BEACON ENVIRONMENTAL

GUIDING SOLUTIONS IN THE NATURAL ENVIRONMENT

Scoped Environmental Impact Study
105 – 111 Edgehill Drive
City of Barrie

Prepared For:

1980168 Ontario Inc.

Prepared By:

Beacon Environmental Limited

Date: *Project:*

June 2018 **217408**

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Table of Contents

page

Figures

Tables

Appendices

1. Introduction

Beacon Environmental Limited (Beacon) has been retained by 1980168 Ontario Inc. to undertake a Scoped Environmental Impact Study (EIS), for four parcels of land located at 105 – 111 Edgehill Drive in the City of Barrie (the "subject property", **Figure 1**).

The subject property is approximately 0.77 ha (1.91 ac) in size and is bounded by Edgehill Drive to the northwest, Highway 400 to the southeast and existing residential lots to the northeast and southwest. There are existing, single detached dwellings on three of the lots within the subject property. The fourth lot, 105 Edgehill Drive, is vacant with a former residence having been removed several years ago. Natural features include a dug ephemeral drainage feature in the southwestern portion of the subject property that drains seasonally high groundwater seepage. There is also a watercourse beyond the southeastern property line, within the Highway 400 right of way. The property is within the jurisdiction of the Lake Simcoe Region Conservation Authority (LSRCA) and the City of Barrie.

The data presented in this EIS was collected through a review of background documents and seasonally appropriate field investigations undertaken in late 2017 and spring 2018. The data collected for the subject property was used to characterize the natural heritage features, and was assessed in relation to the policies presented in the City of Barrie Official Plan, and the guidelines and policies provided by regulatory agencies including the LSRCA and the Ministry of Natural Resources and Forestry (MNRF). Finally, this Scoped EIS provides an outline of the proposed development plan, identifies potential negative impacts to natural features, and recommends appropriate mitigation measures.

2. Policy Context

2.1 Provincial Policy Statement (2014)

The Province recently released an updated Provincial Policy Statement (2014) under section 3 of the Planning Act, which came into effect on April 30, 2014. The Provincial Policy Statement (2014) is intended to provide policy direction on matters of provincial interest related to land use planning.

Policy 2.1 of the Provincial Policy Statement (2014) provides direction to the regional and local municipalities regarding planning policies for the protection and management of natural heritage features and resources. The 2014 PPS defines eight natural heritage features and provides planning policies for each. The Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement (MNR 2010) is a technical guidance document used to help assess the natural heritage features listed.

Section 2.1 of the 2014 PPS relates to Natural Heritage. The following subsections are provided.

> *2.1.3 Natural heritage systems shall be identified in Ecoregions 6E & 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.*

2.1.4 Development and site alteration shall not be permitted in;

a) significant wetlands in Ecoregions 5E, 6E and 7E; and
b) significant coastal wetlands.

2.1.5 Development and site alteration shall not be permitted in:

a) significant wetlands north of the Canadian Shield north of Ecoregions 5E, 6E and 7E;
b) significant woodlands in Ecoregions 6E and 7E;
c) significant valleylands in Ecoregions 6E and 7E;
d) significant wildlife habitat;
e) significant Areas of Natural and Scientific Interest (ANSI's); and
f) significant coastal wetlands in Ecoregions 5E, 6E and 7E not covered above;

unless it has been demonstrated (typically through an EIS or a comparable technical study) that there will be no negative impacts on the natural features or their ecological functions.

2.1.6 Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

2.1.7 Development and site alternation shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

2.1.8 Development and site alternation shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there are no negative impacts on the natural features or on their ecological functions.

Each of these features is afforded varying levels of protection subject to guidelines, and in cases, regulations.

Some of these features (i.e., provincially significant wetlands and ANSIs) are identified by the MNRF, while others are to be identified by the local area municipalities or planning authorities (i.e., significant woodlands, significant valleylands and significant wildlife habitat). Threatened and endangered species are designated at the provincial level, but their habitat is typically identified or verified at the site-specific level. It is expected that even where features have been identified at the provincial, regional or local levels that verification and some level of refinement is required at the site-specific basis.

2.2 Endangered Species Act (2007)

The MNRF provides oversight of the *Endangered Species Act* (*ESA*) for the regulation of species at risk (SAR) in Ontario. Under the *ESA,* native species that are in danger of becoming extinct or extirpated from the province are identified as being extirpated, endangered, threatened or special concern. These designations are defined as follows:

Site Location	Figure 1
Scoped EIS for 105-111 Edgehill Drive, Barrie 1980168 Ontario Inc.	
UTM Zone 17 N, NAD 83	N W E S
First Base Solutions Web Mapping Service 2016	
0 10 20 40 Metres	1:1,100
BEACON ENVIRONMENTAL	Project 217408 May 2018

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- Extirpated - a species that no longer exists in the wild in Ontario but still occurs elsewhere;
- Endangered – a species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act;
- Threatened - a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed; and
- Special Concern (formerly Vulnerable) - a species with characteristics that make it sensitive to human activities or natural events.

Under the *ESA*, protection is provided to threatened or endangered species and their habitat, as well as providing stewardship and recovery strategies for species. Permitting is required to conduct works within habitat regulated for threatened or endangered species. Species of special concern require management plans from the MNRF but are not directly protected under the *ESA*.

2.3 Lake Simcoe Protection Plan (2009)

The *Lake Simcoe Protection Act*, which was passed in December 2008, provides a legislative framework for protecting the Lake Simcoe watershed. Among other items, the *Act* includes the requirement for a Protection Plan with legally binding policies.

The Lake Simcoe Protection Plan (2009) has separate requirements depending on whether the proposed development is located within an existing settlement area or outside an existing settlement area. For greater certainty, where lands are incorporated into a settlement area after the effective date of the Plan, an application for development or site alteration within those lands is subject to the policies in Chapter 6, excluding policies 6.32 to 6.34 which refer specifically to lands in existing settlement areas.

The subject property is located within an existing settlement area and is therefore subject to the following policies under the Act.

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.*

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; and

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.

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.*

2.4 Lake Simcoe Region Conservation Authority Watershed Policies and Regulation

The LSRCA regulates hazard lands including watercourses, valleylands, shorelines, and wetlands, including lands adjacent to these features.

The LSRCA regulates all depressional features associated with a river or stream, whether or not they contain a watercourse. With respect to wetlands, the regulated area extends to 120 m from a Provincially Significant Wetland (PSW) and 30 m from all other wetlands. With respect to flood plain and valleylands, the regulation extends 15 m from the greater level of constraint.

Subject to conformity with the applicable Official Plan, and completion of appropriate studies and completion of the Conservation Authority permit process, development may be permitted within a regulated area. Application for development and interference in regulated areas requires the issuance of a permit from the LSRCA. Obtaining a permit generally requires an EIS. Once the requested studies have been completed there may be a requirement for features to be maintained and/or for protective buffers to be placed on features or hazard lands within the study area.

2.5 City of Barrie Official Plan (2010, Office Consolidation 2018)

On April 23, 2010 The Ministry of Municipal Affairs and Housing (MMAH) approved a new Official Plan for the City of Barrie. The applicable natural heritage or environmental policies are detailed below.

3.5.2.3 WATER RESOURCE MANAGEMENT

(a) In reviewing development proposals, the City shall protect, maintain and enhance water and water related resources on an integrated watershed management basis.

3.5.2.3.1 FLOOD PLAIN MANAGEMENT, EROSION, HAZARDOUS SITES AND FILL CONTROL

(a) *Flood plain management and control will occur in partnership with the applicable Conservation Authorities.*

(f) The placing or dumping of fill of any kind, the straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse, the construction of any building or structure in or on a pond or swamp or any area susceptible to flooding shall not be permitted in a regulated Conservation Authority area except with written approval of the Conservation Authority. Authorization may be required from Fisheries and Oceans Canada for any in-water works.

3.5.2.3.2 SURFACE WATER PROTECTION

(a) The City will work in partnership with adjacent municipalities and the Conservation Authorities, provincial ministries, the Health Unit and other partners to develop practices that maintain and improve the quality and quantity of lakes and watercourses, and to protect headwater areas from land uses that have the potential to contaminate downstream water systems.

(b) *The City will co-operate with the Conservation Authorities and adjacent municipalities in identifying and mapping surface water features, groundwater features, hydrologic functions and natural heritage features and areas which are necessary for the ecological and hydrological integrity of the watershed. These features will be incorporated into the Plan as Schedules by amendment.*

(c) *The natural quality and hydrologic characteristics of watercourses and lakes, including aquatic habitat, base flow, water quality, temperature, storage levels or capacity are to be maintained, and no development shall be permitted that has the potential to create a negative impact on any of the watercourses and lakes.*

(d) *Development and site alteration shall be restricted in or near lakes and watercourses such that these features and their related hydrologic functions will be protected, improved or restored. In general, development and site alteration shall be setback a minimum 30 metres from lakes and watercourses.*

(e) *Mitigation measures or alternative development approaches may be required in order to protect, improve or restore sensitive surface water features such that these features and their related hydrologic functions will be protected, improved or restored.*

3.5.2.4 NATURAL HERITAGE RESOURCES (OPA 14, By-law 2013-059)

(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.*

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.*

iii. ***Level 3*** *resources represent significant and supporting components of the Natural Heritage Resource network. There is opportunity for development if the proposal ensures the protection and buffering of the significant feature and/or retains the supporting function of the feature.*

- *An EIS will be required to be completed for any development or site alteration in or within 30 metres of an area identified as Level 3 on Schedule H.*

(b) 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. 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 to the Official Plan is not required for minor amendments to Schedule H.

(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.

3.9.4 DEVELOPMENT AND SITE ALTERATION

3.9.4.2 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 valley lands 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.

3.9.4.3 Where, through an application for development or site alteration, a buffer is required to be established by the implementation of an environmental impact study or natural heritage evaluation, the buffer shall be composed of and maintained as natural self-sustaining vegetation.

4.7 ENVIRONMENTAL PROTECTION AREAS

4.7.2.3 GENERAL POLICIES

(e) *Development and site alteration shall not be permitted in fish habitat areas except in accordance with Provincial and Federal requirements.*

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 Lover's, Bear, Hewitt's, Sophia, Kidd's, Bunker's, Dyment'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.*

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.*

3. Methods

Background information pertaining to the natural and physical setting of the subject property was gathered and reviewed at the outset of the project. These information sources included:

- City of Barrie Official Plan (2010, Office Consolidation 2017);
- LSRCA Regulations and Policies;
- MNRF Natural Heritage Information Centre (NHIC); and
- *Endangered Species Act* (2007).

Other sources of information, such as aerial photography and topographic maps, were also consulted prior to commencing field investigations. The MNRF was contacted and asked to provide records of the presence of endangered and threatened species on and adjacent to the subject property. The LSRCA was contacted to confirm the scope of studies to be included in this EIS. Correspondence received from the MNRF and LSRCA is presented in **Appendix A**.

3.1 Field Investigations

Field investigations on the subject property were undertaken by Beacon staff in 2017 and 2018 including, vegetation community mapping, aquatic habitat assessment and watercourse delineation. Data was also collected for a Tree Inventory and Preservation Plan which has been prepared as a separate draft report and included as **Appendix B**. A description of these investigations follows below and a summary of the timing is provided in **Table 1.**

Table 1. Summary of Field Investigations

Survey Type	Date
Botanical, Habitat Assessment	October 26, 2017
Botanical, Watercourse Delineation (with LSRCA)	November 2, 2017
Aquatic Habitat Assessment	November 17, 2017
Tree Inventory, Botanical, ELC	May 16, 2018

3.1.1 Vegetation Community Mapping

Vegetation surveys took place on October 26 and November 2, 2017, and May 16, 2018. Vegetation units on the subject property were described and mapped on current high resolution colour ortho-photography of the lands using the Ecological Land Classification System for Southern Ontario (ELC) (Lee *et al*. 1998). This is the standard method used for describing vegetation communities in southern Ontario. At the same time as vegetation community mapping was undertaken, a floral inventory occurred which consisted of a compilation of a list of plants observed on the property. Searches were also conducted for Butternut (*Juglans cinerea*) during site surveys. This is a relatively common tree species in southern Ontario that is listed provincially and federally as endangered.

