BEACON ENVIRONMENTAL

GUIDING SOLUTIONS IN THE NATURAL ENVIRONMENT

Environmental Impact Study
1725 Barbertown Road
City of Mississauga

Prepared For:

Barbertown Ventures Inc.

Prepared By:

Beacon Environmental Limited

Date: *Project:*

May 2019 **214250**

MARKHAM
80 Main Street North
Markham, ON L3P 1X5
T) 905.201.7622❖ F) 905.201.0639

BRACEBRIDGE
126 Kimberley Avenue
Bracebridge, ON P1L 1Z9
T) 705.645.1050

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

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

BARRIE
6 Cumberland Street
Barrie, ON L4N 2P4
T) 705.999.4935

Table of Contents

page

Figures

Tables

Appendices

1. Introduction

Beacon Environmental Limited. (Beacon) has been retained by Barbertown Ventures Inc. to complete a scoped Environmental Impact Study (EIS) for a property located at 1725 Barbertown Road (Part of Lot 1, Concession 4), northeast of Eglinton Ave. West and Queen Street South, in the City of Mississauga, Regional Municipality of Peel. The property is comprised of 4.63 ha (11.44 acres) and contains a private driveway and three single-detached residential dwellings, surrounded by mainly manicured lawns and ornamental plantings, including an orchard (**Figure 1**). In addition, the subject property borders the Credit River to the west, and a related tributary, Carolyn Creek, located in the eastern portion of the property. These portion of lands east of Carolyn Creek does not for part of this application. Both watercourses are associated with areas of cultural plantation and woodlands. Local topography has been altered from natural conditions due to past grading works. The property is not located within the provincial Greenbelt Plan or Oak Ridges Moraine Plan areas.

The City of Mississauga Official Plan, Region of Peel Official Plan and the Credit Valley Conservation Authority's (CVC) regulations and policies require the preparation of an EIS as part of a development approvals process. The purpose of this report is to identify existing conditions on the subject property and adjacent lands and to assess the interaction between the proposed development and the existing conditions, ensuring consistency with the Provincial Policy Statement (2014), municipal Official Plans, the CVC regulations and policies, and any other relevant legislation. This document was developed based on a Terms of Reference and comments provided by the City and CVC (**Appendix A**). This study identifies opportunities and constraints for development of the subject property, with recommendations for appropriate mitigation requirements for the adjacent retained natural features that may be impacted.

The entire property is located within lands that are regulated by the CVC. This study was completed through a review of background documents, previous feature staking with the Conservation Authority (by others), and seasonally appropriate field investigations undertaken by Beacon in 2015 and 2016. These field investigations included an assessment of existing conditions with respect to terrestrial and aquatic features, and investigations into the potential presence of Species at Risk on the subject property. Review of the staked limits of natural features on the property, combined with historic aerial photography, enable an accurate determination of the boundaries of natural heritage features and proposed development setbacks as tested against the existing policy framework.

This report relates to revision of the development plan to address City of Mississauga and CVC comments dated March 24, 2017, October 17, 2018 and May 2019.

2. Methodology

The following sections describe the details of the work that was completed and explain how the EIS was carried out.

2.1 Background Review

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:

- Ministry of Natural Resources and Forestry (MNRF) Aurora District Office information;
- Ministry of Natural Resources and Forestry's Natural Heritage Information Centre (NHIC) rare species database;
- Credit Valley Conservation Authority (CVC) regulations and policies;
- Regional Municipality of Peel Official Plan (2016);
- City of Mississauga Official Plan (2018) and applicable By-laws;
- Federal *Fisheries Act* (2013); and
- Provincial *Endangered Species Act* (2007).

Other sources of information, such as topographic maps, were also consulted prior to commencing field assessments. The Ontario Ministry of Natural Resources and Forestry (MNRF) was contacted to determine records of the presence of Endangered and Threatened species on and adjacent to the site.

2.2 Field Investigations

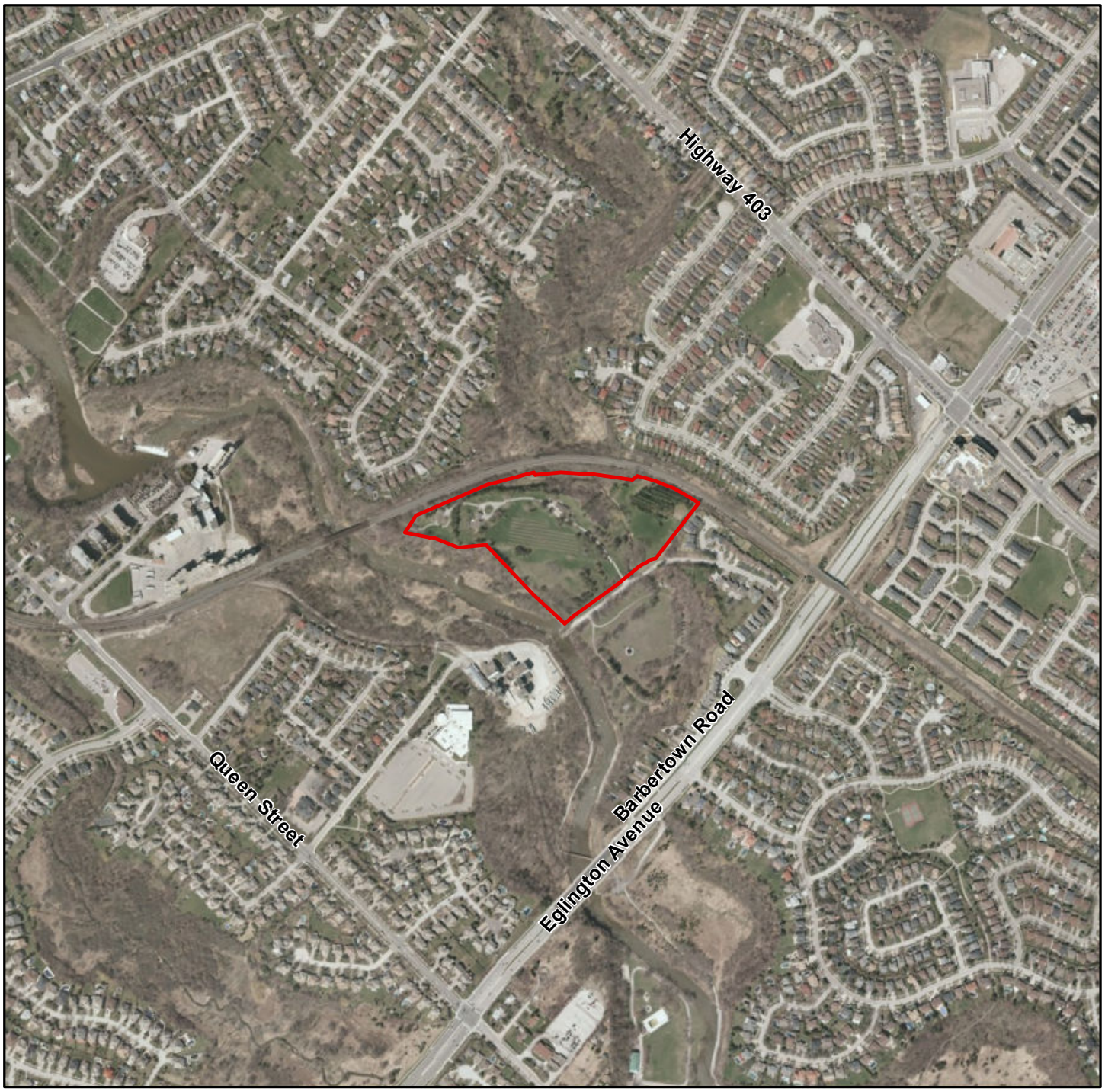
Beacon undertook a number of field surveys in order to characterize and better understand the biophysical resources of the subject lands. The dates of these investigations are provided in the table below.

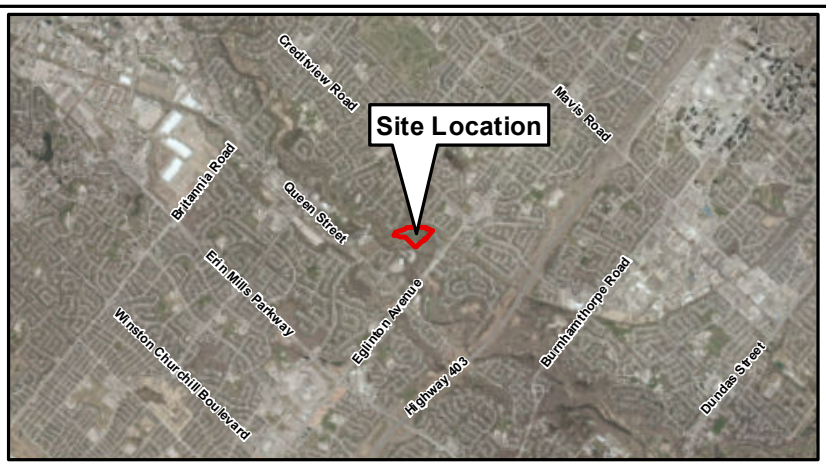
Vegetation Community Mapping and Floral Surveys	June 14, 2016
Breeding Amphibian Surveys	April 16 and May 6, 2015
Breeding Bird Surveys	May 30 and June 6, 2015
Aquatic Resources /Fish Habitat Assessment	July 14 and October 27, 2015

Specific details regarding survey methods and assessments undertaken by Beacon are described below.

2.2.1 Aquatic Resources

Aquatic habitat assessments were carried out on July 14 and October 27, 2015. The assessments consisted of a qualitative survey based on visual inspections of the watercourses throughout the subject property. Stream physical conditions were inspected and documented with photography. Data recorded during the assessments included: stream morphology, flow regime, substrates, seepage area, location of inflows, riparian/instream vegetation cover and bank condition. While completing the habitat assessment, riparian characteristics and disturbances to the natural environment on the site were also documented.





Site Location	Figure 1
1725 Barbertown Road Mississauga, Ontario	
First Base Solutions Web Mapping Service 2013	N W E S
UTM Zone 17 N, NAD 83	
0 100 200 400 Metres	1:10,000
BEACON ENVIRONMENTAL	Project 214250 February 2015

During the investigations the function of the aquatic features were assessed with consideration for the *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* (TRCA and Credit Valley Conservation 2014). The resulting management recommendations are referenced to assist in determining the treatment of these features as part of the future development of these lands.

2.2.2 Terrestrial Resources

Vegetation Communities and Flora

A site visit was completed on June 14, 2016 to document the vegetation on and adjacent to the subject property. Vegetation communities were mapped and described according to the Ecological Land Classification system for southern Ontario (Lee *et al*. 1998), which involved delineating vegetation types on an aerial photo of the property and recording pertinent information concerning the vegetation structure and composition.

A list of all vascular plant species observed on and adjacent to the property was compiled.

Amphibian Survey

Two evening visits were made to the subject property to survey for breeding amphibians: April 16th and May 6th 2015. The survey protocols consist of auditory surveys undertaken during the prime breeding period to record calling males that are present, spread throughout the breeding season in an attempt to include the short temporal peak for each species of interest. Calling amphibians, if present, were identified to species and calling activity was assigned a code from the following options, which indicate increasing abundance:

0 no calls;
1 individuals of one species can be counted, calls not simultaneous;
2 some calls of one species simultaneous, numbers can be reliably estimated; and
3 full chorus, calls continuous and overlapping (not countable).

All areas that contained potential breeding amphibian habitat (ponds, wetlands, etc.) were surveyed from a distance that would enable calling amphibians to be heard. Additional stops were made along roadsides to confirm the absence or presence of amphibians.

