BEACON ENVIRONMENTAL

GUIDING SOLUTIONS IN THE NATURAL ENVIRONMENT

Environmental Impact Study
Lakeview
City of Mississauga

Prepared For:

Lakeview Community Partners Limited

Prepared By:

Beacon Environmental Limited

Date: *Project:*

January 2020 **217424**

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

Executive Summary

Lakeview Community Partners Limited (LCPL) are proposing to redevelop the former Lakeview Generating Station site located at 800 Hydro Road in the City of Mississauga. A legal description of the subject property is contained in the Draft Plan of Subdivision (Glen Schnarr and Associates Inc. [GSAI] 2019). The subject property was owned and operated by Ontario Power Generation (OPG) up until 2005 when the plant was decommissioned, and above grade structures were demolished. Since acquiring the 72-hectare (ha) property in 2017, LCPL has been working on removing remaining below-grade infrastructure and remediating the site to prepare it for future redevelopment.

The proposed redevelopment, referred to as Lakeview Village, will consist of a progressive and sustainable mixed-use community comprised of residential, commercial, institutional and open space uses. Approximately 27 ha of land fronting Lake Ontario will be transferred to the City of Mississauga for use as public waterfront space.

As portions of the subject property and adjacent lands have been identified as forming part of the City's Natural Heritage System (NHS), an Environmental Impact Study (EIS) is required in support of the planning applications for Official Plan Amendment, Zoning By-Law Amendment and Draft Plan of Subdivision. Beacon Environmental Limited (Beacon) was retained by LCPL to prepare an EIS for the proposed Lakeview Village development. The purpose an EIS is to demonstrate that the proposed redevelopment can occur without negatively impacting upon natural heritage features and ecological functions associated with the City's NHS and to confirm that the proposed redevelopment conforms to applicable legislation, policies and regulations relating to protection of natural heritage resources.

A previous EIS was prepared by Beacon in February 2019 in support of a conceptual plan for Lakeview Village. That EIS was prepared in general accordance with the City of Mississauga EIS Checklist (Mississauga 2017) and concluded that the conceptual plan could be implemented without adversely impacting upon natural heritage features or functions. That EIS was filed with the first planning submission. Subsequent to the first submission, and in response to City and agency comments, the proposed redevelopment plan has been refined, resulting in the currently proposed Draft Plan of Subdivision (GSAI – December 3rd, 2019). For detailed responses to City and agency comments, please refer to the Comment Response Matrix prepared by GSAI that has been included under separate cover as part of the second planning submission package.

This EIS report has been updated to reflect the currently proposed Draft Plan of Subdivision and to address City and Agency comments on the previous EIS. As the changes to the plan are not substantive and the comments received are addressable, most of the content in this updated EIS report remains unchanged.

The proposed Draft Plan of Subdivision reflects the culmination of years of visioning, master planning and consultation with the Province, City of Mississauga, Region of Peel, agency partners and the local community regarding future uses of this site. The proposed land uses are also largely reflective of those identified in City of Mississauga Official Plan Amendment (OPA) # 89, which was approved in August 2018.

As the subject property was completely modified to facilitate construction and operation of the former Lakeview Generating Station, any natural heritage features that have established in the intervening

years generally confined to the site periphery and adjacent lands. Natural heritage features associated with the site and adjacent lands include the following:

- Lake Ontario shoreline (southern boundary);
- Serson Creek channel (eastern boundary);
- Mississauga Natural Area LV2 (off-site to the northeast); and
- Lakeview Waterfront Connection (off-site to the southeast).

The above natural heritage features are limited to the Lake Ontario shoreline and Serson Creek channel which are located at the southern and eastern periphery of the property respectively. As Serson Creek is proposed to be reconstructed to a more natural form and condition, and proposed modifications to the Lake Ontario shoreline are minimal, the EIS has been scoped to focus on identifying opportunities to create, restore and enhance components of the City's NHS as envisioned by Mississauga OPA 89 and establishing strong linkages to natural features and areas located adjacent to the site (i.e., Lakeview Waterfront Connection).

Key objectives of the EIS are as follows:

1. To characterize existing natural heritage resources and ecological functions using background information and field investigations;
2. To evaluate the significance of any existing natural heritage resources and functions in accordance with provincial, regional and local environmental policies;
3. To identify natural heritage related constraints to the proposed redevelopment;
4. To identify opportunities for restoring natural heritage resources and ecological functions to the subject property as per OPA 89;
5. To identify opportunities for enhancing ecological connectivity to adjacent natural heritage features and areas;
6. To provide as description of the proposed redevelopment plan;
7. To assess impacts of the proposed redevelopment plan on existing natural heritage resources and functions;
8. To provide recommendations for protection and mitigation measures where necessary;
9. To provide recommendations for restoration and enhancement of the NHS; and
10. To evaluate how the proposed redevelopment plan conforms with applicable natural heritage protection legislation, policies and regulations.

To develop an understanding of past and current conditions, all available background information related to the natural heritage resources on the subject property and adjacent lands was reviewed. This background information was supplemented with data collected through field programs to ensure that the existing natural heritage resource knowledge base was current and comprehensive.

Background information on natural heritage resources associated with the subject property was obtained from OPG biological studies, City of Mississauga Natural Areas Survey data for adjacent natural areas, CVC data from the Lakeview Waterfront Connection (LWC) project, species at risk data from the Ministry of Natural Resources and Forestry and observations of local naturalists.

To supplement the existing natural heritage resource knowledge base, the following ecological surveys and assessments were completed on the subject property in 2017, 2018 and 2019:

- General Site Reconnaissance;
- Ecological Land Classification (ELC);
- Floristic Survey;
- Amphibian Habitat Assessment;
- Amphibian Call Surveys;
- Breeding Bird Surveys;
- Species at Risk Habitat Assessment;
- Aquatic Habitat Assessment;
- Fish Sampling; and
- Incidental Wildlife Observations.

The background information and findings of the ecological surveys and assessments have been used to evaluate the significance of any natural heritage resources associated with the subject property and adjacent lands.

The EIS has determined that the forest community associated with the adjacent G.E. Booth Wastewater Treatment Facility (WWTF) property (Mississauga Natural Area LV2) is a significant woodland and also supports potential habitat for endangered species of bats. Additionally, this natural area qualifies as candidate significant wildlife habitat for bat maternity colonies and as a migratory stopover for landbirds. The forest community and the natural area are being retained as part of the proposed development.

The EIS has also identified portions of the subject property as candidate significant wildlife habitat because it supports two species of conservation concern, Monarch and Snapping Turtle. Both of these species are ranked Special Concern and considered species at risk. While not protected under the *Endangered Species Act*, proponents are required demonstrate how habitat conditions for these species can be maintained, restored or enhanced.

Additionally, the shoreline of Lake Ontario qualifies as a primary movement corridor for various animals and plants, and Serson Creek may qualify as a tertiary movement corridor for wildlife. The former OPG intake and discharge channels are connected to the lake and provide fish habitat. Serson Creek flanks the eastern boundary of the property and conveys runoff from urbanized lands upstream. It is also noted as providing fish habitat. There are no significant wetlands, significant valleylands or ANSIs associated with the subject property or adjacent lands.

The LWC project to the southeast of the property involves creation of extensive wetland, woodland and grassland habitats along the shoreline in front of the G.E. Booth Wastewater Treatment Facility. When construction is completed, it is anticipated that this area (Jim Tovey Lakeview Conservation Area) will support a broad range of habitat types and ecological functions, including important functions such as waterfowl nesting, stopover and staging, shorebird stopover, marsh bird and amphibian breeding, turtle nesting and overwintering, and others.

A constraint analysis was undertaken to identify significant natural heritage features and functions that must be protected as well as natural hazards that must be avoided. Through overlaying the various constraints, it was determined that the following environmental constraints be used to define the limits of future development:

- Buffer from the forest community in Natural Area LV2;
- Slope erosion setback from the re-designed Serson Creek; and
- Flood and erosion setback from Lake Ontario.

Redevelopment of the subject property represents a unique opportunity to incorporate natural heritage elements into the design that can bring significant ecological benefits to the community. There are substantial areas of open space proposed along the lakefront and throughout the site. Naturalization of portions of these areas will provide habitat for resident and migratory wildlife and improve connectivity for wildlife moving along the lakefront. Opportunities also exist to improve water quality and fish habitat by landscaping the banks along the intake and discharge channels and by installing floating wetlands. The proposed re-design of the Serson Creek corridor will improve the quality of this stream corridor, improving fish and wildlife habitat. Additionally, the generous use of native vegetation for landscaping throughout the community will serve to enhance overall biodiversity.

The Lakeview Village community will be comprised of four Character Area Precincts (Waterway District Area, Ogden Green, Cultural Waterfront and Serson Innovation Corridor) and of seven Character Area Precinct Subzones districts as follows: Waterfront, Waterway District Area, Ogden Blocks, Waterway Common, Lakeview Square, Serson Innovation Corridor and Hydro Gateway). For more details, refer to **Section 6** of this report. The proposed Draft Plan of Subdivision (GSAI 2019) includes several public rights-of-ways and private site plan blocks that include mixed use, high density residential, commercial development and park blocks/open space.

The impact assessment presented in **Section 7** of this report has determined that the proposed redevelopment will not directly impact upon any significant natural heritage features or functions. Indirect impacts from the proposed redevelopment can be mitigated through implementing the various recommendations presented in this EIS and companion technical reports (i.e. Functional Servicing Report, Sustainability Study, Arborist Report, Water Quality Report, etc.). The findings and recommendations of this report should be read in conjunction with, the limitations set out in the Lakeview Village Functional Servicing Report Draft (Urbantech Consulting and TMIG 2020a).

Finally, **Section 8** of the report demonstrates how the proposed development protects or enhances the significant natural heritage resources and functions in a manner that is consistent with applicable natural heritage protection legislation, policies and regulations.

Table of Contents

page

Figures

Photos

Tables

Appendices

A. Flora List
B. Fauna List
C. Mississauga Natural Areas Fact Sheet - LV2
D. Background Fish List
E. Species at Risk Table
F. Significant Wildlife Habitat (SWH) Evaluation for the Subject Property and Adjacent Lands

1. Introduction

Lakeview Community Partners Limited (LCPL) are proposing to redevelop the former Lakeview Generating Station site located at 800 Hydro Road in the City of Mississauga. A legal description of the subject property is contained in the Draft Plan of Subdivision (Glen Schnarr and Associates Inc. [GSAI] 2019). The subject property was owned and operated by Ontario Power Generation (OPG) up until 2005 when the plant was decommissioned, and above grade structures were demolished. Since acquiring the 72-hectare (ha) property in 2017, LCPL has been working on removing remaining below-grade infrastructure and remediating the site to prepare it for future redevelopment.

The proposed redevelopment, referred to as Lakeview Village, will consist of a progressive and sustainable mixed-use community comprised of residential, commercial, institutional and open space uses. Approximately 27 ha of land fronting Lake Ontario will be transferred to the City of Mississauga for use as public waterfront space.

As portions of the subject property and adjacent lands have been identified as forming part of the City's Natural Heritage System (NHS), an Environmental Impact Study (EIS) is required in support of the planning applications for Official Plan Amendment, Zoning By-Law Amendment and Draft Plan of Subdivision. Beacon Environmental Limited (Beacon) was retained by LCPL to prepare an EIS for the proposed Lakeview Village development. The purpose an EIS is to demonstrate that the proposed redevelopment can occur without negatively impacting upon natural heritage features and ecological functions associated with the City's NHS and to confirm that the proposed redevelopment conforms to applicable legislation, policies and regulations relating to protection of natural heritage resources.

A previous EIS was prepared by Beacon in February 2019 in support of a conceptual plan for Lakeview Village. That EIS was prepared in general accordance with the City of Mississauga EIS Checklist (Mississauga 2017) and concluded that the conceptual plan could be implemented without adversely impacting upon natural heritage features or functions. That EIS was filed with the first planning submission. Subsequent to the first submission, and in response to City and agency comments, the proposed redevelopment plan has been refined, resulting in the currently proposed Draft Plan of Subdivision (GSAI – December 3, 2019).

This EIS report has been updated to reflect the currently proposed Draft Plan of Subdivision and to address City and Agency comments on the previous EIS. As the changes to the plan are not substantive and the comments received are addressable, most of the content in this updated EIS report remains unchanged.

The proposed Draft Plan of Subdivision reflects the culmination of years of visioning, master planning and consultation with the Province, City of Mississauga, Region of Peel, agency partners and the local community regarding future uses of this site. The proposed land uses are also largely reflective of those identified in City of Mississauga Official Plan Amendment (OPA) # 89, which was approved in August 2018.

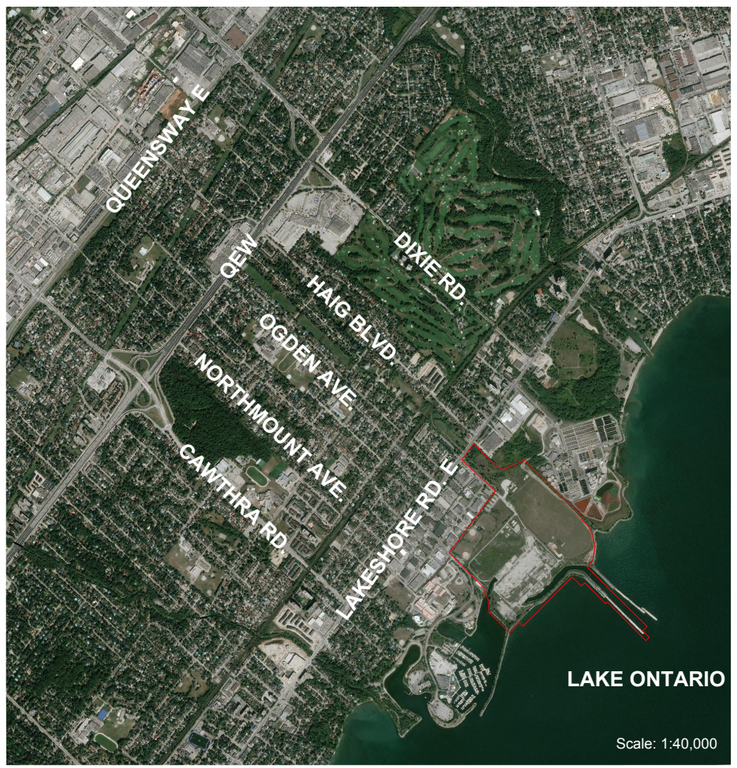
As the subject property was completely modified to facilitate construction and operation of the former Lakeview Generating Station, any natural heritage features that have established in the intervening years generally confined to the site periphery and adjacent lands. Natural heritage features associated with the site and adjacent lands include the following:

- Lake Ontario shoreline (southern boundary);
- Serson Creek channel (eastern boundary);
- Mississauga Natural Area LV2 (off-site to the northeast); and
- Lakeview Waterfront Connection (off-site to the southeast).

Natural heritage resources associated with the subject property are generally limited to the Lake Ontario shoreline and Serson Creek corridor which are located at the southern and eastern periphery of the property respectively.

Figure 2 Lakeview Village Site Context from Master Plan (LCPL 2018)

City of Mississauga OPA 89 Map B (**Figure 3**) contrasts the City's existing Green System (left) with the future proposed Green System (right). The existing Green System on the subject property is limited to the playing fields (large green wedge area) and a segment of the Serson Creek corridor at Lakeshore



LEGEND

Subject Property

N°	REVISIONS	DATE:	BY:
6			
5			
4			
3			
2			
1	COMMENT	xxxx/xx/xx	xx

SCALE: AS NOTED

NORTH ARROW

COORDINATE SYSTEM: UTM Zone 17 N, NAD 83

BEACON ENVIRONMENTAL
GUELPH OFFICE
373 WOOLWICH ST,
GUELPH, ON N1H 3W4
T) 519.826.0419
519.826.9306
www.beaconenviro.com

CLIENT: LAKEVIEW COMMUNITY PARTNERS LIMITED

PROJECT: LAKEVIEW EIS, CITY OF MISSISSAUGA, ON

SHEET TITLE: SITE LOCATION

DESIGN BY: --	PROJECT N°: 217424
DRAWN BY: MB	FIGURE N°: 1
CHECKED BY: KU	
DATE: 26 February 2019	

Road East. In contrast, the future Green System sees the addition of green spaces along the waterfront, centrally within the development, and along Serson Creek.

As Serson Creek is proposed to be reconstructed to a more natural form and condition, and proposed modifications to the Lake Ontario shoreline are minimal, this EIS is focused less on impacts to existing features and more on identifying opportunities to create, restore and enhance components of the City's NHS as envisioned by OPA 89 and establishing strong linkages to natural features and areas located adjacent to the site (i.e., Lakeview Waterfront Connection).

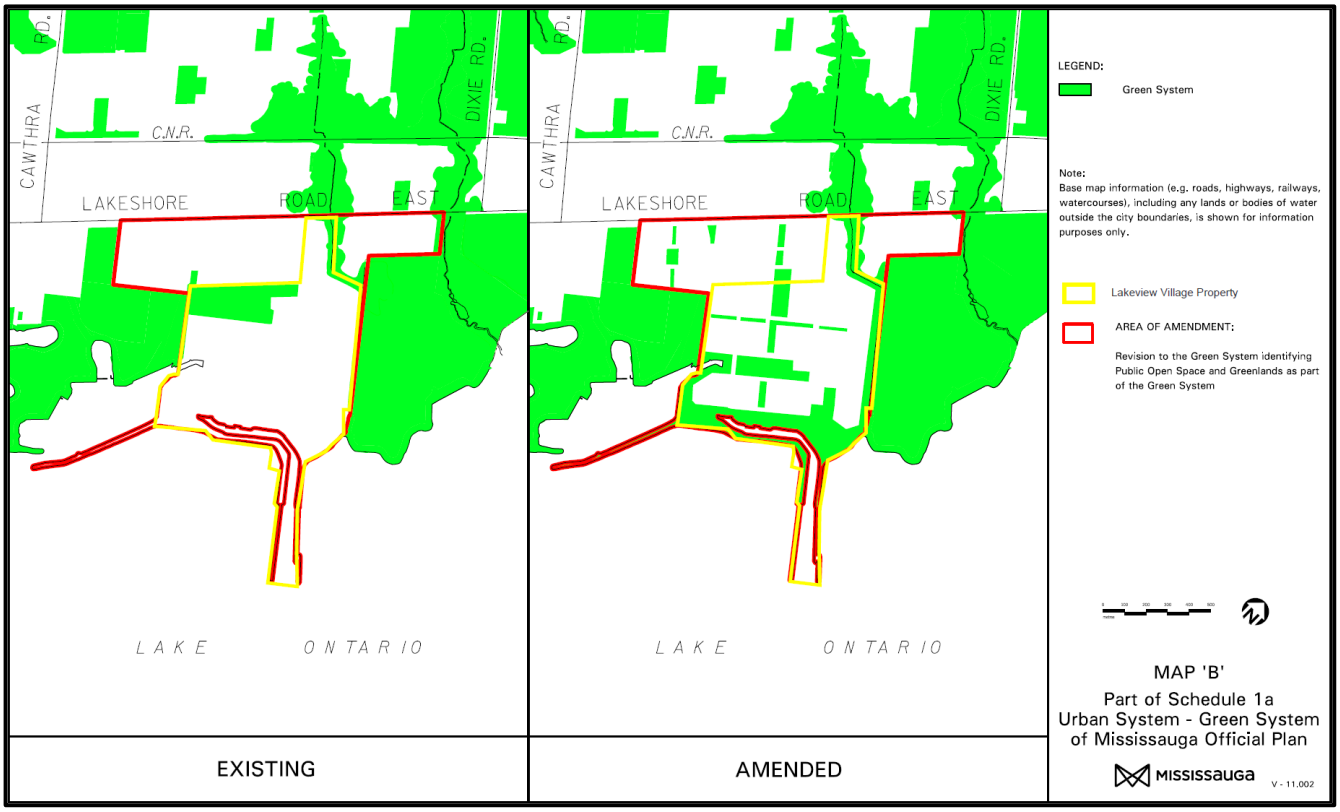


Figure 3. Map B of Mississauga OPA 89 - Urban System – Green System

Schedule 3 of the City of Mississauga Official Plan (MOP; **Figure 4**) identifies the City's Natural System including the various components of its NHS and Natural Hazards. Components of the NHS include Significant Natural Areas and Green Spaces and Special Management Areas, which correspond with a wooded area to the north-east of the subject property. It should be noted that while no components of the City's NHS have been mapped on the subject property, that it is possible that features and functions may exist on the subject property that could potentially satisfy criteria for certain NHS components. The EIS includes an evaluation to make this determination.