3.1.2 Incidental Wildlife

Incidental observations of wildlife species, including mammals were made during field investigations that were primarily for other purposes.

3.1.3 Aquatic Habitat Assessment

An aquatic habitat assessment was undertaken on the subject property by a Beacon ecologist on November 17, 2017. The habitat characteristics of the watercourses within and adjacent to the subject property were surveyed.

3.1.4 Feature Staking with LSRCA

A site inspection was undertaken with staff from the LSRCA (Kate Lillie and Melinda Bessey) on November 2, 2017. The location and extent of the ephemeral watercourse within the subject property was delineated and staked in the field.

3.1.5 Species at Risk

The Midhurst District office of the MNRF was contacted regarding species at risk (SAR) file information (Graham Findlay, email correspondence in **Appendix A**). The MNRF stated that the potential SAR to screen for would be dependent on available existing records and habitat assessment.

A screening for potential SAR habitat was completed through identification of potential suitable habitat types for SAR species known to occur in Simcoe County. This included a snag survey to identify potential bat roosting habitat and opportunistic surveys for wildlife during all subject property visits in potentially suitable habitats. Methods for conducting the bat habitat surveys followed the MNRF's guidelines for Bat and Bat Habitat Surveys of Treed Habitats (2016). The trees on the subject lands were surveyed for bat roosting and maternity habitat (cavity trees) on May 16, 2018.

4. Existing Conditions

4.1 General Conditions and Landscape Context

The subject property is approximately 0.77 ha (1.91 ac) in size and is bounded by Edgehill Drive to the northwest, Highway 400 to the southeast and existing residential lots to the northeast and southwest. Natural features include a headwater drainage feature receiving groundwater seepage and young to mid-aged trees, both planted and naturally regenerating. The subject property is located at the base of a broad, high slope to the north.

4.1.1 Soils

Site investigations by Toronto Inspection Ltd. (2018) confirm that the soils are deep (over 5 m) and are generally sandy silt, sand and silty sand deposits. The groundwater is shallow, ranging from just below surface to 1.0 m deep.

4.1.2 Watershed Context

The subject property is in the Bunkers Creek subwatershed, which is entirely with the City of Barrie limits. The LSRCA considers Bunkers Creek part of the 'Barrie Creeks' Subwatershed (LSRCA 2012). Bunkers Creek is surrounded by urban land use, with only small sections having natural cover.

4.1.3 Ecoregion and Eco District

The subject property lies within Lake Simcoe-Rideau Ecoregion 6E. More specifically, the subject property lies within the Barrie Ecodistrict 6E-6, which covers some 560,878 ha, including portions of Simcoe County, York Region, and Durham Region. Ecodistrict 6E-6 extends from clay and limestone plains in the north (just south of the Canadian Shield) to the Simcoe County Lowlands and Schomberg Clay Plains in the south. Vegetation resources of the ecoregion are characterized primarily by deciduous forests and wetlands, the majority of which are swamp (Henson & Brodribb 2005).

4.2 Aquatic Resources

The subject property is adjacent to the northern branch of Bunkers Creek. This branch is considered a cold water tributary (LSRCA 2012). The soils in the area consist of loamy sand with high infiltration rates (LSRCA 2012).

4.2.1 Northern Branch of Bunkers Creek

The northern branch of Bunkers Creek does not flow through the subject property. It has been altered in several ways decades ago. It has been realigned to direct it along Anne Street east of the subject property, and along Highway 400 to the south of the subject property (**Figure 2**). The northern branch emerges from a pipe under Edgehill Road just upstream of the subject property. There is a control structure east of the subject property which consists of a weir constructed from gabion baskets with a plunge-pool downstream. Sections of the bank have been reinforced by riprap and filter fabric. Some bank reinforcements are failing in sections as was evident from eroding banks (**Photograph 1**). It has a wetted width of approximately 2 m and a depth of approximately 0.3 m. Water temperature was 7°C (air temperature 6°C) at 1 pm on November 17, 2017. No fish have been recorded in the northern branch of Bunkers Creek (LSRCA 2012). This reach is considered indirect (or contributing) coldwater fish habitat based on the information provided in the subwatershed plan (LSRCA 2012).

4.2.2 Headwater Drainage Feature

A headwater drainage feature (HDF) traverses the southern portion of the subject property. This HDF was assessed on November 17, 2018. This HDF at one time originated from a now non-functional pipe

Existing Conditions

Figure 2

Scoped EIS for 105-111 Edgehill Drive, Barrie
1980168 Ontario Inc.

Legend

- Subject Property (Approximate)
- ELC Communities
- Watercourse

ELC Code	Community Description
CUW1/ANT	Mineral Cultural Woodland/Anthropogenic

UTM Zone 17 N, NAD 83

First Base Solutions
Web Mapping Service 2016

N
W E
S

0 5 10 20 Metres

1:900

Project 217408
May 2018

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under Edgehill Drive in the northeastern corner of the subject property. This pipe appears to be in poor repair as is was partially buried and blocked. Based on a staking exercise with the LSRCA on November 2, 2018, this HDF currently has an origin point in the central portion of the property (**Figure 2**). Sections of this HDF appear to have been straightened in the past and the banks graded (**Photograph 2**). There are two improvised foot crossings constructed of concrete pipe and wooden beams. This HDF exits the subject property in the south, then flows around the edge of a parking lot on an adjacent property, just before its confluence with Bunkers Creek (**Photograph 3**). Runoff from the parking lot enters the HDF at this location, including a winter snow storage area. This feature was dry in the north part of the site on November 17. In the southern part of the site this feature contained standing water and trickle flow. A section of dense Watercress (*Nasturtium officinale*) was observed in this area potentially indicating presence of groundwater upwelling. Maximum depth observed was 5 cm. Maximum wetted width was 2 m. Water temperature within the HDF close to its confluence with Bunkers Creek was 6°C (air temperature 6°C).

4.3 Terrestrial Resources

The entire subject property is a product of past disturbance having been residential properties for decades within the City of Barrie. The easterly lot has been more recently highly disturbed as the residence there was demolished several years ago. Existing conditions are illustrated on **Figure 2**.

4.3.1 Vegetation Communities

The vegetation communities within the entire subject property have been altered by human activities. As a result the subject property is classified as one vegetation community illustrated in **Figure 2,** and described in detail below.

Anthropogenic (ANT) / Mineral Cultural Woodland (CUW1)

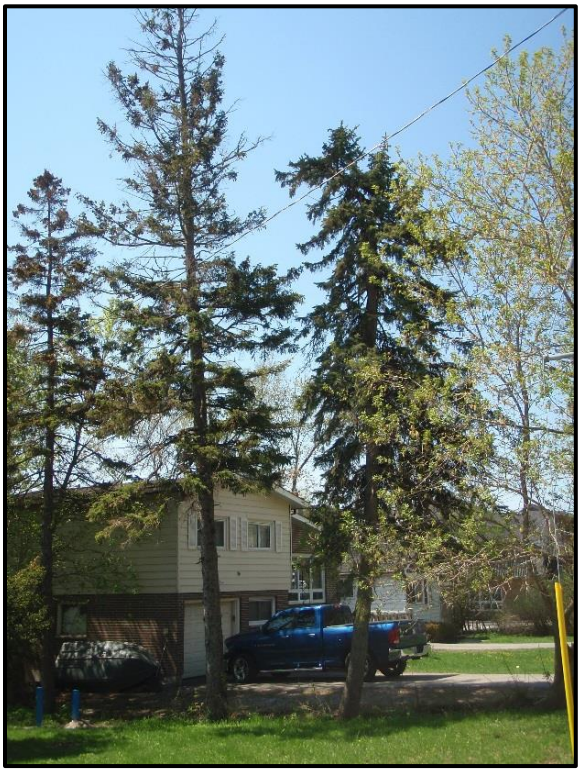
The entire site is characterized as a matrix of maintained residential area and naturally regenerating or planted trees and shrubs (**Photograph 4** and **5**). The regenerating tree species include, immature Manitoba Maple (*Acer negundo*), Siberian Elm (*Ulmus pumila*), White Poplar (*Populus alba*), Balsam Poplar (*P. balsamifera*) and the planted trees include some mid-aged Norway Spruce (*Picea abies*), Scots Pine (*Pinus sylvestris*) and several Freeman's Maple (*Acer x freemanii*). Shrub species include Common Buckthorn (*Rhamnus cathartica*), Tartarian Honeysuckle (*Lonicera tatarica*), Wild Red Raspberry (*Rubus idaeus*), Blackberry (*Rubus alleghaniensis*), Guelder-rose Viburnum (*Viburnum opulus*) and Riverbank Grape (*Vitis riparia*). The herbaceous species include Canada Goldenrod (*Solidago canadensis*), Wild Carrot (*Daucus carota*), Garlic Mustard (*Alliaria petiolata*), and grasses such as Smooth Brome (*Bromus inermis*), Kentucky Bluegrass (*Poa pratensis*) and Orchard Grass (*Dactylis glomerata*).

Along the edges of the small watercourse (HDF) there is some Red-osier Dogwood (*Cornus sericea*), Bebb's Willow (*Salix bebbiana*) and Spotted Joe-pye Weed (*Eutrochium maculatum*) (**Photograph 2**).

Photograph 1. View of Bunkers Creek Tributary East of Subject Property (Nov. 17, 2017).

Photograph 2. View of Channelized Drainage Feature on Subject Property (Oct. 26, 2017).

Photograph 3. View of Drainage Feature Where it Flows Past Edge of Parking Lot (Nov. 17, 2017).



Photograph 4. View of Maintained Trees and Lawn (ANT) on Subject Property (May 16, 2018).

Photograph 5. View of Some of the Immature Trees (CUW1) on the Subject Property (May 16, 2018).

4.3.2 Flora

A total of 47 plant species were observed on the subject property with 27 (57%) being non-native plant species (**Appendix C**). This high percentage of non-native plant species is common for properties with disturbed areas within an urbanized landscape. There were no floral species at risk on the subject property. All of the native plant species are ranked provincially as S5 (Secure). None of the plant species are listed as uncommon or rare in the Lake Simcoe Watershed by the Lake Simcoe Environmental Management Strategy (2003) or in Simcoe County (Riley 1989).

4.3.3 Bat Habitat Surveys

Two species of bats listed under Ontario's *Endangered Species Act (2007)* (Little Brown Myotis and Northern Myotis) have the potential to occur within the treed habitat on the subject property. Little Brown Myotis and Northern Myotis require snags – larger trees with cavities – for roosting. Using the MNRF's methodology, (i.e., trees with cavities, Decay Class 1, 2 or 3 trees [Watt and Caceres 1999], and measuring >25cm diameter at breast height [dbh]), surveys were conducted within and adjacent to the subject property. Three trees were found that had cavities. One tree (#308) had a single knot hole approximately 10m high. Two other trees (#306 and #302) had a single cavity at about 1 m above the ground, which is highly unlikely to be used by roosting bats. Based on of the limited number of trees, and the paucity of cavities in these trees, it is highly unlikely that any SAR bats are utilizing the subject property.

4.3.4 Significant Wildlife Habitat

Based on field investigations and background review, no significant wildlife habitat, such as seasonal concentrations of animals, rare vegetation communities, specialized habitat for wildlife, habitat for species of conservation concern, or animal movement corridors exists within the subject property (OMNR 2000).

4.4 Species at Risk

Following the characterization of the habitat on the subject property, an assessment was completed to determine if suitable habitat was present for any of the potential endangered, threatened or special concern species known to occur in the vicinity of property. The habitat on the subject property is limited and of poor quality and does not represent ideal habitat for any of the SAR known to occur in Simcoe County. No individual SAR flora or fauna were observed on the subject property.

