski Nielsen Associates

From: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Sent: Wednesday, January 27, 2016 12:54 PM
To: Cunningham Environmental Associates; 'Nicola Mitchinson'
Cc: Michalski Nielsen Associates
Subject: RE: Huronia Road Wetland Survey
Attachments: 521HuronRd_Barrie_LoversCkPSW-2016-01-27.pdf;
521HuronRd_Barrie_LoversCkPSW-2016-01-27.pdf

Dave and Nicola attached for your attention is a pdf of the boundary amendment made to the Lover's Creek provincially significant wetland mapping on 521 Huronia Road in Barrie (subject property bounded by the blue line in the attached). The amendment is based on the survey data provided to this office following our October 20, 2015 site meeting. The yellow hatched area represents the area of wetland on the property going forward, amended from the original wetland boundary represented by the pink line.

By this correspondence we confirm acceptance of the wetland boundary interpreted on site in October. The wetland boundary amendment will be submitted to Land Information Ontario shortly.

We trust this is satisfactory. Please call with any further questions.

Regards,

Graham Findlay
Management Biologist
Huron Resources Management Team
Midhurst, MNRF
705-725-7530
705-725-7584 (fax)
graham.findlay@ontario.ca

From: Cunningham Environmental Associates [mailto:cea@cogeco.ca]
Sent: January 26, 2016 3:08 PM
To: 'Nicola Mitchinson'
Cc: Michael Michalski; Cunningham Environmental Associates; Findlay, Graham (MNRF)
Subject: RE: Huronia Road Wetland Survey
Importance: High

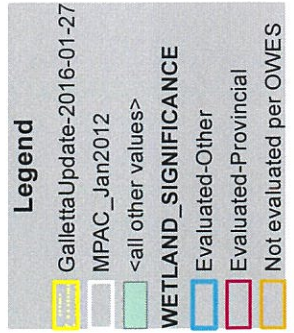
Nicola,

MNRF (Graham Findlay) will overlay (GPS) the partial wetland boundaries on an aerial photo base. We did not stake the remainder of both wetlands as the boundaries to the south and west were not germane to the proposed development area.

Graham will provide a wetland boundary map for these two wetland pockets and extrapolate the remainder of each boundary.

Your OLS needs to provide a .shp file or equivalent to Graham Findlay (MNRF Midhurst Office), as the mapping will be produced by their office.

Regards,



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Ministry of Natural Resources and Forestry, 2015

The drawing, map or plan supplied is not a Plan of Survey but graphical illustration only.
The true positional accuracy of the information shown hereon must not be used as
evidence of the location of legal boundaries, township lot fabric, features, or routes.
Any coordinates supplied are derived from the drawing and are approximate only.
They cannot be used to establish the location of parcel corners.

Note:
Wetland, Parcel and Photographic data layers
from MNR NRVIS database.



Legend

 GallettaUpdate-2016-01-27

 MPAC_Jan2012

 <all other values>

WETLAND_SIGNIFICANCE

 Evaluated-Other

 Evaluated-Provincial

 Not evaluated per OWES

N

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evidence of the location of legal boundaries, township lot fabric, features, or routes.
Any coordinates supplied are derived from the drawing and are approximate only.
They cannot be used to establish the location of parcel corners.

Michalski Nielsen Associates

From: Michalski Nielsen Associates
Sent: Wednesday, September 21, 2016 11:32 AM
To: 'Findlay, Graham (MNRF)'
Subject: RE: Huronia Road; Our File 2515

Graham, could you please send me the latest wetland boundary in CAD format? Many thanks.

Michael Michalski
Limnologist /Senior Adviser
Phone: (705) 645-1413 /Cell: (705) 644-9587/ info@mna1.ca

Fr

APPENDIX E – VASCULAR PLANT LIST

Appendix E. List of Vascular Plants Observed on the 521 Huronia Road Property

SCIENTIFIC NAME	COMMON NAME	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Abies balsamea</i>	balsam fir	G5	S5		
<i>Acer negundo</i>	Manitoba maple	G5	S5		
<i>Acer rubrum</i> **	red maple	G5	S5		
<i>Acer saccharum</i>	sugar maple	G5	S5		
<i>Acer saccharinum</i> *	silver maple	G5	S5		
<i>Achillea millefolium</i>	common yarrow	G5	SNA		
<i>Acorus calamus</i>	sweet flag	G4?	SNA		
<i>Actaea rubra</i>	red baneberry	G5	S5		
<i>Agalinis gerardia</i>	common gerardia	G5	S4S5		
<i>Agrimony gryposepala</i>	hooked agrimony	G5	S5		
<i>Agrostis gigantea</i> *	redtop	G5	S5		
<i>Agrostis stolonifera</i> *	creeping bent grass	G5	SNA		
<i>Alisma triviale</i> *	water plantain	G5	S5		
<i>Alliaria petiolata</i>	garlic mustard	GNR	SNA		
<i>Alnus rugosa</i> *	speckled alder	G5	S5		
<i>Ambrosia artemisiifolia</i>	annual ragweed	G5	S5		
<i>Amphicarpa bracteata</i> *	hog-peanut	G5	S5		
<i>Amelanchier arborea</i>	downy serviceberry	G5	S5		
<i>Anaphalis margaritacea</i>	pearly everlasting	G5	S5		
<i>Anemone canadensis</i>	Canada anemone	G5	S5		
<i>Apocynum androsaemifolium</i>	spreading dogbane	G5	S5		
<i>Aralia nudicaulis</i>	wild sarsaparilla	G5	S5		
<i>Arctium minus</i>	common burdock	GNR	SNA		
<i>Argentina anserina</i>	silverweed	GNR	S5		
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	G5	S5		
<i>Asclepias incarnata</i> *	swamp milkweed	G5	S5		
<i>Asclepias syriaca</i>	common milkweed	G5	S5		
<i>Athyrium filix-femina</i> **	northeastern lady fern	G5T5	S5		
<i>Barbarea vulgaris</i> **	yellow rocket	GNR	SNA		