Breeding Birds

Breeding birds were surveyed on May 30th and June 6th, 2015. The visits to the subject property commenced between 6:30 am and 7:10 am, on days with low to moderate winds (0-3 Beaufort Scale), no precipitation, and temperatures within 5 ^{O}C of normal average temperature. The entire site was walked such that all singing birds could be heard or observed and recorded. That is, the surveyor is within 50 to 100 m of all parts of the site depending on habitat. All birds heard and seen were recorded in the location observed on an aerial photograph of the site. For any given species, the largest number recorded during either of the two visits was used as the abundance for that species.

Other Wildlife

Incidental observations of wildlife species, including mammals, were made during field investigations that were primarily for other purposes. If non-target species were not observed directly, evidence of their activity was also noted.

Landscape Connectivity

A landscape connectivity assessment was undertaken once features on the subject lands were described and this was supported by topographic mapping, aerial photography and reconnaissance of surrounding accessible lands by road.

3. Policy Review

3.1 Provincial Policy Statement (2014)

The Province released a new version of the Provincial Policy Statement (PPS) that came into effect on April 30, 2014, replacing the 2005 version. All non-approved applications on April 30, 2014 are now subject to the 2014 PPS, as is the case for the proposed development. The Provincial Policy Statement (MMAH 2014) should be considered and applied with respect to the proposed development application.

Natural Heritage Policy 2.0 of the PPS provides direction to regional and local municipalities regarding planning policies specifically for the protection and management of natural heritage features and resources.

Policy 2.1 provides direction to regional and local municipalities regarding planning policies for the protection and management of natural heritage features and resources for applications pursuant to the *Planning Act*. The PPS applies in areas that are not within other provincial planning areas such as the Greenbelt Plan or the Oak Ridges Moraine Conservation Plan. The PPS defines eight natural heritage features and provides planning policies for each. The *Natural Heritage Reference Manual* (OMNR 2010) is a technical document used to help assess the natural heritage features listed below:

- Significant wetlands;
- Coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat; and
- Significant Areas of Natural and Scientific Interest (ANSIs).

Significant wetlands can be designated either by the Ministry of Natural Resources and Forestry (MNRF) and/or the municipality through an evaluation using the Ontario Wetland Evaluation System (OWES 2014) and scoring sufficient points to be considered “significant”.

Significant woodlands are defined using criteria to be provided by the MNRF. Areas of Natural and Scientific Interest are identified by the MNRF. The identification and regulation of significant woodlands,

significant valleylands and significant wildlife habitat is the responsibility of the municipal planning authority, with technical support provided by several provincial guidance documents (i.e., Natural Heritage Reference Manual, OMNR 2010; Significant Wildlife Habitat Technical Guidelines, OMNR 2000; Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E, OMNRF 2015).

In addition to the above noted features, development and site alteration is not permitted in the following, except in accordance with provincial and federal requirements (i.e., the federal *Fisheries Act* and *Species at Risk Act* and the provincial *Endangered Species Act*):

- Fish habitat; and
- Habitat of endangered and threatened species.

Habitat of Endangered or Threatened species is determined by MNRF if a species is identified on a property through site specific investigations or through existing information. Fish habitat is governed by Fisheries and Oceans Canada (DFO).

In areas where significant natural heritage features have been identified by the appropriate agency or planning authority, the boundaries of such features can typically be refined through site-specific studies undertaken as part of the planning process, with input from the responsible agency and/or planning authority. In the case of 1725 Barbertown Road, the top of bank and vegetative limit were staked previously by Credit Valley Conservation.

3.2 Regional Municipality of Peel Official Plan (2016)

The property is identified within the Urban System of the Region of Peel, and indicated within the Cores Areas of the Greenlands System in Peel as identified on Schedule A of the Official Plan. Section 2.3 of The Peel Regional Official Plan (Office Consolidation 2016) addresses the Greenlands System of Peel. The Greenlands System consists of Core Areas, Natural Areas and Corridors, as well as Potential Natural Areas and Corridors. The System is intended to support and express the Region's vision for the protection of the natural environment. The Greenlands System in Peel is indicated to be composed of Areas of Natural and Scientific Interest (ANSIs), Environmentally Sensitive or Significant Areas (ESAs), Escarpment Natural and Protection Areas, fish and wildlife habitat, habitats of threatened and endangered species, wetlands, woodlands, valley and stream corridors, shorelines, natural lakes, natural corridors, groundwater recharge and discharge areas, open space portions of the *Parkway Belt West Plan*, and other natural features and functional areas. These elements are to be interpreted, identified and protected in accordance with the policies of the Official Plan.

A Credit River Georgian Bay Formation Earth Science ANSI is identified along the east bank of the Credit River, offsite to the north of the railway. There are no ANSIs or ESAs identified on the subject property.

Within the Greenlands System, Core Areas contain ecological features forms and/or functions that have favourable conditions for uninterrupted natural systems and maximum biological diversity. It is stated that policies regarding the detailed interpretation of the location and extent of the Core Areas will be contained in the municipal official plans. Municipal official plans may provide policies governing the protection of such areas. Cores Areas are indicated to represent provincially and regionally significant features and areas and are considered a sub-set of what would be *significant* under the PPS. As

identified in Section 2.3.2.2 of the Official Plan, the elements of Core Areas of the Greenlands System in Peel include:

a. *Significant wetlands*;
b. *Significant coastal wetlands*;
c. Core *woodlands* meeting one or more of the criteria in Table 1 [of the Peel OP];
d. *Environmentally Sensitive* or *Significant* Areas;
e. Provincial Life Science *Areas of Natural and Scientific Interest*;
f. *Significant* habitats of *threatened and endangered species*;
g. Escarpment Natural Areas of the Niagara Escarpment Plan; and
h. Core *valley and stream corridors* meeting one or more of the criteria in Table 2 [of the OP].

Table 1 for the Criteria and Thresholds for the Identification of Core, Natural Areas and Corridors (NAC) and Potential Natural Areas and Corridors (PNAC) Woodlands identifies a woodland within the Urban System as being equal to or greater than 4 ha. Alternatively, within the Natural Areas and Corridors, a *woodland* equal to or greater than 0.5 ha and associated with another significant feature such as a watercourse or wetland would qualify.

In determining significance of a woodland, the Official Plan provides the following definition:

> *An area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history;*

The Official Plan also includes definition of *Cultural woodlands,* which relates to treed communities originating from or maintained by anthropogenic influences and culturally based disturbances, indicated to often contain a large proportion of non-native species and having 35 to 60 percent cover of coniferous or deciduous trees. They are to be considered as part of the Greenlands System Natural Areas and Corridors by individual area municipalities in consultation with conservation authorities and MNRF as indicated in Policy 2.3.2.10.

Policy 2.3.2.6 indicates that development and site alteration is prohibited within the Core Areas of the Greenlands System, with exceptions indicated to generally include conservation efforts and infrastructure, as well as minor development and site alteration. However, Section 2.3.2.25 directs local municipalities to require an EIS for development or site alteration within or adjacent to the Greenlands System.

Section 2.4 of the Region of Peel Official Plan deals with the policies applied to natural hazards. Specific sections deal with ravine, valley and stream corridors and riverine floodplains. These policies commit the Region to work in conjunction with area municipalities and conservation authorities towards the following two objectives:

1. To prevent or minimize the risk to human life and property associated with flooding and/or slope stability; and
2. To ensure that development and site alteration do not create new or aggravate existing floodplain management problems along the flood susceptible riverine environments.

Section 3.4 of the Official Plan addresses all water resources within the region, including aquifers, streams, ponds, wetlands and lakes. Regional Policy requires that appropriate studies be undertaken to the satisfaction of the region, area municipalities and conservation authorities for all planning initiatives that may have an immediate or cumulative impact on water resources and the related natural systems.

Schedule D3 of the Official Plan identifies the Credit River to the west of the property as a River Valley Connection Outside of the Greenbelt.

The Official Plan includes a Recommended Criteria and Thresholds for the Identification of Significant Wildlife Habitat on Figure 5.

3.3 City of Mississauga Official Plan, Office Consolidation (2018)

The City of Mississauga Official Plan, through direction from the PPS, follows an ecosystem approach to land use planning. It focuses on the protection of three large linear open space areas; one of which includes the Credit River Valley situated to the east of the property. Environmental policies within the Official Plan are organized into three distinct categories: Natural Heritage, Natural Hazards, and Environmental Issues. Land use planning policies are to be used in conjunction with environmental policies when development applications are submitted to the City.

As indicated by City of Mississauga Planner Eva Kliwer, prior to approval of the Official Plan Amendment 27 the lands were designated Greenbelt in the City of Mississauga Official Plan (correspondence **Appendix A**). This relates to the City's land use designation of Greenbelt, and is not relevant to the provincial Greenbelt Plan.

A portion of the western limit of the subject property is designated within the *Significant Natural Areas and Natural Green Spaces*, with a Special Management Area existing on northern side of the railway, both of which are depicted on Schedule 3 (Natural System) of the Official Plan. An Area of Natural or Scientific Interest (ANSI) is also identified on Schedule 3 offsite and northwest of the subject property; this identification is linked to the Credit River Georgian Bay Formation, which is designated as a provincially-significant Earth Science ANSI.

Under Policy 6.3.8, application of buffers to natural heritage features are to be determined on a site specific basis through the preparation of an EIS. An EIS is required for all development applications located within or adjacent to a *Natural Area* and must meet the satisfaction of the City of Mississauga and the CVC. Development approval will require the protection of any natural features onsite and their ecological functions, and features and functions on adjacent lands.

The City of Mississauga's Natural Heritage System is indicated under Policy 6.3.9 to be composed of Significant Natural Areas, Natural Green Spaces, Special Management Areas, Residential Woodlands and Linkages. The exact limits of the various components of the Natural Heritage System are to be determined through site specific studies, such as an EIS. The Official Plan further defines Significant Natural Areas to include:

a) *Provincially or regional significant life science areas of natural and scientific interest (ANSI);*

b) *Environmentally sensitive or significant areas;*
c) *Habitat of threatened species or endangered species;*
d) *Fish habitat;*
e) *Significant wildlife habitat;*
f) *Significant woodlands (with indicated criteria);*
g) *Significant wetlands; and*
h) *Significant valleylands.*

The study area is situated between two *significant valleylands* associated with the Credit River and Carolyn Creek, which also provide *fish habitat*. The subject lands between these watercourses does not qualify as *significant wildlife habitat*. The site appears to have been subject to past alteration and grading, particularly the southwest portion, as there is a stepped terrace that does not reflect a natural top of bank. Discussion and determination of a top of bank feature limit was completed with CVC and is reflected on **Figure 2**.

Policy 6.3.12 (f) identifies that *significant woodlands* are indicated to meet one or more of the following criteria:

- Woodlands, excluding cultural savannahs, greater than or equal to four hectares;
- Woodlands, excluding cultural woodlands and cultural savannahs, greater than or equal to two hectares and less than four hectares;
- Any woodland greater than 0.5 hectares that:
    - Supports old growth trees (greater than or equal to 100 years old);
    - Supports a significant linkage function as determined through an Environmental Impact Study approved by the City in consultation with the appropriate conservation authority;
    - Is located within 100 meters of another Significant Natural Area supporting a significant ecological relationship between the two features;
    - Is located within 30 meters of a watercourse or significant wetland; or
    - Supports significant species or communities.

In determining the size of a woodland, Policy 6.3.13 indicates that *cultural woodlands* are to be included, and defined as a Significant Natural Area. This determination is to be made through an EIS and included if confirmed to have significant ecological value that contributes to the integrity and function of the woodland.

Residential Woodlands are discussed in Policy 6.3.17 and are indicated to be areas, generally in older residential neighbourhoods, with large lots that have mature trees forming a fairly continuous canopy and minimal native understorey due to the maintenance of lawns and landscaping. Policy 6.3.19 states that development proposals and site alteration for lands within a Residential Woodland will have regard for how existing tree canopy and understorey are protected, enhanced, restored and expanded.