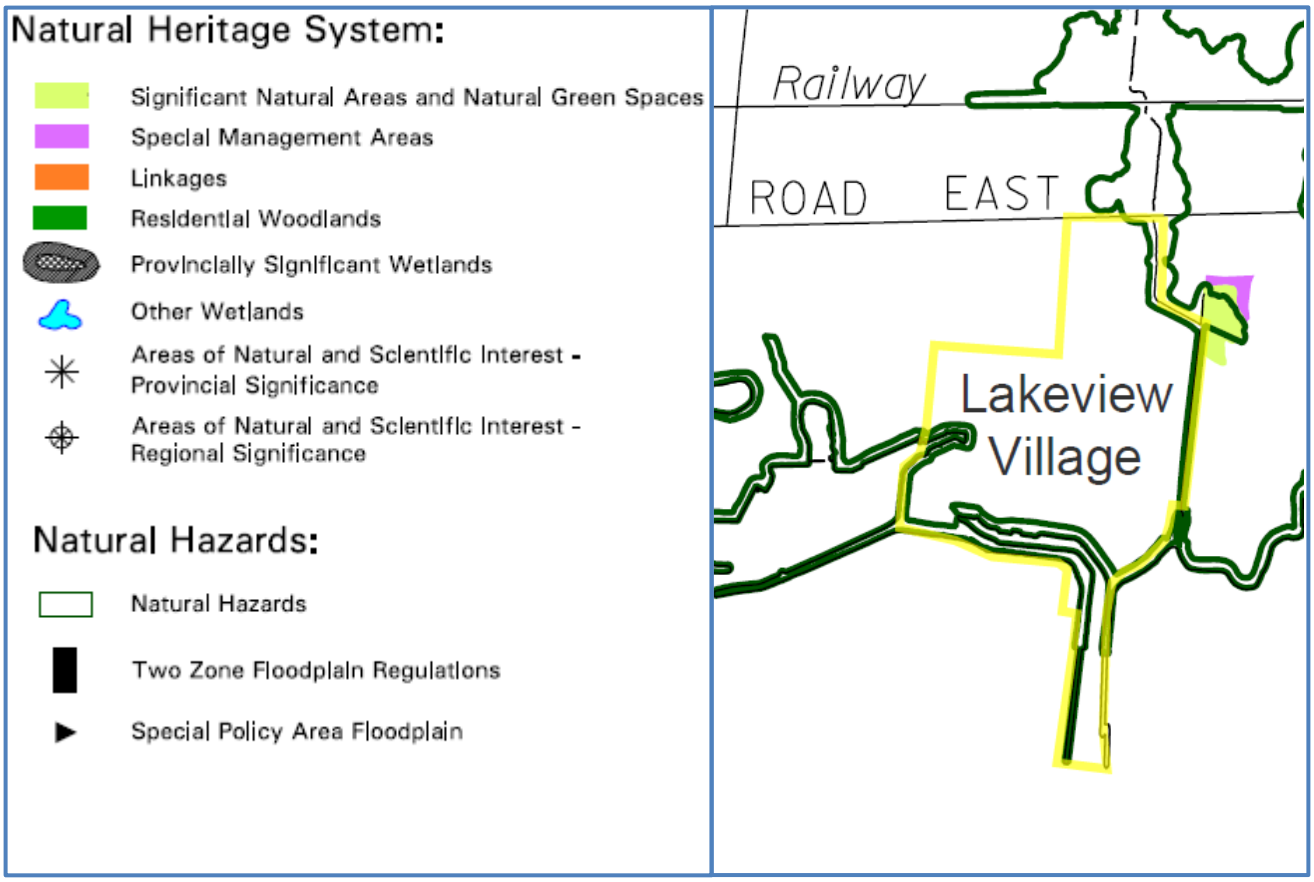


Figure 4. Enlargement of MOP Schedule 3 – Natural System for the Site

1.1 Study Objectives

Key objectives of the EIS are as follows:

1. To characterize existing natural heritage resources and ecological functions using background information and field investigations;
2. To evaluate the significance of any existing natural heritage resources and functions in accordance with provincial, regional and local environmental policies;
3. To identify natural heritage related constraints to the proposed redevelopment;
4. To identify opportunities for restoring natural heritage resources and ecological functions to the subject property as per Mississauga OPA 89;
5. To identify opportunities for enhancing ecological connectivity to adjacent natural heritage features and areas;
6. To provide as description of the proposed redevelopment plan;
7. To assess impacts of the proposed redevelopment plan on existing natural heritage resources and functions;
8. To provide recommendations for protection and mitigation measures where necessary;
9. To provide recommendations for restoration and enhancement of the NHS; and

10. To evaluate how the proposed Draft Plan conforms with applicable natural heritage protection legislation, policies and regulations.

1.2 Study Area

The study area selected for this EIS includes the LCPL property located at 800 Hydro Road as well as the immediately adjacent lands and the Lake Ontario shoreline. As access to the adjacent properties was restricted, information is limited to what is available from other studies and field observations made from the subject property. The EIS does provide consideration to the broader NHS that extends beyond the study area.

1.3 Lakeview Village Project Team

To characterize the existing natural heritage features and ecological functions and to assess changes that may occur because of the redevelopment, it is important to understand the inter-relationships between the biological and physical environments. The integrated approach has been applied to the EIS to ensure that these inter-relationships are appropriately understood. The Lakeview Village project team is comprised of experts in the fields of land use planning, terrestrial and aquatic ecology, fluvial geomorphology, water resources, coastal engineering, and geology.

1.4 EIS Report Outline

An outline of the EIS report and descriptions of the various report sections is provided:

Section 1 - Introduction: outlines the purpose, objectives and scope of work, and presents the report organization.

Section 2 - Environmental Policy Framework: describes the environmental planning context for the study area and provides an overview of key environmental policies, legislation, and regulation that are directly relevant to the EIS.

Section 3 - Study Methodology: describes the methodologies used to characterize the biophysical environment, identify constraints and opportunities, and assesses impacts related to the proposed development.

Section 4 - Study Findings: summarizes the findings of the background review and field investigations, characterizes the biophysical environment, and includes analyses to evaluate the significance of the biophysical resources in the context of applicable environmental planning policies, regulations and legislation.

Section 5 - Constraints and Opportunities: identifies natural heritage and natural hazard constraints to future land uses and identifies stewardship opportunities for enhancement to the NHS

Section 6 - Description of the Proposed Development: describes the proposed land use plan, including preliminary grading, servicing and stormwater management.

Section 7 - Impact Assessment and Recommended Mitigation: assesses the anticipated impacts of the proposed land uses on the NHS and its functions and identifies a range of appropriate mitigation measures to address these impacts.

Section 8 - Policy Conformity Evaluation: evaluates the proposed land use, and recommended mitigation measures, in terms of their compliance with the applicable environmental policies, regulations and legislation.

Section 9 - Conclusions: summarizes key study findings and recommendations and provides a concluding statement regarding impacts and opportunities.

2. Environmental Policy Framework

This section of the EIS provides an overview of key federal, provincial and local environmental policies, legislation, and regulations that are directly relevant to the project. Key environmental legislation, policies and regulations considered by this EIS are as follows:

- Federal *Fisheries Act* (1985);
- Federal *Migratory Birds Convention Act* (1994);
- Ontario *Endangered Species Act* (2007);
- Provincial Policy Statement (2014);
- Region of Peel Official Plan (2018);
- City of Mississauga Official Plan (2019);
- *Conservation Authorities Act* – Ont. Reg. 160/06; and
- Credit Valley Conservation – Watershed Planning and Regulation Policies (2010).

The overview provided below is not comprehensive. Rather, it is intended to highlight those key legislative, regulatory and policy requirements that pertain to the proposed re-development to ensure it conforms with the various environmental protection requirements. A summary of how the proposed re-development conforms to the various natural heritage protection legislation, policies and regulations is presented in **Section 8**.

2.1 Federal Fisheries Act (1985)

In Ontario, the Department of Fisheries and Oceans Canada (DFO) manages fish habitat and the Ontario Ministry of Natural Resources and Forestry (MNRF) manages fisheries.

Fish and fish habitat are protected under the federal *Fisheries Act* (1985) which was last amended on August 28, 2019. The protection provisions of the Fisheries Act apply to all fish and fish habitat throughout Canada and are the authorities for the regulation of works, undertakings or activities that risk harming fish and fish habitat. Specifically, the protection provisions include two core prohibitions.

One is against persons carrying on works, undertakings or activities that result in the "death of fish by means other than fishing" (subsection 34.4(1)), and the other is "harmful alteration, disruption or destruction of fish habitat" (subsection 35(1)). The protection provisions are applied in conjunction with other applicable federal laws and regulations related to aquatic ecosystems, including the Species at Risk Act.

Subsection 34.4 (1) states: *No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish*.

Subsection 35. (1) states: *No person shall carry on any work, undertaking or activity that results in harmful alteration, disruption or destruction of fish habitat.*

Fish habitat is defined in subsection 2(1) of the Fisheries Act to include all waters frequented by fish and any other areas upon which fish depend directly or indirectly to carry out their life processes. The types of areas that can directly or indirectly support life processes include but are not limited to: spawning grounds and nursery, rearing, food supply and migration areas.

Under subsection 35(1) a person may carry on such works, undertakings or activities without contravening this prohibition, provided that they are carried on under the authority of one of the exceptions listed in subsection 35(2), and in accordance with the requirements of the appropriate exception. In most cases, this exception would be Ministerial authorizations granted to proponents in accordance with the *Authorizations Concerning Fish and Fish Habitat Protection Regulations.*

Proponents are responsible for planning and implementing works, undertakings or activities in a manner that avoids harmful impacts, specifically the death of fish and the harmful alteration, disruption or destruction of fish habitat. Where proponents believe that their work, undertaking or activity will result in harmful impacts to fish and fish habitat, DFO will work with proponents to assess the risk of their proposed work, undertaking or activity resulting in the death of fish or the harmful alteration, disruption or destruction of fish habitat and provide advice and guidance on how to comply with the Fisheries Act.

Lake Ontario (located south of the subject property) and Serson Creek (which borders the subject property to the east) are considered to support fish habitat.

2.2 Ontario Endangered Species Act (2007)

Species at Risk (SAR) in Ontario include species that are listed as endangered, threatened or special concern at the provincial level, however the *Endangered Species Act* (ESA) only regulates the habitat of endangered or threatened species. Species listed as special concern are addressed through the Provincial Policy Statement (PPS) and policies pertaining to Significant Wildlife Habitat (SWH).

Correspondence with MNRF (M. Heaton pers. comm. August 24, 2018) revealed that there is potential for at least six SAR species to occur within the vicinity of the study area. These species include:

- American Eel (*Anguilla rostrata)* – Federally Threatened, Provincially Endangered;
- Bobolink (*Dolichonyx oryzivorus)* – Federally and Provincially Threatened;
- Barn Swallow (*Hirundo rustica)* – Federally and Provincially Threatened;
- Bank Swallow (*Riparia riparia)* – Federally and Provincially Threatened;

- Little Brown Myotis (*Myotis lucifugus)* – Federally and Provincially Endangered; and
- Monarch (*Danaus plexippus)* – Federally Endangered, Provincially Special Concern.

It should be noted that these records do not correspond directly with the site but are located within the area.

The ESA provides legal protection to the habitat of endangered and threatened species where it occurs. Relevant sections of the ESA are included below:

Subsection 9(1) of the ESA states that:

> *No person shall,*
> *(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;*
> *(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,*
> *(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,*
> *(ii) any part of a living or dead member of a species referred to in subclause (i),*
> *(iii) anything derived from a living or dead member of a species referred to in subclause (i); or*
> *(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).*

Subsection 10(1)(a) of the ESA states that:

> *No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species.*

However, under subsection 17(1) of the ESA, the Minster may issue a permit that authorizes a person to engage in an activity that would otherwise be prohibited by subsection 9(1) or 10(1) of the ESA provided the applicable legislative requirements of subsection 17(2) are satisfied. The *Endangered Species Act* Submission Standards for Activity Review and 17(2)(c) Overall Benefit Permits (MNR 2012a) is a document that provides guidance regarding permitting requirements under the Act. Relevant excerpts are provided below:

> *There are four types of permits that may be issued for authorizing activities where the activity:*
> - *is necessary for the protection of human health or safety - clause 17(2)(a);*
> - *has the main purpose to assist, and would assist, in the protection or recovery of the species - clause 17(2)(b);*
> - *has the main purpose not to assist in the protection or recovery of the species, but through specific and mandatory conditions outlined in the permit will result in an overall benefit to the species within a reasonable time - clause 17(2)(c); and,*

- *will result in significant social or economic benefit to Ontario, but will not jeopardize the survival or recovery of species at risk - clause 17(2)(d).*

Permits may be issued where the following legislated requirements are satisfied:

The Minister is of the opinion that the main purpose of the activity authorized by the permit is not to assist in the protection or recovery of the species specified in the permit; but,

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

The Minister is not obligated to issue an Overall Benefit Permit to a proponent. An Overall Benefit Permit may only be issued where the legislated requirements in clause 17(2)(c) of the Act will be met by the conditions in the permit.

2.3 Provincial Policy Statement (2014)

The Provincial Policy Statement (PPS; MMAH 2014) provides policy direction to municipalities on matters of provincial interest as they relate to land use planning and development. The PPS provides for appropriate land use planning and development while protecting Ontario's natural heritage. Development governed by the *Planning Act* must be consistent with the policy statements issued under the PPS. These are outlined in Section 2.1 - Natural Heritage, Section 2.2 – Water, and Section 3.1 - Natural Hazards of the PPS, and relevant sections from each are provided in the following pages.

2.3.1 Natural Heritage

The PPS includes policies that speak to the identification and protection of natural heritage systems, as well as levels of protection for the various components that comprise such systems. Some of these features are present in the study area and must be assessed in the context of these policies.

The policies specific to natural heritage are found in Section 2.1 of the PPS and are provided in their entirety below:

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

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

2.1.4. Development and site alteration shall not be permitted in:

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

b. significant coastal wetlands.

2.1.5 Development and site alteration shall not be permitted in:

a. significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;

b. significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);

c. significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);

d. significant wildlife habitat;

e. significant areas of natural and scientific interest; and

f. coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b).

unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

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

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

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

2.1.9 Nothing in policy 2.1 is intended to limit the ability of agricultural uses to continue.

In terms of implementation, identification of the various natural heritage features noted above is a responsibility shared by MNRF and the municipal planning authority. The MNRF is responsible for the identification of Provincially Significant Wetlands (PSWs) and Areas of Natural and Scientific Interest (ANSIs), while the Ministry of Environment, Conservation and Parks (MECP) is responsible for the confirmation of habitat of endangered species and threatened species, and for its regulation (under the ESA).

Local and regional planning authorities are responsible for the identification of Significant Woodlands, Significant Valleylands, and Significant Wildlife Habitat (SWH), with support from applicable guidance documents (i.e., *Natural Heritage Reference Manual* (MNR 2010); *Significant Wildlife Habitat Technical Guidelines* (MNR 2000), *Significant Wildlife Habitat Criteria for Ecoregion 7E*, MNRF 2015). Local and regional planning authorities in southern Ontario also typically work with their local conservation authority to identify and confirm significant natural heritage features that may have significance at the local or regional level. As described in **Section 2.1** above, identification and verification of fish habitat is now self-regulated although enforcement of the related policies and regulations is still managed by MNRF and regulated by DFO.

In areas where significant natural heritage features are present, the boundaries of natural heritage features are further refined through site-specific studies undertaken as part of the planning process and in accordance with the requirements of municipal policies.

2.3.2 Water

Water resources are a key consideration in this EIS. Section 2.2 of the PPS directs planning authorities to protect, improve or restore the quality and quantity of surface and groundwater water resources through watershed and land use planning, as per the policies below cited in their entirety.

> *2.2.1 Planning authorities shall protect, improve or restore the quality and quantity of water by:*
>
> *a. using the watershed as the ecologically meaningful scale for integrated and long-term planning, which can be a foundation for considering cumulative impacts of development;*
> *b. minimizing potential negative impacts, including cross-jurisdictional and cross-watershed impacts;*
> *c. identifying water resource systems consisting of ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas, which are necessary for the ecological and hydrological integrity of the watershed;*
> *d. maintaining linkages and related functions among ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas;*
> *e. implementing necessary restrictions on development and site alteration to:*
> *a. protect all municipal drinking water supplies and designated vulnerable areas; and*
> *b. protect, improve or restore vulnerable surface and ground water, sensitive surface water features and sensitive ground water features, and their hydrologic functions;*
> *f. planning for efficient and sustainable use of water resources, through practices for water conservation and sustaining water quality;*
> *g. ensuring consideration of environmental lake capacity, where applicable; and*
> *h. ensuring stormwater management practices minimize stormwater volumes and contaminant loads, and maintain or increase the extent of vegetative and pervious surfaces.*
>
> *2.2.2 Development and site alteration shall be restricted in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored.*
>
> *Mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions.*

Compliance with these policies requires a multi-disciplinary and integrated approach to land use planning. Such an approach has been adopted through the preparation of this EIS.

2.3.3 Natural Hazards

In addition to balanced protection of natural heritage resources and water resources, the PPS also includes policy direction regarding reducing the potential risk to Ontario's residents from natural or human-made hazards. Section 3.1 of the PPS generally discourages development within identified natural hazards (i.e., areas that are at risk of flooding and / or erosion).

Natural hazards that need to be considered on the subject property include flooding and erosion hazards associated with the Serson Creek valleylands and Lake Ontario Shoreline.

Notwithstanding the opposition to develop within natural hazard lands, Policy 3.1.4 within the PPS states:

> *Despite policy 3.1.2, development and site alteration may be permitted in certain areas associated with the flooding hazard along river, stream and small inland lake systems:*
>
> > *a) in those exceptional situations where a Special Policy Area has been approved. The designation of a Special Policy Area, and any change or modification to the official plan policies, land use designations or boundaries applying to Special Policy Area lands, must be approved by the Ministers of Municipal Affairs and Housing and Natural Resources prior to the approval authority approving such changes or modifications;*
> > *or*
> > *b) where the development is limited to uses which by their nature must locate within the floodway, including flood and/or erosion control works or minor additions or passive non-structural uses which do not affect flood flows.*

2.4 Migratory Birds Convention Act (1994)

The Federal *Migratory Birds Convention Act* (MBCA; 1994) protects the nests, eggs and young of most bird species from harassment, harm or destruction. On the subject property, this legislation would apply in relation to any proposed vegetation clearing as part of the implementation of the proposed site redevelopment plan, once approved. Although there are no permitting requirements, proponents must comply with the legislation and may be fined if found to be in contravention of the MBCA.

Environment Canada currently considers the "high risk" period for encountering nesting birds to be from mid-March to late August. Therefore, to ensure compliance with the MBCA, vegetation clearing during this period is typically discouraged, particularly in natural or naturalized areas. This is because although screening for active nests can be conducted, it is typically very difficult to detect all active nests during the breeding season. However, vegetation clearing outside this window, and even within this window, is generally permissible as long as there is no evidence of nesting birds in the areas to be disturbed.

Regardless of the date, any nest and the habitat to support the nesting birds is protected under the MBCA, and therefore even for proposed vegetation clearing outside of the "high risk" window, surveys should be conducted by a qualified environmental inspector to screen for active nests prior to works being undertaken.

2.5 Regional Municipality of Peel Official Plan (2018)

The Peel Region Official Plan (ROP) identifies a Greenlands System consisting of Core Areas, Natural Areas and Corridors (NAC's), and Potential Natural Areas and Corridors (PNAC's) and includes policies aimed at protecting, maintaining, and restoring this system.

Key elements of the Region's Greenlands System include the following:

- Areas of Natural and Scientific Interest;
- Environmentally Sensitive or Significant Areas (ESA);
- Escarpment Natural Areas;
- Escarpment 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.

The various components of the Regional Greenlands System are to be interpreted, identified and protected in accordance with ROP policies.

2.5.1 Core Areas

Core Areas of the Regional Greenlands System include features and areas that are considered significant at the provincial and regional levels. They generally correspond with significant features and areas listed in the PPS and include:

- Significant Wetlands;
- Significant Coastal Wetlands;
- Core Woodlands;
- Environmentally Sensitive or Significant Areas;
- Provincial Life Science ANSI;
- Significant Habitat of Threatened and Endangered Species;
- Escarpment Natural Areas of the Niagara Escarpment Plan; and
- Core Valley and Stream Corridors.

Core Areas of the Regional Greenlands System are mapped on Schedule A of the ROP. Schedule A does not identify any Core Areas on the site or adjacent lands. As all Core Areas are mapped on Schedule A, the ROP should also be consulted to determine if any features are present that meet Core Area criteria. The EIS provides an assessment to determine if Core Areas are present.

Policy 2.3.2.6 prohibits development and site alteration within the Core Areas of the Greenlands System in Peel except for:

a. Forest, fish and wildlife management;
b. Conservation and flood or erosion control projects, but only if they have been demonstrated to be necessary in the public interest and after all reasonable alternatives have been considered;
c. Essential infrastructure exempted, pre-approved or authorized under an environmental assessment process;
d. Passive recreation;
e. Minor development and minor site alteration;
f. Existing uses, buildings or structures;
g. Expansions to existing buildings or structures;
h. Accessory uses, buildings or structures; and
i. A new single residential dwelling on an existing lot of record, provided that the dwelling would have been permitted by the applicable planning legislation or zoning by-law on the date the Regional Official Plan Amendment (OPA) 21B came into effect. A new dwelling built after the Regional OPA 21B came into effect in accordance with this policy shall be deemed to be an existing building or structure for the purposes of the exceptions permitted in clauses g) and h) above.

Area municipalities are directed to adopt appropriate policies to allow the above exceptions when it can be demonstrated that there is no reasonable alternative location outside of the Core Area and the use, development or site alteration is directed away from the Core Area feature to the greatest extent possible; and the impact to the Core Area feature is minimized and any impact to the feature or its functions that cannot be avoided is mitigated through restoration or enhancement to the greatest extent possible.