Appendix E. List of Vascular Plants Observed on the 521 Huronia Road Property

SCIENTIFIC NAME	COMMON NAME	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Betula alleghaniensis</i>	yellow birch	G5	S5		
<i>Betula papyrifera</i>	white birch	G5	S5		
<i>Bidens frondosa</i> *	beggar-ticks	G5	S5		
<i>Boehmeria cylindrica</i>	false wood-nettle	G5	S5		
<i>Brassica kaber</i>	field mustard	GNR	SNA		
<i>Bromus inermis</i>	awnless brome brass	G5TNR	SNA		
<i>Calamagrostis canadensis</i>	Canada bluejoint grass	G5	S5		
<i>Caltha palustris</i> *	marsh marigold	G5	S5		
<i>Cardamine diphylla</i>	two-leaved toothwort	G5	S5		
<i>Carex bebbii</i> *	Bebb's sedge	G5	S5		
<i>Carex comosa</i> *	bristly sedge	G5	S5		
<i>Carex crinita</i> *	fringed sedge	G5	S5		
<i>Carex deweyana</i>	Dewey's sedge	G5	S5		
<i>Carex flava</i>	yellow sedge	G5	S5		
<i>Cares folliculata</i> *	long sedge	G4G5	S3		
<i>Carex gracilescens</i> *	slender sedge	G5?	S4		
<i>Carex gracillima</i>	graceful sedge	G5	S5		
<i>Carex granularis</i> *	meadow sedge	G5	S5		
<i>Carex hystericina</i> *	porcupine sedge	G5	S5		
<i>Carex intumescens</i> *	bladder sedge	G5	S5		
<i>Carex lacustris</i> *	lake-bank sedge	G5	S5		
<i>Carex laxiflora</i>	loose-flowered sedge	G5	S5		
<i>Carex lupulina</i> *	hop sedge	G5	S5		
<i>Carex pedunculata</i>	longstalk sedge	G5	S5		
<i>Carex rosea</i>	rosy sedge	G5	S5		
<i>Carex stipata</i> *	awl-fruited sedge	G5	S5		
<i>Carex stricta</i> *	tussock sedge	G5	S5		
<i>Carex vulpinoidea</i> *	foxtail sedge	G5	S5		
<i>Caulophyllum thalictroides</i>	blue cohosh	G4G5	S5		
<i>Centaurea maculosa</i>	spotted knapweed	GNR	SNA		

Appendix E. List of Vascular Plants Observed on the 521 Huronia Road Property

SCIENTIFIC NAME	COMMON NAME	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Cerastium vulgare</i>	mouse-eared chickweed	GNR	SNA		
<i>Chenopodium album</i>	lamb's quarters	G5	SNA		
<i>Chrysanthemum leucanthemum</i>	ox-eye daisy	GNR	SNA		
<i>Cichorium intybus</i>	chicory	GNR	SNA		
<i>Cicuta bulbifera</i> *	water hemlock	G5	S5		
<i>Cicuta maculata</i> *	spotted water hemlock	G5	S5		
<i>Circaea lutetiana</i> *	enchanters' nightshade	G5T5	S5		
<i>Cirsium arvense</i>	Canada thistle	GNR	SNA		
<i>Cirsium vulgare</i>	bull thistle	GNR	SNA		
<i>Clematis virginiana</i>	virgin's-bower	G5	S5		
<i>Clinopodium vulgare</i>	wild basil	G5	S5		
<i>Comarum palustre</i> *	marsh cinquefoil	G5	S5		
<i>Convolvulus arvensis</i>	field bindweed	GNR	SNA		
<i>Cornus alternifolia</i> **	alternate-leaved dogwood	G5	S5		
<i>Cornus stolonifera</i> **	red-osier dogwood	G5	S5		
<i>Coronilla varia</i>	common crown-vetch	GNR	SNA		
<i>Corylus cornuta</i>	beaked hazel	G5	S5		
<i>Crataegus</i> spp.	hawthorn	GNRTNR	SU		
<i>Cynanchum rossicum</i>	black swallowwort	GNR	SNA		
<i>Cystopteris bulbifera</i>	bulblet fern	G5	S5		
<i>Cystopteris tenuis</i>	fragile fern	G5	S5		
<i>Dactylis glomerata</i>	orchard grass	GNR	SNA		
<i>Daucus carota</i>	wild carrot	GNR	SNA		
<i>Dryopteris carthusiana</i>	spinulose wood-fern	G5	S5		
<i>Dryopteris intermedia</i>	evergreen wood-fern	G5	S5		
<i>Dryopteris marginalis</i>	marginal wood-fern	G5	S5		
<i>Echinocystis lobata</i> **	wild cucumber	G5	S5		
<i>Echium vulgare</i>	common viper's-bugloss	GNR	SNA		
<i>Eleocharis erythropoda</i> *	red-stemmed spike-rush	G5	S5		
<i>Elymus repens</i>	quackgrass	GNR	SNA		