Policy 6.3.25 indicates that *where new lots are created by land division or units or parcels of tied land (POTLs) created by condominium that will have the effect of fragmenting the ownership of Significant Natural Areas, Natural Green Spaces, Residential Woodlands and buffers will generally be discouraged and will be supported by an Environmental Impact Study*.

The Official Plan generally defers the application of buffers and determination of width to completion of an EIS supported by the City and CVC.

Existing Conditions and Environmental Constraints

Figure 2

1725 Barbertown Road
Mississauga, Ontario

Legend

- Subject Property
- Composite Constraint
- Staked Vegetation Limit + 10 m
- Staked Vegetation Limit (CVC August 19, 2013)
- ELC Communities
- Watercourse
- Watercourse + 30 m
- Amphibian Survey Locations
- Regulatory Floodline
- Regulatory Floodline + 10 m
- Top of Bank (Staked by CVC April 2012)
- Top of Bank (as per Discussions with CVC)
- Staked Top of Bank + 10 m
- Top of Bank + 10
- Wetlands + 10 m
- Fish Observations / Sampling

Species Code	Common Name	Scientific Name
BAOR	Baltimore Oriole	*Icterus galbula*
BGGN	Blue-gray Gnatcatcher	*Polioptila caerulea*
HAWO	Hairy Woodpecker	*Picoides villosus*
INBU	Indigo Bunting	*Passerina cyanea*

ELC Unit	ELC Ecosite/Vegetation Type	ELC Code
1	Anthropogenic - manicured	ANT
2	Coniferous Plantation	CUP3
3	Cultural Woodland	CUW1
4	Dry-Fresh Oak-Hardwood Deciduous Forest	FOD2-4
5	Fresh-Moist Lowland Deciduous Forest	FOD7
6	Fresh-Moist Lowland Deciduous Forest/Cultural Woodland	FOD7/CUW1
7	Dry-Fresh Sugar Maple Deciduous Forest	FOD5-1
8	Mineral Meadow Marsh	MAM2

UTM Zone 17 N, NAD 83

First Base Solutions
Web Mapping Service 2018

N W E S

0 15 30 60 Metres

1:1,850

Project 214250
May 2019

BEACON ENVIRONMENTAL

C:\Dropbox\Dropbox (Beacon)\All GIS Projects\2014\214250\MXD\214250_Figure02_ExistingConditionsandEnvironmentalConstraints_20161122.mxd

Policy 6.3.28 of the Official Plan states that development or site alteration will not be permitted within areas identified within the Core Areas of the Greenlands System as defined in the Region of Peel Official Plan, except in accordance with Regional Requirements.

Although the property is identified within the Green System identified on Schedule 1 – Urban System, the above policy appears contrary to Schedule 3 – Natural System of the City of Mississauga Official Plan and Natural Areas Survey (2014) that do not include the majority of the property within the Significant *Natural Areas* and Natural Green Spaces land use designation.

3.3.1 *City of Mississauga Zoning By-law* (2007)

The subject property is identified within zone G1-6 as identified on Zoning Map 38W, identified as Schedule "B" to By-law No. 0225-2007. As indicated in Section 10.2.2.6, permitted uses are stated to include (1) Detached dwelling legally existing on the date of the passing of the By-law.

3.3.2 City of Mississauga Tree By-law No. 0254-2012

The City of Mississauga Tree by-law prohibits and regulates the injuring or destruction of trees on private property within the City of Mississauga. The By-law allows private landowners to destroy up to two trees over 15 cm in diameter in a calendar year without a permit.

3.4 Credit Valley Conservation Authority Policies and Regulations

3.4.1 Conservation Authorities Act (Ontario Regulation 160/06)

Under *Ontario Regulation 160/06* of the *Conservation Authorities Act*, Credit Valley Conservation Authority (CVC) regulates development in and adjacent to natural hazard lands including creeks, valleylands, shorelines, and wetlands.

Development within the flood limit of a watercourse is not allowed. CVC will generally require that all watercourses remain in their natural state with respect to development proposals. Any development proposed within the "regulated" area adjacent to a watercourse or wetland (evaluated or unevaluated) would trigger the need for an EIS that must demonstrate that the no interference to the feature will occur before a permit is issued. The definition of a watercourse generally captures any feature that is "an identifiable depression in the ground in which a flow of water regularly or continuously occurs", regardless of the drainage area (CAA 1990).

As identified in Section 6.2.1 - Development Limits of the CVC *Watershed Planning and Regulation Policies* document (2010), the following applies.

> *a) CVC will not support the creation of new lots through plan of subdivision or consent that extend into, or fragment ownership of, the natural heritage system, including natural heritage features and areas, significant natural areas, hazardous land and erosion access allowances, in consideration of the long term management concerns related to risks to life and property and natural heritage protection.*

b) In addition to policy 6.2.1 a), CVC will recommend that lots created through plan of subdivision or consent are set back a minimum of whichever is the greatest of the following buffers:

- *i. 10 metres from the limit of flood hazards;*
- *ii. 10 metres from the limit of erosion hazards;*
- *iii. 10 metres from the limit of dynamic beach hazard;*
- *iv. 10 metres from the drip line of significant woodlands;*
- *v. 10 metres from the limit of other wetlands;*
- *vi. 30 metres from the limit of provincially significant wetlands;*
- *vii. 30 metres from the bankfull flow location of watercourses; and/or*
- *viii. A distance to be determined through the completion of a comprehensive environmental study or technical report, to the satisfaction of CVC, from the limit of the following:*
  - *a. significant wildlife habitat;*
  - *b. significant habitat of threatened species and endangered species;*
  - *c. regionally and provincially significant life science ANSIs;*
  - *d. ESAs; and/or*
  - *e. significant habitat of species of conservation concern.*

c) Notwithstanding policy 6.2.1 b), CVC may recommend lots be set back a distance other than those identified in 6.2.1 b) based on the results of a comprehensive environmental study or site specific technical report completed.

3.5 Federal Fisheries Act (2013)

Amendments to the federal *Fisheries Act* came into effect on November 25, 2013. The policy is entitled the Fisheries Protection Policy, and it streamlines the previous regulatory process by combining Sections 32 and 35 into one new clause. This clause manages threats to commercial, recreational and aboriginal fisheries. The new clause prohibits 'serious harm to fish'. This new term includes both the killing of fish and permanent alteration to or destruction of fish habitat of any commercial, recreational and aboriginal fish or fisheries. If 'serious harm to fish' cannot be avoided or mitigated an authorization may be required.

3.6 Endangered Species Act (2007)

Ontario's *Endangered Species Act, 2007* (ESA) came into effect on June 30, 2008 and replaced the former 1971 Ac. The ESA primarily protects the species and their habitat listed as Threatened or Endangered by the Committee on the Status of Species at Risk in Ontario (COSSARO). Under the ESA there are over 200 species in Ontario that are identified as extirpated, endangered, threatened, or of special concern. Section 9 of the ESA generally prohibits the killing or harming of a Threatened or Endangered species, as well as the destruction of its habitat. Section 10 of the ESA prohibits the damage or destruction of the habitat of all Endangered and Threatened species.

A permit from MNRF is required under Section 17(2)(c) of the ESA for any works proposed within habitat of a threatened or endangered species.

3.7 Other Wildlife Acts

The federal *Species at Risk Act* (2003) has not identified critical habitat for the species mentioned in the previous section. Most bird species are also protected by the federal *Migratory Birds Convention Act* (1994) and the provincial *Fish and Wildlife Conservation Act* (*1997*). These Acts primarily protect the active nests of birds and the effects of these pieces of legislation do not exceed those of the two previously noted federal Acts.

4. Existing Conditions

4.1 Aquatic Resources

The subject property is identified within the lower watershed of the Credit River and Subwatershed 2 of the Credit River and contains a reach of Carolyn Creek (**Photograph 1**). It occurs to the east of the main Credit River valley corridor. The watercourse is conveyed through a forested valley system on the eastern portion of the property. Field investigations were completed through visual inspection, with no evidence of groundwater seepage identified on or immediately adjacent to the subject property.

Photograph 1. Carolyn Creek at the Downstream Extent of the Subject Property

Carolyn Creek is situated within a vegetated valley corridor and originates from north of the site and is conveyed through a deciduous forest, which transitions to a more manicured and maintained riparian zone with a less defined valley at its southern extent. Substrate predominantly consists of cobble and gravel, and the watercourse meanders naturally, with a channel morphology composed of a series of riffle-runs with occasional pools. A pedestrian bridge is present near the southern extent of the watercourse on the property. Carolyn Creek then exits beneath Barbertown Road through an existing box culvert, and is conveyed southwest through a gabion basket lined channel (**Photograph 2**) to its confluence with the Credit River. No other drainage features, including ephemeral watercourses, were identified on the subject property.

Photograph 2. Carolyn Creek Offsite and South of Barbertown Road

Sampling of the fish community in Carolyn Creek within the property boundaries was completed on October 27, 2015. An abundance of Creek Chub (*Semotilus atromaculatus*) and occasional Blacknose Dace (*Rhinichthys atratulus*) were identified within the watercourse. Alteration to habitat and removal of riparian vegetation, as well as the offsite alteration to the downstream watercourse, may account for the lack of species diversity noted in the watercourse.

4.2 Terrestrial Resources

The majority of the subject property is comprised of anthropogenic uses such as buildings and driveways, or has been maintained as lawn. Natural and semi-natural vegetation communities are described in greater detail below.

4.2.1 Vegetation Communities

ELC Unit 1: Anthropogenic/Manicured

This portion of the site consists of mowed lawn and various planted trees, including spruces (*Picea* spp.), pines (*Pinus* spp.), Black Walnut (*Juglans nigra*), Reddish Willow (*Salix* x *sepulcralis*), apple (*Malus* sp.), White Birch (*Betula papyrifera*), Horse-chestnut (*Aesculus hippocastanum*), and various others.

ELC Unit 2: Coniferous Plantation

There are several coniferous plantations on the subject property.

ELC Unit 2a is comprised of spruce and Scotch Pine (*Pinus sylvestris*). The understory consists of Common Buckthorn (*Rhamnus cathartica*) and Choke Cherry (*Prunus virginiana*). Ground covers include Motherwort (*Leonurus cardiaca*), Wild Strawberry (*Fragaria virginiana*), Kentucky Blue Grass (*Poa pratensis*) and Dandelion (*Taraxacum officinale*).

ELC Unit 2b is a mix of spruce, pine, and fir. The understory and ground covers are minimal.

ELC Unit 2c is mix of Red Pine (*Pinus resinosa*), White Pine (*Pinus strobus*), and spruces. The understory is sparse but includes Common Buckthorn, Chokecherry, Wild Red Raspberry (*Rubus ideaus* ssp. *strigosus*), and White Ash (*Fraxinus americana*). Ground covers include Spiked Sedge (*Carex spicata*), Garlic Mustard (*Alliaria petiolata*), Wild Strawberry, and Dandelion.

ELC Unit 3: Cultural Woodland

This community is located along the railroad embankment adjacent to the subject property. Canopy cover is sparse to open and includes Black Walnut (*Juglans nigra*), Manitoba Maple (*Acer negundo*), Norway Maple (*Acer platanoides*), and Bur Oak (*Quercus macrocarpa*). The subcanopy and understory and dominated by hawthorns (*Crataegus* sp.), Common Buckthorn, apple, and Black Walnut. Ground covers include Garlic Mustard, Canada Avens (*Geum canadense*), Thicket Creeper (*Parthenocissus vitacea*), Enchanter's Nightshade (*Circaea lutetiana*), and Dame's Rocket (*Hesperis matronalis*).

ELC Unit 4: Dry-Fresh Oak-Hardwood Deciduous Forest

This mature forest community is located on a steep slope in the central portion of the property. The forest is dominated by Red Oak (*Quercus rubra*) in association with Basswood (*Tilia americana*), Sugar Maple (*Acer saccharum*), Black Cherry (*Prunus serotina*), and White Pine. Trees are generally 10-24 cm in diameter, with occasional trees 25-50 cm diameter. The understory consists of Chokecherry, Sugar Maple, and White Ash. Ground covers are sparse but include Sugar Maple seedlings, Zig-zag Goldenrod (*Solidago flexicaulis*), Urban Avens (*Geum urbanum*), and Garlic Mustard.