2.5.2 Natural Areas and Corridors and Potential Natural Areas and Corridors

NACs include:

- Evaluated non-provincially significant wetlands;
- Woodlands meeting one or more of the criteria in Table 1 of the ROP;
- Significant wildlife habitat;
- Fish habitat;
- Regionally significant life science Areas of Natural and Scientific Interest;
- Provincially significant earth science Areas of Natural and Scientific Interest;
- Escarpment Protection Areas of the Niagara Escarpment Plan; and
- Lake Ontario shoreline and littoral zone and other natural lakes and their shorelines.

PNACs include:

- Unevaluated wetlands;
- Cultural woodlands and cultural savannahs within the Urban System and Rural Service Centres meeting one or more of the criteria in Table 1 of the ROP;
- Any other woodlands greater than 0.5 hectares (1.24 acres);

- Regionally significant earth science Areas of Natural and Scientific Interest;
- Sensitive groundwater recharge areas;
- Portions of historic shorelines;
- Open space portions of the Parkway Belt West Plan Area;
- Potential ESA's identified as such by the conservation authorities; and
- Any other natural features and functional areas interpreted as part of the Greenlands System PNAC's, by the individual area municipalities in consultation with the conservation authorities.

NAC's and PNAC's represent natural features and areas that are considered locally significant. NAC's and PNAC's are considered locally important. Regional policies pertaining to NAC's and PNAC's defer their interpretation, protection, restoration, enhancement, proper management and stewardship to local municipalities. The EIS provides an assessment to determine if NAC's and PNAC's are present.

2.6 City of Mississauga Official Plan (2019)

Section 6.3 of the MOP contains policies pertaining to the protection of the Green System. The Green System is composed of a) the Natural Heritage System, 2) the Urban Forest, 3) Natural Hazard Lands; and 4) Parks and Open Spaces. Components of the Green System that overlap with the study area include NHS (off-site) and Natural Hazard Lands (on-site). Policies pertaining to each of these Green System components are discussed below.

2.6.1 Natural Heritage System

The City of Mississauga's Natural Heritage System (NHS) consists of:

1. Significant Natural Areas;
2. Natural Green Spaces;
3. Special Management Areas;
4. Residential Woodlands; and
5. Linkages.

The NHS is conceptually illustrated on Schedule 3 of the MOP (**Figure 4**). Components of this system that are directly associated with the subject property and adjacent lands include Significant Natural Areas and Natural Green Spaces and Natural Hazards.

The exact limit of components of the NHS are to be determined through site specific studies such as an EIS. Minor refinements to the boundaries of the NHS may also be made through an EIS or other appropriate studies accepted by the City without an OPA.

2.6.1.1 Significant Natural Areas

Significant Natural Areas include one or more of the following features:

- Provincially or regional significant life science areas of natural and scientific interest ANSI;

- Environmentally sensitive or significant areas;
- Habitat of threatened species or endangered species;
- Fish habitat;
- Significant wildlife habitat;
- Significant woodlands;
- Significant wetlands, including PSWs, coastal wetlands, and other wetlands greater than 0.5 hectares; and
- Significant valleylands, including the main branches, major tributaries and other tributaries and watercourse corridors draining directly to Lake Ontario including the Credit River, Etobicoke Creek, Mimico Creek and Sixteen Mile Creek.

Policy 6.3.27 states:

> *Development and site alteration as permitted in accordance with the Greenlands designation within or adjacent to a Significant Natural Area will not be permitted unless all reasonable alternatives have been considered and any negative impacts minimized. Any negative impact that cannot be avoided will be mitigated through restoration and enhancement to the greatest extent possible. This will be demonstrated through a study in accordance with the requirements of the* Environmental Assessment Act*. When not subject to the* Environmental Assessment Act*, an Environmental Impact Study will be required.*

Policy 6.3.29 states:

> *Development and site alteration on lands adjacent to a provincially significant wetland, provincially significant coastal wetland and habitat of endangered species and threatened species or other Significant Natural Area will require an Environmental Impact Study, demonstrating no negative impact to the natural heritage features or on their ecological function, to the satisfaction of the City and appropriate conservation authority.*

2.6.1.2 Natural Green Spaces

Natural Green Spaces are areas that meet one or more of the following criteria:

- Woodlands greater than 0.5 hectares that do not qualify as significant woodland;
- Wetlands that do not qualify as significant wetland;
- Watercourses that do qualify as significant valleyland; and
- All natural areas greater than 0.5 hectares that have vegetation that is uncommon in the City.

Policy 6.3.32 states that development and site alteration will not be permitted within or adjacent to Natural Green Spaces unless it has been demonstrated through an Environmental Assessment or EIS that there will be no negative impact to the natural heritage features and their ecological functions and opportunities for their protection, restoration, enhancement and expansion have been identified as shown in the quote below.

2.6.2 Natural Hazard Lands

Natural Hazard Lands are associated with valley and watercourse corridors and the Lake Ontario shoreline. These areas are prone to flooding and erosion and are generally unsuitable for development.

With respect to valleylands, it is the policy of the City that *development adjacent to valleylands and watercourse features must incorporate measures to ensure public health and safety; protection of life and property; as well as enhancements and restoration of the Natural Heritage System*.

Policy 6.3.47 states:

> *Development and site alteration will not be permitted within erosion hazards associated with valleyland and watercourse features. In addition, development and site alteration must provide appropriate buffer to erosion hazards, as established to the satisfaction of the City and appropriate conservation authority.*

Policy 6.3.48 states:

> *Development adjacent to valleyland and watercourse features may be required to be supported by detailed slope stability and stream erosion studies, where appropriate.*

With respect to flood plains, it is the policy of the City that *lands subject to flooding are a danger to life and property and, as such, development is generally prohibited. However, it is recognized that some historic development has occurred within flood plains and may be subject to special flood plain policy consideration.*

Policy 6.3.51 states:

> *Development and site alteration is generally prohibited on lands subject to flooding.*

Policy 6.3.52 states:

> *Where historic development has occurred in the flood plain, minor works may be permitted subject to detailed studies to the satisfaction of the City and appropriate conservation authority.*

Policy 6.3.53 states:

> *The construction of buildings or structures permitted in or adjacent to the flood plain will be protected to the elevation of the Regulatory Flood and will not impact upstream or downstream properties. Additional flood protection measures to be implemented relative to individual development applications will be determined by the City and the appropriate conservation authority.*

Policy 6.3.54 states:

> *Access for development adjacent to or within the flood plain will be subject to appropriate conservation authority policies and the policies of the City.*

Policy 6.3.56 states:

> *Where modifications to the existing Lake Ontario shoreline occur they should contribute to its restoration, the healthy functioning of coastal processes, and include opportunities for the creation and enhancement of aquatic and other wildlife habitat, where appropriate.*

Policy 6.3.61 states:

> *As a condition of development approval, lands adjacent to the Lake Ontario shoreline may be placed in public ownership for their long term protection. Prior to placing lands in public ownership, the applicant will be required to determine what shoreline protection works are required, if any, and will be required to install such works to the satisfaction of the City, the appropriate conservation authority and other public agencies that have jurisdiction over the Lake Ontario shoreline.*

2.6.3 EIS Requirements

MOP Chapter 6 outlines policies that provides guidance on when an EIS is triggered. In the case of the proposed redevelopment, an EIS is triggered by Policy 6.3.29.

> *6.3.29 Development and site alteration on lands adjacent to a Provincially significant wetland, Provincially significant coastal wetland and habitat of endangered species and threatened species or other Significant Natural Area will require an Environmental Impact Study, demonstrating no negative impact to the natural heritage features or on their ecological function, to the satisfaction of the City and appropriate conservation authority.*

Other relevant policies are as follows:

> *6.3.31 Setbacks and buffers adjacent to fish habitat areas will be determined by an Environmental Impact Study, which will conform to approved fisheries management plans.*
>
> *6.3.32 Development and site alteration will not be permitted within or adjacent to Natural Green Spaces, Linkages and Special Management Areas unless it has been demonstrated that there will be no negative impact to the natural heritage features and their ecological functions and opportunities for their protection, restoration, enhancement and expansion have been identified. This will be demonstrated through a study in accordance with the requirements of the Environmental Assessment Act. When not subject to the Environmental Assessment Act, an Environmental Impact Study will be required.*
>
> *6.3.33 Environmental Impact Studies 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, restore and expand the Natural Heritage System and associated ecological Figure 6-8: Mississauga promotes and is proactive in the*

management of its natural heritage areas and the protection of its ecological functions. Environmental Impact Studies will be prepared to the satisfaction of the City and appropriate conservation authority.

2.7 Credit Valley Conservation Authority Policies and Regulations

Credit Valley Conservation (CVC) plays several roles in overseeing development applications.

Firstly, under Section 28 of the *Conservation Authorities Act*, CVC regulates activities within and adjacent to wetlands, watercourses and hazard lands under Ontario Regulation 160/06 - *Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*. A permit must be obtained from CVC for development or site alteration within regulated areas.

Secondly, CVC provides planning and technical advice to local and regional municipalities to assist them in fulfilling their responsibilities regarding natural hazards, natural heritage and other relevant policy areas pursuant to the *Planning Act*. CVC participates in the review of *Planning Act* applications to ensure the applicant and planning authority are aware of the Section 28 regulations and requirements and assist in coordinating those applications to avoid any conflicts.

CVC policies are outlined in their *Watershed Planning and Regulation Policies* (CVC 2010). Key policies pertaining to the proposed development application are contained in Section 6.1 (General Plan Input and Plan Review Policies), Section 6.2 (Lot Creation Policies) and general policies pertaining to implementation of Ont. Reg. 160/06 are contained in Section 7.0.

6.1 General Plan Input and Plan Review Policies

l) CVC recognizes that certain types of development (2) and site alteration by their nature must locate within the natural heritage system, including natural heritage features and areas, significant natural areas, hazardous land, erosion access allowances and associated buffers. Considering this, CVC may support such works where they have been addressed through an environmental assessment, comprehensive environmental study or technical report, completed to the satisfaction of CVC. This may include, but is not limited to, the following:

i. infrastructure, including stormwater management facilities;
ii. development (2) and site alteration associated with passive or low intensity outdoor recreation and education;
iii. development (2) which by its nature must locate within hazardous land;
iv. development (2) and site alteration associated with conservation or restoration projects or management activities following sustainable management practices;
v. hazardous land remediation or mitigation works required to protect existing development (2); and
vi. modifications to components of the natural heritage system to implement the recommendations of an environmental

assessment, comprehensive environmental study or technical report that has been completed to the satisfaction of CVC.

6.2. Lot Creation Policies

6.2.1 Development Limits

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 to the satisfaction of CVC, and consistent with provincial and municipal policy.

3. Study Methodology

In preparing this EIS, the following study tasks were completed:

- Collection and review of available background information pertaining to natural heritage resources;
- Consultations with the Project Team, City and CVC;
- Site Reconnaissance and Ecological Surveys to document existing conditions;
- Evaluation of Significant Natural Heritage Features and Functions;
- Identification of Natural Heritage Constraints;
- Identification of Natural Heritage Opportunities;
- Assessment of Impacts related to the proposed re-development;
- Provision of Recommendations for Mitigation; and
- Evaluation of Project Compliance with Provincial, Regional and local environmental protection legislation, policies and regulations.

A general description of the methods and/or approach used to complete these tasks for each discipline is provided below.

3.1 Background Review

To develop an understanding of past and current conditions, all available background information related to the natural heritage resources on the site and adjacent lands was obtained and reviewed. Information sources consulted for natural heritage data included the following:

This included historical aerial photography, studies prepared for Ontario Power Generation (OPG), data from the Mississauga Natural Areas Survey, CVC studies for the OPG lands as well as the Lakeview Waterfront Connection project, species at risk data from the Ministry of Natural Resources and Forestry, as well and observations of local naturalists. Sources are summarized in **Section 3.3.1**.

In addition to the above, the EIS has also relied on information prepared by the Lakeview Village project team in support of the re-development application. This includes, but is not limited to the following:

- Lakeview Village Master Plan (LCPL 2018) ;
- Lakeview Village Draft Plan of Subdivision (GSAI 2019);
- Lakeview Village Sustainability Strategy (TMIG January 2019);
- Lakeview Village Channel Design Brief (Urbantech Consulting, Beacon Environmental and NAK Design December 2019)
- Geotechnical Investigation for Performing Slope Stability Analysis (DS Consultants Ltd. 2018);
- Geotechnical Slope Stability Assessment, Serson Creek (DS Consultants Ltd. 2018);
- Preliminary Geotechnical Investigation (EXP Services Inc. 2017);
- Site Grading Plan (Urbantech Consulting and TMIG 2020b);
- Functional Servicing Report (Urbantech Consulting and TMIG 2020a);
- Shoreline Hazard Assessment (Baird January 2019b);
- Lakeview Village Erosion Hazard Design Life (Baird December 2019a)
- 2018 Baseline Water Quality Monitoring Report (Beacon 2019b);
- 2019 Water Quality Monitoring and Aquatic Habitat Characterization Report (Beacon 2020b);
- Geomorphic Assessment, Serson Creek (Beacon 2019a); and
- Tree Inventory and Arborist Report (Beacon 2020a).

3.2 Physical Environment

3.2.1 Background Review

The following background information sources were consulted to characterize aspects of the physical environment in the study area, including bedrock geology, surficial geology, soils, drainage, surface water and groundwater:

- Lakeview Waterfront Connection Supplementary Subsurface Environmental Investigation (Decommissioning Consulting Services 2013);
- Quaternary Geology, Toronto and Surrounding Area, Preliminary Map P2204 (MNR 1980);
- Natural Areas Fact Sheet LV2 (City of Mississauga 2016);
- Soil Survey of Peel County (Hoffman, D. W. and N. R. Richards. 1953);
- Physiography of Southern Ontario (Chapman and Putnam 1984); and
- Preliminary Geotechnical Investigation (EXP Services Inc. 2017).

3.3 Natural Heritage Resources

3.3.1 Background Review

The following background information sources were consulted to characterize natural heritage resources for this study area:

- Ministry of Natural Resources' Natural Heritage Information Centre (NHIC) rare species database (accessed October 2018);
- City of Mississauga Natural Areas Inventory Data for Lakeview (LV2);

- Lakeview Waterfront Connection Environmental Assessment (SENES Consultant 2014);
- Lakeview Waterfront Connection Project, Applewood and Serson Creek, Design Brief (GHD 2015);
- Technical Report: Fluvial Geomorphology (Parish 2013);
- Credit Valley Conservation Subwatershed Study for Subwatershed 22 - Lake Ontario Shoreline East;
- Lake Ontario Integrated Shoreline Strategy (Aquafor Beech Ltd. 2011);
- Natural Heritage Data for the Study Area provided by Credit Valley Conservation November 2018, including flora, fauna and fish records;
- Ministry on Natural Resources and Forestry – SAR Screening with Mark Heaton, Management Biologist, Aurora District;
- Ontario Breeding Bird Atlas (Cadman *et al*. 2007);
- Ontario Herpetofauna Summary Atlas (Ontario Nature 2017);
- Ontario Butterfly Atlas (MacNaughton *et al.* 2016);
- Fisheries and Oceans Canada Aquatic Species at Risk Distribution Mapping (DFO 2018); and
- Historical and current aerial photography (City of Mississauga Mapping 2018).

Additionally, several natural heritage studies have been conducted previously for the subject property and surrounding area. The background data from these reports are taken into consideration for this EIS, and include:

- Lakeview Generating Station Biological Survey by Dan Gregory, 2001;
- Ontario Power Generation (Lakeview) Summary Report by CVC, 2013; and
- Environmental Assessment for Lakeview Waterfront Connection by SENES Consultants, 2014, including appended reports.

Data from these reports will be used to supplement data collected by Beacon in 2018 to create a detailed description of the natural heritage present on the subject property.

3.3.2 Field Investigations

The following field investigations were undertaken as part of this study to supplement the ecological knowledge base for the purposes of characterizing the natural heritage features and ecological functions associated with the study area:

- Ecological Land Classification (ELC);
- Tree Inventory;
- Floristic Surveys;
- Amphibian and Reptile Habitat Surveys;
- Amphibian Call Survey;
- Breeding Bird Survey;
- SAR Habitat Survey;
- Fish Community Survey; and
- Aquatic Habitat Surveys.

These ecological surveys are described in further detail in the sections that follow. The field investigations listed in **Table 1** were undertaken as part of this study to characterize the natural heritage features and functions associated with the property. These surveys are further discussed in the following sections.

Table 1. Summary of Ecological Surveys Completed 2017 - 2019.

Survey Type	Date of Survey
General Reconnaissance	November 8, 2017
Amphibian Habitat Survey	May 16, 2018
Amphibian Call Survey	April 22, May 27 and July 3, 2019
Breeding Bird Survey	June 4, 13 and 22, 2018
Site Visits	August 7, 9, 13, 2018
Floristic Surveys	May 18, 2018; August 22 and 24, 2018
Tree Inventory	August 24, September 19, 20, October 3 and 9, 2018
Turtle Habitat Survey	September 19, 2018
Aquatic Habitat Survey	September 28 and November 11, 2018
Fish Community Survey	September 17, 2019

3.3.2.1 Ecological Land Classification

Site visits were conducted in the spring and summer of 2018 to document the ecological communities and vegetation resources associated with the subject property. Communities were mapped and described according to the Ecological Land Classification System for Southern Ontario (ELC) (Lee *et al.* 1998). All of the communities associated with the subject property are non-natural or cultural in origin. As ELC has not fully developed ecosites and vegetation types for cultural communities, the classification of features as cultural woodlands also includes areas that exceed 60% tree cover.

3.3.2.2 Floristic Survey

Floristic surveys were completed for vegetated areas of the subject property. A list of vascular plants encountered during the field investigation was compiled; each species was assigned a local, provincial and national conservation designation as well as identified as regionally native, introduced, or invasive.

Plant species nomenclature follows Flora Ontario – Integrated Botanical Information System (FOIBIS) (Newmaster and Ragupathy, 2012). Species conservation status is based on NHIC rankings and MNRF list (Distribution and Status of the Vascular Plants of the Greater Toronto Area, Varga *et al*., 2005).

3.3.2.3 Tree Inventory

An inventory of trees on the subject property by an International Society of Arboriculture (ISA) Certified Arborist from Beacon. All accessible trees > 8 cm in diameter on the subject property were marked with numbered aluminum forestry tags. Those which could not be safely accessed were assessed from a distance. Trees within 6.0 m of the subject property were also assessed but not tagged. Accessible trees on the subject property were subsequently surveyed by a registered OLS to produce the Tree Inventory and Preservation Plan (Beacon 2020b). Trees which were not included in the survey due to lack of safe access are included as tree groups on the Plan.

For each individually assessed tree, data was collected on species, trunk diameter, crown size, and overall health and structure. For trees which were grouped general species quantities, size, and overall condition was recorded. The condition of trees was assessed in terms of overall health and structural integrity based on indicators such as live buds, dead wood, decay, structural defects and presence of disease. Each tree was assigned a condition rating as follows:

- **Poor** – Severe dieback, significant lean, missing leader, major defects, significant decay and/or disease presence;
- **Fair** – Moderate dieback and/or lean, limb defects, multiple stems, moderate foliage damage from stress;
- **Good** – Healthy vigorous growth, minor visible defects or damage; or
- **Dead** – No live growth.

This information was used to prepare an Arborist Report and Tree Inventory and Preservation Plan (TIPP) that includes recommendations for tree preservation and tree removal. The Arborist Report and TIPP (Beacon 2020b) is provided under separate cover.

3.3.2.4 Breeding Bird Surveys

Three separate surveys were completed on the subject property to document breeding birds. Surveys were conducted using the protocols provided in the *Ontario Breeding Bird Atlas (OBBA) Guide for Participants* (Cadman *et al*. 2007) at an appropriate time of day (i.e., between dawn and five hours after dawn) and under suitable weather conditions (i.e., no thick fog or precipitation; winds generally less than 20 km/h). Survey details are presented in **Table 2**.

Table 2. Breeding Bird Survey Details

	Survey 1	**Survey 2**	**Survey 3**
Date:	June 4, 2018	June 13, 2018	June 22, 2018
Start Time:	6:00 am	6:30 am	6:00 am
End Time:	9:00 am	9:30 am	6:30 am
Temperature (˚C):	16	19-21	13
Wind speed (km/h):	12-28	1-11	1-11
Cloud cover (%):	90	100	0
Precipitation:	None	Light Rain	None

3.3.2.5 Waterfowl and Bird Migration Surveys

Lake Ontario is situated at the southern border of the subject property, meaning there is potential for waterfowl habitat, including nesting, stopover and staging. Additionally, Lake Ontario provides habitat for birds (including shorebirds and landbirds) during the fall and spring migration.

The three studies that had been conducted in the past (described in **Section 3.3.1**) have included bird surveys that studied how various avian species utilize the subject property and the study area. Biological survey of the OPG lands by Gregory (2001) includes bird surveys for the subject property in 2000 and 2001 that started at the onset of spring migration, continued through the breeding bird season and finished at the end of November to cover the fall migration. Additionally, CVC (2013) completed a study from August to November in 2012 that observed all birds on the subject property during the fall migration.

The Lakeview Waterfront Connection EA (SENES 2014) had an appended Ecological Technical Report prepared by CVC and Toronto and Region Conservations Authority (TRCA 2014). Although this report considered a larger study area, there were several bird surveys conducted directly adjacent to the subject property at the Region of Peel's G.E. Booth Wastewater Treatment Facility. These surveys included:

- Landbird migration surveys in the spring of 2011 and 2012;
- Landbird migration surveys in the fall of 2012;
- Shorebird migrations surveys in the fall of 2011; and
- Waterfowl migration surveys in the fall of 2011.