4.5 Landscape Connectivity

Landscape connectivity has become recognized as an important component of natural heritage planning. Although there is not universal agreement on the net benefits of corridors, a wide range of benefits can be attributed to maintaining connectivity within the natural landscape. In essence, corridors allow organisms to move between areas of high habitat importance. Conservation of distinct habitat types to protect species may be less effective unless the corridors between them are also protected or restored.

The subject property occurs in an area where the local landscape has been highly altered through past and present anthropogenic use. From a wildlife perspective, the property is situated directly adjacent to an existing highly disturbed land use (Highway 400) and is within a highly urbanized landscape with no adjacent natural areas.

4.6 Summary of Key Functions and Attributes

Table 2 provides a summary of the natural heritage features that were identified by this EIS. These features will be addressed with respect to potential development impacts. The limit of these features are depicted on **Figure 2.**

Table 2. Summary of Key Functions and Attributes

Features	Key Functions and Attributes
Watercourses	• Permanent tributary to the Bunker's Creek located to the east and south of the subject property. Represents indirect fish habitat • An ephemeral headwater drainage feature within the subject property.

Features	Key Functions and Attributes
Wetlands	• None.
Woodlands	• Small areas of immature trees within the subject property that represent low quality wildlife habitat.

5. Proposed Development

The proposed development will involve the construction of five buildings with a total of 78 townhomes with associated parking and amenities area. The proposed conceptual development plan is shown on **Figure 3**.

To accommodate the proposed development, the ephemeral drainage feature is proposed to be relocated (**Figure 3**). The conceptual plan to relocate this feature has been reviewed and approved in principle by the LSRCA.

5.1 Servicing

Servicing for the proposed residential development will include connection to municipal water and sewer at Edgehill Drive.

5.2 Grading

The proposed grading includes swales along the perimeter of the subject property to capture external drainage and convey it and the internal drainage that is not infiltrated, to the south via the proposed relocated intermittent watercourse, then off property to the Bunkers Creek tributary. Final grading is to be determined and will be addressed when Beacon receives a grading plan, which is being prepared by others.

5.3 Stormwater

A companion Functional Servicing and Stormwater Management Report for the proposed development has been prepared by Pinestone Engineering Ltd. (2018). A Hydrological Investigation has been prepared by Toronto Inspection Ltd. (2018) that includes a water balance for pre- to post-development hydrologic inputs.

KEY MAP

CONCEPTUAL SITE PLAN

105, 107, 109, 111 EDGEHILL DRIVE
IN THE
CITY OF BARRIE
COUNTY OF SIMCOE
2017

Scale 1:300

0 25m

LEGEND

- SUBJECT LANDS (0.77 ha/ 1.9 ac)
- BACK-TO-BACK TOWNHOMES 78 UNITS
- LANDSCAPED OPEN SPACE (0.4 ha/ 1.0 ac)
- AMENITY AREA
- WATER SERVICES
- SANITARY SERVICES
- STORM SERVICES

Figure 3 - Proposed Development

ZONING TABLE - RM2-SP		
PROVISION	REQUIRED	PROVIDED
LOT AREA	720m² (min)	7,734 m²
LOT FRONTAGE	21m (min)	85 m
SETBACKS		
FRONT YARD	7.0m (min)	4.0 m
INTERIOR SIDE YARD	1.8m (min)	3.0 m
REAR YARD	7.0m (min)	14.9 m
LANDSCAPED OPEN SPACE	35% (min)	51 %
DWELLING UNIT FLOOR AREA	45m² / 1 BDRM 55m² / 2 BDRM (min)	45m² / 1 BDRM 55m² / 2 BDRM
LOT COVERAGE	35% (max)	38%
GROSS FLOOR AREA	60% (max)	114 %
BUILDING HEIGHT	10m (max)	12 m
PARKING SPACES	1.5 spaces/unit + 2BF	1.07 spaces/unit + 2BF
AMENITY AREA	936m²	1,028m²
PARKING AREA BUFFER	3.0 m (min)	N/A

Source: Simcoe County Interactive Mapping, 2017
Discover Barrie Interactive Mapping, 2017.
Note: Information shown in approximate and subject to change.

CONCEPTUAL SITE PLAN - 78 UNITS

105,107,109,111 EDGEHILL DRIVE - CITY OF BARRIE

RESIDENTIAL	CURRENT OP DESIGNATION
R2	CURRENT ZONE

SCHEDULE OF REVISIONS

No.	Date	Description	By

IPS
INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
150 DUNLOP STREET EAST, SUITE 201, BARRIE, ONTARIO L4M 1B1
tel: 705 • 812 • 3281 fax: 705 • 812 • 3434 e: info@ipsconsultinginc.com www.ipsconsultinginc.com

Date: SEPT 18, 2017	Drawn By: V.L
File: 14-499 VERCILLO	Checked:

6. Effects Assessment and Mitigation Measures

The following sections present key potential negative effects of the proposed residential development on the existing natural heritage features on the subject property. This section also identifies mitigation measures and compensation opportunities that will be used to minimize the negative effects of the project.

6.1 Effects Assessment

Background review and field investigations identified that the subject property is currently occupied by three single detached residences with associated yards and driveways and one recently vacant lot, with the following natural heritage features:

a) Intermittent drainage feature that flows from the centre of the subject property to the southwest corner.
b) Treed areas in the rear yards.
c) A tributary to Bunkers Creek emerges from a drain pipe off property to the northeast, flows south, then southwest, off property, through the Hwy 400 right of way.

The internal drainage feature was investigated, and the point of origin was staked with the LSRCA on November 2, 2017.

Potential environmental impacts of the proposed residential development of the property will include:

- direct loss of vegetated and treed areas on the subject property;
- site grading;
- changes to hydrology/water balance and relocation of a drainage feature;
- run-off of lawn chemicals into watercourse;

Removal of Vegetation

Areas of immature naturalized tree and shrub area and disturbed, weedy areas will be removed, and will result in minor negative effects on flora and fauna. The trees are planted, non-native or early successional and do not form part of a large contiguous block. A total of 54 trees measuring at least 20 cm dbh are proposed for removal. All of the existing vegetation, including a number of scattered saplings and seedlings, are proposed for removal. More details on tree removals is provided in the enclosed Tree Inventory and Preservation Plan (**Appendix B**). The understory is dominated by garden escapees and non-native invasive species (Common Buckthorn, Tartarian Honeysuckle, Goutweed, Forget-me-not and Garlic Mustard) and low native species presence and diversity. Additionally, within the subject lands, the treed areas form part of the rear yard of the existing residences and the understory has been degraded by past clearing and use by people. The area surrounding the subject property is highly urbanized.

Changes to Drainage Feature

The existing drainage feature in the southern portion of the subject property is proposed to be removed and relocated along the southwestern property boundary with a new confluence with the tributary in the Highway 400 right of way. A conceptual relocation of the drainage feature is shown in **Figure 3**. The existing drainage feature has a shallow channel that was dug years previously to convey stormwater and groundwater seepage. A minor amount of the flow is also from sump pumps from the basements of the existing residences. The drainage feature does not support direct fish habitat, and is bordered by adventitious species of vegetation, including non-native, invasive species such as Tartarian Honeysuckle and Common Buckthorn. Upon exiting the subject property at the south east, this drainage feature flows around the edge of an existing parking lot on an adjacent property. Routine landscape maintenance in this area prevents the vegetation from growing up and providing cover for the drainage feature. In addition, this area of the parking lot is used for winter snow storage. It is probable that the drainage feature is subject to regular stormwater drainage and snow melt from the parking area causing pollutants such as oil, grease, salt, sediments and warmer water to enter the watercourse, downstream into Bunkers Creek and ultimately, Lake Simcoe.

Lawn Chemicals

Unmitigated, the run-off of yard chemicals into natural systems can create unwanted negative effects. The potential negative effects should be reduced in this case by limiting the use of lawn chemicals such as fertilizers and pesticides, especially in the vicinity of the proposed relocated drainage feature. A naturalized, vegetated buffer, which will not require chemical inputs, constructed along the relocated drainage feature will also assist in preventing contaminants from entering the water.

6.2 Mitigation and Compensation Measures

The following sections identify mitigation and compensation measures to be utilized to minimize effects of the proposed development.

6.2.1 Relocation and Enhancement of Drainage Feature

The drainage feature is proposed to be relocated using natural channel design and naturalized with all native species of trees, shrubs and herbaceous plants. This is in contrast to the existing drainage feature which is a straight channel with little natural structure and surrounded by many non-native, invasive species. Additionally, by relocating the outlet of the drainage feature to enter the Bunkers Creek tributary further upstream from its current confluence, it would avoid inputs of potential contaminant run-off from the adjacent parking lot entering Bunkers Creek and Lake Simcoe. Groundwater and rainwater captured within the subject property would be either infiltrated in the ground or conveyed to the relocated drainage feature. The relocation and design of the drainage feature would result in continued flows of groundwater to Bunkers Creek, cleaner water going to Lake Simcoe and higher quality wildlife habitat composed of native species. A permit from the LSRCA will be required prior to any works within the drainage feature or the Bunkers Creek tributary.

A more complete natural channel design and landscaping plan will be provided at detailed design stage.

6.2.2 Tree Preservation Plan

A companion Tree Inventory and Preservation Plan has been prepared by Beacon and is included in **Appendix B**. It is recommended that any trees that are removed should be replaced after construction activities are complete using a combination for the following suggested native species (**Table 3**).

Table 3. List of Suggested Tree Species for Planting

Scientific Name	Common Name
Acer saccharum	Sugar Maple
Acer saccharinum	Silver Maple
Quercus rubra	Red Oak
Tilia Americana	American Basswood
Pinus strobus	Eastern White Pine
Thuja occidentalis	Eastern White Cedar

6.2.3 Construction Timing and Impacts

The timing of vegetation removal should be coordinated to avoid the removal of potential wildlife habitat during times when these habitats may be utilized, and to avoid contravention of federal or provincial legislation.

The federal *Migratory Bird Convention Act* (1994) protects the nests, eggs and young of most bird species from harm or destruction. Environment Canada considers the 'general nesting period' of breeding birds in southern Ontario to be between late March and the end of August. This includes times at the beginning and end of the season when only a few species might be nesting. In light of this we recommend that during the peak period of bird nesting, no vegetation clearing or disturbance to nesting bird habitat occur between May 1 and mid-July. In the 'shoulder' seasons of April 1 to 30, and July 16 to August 31, we suggest that vegetation clearing could occur, but only after an ecologist with appropriate avian knowledge has surveyed the area to confirm lack of nesting. If nesting is found then vegetation clearing (in an area around the nest) must wait until nesting has concluded. Generally speaking, the smaller and simpler the habitat is, the easier it is to confirm that no nesting is occurring. The likelihood of nesting birds being present in the 'shoulder' seasons also depends on the habitat type. From September 1 through to March 31, of any year, vegetation clearing can occur without nest surveys, but the law for nest protection still holds (i.e. if an active nest is known it should be protected).

Further, to avoid harm to any SAR bats that may be utilizing the treed areas on the subject property, tree clearing activities should take place after October 1st and before April 1st of any year.

6.2.4 Erosion and Sediment Control

Construction works such as grading, grubbing and excavation can cause the movement of sediment into watercourses, both on and downstream of the property. An erosion and sediment control plan will be prepared prior to construction works. This plan will be designed and constructed as per the "Erosion

and Sediment Control Guideline for Urban Construction" document (December 2006) and address phasing, inspection and monitoring aspects of erosion and sediment control.

Silt fencing should be installed to minimize sediment leaving the site and should be removed when development work is completed and exposed soils stabilized.

Standard Best Management Practices should also be employed during the construction process.

6.2.5 Grading

Most of the subject property is proposed to have a grade increase of approximately 1 m. A detailed grading plan will be produced by qualified engineers, for the detailed design stage.