ELC Unit 5: Fresh-Moist Lowland Deciduous Forest (FOD7)

This community is a disturbed lowland forest dominated by Manitoba Maple, Reddish Willow, and Green Ash (*Fraxinus pennsylvanica*). The understory is dominated by Common Buckthorn. Dominant ground covers are Dame's Rocket, Zig-zag Goldenrod, Urban Avens, and Thicket Creeper.

ELC Unit 6: Fresh-Moist Lowland Deciduous Forest (FOD7)/Cultural Woodland (CUW1)

This community is located within the Credit River floodplain adjacent to the property. This is a highly disturbed environment, with a variable canopy consisting of Manitoba Maple, Reddish Willow, Black Locust (*Robinia pseudo-acacia*), and Basswood. Shrubs include Wild Red Raspberry, Common Buckthorn, Tartarian Honeysuckle (*Lonicera tatarica*), and Black Raspberry (*Rubus occidentalis*). Dominant ground covers are typical of disturbed floodplains, including Tall Goldenrod (*Solidago canadensis* var. *scabra*), Garlic Mustard, Urban Avens, Thicket Creeper and Dame's Rocket.

ELC Unit 7: Dry-Fresh Sugar Maple Deciduous Forest (FOD5-1)

This mature forest community occurs on a steep valley slope adjacent to the Credit River. The canopy is dominated by mature Sugar Maple, with a few Black Cherry and Basswood. The understory is dominated by Riverbank Grape (*Vitis riparia*), Chokecherry, and Tartarian Honeysuckle. Ground covers are sparse but include Tall Goldenrod, Garlic Mustard, Thicket Creeper, and Wild Strawberry.

ELC Unit 8: Mineral Meadow Marsh (MAM2)

There are several meadow marsh features in the Credit River floodplain adjacent to the site. These wetlands are variously dominated by Reed Canary Grass (*Phalaris arundinacea*), the invasive Reed Manna Grass (*Glyceria maxima*), Stinging Nettle (*Urtica dioica* ssp. *gracilis*), Forget-me-not (*Myosotis scorpioides*), Smooth Goldenrod (*Solidago gigantea*), and Tall Goldenrod.

4.2.2 Flora

A total of 127 vascular plant species were documented on and adjacent to the subject property. A complete list is provided in **Appendix C**. Nearly half (45%) of the species are non-native to Ontario. The 58 native species are common to Ontario (ranked S5 by the Natural Heritage Information Centre).

Three species are considered regionally rare (CVC 2002), including:

- Cow Parsnip (*Heracleum maximum*);
- Greater Angelica (*Angelica atropurperea*); and
- Red Pine (*Pinus resinosa*).

Cow Parsnip was recorded off-site in the Credit River floodplain and Greater Angelica occurs along the tributary in the eastern portion of the site. Red Pine was planted in multiple locations on the site and does not occur naturally.

4.2.3 Breeding Birds

A total of 24 avian species were recorded breeding or potentially breeding while one remaining species was recorded flying over or foraging within the property boundaries (**Appendix D**). The majority of sightings were of species commonly encountered in urban and urbanizing habitats, including the most abundant species in descending order: American Robin (*Turdus migratorius)*, Common Grackle (*Quiscalus quiscula*), Northern Cardinal (*Cardinalis cardinalis*) and House Wren (*Troglodytes aedon*).

Although most of the landscape is manicured and typically supports a limited level of ecological function, breeding bird observations were made throughout the subject property. A higher concentration of avian life was noted in the fragments of woodland habitat and the narrow riparian corridor. As is to be expected in habitat of this nature, no obligate forest interior birds were observed and instead, a number of species often associated with woodland edges were noted, including Baltimore Oriole (*Icterus galbula),* Blue-gray Gnatcatcher (*Polioptila caerulea*) and Indigo Bunting (*Passerina cyanea*).

No national or provincial Species at Risk or 'provincially rare' bird species (ranked as S1-S3, Critically Imperiled through Vulnerable, by Natural Heritage Information Centre, MNRF) were recorded.

Birds that require larger tracts of suitable habitat in which to breed, or those that have a higher breeding success in larger areas of suitable habitat, are considered "area-sensitive" species. The following three forest area-sensitive species were encountered on the subject property: Cooper's Hawk (*Accipiter cooperii*), Blue-gray Gnatcatcher and Hairy Woodpecker (*Picoides villosus*). The Cooper's Hawk observation was of a hunting bird and no nest was located. Given the size and habitat continuity off-site, it is likely the nest site of this bird was beyond the property limits. Blue-gray Gnatcatchers are small active birds typically found in moist woodlands or edge habitats and although populations are stable, they are very susceptible to nest parasitism and subsequent nest failure. Two pairs of this species were present. Hairy Woodpeckers are amongst the most frequently observed area-sensitive species in the GTA (i.e., they are likely to be somewhat less sensitive than others considered area-sensitive). A single pair of this species was observed.

4.2.4 Amphibians

The two breeding amphibian surveys were completed on April 16 and May 6, 2015 and focussed on two specific areas with the potential to provide breeding habitat, as shown on **Figure 2**.

The surveys conducted through the spring revealed no vocalizing amphibians, however American Toads (*Bufo americanus)* were heard outside of the subject property limits in the valleyland to the south. Background noise was constant and unavoidably high at the time of survey, so a precise number was not determined.

4.3 Species of Conservation Concern

A response from the Aurora District MNRF was received February 23, 2015 indicating that there are no records of Species at Risk recorded for the property. It was indicated that Species at Risk recorded in the vicinity include the provincially Endangered Butternut (*Juglans cinerea*), the provincially Threatened Chimney Swift (*Chaetura pelagica*) and two species of Special Concern, Milksnake (*Lampropeltis triangulum*) and Snapping Turtle (*Chelydra serpentina*).

4.4 Other Wildlife Attributes

Wildlife observed on the subject property during field investigations and site visits was recorded. This includes the following mammal species:

- Gray Squirrel (*Sciurus carolinensis)*;
- Red Squirrel (*Tamiasciurus hudsonicus*);
- Eastern Cottontail (*Sylvilagus floridanus*);
- White-tailed Deer (*Odocoileus virginianus*); and
- Coyote (*Canis latrans*).

These species are commonly observed in the rural landscape of southern Ontario. None of these species are Endangered or Threatened or of Special Concern. Other common mammals, especially urban tolerant ones, are also likely to occur.

No snakes were observed during the field surveys, however, it is expected that the common Eastern Garter Snake (*Thamnophis sirtalis*) occurs in the area.

It is anticipated that the adjacent valley corridor of the Credit River provides significant wildlife habitat as identified in Table 5 of the Region of Peel Official Plan. Field work completed onsite did not provide indication that the Carolyn Creek natural corridor provides this function, although there may be areas of deer wintering, snake hibernacula or bat habitat that may be found in the wooded areas.

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.

In the fragmented landscape of southern Ontario, connectivity functions range from low, where major development features (e.g., highways) fragment a pathway, to high, where natural features dominate the landscape and connectivity is more or less contiguous and is not broken by roads or other linear infrastructure.

The subject property occurs in an area where the local landscape has been altered through past and present anthropogenic use. From a wildlife perspective, the property is situated immediately south of a railway corridor, and may have moderate impact as a result of roadways to the south that present terrestrial barriers to wildlife movement and possible hazard. The greater area is also adjacent to existing residential development, with the associated disturbance of noise, light and human activity expected in proximity to anthropogenic use and a transportation corridor.

The predominant opportunity for wildlife use in the area is centred around the natural valley and corridor of the Credit River valley to the west and Carolyn Creek to the east. As a result of existing land use there may be some disturbance resulting from the maintenance of a manicured condition surrounding

the existing residences, as such, high quality linkage opportunities are limited to the existing watercourse corridors.

5. Summary of Key Natural Heritage Features and Functions

The following table is a summary of the key functions and attributes, their sensitivities and general location within the subject property.

Table 1. Key Functions and Attributes

Feature or Function	Sensitivity Level	Assessment of Sensitivity	Location(s)
Carolyn Creek – riparian corridor	Moderate/ High	• Provides corridor for urban-tolerant wildlife and breeding birds • Varying amounts of disturbance (more in the south) and quality of riparian woodland (higher quality in north) • Potential impact from stormwater management, site grading, adjacent land use, etc.	Eastern portion of subject property
Carolyn Creek – permanent watercourse provides direct fish habitat	Moderate/ High	• Supports fish habitat • Anthropogenic use identified through past grading of banks and slope • Already subject to urban effects of noise, light, dust and physical use	Eastern portion of subject property
Credit River	High	• Supports fish habitat • Potential impact from stormwater management, site grading, adjacent land use, etc.	Offsite to the east and south of subject property

As the majority of the subject property is represented by areas of manicured lawn with existing residential use and the existing vegetative communities within the proposed development limit are dominated by non-native species, the key natural heritage features associated with the property are identified as the watercourse and valley features of the Credit River and Carolyn Creek corridors.

6. Proposed Development

The proposed development consists of a residential community with 75 townhouse units in a mix of block sizes with access from Barbertown Road (C.F. Crozier, 2019). The site is proposed to be serviced

by an existing 675 mm sanitary sewer and 1500 mm diameter watermain servicing along Barbertown Road. Stormwater drainage is proposed to be directed to a designated drainage block (10m x 90m) west of the site access with stormwater quantity and quality provided. Drainage will then be conveyed through a storm sewer beneath Barbertown Road with discharge directed to the existing gabion basket lined portion of Carolyn Creek, prior to its confluence with the Credit River. This design has been studied by a fluvial geomorphologist to determine that the receiving watercourse will not be affected by the flows (GEO Morphix 2017).

The site is currently constrained during the regulatory flood event. A safe access study was completed by Crozier to address the existing hazard condition of the access road. A concrete span culvert is proposed with dimensions of 15m x 21.9m x 1.5m, which will also serve as a wildlife crossing. An analysis of this design was completed relative to wildlife passage. The recommended Openness Ratio for deer is 0.6 -1.0, which meets the above result for each culvert. However, it is noted that deer will use structures with lower openness ratios (MTO 2015). Although both deer and coyote are expected on or adjacent to the site, neither should be a 'target' species for design. In terms of sizing, the culvert will accommodate smaller wildlife as well. Funnelling fencing, berming or retaining wall is recommended in order to make use of the crossing more effective, particularly if a specific species was identified as needing passage.

An arborist assessment of trees on the property were completed as part of this study (Strybos Barron King 2018), with recommendations for removal or retention.

In addition, staking of the feature limits was previously completed with CVC (by others), with both a staked vegetative limit and top of bank. Minor encroachments into the buffer of the significant woodland are proposed to accommodate grading associated with a crash berm along the northern limit of the site adjacent to the railway, with additional areas provided to compensate for this encroachment. This is identified both on **Figure 3**, and the Site Plan prepared by RN Design Limited (2019). Overall, the encroachments indicated in the proposed development plan will impact the first approximate 5 m adjacent to the development of the overall 10 m buffer to the woodland to the north to accommodate a railway berm, for a total area of 0.032 ha (not including the access road). A total of 0.036 ha are proposed to provide compensation for the encroachments into the buffer to the natural area which are predominantly maintained as manicured lawn as indicated on **Figure 4**. In addition, lands beyond the development limit are proposed for restoration as shown in a detailed landscape plan (Beacon 2019). This includes the naturalization of areas adjacent to Carolyn Creek, as well as a section of land at the western extent adjacent to the Credit River Valley, where native plantings are proposed to enhance the existing landscape.