3.3.2.6 Amphibian Breeding Surveys

To survey for breeding amphibians, auditory surveys are typically undertaken during the prime breeding period to record the presence calling males. These surveys normally take place according to the following night time temperatures recommended in the Marsh Monitoring Program Protocol (Bird Studies Canada [BSC] 2009). Although, due to ongoing construction at the project subject property in 2018, the site is inaccessible during the time that amphibian call surveys take place.

Amphibians requires shallow, aquatic habitats to carry out their life processes such as mating, egg incubation and larval development (BSC 2009). Therefore, during the site visit on May 16, 2018, any areas of standing water on the subject property were assessed for potential amphibian habitat in lieu of conducting amphibian call surveys. The areas assessed are shown on **Figure 5**.

In 2019, the reduction in construction occurring on the subject property allowed Beacon to carry out Amphibian Call Surveys.

Anurans surveys were undertaken in the study area during the spring of 2019 to record the presence/absence of early, mid and late season breeding frogs and toads. These auditory surveys were conducted following the Marsh Monitoring Protocol (BSC 2009) during the prime breeding period to record calling males that are present, spread throughout the breeding season to include the short temporal peak for each species of interest.

LEGEND

- Subject Property
- Watercourse (MNRF 2018)
- Serson Creek Historic Channel
- Existing Ditch
- Areas Assessed for Amphibian Habitat
- Areas Assessed for Turtle Nesting
- 1 Fish Sampling Station*

* Fish sampling stations from work completed by CVC from 1992 to 2017

Nº	REVISIONS	DATE:	BY:
6			
5			
4			
3			
2			
1	COMMENT	xxxx/xx/xx	xx

SCALE: 1:5000 (0 – 100 m)

NORTH ARROW

COORDINATE SYSTEM: UTM Zone 17 N, NAD 83

BEACON ENVIRONMENTAL
GUELPH OFFICE
373 WOOLWICH ST,
GUELPH, ON N1H 3W4
T) 519.826.0419
519.826.9306
www.beaconenviro.com

CLIENT: LAKEVIEW COMMUNITY PARTNERS LIMITED

PROJECT: LAKEVIEW EIS, CITY OF MISSISSAUGA, ON

SHEET TITLE: BIOLOGICAL SAMPLING

DESIGN BY: --	PROJECT Nº: 217424
DRAWN BY: MB	FIGURE Nº: 5
CHECKED BY: KU	
DATE: 26 February 2019	

Surveys were conducted using the point count method whereby the surveyor stands at a set point for a specific period and records all species that can be heard calling from the location. Each survey station was surveyed for three minutes. Calling intensity for each species detected was assigned a call code as follows:

- Call Code 1 - individuals of one species can be counted, calls not simultaneous
- Call Code 2 - some calls of one species simultaneous, numbers can be reliably estimated
- Call Code 3 - full chorus, calls continuous and overlapping.

For call codes 1 and 2, the estimated number of calling individuals was recorded.

Point count stations were established in proximity to capture potential breeding amphibian habitats (i.e. wetlands and ponds). The locations of the point count stations lined up with the areas classified as amphibian habitat on **Figure 5** (as previously discussed).

3.3.2.7 Reptile Surveys

During the field surveys conducted by Beacon in 2018, habitat was reviewed to determine if Reptile-specific surveys were required. Additionally, if any reptiles were noted incidentally by an ecologist on site, they would be recorded.

Potential turtle nesting habitat was noted on the subject property, which was surveyed on September 19, 2018. Areas that were assessed for turtle nesting are shown on **Figure 5.**

3.3.2.8 Aquatic Habitat Surveys

Aquatic habitat assessments of the intake and discharge channels connected to Lake Ontario were completed in September and November 2018. Since habitat is unlikely to change over a period of one year, these assessments were not repeated in 2019 although incidental observations were recorded. Aquatic habitat assessments for Serson Creek were previously conducted as part of the LWC project as discussed in **Section 3.3.1.**

The assessment of aquatic habitat within the intake and outtake channels was completed by boat and involved a visual assessment of the following characteristics of each channel:

- Channel width and depth profile, bank height, bank stability;
- Substrate types and distribution;
- Fish barriers;
- Riparian vegetation type and cover; and
- In-stream cover type and extent.

3.3.2.9 Fish Community Survey

Beacon obtained fish community records from Credit Valley Conservation (CVC). Additionally, fish collection records were compiled from MNRF for both Lake Ontario within the vicinity of the subject property and Serson Creek.

Fish community sampling of the intake and discharge channels was completed on September 17, 2019. This was achieved by using a SmithRoot Cataraft Electrofisher fishing boat. Fish were caught, identified, measured, photographed and then returned to the channels.

3.3.2.10 Other Wildlife

Other wildlife taxa observed on the property during field investigations were noted as incidental observations.

3.4 Constraints and Opportunities Analysis

A constraint analysis was undertaken for the study area to identify natural heritage features and natural hazards that could present a constraint to redevelopment of the subject property. The types of constraints considered included significant natural heritage features and functions and associated ecological buffers, as well as natural hazards and their associated setbacks. Recommendations for appropriate ecological buffers are provided in the EIS. Recommendation for appropriate natural hazard setbacks are provided in other technical reports (i.e. *Shoreline Hazard Assessment* [Baird 2019b] and Erosion Hazard Design Life [Baird 2019a])).

The constraint analysis is based on a consideration of the following:

(i) presence of significant natural heritage features / areas and their associated ecological functions;
(ii) presence of physical and/or natural hazard constraints;
(iii) recommended buffers and setbacks; and
(iv) applicable environmental policies and regulations.

The analysis consisted of overlaying the various natural heritage and natural hazard constraints and their associated ecological buffers and setbacks. Feature limits were determined using standard protocols and policy definitions and guidelines. Setbacks to natural hazards were applied to ensure protection and safety of property.

Information collected through the biophysical inventory was also used to identify opportunities to restore and enhance the ecological integrity and functions of the significant natural heritage features that were identified for protection within the NHS.

Additionally, previous work that identified opportunities for the Lakeview Village development was reviewed and incorporated into this EIS. This included the Inspiration Lake Master Plan (Urban Strategies Inc. 2014), which was a plan put forward by the City of Mississauga to direct the development of the lands that make up the subject property. Also, the opportunities laid out in the Living by the Lake: 2019-2039 Action Plan to Restore the Mississauga Shoreline (CVC 2018) were considered in this EIS. The goal of this plan was to lay out the recommendations of CVC to conserve, enhance and restore the health of the Mississauga shoreline. This action plan is based on the Lake Ontario Integrated Shoreline Strategy (Aquafor Beech Ltd. 2011).

3.5 Impact Assessment

To assess potential impacts associated with the proposed redevelopment and to evaluate the effects on the biophysical environment, an impact assessment matrix was developed using a multi-disciplinary approach that provides an integrated framework for assessing impacts. The impact assessment matrix is organized by technical discipline (e.g., hydrology, terrestrial and aquatic ecology, etc.). It describes the various significant natural features, functions and attributes that require protection, identifies sources of potential impacts that may be expected with the type of development being proposed and recommends measures that can be incorporated into the design and construction so that impacts can be avoided or mitigated.

4. Study Findings

4.1 Site History

The subject property was cleared for agriculture in the 1800's and was farmed until the early 1950's. In the late 1950's the subject property was modified further to accommodate the former Lakeview Generating Station, a coal-fired power plant owned by Ontario Power Generation (OPG). The development included extensive lake filling out from the original shoreline to accommodate the plant and also for the western jetty. In the early 1980's, a breakwater was constructed off the southwest corner of the property for Lakefront Promenade Park. In the fall of 2016, construction of the Lakeview Waterfront Connection Project started to the east of the eastern jetty. In addition to the lake filling, existing drainage features such as Serson Creek were diverted to the eastern property limits and along the north side of the former spur rail line. For historical aerial photographs refer to Figure 2.1 of the *Lakeview Village Shoreline Hazard Assessment Report* (Baird 2019b).

The consequence of developing the subject property is that it does not support any natural heritage features that may have originally occurred on the site. There are however pockets of remnant forest located immediately to the east of the property on the G.W. Booth Waste Water Treatment Facility property. Additionally, new natural heritage features are being created along the shoreline to the east of the site through the Lakeview Waterfront Connection (LWC) project.

4.2 Physical Environment

4.2.1 Bedrock, Topography and Soils

The topography of the subject property is relatively flat and gently slopes from north to south. The study area is underlain by the grey shales of the Georgian Bay Formation (Chapman and Putnam 1984). Decommissioning Consulting Services (2013) found weathered, dark, grey shale bedrock along the shoreline east and adjacent to the subject property. The bedrock was located 12.81 meters below ground surface (mbgs) 185 meters east from the subject property and at 5.94 mbgs approximately 300 meters east from the subject property. Bedrock on the subject property is generally encountered at depths of 1.45 m to 12.0 m, however some boreholes as deep at 15.85 m did not encounter bedrock (EXP Services Inc. 2017).

The study area is located within the Iroquois Plain physiographic region of Southern Ontario and native soils in the area are comprised of older tills made of silty clay to silt till according to the Quaternary Geology, Toronto and Surrounding Area, Preliminary Map P2204 (MNR 1980). Looking at the conditions of the natural areas adjacent to the subject property, it can be assumed that prior to the disturbance, the soils on the subject property were made up of Chinguacousy clay loams (City of Mississauga 2016).

In their geotechnical investigation, EXP Services Inc. (2017) found that the top layer of the site consisted of various types of fill that sat on a thin layer of topsoil. Below this soil was sandy silt, followed by clayey silts, clayey silt till, sandy silt till, silt till and silt before finally hitting the shale bedrock as discussed above. The site has been extensively modified to first accommodate agriculture and then to support the generating station. As a consequence, there are no remnant landforms or topographic features evident on the subject property.

4.2.2 Shoreline

A technical Shoreline Hazard Assessment for the subject property was conducted by W.F. Baird and Associates Coastal Engineers Ltd. (Baird 2019b). Within this report, the Lakeview Village shoreline was classified as a large artificial shoreline system that will extend along Lake Ontario from the west at Lakefront Promenade Park, to the east, ending at the Lakeview Waterfront Connection project currently under construction.

Historically, the shoreline was altered to accommodate the OPG Lakeview Generating Station. The shoreline protection and marine facilities associated with the former power plant remain, including the Western Jetty and Eastern Jetty extending into Lake Ontario, the water intake channel and forebay, the intake pumphouses and pipes, the recirculating pipes and the discharge tunnel structures and discharge channel. The Eastern Jetty is not included in the Lakeview Village site. The total length of shoreline, excluding the Western Jetty, is about 2384 m; with both sides of the Western Jetty included, the total length is 3484 m.

The Lakeview Village Shoreline Hazard Assessment (Baird 2019b) provides a detailed description of the existing conditions of the shoreline.

4.3 Natural Heritage Resources

4.3.1 Background Review

The sections below summarize the key findings of several background studies that were completed for the subject property and adjacent lands. While these studies are not related to the project specifically, some of the information contained within them is helpful for establishing the ecological context.

4.3.1.1 Previous Studies Conducted for the Subject Property and Study Area

Lakeview Generating Station Biological Survey (Dan Gregory 2001)

In 2001, while the facility was still operating, Dan Gregory conducted a natural heritage study on the subject property. The purpose of this was to document flora and fauna along with their breeding activity over a full growing season for the Lakeview Generating Station. A summary of his findings for the site include 192 plant species, of which 40% were native, 131 species of birds, seven species of mammals, one amphibian species and one reptile species.

Ontario Power Generation (Lakeview) Summary Report (CVC 2013)

A natural heritage study was completed for the subject property by CVC in 2012. The study included the findings of vegetation and avian inventories. These inventories were carried out in the vicinity of the former coal yard which covers much of the eastern half of the subject property. These surveys were completed in support CVC's Lake Ontario Integrated Shoreline Strategy. In total, 94 species of plants were recorded, 24 of which were common, six uncommon, 54 non-native, and five that had no rarity ranking. Also documented as part of these surveys were 48 species of birds, nine species of butterflies and moths, four species of dragonflies/damselflies and two species of mammals.

Environmental Assessment for Lakeview Waterfront Connection (SENES Consultants 2014)

More recently, there were studies completed in support the Lakeview Waterfront Connection (LWC) projects as part of the Environmental Assessment (EA) process. While the focus of these studies was for the lands to the southeast of the subject property, the EA does consider the broader regional area that extends from the border of Oakville to the west to Colonel Samuel Smith Park in the City of Toronto to the east, and from Lakeshore Road to 2-3 km offshore into Lake Ontario. The EA was authored by SENES Consultants (2014), while the TRCA and CVC (2014) created their own natural heritage study that describes the natural environment work that was carried out in support of the LWC EA. This technical report characterized both terrestrial and aquatic habitat for the study area, and is appended to the LWC EA.

The results of these background studies are included and further detailed in the report sections below, and their data has been included in **Appendix A** and **Appendix B**.

4.3.1.2 The City of Mississauga Natural Areas Survey

The City of Mississauga Natural Areas Survey has natural heritage data available for areas adjacent to the subject property (City of Mississauga 2016). The Natural Area LV2 is located to the north east and is classified as a Natural Green Space that overlaps with the Serson Creek sub-watershed. Natural Area LV2 was identified on the Natural Areas Fact Sheet as being comprised of one ecological community: Fresh-Moist Lowland Ash Deciduous Forest Type (FOD7-2). See **Appendix C** for more details about this natural area.

4.3.1.3 Credit Valley Conservation

CVC was contacted to obtain additional natural heritage information for the Lakeview project. They forwarded all terrestrial wildlife digital data available for the study area. This data included 2886 records of insects, vegetation, herpetofauna (reptiles and amphibians), mammals and birds. The records were reviewed for the EIS but was not incorporated into its appendices as less than 5% of the records were from the subject property. Also, a great majority of the records included species that were already captured in the field studies that were previously conducted for the subject property and adjacent lands.

The CVC database included a record for Short-eared Owl (*Asio flammeus*), a species that was not previously documented for the area. This species is listed as Special Concern. It was observed in Lakeview Park by a member of the public in January 2017.

CVC also provided fish collection records of species that were caught in Lake Ontario directly adjacent to or within vicinity of the subject property.

Additionally, CVC undertakes subwatershed studies from time to time. These studies provide site-specific characterization and policy. The subject property falls in the area of the Subwatershed 22 - Lake Ontario Shoreline East, however there is no current Subwatershed study for the subject property.

In 2018, CVC completed a report entitle *Living by the Lake: 2019-2039 – An Action Plan to Restore the Mississauga Shoreline.* This report identifies several general objectives for restoring the overall waterfront and improving ecological conditions and functions along the shoreline. It also identifies specific actions to be implemented for sections or reaches of the shoreline, including Reach 2 which includes the study area and the Lakefront Promenade to the west. Actions identified for Reach 2 included managing stormwater, improving habitat quality, managing existing habitats, connecting habitat and education outreach. Most of these actions are listed as the responsibility of the City or CVC, however there is one private landowner action identified which consists of enhancing the terrestrial connection between Jim Tovey Lakeview Conservation Area to the east and the Lakefront Promenade Lands to the west.

4.3.1.4 Natural Heritage Information Centre

Other background information sources consulted in preparing this EIS included the Natural Heritage Information Centre (NHIC) database which yielded numerous observations for the 1 to 10 km grid square corresponding with the study area. One record within the subject property, Henslow's Sparrow (*Ammodramus henslowii*) is over 80 years old, while another record, Blanding's Turtle (*Emydoidea blandingii*) is almost 40 years old. Recent records for potential SAR for the area include:

- American Eel (*Anguilla rostrata*) – Federally Threatened, Provincially Endangered;
- Butternut (*Juglans cinerea*) – Federally and Provincially Endangered;
- Barn Swallow (*Hirundo rustica*) – Federally and Provincially Threatened;
- Bank Swallow (*Riparia riparia*) – Federally and Provincially Threatened; and
- Peregrine Falcon (*Falco peregrinus*) – Provincially Special Concern.

Additionally, NHIC shows that a Wildlife Concentration Area (a Colonial Waterbird Nesting Area) is in the vicinity of the subject property.

4.3.1.5 Ministry of Natural Resources and Forestry - Species at Risk Screening

As discussed in **Section 2.2**, correspondence from the MNRF in an email from M. Heaton (pers. comm. August 24, 2018) indicated that MNRF has records for a number of SAR in the vicinity of the study area. These species include:

- American Eel (*Anguilla rostrata*) – Federally Threatened, Provincially Endangered;
- Bobolink (*Dolichonyx oryzivorus*) – Federally and Provincially Threatened;
- Barn Swallow (*Hirundo rustica*) – Federally and Provincially Threatened;
- Bank Swallow (*Riparia riparia*) – Federally and Provincially Threatened;
- Little Brown Myotis (*Myotis lucifugus*) – Federally and Provincially Endangered; and
- Monarch (*Danaus plexippus*) – Federally Endangered, Provincially Special Concern.

It should be noted that these records do not correspond directly with the site but are located within the vicinity of the study area.

4.3.1.6 Ontario Breeding Bird Atlas

The OBBA uses 10 km x 10 km squares to describe the distribution of breeding bird species in Ontario (Cadman *et al*. 2007). The square that overlaps with the subject property (Square 17PJ12) is used to review the potential breeding bird species that are present. This square has 102 breeding species present. SAR have been found within this square include the following:

- Chimney Swift (*Chaetura pelagica*);
- Barn Swallow (*Hirundo rustica*);
- Bank Swallow (*Riparia riparia*);
- Bobolink (*Dolichonyx oryzivorus*);
- Eastern Meadowlark (*Sturnella magna*);
- Peregrine Falcon (*Falco peregrinus*);
- Common Nighthawk (*Chordeiles minor*);
- Eastern Wood-Pewee (*Contopus virens*); and
- Wood Thrush (*Hylocichla mustelina*).

It is important to note that the overlapping squares are much larger than the subject property, so the birds recorded within the square aren't necessarily present on the subject property.

4.3.1.7 Ontario Herpetofauna Summary Atlas

The Ontario Herpetofauna Summary Atlas uses 10 km x 10 km squares to describe the distribution of reptile and amphibian species in Ontario (Ontario Nature 2018). The square that overlaps with the subject property (Square 17PJ12) is used to review the potential herpetofauna species that are present (within 1886-2018). This square has 24 species present (from 336 records), including six turtle species, five snake species, five salamander species and eight frog/toad species. Of there 24 species, five are considered SAR in Ontario, which include:

- Jefferson Salamander (*Ambystoma jeffersonianum*);
- Blanding's Turtle (*Emydoidea blandingii*);
- Snapping Turtle (*Chelydra serpentine*);
- Northern Map Turtle (*Graptemys geographica*); and
- Eastern Musk Turtle (*Sternotherus odoratus*).

It is important to note that the overlapping squares are much larger than the subject property, so the reptiles and amphibians recorded within the square aren't necessarily present on the subject property. Furthermore, some species records are historic and suitable habitat for certain species is no longer present.

4.3.1.8 Ontario Butterfly Atlas

The Ontario Butterfly Atlas uses 10 km x 10 km squares to describe the distribution of reptile and amphibian species in Ontario (MacNaughton *et al.* 2016). The square that overlaps with the subject property (Square 17PJ12) is used to review the potential butterfly species that are present (within 1902-2017). This square has 54 species present (from 455 records), with only two SAR in Ontario: Monarch and Mottled Duskywing (*Erynnis martialis*). Although, the record of Mottled Duskywing is historic (1950).