6.2.6 Water Balance

A hydrogeological study has been prepared by Toronto Inspection Ltd. for the proposed development that includes a water balance for the site. The report concludes that there will be a net reduction in infiltration of 681 m^3/yr. and net increase in runoff of 2,408 m^3/yr. However, there are not wetlands or vegetation communities present that will be affected by this change. Inputs to the flow within the Bunkers Creek tributary will generally remain the same.

6.2.7 Dewatering

According to Toronto Inspection Ltd., there will be a need for short-term dewatering to control groundwater levels and maintain dry working conditions during construction of building foundations and servicing. If all buildings are constructed concurrently, the calculated dewatering rate would be 5,801 m^3/day. A permit will be required from the Ministry of Environment and Climate Change. A permit from LSRCA for dewatering activities, discharge locations, etc. may also be required. This should be evaluated during the detailed design stage, once the requirements of dewatering are fully understood.

6.2.8 Fisheries Protection

Construction works such as grading, grubbing and excavation have the potential to result in the movement of sediment into the onsite watercourse. A sediment control plan should be prepared for the construction phase of the development and approved by the LSRCA, prior to the start of construction works and to the standard of "Erosion and Sediment Control Guideline for Urban Construction (December 2006)". General elements of the sediment and erosion control plan should focus on preventing erosion and include, but not be limited to the following:

- Equipment should not be operated in a watercourse;
- All erosion and sediment control measures should be integrated with a construction operation schedule as determined by the Contractor(s). Operations near any watercourse should not commence until temporary erosion and sediment control measures have been installed;

- Temporary erosion and sediment control measures should be maintained and kept in place until all work near a watercourse has been completed and stabilized;
- Temporary control measures should be removed at the completion of the work but not until permanent erosion control measures, as specified in the contract, have been established. This may necessitate removal by others;
- The Contractor should monitor the erosion and sediment control measures and if the measures are found to be ineffective, the Contractor should immediately make changes in order to control erosion and sediment; and
- Standard Best Management Practices should also be employed during the construction process.

In order to prevent further degradation (including thermal) to the onsite watercourses, storm water management systems should be designed to meet Level 1 Ministry of Environment and Climate Change criteria.

7. Monitoring

Regular monitoring of the ESC fencing and other temporary storm water management measures should be undertaken by a qualified inspector (i.e., CAN-CISEC), and especially prior to forecasted significant precipitation events, to ensure wetlands and watercourses are protected from sedimentation.

8. Policy Conformity

Section 2 of this report provided an overview of the natural heritage policies and regulations of the Provincial Policy Statement, the City of Barrie, the LSRCA and the *Endangered Species Act*. This section examines conformity with those specific policies and regulations.

8.1 Provincial Policy Statement

The subject property does not contain, nor is it adjacent to any significant woodland, provincially significant wetlands, significant wildlife habitat, significant valleylands or ANSI. No development is proposed within fish habitat and measures are recommended in Section 6.2.11 above, to ensure there will be no negative impacts to the watercourse.

8.1.1 Natural Heritage Systems

The project as proposed will make no changes to the adjacent tributary of Bunkers Creek, which is identified in the City of Barrie's OP Schedule H – Natural Heritage Resources as Level 1 With Existing Development Designation Subject to Section 3.5.2.4 d). The minor change of relocating the confluence of the drainage feature with the tributary to Bunkers Creek would still maintain the Natural Heritage Resource area which generally follows the creek corridor.

8.2 Endangered Species Act

Through consultations with the MNRF Midhurst District office, and a screening of the natural heritage features of the subject property, Beacon concluded that there is no occurrence or habitat of any endangered and threatened species, therefore, the project is in conformity with the *Endangered Species Act*.

8.3 Lake Simcoe Protection Plan

The proposed development and the mitigation measures proposed will protect fish habitat and provide a naturalized, self-sustaining buffer composed of native species that will enhance and restore wildlife habitat in the relocated drainage feature and adjacent watercourse. Through a stormwater management plan, the proposed development will avoid, minimize and/or mitigate impacts associated with the quality and quantity of urban run-off into the adjacent watercourse and wetland.

8.4 Conservation Authority Regulations and Policies

The LSRCA regulates hazard lands including creeks, valleylands, shorelines, and wetlands. This EIS was scoped with the LSRCA staff prior to commencing the field investigations. Requested elements of the work plan have been completed. Watercourse functions will be maintained and enhanced. The proposed development plan, with the associated recommendations, addresses the regulatory interest of the LSRCA.

8.5 City of Barrie Official Plan

Through enhancement and mitigation measures and consultations with the LSRCA, this report demonstrates adherence to the City's policies on Water Resource Management, Floodplain Management, and Surface Water Protection. Similarly, there are no significant woodlands, no contiguous woodlands 0.2 ha or larger, and no significant wildlife habitat on the subject property, thus adhering to the applicable policies.

The proposed development also respects an area adjacent to the subject property, mapped as a Level 1 Natural Heritage Resource (with Existing Development Designation Subject to Section 3.5.2.4 d)), as shown on Schedule H of the Official Plan. This feature is located with the Ministry of Transportation's Highway 400 right of way and will not be impacted.

9. Summary

A background review, pre-consultation with LSRCA staff on-site, field investigations and consultation with the MNRF were undertaken as part of this Environmental Impact Study. An analysis of features and functions was undertaken and summarized. This EIS has identified the extent of natural features

on the subject property and identified potential impacts as a result of the proposed development. Mitigation measures have been identified including drainage feature relocation and enhancement, and stormwater design criteria.

The results of the field investigations carried out for this EIS confirm the few natural features that were identified within the existing regulations and policies. Natural heritage features or functions adjacent to the subject property are associated with the watercourse to the east and south, and will be buffered and protected and where required, appropriate mitigation is recommended.

No plants of conservation significance were recorded on the subject property. A review of the NHIC database, and correspondence with the MNRF, identified no records of species at risk in the vicinity of the subject property. None of the remaining vegetation communities on the subject property is considered provincially rare based on the NHIC status of vegetation communities for southern Ontario.

Given the foregoing, it is concluded that the proposed residential development, with the implementation of appropriate infiltration measures, drainage feature relocation and enhancement, and stormwater quality and quantity controls can occur without adversely affecting the adjacent tributary, and the associated downstream fish community and habitats in Bunkers Creek and Lake Simcoe.

It is our opinion that the development plan as proposed, subject to approvals and permits as may be required as part of the operation, can proceed in a manner that is consistent with the relevant policies of the Provincial Policy Statement, City of Barrie Official Plan (2010, Office Consolidation 2017), Lake Simcoe Protection Plan (2009), and the Lake Simcoe Region Conservation Authority (LSRCA) Watershed Regulation and Policies.

Report prepared by:
Beacon Environmental

Geri Poisson, B.A. (Hons)
Terrestrial Ecologist, ISA Certified Arborist

Report reviewed by:
Beacon Environmental

Jamie Nairn, M.Sc., P.Ag.
Senior Ecologist

10. Literature Cited

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Appendix A

Agency Correspondence

Geri Poisson

From: Findlay, Graham (MNRF) <graham.findlay@ontario.ca>
Sent: Wednesday, November 15, 2017 4:34 PM
To: Geri Poisson
Subject: Information request - 105 to 111 Edgehill Drive, City of Barrie
Attachments: SimcoeCounty_SAR-2017-10-19.pdf; InfoRequestForm.pdf

Geri thank you for your inquiry into natural heritage and species related data held by the Ministry of Natural Resources and Forestry (MNRF), Midhurst District. In response to your request, please consider the following.

The province has centralized and made publicly available digital and species data that lends to inform data needs such as the information requests MNRF receives. Given the volume of information requests received by the district, it is our expectation that you complete a preliminary screening for your project and obtain available information from the following sources prior to requesting additional information from MNRF. Going forward, your information requirements can largely be met through the use of the following data sources and reference documents:

- Digital data for natural heritage features (e.g. wetland and ANSI mapping, fish community data) can be obtained through Land Information Ontario and/or through the Make a Map: Natural Heritage Areas tool through LIO at the link below.
    - Land Information Ontario (LIO): https://www.ontario.ca/page/land-information-ontario
    - Make a Map: Natural Heritage Areas: http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US. Natural Heritage Information Centre (NHIC) data is also available through this interactive map tool.

- Other resources to consider include:
  "Atlas of the Breeding Birds of Ontario"
  "Ontario Reptile and Amphibian Atlas"

As you are likely aware, the species at risk records found in the NHIC database are not exhaustive and are based on **known** occurrences only. As a result, although there may be no record (or confirmation) of a species at risk on a specific site it does not mean that they are not present if appropriate habitat exists. Due diligence is therefore still required and would include an appropriate consideration of what species could be present based on available habitat on and adjacent to your study site. Your field work should inform you on what species on the Species at Risk in Ontario (SARO) list (link below) could possibly be encountered based on available habitats in the area of the study as well as the possible survey methodologies required during your site assessments.

SARO List: https://www.ontario.ca/environment-and-energy/species-risk-ontario-list

Attached for your reference is a table of SAR known to occur in Simcoe County. Again, consideration of all species on the SARO list that could potentially be encountered on site based on available habitats is recommended.

Evaluating for other natural heritage values, for example candidate significant wildlife habitat (SWH) will be informed by direction in the Natural Heritage Reference Manual, the Significant Wildlife Habitat Technical Guide and SWH Criteria Schedule for Ecoregion 6E. Similar to SAR occurrence reports, if mapping for natural heritage features is not available, this is not confirmation that SWH does not exist on a specific site, rather the assessments to identify them have not been completed. Your field work will inform your review of the property for natural heritage features and functions.

If you require specific information with respect to species and natural heritage features identified in your preliminary review you can email me with the specific request using the attached **Information Request Form**.

Threatened and endangered species and their habitat are protected under the Endangered Species Act (ESA), 2007. Avoidance and mitigation measures may need to be considered for the project. The proponent should be aware that if threatened or endangered species or their habitat is found to occur at a site, approvals under the ESA may be required. Additional information on Species at Risk including guides, resources, permits, authorizations and overall benefit information can be obtained at: https://www.ontario.ca/page/species-risk

Do not hesitate to contact me with any further questions.

Regards,

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

From: Geri Poisson [mailto:gpoisson@beaconenviro.com]
Sent: November 15, 2017 12:56 PM
To: MIDHURSTINFO (MNRF)
Subject: Natural Heritage info request

Hello,
On behalf of our clients, we would like to get information (SAR, fisheries, etc.) on the following properties:

105 to 111 Edgehill Drive, City of Barrie

Please note that the draft plan in the attached map is not final and is subject to revisions.

Please let me know if you require any further information.

Geri Poisson, B.A. (Hon) / ISA Certified Arborist, CAN-CISEC
Terrestrial Ecologist
BEACON ENVIRONMENTAL
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T) 705.645.1050 x322 F) 705.645.6639 C) 705.828.1196
www.beaconenviro.com

Geri Poisson

From: Kate Lillie <K.Lillie@lsrca.on.ca>
Sent: Tuesday, October 24, 2017 12:28 PM
To: Geri Poisson
Cc: Melinda Bessey
Subject: RE: 105-111 Edgehill Dr., Barrie EIS scope

Follow Up Flag: FollowUp
Flag Status: Flagged

Hi Geri,

Thanks for your email and I apologize for the delay in providing a response. In addition to confirming the top of bank for any watercourses present on or adjacent to the property, please also include the following in a scoped EIS:

- Identify, assess and include detailed descriptions of natural heritage features on the property, their function and the broader natural heritage system that they are within.
- Complete ELC for the property as per Lee et al. 1998. Ecological Land Classification for Southern Ontario: First Approximation and Its Applications. SCSS Field Guide FG-02.
- Screen for species at risk listed under the *Endangered Species Act* (2007) and assess existing or potential habitat (contact the local MNRF district office for records in the area and further direction).
- Complete a general aquatic habitat assessment for any watercourses.
- Map the proposed development and limit of disturbance on a current, high quality orthoimage.
- Map the natural heritage features, vegetation communities and other environmental features on a current, high quality orthoimage.
- Provide an assessment of the potential impacts of the proposed development on the natural heritage system and related ecological and hydrological functions. Complete a feature-based water balance to determine and address any hydrologic impacts.
- Develop and provide an appropriate avoidance, mitigation, restoration and/or offsetting strategy to address any known or potential impacts that would result from the proposed development.
- Demonstrate conformity with all applicable legislation and policies.