From comments received May 2019, it is our understanding that the City has requested a separation distance of the retaining wall from natural features, and an enhanced stormwater management design for onsite treatment and storage. These items are to be addressed through subsequent engineering submissions.

Development Plan

Figure 3

1725 Barbertown Road
Mississauga, Ontario

Legend

- Subject Property
- Proposed Development
- Watercourse
- Composite Constraint
- Development Limit

UTM Zone 17 N, NAD 83

First Base Solutions
Web Mapping Service 2018

0 15 30 60 Metres

1:1,850

Project 214250
May 2019

BEACON ENVIRONMENTAL

C:\Dropbox\Dropbox (Beacon)\All GIS Projects\2014\214250\MXD\214250_Figure03_DevelopmentPlan_20161125.mxd

Gain/Loss

Figure 4

1725 Barbertown Road
Mississauga, Ontario

Legend

- Subject Property
- Proposed Development
- Watercourse
- Composite Constraint
- Development Limit
- Addition (0.036 ha)
- Encroachment (0.032 ha)

UTM Zone 17 N, NAD 83

First Base Solutions
Web Mapping Service 2018

0 15 30 60 Metres

1:1,850

Project 214250
May 2019

BEACON ENVIRONMENTAL

C:\Dropbox\Dropbox (Beacon)\All GIS Projects\2014\214250\MXD\214250_Figure04_GainLoss_20180430.mxd

7. Impact Assessment and Mitigation

7.1 Assessment of Impact

The study area is subject to disturbance from existing land use and its support of natural heritage features and functions of adjacent corridors of the Credit River and Carolyn Creek. Development of the subject property will result in localized ecological disturbance, and a loss of habitat for the urban tolerant species found on the site.

7.1.1 Potential Impacts to the Valley and Stream Corridor

The valley corridor of both Carolyn Creek and the Credit River will be protected by a buffer of the greater of a 30m buffer from the watercourse, and a 10m buffer applied to the staked top of bank, dripline or buffer to floodplain. Overall, minimal grading is proposed adjacent to the buffer or within the first 5 m of the development limit adjacent to the railway as indicated on **Figure 3**, with grades proposed to maintain overland sheet flow of rear yards to the valley. The alignment of the access road will result in an encroachment into the 30m buffer of the watercourse and 10m buffer to floodplain. This location is maintained as manicured lawn, and has been subject to anthropogenic disturbance. Without implementation of mitigation measures, the closer proximity to the watercourse could result in sediment entering the watercourse during construction, as well as uncontrolled run-off of stormwater following construction.

7.1.2 Potential Impacts to Vegetated Areas

The study area has been subject to past disturbance from continued maintenance through residential land use activity, with the majority of naturally vegetated areas occurring within the valley corridors, which will be protected as part of the natural heritage system.

Areas of encroachment into buffers of the natural heritage system, including installation of a crash wall at the railway, and the road access alignment approaching Barbertown will result in removal of vegetation as detailed in the tree inventory (SBK 2018), and include primarily non-native species. Unmitigated, this would result in a loss of habitat for general and edge species that are tolerant to disturbance.

7.1.3 Impacts resulting from Construction and Occupancy

The summary below provides an overview of anticipated impacts associated with this development during construction and upon occupancy, on the adjacent valleylands.

The proposed development will result in the removal of manicured residential land and grading works to facilitate development. Without mitigation, potential negative environmental effects of the proposed residential development on the adjacent watercourse and associated vegetation of both properties could include:

- Loss of anthropogenic breeding bird habitat;
- Hydrological effects on adjacent features with alteration in conveyance of surface water drainage;
- Temporary displacement of wildlife, resulting from site preparation and disturbance during construction works; and
- Soil mobilization during site grading and stockpiling of material.

Potential impacts following completion of construction and upon occupancy could include:

- Domestic pets venturing into the natural area, with potential predation on wildlife;
- Garbage/composting in natural areas;
- Indirect noise and light effects on wildlife;
- Run-off from streets entering the valleyland;
- Trampling and cutting of valleyland vegetation by residents;
- Run-off of lawn chemicals into adjacent natural areas; and
- Intrusion of people into surrounding natural areas.

7.2 Mitigation

The natural heritage attributes and functions of Carolyn Creek and the adjacent Credit River valley feature are important, are of high sensitivity, but have been subject to the effects of adjacent land use. Buffers are required to ensure adequate protection of the top of bank and natural features, as well as the protection of habitat fish and wildlife utilizing the riparian habitat.

The following provides recommended elements of environmental protection and enhancement measures that the proposed development should incorporate into the development design and approvals, including:

- Application of a 10 m buffer from top-of-bank previously staked by CVC;
- Application of a 10 m buffer from the regulatory flood limit;
- Application of a varying buffer with area greater than a 10 m buffer from identified significant woodlands. Minor encroachment will occur in an area identified for construction of a railway berm;
- Application of a 10 m buffer from non-provincially significant wetlands;
- Application of a 30 m buffer from the bankfull width of Carolyn Creek and the Credit River for the protection of the watercourse and fish habitat;
- Retention of native woody vegetation within identified buffers and riparian area associated with the valley corridor; and
- Enhancement through expansion of the valley corridor vegetative buffer where possible and indicated on **Figure 3**, with conveyance of these lands to the City or CVC.

A development limit is indicated on **Figures 2** and **3** and represents the greatest constraint of all natural features and their applicable buffers. Presently the existing site plan has minor encroachment into the first 5m of the overall 10 m buffer to the woodland at the location of the proposed railway berm, as well as encroachment into the 30m watercourse and 10m floodplain buffer for the access road. A gain/loss analysis was completed as demonstrated in **Figure 4**, which details areas of compensation. The areas

of encroachment and temporary grading occur within lands that are presently manicured and will apply to portions of rear yards of various lots, as well as the buffer to the staked vegetative limit along the railway corridor.

The following recommendations are also provided for further mitigation of the proposed development:

- Develop and implement a comprehensive erosion and sediment control (ESC) plan to the satisfaction of the City and CVC to ensure adequate protection to retained features;
- To maintain slope stability, ensure the ESC plan maintains vegetative cover within the buffer area, and ensure that concentrated run-off is not permitted to drain onto the bank face;
- Utilize standard Best Management Practices (BMPs) during the construction process;
- Conduct vegetation removal from the tablelands in accordance with the *Migratory Birds Convention Act*, with the removal of vegetation completed outside of the period April to August. For any proposed clearing of vegetation within these dates, or where birds may be suspected of nesting outside of typical dates, an ecologist should undertake detailed nest searches immediately prior to site alteration to ensure that no active nests are present;
- Implement a restoration design with native species to enhance the existing buffers to the corridor of Carolyn Creek and the Credit River, increasing tree canopy coverage and providing additional native vegetative cover where feasible; and
- Install permanent fencing along the rear lot line to manage access to the adjacent natural features.

8. Summary and Conclusions

A background review, detailed field investigations and information from the previous staking of natural features with the Credit Valley Conservation Authority (by others) were undertaken as part of a development application for the subject lands. A constraint analysis was performed to identify sensitive and significant natural heritage features and functions on the site. The results of this analysis were used to confirm the limits of the natural features. These limits were used to establish the proposed buffer to the natural feature, and in our opinion provide sufficient protection of the identified environmental constraints.

The EIS has identified that the subject property supports natural heritage features that are confined to the adjacent Credit River and Carolyn Creek valleylands. The property is situated between two areas of significant valleyland and has been subject to past alteration and grading, as well as continued residential use. A combined compensatory and mitigative approach was designed and applied that relies on protection and improvements to the corridor of the adjacent valley features and the disturbed area of the floodplain and buffer. No significant impacts to valleyland features and functions are anticipated under the current proposal, with minor encroachment into the buffer of the significant woodland compensated for through the addition of area greater than what the buffer would afford. Local connectivity within the subject property is therefore maintained through the protection and preservation of the Carolyn Creek corridor.

Although the property is identified within the City of Mississauga Green Areas, it is apparent through further study and review of background documents, that the majority of the subject property does not

contain natural heritage features and is predominantly maintained as manicured lawn with ornamental plantings and individual mature trees.

Determination of an appropriate buffer considers assessment of the existing natural heritage features on and adjacent to the subject property. Consistent with Policy 6.2.1c) of the CVC *Watershed Planning and Regulation Policies* document (2010), following feature staking with CVC and assessment of existing natural heritage features relative to the proposed land use, the EIS has identified a development limit that provides adequate protection of the natural features and environmental constraints.

It is our opinion that the proposed development limit which is driven by natural features and their associated buffers, will provide sufficient protection to natural heritage features identified on and adjacent to the subject property, and when combined with restoration plantings will minimize impacts resulting from development.

Report prepared by:
Beacon Environmental

Julianna MacDonald, B.Sc., MES (Pl)
Senior Planning Ecologist

Report reviewed by:
Beacon Environmental

Donald M. Fraser, M.Sc.

9. References

Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (eds.). 2007.
Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto. xxii + 706 pp.

C.F. Crozier & Associates Inc. 2019.
Functional Servicing and Preliminary Stormwater Management Report, 1725 Barbertown Road Residential Development. CFCA File No. 1019-3988.

City of Mississauga. 2007.
City of Mississauga Zoning By-law No. 0225-2007.

City of Mississauga. 2012.
City of Mississauga Tree By-law No. 0254-2012.

City of Mississauga. 2014.
City of Mississauga Natural Areas Survey.

City of Mississauga. 2018.
City of Mississauga Official Plan – Office Consolidation. January 10, 2018.

Credit Valley Conservation (CVC) and Toronto and Region Conservation (TRCA). 2014.
Evaluation, Classification and Management of Headwater Drainage Features Guidelines. Approved July 2013 (Finalized January 2014).

Credit Valley Conservation (CVC) and Toronto and Region Conservation (TRCA). 2010.
Low Impact Development Stormwater Management Planning and Design Guide.

GEO Morphix Ltd. 2017.
Carolyn Creek Erosion Control and Mitigation. Prepared for Barbertown Ventures Inc. Project No. PN17104. September 20, 2017.

Glen Schnarr & Associates Inc. 2018.
Planning Justification Report – Amendment, Zoning By-law Amendment & Draft Plan of Subdivision, 1725 Barbertown Road, City of Mississuaga.

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998.
Ecological Land Classification for Southern Ontario: First Approximation and Its Application. Ontario Ministry of Natural Resources. SCSS Field Guide FG-02. 225 pp.

Ontario Ministry of Municipal Affairs and Housing. 2014.
Provincial Policy Statement, Under the Planning Act.

Ontario Ministry of Natural Resources. 2000.
Significant Wildlife Habitat Technical Guide. 151 pp.

Ontario Ministry of Natural Resources. 2006.
Ontario Regulation 160/06. Credit Valley Conservation Authority: Regulation of development, interference with wetlands and alterations to shorelines and watercourses. Printed in the Ontario Gazette: May 20, 2006.

Ontario Ministry of Natural Resources. 2010.
Natural Heritage Reference Manual for Provincial Policy Statement, 2005. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp.

Ontario Ministry of Natural Resources. 2012.
Technical Definitions and Criteria for Key Natural Heritage Features in the Natural Heritage System of the Protected Countryside Area (Greenbelt Plan 2005). Technical Paper 1. Dec. 7, 2012.

Ontario Ministry of Transportation (MTO). 2015.
Environmental Guide for Wildlife Mitigation. March 2015.

Province of Ontario. 2007.
Endangered Species Act (S.O. 2007).

Regional Municipality of Peel. 2016.
The Regional Municipality of Peel Official Plan. Office Consolidation 2016.

RN Design Limited. 2019.
Concept Site Plan. Drawing No. SP-100. Project No. 14113. January 29, 2019.

Strybos Barron King. 2018.
Tree Inventory and Preservation Plan. Project No. 18-5184. Drawing No. V100. May 4, 2018.