Appendix E. List of Vascular Plants Observed on the 521 Huronia Road Property

<i>Epilobium hirsutum</i> *	hairy willowherb	GNR	SNA	
<i>Epilobium parviflorum</i> *	small-flowered willowherb	GNR	SNA	
<i>Epipactis helleborine</i>	helleborine	GNR	SNA	
<i>Equisetum arvense</i>	field horsetail	G5	S5	
<i>Equisetum fluviatile</i> *	water horsetail	G5	S5	
<i>Equisetum hymale</i> **	common scouring-rush	G5	S5	
<i>Equisetum palustre</i>	marsh horsetail	G5	S5	
<i>Equisetum pratense</i> *	meadow horsetail	G5	S5	
<i>Equisetum variegatum</i>	variegated horsetail	G5	S5	
<i>Erigeron canadensis</i>	Canada horseweed	G5	S5	
<i>Erigeron hyssopifolius</i>	daisy fleabane	G5	S5	
<i>Erigeron philadelphicus</i>	Philadelphia fleabane	G5	S5	
<i>Erysimum cheiranthoides</i>	wormseed mustard	G5	SNA	
<i>Erythronium albidum</i>	white trout-lily	G5	S4	
<i>Erythronium americanum</i>	yellow trout-lily	G5	S5	
<i>Eupatorium perfoliatum</i> *	common boneset	G5	S5	
<i>Eurybia macrophylla</i>	large-leaved aster	G5	S5	
<i>Euthamia graminifolia</i> **	grass-leaved goldenrod	G5	S5	
<i>Eutrochium maculatum</i> *	spotted Joe-pye weed	G5T5	S5	
<i>Fagus grandifolia</i>	beech	G5	S5	
<i>Festuca rubra</i>	red fescue	G5TNR	SNA	
<i>Fragaria vesca</i>	woodland strawberry	G5	S5	
<i>Fragaria virginiana</i>	common strawberry	G5	S5	
<i>Fraxinus americana</i>	white ash	G5	S4	
<i>Fraxinus nigra</i> *	black ash	G5	S3	
<i>Fraxinus pennsylvanica</i> *	green ash	G5	S4	
<i>Galium aparine</i> *	cleavers	G5	S5	
<i>Galium triflorum</i> **	fragrant bedstraw	G5	S5	
<i>Geranium robertianum</i>	herb-robert	G5	S5	
<i>Geum aleppicum</i>	yellow avens	G5	S5	
<i>Geum canadense</i>	white avens	G5	S5	
<i>Geum laciniatum</i>	rough avens	G5	S4	

Appendix E. List of Vascular Plants Observed on the 521 Huronia Road Property

SCIENTIFIC NAME	COMMON NAME	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Glyceria striata</i> *	fowl mannagrass	G5	S5		
<i>Gymnocarpium dryopteris</i>	oak fern	G5	S5		
<i>Helianthus tuberosus</i>	Jerusalem artichoke	GNR	SNA		
<i>Hesperis matronalis</i>	dame's rocket	G4G5	SNA		
<i>Hieracium lachenalii</i>	common hawkweed	GNR	SNA		
<i>Hypericum perforatum</i>	common St. John's-wort	GNR	SNA		
<i>Ilex verticillata</i> *	winterberry	G5	S5		
<i>Impatiens capensis</i> **	spotted jewelweed	G5	S5		
<i>Inula helenium</i> *	elecampane	GNR	SNA		
<i>Iris versicolor</i> *	blue flag	G5	S5		
<i>Juncus effusus</i> *	soft rush	G5	S5		
<i>Juncus tenuis</i>	path rush	G5	S5		
<i>Lactuca serriola</i>	prickly lettuce	GNR	SNA		
<i>Laportea canadensis</i>	wood nettle	G5	S5		
<i>Larix laricina</i> **	tamarack	G5	S5		
<i>Leeria oryzoides</i> *	rice cut grass	G5	S5		
<i>Lemna minor</i> *	common duckweed	G5	S5		
<i>Leonurus cardiaca</i>	motherwort	GNR	SNA		
<i>Lepidium campestre</i>	field peppergrass	GNR	SNA		
<i>Lithospermum officinale</i>	European gromwell	GNR	SNA		
<i>Lonicera morrowii</i>	Morrow's honeysuckle	GNR	SNA		
<i>Lonicera tatarica</i>	tartarian honeysuckle	GNR	SNA		
<i>Lotus corniculatus</i>	bird's-foot trefoil	GNR	SNA		
<i>Lycopus americanus</i> *	water horehound	G5	S5		
<i>Lysimachia ciliata</i>	fringed loosestrife	G5	S5		
<i>Lysimachia nummularia</i>	moneywort	GNR	SNR		
<i>Lysimachia terrestris</i> *	swamp candles	G5	S5		
<i>Lythrum salicaria</i> *	purple loosestrife	G5	SNA		
<i>Maianthemum canadense</i>	wild lily-of-the-valley	G5	S5		