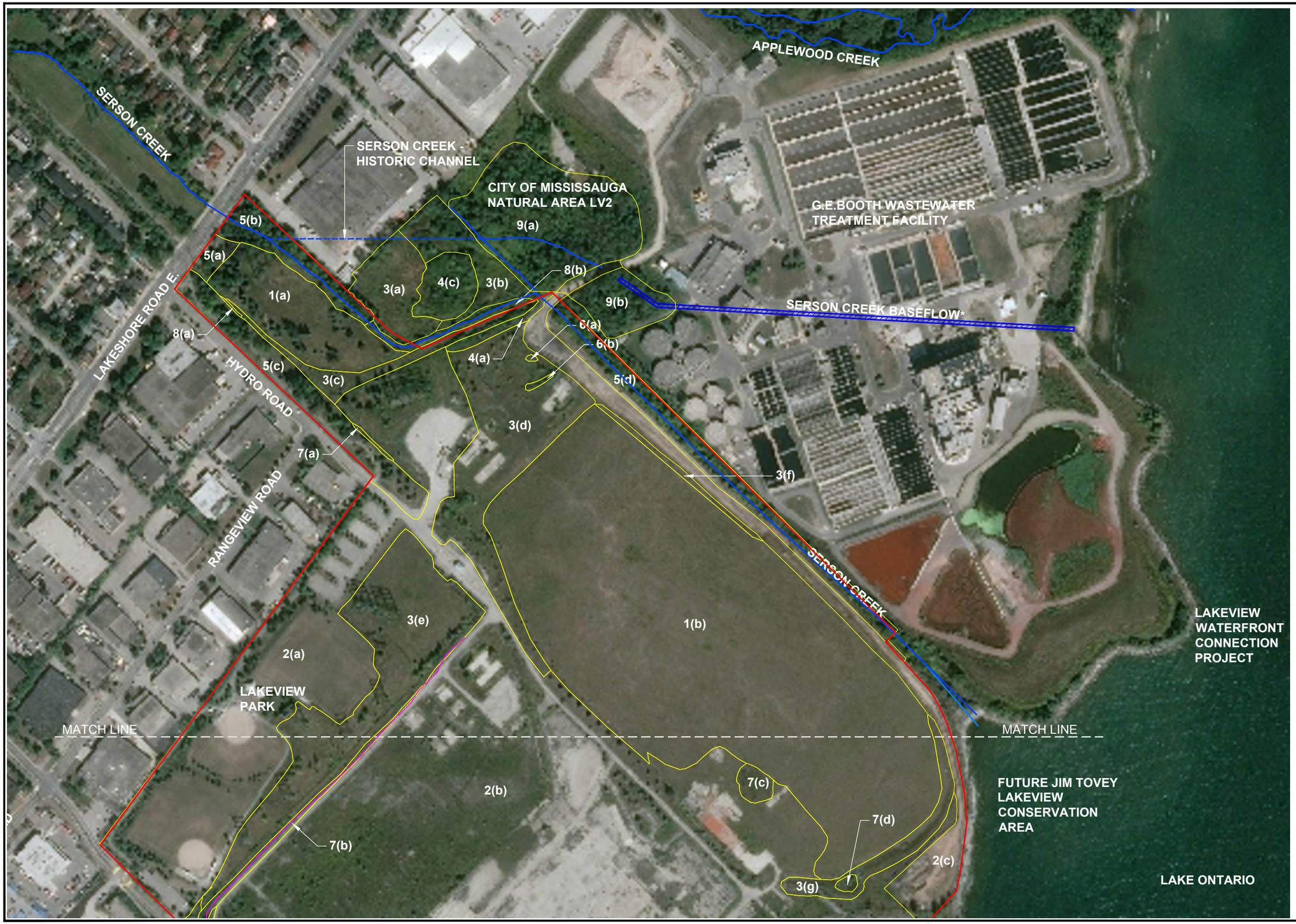
Again, it is important to note that the overlapping squares are much larger than the subject property, so the butterflies recorded within the square aren't necessarily present on the subject property and some records may be historic and suitable habitat may no longer be present.

4.3.1.9 Fisheries and Oceans Canada Aquatic Species at Risk Distribution Mapping

To identify the distribution and status of potential fish and mussel species at risk within the study area, the DFO Aquatic Species at Risk Distribution Map # 11 (DFO 2018) was reviewed.

There are three aquatic species at risk identified as potentially occurring in the vicinity of the study area, including two Special Concern species and one Endangered Species.

Two Special Concern species are noted approximately 1.6 km east of the study area along the shoreline of Lake Ontario: Deepwater Sculpin (*Myoxocephalus thompsonii)* and Upper Great Lakes Kiyi (*Coregonus kiyi*). Deepwater Sculpins are found at depths between 60 to 150 m and therefore are not likely to be present along the shoreline of the study area (COSEWIC 2006). The Lake Ontario population of the Upper Great Lakes Kiyi is considered extinct and was last observed in 1964 (DFO 2016). In addition, no critical habitat was identified through the DFO Aquatic Species at Risk mapping tool (October 4, 2018) in Lake Ontario adjacent to the subject property.
One Endangered species, Shortnose Cisco (*Coregonus reighardi),* was noted within the Credit River southwest of the study area. This species was last reported in Lake Ontario in 1964 (MNRF 2018). This species occurs in cold waters at depths of 22 to 110 m and is therefore unlikely to occur within the shallow waters along the subject property.



LEGEND

- Subject Property
- Watercourse (MNRF 2018)
- ELC Community Boundary
- Existing Ditch
- Serson Creek Baseflow *Taken from Fluvial Geomorphology Technical Report (Parish Geomorphic 2014)
- Serson Creek Historic Channel

ELC Unit	ELC Code	ELC Community
Cultural Communities		
1 (a,b)	AG	Agricultural
2 (a, b, c)	ANT	Anthropogenic
3 (a, b, c, d, e, f, g, h)	CUM1	Mineral Cultural Meadow
4 (a, b, c)	CUT1	Mineral Cultural Thicket
5 (a,b, c, d, e)	CUW1	Mineral Cultural Woodland
Natural Communities		
6 (a, b)	MAM	Meadow Marsh
7 (a, b, c, d)	MAS2	Mineral Shallow Marsh
8 (a, b)	SWT2-5	Red-Osier Mineral Thicket Swamp
9 (a), (b)	FOD7-2	Fresh-Moist Lowland Ash Deciduous Forest Type*

* Taken from City of Mississauga Natural Areas Survey (2016) - Natural Areas Fact Sheet for Natural Area LV2

N°	REVISIONS	DATE:	BY:
6			
5			
4			
3			
2			
1	COMMENT	xxxx/xx/xx	xx

SCALE: 1:4000 (0 50 100m)

NORTH ARROW

COORDINATE SYSTEM: UTM Zone 17 N, NAD 83

BEACON ENVIRONMENTAL

GUELPH OFFICE
373 WOOLWICH ST,
GUELPH, ON N1H 3W4
T) 519.826.0419
519.826.9306
www.beaconenviro.com

CLIENT: LAKEVIEW COMMUNITY PARTNERS LIMITED

PROJECT: LAKEVIEW EIS, CITY OF MISSISSAUGA, ON

SHEET TITLE: EXISTING CONDITIONS

DESIGN BY: --	PROJECT N°: 217424
DRAWN BY: MB	FIGURE N°: 6A
CHECKED BY: KU	
DATE: 26 February 2019	

LEGEND

- Subject Property
- Watercourse (MNRF 2018)
- ELC Community Boundary
- Existing Ditch

ELC Unit	ELC Code	ELC Community
Cultural Communities		
1 (a,b)	AG	Agricultural
2 (a, b, c)	ANT	Anthropogenic
3 (a, b, c, d, e, f, g, h)	CUM1	Mineral Cultural Meadow
4 (a, b, c)	CUT1	Mineral Cultural Thicket
5 (a,b, c, d, e)	CUW1	Mineral Cultural Woodland
Natural Communities		
6 (a, b)	MAM	Meadow Marsh
7 (a, b, c, d)	MAS2	Mineral Shallow Marsh
8 (a, b)	SWT2-5	Red-Osier Mineral Thicket Swamp
9 (a)	FOD7-2	Fresh-Moist Lowland Ash Deciduous Forest Type*

* Taken from City of Mississauga Natural Areas Survey (2016) - Natural Areas Fact Sheet for Natural Area LV2

N°	REVISIONS	DATE:	BY:
6			
5			
4			
3			
2			
1	COMMENT	xxxx/xx/xx	xx

SCALE

1:4000

0 50 100m

NORTH ARROW

COORDINATE SYSTEM

UTM Zone 17 N, NAD 83

BEACON ENVIRONMENTAL

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

T) 519.826.0419
519.826.9306
www.beaconenviro.com

CLIENT

LAKEVIEW COMMUNITY PARTNERS LIMITED

PROJECT

LAKEVIEW EIS,
CITY OF MISSISSAUGA, ON

SHEET TITLE

EXISTING CONDITIONS

DESIGN BY: --	PROJECT N°: 217424
DRAWN BY: MB	FIGURE N°: 6B
CHECKED BY: KU	
DATE: 26 February 2019	

4.3.2 Terrestrial Resources

4.3.2.1 Ecological Communities

Surveys of the ecological communities were completed in the summer of 2018. Ecological communities were mapped and classified according to the ELC system for southern Ontario (Lee *et al*. 1998). The locations of the various ecological communities are illustrated on **Figures 6a** and **6b**.

The subject property is comprised almost entirely of anthropogenic areas (unvegetated areas, sports fields, agricultural fields, and cultural communities [meadows, thickets and woodlands]). There are three types of small wetland communities that have developed in low-lying areas of the subject property. The following sections describe the ecological communities found on the subject property.

Anthropogenic Communities

Much of the study area is occupied by areas that are either non-vegetated, farmed, or actively maintained. As the ELC system was developed primarily to classify natural communities, there are no suitable classification categories for such features. The EIS has classified these features as Anthropogenic.

Photograph 1. Planted Soy (Unit 1b)

Agricultural (AG)

Much of the eastern portion of the subject property corresponding with the area of the former coal storage yard is farmed and cropped in soya for phytoremediation purposes (Units 1a and 1b). It is anticipated that as remediation works continue, that other portions of the property may be similarly treated to prepare the land for redevelopment.

Anthropogenic (ANT)

Unvegetated areas of the site, as well as playing fields and parking lots associated with Lakeview Park have been classified as Anthropogenic. At the time of the vegetation survey, anthropogenic areas on the subject property were undergoing construction, and all existing power generation facilities, buildings and anthropogenic structures had been removed from the site.

Some planted trees occur within the urban park areas (Unit 2a) to the west that were mostly hardy cultivar species such as Austrian Pine *(Pinus nigra)* and Norway Maple *(Acer platanoides)*.

The southwestern half of the subject property is characterized as Anthropogenic (Unit 2b and 2c) with rubble and bare soil, where vegetation is very sparse due to soil compaction and poor fertility, along with recent site clearance.

Photograph 2. Anthropogenic Areas under Construction Activity (Unit 2b)

Cultural Communities

Cultural communities include vegetated areas that are either being managed (i.e., plantations), or vegetated areas that have developed on lands that have been modified or disturbed to the extent that they no longer exhibit characteristics of natural communities and would not be expected to develop into natural communities over the long term. Such areas are also typically represented by a high proportion of non-native species or species assemblages that do not occur naturally.

A large portion of the study area is comprised of areas that are classified as cultural. Because the ELC system has not fully classified all types of cultural communities, the EIS has selected the cultural classifications that most appropriately describe the areas. As the ELC system has not developed classifications for cultural, non-plantation features with tree cover > 60%, such features were classified as cultural woodlands.

Mineral Cultural Meadow (CUM1)

Cultural meadows correspond with portions of the subject property that were formerly part of the Lakeview Generating Station landscaping or former agricultural lands on the adjacent properties. The northwesterly communities (Units 3a, 3b and 3d) support a variety of grasses such as Smooth Brome, Timothy (*Phleum pratense*) and Kentucky Bluegrass, Canada Bluegrass (*Poa compressa*). It also contains dry open field species, such as Goldenrods (*Solidago altissima. S. Canadensis, S. nemoralis*), Asters (*Symphyotrichum novae-angliae, S. lanceolatum, S. ericoides, Aster cordifolius, Symphyotrichum x amethystinum*), Dandelion (*Taraxacum officinale*), Yarrow (*Achillea millefolium*),

Canada Thistle, Bull Thistle (*Cirsium vulgare*), Tufted Vetch, Field Horsetail (*Equisetum arvense*) and Common Milkweed (*Asclepias syriaca*).

There is a narrow strip of cultural meadow in the northwest corner of the property covering an old railway bed (Unit 3c). Dominant species in this community are patchy with some areas dominated by cool season grasses (*Bromus inermis, Poa spp., Agrostis spp., Elymus repens*), Switchgrass (*Panicum virgatum*) and Crown Vetch (*Coronilla varia*). Yellow Sweet Clover (*Melilotus officinalis*), Tansy, Bird's-foot Trefoil and Leafy Spurge (*Euphorbia esula*) are abundant throughout this community.

Another community associated with Lakeview Park (Unit 3e) is dominated by grasses such as Smooth Brome (*Bromus inermis)*, Kentucky Bluegrass (*Poa pratensis*) and Fescue (*Festuca sp.*), and weedy forbs including Queen Anne's Lace, Canada Thistle, Tufted Vetch, Black Medick (*Medicago lupulina*), Teasel (*Dipsacus fullonum*), Lesser Burdock (*Arctium minus*) and St. John's Wort (*Hypericum perforatum*).

Some of the cultural meadows contain scattered trees and shrubs including White Ash (*Fraxinus americana*), Common Apple (*Malus pumila*), Russian Olive (*Elaeagnus angustifolia*), Tartarian Honeysuckle (*Lonicera tartarica*), Common Hawthorn (*Crataegus monogyna*) and Red-osier Dogwood.

Mineral Cultural Meadow communities that occur on the recent road embankment near the property's eastern edge (Unit 3f) and on the slopes adjacent to the ditch draining the soy field to the southeast (Unit 3g) are mainly dominated by field weedy forb species that include common species such as Tufted Vetch (*Vicia cracca*), Bird's-foot Trefoil (*Lotus corniculatus*), Red Clover (*Trifolium pratense*), Queen Anne's Lace (*Daucus carota*), Chicory (*Cichorium intybus*), Canada Thistle (*Cirsium arvense*), Spiny Plumeless-thistle (*Carduus acanthoides*), andBlack-eyed Susan (*Rudbeckia hirta*). A number of grasses (*Agrostis, Bromus, Festuca)* also occur on the southern section (Unit 3g) that have likely been hydro seeded.

A Mineral Cultural Meadow community has expanded along a bank of the southeastern basin (Unit 3h) that includes Goosefoot (*Chenopodium album*), Ragweed (*Ambrosia artemisiifolia*), Prickly Lettuce (*Lactuca serriola*), Red-osier Dogwood (*Cornus stolonifera*), Goldenrod (*Solidago sp*.), Queen Anne's Lace, Tansy (*Tanacetum vulgare*) and Eastern Cottonwood (*Populus deltoides*) saplings.

Photograph 3. Mineral Cultural Meadow Dominated by Grasses and Goldenrods (Unit 3a)

Photograph 4. Mineral Cultural Meadow Over an Old Railway Bed (Unit 3c)

Mineral Cultural Thicket (CUT1)

There is a section of Mineral Cultural Thicket (Unit 4a) that occurs as a small strip adjacent to the old railway bed that has a dense canopy dominated by Staghorn Sumac (*Rhus typhina*), Tartarian Honeysuckle and Manitoba Maple (*Acer negundo*), but also contains Common Apple, Multiflora Rose (Rosa multiflora), Goldenrod (*Solidago sp.*), Avens (*Geum sp.*) and Red Raspberry (*Rubus idaeus*).

Another area of Mineral Cultural Thicket (Unit 4b) is located on the western edge of the property, near a basin that is part of the former industrial facilities and along a drainage ditch. The community is dominated by Common Sea Buckthorn (*Hippophae rhamnoides*) with associates of Tartarian Honeysuckle, Manitoba Maple, Staghorn Sumac, Hawthorn Sp. (*Crataegus sp.*) and Ash (*Fraxinus sp*). The ground cover in these communities varied but generally consists of common terrestrial forbs such as Chicory, Viper's Bugloss (*Echium vulgar*e), Heath Aster (*Symphyotrichum ericoides*) and Yarrow, among others.

Unit 4c is located offsite and north of Serson Creek. The unit is dominated by Staghorn Sumac, Tartarian Honeysuckle, Red-osier Dogwood, and Red Raspberry. There are also scattered trees emerging from this unit including Apple, Manitoba Maple, Norway Maple and Crack Willow.

Photograph 5. Mineral Cultural Thicket Dominated by Common Sea Buckthorn (Unit 4b)

Cultural Woodland (CUW1)

There are two linear cultural woodland communities (Units 5a and 5c) associated with Lake Shore Road East and Hydro Road. These areas contain the Lakeshore Trail and are comprised of lawn with ornamental tree plantings. The areas support mid-aged planted deciduous and coniferous trees

including Silver Maple (*Acer saccharinum*), Norway Maple, Red Oak (*Quercus rubra*), English Oak (*Quercus robur*), Austrian Pine, White Spruce (*Picea glauca*), and Colorado Blue Spruce (*Picea pungens*). In addition to the planted trees, there are also some naturalized trees present such as Manitoba Maple, Basswood (*Tilia americana*) and Ash. The understory is largely absent or sparse, with occasional shrubs such as Tartarian Honeysuckle, Guelder-rose (*Viburnum opulus*), Raspberry (*Rubus sp*) and Rose (*Rosa sp.).* The ground layer is comprised of manicured lawn grasses, such as Fescue, in maintained areas, and meadow species in unmaintained areas such as Smooth Brome, English plantain (*Plantago lanceolata*), Timothy, Tall Goldenrod (*Solidago altissima*), Tufted Vetch, Bird's Foot Trefoil, and Sulphur Cinquefoil (*Potentilla recta*).

The cultural woodland communities located along Serson Creek (Units 5b and 5d) are successional, non-native communities dominated by immature Manitoba Maple and Norway Maple. Trees and shrubs occur throughout the community on the slopes adjacent to the creek included White Ash, Austrian Pine, Common Apple, Trembling Aspen (*Populus tremuloides*), Eastern Cottonwood, American Elm (*Ulmus americana*), White Birch (*Betula papyrifera*), Chokecherry (*Prunus virginiana*), Serviceberry (*Amelanchier sp*), Staghorn Sumac, European Mountain Ash (*Sorbus aucuparia*), Tartarian Honeysuckle, Riverbank Grape (*Vitis riparia*) and Red Raspberry. The ground flora assemblage is an indicator of a disturbed environment with a mix of native and non-native plants such as Wild Chervil (*Anthriscus sylvestris*), Garlic Mustard (*Alliaria petiolata*), Thicket Creeper (*Parthenocissus inserta*) and Avens. Wetland species are scattered through the community where it abutted the creek, including Crack Willow (*Salix fragilis*), Red-osier Dogwood, Spotted Jewelweed (*Impatiens capensis*), Ginger Mint (*Mentha arvensis*), Water Hemlock (*Cicuta maculata*) and Devil's Beggar-Ticks (*Bidens frondosa*).

Another cultural woodland community occurs in the southeast end of the site (Unit 5e). It is dominated by Eastern Cottonwood and Russian Olive as well as planted trees such as Norway Maple, White Spruce, Blue Spruce and Austrian Pine. Its canopy cover varies from 20 to 40%, with portions recently removed in the context of the industrial site clearance. The understory consists of Chokecherry, Tartarian Honeysuckle, Red-osier Dogwood and Wayfaring Tree (*Viburnum lantana*). Dominant groundcovers are Tall Goldenrod, Tansy, Honey Clover (*Melilotus alba*), Thicket Creeper and Riparian Grape.

Photograph 6. Mineral Cultural Woodland Along Serson Creek (5d)

Natural Communities

Meadow Marsh (MAM)

Stands of Common Reed (*Phragmites australis*) are intermixed through many of the meadow fields within the study area. However, larger pure stands of Common Reed are also present near the eastern road approximately 50 m northwest of the soy fields (Units 6a and 6b). This Meadow Marsh community is a cultural marsh habitat and does not occur naturally in Ontario. Common Reed is a non-native, invasive species, which typically occurs as a homogenous single species stand, as is the case here.

Mineral Shallow Marsh (MAS2)

A narrow band of wet vegetation occurs in a section of the old railway ditch east of Hydro Road that is identified as a Mineral Shallow Marsh community (Unit 7a). This community is predominantly comprised of Narrow-Leaved Cattail, Purple Loosestrife, Panicled Aster, Torrey's Rush (*Juncus torreyi*), Red-osier Dogwood and Missouri Willow (*Salix eriocephala*), among other species.

Another Mineral Shallow Marsh on the subject property made up of a narrow stand of mixed (grass and forb) vegetation and is associated with the ditch that extended along the northwestern boundary of former industrial parcels (Unit 7b). The ditch bottom is dominated by Narrow leaf Cattail, Purple Loosestrife and Red-osier Dogwood with stands of Common Reed occurring on the unit's western edge. Panicled Aster and Grass-leaved Goldenrod (*Euthamia graminifolia*) occurs in lesser amounts on the slopes. During field investigations, standing water up to 10 cm deep was observed in this wetland area.

A Mineral Shallow Marsh community (Unit 7c) with standing water occurs adjacent to the agricultural field, and featured wetland species such as Common Reed, Reed Canary Grass (*Phalaris arundinacea*), Purple Loosestrife, Panicled Aster, and species of Sedge (*Carex sp*) and Rush (*Juncus sp*).

The last Mineral Shallow Marsh Feature (Unit 7d) found on the subject property, which occurs as it accumulates surficial runoff from the field. It is dominated by Narrow leaf Cattail, Common Reed, Red-osier Dogwood, Willow species and Eastern Cottonwood.

.

Photograph 7. Drainage Ditch Featuring Mineral Shallow Marsh Community (Unit 7b)

Red-osier Mineral Thicket Swamp (SWT2-5)

A narrow band of wet, woody vegetation occurs in sections of the old railway ditch east of Hydro Road. This was identified as a Mineral Thicket Swamp community (Unit 8a) and is predominantly comprised of Red-osier Dogwood and Green Ash (*Fraxinus pennsylvanica*), with occurrences of Reed Canary Grass and Purple Loosestrife.

Another similar community dominated by Red-osier Dogwood was associated with a northwestern section of Serson Creek (Unit 8b). It is characterized by a narrow riparian corridor featuring small trees and shrubs. This community also includes American Elm, Green Ash, Chokecherry, Guelder-rose and Multiflora Rose among other species.

Fresh-Moist Lowland Ash Deciduous Forest (FOD7-2)

A Fresh-Moist Lowland Ash Deciduous Forest feature occurs adjacent to the subject property and is included as LV2 within the City of Mississauga Areas Survey (City of Mississauga 2016). It is shown on **Figure 6** as ELC Unit 9a and 9b. This forest canopy is 10-25 m in height, covers greater than 60% of the community and contains Green Ash and American Elm. Its subcanopy is dominate by American Elm with a 25-60% and 2-10 m height. The understorey is made up of Hawthorn, Common Buckthorn (*Rhamnus cathartica*) and Tartarian Honeysuckle, has a height of 1-2 m and covers 10-25% of the community. The dense ground layer (with a >60% cover) contains Garlic Mustard, Spotted Jewelweed and Red Raspberry. Several inclusions in this community include Jewelweed Mineral Meadow Marsh (MAM2-9), Green Ash Mineral Deciduous Swamp (SWD2-2) and Dry-Moist Old Field Meadow (CUM1).