Appendix A

Terms of Reference

Monday, April 27, 2015 BEL 214250

City of Mississauga
Attn. Aiden Stanley, Planner
Development and Design Division
Planning and Building Department
300 City Centre Drive
Mississauga, ON L5B 3C1

Via email: Aiden.Stanley@mississauga.ca

Re: Terms of Reference for Scoped Environmental Impact Study (EIS)
1725 Barbertown Road, Mississauga, Ontario

Dear Mr. Stanley:

Beacon Environmental Ltd. (Beacon) has been retained by Sterling Homes Inc. to prepare a Scoped Environmental Impact Study (EIS) for the re-development of 1725 Barbertown Road (Part of Lot 1, Concession 4), northeast of Eglinton Ave. West and Queen Street South, in the City of Mississauga. It was agreed at our pre-consultation meeting on January 14th, 2015 with yourself, Lawrence Franklin (City Urban Designer), Dorothy DiBerto (Planner, Credit Valley Conservation (CVC)) and others, that a Terms of Reference for a Scoped Environmental Impact Study (EIS) should be developed as part of the approval process. This letter provides the proposed Terms of Reference.

Planning Context

The majority of the subject property is identified within the City of Mississauga Land Use map as Greenbelt, contrary to mapping provided by the Ministry of Municipal Affairs and Housing, which depicts only a River Valley Connection as per Schedule 1: Greenbelt Plan Area. The current land use is low density residential, with three separate residences situated on the manicured property. The development proposal for this property will intensify use of the current development area. The proposal will not directly encroach on the adjacent Natural Area of the Credit River valley, or the linkages between this Natural Area and Carolyn Creek to the east.

The City's Official Plan requires that an EIS be completed for any proposed development within or adjacent to a Natural Area. Specifically, policy 6.3.1.13 of the Mississauga Official Plan (2011) states that:

> *Development and site alteration will not be permitted within or adjacent to Natural Areas, Linkages and Special Management Areas unless it has been demonstrated that there will be no negative impacts to the features and ecological functions of the Natural Areas System. An Environmental Impact Study (EIS) will be required and the Terms of Reference will be provided by the City. The EIS will be approved by the City, in consultation with the relevant conservation authority, at the early stages of a proposal's consideration. The EIS will delineate*

the area to be analysed, describe existing physical conditions, identify environmental opportunities and constraints, and evaluate the ecological sensitivity of the area in relation to a proposal. It will also outline measures to protect, enhance, and restore the natural features, area and linkages including their ecological functions.

At the pre-consultation meeting between the proponent's technical team, the City of Mississauga and CVC it was confirmed that:

- the site is regulated by CVC, and CVC would provide an advisory role to the City, as per the City's request;
- the field surveys required for this site would consists of: vegetation and aquatic habitat surveys to be determined through consultation with CVC, incidental observations of wildlife, and screening for Species at Risk (SAR); and
- the EIS should include evaluation of the woodland, with opportunities for tree replacement, naturalization and habitat enhancements opportunities for wildlife within the Natural Area and associated linkages.

The Study Area for this EIS will include the Subject Property, and Natural Areas associated with Credit River and Carolyn Creek systems.

Background Review

Background sources to be reviewed as part of this study will include:

- City of Mississauga Natural Areas Inventory data for Central Erin Mills (CRR4 and CRR5) and associated Fact Sheets
- MNRF Natural Heritage Information Centre (NHIC) database
- Available Data on Fish Records and Habitat from CVC
- Natural heritage species records from CVC
- Ontario Breeding Bird Atlas data
- Ontario Herpetofaunal Summary Atlas data
- Historical and current aerial photography
- Soils and topographic mapping, and
- Tree inventory work completed by Beacon Environmental.

Field Studies

Amphibian Surveys (April 2015)

One evening breeding amphibian survey will be conducted in April to assess the diversity and abundance of early season frog and toad species on the property according to the Marsh Monitoring Program (MMP) protocols, the standard methodology for breeding amphibian surveys in Ontario.

Due to the limited wetland habitat onsite, and absence of permanent standing water, later seasonal investigations for amphibians have not been included.

Vegetation and Riparian Habitat Assessment (May/June 2015)

A single site visit will be completed in May/June to assess the terrestrial and aquatic vegetation, including the location and distribution of any rare, uncommon or of concern species that is encountered in the process of the field work, which will be documented and described in the EIS. This will be completed through field investigations applying Ecological Land Classification (ELC) and mapping to "Vegetation Type" (the highest level of detail) for the study area.

Breeding Bird Surveys (June 2015)

Breeding bird surveys will be undertaken for the entire study area, and to address the presence/absence of Species at Risk. This will consist of two early morning roving surveys in which the entire site is walked to within 50 m of its edge and all representative habitats will be sampled. The site visits will be made at least one week apart in accordance with standard southern Ontario breeding bird survey protocols. An annotated species list will be compiled indicating local rarity (TRCA L-ranks), provincial breeding status (S-ranks), as well as any provincial and federal endangered and threatened species that might be encountered.

Aquatic Assessment (June 2015)

Carolyn Creek, a tributary of the Credit River, is located to the east of the proposed development. This assessment will determine the function of the tributary and assess potential impacts of the proposed development to the feature. We anticipate that sufficient information from CVC is available on fish community data for the Credit River, and as such have only included a fish sampling program for Carolyn Creek for the purpose of this EIS.

Other Wildlife (April, May and June 2015)

Other wildlife such as birds, mammals and reptiles observed on the subject property over the course of the field season in conjunction with other field surveys will be recorded as incidental observations.

Species at Risk (SAR)

Based on initial consultation with the Ministry of Natural Resources and Forestry (MNRF) it is our understanding that Carolyn Creek, and the adjacent reach of the Credit River are not regulated as habitat for the Provincially Endangered species Redside Dace (*Clinostomus elongatus*).

MNRF have indicated that there are no records of species at risk on the property. However, species at risk recorded in the vicinity and to be looked for include Butternut (endangered), Chimney Swift (threatened), Milksnake (special concern) and Snapping Turtle (special concern), with screening for these and other listed species and their habitat completed during field investigations.

Assessment and Reporting

An EIS report will be prepared in accordance with the City of Mississauga's EIS generic Terms of Reference (2002) that includes the following:

1. Introduction

   This section of the report will include the purpose, objectives, and scope of the study, as well as a general description of the site and the site location.

2. Description of the Proposal

   A concise overview of the development proposal with a conceptual site plan, historic and existing land uses of the subject property and adjacent lands, zoning, and general areas of filling and/or grading and/or drainage modifications.

3. Site Description and Landscape Context

   This section will include: a list of background information sources consulted, a description of the methods used and timing of field surveys to characterize the site's natural heritage features and functions. Targeted inventories completed for this EIS will provide current information about the aquatic and terrestrial resources within and adjacent to Natural Areas, applicable environmental designations, and mapping of both existing conditions and environmental constraints.

   The site description will include an assessment of surficial soils, topography, surface drainage patterns, flora, fauna, fish habitat and natural features using available information from background resources and field work. Information will be presented using summary text descriptions, photos, tables, figures, and appendices.

4. Evaluation of the Effects on the Environment

   Based on the findings of the EIS, we will describe the sensitivity of the features and functions, and describe the anticipated impacts of the development of these features and functions in terms of potential direct, indirect, and cumulative effects both during construction and upon occupancy.

5. Description of Mitigation Measures

   For this section we will prepare recommendations for development on the property, including any best management practices to protect and enhance the natural heritage features and functions, and appropriate mitigation to prevent or minimize any anticipated impacts (e.g. buffers/setbacks, restrictions on timing of works, and the rehabilitation of disturbed areas).

6. Policy Conformity

   The proposed development will be reviewed in context of applicable federal, provincial, municipal and conservation authority policies and regulations to ensure that the development is in compliance with them.

7. Recommendations

The concluding section will summarize our recommendations related to the appropriateness of the proposal in relation to applicable natural heritage policies and guidelines, as well as any recommendations related to appropriate mitigation and enhancement measures. Literature and sources cited (including experts contacted) will also be appended at the end of the EIS.

8. Appendices

These will include any relevant correspondence, and natural heritage data collected (including relevant data from background sources supplemented by site-specific field work).

Should you have any questions, please do not hesitate to contact the undersigned at (905) 201-7622 x225.

Yours truly,

Julianna MacDonald, B.Sc., MES (Pl)
Planning Ecologist

Cc:	Josh Campbell, CVC	JCampbell@creditvalleyca.ca
	Eric James, CVC	ejames@creditvalleyca.ca
	Jim Levac, Glen Schnarr & Associates Inc.	JimL@GSAI.ca
	Joe Kodjian, Landowner Representative	jkodjian@gmail.com
	Paul Federico, Sterling Group	pfederico@sterlinggroup.ca

From: Aiden Stanley <Aiden.Stanley@mississauga.ca>
Sent: June 25, 2015 11:57 AM
To: Julianna MacDonald
Cc: Eva Kliwer; LBruce@creditvalleyca.ca; John Sakala
Subject: RE: 1725 Barbertown Road, Mississauga Termsof Reference

Hi Julianna:

See below comments from Eva Kliwer, City of Mississauga and Lindsey Bruce, CVC based on the draft EIS Terms of Reference for 1725 Barbertown Road. Please address the noted items and provide a revised document for our review.

Let me know if you have any questions.
Regards,
Aiden

MISSISSauGa

Aiden Stanley MCIP, RPP
Planner, Development Central Area
905-615-3200 ext.3897
aiden.stanley@mississauga.ca

City of Mississauga | Planning and Building Department,
Development and Design Division

The terms of reference for an Environmental Impact Study as outlined in the letter dated April 27, 2015 for the proposed redevelopment of lands at 1725 Barbertown Road, adjacent to Natural Area CRR5, need to be revised to incorporate comments from staff of Credit Valley Conservation as per the email from Lindsey Bruce (June3, 2015 (copied below)). These revisions will result in a better alignment with the City's and CVC's generic terms of reference.

The Planning Context in the terms of reference should be revised to indicate that the lands are designated Greenlands in Mississauga Official Plan. Prior to approval of Official Plan Amendment 27, the lands were designated Greenbelt in Mississauga Official Plan (MOP). This section should provide a summary of the Greenlands land use designation permitted uses as well as the MOP Natural Heritage policies. In addition, the lands are zoned Greenbelt in Mississauga's Zoning By-law to only permit the existing residences. It should also be noted that the site is included in the Region of Peel Official Plan as Core Greenlands. Subsequent sections of the EIS should demonstrate why any changes to the current land use designation and zoning and any further development of the site may be appropriate.

The site description and landscape context section(#3.) should also include a discussion of landforms to establish the relationship with theCredit River and Carolyn Creek valleylands and whether or not the site is located within a significant valley landfeature.

CVC staff has reviewed the proposed Terms of Reference for the EIS prepared by Beacon Environmental dated April 27th, 2015 and provides the following comments:

The TOR for the EIS was not prepared using CVC's EIS guidelines, but is generally acceptable. Provided the following items are addressed/clarified, the TOR will be considered sufficient.

1. Amph ibian Survey: eve notes that the timing for the proposed amphibian survey {April 2015) has already passed. Should amphibian habitat exist on-site, as assessed by the EIS vegetation assessment, a more robust amphibian survey consistent with the *Marsh Monitoring Protocol (CWS and Bird Studies Canada)* or *North American Amphibian Monitoring Program (USGS) would be required {i.e.: three visits between April and June).*

2. Vegetation and Riparian Habitat Assessment:
   a) Species lists associated with the vegetation inventory should be on a per -polygon basis.
   b} The location of any rare, uncommon or of concern species should be geo-referenced; rare or uncommon species determination should also be based upon "Vascular Plant Flora of the Region of Peel and the Credit River Watershed" (Kaiser, 2001and amendments). We may request detailed mapping of the species occurrence at a later date.
   c) Visually verify the adjacent properties vegetat ion resources as identified by CVC's ELC Community Series mapping, including dominant species.