Appendix E. List of Vascular Plants Observed on the 521 Huronia Road Property

SCIENTIFIC NAME	COMMON NAME	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Maianthemum racemosum</i>	false Solomon's-seal	G5	S5		
<i>Malus coronaria</i>	sweet crabapple	G5	SNA		
<i>Malus domestica</i>	common apple	G5	SNA		
<i>Malva neglecta</i>	cheeses	GNR	SNA		
<i>Matricaria matricarioides</i>	pineapple-weed	G5	SNA		
<i>Matteuccia struthiopteris</i> *	ostrich fern	G5	S5		
<i>Melilotus officinalis</i>	white sweet-clover	G5	SNA		
<i>Mentha arvensis</i>	field mint	G5	S5		
<i>Mentha piperita</i> *	hybrid peppermint	GNA	SNA		
<i>Mitchella repens</i>	partridge-berry	G5	S5		
<i>Myosotis laxa</i>	small forget-me-not	G5	S5		
<i>Nasturtium officinale</i> *	watercress	GNR	SNA		
<i>Nepeta cataria</i>	catnip	GNR	SNA		
<i>Oenothera biennis</i>	common evening primrose	G5	S5		
<i>Onoclea sensibilis</i> **	sensitive fern	G5	S5		
<i>Osmunda regalis</i> *	royal fern	G5	S5		
<i>Ostrya virginiana</i>	hop hornbeam	G5	S5		
<i>Oxalis montana</i>	common wood-sorrel	G5	S5		
<i>Panicum capillare</i>	common panic grass	G5	S5		
<i>Parthenocissus inserta</i> **	Virginia creeper	G5	S4?		
<i>Persicaria maculosa</i>	lady's-thumb	G3G5	SNA		
<i>Petasties frigidus</i> **	sweet coltsfoot	GNR	SNA		
<i>Phalaris arundinacea</i> **	reed canary grass	G5	S5		
<i>Physalis heterophylla</i>	clammy ground-cherry	GNR	SNA		
<i>Phleum pratense</i>	timothy	GNR	SNA		
<i>Picea glauca</i>	white spruce	G5	S5		
<i>Pinus strobus</i>	white pine	G5	S5		
<i>Pinus sylvestris</i>	Scots pine	GNR	SNA		
<i>Plantago lanceolata</i>	English plantain	G5	SNA		

Appendix E. List of Vascular Plants Observed on the 521 Huronia Road Property

SCIENTIFIC NAME	COMMON NAME	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Plantago major</i>	common plantain	G5	S5		
<i>Poa annua</i>	annual bluegrass	GNR	SNA		
<i>Poa compressa</i>	Canada bluegrass	GNR	SNA		
<i>Poa palustris</i> *	fowl bluegrass	G5	S5		
<i>Poa pratensis</i>	Kentucky bluegrass	G5T5	S5		
<i>Podophyllum peltatum</i>	may-apple	G5	S5		
<i>Populus balsamifera</i> **	balsam poplar	G5	S5		
<i>Populus grandidentata</i>	large-tooth aspen	G5	S5		
<i>Populus tremuloides</i> **	trembling aspen	G5	S5		
<i>Potentilla recta</i>	common cinquefoil	GNR	SNA		
<i>Potentilla simplex</i>	old-field cinquefoil	G5	S5		
<i>Prunella vulgaris</i>	self-heal	G5TU	SNA		
<i>Prunus serotina</i>	black cherry	G5	S5		
<i>Prunus virginiana</i>	choke cherry	G5	S5		
<i>Pteridium aquilinum</i>	eastern bracken fern	G5	S5		
<i>Quercus rubra</i>	red oak	G5	S5		
<i>Ranunculus acris</i>	common buttercup	G5	SNA		
<i>Ranunculus repens</i> **	creeping buttercup	GNR	SNA		
<i>Rhamnus cathartica</i>	common buckthorn	GNR	SNA		
<i>Rhus radicans</i>	poison ivy	G5	S5		
<i>Rhus typhina</i>	staghorn sumac	G5	S5		
<i>Ribes cynosbati</i>	pasture gooseberry	G5	S5		
<i>Ribes hirtellum</i>	smooth gooseberry	G5	S5		
<i>Rosa multiflora</i>	multiflora rose	GNR	SNA		
<i>Rubus idaeus</i>	wild red raspberry	G5T5	SNA		
<i>Rubus alleghaniensis</i>	common blackberry	G5	S5		
<i>Rudbeckia hirta</i>	black-eyed Susan	GNR	SNA		
<i>Rumex crispus</i>	curly dock	GNR	SNA		
<i>Rumex orbiculatus</i> *	water dock	G5	S4S5		