4.3.2.2 Flora

A total of 163 plant taxa were observed on the subject property by Beacon in 2018. A checklist, including species status is provided in **Appendix A.** Of the species observed, slightly less than half are non-native plant species. This high percentage of non-native plant species is common cultural communities and in natural areas adjacent to urban development.

Previous floristic inventories of the subject property and adjacent lands by Gregory (2001), CVC (2013) and SENES 2014; as discussed in **Section 4.3.1.1**. When the species recoded from those studies are combined with the data collected by Beacon in 2018, the total number of species is 304 (spanning 2001-2018). The ratio of invasive species to native species is very similar to the results that only consider work conducted in 2018, meaning that the site has a history of a high percentage of non-native plants.

No SAR species were recoded. There was suspected Butternut (*Juglans cinerea*) observed on the northwest corner of Lakeview Park (ELC unit 2a, **Figure 6**) but it was subsequently confirmed to be a hybrid through genetic testing by the Ontario Forest Research Institute, and it was tested positive for hybridity, meaning the tree was not pure butternut. Therefore, the tree is not considered a true butternut and is not protected under the ESA, 2007.

No other floral SAR have been noted on the subject property from 2001-2018. A majority of native plant species are ranked provincially as S5 (Secure) with the exception of Black Walnut (*Juglans nigra)*, which is ranked provincially as S4 (Apparently Secure). Planted ornamental species such as Honey Locust or Ohio Buckeye have not been considered in this analysis.

The following species are listed as uncommon or rare in Peel Region by Varga (2005) and were identified on the subject property in 2018:

- White Spruce (*Picea glauca*) - Rare;
- Switch Grass (*Panicum virgatum*) - Rare;
- Cleavers (*Gallium aparine)* - Rare;
- Sandbar Willow (*Salix exigua*) - Rare;
- Common Evening Primrose (*Oenothera biennis*) - Uncommon;
- Early Goldenrod (*Solidago juncea)* - Uncommon; and
- Golden-fruited Sedge (*Carex aurea*) - Uncommon.

An additional 15 plant species recorded by previous studies (Gregory 2001, CVC 2013, SENES 2014) were also listed as rare or uncommon in the Peel Region (Varga 2005). An all-inclusive list of plant species for the subject property (along with their local conservation status) from the data collected by Beacon in 2018 and by other studies are provided in **Appendix A**.

4.3.2.3 Bird Surveys

Breeding Birds

A total of 27 species of breeding, or potentially breeding birds, were recorded in 2018 on the subject property by Beacon. Most of the species encountered were common species that are widespread in open, scrubby habitats, or fragmented or disturbed habitats, which found on most of the subject property. Some of the more abundant species observed included: Red-winged Blackbird (*Agelaius phoeniceus*), Song Sparrow (*Melospiza melodia*), and Yellow Warbler (*Setophaga petechia*). Species that were observed flying or foraging in the area but not breeding on the subject property include Bank Swallow (*Riparia riparia*) and Barn Swallow (*Hirundo rustica*). These two species are listed provincially and federally as threatened. Other avian SAR formerly associated with the study area were discussed in **Section 4.3.1.**

Although the Bank Swallow was observed only foraging on the subject property, they have been known to breed in the study area. In 2011, a Bank Swallow colony was noted within the fly-ash piles on the adjacent lands associated with the wastewater treatment facility. This colony is historic in nature and habitat no longer exists.

Two provincially and federally ranked threatened bird species, Bobolink (*Dolichonyx oryzivorus*) and Eastern Meadowlark (*Sturnella magna*) were observed on the subject property in 2018 during the breeding bird surveys. Both species historically used occupied natural grasslands such as prairies meadow marshes but have also adapted to using pastures and hayfields. These species are also commonly be found using idle agricultural fields, roadsides, utility corridors, and other large open grassy areas. Small trees, shrubs and fence posts are often used as song perches (COSEWIC 2011).

During the 2018 surveys, Bobolink and Eastern Meadowlark were observed in the 14-hectare field (ELC Unit 1b) corresponding with the former coal storage yard for the Lakeview Generating Station. Since decommissioning of the facility in 2005, the area has been subject to various remediation efforts to address contaminated soils, including cropping. The condition of this idle agricultural field was forb dominated and represented suboptimal habitat for these species, which explains why only single pairs of Bobolink and Eastern Meadowlark were observed during the first two surveys that were conducted on June 4, 2018 and June 13, 2018 respectively. Neither of these species were observed during the third survey on June 22, 2018 because the field had been farmed and planted with a soya crop for phytoremediation purposes some time during the prior week. These farming activities removed habitat for these two species. It should be noted the removal of habitat for the purposes of farming is permitted under the habitat regulations for these species (Ont. Reg 242/08).

Considering these recent findings, along with the results from the three other natural heritage studies done, a total of 161 species of birds were recorded for the subject property and the study area. A comprehensive list of these birds showing what year they were noted, their breeding status (if it was available), and their conservational statuses is provided in the Fauna List (**Appendix B**).

While S1-S3 (Critically Imperiled through Vulnerable) ranked bird species have been recorded from the study area in the past, none were observed during the 2018 breeding bird surveys. A list of former occurrences is presented in **Appendix B**.

CVC (2002) includes a list of 110 avian Species of Conservation Concern, including endangered, threatened, rare species as well as those with specialized habitats or of highest research priorities.

Thirteen species recorded during breeding bird surveys in 2018 are designated as Conservation Concern:

- Barn Swallow;
- Bank Swallow;
- Cliff Swallow (*Petrochelidon pyrrhonota*);
- Common Grackle (*Quiscalus quiscula*);
- Eastern Kingbird (*Tyrannus tyrannus*);
- Killdeer (*Charadrius vociferus*);
- Savannah Sparrow (*Passerculus sandwichensis*);
- Bobolink;
- Eastern Meadowlark;
- Orchard Oriole (*Icterus spurius*);
- Northern Mockingbird (*Mimus polyglottus*);
- Gray Catbird (*Dumetella carolinensis*); and
- Brown Thrasher (*Toxostoma rufum*).

As was noted previously, the records for Barn Swallow and Bank Swallow are for foraging individuals not breeding individuals. However, the eleven other species listed above were all noted as breeding on the site. These species are considered Conservation Concern due to declining population trends in the Credit River watershed, however there are gaps in the supporting data, and in our opinion, most of the listed species are relatively abundant in urban and urbanizing landscape in the watershed and are generally secure.

Waterfowl and Bird Migration Surveys

As discussed in **Section 3.3.2.3**, the results of the waterfowl and migration surveys conducted by the TRCA (2014) as part of the LWC EA (SENES 2104), CVC (2012) and Gregory (2001) for the subject property and the study area are included in the Fauna List provided in **Appendix B**.

4.3.2.4 Breeding Amphibian Surveys

Assessments of potential amphibian habitats on the subject property in spring 2018 yielded no evidence of amphibian breeding (e.g. eggs or tadpoles). Gregory (2001) had recorded the presence of a calling American Toad adjacent to the subject property; this species was calling in early May during his study time period. CVC (2013) did not see any evidence of amphibians on the subject property in 2012.

Out of the seven species listed above that were suspected to be present, only American Toad, Green Frog, Gray Treefrog and Northern Leopard Frog were seen and recorded in the broader study area during the LWC EA study in 2012.

The 2019 amphibian call surveys support the findings of the 2018 amphibian habitat assessment, as all anurans heard or seen were in close proximity to areas classified as potential amphibian habitat (**Figure 5**). American Toad and Green Frog were recorded within Mineral Shallow Marsh (include ELC Units 7 a, 7b, 7c and 7d) as shown on **Figure 6**. Additionally, American Toad was also noted in a puddle within a Mineral Cultural Meadow (ELC Unit 3d) near the site entrance. This area was not considered potential breeding amphibian habitat in 2018 as the puddle did not exist.

All amphibians note on the subject property and adjacent lands are considered common in Ontario (ranked provincially as S4 or S5 by NHIC).

4.3.2.5 Reptiles

During the field surveys of the property in 2018, a single Midland Painted Turtle (*Chrysemys picta marginata*) was recorded on September 19, 2018. On this date, areas where potential turtle nesting could occur (as shown on **Figure 5**) were surveyed to look for evidence of turtle nesting. Apart from the Midland Paint Turtle basking on a pipe along the Lake Ontario shoreline just west of the border of the subject property, no evidence of other turtles or turtle nesting was observed.

One other species of reptile was observed in 2018 was Eastern Garter Snakes (*Thamnophis sirtalis sirtalis*). Four individuals were observed in the morning of August 8, 2018. Of these one was an adult and the other three were juveniles.

During the study conducted by Gregory (2001), he also recorded the presence of four Eastern Garter Snakes on the subject property. Additionally, he had noted that OPG staff had seen Snapping Turtle (*Chelydra serpentina*), Midland Painted Turtle and Northern Water Snake (*Nerodia sipedon sipedon*) within the locality. CVC (2013) did not observe reptiles on the subject property in 2012, however Midland Painted Turtle was recorded in the broader LWC study area in 2012, but no reptiles were noted on the subject property.

4.3.3 Aquatic Resources

4.3.3.1 Aquatic Habitat Characterization

Serson Creek

The Serson Creek originates south of the Queen Elizabeth Way and forms part of CVC's Lake Ontario East Shoreline Subwatershed, which drains an area of approximately 270 ha. The Serson Creek subwatershed is a highly urbanized area (CVC 2014). Serson Creek flows in a south easterly direction along the eastern boundary of the subject property and for the most part, it is located on the subject property south of Lakeshore Road but traverses with the adjacent property in several locations. The channel is heavily modified and was re-aligned and channelized along the property boundary to accommodate the G.E. Booth Wastewater Treatment Facility and former Lakeview Generating Station. This modification to Serson Creek included the construction of a stormwater drainage channel which discharges to Lake Ontario during storm events. The baseflow channel redirects both baseflow and

excess stormflow under the wastewater treatment facility where it is discharged into Lake Ontario (GHD 2015). Serson Creek and this baseflow channel are shown on **Figure 6**. This diversion of flow from the main channel of Serson Creek impairs ecological functions within the southern section of Serson Creek and prevents fish migration from the lake to the watershed due to low flow barriers and limits the ability to establish a functioning coastal wetland at its mouth (CVC and TRCA, 2012).

In 2014, SENES completed a detailed assessment of the watercourse. At that time, Serson Creek was inaccessible to fish due to the enclosed baseflow channel and blockage of the stormwater drainage channel at the mouth to Lake Ontario from a buildup of zebra mussel shells and woody debris (GHD 2015). This creek is mainly composed of fine sediment such as silt, sand, and fine gravel, and Benthic invertebrate sampling in 2011 indicated water quality was reflective of poor to fairly poor water quality with significant organic pollution (SENES 2014). Water quality in Serson Creek is described as impaired with high nutrient loads that have resulted in large algal blooms (CVC 2014). A water quality analysis was completed as part of the Lakeview Waterfront Connection EA. The results identified that Serson Creek exceeded the Provincial Water Quality Objectives PWQO for Total Phosphorus and *E.Coli*.

The banks of the creek are protected with cobble riprap and are at a 45-degree angle (Parish Geomorphic 2013). Using the Rapid Stream Assessment Technique, Parish Geomorphic (2013) determined that Serson Creek scored low on the in-stream habitat portion of the assessment. As discussed, the lower segment of the channel which is only used during high flow events, is overgrown with vegetation due to the lack of continuous discharge and therefore provides low-quality aquatic habitat. Site visits undertaken in 2011 confirmed that there is minimal interaction between Serson Creek and the Lake Ontario shoreline (Aquafor Beech, 2011).

Lake Ontario – Intake and Discharge Channels

A Heritage Impact Statement was prepared by OPG in 2013 that details the construction timeline of the Lakeview Generating System. As previously discussed, when the Lakeview Generating Station was constructed in the 1960's, the Lake Ontario shoreline was extensively modified. Lakefilling was undertaken to extend the site further south by approximately 75 m to 175 m. The shoreline was reinforced with gravel and rock, and parts of the breakwater were re-vegetated with trees, grasses and shrubs (OPG 2013). To protect the generating station intake pumps, a 375 m long breakwall was constructed to form the 40 m wide intake channel. The shoreline along the western boundary was also extensively modified to create a 22 m wide and 130 m long discharge channel. Two jetties were also constructed to accommodate lake freighters delivering coal. These jetties extend the intake channel an additional 500 m into the lake. The western jetty is constructed with a combination of rock mounds and steel cells with rock and concrete. In subsequent years the eastern jetty was extended by the addition of three steel barges that were filled with concrete.

Intake Channel

As documented in the *2019 Water Quality Monitoring and Aquatic Habitat Characterization Report* (Beacon 2020a), the total length of the constructed intake channel is about 1000 m as measured from the intake headwall to the tip of the jetties. The average width of the channel is 35 m. The depth of the channel, measured at its centre, is approximately 6.0 m and is excavated into natural bedrock. This channel is connected to Lake Ontario and provides relatively sheltered lacustrine (lake like) fish habitat without flow or extreme wave action. The channel is straight, and its banks are lined with angular cobble

and boulders (rip rap stone) at a 2:1 incline. The intake headwall structure is made of concrete and is vertical. The only vegetation present consists of shrubs and trees which are growing at the top of the constructed banks. These shrubs and trees do not provide cover for fish or shading to the channel. Within the channel, aquatic vegetation is very sparse and consists of non-native Eurasian water-milfoil (*Myriophyllum spicatum*), curly-leaved pondweed (*Potamogeton crispus*), as well as sago pondweed (*Potamogeton pectinatus*) and Canada water weed (*Elodea canadensis*). Overall, the intake channel provides minimal habitat structure and vegetation cover for fish. This is due to the flat structureless bedrock bottom and uniform rip rap banks. No aquatic macrophytes were observed in October 2018. Overall this constructed channel provides minimal cover for fish due to its uniformly shaped banks and channel bottom.

Gregory (2001) observed that the intake channel is the only area that possesses aquatic plants. These plants include Eurasian water-milfoil (*Myriophyllum spicatum*), curly-leaved pondweed (*Potamogeton crispus*), sago pondweed (*Potamogeton pectinatus*), and Canada water weed (*Elodea canadensis*). Aquatic species therefore may reside in the intake channel among the vegetation.

Discharge Channel

As documented in the *2019 Water Quality Monitoring and Aquatic Habitat Characterization Report* (Beacon 2020a), the constructed discharge channel is approximately 140 m long and has a width of approximately 20 m. The channel is excavated into bedrock and is approximately 6.0 m deep at its centre. The discharge channel outlets to the marina basin at Lakefront Promenade Park. The basin in largely enclosed by a 630 m long groyne wall. Like the intake channel, the discharge channel also provides relatively sheltered lacustrine (lake like) fish habitat without flow or extreme wave action. Its structure is also similar to the intake channel. The channel is straight with banks constructed of rip rap stone at a 2:1 incline. Sections of the channel are lined with gabion baskets filled with angular stone and other parts are lined with large concrete slabs. The discharge headwall structure is made of concrete and is vertical. There are several abandoned industrial structures along the shoreline some of which are partially sub-merged including metal steps, metal pipe, a floating walkway, etc. No aquatic macrophytes were observed, however algal growth is evident during the summer and fall.

Vegetation consisted of shrubs and trees growing at the top of the constructed banks. These shrubs and trees do not provide cover for fish or shading to the channel, however the abandoned industrial structures along the banks provide some cover to fish. Overall, this constructed channel provides minimal cover for fish due to its uniformly shaped banks and channel bottom.

4.3.3.2 Fish Community

Beacon obtained CVC fish collection records for Serson Creek and Lake Ontario within the vicinity of the Study Area. The data contains fish sampling records from over a period beginning in 1992 through to 2017. Data was collected from two sites within Serson Creek and 32 sites in Lake Ontario within the vicinity of the Study Area. Sampling was not carried out annually and that not all sites were sampled during each sampling year. Fish sampling locations are shown on **Figure 5**. **Appendix D** summarizes the fish collection data for Lake Ontario that was gathered as background information. Fish community results are not included for Serson Creek as no fish species were captured.

Since 1992, 28 species of fish have been collected from these Lake Ontario sampling stations within the vicinity of the Study Area. Over half of these species (18) were still present in 2017. It should also be noted that sampling in 2017 resulted in the highest number of different fish species caught over the sampling years. Additionally, three new fish species were captured in 2017 which have not been recorded in previous sampling years, this included Brook Silverside (*Labidesthes sicculus*), Rainbow Smelt (*Osmerus mordax*) and Brown Trout (*Salmo trutta*). Coho Salmon (*Oncorhynchus kisutch*) which is an introduced uncommon species, was caught at Station 2 in 1992 and have not been captured since. The differences in species captured through the years does not necessarily indicate that there has been a reduction or increase in species diversity but may be due to sampling timing and methods employed.

The species composition indicates that the nearshore habitat along the subject property supports a diverse fish community. Several species have been recorded that are known to be sensitive to environmental degradation, such as siltation and pollution, including four Salmonid species and Rainbow Smelt. There are no CVC records of American Eel or other SAR within the vicinity of the Study Area.

The results of the fish community sampling conducted by Beacon in 2019 are presented in **Table 3** and are also discussed in the *2019 Water Quality Monitoring and Aquatic Habitat Characterization Report* (Beacon 2020a). It is important to note that Common Carp (*Cyprinus carpio*) were observed in the intake and discharge channels but were not caught. Due to the depth of the channels, smaller fish at the bottom of the channels were observed but not affected by the electric current.

Table 3. Fish Community Sampling Results from 2019

Family	Common Name	Scientific Name	Thermal Regime	General Abundance	Ontario Origin	Intake Channel	Discharge Channel
Centrarchidae	Bluegill	*Lepomis macrochirus*	Warmwater	Common	Native	X	
	Pumpkinseed	*Lepomis gibbosus*	Warmwater	Common	Native	X	
	Rock Bass	*Ambloplites rupestris*	Coolwater	Common	Native		X
	Smallmouth Bass	*Micropterus dolomieu*	Coolwater	Common	Native/ Introduced		X
Cyprinidae	Bluntnose Minnow	*Pimephales notatus*	Warmwater	Common	Native		X
	Common Carp*	*Cyprinus carpio*	Warmwater	Common	Introduced	X	X
	Spottail Shiner	*Notropis hudsonius*	Coolwater	Common	Native	X	
Ictaluridae	Brown Bullhead	*Ameiurus nebulosus*	Warmwater	Common	Native	X	

Notes:
Thermal regime, abundance, Ontario origin, tolerance and preferred habitat taken from the Ontario Freshwater Fishes Life History Database - http://www.ontariofishes.ca/home.htm
Abundance - The relative likelihood or frequency of occurrence of a species assuming suitable habitat conditions.
Tolerance - Ability of a species to adapt to environmental perturbations or anthropogenic stresses.* observation only

Based on the fish community results, the intake and discharge channels support both coolwater and warmwater fish species. There was a total of 15 fish caught in the intake channel and seven fish caught in the discharge channel. Brown Bullhead, Pumpkinseed, Bluegill, Common Carp and Spottail Shiner were recorded in the intake channel. Bluntnose Minnow, Rockbass, and Smallmouth Bass were found in the discharge channel. All of these species are common in Ontario, found in lacustrine habitat and tolerant to environmental perturbations or anthropogenic stresses.

Based on the aquatic habitat conditions identified in the intake and discharge channels by Beacon, as well as the through the background review within the vicinity of the study area, there is no suitable habitat for aquatic SAR identified associated with the subject property.

4.3.4 Other Wildlife

During the field studies conducted by Beacon in 2017 2018, and 2019, as well as other studies that have been done for the study area and subject property (as described in **Section 3.3.1**), wildlife taxa that were noted incidentally were recorded. This included 22 species of mammals, 11 species of dragonflies and damselflies, 20 butterfly species and terrestrial crayfish chimneys (exact species unknown). Most of these species are secure (S5) or apparently secure (S4) in Ontario.

One species incidentally noted by Beacon in 2018 that is of conservation concern is the Monarch (*Danaus plexippus*). This butterfly is listed as Special Concern in Ontario and is discussed further in **Section 4.4.5.**

The Fauna List provided in **Appendix B** includes all species observed during these natural heritage studies and their conservation status.

4.4 Evaluation of Significance

As was previously discussed in **Sections 1** and **2**, neither the ROP nor MOP identify components of the Regional Greenlands System or the City's NHS on the subject property. The only natural area identified within the study area corresponds with a small forest community located adjacent to the eastern limits of the property limits on the G.E. Booth Wastewater Treatment Facility property. This wooded area is identified as City of Mississauga Natural Area CV2 and forms part of the City's NHS. It is mapped as Significant Natural Area and Special Management Area on MOP Schedule 3.

As the natural areas mapping presented in the ROP and MOP schedules is produced at a coarse scale, it does not always accurately reflect the natural heritage features and functions that may occur in a given area. Identification of natural heritage features relies upon detailed studies, such as this EIS. Such studies are also required to determine whether any of the natural heritage features and ecological functions that may be present could also be considered significant in accordance with applicable provincial, regional and local policies and criteria. The following subsections describe how the various natural heritage features and ecological functions that were documented in the study area through this EIS were evaluated to determine their level of significance.