Please let me know if you have any questions or concerns regarding what I've provided above.

Thanks,

Kate Lillie, HBSc, EP, ISA
Natural Heritage Ecologist
Lake Simcoe Region Conservation Authority
120 Bayview Parkway,
Newmarket, Ontario L3Y 3W3
905-895-1281, ext. 527 | 1-800-465-0437
k.lillie@LSRCA.on.ca | www.LSRCA.on.ca

From: Geri Poisson [mailto:gpoisson@beaconenviro.com]
Sent: Wednesday, October 18, 2017 1:05 AM
To: Melinda Bessey
Cc: Kate Lillie
Subject: 105-111 Edgehill Dr., Barrie EIS scope

Hello Melinda,
I am preparing a proposal for this site and you mentioned to Edward Terry in an email on Sept. 29th, to contact you for the scope of the EIS.
One of my first tasks would be to confirm the mapped watercourse. Besides addressing the watercourse and associated regulated area, what other studies would the LSRCA like included in the EIS?

They were hoping to have a proposal from me today, so could you provide this information at your earliest convenience.

Thanks very much,

Geri Poisson, B.A. (Hon) / ISA Certified Arborist, CAN-CISEC
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Appendix B

Tree Inventory

BEACON ENVIRONMENTAL

GUIDING SOLUTIONS IN THE NATURAL ENVIRONMENT

Tree Inventory and Preservation Plan 105-111 Edgehill Drive City of Barrie

Prepared For:

1980168 Ontario Inc.

Prepared By:

Beacon Environmental Limited

Date: *Project:*

June 2018 **217408**

MARKHAM
80 Main Street North
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BRACEBRIDGE
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Bracebridge, ON P1L 1Z9
T)705.645.1050❖ F)705.645.6639

GUELPH
373 Woolwich Street
Guelph, ON N1H 3W4
T)519.826.0419❖ F)519.826.9306

PETERBOROUGH
305 Reid Street
Peterborough, ON K9J 3R2
T) 705.243.7251

Table of Contents

Figures

Appendices

1. Introduction

Beacon Environmental Limited (Beacon) has been retained by 1980168 Ontario Inc. to undertake a Tree Inventory and Preservation Plan in support of a site plan application for the proposed condominium development of 105-111 Edgehill Drive, within the City of Barrie ("subject property", shown on **Figure 1**).

As part of this development's rezoning application, the City of Barrie requires the completion of a Tree Inventory and assessment. This report provides information regarding the trees within and adjacent to the subject property for input into the final residential condominium design. General guidelines and recommendations are also provided regarding tree protection and removal. This report was prepared using the City's Tree Protection Manual (2010), and International Society of Arboriculture (I.S.A.) arboricultural guidelines and standards (Lilly 2001).

2. Methodology

Field data was collected on May 16, 2018 by a Beacon I.S.A.-certified Arborist. Tree diameters were measured at breast height (dbh, or 1.4 m from the ground). Tree condition was assessed based on the presence and severity of flaws, damage, evidence of pests or diseases, structural condition, dead or dying branches, or other decline indicators. All trees measuring at least 20 cm dbh were documented and tagged with metal numbered labels, using a staple gun. Where trees occurred in groups such as in hedgerows and wooded areas, each grouping was characterized based on the number of trees, tree species composition, average tree size (dbh), and the general condition of the trees. The locations of each of the individually-tagged trees and tree groups were recorded on a map and incorporated into a CAD (computer aided design) platform. All trees included in this inventory occur within the subject property or within 6 m of the development limit.

3. Results

A total of 29 trees with a minimum dbh of 20 cm were individually documented as well as three tree groups (Groups A to C). An additional 10 trees were inventoried that are on adjacent properties. The locations of the individually tagged trees and tree groups are shown on **Figure 2**. Trees on the subject property are mostly naturally regenerating but include some planted trees. Most of the trees have not been well maintained. Tree sizes ranged from seedlings to 100 cm dbh and consisted mostly of White Poplar (*Populus alba*), Balsam Poplar (*P. balsamifera*), Manitoba Maple (*Acer negundo*), with some Freeman's Maple (*Acer x freemanii*), Norway Spruce (*Picea abies*), Siberian Elm (*Ulmus pumila*) and Crack Willow (*Salix fragilis*).

Ten of the individually documented trees are located on adjacent properties. These include four Freeman's Maple (#308 to 311) located on the property to the west that measure from 46 to 57 cm dbh and are in good to fair condition (**Photograph 1**). Tree #304, a White Poplar forked at base, measuring 60 and 61 cm dbh and in good to fair condition, and tree #305, a Manitoba Maple, also forked below dbh, measuring 25 and 33 cm dbh and in poor condition, are located adjacent to the northeast corner

of the subject property (**Photograph 2**). Tree #314 and #315, two Freeman's Maple measuring 28 and 30 cm dbh, in good to fair and good condition, respectively, are located adjacent the southern property boundary within the Highway 400 right of way, are not tagged in the field. There are two Norway Spruce, #185 and 186, measuring 39 and 31 cm dbh, respectively, are in good condition and located several meters beyond the southern property boundary.

The individual trees are summarized in the tree inventory table in **Appendix A** and a description of the three tree groups is provided below.

Group A

This tree group is located in the south-central portion of the subject property. The tree group is comprised of 15 Manitoba Maple, nine of which are less than 20cm dbh. The remaining six trees range in size from 20 to 25 cm dbh. All the trees in this group are in fair condition (**Photograph 3**).

Group B

Located in the southern portion of the subject property, this tree group is comprised of 14 planted conifers. There are 10 Norway Spruce, one of which is 15 cm dbh, and the remainder range from 25 to 35 cm dbh that are generally in good condition. There are also four Scots Pine in within this tree group measuring 15, 26, 30 and 31 cm dbh and in good condition. The understory is fairly sparse except for a few tree seedlings and some Common Buckthorn (*Rhamnus cathartica*).

Group C

This tree group is a hedgerow along the property line between 107 and 109 Edgehill that consists of 15 trees in fair to poor condition, including two dead trees (**Photograph 4**). These include 10 Manitoba Maple (four trees ranging from 20 to 35 cm dbh and six measuring <20cm dbh), two dead Norway Spruce and three measuring 28, 32 and 38 cm dbh.

In addition to the trees measuring <20 cm within Groups A, B and C, there are a number of other undersized trees scattered within the subject property, mostly White Poplar, Manitoba Maple and Balsam Poplar.

4. Recommendations

The proposed development includes the removal of the existing dwellings on the property and the construction of five townhouse blocks, with associated parking, driveway, amenity areas and grade changes.

All but one tree (#187) within the subject property are proposed for removal, for a total 54 trees measuring at least 20cm dbh. Of these 54 trees, 29 are individually numbered trees, as shown in the tree inventory table in **Appendix A,** and 25 are within Groups A to C. These are also shown in the Tree Inventory and Preservation Plan (**Figure 2**). Photographs of the individual trees and tree groups are shown in **Appendix B**.

Site Location	Figure 1
Scoped EIS for 105-111 Edgehill Drive, Barrie 1980168 Ontario Inc.	
UTM Zone 17 N, NAD 83	N W E S
First Base Solutions Web Mapping Service 2016	
0 10 20 40 Metres	1:1,100
BEACON ENVIRONMENTAL	Project 217408 May 2018

C:\Dropbox\Dropbox (Beacon)\All GIS Projects\2017\217408\MXD\217408_Figure01_SiteLocation_2018-05-29.mxd

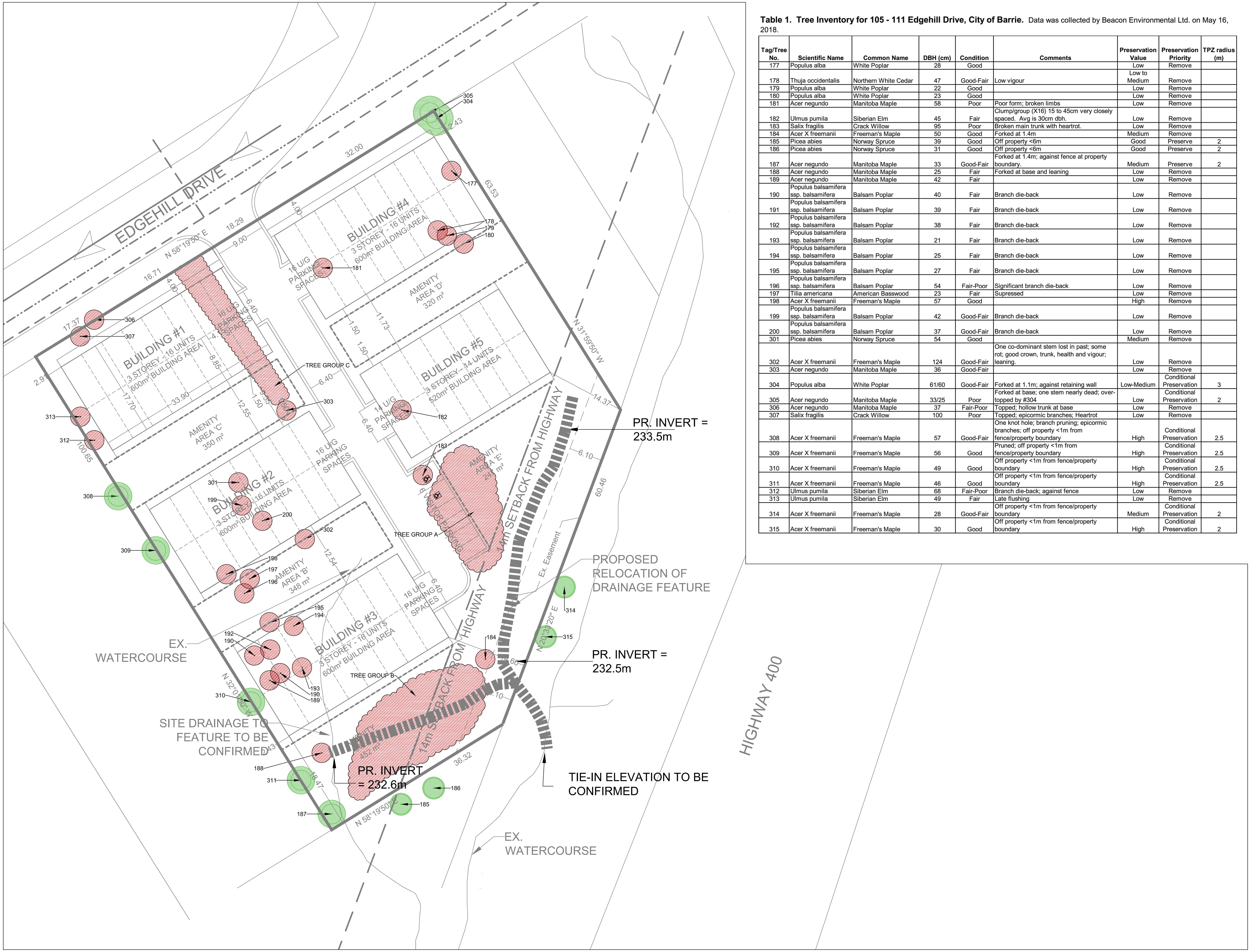

Table 1. Tree Inventory for 105 - 111 Edgehill Drive, City of Barrie. Data was collected by Beacon Environmental Ltd. on May 16, 2018.