Appendix E. List of Vascular Plants Observed on the 521 Huronia Road Property

SCIENTIFIC NAME	COMMON NAME	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Sagittaria latifolia</i> *	broad-leaved arrowhead	G5	S5		
<i>Salix bebbiana</i> *	Bebb's willow	G5	S5		
<i>Salix discolor</i> *	pussy willow	G5	S5		
<i>Salix eriocephala</i> *	Missouri river willow	G5	S5		
<i>Salix fragilis</i> *	crack willow	GNR	SNA		
<i>Salix petiolaris</i> *	slender willow	G5	S5		
<i>Salix x rubens</i> *	hybrid willow	GNR	SNA		
<i>Sambucus canadensis</i> **	common elderberry	G5T5	S5		
<i>Sambucus pubens</i> **	red-berried elder	G5	S5		
<i>Saponaria officinalis</i>	bouncing bet	GNR	SNR		
<i>Schizachne purpurascens</i>	purple false melic	G5	S5		
<i>Scirpus atrovirens</i> *	dark-green bulrush	G5?	S5		
<i>Scirpus cyperinus</i> *	wool-grass	G5	S5		
<i>Scirpus microcarpus</i> *	panicked bulrush	G5	S5		
<i>Scirpus validus</i> *	soft-stemmed bulrush	G5	S5		
<i>Scutellaria galericulata</i> *	marsh skullcap	G5	S5		
<i>Scutellaria laterifolia</i> *	mad dog skullcap	G5	S5		
<i>Setaria viridis</i>	green foxtail	GNR	SNA		
<i>Silene cucubalus</i>	baldder campion	GNR	SNA		
<i>Silene noctiflora</i>	night-flowering catchfly	GNR	SNA		
<i>Sisyrinchium montanum</i>	blue-eyed grass	G5T4T5	S5		
<i>Solanum dulcamara</i> **	deadly nightshade	GNR	SNA		
<i>Solidago altissima</i>	tall goldenrod	GNR	S5		
<i>Solidago canadensis</i>	Canada goldenrod	G5T5	S5		
<i>Solidago flexicaulis</i>	zig-zag goldenrod	G5	S5		
<i>Solidago gigantea</i>	smooth goldenrod	G5	S5		
<i>Solidago nemoralis</i>	gray-stemmed goldenrod	G5T5	S5		
<i>Solidago rugosa</i>	rough-leaved goldenrod	G5T5	S5		
<i>Sonchus oleraceus</i>	common sow-thistle	GNR	SNA		

Appendix E. List of Vascular Plants Observed on the 521 Huronia Road Property

SCIENTIFIC NAME	COMMON NAME	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Sparganium eurycarpum</i> *	broad-leaved burreed	G5	S5		
<i>Spiraea alba</i> *	meadowsweet	G5	S5		
<i>Spiranthes cernua</i>	nodding ladies'-tresses	G5	S5		
<i>Stellaria graminifolia</i>	grass-leaved stitchwort	GNR	SNA		
<i>Symphyotrichum cordifolium</i>	heart-leaved aster	G5	S5		
<i>Symphyotrichum lateriflorum</i>	calico aster	G5	S5		
<i>Symphyotrichum novae-angliae</i>	New England aster	G5	S5		
<i>Symphyotrichum puniceum</i> *	purple-stemmed aster	G5	S5		
<i>Syringa vulgaris</i>	common lilac	GNR	SNA		
<i>Taraxacum officinale</i>	common dandelion	G5	SNA		
<i>Taxus canadensis</i>	American yew	G5	S4		
<i>Thalictrum dioicum</i>	early meadow-rue	G5	S5		
<i>Thalictrum pubescens</i>	tall meadow-rue	G5	S5		
<i>Thelypteris noveboracensis</i>	New York fern	G5	S5		
<i>Thelypteris palustris</i> *	marsh fern	G5	S5		
<i>Thuja occidentalis</i>	eastern white cedar	G5	S5		
<i>Tiarella cordifolia</i> *	foam flower	G5	S5		
<i>Tilia americana</i>	basswood	G5	S5		
<i>Tragopogon pratensis</i>	goat's-beard	GNR	SNA		
<i>Trientalis borealis</i>	starflower	G5	S5		
<i>Trifolium campestre</i>	low hop clover	GNR	SNA		
<i>Trifolium pratense</i>	red clover	GNR	SNA		
<i>Trifolium repens</i>	white clover	GNR	SNA		
<i>Tsuga canadensis</i>	eastern hemlock	G5	S5		
<i>Tussilago farfara</i> **	coltsfoot	GNR	SNA		
<i>Typha angustifolia</i> *	narrow-leaved cattail	GNR	SNA		
<i>Typha latifolia</i> *	broad-leaved cattail	GNR	SNA		
<i>Typha x glauca</i> *	hybrid cattail	GNA	SNA		
<i>Ulmus americana</i> **	white elm	G5?	S5		
<i>Urtica dioica</i> **	European stinging nettle	G5T5?	SNA		

Appendix E. List of Vascular Plants Observed on the 521 Huronia Road Property

SCIENTIFIC NAME	COMMON NAME	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Verbascum thapsus</i>	common mullein	GNR	SNA		
<i>Verbena hastata</i> *	blue vervain	G5	S5		
<i>Veronica anagallis-aquatica</i> *	American water speedwell	G5	SNA		
<i>Veronica serpyllifolia</i>	thyme-leaved speedwell	G5	SNA		
<i>Viburnum acerifolium</i> **	maple-leaved viburnum	G5	S5		
<i>Viburnum trilobum</i> **	high-bush viburnum	G5	S5		
<i>Viburnum lentago</i>	nannyberry	G5	S5		
<i>Vicia cracca</i>	cow vetch	GNR	SNA		
<i>Viola cucullata</i> *	marsh blue violet	G4G5	S5		
<i>Viola pubescens</i>	downy yellow violet	G5T5	S5		
<i>Viola sororia</i>	woolly blue violet	G5	S5		
<i>Vitis riparia</i> **	riverbank grape	G5	S5		
<i>Woodwardia virginiana</i> *	Virginia chain fern	G5	S4		

Legend

Provincial Rank (SRANK)