4.4.1 Significant Wetlands

Significant wetlands are described in the PPS (2014) as follows:

> *…an area identified as provincially significant by the Ontario Ministry of Natural Resources using evaluation procedures established by the Province, as amended from time to time.*

The MOP considers Significant Wetlands to include Provincially Significant Coastal Wetlands, (PSCWs), Provincially Significant Wetlands (PSWs), Coastal Wetlands, and Other Wetlands greater than 0.5 ha.

A review of MNRF mapping has confirmed that the study area does not support any evaluated wetlands or wetlands identified as PSCWs or PSWs.

The EIS has identified several very small wetland communities in the study area (ELC Units 6,7, and 8). These wetlands are associated with ditches and depressions in the agricultural field. All are smaller than 0.5 ha in area and would therefore not be considered significant wetlands. Additionally, CVC has not identified these small wetlands in their regulation mapping.

There are two larger wetlands that have recently been constructed at the mouth of Serson Creek for conservation purposes as part of the LWC project. Once these wetlands become operational (vegetated and functional), they will satisfy MOP criteria for Significant Wetland because they would qualify as both Coastal Wetlands and Other Wetlands greater than 0.5 ha in area. As the wetlands are still not operational, the EIS has not identified them as Significant Wetlands.

As these wetlands are located off the subject property, no potentially significant wetlands will be affected by the proposed Draft Plan (GSAI 2019).

4.4.2 Significant Habitat for Threatened or Endangered Species

Significance, as it relates to the habitat of endangered species and threatened species is defined by the PPS (2014) as:

> *…the habitat, as approved by the Ontario Ministry of Natural Resources, that is necessary for the maintenance, survival, and/or the recovery of naturally occurring or reintroduced populations of endangered species or threatened species, and where those areas of occurrence are occupied or habitually occupied by the species during all or any part(s) of its life cycle…*

A review of available background information in **Section 4.3.1** revealed records for several endangered and threatened species in the study area. Some of these records are considered historical or from other locations that do not overlap with the study area. More recent records relate to threatened species such as barn swallow, bank swallow, and bobolink that were associated with man-made habitats (i.e. ash piles, structures and fields. Such habitats no longer exist in the study area. A complete summary of all threatened and endangered species on record for the study area and environs in presented in **Appendix E**.

Bobolink and Eastern Meadowlark were noted as singing on the subject property within ELC Unit 1b, which was converted from cultural meadow to soya in June of 2018. It was not confirmed if young Bobolink and Eastern Meadowlark were successfully fledged prior to this conversion. MECP was not consulted as the removal of habitat for these species for agricultural activities is permitted under the exemption provisions of Ont. Reg. 242/08 under the Endangered Species Act. The area continues to be farmed and no suitable habitat is present.

Based on existing habitat conditions, the only potion of the study area that supports natural features that could support habitat for endangered or threatened species is the forest community associated with the G.E. Booth Wastewater Treatment Facility (ELC Unit 9a and 9b). This area could potentially support habitat for endangered bats. MECP considers forest and swamp ecosites as potential maternity habitat. The forest community is located off the subject property and will not be affected by the proposed Draft Plan (GSAI 2019) or the Serson Creek channel works.

4.4.3 Significant Woodlands

Significant Woodlands are recognized as components of the City's NHS. Significant Woodlands are defined in the PPS, and in the ROP and MOP. All the definitions are consistent with respect to attributes and functions that make a woodland significant, however there is some variability in how they are to be identified.

The PPS defines Significant Woodlands as follows:

> *… 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. These are to be identified using criteria established by the Ontario Ministry of Natural Resources…*

The ROP defines Significant Woodlands as follows:

> *…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 …the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history.*

The MOP defines Significant Woodlands as follows:

> *…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. These will be identified using criteria established by the Region of Peel in consultation with the City.*

Based on the MOP definition of significant woodland, the City relies upon Regional criteria in determining woodland significance.

Prior to application of the significant woodland criteria, it is necessary to first identify which of the treed features in the study area meet the definition of a "woodland" as per the ROP and MOP.

The ROP defines "woodlands" as follows:

> *…ecosystems comprised of treed areas, woodlots, forested areas and the immediate biotic and abiotic environmental conditions on which they depend. Woodlands provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, the provision of clean air and the long-term storage of carbon, the provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include woodlots, cultural woodlands, cultural savannahs, plantations and forested areas and may also contain remnants of old growth forests.*
>
> *Woodlands are further defined as any area greater than 0.5 ha that has:*
>
> *a) a tree crown cover of over 60% of the ground, determinable from aerial photography, or*
> *b) a tree crown cover of over 25% of the ground, determinable from aerial photography, together with on-ground stem estimates of at least:*
> *i. 1,000 trees of any size per hectare,*
> *ii. 750 trees measuring over five centimetres in diameter at breast height (1.37m), per hectare,*
> *iii. 500 trees measuring over 12 centimetres in diameter at breast height (1.37m), per hectare, or*
> *iv. 250 trees measuring over 20 centimetres in diameter at breast height (1.37m), per hectare (densities based on the* Forestry Act of Ontario *1998) and,*
>
> *which have a minimum average width of 40 metres or more measured to crown edges.*
>
> *Treed portions with less than the required stocking level will be considered part of the woodland as long as the combination of all treed units in the overall connected treed area meets the required stocking level. Woodlands experiencing changes such as harvesting, blowdown or other tree mortality are still considered woodlands. Such changes are considered temporary whereby the forest still retains its long-term ecological value…*

Of the various treed features in the study area, there is only one feature (broken into ELC Units 9a and 9b), which is considered to satisfy the definition of a woodland. This feature corresponds a Fresh to Moist Lowland Ash Deciduous Forest. It is located on the adjacent G.E. Booth Wastewater Treatment Facility property. The feature is approximately 2.5 ha in area and satisfies the cover and density requirements of a woodland. As ELC Units 9a and 9b are greater than 0.5 hectares and are located within 30 m of a watercourse (Serson Creek), they meet the criteria of a Significant Woodland under MOP policy 6.3.12f.

Other treed features in the study area include cultural woodlands that are either too small (<0.5 ha) or too narrow (<40 m in width on average) to satisfy the definition of woodland. This EIS has determined that the cultural woodland communities on the subject property corresponding with ELC Units 5a, 5b, 5c, and 5e do not meet the definition of "woodland". As such, these features would not qualify for consideration as Significant Woodlands.

As the significant woodlands is located off the subject property, it will not be directly affected by the proposed Draft Plan (GSAI 2019).

4.4.4 Significant Valleylands

Regarding valleylands, significant is defined by the PPS (2014) as:

> *…ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system …*

Significant valleylands are normally identified by municipalities with input from their agency partners. Significant valleylands are also recognized regionally as Core Areas of the Greenlands System and locally as Significant Natural Areas that form part of the City's NHS.

The MOP (2019) criteria for significant valleylands reads as follows:

> *6.3.12 h significant valleylands are associated with the main branches, major tributaries and other tributaries and watercourse corridors draining directly to Lake Ontario including the Credit River, Etobicoke Creek, Mimico Creek and Sixteen Mile Creek.*

According to this definition, Serson Creek would qualify as a Significant Valleyland because it drains directly into Lake Ontario, however it is our opinion that because the creek is not associated with a natural valley landform is does not meet the definition of a valleyland. Valleyland is not defined in either the ROP or MOP, but is defined in the PPS as follows:

> *Valleyland: means a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year.*

According to this definition, a valleyland needs to be both a natural area as well as a landform.

Serson Creek is neither a natural area nor a landform. Serson Creek historically flowed southeast to the lake across was is currently the G.E. Booth Wastewater Treatment Facility lands. In the 1960's the creek was diverted to a constructed ditch along the eastern property boundary. A portion of the creek flow was also diverted through a pipe under G.E. Booth Wastewater Treatment Facility. While the ditch functions as a valley for this creek, it does not represent a natural landform and for this reason does not satisfy the definition of a valleyland and should not be considered a significant valleyland.

Irrespective of whether Serson Creek is identified as a significant valleyland or not, the LWC project has proposed that the channel be reconstructed to a more natural form to restore basic ecological functions.

As there are no significant valleylands associated with the subject property, the Draft Plan (GSAI 2019) will not impact on such areas.

4.4.5 Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) includes those natural areas, features, attributes and functions that represent the best examples of wildlife habitat within a municipality. The PPS defines SWH as follows:

> *Significant: means: in regard to other features and areas, ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system…*

The responsibility for confirming SWH is assigned to the local or regional planning authority; however, municipalities rely upon proponents to identify "candidate SWH" through studies such as this EIS.

According to the *Significant Wildlife Habitat Technical Guidelines* (MNR 2000), there are four broad categories of SWH:

1. Seasonal Concentration Areas of Animals;
2. Rare Vegetation Communities or Specialized Habitat for Wildlife;
3. Habitat for Species of Conservation Concern; and
4. Animal Movement Corridors.

Within each of these categories, there are multiple subcategories of SWH, each of which is intended to capture a specialized type of habitat that may or may not be captured by other existing feature-based categories (e.g., significant wetlands, significant woodlands).

To determine if the study area supports wildlife habitat features, attributes or functions that could qualify as candidate SWH, the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF 2015) were applied. The analysis is presented in **Appendix F**.

In addition to the 2015 MNRF criteria, the Region of Peel has developed criteria using the *Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study*, (NSEI *et al*. 2009). While the study pre-dates the MNRF criteria and have also not been adopted as Regional policy, they have nevertheless been reviewed and considered. A listing of which criteria apply to the study area is presented below in **Table 4**.

Table 4. List of Regional Significant Wildlife Habitat Criteria

Significant Wildlife Habitats Criteria*	Study Area		
	Present	Not Present	N/A
A1. Deer Wintering Area		√	
A2. Colonial Bird Nesting Sites (e.g., heronry, gull colony)		√	
A3. Waterfowl Nesting Habitat		√	
A4i. Migratory Landbird Stopover Areas **(Natural Area LV2 ELC Units 9a and 9b)**	√		
A4ii. Migratory Bat Stopover Areas **(Natural Area LV2 ELC Units 9a and 9b)**	√		

Significant Wildlife Habitats Criteria*	Study Area		
	Present	Not Present	N/A
A4iii. Migratory Butterfly Stopover Areas		√	
A4iv. Migratory Waterfowl Stopover and/or Staging (Terrestrial)		√	
A4v. Migratory Waterfowl Stopover and/or Staging (Aquatic)		√	
A4vi. Migratory Shorebirds Stopover Areas		√	
A5. Raptor Wintering Areas (i.e., used for feeding and/or roosting)		√	
A6. Snake Hibernacula		√	
A7. Bat Maternal Roosts and Hibernacula		√	
A8. Bullfrog Concentration Areas		√	
A9. Wild Turkey Winter Range			√
A10. Turkey Vulture Summer Roosting Areas		√	
B1. Rare Vegetation Communities		√	
B2. Forests Providing a High Diversity of Habitats (captured by Significant Woodlands)		√	
B3. Old-growth or Mature Forest Stands (captured by Significant Woodlands)		√	
B4. Foraging Areas with Abundant Mast (i.e., nut bearing trees)		√	
B5. Highly Diverse Areas		√	
B6. Cliffs and Caves		√	
B7. Seeps and Springs		√	
B8i. Amphibian Breeding Habitat - Forested Sites (e.g., vernal pools)		√	
B8ii. Amphibian Breeding Habitats - Non-forested Sites (e.g., marshes)		√	
B9. Turtle Nesting Habitat and Turtle Overwintering Areas		√	
B10. Habitat for Area-Sensitive Forest Interior Breeding Bird Species		√	
B11. Habitat for Open Country and Early Successional Breeding Bird Species		√	
B12. Habitat for Wetland Breeding Bird Species		√	
B13i. Raptor Nesting Habitat - Wetlands, Pond and Rivers		√	
B13ii. Raptor Nesting Habitat - Woodland Habitats		√	
B14. Mink, River Otter, Marten and Fisher Denning Sites		√	
B15. Mineral Licks			√
C1. Species identified as Nationally Endangered or Threatened by COSEWIC which are not listed as Endangered or Threatened under Ontario's *Endangered Species Act*		√	
C2. Species identified as Special Concern based on Species at Risk in Ontario List that is periodically updated by the OMNR **(Monarch and Snapping Turtle)**	√		
C3. Species that are listed as rare (S1-S3) or historical in Ontario based on Records kept by the Natural Heritage Information Centre in Peterborough (**Refer to Appendix B**)	√		
C4. Species whose populations appear to be experiencing substantial declines in Ontario	√		
C5. Species that have a high percentage of their global population in Ontario and are rare to uncommon in the Regional Municipality of Peel		√	
C6. Species that are rare to uncommon in the Regional Municipality of Peel, even though they may not be provincially rare	√		
C7. Species that are subject of recovery programs		√	
C8. Species considered important to the Regional Municipality of Peel, based on recommendation from a local Conservation Advisory Committee			√
D1. Animal Movement Corridors **(Lake Ontario and Serson Creek)**	√		

*Criteria provided in the *Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study* (North-South Environmental Inc., Dougan and Associates, and Sorensen Gravely Lowes 2009).

Based on a review of the Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study (NSEI *et al*. 2009; **Table 4**), it was determined the subject property does not support rare vegetation communities or specialized habitats. However, it does support seasonal wildlife concentration areas, habitat for species of conservation concern and animal movement corridors. These are summarized below.

Seasonal Concentration Areas of Animals

The EIS has determined that the forested habitat associated with the adjacent G.E. Booth Wastewater Treatment Facility property (ELC Unit 9) represents candidate SWH for Bat Maternity Colonies and Landbird Migratory Stopover Areas because its size, type and quality.

Rare Vegetation Communities or Specialized Habitat for Wildlife

No rare vegetation communities or specialized habitat for wildlife has been identified in the study area.

Habitat for Species of Conservation Concern

Terrestrial Crayfish chimneys were found west of ELC unit 7a (**Figure 6a**). Even though the presence of one or more chimneys in moist, terrestrial sites should stipulate SWH, the area where it was observed is contaminated with hydrocarbons and undergoing site remediation. For this reason, the area is not considered to be Candidate SWH.

The EIS has identified potions of the study area as candidate habitat for two Species of Conservation Concern (Monarch (Special Concern) and Snapping Turtle (Special Concern)).

Animal Movement Corridor

The shoreline of Lake Ontario qualifies as a primary movement corridor for various animals and plants and Serson Creek may qualify as a tertiary movement corridor for wildlife.

Future Potential SWH

The LWC Project to the east of the property involves creation of extensive wetland, woodland and grassland habitats along the shoreline in front of the G.E. Booth Wastewater Treatment Facility. When construction is completed, it is anticipated that the area (Jim Tovey Lakeview Conservation Area) will support a broad range of important wildlife habitat functions and that over time, the will satisfy criteria for various SWH, including Waterfowl Stopover and Staging Areas (Aquatic), Shorebird Migratory Stopover Areas, Turtle Wintering Areas, Turtle Nesting Areas, Waterfowl Nesting Areas, Amphibian Breeding Habitat, Marsh Breeding Bird Habitat, and possibly many others.

4.4.6 Significant Areas of Natural and Scientific Interest

Regarding Areas of Natural and Scientific Interest (ANSIs), significant is defined by the PPS as:

> *…areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education.*

A review of MNRF mapping has confirmed that the study area does not overlap with any designated life or earth science ANSIs.

4.4.7 Linkages

The study area is situated in the Lakeview Neighbourhood of southern Mississauga between Port Credit to the west and Long Branch in Toronto to the east. The study area and adjacent lands are comprised primarily of industrial lands, including wastewater and water treatment facilities to the east and west respectively. Low-density residential areas are located to the north of Lakeshore Road East. There are several parks associated with the study area including Lakeview Park in the north and Douglas Kennedy Park to the west. Both these parks are active recreational areas with ball diamonds. To the southwest there is the Lakefront Promenade Park and Marina and to the southeast is the Jim Tovey Lakeview Conservation Area which is part of the Lakeview Waterfront Connection project.

Natural areas associated with the study area are limited to a 2.5 ha forest community located on in the northwest corner of the Lakeview Wastewater Treatment Facility property. This forest community forms part of Natural Area LV2 (off-site). Other treed features in the study area include the cultural woodlands associated with Serson Creek which flank the eastern boundary. With the exception of a narrow connection to Serson Creek, LV2 is somewhat isolated from other adjacent other natural areas such as Marie Curtis Park (LV1) located 200 m to the east of LV2.

Although the Lake Ontario shoreline on the subject property is hardened and steep, it does provide for a relatively uninterrupted corridor that connects the site to the shoreline to the west and east. Notwithstanding obstacles such as jetties and fences, it does provide linkage functions for migrating wildlife, especially birds, insects, small mammals and reptiles. As much of the shoreline in poorly vegetated, the linkage functions are reduced. Under the proposed Draft Plan (GSAI 2019), much of the shoreline area will be converter to park an open space which will provide opportunities to enhance linkage functions.

Serson Creek, located on the eastern edge of the subject property, provides some localized linkage functions by connecting natural area LV2 to the lake. Connectivity of the subject property to upstream areas of Serson Creek is largely precluded Lakeshore Road East which acts as a barrier. Currently, there is a large wetland being created at the mouth of this creek as part of the LWC project. It is also proposed that much of Serson Creek be re-configured and naturalized. It is anticipated that these efforts will enhance the linkage functions as well as improve fish and wildlife habitat along the creek.

4.4.8 Fish Habitat

The study area includes portions of the Lake Ontario shoreline as well as Serson Creek. Both the lake and creek support fish habitat, either directly or indirectly (for further detail, refer to **Section 4.3.3**). The PPS (2014) treats all fish habitat equivalently regardless of significance. All water features (i.e. permanent or intermittent streams, seasonally flooded areas, and natural ponds are generally considered fish habitat. The PPS applies only to waterbodies that constitute fish habitat, as defined by the *Fisheries Act* including:

- spawning grounds and any other areas;
- nursery, rearing, food supply; and
- migration areas on which fish depend directly or indirectly in order to carry out their life processes.

Serson Creek provides low quality fish habitat mainly due to the enclosure of the low flow channel and blockage of the high flow channel. The Intake and Discharge channels associated with Lake Ontario provide suitable fish habitat.

5. Constraints and Opportunities

The purpose of the constraint analysis is to identify biophysical features and functions that could present constraint to redevelopment of the subject property. While impact avoidance is considered the primary method for environmental protection, it is also recognized that constrained areas cannot always be avoided, and that other effective methods exist that can mitigate potential adverse impacts of development on the environment.

In addition to the identification of environmental constraints, the EIS has identified a number of opportunities for restoring the natural environment that could be implemented as part of the proposed redevelopment. The proposed Draft Plan of Subdivision (GSAI 2019) has been designed to respect areas that are environmentally constrained and to also capitalize on opportunities to improve the natural environment.

5.1 Constraints

There are several biophysical features associated with the study area that represents constraints to the proposed redevelopment of the subject property. The purpose of the constraint analysis is to identify significant natural heritage features and functions that must be protected as well as natural hazards that must be avoided. These are discussed below.

5.1.1 Natural Heritage Constraints

Based on the background information and studies described in **Section 4.3** and through the evaluation of significance presented in **Section 4.4**, it was determined that significant natural heritage features in

the study area are associated with the Lake Ontario, Serson Creek and Natural Area LV2 (associated with the G.E. Booth Wastewater Treatment Facility property).

Natural heritage constraints identified within the study area include the following:

- Fish Habitat (Serson Creek and Lake Ontario);
- Habitat for Endangered and Threatened Species (Natural Area LV2);
- Significant Woodlands (Natural Area LV2);
- Significant Wildlife Habitat (Lake Ontario Shoreline, Serson Creek, Natural Area LV2, LWC); and
- Future Significant Wetlands (LWC).

All of the features listed above qualify as components of the City's Natural Heritage System.

It is the policy of the City of Mississauga that ecological buffers to natural features be determined on a site-specific basis through an EIS or similar study to the satisfaction of the City and appropriate conservation authority. Given the history of the subject property and the fact that the proposed redevelopment is being implemented in accordance with OPA 89 which identifies the future configuration of the green spaces and NHS, the establishment of ecological buffers to features that remain to be created is not addressed in this EIS. As the Lake Ontario Shoreline and Serson Creek corridor are proposed to be redesigned, ecological buffers to the existing features have not been recommended. Development limits to these features will be determined by applying the appropriate erosion hazard setbacks.

Where significant natural heritage features do occur (i.e. Natural Area LV2), it is proposed that a 10 m ecological buffer be applied to from the limit of development, however such limits would not apply to conservation related site alterations such as rehabilitation of the Serson Creek corridor.

5.1.2 Natural Hazards

The study area includes lands that are considered natural hazards and represent a constraint to future redevelopment. Natural hazards are limited to the erosion hazard along Lake Ontario and the flood and erosion hazards along Serson Creek. Areas prone to flooding and erosion represent development constraints and must generally be avoided. The proposed development will need to be situated outside the limits of any natural hazards and their associated setbacks.

Serson Creek

The Serson Creek flood hazard was based on the one-hundred-year flood line, while its erosion hazard will need to be determined once the Serson Creek has been restored (as discussed in **Section 6.5**). DS Consultants Ltd. assessed the stability of the existing west bank slope of Serson Creek to determine the location of the long-term stable top of slope (LTSTOS) line for this feature (2019). Full detail of this work is included in the Geotechnical Slope Stability Assessment, Serson Creek, Lakeview Village, 800 Hydro Road, Mississauga, Ontario Report (DS Consultants Ltd. 2019).