3. Wildlife habitat: Depending on the findings of the vegetation and wildlife surveys, additional information or surveys may be warranted, for example, specialized surveys in order to appropriately address significant wildlife habitat.

4. Aquatic assessment: The draft TOR mentions a 'fish sampling program for Carolyn Creek' but does not provide any information on what is proposed. Please clarify. Provided that the development is located outside of the watercourse, its associated valley, floodplain and vegetation and a suitable buffer, then a fish sampling program would not be required. However if this is not the case and it is the opinion of the environmental consultant that there will be impacts to the fish community or watercourse than please refer to CVC's EIS gu idelines for the recommended items to be included in an aquatic assessment:
   a) Determine and map the location and distribution of fish habitat and species, particularly spawning and other critical habitats, eg. refuge pools, and benthic organisms as per the *OMNR's Stream Assessment Protocol for Southern Ontario, Version 4.1, 2000.*
   b} Define watercourse flow characteristics with particular emphasis on identifying permanent and seasonal fisheries habitat use.
   - If no fish habitat is found onsite, identify contributing functions, e.g. flow and sediment regime, water quality, vegetation as food source, etc.
   - Identify channel characteristics, e.g. width, depth, substrate, meander and valley confinement.
   - Identify riparian characteristics.

5. Appendices: Please note that copies of data collection cards should be provided along with the EIS report.

6. Site Description and Landscape Context:
   a) The EIS must include a map of existing conditions and environmental constraints. This will delineate and identify any natural heritage features of significance based on the applicable federal, provincial, regional, municipal and conservation authority policies. Among other things would involve the assessment of woodland, wetland and valley significance , the identification of any significant wildlife habitat, and significant habitat for endangered and threatened species required ecological buff ers and setbacks, as well as other habitat features of note such as clusters of dead-standing snags, seeps/springs, erosion, wild life movement corridors (linkages to off -site features).
   b} The identification and determination of significant wildlife habitat should be made in reference to both the provincial EcoRegion Criteria for 7E4 and the Peel-Caledon Significant Woodland and Significant Wildlife Habitat report. This would include both onsite and adjacent lands.

7. Policy conformity: The draft TOR is general in its treatment of policy conformity. eve notes that the EIS should address all relevant federal, provincial, municipal and agency legislation and policies related to the natural area/sand designations that will be applied to this development and may include those contained within the:
    - Federal Acts: Fisheries Act, Species at Risk Act (i.e., implementation of Recovery Plans) and Migratory Birds Act;
    - Provincial Acts/Plans passed under provincial legislation: Endangered Species Act
    - Provincial Policy Statement (and Natural Heritage Reference Manual and relevant technical guides)
    - Upper and lower tier official plan and secondary plan;
    - Municipal Woodlot and/or Tree Removal Bylaws, and Topsoil/Fill Permits.
    - eve Policies and Regulation (e.g. Watercourse and Valley Land Protection Policies);
    - Credit River Fisheries Management Plan (e.g. Timing guidelines).

8. Description of mitigation measures: *In addition* to the examples provided in the draft TOR prepared by Beacon Environmental (i.e.: buffer/setbacks, restrictions on timing, rehabilitation of disturbed areas), eve notes the following mitigative measures which should be explored in order to eliminate or reduce potential negative impacts of the proposed development on natural area features and functions,
    - Modifying the proposal;
    - Dedication of land;
    - Stormwater management;
    - Infiltration measures;
    - Habitat improvements (eg. new turtle nesting habitat, snake hibernacula, nest boxes, etc.);
    - Additional plantings;
    - Removal of non-native, invasive species;
    - Salvaging plant material
    - Sediment control;
    - Directional or low level lighting, noise barriers, etc.

9. Description of mitigation measures A summary table outlining the predicted impacts, mitigation, monitoring and residual effects should be included in the EIS as per Appendix A in eve's EIS guidelines: htt ps:// www.creditvalleyca.ca/ wp-content/uploads/ 2011/01/005-EIS-TOR- 2007.pdf .

From: Julianna MacDonald [mailt o:jmacdonald@beaconenviro.com]
Sent: 2015/06/19 1:42 PM
To: Aiden Stanley
Cc: 'JimL@gsai.ca'; 'jkodjian@gmail.com'; 'pfederico@sterlinggroup.ca' ; 'mbialy@cachet developments.com'; Lesley Pavan; 'Bruce, Lindsey'
Subject: RE: 1725 Barbertown Ro ad, Mississauga Terms of Reference

Hi Aide n,

If you could pleaseprovide any comments on the submitt ed Terms of Reference for the 1725 Barbertown Road property. Thank you

Julianna MacDonald, B.Sc., MES (Pl) I Planning Ecologist
BEACON ENVIRONMENTAL
1 44 MainSt. North, Suite 206, Markham, ON L3P 5T3
T) 905.201.7622 x225 F) 905. 201.0639C) 416 .670.938 7
www .b eaconenviro.com

From: Bruce, Lindsey (mailto:LBruce@cred itva ll eyca.ca]
Sent: Friday, June 19, 2015 1:35 PM

To: Julianna MacDonald
Cc: 'JimL@gsai.ca'; 'jkodjian@gmail.com'; 'pfederico@sterlinggroup.ca'; 'mbialy@cachetdevelopments.com'; 'Lesley Pavan'
Subject: RE: 1725 Barbertown Road, Mississauga Terms of Reference

Hi Julianna,

Thank you for sending the hard copies.

I sent comments for the TOR to Aiden at the City of Mississauga June 3, 2015.

Regards,

Lindsey Bruce
Planner, Planning
Credit Valley Conservation
lbruce@creditvalleyca.ca | 905.670.1615 ext 220

From: Julianna MacDonald [mailto:jmacdonald@beaconenviro.com]
Sent: June 19, 2015 1:20 PM
To: Bruce, Lindsey
Cc: 'JimL@gsai.ca'; 'jkodjian@gmail.com'; 'pfederico@sterlinggroup.ca'; 'mbialy@cachetdevelopments.com'; 'Lesley Pavan'
Subject: RE: 1725 Barbertown Road, Mississauga Terms of Reference

Hi Lindsey,

As requested, two hard copies of the survey of feature staking previously completed by CVC has been sent to your office.

As well, we have not received a response from either eve or the City with regard to the attached Terms of Reference, although the field program is well under way. Please let me know if there are any comments.

Julianna MacDonald, B.Sc., MES {Pl)/ Planning Ecologist
BEACON ENVIRONMENTAL
144 Main St. North, Suite 206, Markham, ON L3P ST3
T} 905.201.7622 x225 F} 905.201.0639 C} 416.670 .9387
www.beaconenviro.com

From: Campbell, Joshua [mailto:JCampbell@creditvalleyca.ca]
Sent: Tuesday, April 28, 2015 10:52 AM
To: Julianna MacDonald
Cc: Bruce, Lindsey; James, Eric; 'JimL@gsai.ca'; 'jkodjian@gmail.com'; 'pfederico@sterlinggroup .ca'; 'mbialy@cachetdevelopments.com'; 'Lesley Pavan'
Subject: FW: 1725 Barbertown Road, Mississauga Terms of Reference

Hi Julianna,

Thanks for forwarding this information along - please note that Lindsey Bruce (CVC Planner for Mississauga files) should be the main point of contact for this file here at eve... Please ensure you send any subsequent information related to this file to her (I have copied Lindsey on this email so you have contact info).

In addition, please ensure this information is coordinated through the appropriate contact at the City- I am unsure who the City planning contact is so I have also copied Leslie Pavan to distribute as appropriat e.

Thanks,

Josh

From: Julianna MacDonald (mailto:jmacdonald@beaconen viro.com]
Sent: April 28, 2015 9:59 AM
To: 'Aiden.Stanley@mississauga.ca'
Cc: Campbell, Joshua; James, Eric; 'Jim Levac'; 'Joe Kodjian'; 'pfederico@sterlinggroup.ca'; 'Margherita Bialy'; Donald Fraser
Subject: 1725 Barbertown Road, Mississauga Terms of Reference

The attached Terms of Reference is provided for your review regarding the property identified as 1725 Barbertown Road, in the City of Mississauga.

Please don't hesitate to contact us should you have any questions or points of discussion.

Thank you,
Julianna

Julianna MacDonald, B.Sc., MES (Pl) I Planning Ecologist
BEACON ENVIRONMENTAL
144 Main St. North, Suite 206, Markham, ON L3P 5T3
T) 905.201.7622 x225 F) 905.201 .0639 C} 416.670.9387,
www.beaconenviro.com

Appendix B

MNRF Correspondence

From: ESA Aurora (MNRF) <ESA.Aurora@ontario.ca>
Sent: Monday, February 23, 2015 2:13 PM
To: Joel Davey
Cc: Julianna MacDonald
Subject: RE: 1725 Barbertown Road, Mississauga, Species at Risk Screening

Hello,

There are no records of species at risk on the property. Species at risk recorded in the vicinity and to be looked for include Butternut (endangered), Chimney Swift (threatened), Milksnake (special concern) and Snapping Turtle (special concern).

Regards,

Bohdan Kowalyk, R.P.F.
OMNRF Aurora District
905-713-6483

From: Joel Davey [mailto:jdavey@beaconenviro.com]
Sent: February-20-15 2:15 PM
To: ESA Aurora (MNRF)
Cc: Julianna MacDonald
Subject: Information Request Form: 1725 Barbertown Road, City of Mississauga

The attached Information Request Form and Site Location Figure are provided for a site in the City of Mississauga, Regional Municipality of Peel.

Your response to this query would be greatly appreciated.

Please let me know if you require any additional information.

Joel Davey, B.B.R.M. / Environmental Inspector
BEACON ENVIRONMENTAL
144 Main St. North, Suite 206, Markham, ON L3P 5T3
T) 905.201.7622 X236 F) 905.201.0639 c) 647.454.1699
www.beaconenviro.com

Appendix C

Plant Species List

Appendix C

Plant Species List

Family Name	Scientific Name	Common Name	S-RANK	CVC/PEEL
Aceraceae	*Acer negundo*	Manitoba Maple	S5	
Aceraceae	*Acer saccharum* var. *saccharum*	Sugar Maple	S5	
Anacardiaceae	*Rhus hirta*	Staghorn Sumac	S5	
Anacardiaceae	*Toxicodendron rydbergii*	Western Poison Ivy	S5	
Apiaceae	*Angelica atropurpurea*	Great Angelica	S5	rare
Apiaceae	*Cicuta maculata*	Spotted Water-hemlock	S5	
Apiaceae	*Cryptotaenia canadensis*	Canada Honewort	S5	
Apiaceae	*Daucus carota*	Queen Anne's Lace	SNA	
Apiaceae	*Heracleum maximum*	Cow-parsnip	S5	rare
Asclepiadaceae	*Asclepias syriaca*	Common Milkweed	S5	
Asclepiadaceae	*Cynanchum rossicum*	European Swallow-wort	SNA	
Asteraceae	*Arctium lappa*	Greater Burdock	SNA	
Asteraceae	*Cichorium intybus*	Chicory	SNA	
Asteraceae	*Cirsium arvense*	Creeping Thistle	SNA	
Asteraceae	*Cirsium vulgare*	Bull Thistle	SNA	
Asteraceae	*Erigeron annuus*	White-top Fleabane	S5	
Asteraceae	*Eutrochium maculatum* var. *maculatum*	Spotted Joe-pye Weed	S5	
Asteraceae	*Helianthus tuberosus*	Jerusalem Artichoke	SNA	
Asteraceae	*Hieracium caespitosum*	Field Hawkweed	SNA	
Asteraceae	*Leucanthemum vulgare*	Oxeye Daisy	SNA	
Asteraceae	*Solidago canadensis* var. *scabra*	Tall Goldenrod	S5	
Asteraceae	*Solidago gigantea*	Smooth Goldenrod	S5	