S1 - Critically Imperiled

S2 - Imperiled

S3 - Vulnerable

S4 - Apparently Secure

S5 - Secure

SNA - Non Applicable or equivalent to

non-native

SARA, 2002

NAR - Not at Risk

SC - Special Concern

T - Threatened

E - Endangered

ESA, 2007

NAR - Not at Risk

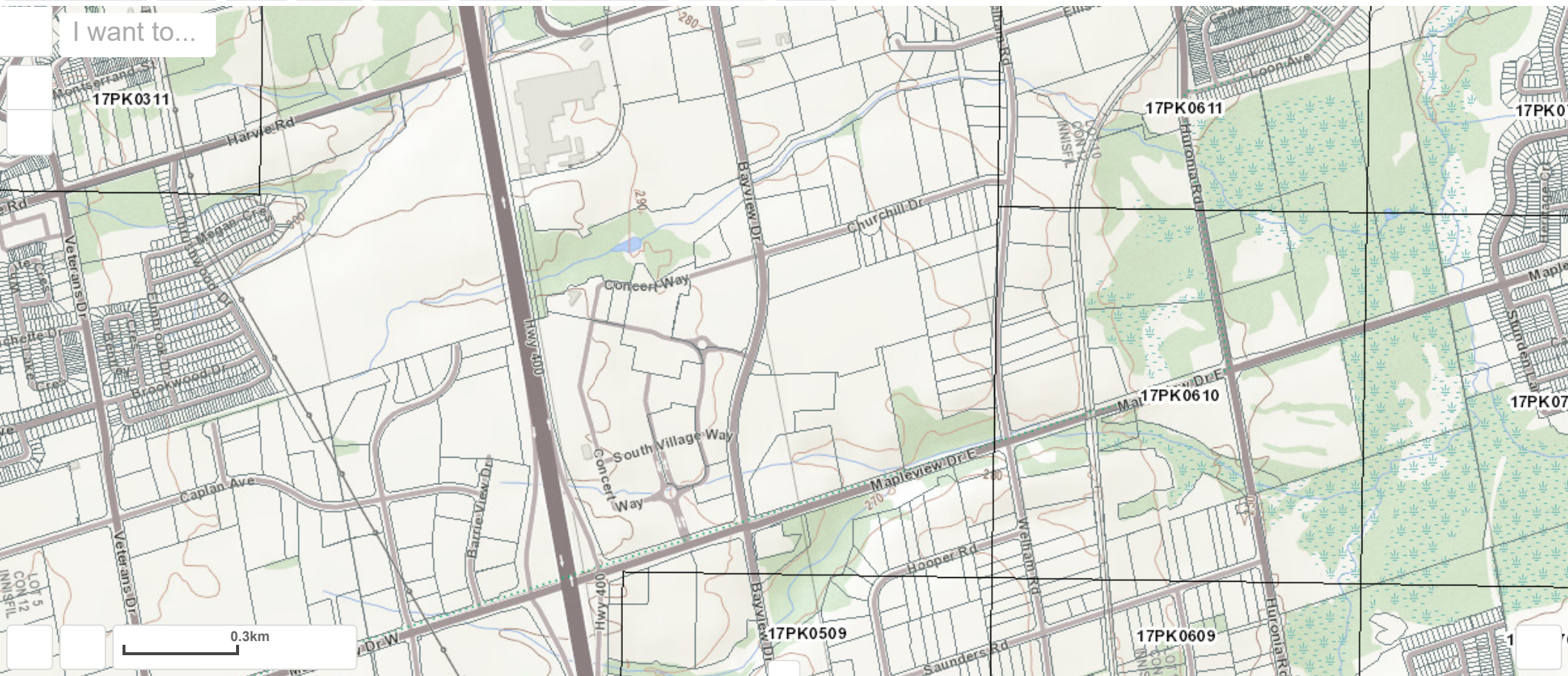
SC - Special Concern

THR - Threatened

END - Endangered

* plant species observed in the PSW, ** plant species observed on the tableland and in the PSW

**APPENDIX F – NHIC TRACKING SQUARES
17PK0610 & 17PK0611**



Identify Results (1)

NHIC Data					
Ogf ID	UTM Zone	Easting Lower Left Corner	Northing Low Left Corner	MGRS NAD83 Ident	Atlas NAD83 Ident
1008294	17	606000	4910000	17TPK0610	17PK0610