Tag/Tree No.	Scientific Name	Common Name	DBH (cm)	Condition	Comments	Preservation Value	Preservation Priority	TPZ radius (m)
177	Populus alba	White Poplar	28	Good		Low	Remove	
178	Thuja occidentalis	Northern White Cedar	47	Good-Fair	Low vigour	Low to Medium	Remove	
179	Populus alba	White Poplar	22	Good		Low	Remove	
180	Populus alba	White Poplar	23	Good		Low	Remove	
181	Acer negundo	Manitoba Maple	58	Poor	Poor form; broken limbs	Low	Remove	
182	Ulmus pumila	Siberian Elm	45	Fair	Clump/group (X16) 15 to 45cm very closely spaced. Avg is 30cm dbh.	Low	Remove	
183	Salix fragilis	Crack Willow	95	Poor	Broken main trunk with heartrot.	Low	Remove	
184	Acer X freemanii	Freeman's Maple	50	Good	Forked at 1.4m	Medium	Remove	
185	Picea abies	Norway Spruce	39	Good	Off property <6m	Good	Preserve	2
186	Picea abies	Norway Spruce	31	Good	Off property <6m	Good	Preserve	2
187	Acer negundo	Manitoba Maple	33	Good-Fair	Forked at 1.4m; against fence at property boundary.	Medium	Preserve	2
188	Acer negundo	Manitoba Maple	25	Fair	Forked at base and leaning	Low	Remove	
189	Acer negundo	Manitoba Maple	42	Fair		Low	Remove	
190	Populus balsamifera ssp. balsamifera	Balsam Poplar	40	Fair	Branch die-back	Low	Remove	
191	Populus balsamifera ssp. balsamifera	Balsam Poplar	39	Fair	Branch die-back	Low	Remove	
192	Populus balsamifera ssp. balsamifera	Balsam Poplar	38	Fair	Branch die-back	Low	Remove	
193	Populus balsamifera ssp. balsamifera	Balsam Poplar	21	Fair	Branch die-back	Low	Remove	
194	Populus balsamifera ssp. balsamifera	Balsam Poplar	25	Fair	Branch die-back	Low	Remove	
195	Populus balsamifera ssp. balsamifera	Balsam Poplar	27	Fair	Branch die-back	Low	Remove	
196	Populus balsamifera ssp. balsamifera	Balsam Poplar	54	Fair-Poor	Significant branch die-back	Low	Remove	
197	Tilia americana	American Basswood	23	Fair	Supressed	Low	Remove	
198	Acer X freemanii	Freeman's Maple	57	Good		High	Remove	
199	Populus balsamifera ssp. balsamifera	Balsam Poplar	42	Good-Fair	Branch die-back	Low	Remove	
200	Populus balsamifera ssp. balsamifera	Balsam Poplar	37	Good-Fair	Branch die-back	Low	Remove	
301	Picea abies	Norway Spruce	54	Good		Medium	Remove	
302	Acer X freemanii	Freeman's Maple	124	Good-Fair	One co-dominant stem lost in past; some rot; good crown, trunk, health and vigour; leaning.	Low	Remove	
303	Acer negundo	Manitoba Maple	36	Good-Fair		Low	Remove	
304	Populus alba	White Poplar	61/60	Good-Fair	Forked at 1.1m; against retaining wall	Low-Medium	Conditional Preservation	3
305	Acer negundo	Manitoba Maple	33/25	Poor	Forked at base; one stem nearly dead; over-topped by #304	Low	Conditional Preservation	2
306	Acer negundo	Manitoba Maple	37	Fair-Poor	Topped; hollow trunk at base	Low	Remove	
307	Salix fragilis	Crack Willow	100	Poor	Topped; epicormic branches; Heartrot	Low	Remove	
308	Acer X freemanii	Freeman's Maple	57	Good-Fair	One knot hole; branch pruning; epicormic branches; off property <1m from fence/property boundary	High	Conditional Preservation	2.5
309	Acer X freemanii	Freeman's Maple	56	Good	Pruned; off property <1m from fence/property boundary	High	Conditional Preservation	2.5
310	Acer X freemanii	Freeman's Maple	49	Good	Off property <1m from fence/property boundary	High	Conditional Preservation	2.5
311	Acer X freemanii	Freeman's Maple	46	Good	Off property <1m from fence/property boundary	High	Conditional Preservation	2.5
312	Ulmus pumila	Siberian Elm	68	Fair-Poor	Branch die-back; against fence	Low	Remove	
313	Ulmus pumila	Siberian Elm	49	Fair	Late flushing	Low	Remove	
314	Acer X freemanii	Freeman's Maple	28	Good-Fair	Off property <1m from fence/property boundary	Medium	Conditional Preservation	2
315	Acer X freemanii	Freeman's Maple	30	Good	Off property <1m from fence/property boundary	High	Conditional Preservation	2

KEYMAP

NTS

LEGEND*

Tree with Preservation Potential

Tree Protection Zone

Tree Location

Tree for Removal

Tree Group for Removal

1678 Tree tag

Tree Location

Tree Crown

NOTES: SCALE SHOWN IS FOR AN 36" X 24" PAGE. FOR ILLUSTRATIVE PURPOSES. DO NOT SCALE

N°			
6			
5			
4			
3			
2			
1	REVISIONS	XXXX/XX/XX	XX

SCALE

0 5 10 20m

1:300

NORTH ARROW

CERTIFIED ARBORIST ISA

GERI POISSON
ARBORIST
#ON-1288A

SEAL

NOT FOR CONSTRUCTION UNLESS SIGNED & DATED

BEACON ENVIRONMENTAL

GUELPH OFFICE
373 WOOLWICH ST.
GUELPH, ON N1H 3W4

T) 519.826.0419
519.826.9306
www.beaconenviro.com

CLIENT

1980168 ONTARIO INC.

PROJECT

105,107,109,111, EDGEHILL DRIVE

SHEET TITLE

TREE INVENTORY AND PRESERVATION PLAN

DESIGN BY:		PROJECT N°:	217408
DRAWN BY:	MB	FIGURE N°:	2
CHECKED BY:	GP		
DATE:	24 May 2018		

There are 10 trees that are either outside of the property limits and/or are considered boundary trees. All of these trees (#185-187, 304, 305, 308-311, 314, and 315) are recommended for preservation, if possible. Trees #304, 305, 308 – 311, 314, and 315 may be affected because of proposed changes in grade within the minimum tree protection zone and proximity of proposed buildings. Trees #185 and 186 are located several meters beyond the southern property boundary and are to be preserved.

The most northerly tree in Group C and trees #306 and 307 may be considered boundary trees with the municipal right of way (**Photographs 5, 6** and **7**).

5. Tree Preservation Specifications

Any trees that do not require removal to accommodate development shall be protected through the establishment of Tree Protection Zones (TPZs). Prior to construction, a 1.2 m (4 ft) high orange plastic web snow fencing, or plywood fencing, on a 2"x 4" frame will be installed around the tree located a minimum distance as shown in the "TPZ" column in **Appendix A**, measured from the base of the tree, or to the edge of paved surface in accordance with the City's Tree Preservation Manual and Standards (**Appendix C**). No materials shall be stored inside or up against fencing, and a sign will be hung on the most visible side designating the TPZ.

In addition to the establishment of Tree Protection Zones, the following specifications are recommended:

1. Before commencing work, the contractor and Beacon Environmental will meet on site to review work procedures, access routes, storage areas and TPZs or other tree protection measures.
2. Where underground utilities are to be installed, the route shall be outside the TPZ, if this is not feasible tunnelling or boring methods should be used for installation.
3. Any root damage occurring during construction should be cut cleanly to the sound tissue.
4. Exposed and pruned roots should be covered with native soil or wood mulch as soon as possible to avoid drying of roots.
5. Any injury to a tree during construction should be evaluated by a qualified arborist.
6. Any pruning of trees for construction clearance shall be performed by a qualified arborist.

6. Tree Removal Mitigation

6.1 Timing of Tree Removal

The federal *Migratory Bird Convention Act* (1994) and the provincial *Fish and Wildlife Conservation Act* (1997) protect the nests, eggs and young of most bird species from harm or destruction. Environment Canada considers the 'general nesting period' of breeding birds in southern Ontario to be between late March and the end of August. This includes times at the beginning and end of the season when only a few species might be nesting. During the peak period of bird nesting, no vegetation (including trees of

any size) clearing or disturbance to nesting bird habitat should occur (between mid-May and mid-July). In the 'shoulder' seasons of April 1 to May 15, and July 16 to August 31, vegetation clearing could occur, but only after an ecologist with appropriate avian knowledge has surveyed the area to confirm an absence of nesting. If nesting is found then vegetation clearing (in an area around the nest) has to wait until nesting has concluded. From September 1 through to March 31, of any year, vegetation clearing can occur without nest surveys, but the law for nest protection applies at any time (i.e., if an active nest is known it must be protected).

6.2 Endangered Bats

Treed environments may provide habitat for a number of endangered species of bats in Ontario. Therefore, no trees (dead or alive) should be removed without an assessment of habitat regulated for endangered bats under the provincial *Endangered Species Act (2007)* and communication and permitting with the MNRF as necessary.

Disclaimer

The assessment of the trees presented within this report has been prepared using accepted arboricultural techniques. These include a visual examination of the above-ground parts of each tree. The trees examined were not dissected, cored, probed, or climbed, and detailed root crown examinations involving excavation were not undertaken.

As trees are living organisms and their health is constantly changing, no guarantees are offered or implied, that these trees or any part of them will remain standing. A standing tree will always pose some risk, and a tree's behaviour cannot be predicted in all situations. All trees have the potential for failure, which can be eliminated only if the tree is removed.
It should be noted that the assessment presented in this report, including tree health and condition is valid at the time of inspection.

Should you have any comments regarding the above, or require clarification or modification, please do not hesitate to contact the undersigned at (905) 201-7622 ext. 236.

Report prepared by:
Beacon Environmental

Geri Poisson, B.A. Hon.
Ecologist/ISA Certified Arborist ON-1288A

Report reviewed by:
Beacon Environmental

Jamie Nairn, M.Sc., P.Ag.
Senior Ecologist

7. References

City of Barrie. 2010.
Tree Protection Manual. Version 2, revised January 2010.

Lilly, Sharon J. 2001.
Arborists' Certification Study Guide. International Society of Arboriculture, Champaign, Illinois.

Appendix A

Tree Inventory Table
105 – 111 Edgehill Drive,
City of Barrie

Appendix A

Tree Inventory Table for 105 – 111 Edgehill Drive, City of Barrie

Data was collected by Geri Poisson, ISA Certified Arborist, Beacon Environmental Ltd. on May 16, 2018.