Family Name	Scientific Name	Common Name	S-RANK	CVC/PEEL
Asteraceae	*Sonchus arvensis* ssp. *arvensis*	Field Sowthistle	SNA	
Asteraceae	*Symphyotrichum cordifolium*	Heart-leaved Aster	S5	
Asteraceae	*Symphyotrichum lanceolatum* ssp. *lanceolatum*	Panicled Aster	S5	
Asteraceae	*Taraxacum officinale*	Common Dandelion	SNA	
Asteraceae	*Tussilago farfara*	Colt's Foot	SNA	
Balsaminaceae	*Impatiens capensis*	Spotted Jewel-weed	S5	
Betulaceae	*Betula papyrifera*	Paper Birch	S5	
Betulaceae	*Ostrya virginiana*	Eastern Hop-hornbeam	S5	
Boraginaceae	*Cynoglossum officinale*	Hound's-tongue	SNA	
Boraginaceae	*Myosotis scorpioides*	True Forget-me-not	SNA	
Brassicaceae	*Alliaria petiolata*	Garlic Mustard	SNA	
Brassicaceae	*Hesperis matronalis*	Dame's Rocket	SNA	
Caprifoliaceae	*Lonicera tatarica*	Tartarian Honeysuckle	SNA	
Caryophyllaceae	*Stellaria graminea*	Little Starwort	SNA	
Convolvulaceae	*Calystegia sepium*	Hedge Bindweed	S5	
Cornaceae	*Cornus alternifolia*	Alternate-leaf Dogwood	S5	
Cornaceae	*Cornus racemosa*	Gray Dogwood	S5	
Cornaceae	*Cornus sericea* ssp. *sericea*	Red-osier Dogwood	S5	
Cucurbitaceae	*Echinocystis lobata*	Wild Mock-cucumber	S5	
Cupressaceae	*Juniperus* sp.	Juniper Species		
Cupressaceae	*Thuja occidentalis*	Northern White Cedar	S5	
Cyperaceae	*Carex blanda*	Woodland Sedge	S5	
Cyperaceae	*Carex spicata*	Spiked Sedge	SNA	
Dipsacaceae	*Dipsacus fullonum* ssp. *sylvestris*	Common Teasel	SNA	
Dryopteridaceae	*Matteuccia struthiopteris* var. *pensylvanica*	Ostrich Fern	S5	
Equisetaceae	*Equisetum arvense*	Field Horsetail	S5	
Fabaceae	*Amphicarpaea bracteata*	Hog-peanut	S5	

Family Name	Scientific Name	Common Name	S-RANK	CVC/PEEL
Fabaceae	*Coronilla varia*	Crown-vetch	SNA	
Fabaceae	*Lotus corniculatus*	Bird's-foot Trefoil	SNA	
Fabaceae	*Medicago lupulina*	Black Medic	SNA	
Fabaceae	*Melilotus alba*	White Sweet Clover	SNA	
Fabaceae	*Robinia pseudo-acacia*	Black Locust	SNA	
Fabaceae	*Trifolium pratense*	Red Clover	SNA	
Fabaceae	*Trifolium repens*	White Clover	SNA	
Fabaceae	*Vicia cracca*	Tufted Vetch	SNA	
Fagaceae	*Quercus macrocarpa*	Bur Oak	S5	
Fagaceae	*Quercus rubra*	Northern Red Oak	S5	
Geraniaceae	*Geranium maculatum*	Wild Geranium	S5	
Geraniaceae	*Geranium robertianum*	Herb-robert	SNA	
Grossulariaceae	*Ribes cynosbati*	Prickly Gooseberry	S5	
Grossulariaceae	*Ribes rubrum*	Northern Red Currant	SNA	
Grossulariaceae	*Ribes* sp.	Currant Species		
Hippocastanaceae	*Aesculus hippocastanum*	Horse Chestnut	SNA	
Iridaceae	*Iris pseudacorus*	Yellow Iris	SNA	
Juglandaceae	*Carya cordiformis*	Bitternut Hickory	S5	
Juglandaceae	*Juglans nigra*	Black Walnut	S4	
Lamiaceae	*Glechoma hederacea*	Ground Ivy	SNA	
Lamiaceae	*Leonurus cardiaca* ssp. *cardiaca*	Common Motherwort	SNA	
Lamiaceae	*Prunella vulgaris* ssp. *lanceolata*	Self-heal	S5	
Liliaceae	*Maianthemum racemosum* ssp. *racemosum*	False Solomon's Seal	S5	
Lythraceae	*Lythrum salicaria*	Slender-spike Loosestrife	SNA	
Oleaceae	*Fraxinus americana*	White Ash	S5	
Oleaceae	*Fraxinus excelsior*	European Ash	SNA	
Oleaceae	*Fraxinus pennsylvanica*	Green Ash	S5	

Family Name	Scientific Name	Common Name	S-RANK	CVC/PEEL
Oleaceae	*Ligustrum vulgare*	European Privet	SNA	
Onagraceae	*Circaea lutetiana* ssp. *canadensis*	Enchanter's Nightshade	S5	
Onagraceae	*Oenothera biennis*	Common Evening-primrose	S5	
Orchidaceae	*Epipactis helleborine*	Eastern Helleborine	SNA	
Oxalidaceae	*Oxalis stricta*	Upright Yellow Wood Sorrel	S5	
Pinaceae	*Picea abies*	Norway Spruce	SNA	
Pinaceae	*Picea pungens*	Colorado Spruce	SNA	
Pinaceae	*Pinus nigra*	Black Pine	SNA	
Pinaceae	*Pinus resinosa*	Red Pine	S5	rare
Pinaceae	*Pinus strobus*	Eastern White Pine	S5	
Plantaginaceae	*Plantago lanceolata*	English Plantain	SNA	
Plantaginaceae	*Plantago major*	Nipple-seed Plantain	SNA	
Poaceae	*Dactylis glomerata*	Orchard Grass	SNA	
Poaceae	*Glyceria maxima*	Reed Manna Grass	SNA	
Poaceae	*Phalaris arundinacea*	Reed Canary Grass	S5	
Poaceae	*Poa nemoralis*	Woods Bluegrass	SNA	
Poaceae	*Poa palustris*	Fowl Bluegrass	S5	
Poaceae	*Poa pratensis* ssp. *pratensis*	Kentucky Bluegrass	S5	
Polygonaceae	*Rumex crispus*	Curly Dock	SNA	
Ranunculaceae	*Anemone canadensis*	Canada Anemone	S5	
Ranunculaceae	*Clematis virginiana*	Virginia Virgin-bower	S5	
Ranunculaceae	*Ranunculus acris*	Tall Buttercup	SNA	
Ranunculaceae	*Ranunculus repens*	Creeping Buttercup	SNA	
Ranunculaceae	*Thalictrum pubescens*	Tall Meadowrue	S5	
Rhamnaceae	*Rhamnus cathartica*	Buckthorn	SNA	
Rosaceae	*Crataegus monogyna*	English Hawthorn	SNA	
Rosaceae	*Crataegus* sp.	Hawthorn Species		

Family Name	Scientific Name	Common Name	S-RANK	CVC/PEEL
Rosaceae	*Fragaria virginiana*	Wild Stawberry	S5	
Rosaceae	*Geum canadense*	White Avens	S5	
Rosaceae	*Geum urbanum*	Clover-root	SNA	
Rosaceae	*Malus* sp.	Apple Species		
Rosaceae	*Prunus serotina*	Wild Black Cherry	S5	
Rosaceae	*Prunus virginiana* var. *virginiana*	Choke Cherry	S5	
Rosaceae	*Rosa multiflora*	Rambler Rose	SNA	
Rosaceae	*Rubus idaeus* ssp. *strigosus*	Wild Red Raspberry	S5	
Rosaceae	*Rubus occidentalis*	Black Raspberry	S5	
Rosaceae	*Sorbus aucuparia*	European Mountain-ash	SNA	
Salicaceae	*Populus deltoides* ssp. *deltoides*	Eastern Cottonwood	SU	
Salicaceae	*Salix alba*	White Willow	SNA	
Salicaceae	*Salix discolor*	Pussy Willow	S5	
Salicaceae	*Salix eriocephala*	Heart-leaved Willow	S5	
Salicaceae	*Salix* x *rubens*	Reddish Willow	SNA	
Scrophulariaceae	*Linaria vulgaris*	Butter-and-eggs	SNA	
Solanaceae	*Solanum dulcamara*	Climbing Nightshade	SNA	
Tiliaceae	*Tilia americana*	American Basswood	S5	
Typhaceae	*Typha angustifolia*	Narrow-leaved Cattail	S5	
Ulmaceae	*Ulmus americana*	American Elm	S5	
Urticaceae	*Laportea canadensis*	Wood Nettle	S5	
Urticaceae	*Urtica dioica* ssp. *gracilis*	Slender Stinging Nettle	S5	
Vitaceae	*Parthenocissus vitacea*	Thicket Creeper	S5	
Vitaceae	*Vitis riparia*	Riverbank Grape	S5	

Appendix D

Breeding Birds List

Appendix D

Breeding Birds List

Common Name	Scientific Name	Status				Area-sensitive (OMNR)c	# Breeding Pairs
		National Species at Risk COSEWICa	Species at Risk in Ontario Listing a	Provincial breeding season SRANK [b]	Regional Status		
Cooper's Hawk	*Accipiter cooperi*			S4		A	F
Downy Woodpecker	*Picoides pubescens*			S5			1
Hairy Woodpecker	*Picoides villosus*			S5		A	1
Eastern Kingbird	*Tyrannus tyrannus*			S4			1
Blue Jay	*Cyanocitta cristata*			S5			1
American Crow	*Corvus brachyrhynchos*			S5			F
Black-capped Chickadee	*Poecile atricapillus*			S5			2
House Wren	*Troglodytes aedon*			S5			3
Blue-gray Gnatcatcher	*Polioptila caerulea*			S4		A	2
American Robin	*Turdus migratorius*			S5			8
Gray Catbird	*Dumetella carolinensis*			S4			1
Cedar Waxwing	*Bombycilla cedrorum*			S5			F
European Starling	*Sturnus vulgaris*			SE			2
Warbling Vireo	*Vireo gilvus*			S5			2
Red-eyed Vireo	*Vireo olivaceus*			S5			1
Yellow Warbler	*Setophaga petechia*			S5			1
Northern Cardinal	*Cardinalis cardinalis*			S5			3
Indigo Bunting	*Passerina cyanea*			S4			1
Song Sparrow	*Melospiza melodia*			S5			2

Common Name	Scientific Name	Status				Area-sensitive (OMNR)c	# Breeding Pairs
		National Species at Risk COSEWICa	Species at Risk in Ontario Listing a	Provincial breeding season SRANK [b]	Regional Status		
Red-winged Blackbird	*Agelaius phoeniceus*			S4			2
Common Grackle	*Quiscalus quiscula*			S5			5
Brown-headed Cowbird	*Molothrus ater*			S4			1
Baltimore Oriole	*Icterus galbula*			S4			1
House Finch	*Haemorhous mexicanus*			SNA			1
American Goldfinch	*Spinus tristis*			S5			F

Field Work Conducted On: *May 30 and June 6, 2015*
Number of Species: 25 (3 foraging)

Number of (provincial and national) Species at Risk: 0
Number of S1 to S3 Species: 0
Number of Area-sensitive Species: Forest - 3 (Cooper's Hawk, Hairy Woodpecker, Blue-gray Gnatcatcher) COHA, HAWO & BGGN

KEY
F = foraging onsite but not breeding
a COSEWIC = Committee on the Status of Endangered Wildlife in Canada
a Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario)
END = Endangered, THR = Threatened, SC = Special Concern

[b] SRANK (from Natural Heritage Information Centre) for breeding status if:
S1 (Critically Imperiled), S2 (Imperiled),S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure)
SNA (Not applicable…'because the species is not a suitable target for conservation activities'; includes non-native species)

c Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide (Appendix G). 151 p plus appendices.