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Bookmarks

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Markup & Printing

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 Search By Location

 Point

 Pan

 Zoom In

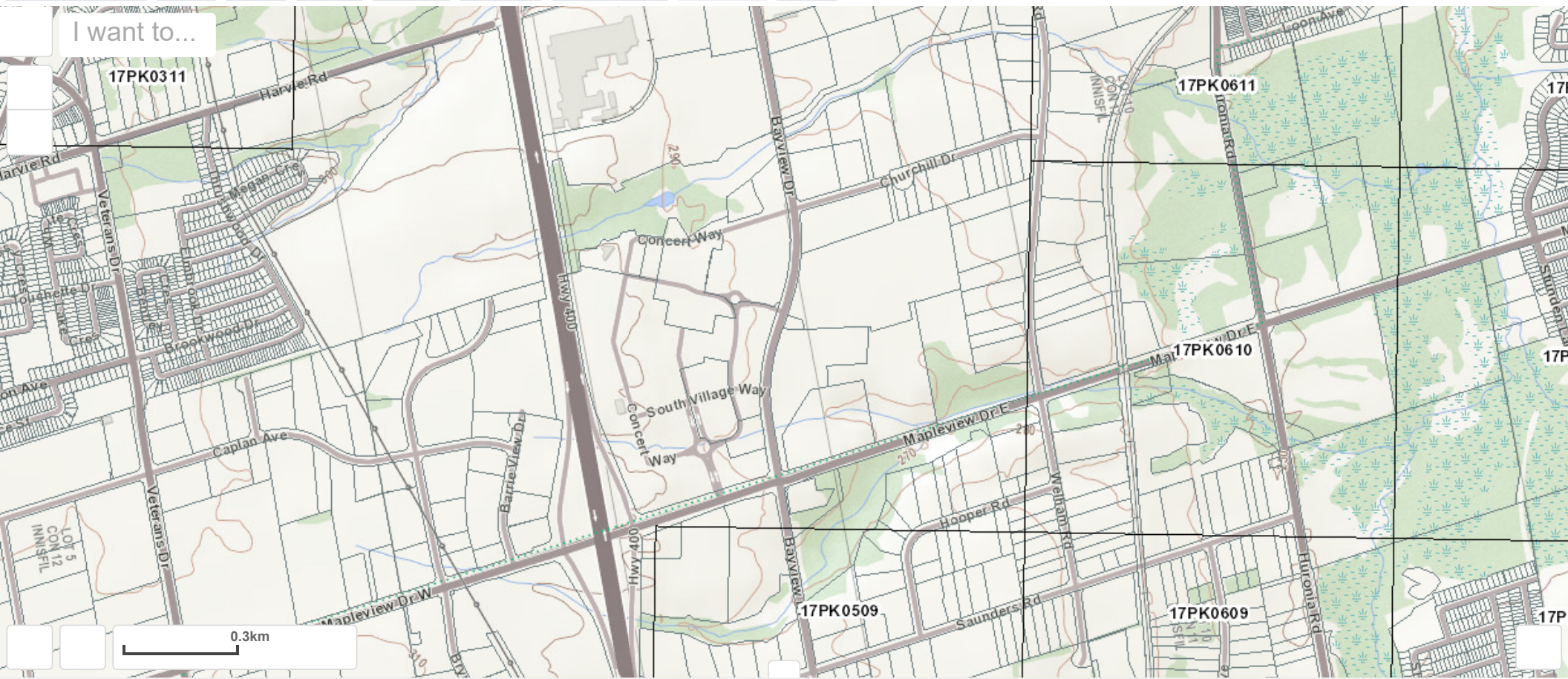
 Zoom Out

 Initial View

 Previous Extent

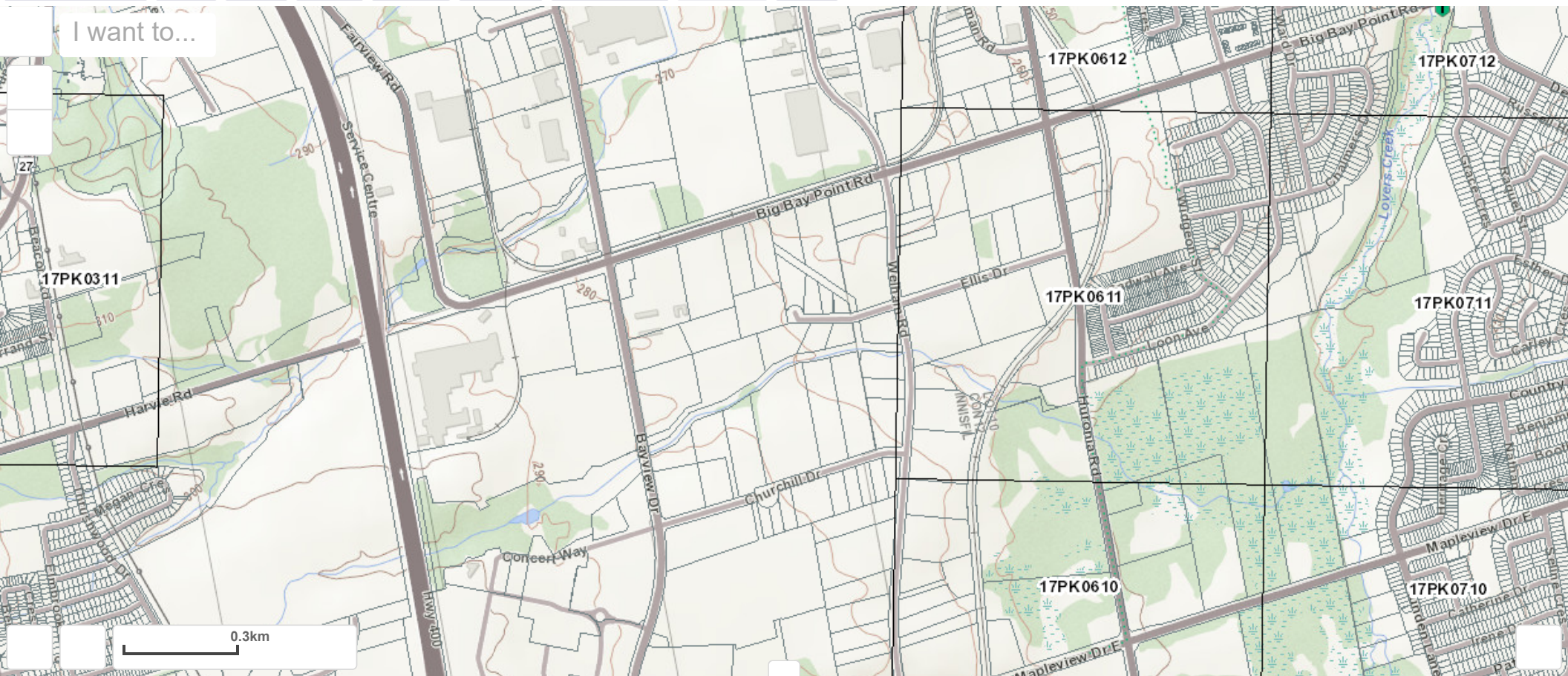
 Next Extent

 Help



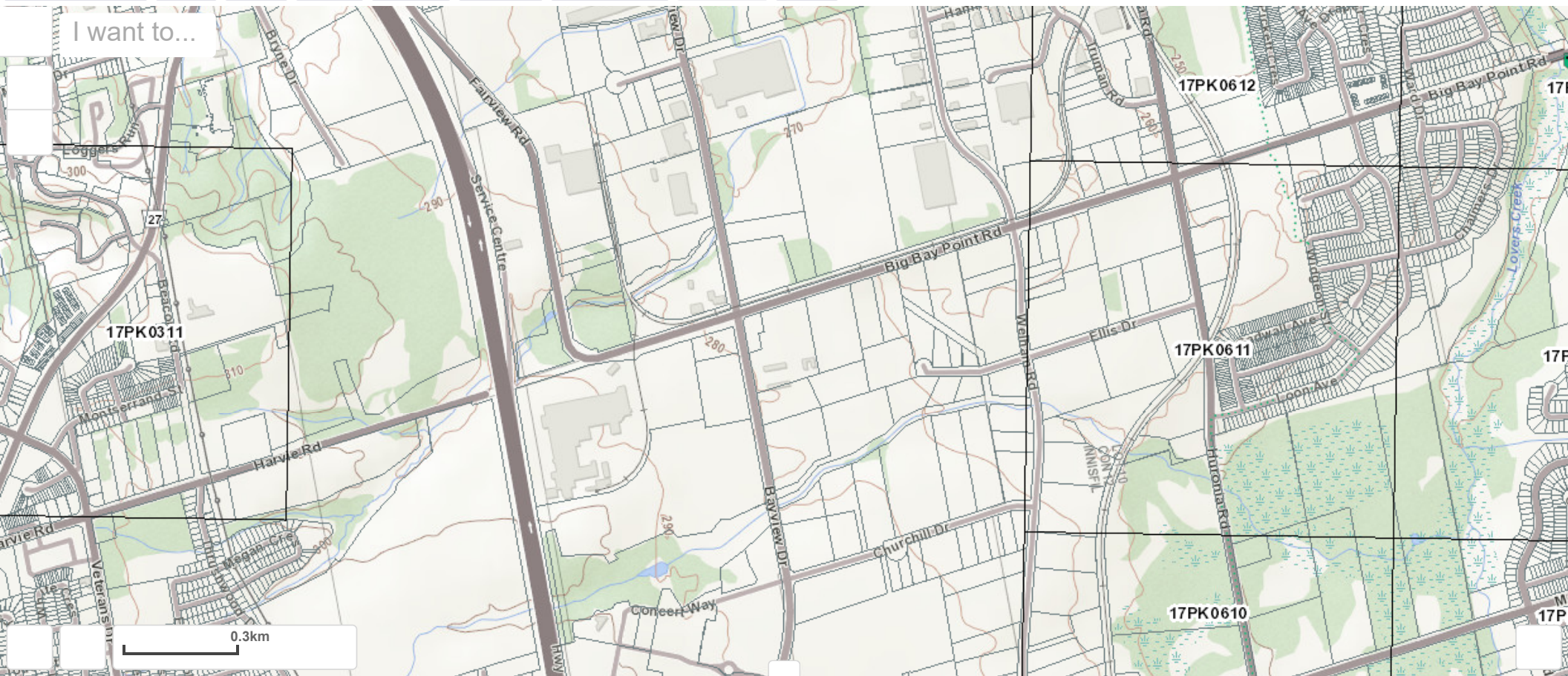
NHIC Data -- Grid ID = 1008294

Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	Last Obs Date	EO ID	Details URL
NATURAL AREA	Lover's Creek Swamp (IN4)						7841	http://nhic.mnr.gov.on.ca/natural_areas/ar
SPECIES	Snapping Turtle	Chelydra serpentina	S3	SC	SC	1994-00-00	96210	http://nhic.mnr.gov.on.ca/reports/public_de



Identify Results (1)

NHIC Data					
Ogf ID	UTM Zone	Easting Lower Left Corner	Northing Low Left Corner	MGRS NAD83 Ident	Atlas NAD83 Ident
1008295	17	606000	4911000	17TPK0611	17PK0611



NHIC Data -- Grid ID = 1008295

Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	Last Obs Date	EO ID	Details URL
NATURAL AREA	Lover's Creek Swamp (IN4)						7841	http://nhic.mnr.gov.on.ca/natural_areas/ar
SPECIES	Snapping Turtle	Chelydra serpentina	S3	SC	SC	1994-00-00	96210	http://nhic.mnr.gov.on.ca/reports/public_de