Tree No.	Scientific Name	Common Name	DBH (cm)	Condition	Comments	Preservation Value	Preservation Priority	TPZ radius (m)
177	Populus alba	White Poplar	28	Good		Low	Remove	
178	Thuja occidentalis	Northern White Cedar	47	Good-Fair	Low vigour	Low to Medium	Remove	
179	Populus alba	White Poplar	22	Good		Low	Remove	
180	Populus alba	White Poplar	23	Good		Low	Remove	
181	Acer negundo	Manitoba Maple	58	Poor	Poor form; broken limbs	Low	Remove	
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183	Salix fragilis	Crack Willow	95	Poor	Broken main trunk with heart rot.	Low	Remove	
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188	Acer negundo	Manitoba Maple	25	Fair	Forked at base and leaning	Low	Remove	
189	Acer negundo	Manitoba Maple	42	Fair		Low	Remove	
190	Populus balsamifera ssp. balsamifera	Balsam Poplar	40	Fair	Branch die-back	Low	Remove	
191	Populus balsamifera	Balsam Poplar	39	Fair	Branch die-back	Low	Remove	

Tree No.	Scientific Name	Common Name	DBH (cm)	Condition	Comments	Preservation Value	Preservation Priority	TPZ radius (m)
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302	Acer X freemanii	Freeman's Maple	124	Good-Fair	One co-dominant stem cut; some rot; good crown, trunk, health and vigour; leaning.	Low	Remove	
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305	Acer negundo	Manitoba Maple	33/25	Poor	Forked at base; one stem nearly dead; over-topped by #304	Low	Conditional Preservation	2
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Tree No.	Scientific Name	Common Name	DBH (cm)	Condition	Comments	Preservation Value	Preservation Priority	TPZ radius (m)
308	Acer X freemanii	Freeman's Maple	57	Good-Fair	One knot hole; branch pruning; epicormic branches; off property <1m from fence/property boundary	High	Conditional Preservation	2.5
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315	Acer X freemanii	Freeman's Maple	30	Good	Off property <1m from fence/property boundary	High	Conditional Preservation	2

Appendix B

Photographic Reference

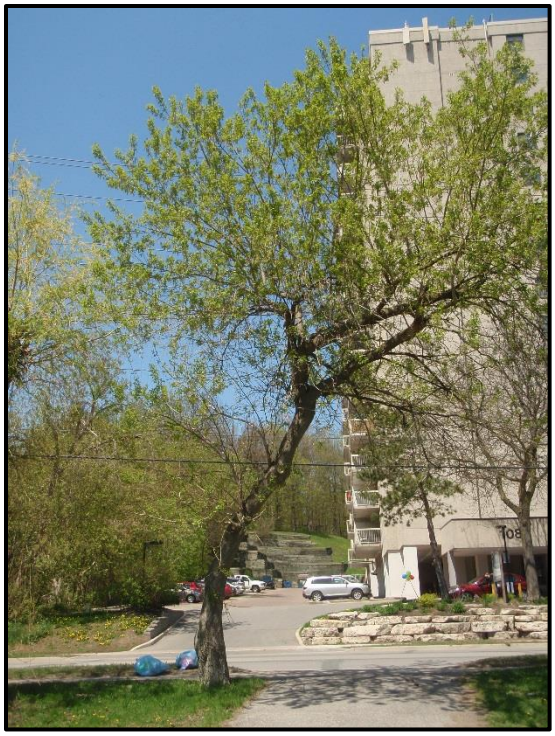
Photograph 1. Tree No. 308 to 311 on adjacent property (May 16, 2018).

Photograph 2. Tree #314 and #315 in background to left of building (May 16, 2018).

Photograph 3. View of part of tree Group A (May 16, 2018).

Photograph 4. Group C, with two dead Norway Spruce (May 16, 2018).

Photograph 5. Manitoba Maple, part of Group C, a boundary tree (May 16, 2018).

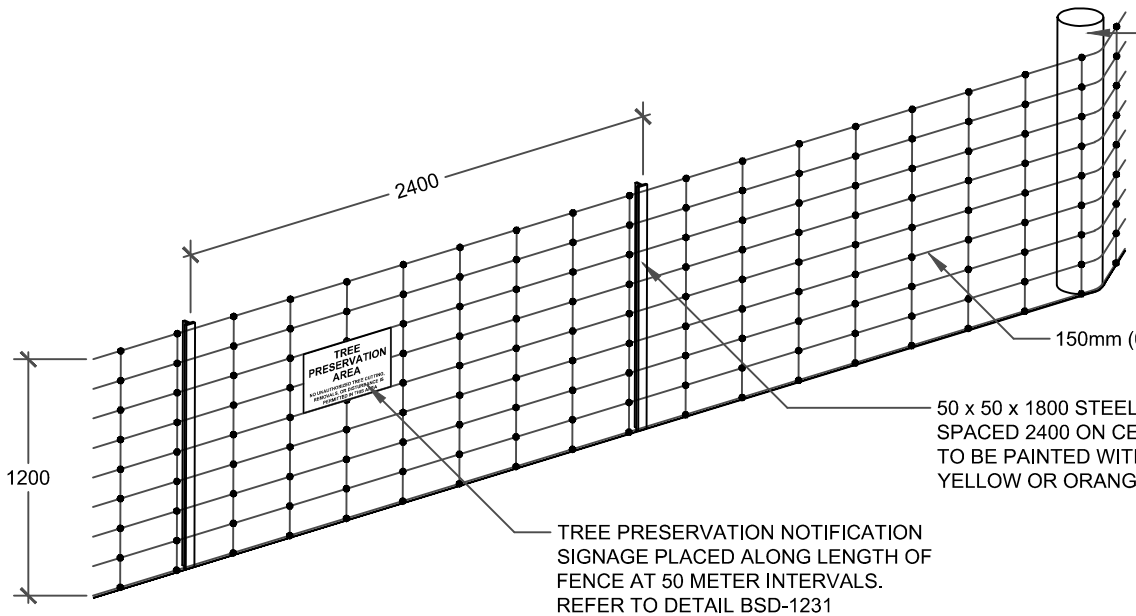


Photograph 6. Manitoba Maple (#306) in fair to poor condition, a boundary tree (May 16, 2018).

Photograph 7. Crack Willow (#307) in poor condition, a boundary tree (May 16, 2018).

Appendix C

City of Barrie Tree Protection Standards



CEDAR FENCE POST TO BE PLACED AT EACH TERMINUS OR CHANGE OF DIRECTION, POSTS ARE TO BE DIRECT BURIED WITH A MINIMUM 1000 EMBEDMENT

NOTE: CEDAR POSTS ARE REQUIRED WHERE FENCE LENGTHS EXCEED 150 LINEAR METERS AND ARE NOT REQUIRED WITHIN THE MUNICIPAL BOULEVARDS

NOTE: FENCE MUST BE TENSIONED AND SECURED BACK ON ITSELF WITH A SINGLE WRAP AROUND THE TERMINAL POST

150mm (0'-6") PAGE WIRE FENCING

50 x 50 x 1800 STEEL 'T' BAR POSTS SPACED 2400 ON CENTRE, TOP 200mm TO BE PAINTED WITH FLORESCENT YELLOW OR ORANGE PAINT

TREE PRESERVATION NOTIFICATION SIGNAGE PLACED ALONG LENGTH OF FENCE AT 50 METER INTERVALS. REFER TO DETAIL BSD-1231

1. THIS DETAIL IS USED IN CONJUNCTION WITH BSD-1233 -SEDIMENTATION CONTROL FENCE.
2. PAGE WIRE FENCE TO BE ATTACHED TO CEDAR RAIL POSTS WITH 'U' SHAPED GALVANIZED NAILS ON EACH HORIZONTAL STRAND.
3. USE A MINIMUM OF FOUR (4) 100MM, 16 GAUGE GALVANIZED T-POST CLIPS TO ATTACH PAGE WIRE FENCE TO EACH 'T' BAR POST.
4. 'T' BARS ARE TO BE DRIVEN INTO THE GROUND TO A MINIMUM DEPTH OF 600mm.
5. ALL MEASUREMENTS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
6. THIS DETAIL TO BE USED IN CONJUNCTION WITH BSD-1230, BSD-1231, BSD-1234 AND BSD-1235.

The City of BARRIE
STANDARD DETAIL

TREE PRESERVATION FENCING

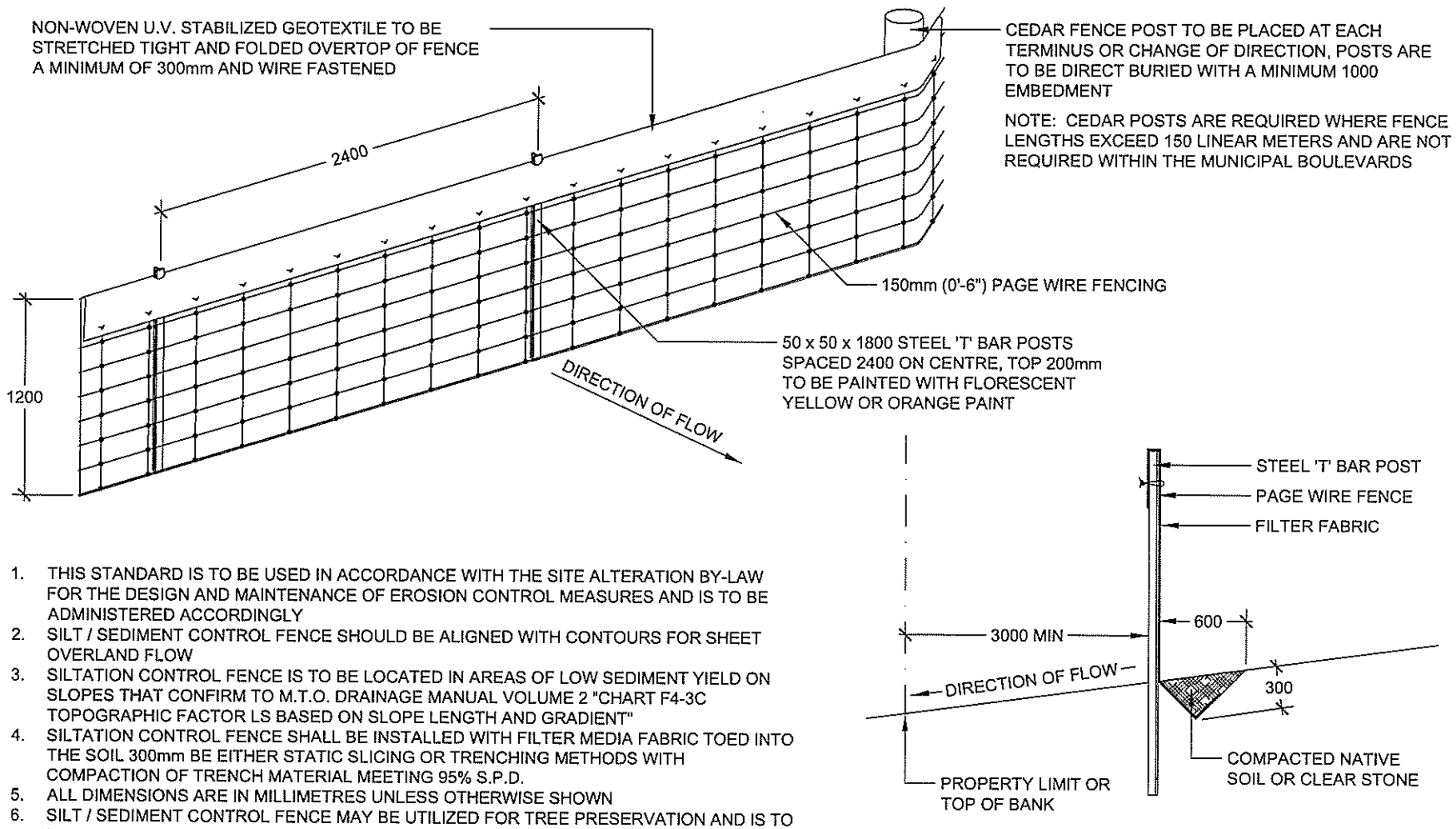
REV No. 1 | DATE: JUNE 2015 | SCALE: N.T.S.

BSD-1232

APPROVED

DATE . . . . . .

. . . . . .
DIRECTOR OF ENGINEERING



1. THIS STANDARD IS TO BE USED IN ACCORDANCE WITH THE SITE ALTERATION BY-LAW FOR THE DESIGN AND MAINTENANCE OF EROSION CONTROL MEASURES AND IS TO BE ADMINISTERED ACCORDINGLY
2. SILT / SEDIMENT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW
3. SILTATION CONTROL FENCE IS TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFIRM TO M.T.O. DRAINAGE MANUAL VOLUME 2 "CHART F4-3C TOPOGRAPHIC FACTOR LS BASED ON SLOPE LENGTH AND GRADIENT"
4. SILTATION CONTROL FENCE SHALL BE INSTALLED WITH FILTER MEDIA FABRIC TOED INTO THE SOIL 300mm BE EITHER STATIC SLICING OR TRENCHING METHODS WITH COMPACTION OF TRENCH MATERIAL MEETING 95% S.P.D.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN
6. SILT / SEDIMENT CONTROL FENCE MAY BE UTILIZED FOR TREE PRESERVATION AND IS TO BE USED IN CONJUNCTION WITH BSD-1231, BSD-1232 AND BSD-1235

Barrie

STANDARD DETAIL

SILTATION CONTROL FENCING

REV No.	DATE: OCT 2017
1	SCALE: N.T.S.

BSD-1233

FORMERLY BSD-23A

APPROVED

DATE Oct 10/17

DIRECTOR OF ENGINEERING

1. THE DRIP LINE IS MEASURED FROM THE OUTER MOST LIMIT OF BRANCHING WITHIN THE CROWN OF THE TREE. THE FURTHEST DISTANCE SHALL APPLY TO THE ENTIRE PERIMETER OF THE CROWN.

2. WHEN CONSTRUCTION AND/OR REMOVALS ARE LIMITED TO ONE SIDE OF A TREE AND/OR GROUP OF TREES THE LIMIT OF PRESERVATIONS SHALL BE DETERMINED BY THE DRIP LINE. IN THE EVENT THAT INDIVIDUAL TREES ARE BEING PRESERVED WHERE MORE THAN 1/3 OF THE ROOT ZONE WILL BE DISTURBED THE LIMIT OF PRESERVATION SALL BE 1.5 TO 2 TIMES THE LIMIT OF CANOPY OR AS DIRECTED BY THE CITY OF BARRIE.

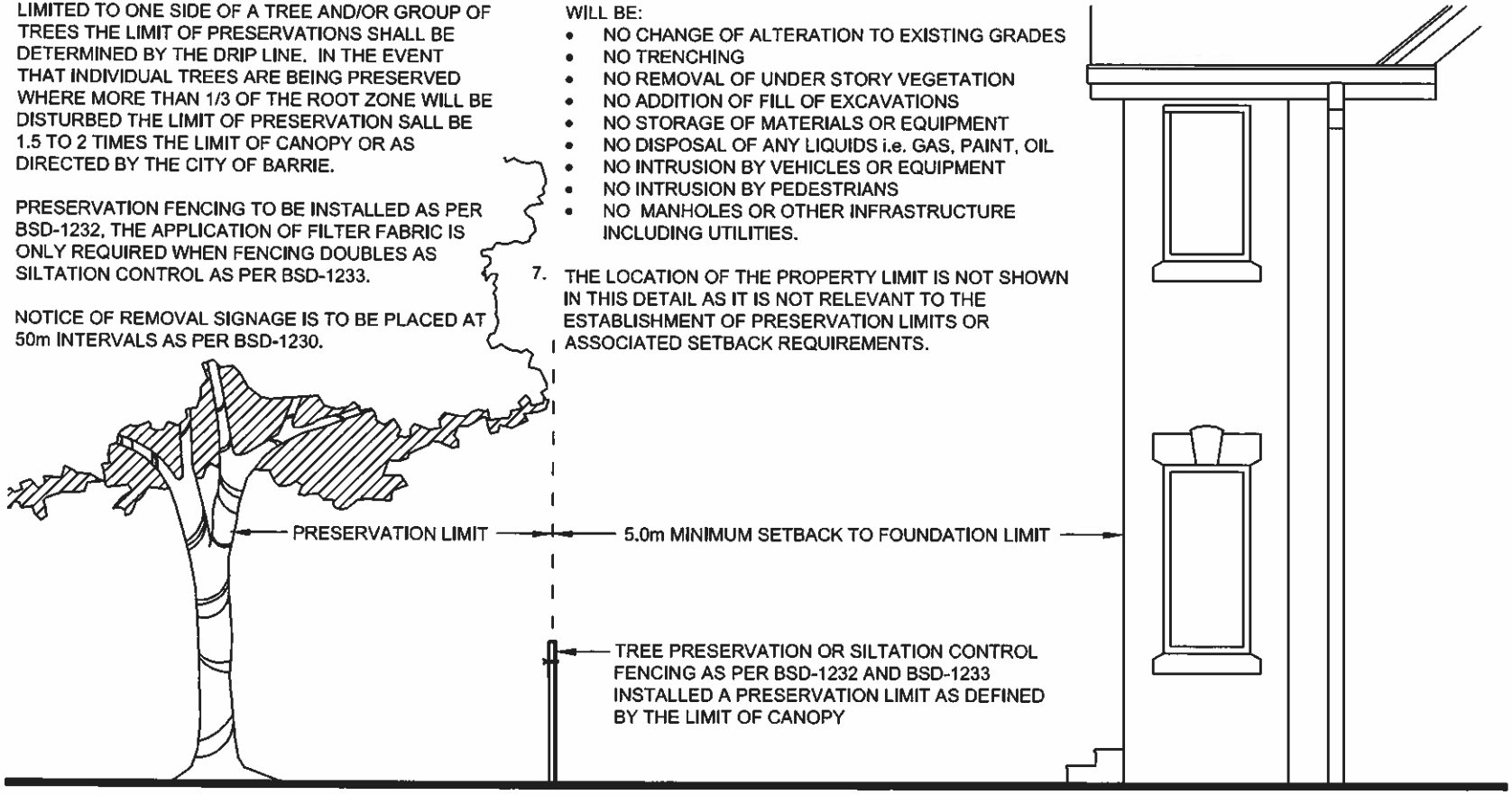
3. PRESERVATION FENCING TO BE INSTALLED AS PER BSD-1232, THE APPLICATION OF FILTER FABRIC IS ONLY REQUIRED WHEN FENCING DOUBLES AS SILTATION CONTROL AS PER BSD-1233.

4. NOTICE OF REMOVAL SIGNAGE IS TO BE PLACED AT 50m INTERVALS AS PER BSD-1230.

5. THERE IS TO BE NO GRADING, CONSTRUCTION OF SWALES, CATCH BASINS OR OTHER DRAINAGE CONTROLS PLACED WITHIN THE LIMIT OF PRESERVATION.

6. WITHIN THE DEFINED LIMIT OF PRESERVATION THERE WILL BE:
   - NO CHANGE OF ALTERATION TO EXISTING GRADES
   - NO TRENCHING
   - NO REMOVAL OF UNDER STORY VEGETATION
   - NO ADDITION OF FILL OF EXCAVATIONS
   - NO STORAGE OF MATERIALS OR EQUIPMENT
   - NO DISPOSAL OF ANY LIQUIDS i.e. GAS, PAINT, OIL
   - NO INTRUSION BY VEHICLES OR EQUIPMENT
   - NO INTRUSION BY PEDESTRIANS
   - NO MANHOLES OR OTHER INFRASTRUCTURE INCLUDING UTILITIES.

7. THE LOCATION OF THE PROPERTY LIMIT IS NOT SHOWN IN THIS DETAIL AS IT IS NOT RELEVANT TO THE ESTABLISHMENT OF PRESERVATION LIMITS OR ASSOCIATED SETBACK REQUIREMENTS.



The City of BARRIE
STANDARD DETAIL

LIMIT OF TREE PRESERVATION FOR DEVELOPMENT APPROVALS

REV No.	DATE: JUNE 2015
1	SCALE: N.T.S.

BSD-1235
FORMERLY BSD-21A

APPROVED
DATE June 11/15
DIRECTOR OF ENGINEERING

Appendix C

Botanical Inventory

Vascular Plant List for 105 - 111 Edgehill Drive, City of Barrie. Data collected by Beacon Environmental Ltd., on October 26 and November 2, 2017, and May 16, 2018.

Family Name	New Scientific Name	Common Name	Origin	COSEWIC	COSSARO	S-RANK	Lake Simcoe (State of the Watershed, 2003)	Simcoe County (Riley 1989)
Aceraceae	*Acer negundo*	Manitoba Maple	N			S5		
Aceraceae	*Acer* x *freemanii*	Freeman's Maple	N			S5		
Anacardiaceae	*Rhus hirta*	Staghorn Sumac	N			S5		
Apiaceae	*Aegopodium podagraria*	Goutweed	I			SNA		
Apiaceae	*Daucus carota*	Queen Anne's Lace	I			SNA		
Asteraceae	*Arctium minus*	Lesser Burdock	I			SNA		
Asteraceae	*Aster* sp.	Aster Species						
Asteraceae	*Cirsium arvense*	Creeping Thistle	I			SNA		
Asteraceae	*Conyza canadensis*	Fleabane	N			S5		
Asteraceae	*Eutrochium maculatum* var.	Spotted Joe-pye Weed	N			S5		
Asteraceae	*Solidago canadensis*	Canada Goldenrod	N			S5		
Asteraceae	*Taraxacum officinale*	Common Dandelion	I			SNA		
Balsaminaceae	*Impatiens capensis*	Spotted Jewel-weed	N			S5		
Boraginaceae	*Myosotis scorpioides*	True Forget-me-not	I			SNA		
Brassicaceae	*Alliaria petiolata*	Garlic Mustard	I			SNA		
Caprifoliaceae	*Lonicera tatarica*	Tartarian Honeysuckle	I			SNA		
Caprifoliaceae	*Viburnum opulus*	Guelder-rose Viburnum	I			SNA		
Cornaceae	*Cornus sericea* ssp. *sericea*	Red-osier Dogwood	N			S5		
Cupressaceae	*Thuja occidentalis*	Northern White Cedar	N			S5		
Equisetaceae	*Equisetum arvense*	Field Horsetail	N			S5		
Fabaceae	*Lotus corniculatus*	Bird's-foot Trefoil	I			SNA		
Fabaceae	*Medicago lupulina*	Black Medic	I			SNA		
Geraniaceae	*Geranium robertianum*	Herb-robert				S5		
Lamiaceae	*Lamium purpureum*	Purple Deadnettle	I			SNA		
Lamiaceae	*Leonurus cardiaca* ssp. *cardiaca*	Common Motherwort	I			SNA		
Lamiaceae	*Mentha arvensis*	Corn Mint	N			S5		
Liliaceae	*Convallaria majalis*	European Lily-of-the-valley	I			SNA		
Pinaceae	*Picea abies*	Norway Spruce	I			SNA		
Pinaceae	*Pinus strobus*	Eastern White Pine	N			S5		
Pinaceae	*Pinus sylvestris*	Scotch Pine	I			SNA		
Plantaginaceae	*Plantago lanceolata*	English Plantain	I			SNA		
Plantaginaceae	*Plantago major*	Nipple-seed Plantain	I			SNA		

Vascular Plant List for 105 - 111 Edgehill Drive, City of Barrie. Data collected by Beacon Environmental Ltd., on October 26 and November 2, 2017, and May 16, 2018.

Family Name	New Scientific Name	Common Name	Origin	COSEWIC	COSSARO	S-RANK	Lake Simcoe (State of the Watershed, 2003)	Simcoe County (Riley 1989)
Poaceae	*Bromus inermis* ssp. *inermis*	Smooth Brome	I			SNA		
Poaceae	*Dactylis glomerata*	Orchard Grass	I			SNA		
Poaceae	*Elymus repens*	Quack Grass	I			SNA		
Poaceae	*Poa pratensis* ssp. *pratensis*	Kentucky Bluegrass	N			SNA		
Rhamnaceae	*Rhamnus cathartica*	Buckthorn	I			SNA		
Rosaceae	*Prunus virginiana*	Choke Cherry	N			S5		
Rosaceae	*Rubus idaeus* ssp. *strigosus*	Wild Red Raspberry	N			S5		
Salicaceae	*Populus alba*	White Poplar	I			SNA		
Salicaceae	*Populus balsamifera*	Balsam Poplar	N			S5		
Salicaceae	*Salix bebbiana*	Bebb's Willow	N			S5		
Salicaceae	*Salix fragilis*	Crack Willow	I			SNA		
Solanaceae	*Solanum dulcamara*	Climbing Nightshade	I			SNA		
Tiliaceae	*Tilia americana*	American Basswood	N			S5		
Ulmaceae	*Ulmus pumila*	Siberian Elm	I			SNA		