Additionally, Beacon conducted a geomorphic assessment report under a separate report cover (Beacon 2019b) to characterize existing geomorphic conditions of Serson Creek on the subject property

and complete an erosion hazard assessment for the existing corridor, as requested by CVC (M. Marinas, email dated April 30, 2019).

Lake Ontario Shoreline

Baird (2019b) conducted a Shoreline Hazard Assessment for the subject property to determine natural hazard constraints from Lake Ontario. The lake's flood hazard was determined from the one-hundred-year flood level, the appropriate allowance for wave uprush, and other water related hazard (e.g. ice action).

As stated in the Shoreline Hazard Assessment (Baird 2019b):

> *For the purpose of establishing an appropriate allowance for wave action to determine the flood hazard limit, the CVC standard* (CVC Watershed Planning and Regulation Policies, April 2010) *of 15 m (horizontal offset) measured from the 100-year flood level contour for shoreline sections exposed directly to the lake (e.g., Outer Shore) and 5 m for areas exposed to limited wave action (West Shoreline and easterly end of IFN shoreline at intake channel) has been applied. This approach is appropriate because the elevation of the development land ensures that the flood hazard does not govern the limit of the shoreline hazard; the erosion hazard governs at the site.*

The Shoreline Hazard Assessment (Baird 2019b) also discussed the erosion hazard associated with Lake Ontario. The erosion hazard consists of the long-term stable slope allowance in addition to the erosion allowance.

The stable slope at the shoreline was determined by DS Consulting (2018) to be 2.25 horizontal, 1 vertical. The stable slope allowance of the existing shoreline was then determined by multiplying the height of the shore by 2.25, which varied along the shoreline (Baird 2019b).

The Shoreline Hazard Assessment (Baird 2019b) used the accepted practice to determine the erosion allowance, as presented in the MNRF *Technical Guide*, to determine that the following erosion allowances apply for the Lakeview Village shoreline:

- 12 m erosion allowance at the Outer Shore;
- 6 m erosion allowance at easterly end of Intake/Forebay North (IFN) shoreline at intake channel because of reduced wave exposure;
- 2 m erosion allowance at West Shoreline; and
- No additional erosion allowance for protected areas in intake channel and discharge area.

The erosion hazard limit governs over the flood hazard limit at the site, therefore the erosion hazard limit is the shoreline hazard limit. These hazard limits without the setbacks are mapped on Figure 4.1 within the Shoreline Hazard Assessment (Baird 2019b). Baird will be responsible for the design of the shoreline protection at Lakeview in accordance to accepted practice (Baird 2019a).

5.1.3 Recommended Development Limits

Based on consideration of the various natural heritage and natural hazard constraints described above, and application of ecologically appropriate buffers and technically supportable hazard setbacks, it is recommended that the limit of the greatest constraint be used to establish the development limits for the proposed redevelopment. Through overlaying the various constraints, it was determined that the following environmental constraints be used to define the limits of future development:

- 10 m buffer from the boundary of the forest community (ELC Units 9a and 9b) in Natural Area LV2;
- 6 m setback from slope hazard associated with the re-designed Serson Creek; and
- Recommended erosion allowance setbacks from Lake Ontario as per Baird (2019b).

5.2 Opportunities

The biophysical assessments completed as part of this EIS have confirmed that despite being identified as part of the City's NHS, the Lake Ontario shoreline and Serson Creek corridors provide limited ecological functions. This is not unexpected as neither of these areas represent natural features. Instead, they are the product of previous lake filling and diversion works and heavily engineered. Most of the Lake Ontario shoreline, as well as the intake and discharge channels are steep and unvegetated providing for little habitat or linkage functions. There are sections of the shoreline between the groyne and the discharge channel that are vegetated that do offer some cover for wildlife, but this strip is very narrow and dominated by non-native ornamental and invasive species.

Similarly, Serson Creek offers limited ecological functions because of poor water quality, lack of habitat structure and predominance of non-native invasive vegetation cover, all of which diminish its level of function in terms of fish habitat, wildlife habitat and linkage.

Despite their limited ecological functions, opportunities do exist to improve and enhance these areas. The LWC project on the adjacent JTLCA property to the southeast is a perfect example. The proposed redevelopment presents a number of opportunities for enhancement of the Serson Creek valley and Lake Ontario shoreline, and its associated ecological functions. Additionally, there are opportunities to implement measures more centrally within the proposed development that can compliment and support the opportunities along the lake and Serson Creek (i.e., LIDs, native plantings, microhabitats, etc.).

Additional recommendations are provided in Living by the Lake: 2019-2039. An Action Plan to Restore the Mississauga Shoreline (CVC 2018), Inspiration Lakeview Master Plan (Urban Strategies Inc. 2014) and the Fish Community Objectives for Lake Ontario (Great Lakes Fishery Commission, 2017. The various opportunities are summarized in **Table 5**.

One proposed opportunity discussed in **Table 5** includes the installation floating wetlands within the intake and discharge channels. There are several benefits to the installation of floating wetlands from both a water quality and fish habitat perspective. Floating wetlands consist of floating structures for plants that are placed in water of any depth. They provide treatment for water quality by suspending solids, taking up nutrients and providing shade to discourage algae growth. In addition, floating wetlands provide important cover for fish and other aquatic life. These structures can be custom-made

for any size or type of waterbody and can be specifically designed to ensure the appropriate plants are selected to treat water quality concerns.

This idea stemmed from a study conducted in the City of Chicago (Illinois, United States of America) called the "Wild Mile", which proposes to naturalize a mile-long section of the North Branch Canal and Turning Basin of the Chicago River , of which has been highly impacted and modified by anthropogenic sources (Skidmore, Ownings & Merrill LLP *et al.* 2019). This study refers to them as "wetland rafts" and describes them and their benefits as follows:

> *A hard-lined edge limits the opportunities for habitat. By varying the ins and outs of an edge formed by vegetation, opportunities for successful habitats are multiplied. Rivers are naturally dynamic. They meander, grow and bend over time. By way of a modular approach we can aggregate angular floating wetland rafts to mimic the curves of nature.*

Furthermore, as discussed in the 2019 Water Quality Monitoring and Aquatic Habitat Characterization Report (Beacon 2020a), one of the most common reasons for beach closings are from *Escherichia coli* (*E.coli*) contamination. *E.coli* comes from a variety of sources, however one main contributor is fecal matter from waterfowl. Currently, the Lakeview site is undergoing demolition and there are few 'green' areas for waterfowl to access. Waterfowl were documented during the breeding bird studies as well as during incidental observations. Nuisance waterfowl management strategies may need to be considered in future scenarios to ensure that water quality is not impacted.

Table 5. Natural Heritage Enhancement Opportunities

Habitat Type	Description of Opportunity	Anticipated Benefits
Terrestrial Vegetation	Removing highly vegetation such as Manitoba Maple, Common Buckthorn and Honeysuckle and replacing them with native vegetation	• Enhance biodiversity by managing invasive species • Restore native vegetation species, which will then support native wildlife species such as migrating birds • Improve erosion control • Restore natural vegetation cover
	Naturalize future buffer and setback areas associated with Serson Creek and Lake Ontario using native trees, shrubs and groundcovers	
	Incorporating native trees and shrubs into the landscaping of the proposed development to the extent feasible	
	Create floating wetlands along Lake Ontario shoreline utilizing native wetland vegetation.	
	Increase tree canopy cover on the site over the long-term by maintaining existing good quality trees and planting new native trees; throughout the entire community development as recommended by Inspiration Lakeview Master Plan (Urban Strategies Inc. 2014)	
Terrestrial Wildlife	Install a nesting structure on one of the proposed buildings to provide nesting opportunity for Peregrine Falcon	• Increase available habitat for native wildlife species, particularity Endangered and Threatened species • Create a linkage/corridor function for wildlife along the Lake Ontario shoreline and Serson Creek for wildlife such as amphibians and reptiles
	Plant vegetation that butterflies can utilize, such as native Milkweeds and New Jersey Tea (*Ceanothus americanus*)	
	Plant native species throughout the development to attract migrating birds as per the *Native Plant List for Migrating Birds* (CVC 2015)	
	Create habitat structures for snakes and bats to utilize in buffer zones	
	Create habitat for nesting Snapping Turtles and Midland Painted Turtles	
	Incorporating ecological themed gardens into to the landscape (i.e. pollinator gardens and butterfly gardens).	
	Create floating wetlands along Lake Ontario shoreline to increase habitat for terrestrial wildlife such as birds, amphibians and reptiles	
	As recommended in the Living by the Lake Action Plan (CVC 2018) and Inspiration Lake Master Plan (Urban Strategies Inc. 2014) provide for a terrestrial connection linking Lakefront Promenade Park to Jim Tovey Lakeview Conservation Area). This can be achieved through the creation of small stepping stone habitats; refer to **Figure 7**, which is an excerpt from the Lakeview Master Plan (LCPL 2018). Although this excerpt is from the 2018 Master Plan, the new Draft Plan of Subdivision (GSAI 2019) shows open space along the waterfront where stepping stone habitats can be incorporated.	
Aquatic Resources	Serson Creek aquatic habitat enhancements through channel restoration, including defining bankfull channel, and creation of pool/riffle habitat as recommended in the Living by the Lake Action Plan (CVC 2018)	• Enhance the aquatic habitat in Serson Creek • Enhance species diversity • Improve erosion control
	Re-direct baseflows from the overflow channel (wastewater treatment facility) into Serson Creek improving connectivity with Lake Ontario (CVC 2018)	• Increase hydraulic connection to Lake Ontario allowing for organic and sediment inputs • Removal of low flow barriers will allow for fish migration from Lake Ontario into Serson Creek

Habitat Type	Description of Opportunity	Anticipated Benefits
	Explore opportunities to naturalize the Lake Ontario shoreline to enhance the nearshore aquatic habitat in line with the Fish Community Objectives for Lake Ontario (Stewart *et al.* 2017) to maintain a healthy and diverse fishery	• Enhance species diversity • Improve erosion control
	Installation of underwater structures would provide areas to protect fish from predators and also carry out other life processes such as feeding and spawning. Possible enhancements include: • Anchored logs installed along the bottom of the lakebed in shallow areas; • Brush piles/log cribs that can be anchored or left to drift in the channel; • Boulder and rock piles/shoals along the littoral areas of the channel, which are ideal for spawning areas for a variety of sunfish species; and • Brush bundles and rootwads anchored to the littoral areas of the channel would provide habitat for a variety of the species that were captured in both the intake and discharge channels.	• Enhance species diversity • Improve/create aquatic habitat • Improve water quality
	Enhance the lake's substrates and plant aquatic vegetation Explore opportunity to create shoals in association with the proposed beach	• Enhance species diversity • Improve/create aquatic habitat • Improve water quality
	Installation of floating wetland habitat along the shoreline	• Enhance species diversity • Increase cover for species • Improve/create aquatic habitat • Improve water quality
	As recommended in the Living by the Lake Action Plan (CVC 2018), reduce flooding in Serson Creek by improving flow conveyance through stormwater management and remove structures within creek	• Enhance species diversity • Improve/create aquatic habitat
	Explore methods for improvements to water quality. Specifically, the intake and discharge channels are both isolated from the main body of Lake Ontario, by way of breakwaters and structures. These areas likely lack water movement associated with natural lake currents as well as wind and wave action. One solution to ensure movement and increase oxygen within the water column is through the use of an aeration system.	• Improve water quality in both the intake and discharge channels • Improve circulation in intake channel and discharge channel to reduce anoxic conditions which are unfavourable for aquatic life • Aeration can reduce algae that may accumulate due to stagnant waters
	Identify thermal refuge areas within the Lakefront Promenade basin to inform fish species targets and habitat restoration design as per the Living by the Lake Action Plan (CVC 2018)	• Enhance species diversity • Improve/create aquatic habitat
	Limit boat traffic within the Promenade Park Basin to encourage aquatic plant grown and use by fish as per the Living by the Lake Action Plan (CVC 2018)	• Enhance species diversity • Improve/create aquatic habitat

Figure 7. Lakeview Village Proposed Waterfront Connection from Master Plan (LCPL 2018)

6. Description of Proposed Development

6.1 Draft Plan of Subdivision

The Lakeview Village Draft Plan of Subdivision (GSAI 2019) is the result of years of land use planning commencing with Inspiration Lakeview in 2014 and culminating in 2019 with the Lakeview Village Development Master Plan 4.0 (LCPL and Sasaki 2019), which builds on the 2018 Lakeview Village Master Plan (LCPL 2018).

The approximately 72 hectare proposed Lakeview Village will consist of several public rights-of-ways and private site plan blocks that include mixed use, high density residential, commercial development and park blocks/open space as per the draft Functional Servicing Report (FSR; Urbantech Consulting and TMIG 2020a. The proposed Lakeview Village identifies the Community as comprised four Character Area Precincts (Waterway District Area, Ogden Green, Cultural Waterfront and Serson Innovation Corridor) and of seven Character Area Precinct Subzones districts as follows: Waterfront,

Waterway District Area, Ogden Blocks, Waterway Common, Lakeview Square, Serson Innovation Corridor and Hydro Gateway, as described in detail within the Lakeview Village Development Master Plan 4.0 (LCPL and Sasaki 2019). For the site statistics, refer to the Draft Plan of Subdivision included as **Figure 8** (GSAI 2019).

In addition to describing these precincts., the Master Plan (LCPL 2018) explains that the client conveyed 67 ha of land to the City of Mississauga to use as parks, open space, cultural and institutional uses. The conveyed lands include the entire Lakefront Park, adjacent portions of Ogden Park, the plaza within Lakeview Square and a section of the Innovation Corridor.

The Lakeview Village Development Master Plan 4.0 (LCPL and Sasaki 2019) and Master Plan (LCPL 2018) also describes the new Waterfront Trail that this community will provide, which will connect the lands west and east of the project. The Jim Tovey Lakeview Conservation Area is under construction with the joint effort of the Region of Peel, CVC and the TRCA, and is connected to this Waterfront Trail.

6.2 Site Servicing

6.2.1 Water and Sanitary

The subject property is east of the Lakeview Water Treatment Facility and west of the G.E. Booth Wastewater Treatment Facility. The Master Plan (LCPL 2018) states that through previous studies and recent confirmation from the Region of Peel, these two facilities have the capacity to support the proposed development of the Lakeview Village.

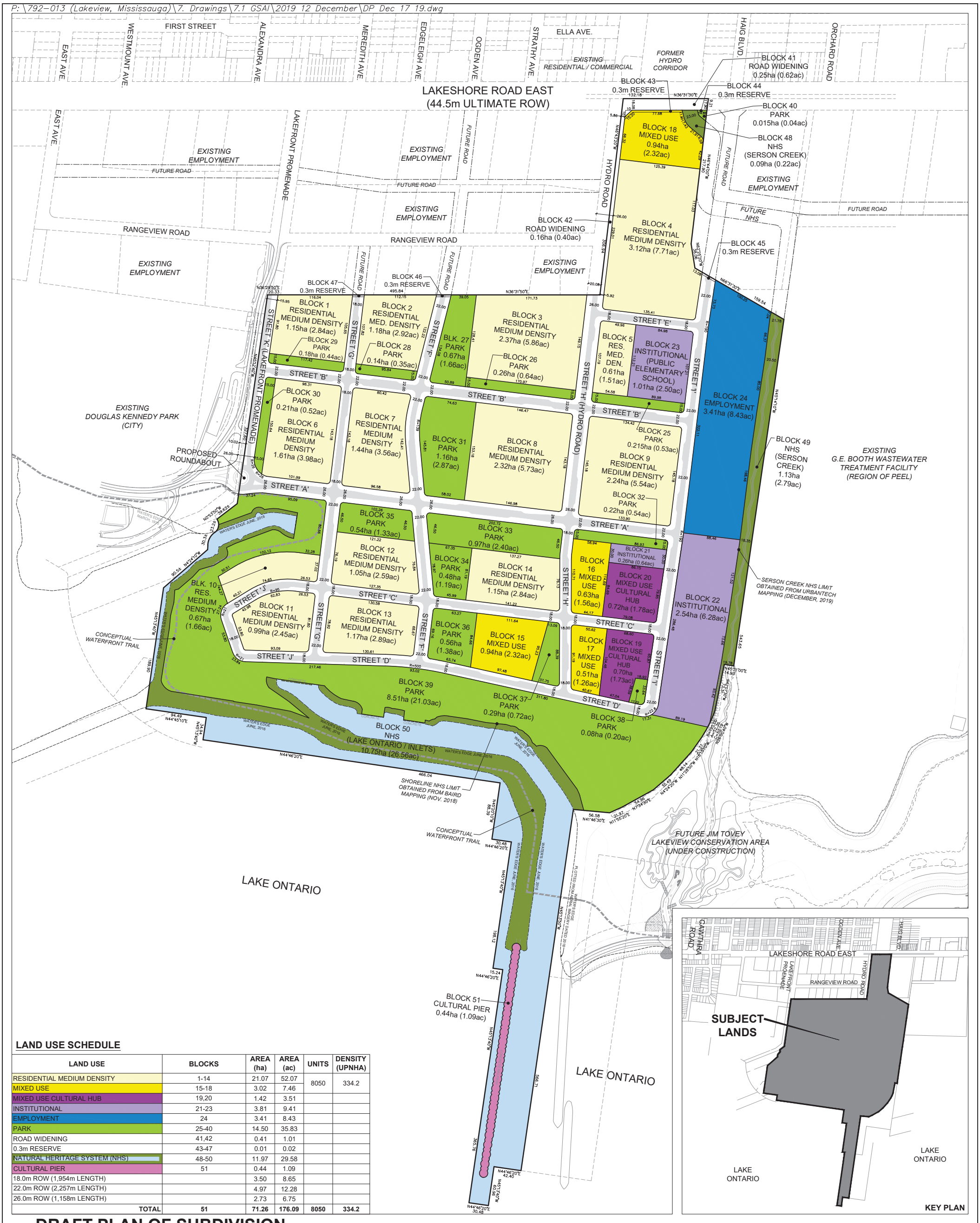
The Region has also suggested methodology for connecting to these two facilities. For wastewater servicing, a pump station and force main will need to be installed to convey wastewater flows from lower parts of the site to the existing trunk infrastructure on Lakeshore Road. This is show on Figure 6.2.2f of the Master Plan (LCPL 2018) and Drawing SAN-1 of the FSR (Urbantech Consulting and TMIG 2020). Regarding water servicing, Figure 6.2.2c of the Master Plan and Drawing WM-1 of the FSR show that a new looped watermain will connect the community to existing trunk infrastructure. These recommendations are incorporated and further detailed in the FSR (Urbantech Consulting and TMIG 2020a).

6.2.2 Stormwater Management

Stormwater management (SWM) criteria proposed for Lakeview Village are based on the CVC (2012) and the City of Mississauga Stormwater Management Criteria. However, given that the subject property is adjacent to Lake Ontario, the typical criteria have been altered and changes have been agreed upon through consultation with the City and CVC. These criteria are described below.

- Quantity Control – Reducing the impact of development on stormwater flow on downstream receivers to prevent flooding or exceedance of existing flow.
- Quality Control – Reducing the impact of development on water quality, with a focus on total suspended solids.

P:\792-013 (Lakeview, Mississauga)\7. Drawings\7.1 GSAI\2019 12 December\DP Dec 17 19.dwg



LAND USE SCHEDULE

LAND USE	BLOCKS	AREA (ha)	AREA (ac)	UNITS	DENSITY (UPNHA)
RESIDENTIAL MEDIUM DENSITY	1-14	21.07	52.07	8050	334.2
MIXED USE	15-18	3.02	7.46		
MIXED USE CULTURAL HUB	19,20	1.42	3.51		
INSTITUTIONAL	21-23	3.81	9.41		
EMPLOYMENT	24	3.41	8.43		
PARK	25-40	14.50	35.83		
ROAD WIDENING	41,42	0.41	1.01		
0.3m RESERVE	43-47	0.01	0.02		
NATURAL HERITAGE SYSTEM (NHS)	48-50	11.97	29.58		
CULTURAL PIER	51	0.44	1.09		
18.0m ROW (1,954m LENGTH)		3.50	8.65		
22.0m ROW (2,257m LENGTH)		4.97	12.28		
26.0m ROW (1,158m LENGTH)		2.73	6.75		
TOTAL	**51**	**71.26**	**176.09**	**8050**	**334.2**

DRAFT PLAN OF SUBDIVISION
LAKEVIEW COMMUNITY PARTNERS LIMITED

FILE # 21T-M 19001 W1

PART OF LOTS 7, 8 AND 9, CONCESSION 3
SOUTH OF DUNDAS STREET &
PART OF WATER LOT IN FRONT OF LOT 7
CONCESSION 3, SOUTH OF DUNDAS STREET &
PART OF WATER LOT IN FRONT OF LOT 9
CONCESSION 3, SOUTH OF DUNDAS STREET &
PART OF WATER LOT LOCATION HY28
IN FRONT OF LOTS 7 AND 8, CONCESSION 3
SOUTH OF DUNDAS STREET &
PART OF WATER LOT LOCATION HY77
IN FRONT OF LOT 7, CONCESSION 3
SOUTH OF DUNDAS STREET
(GEOGRAPHIC TOWNSHIP OF TORONTO, COUNTY OF PEEL),
CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

OWNERS CERTIFICATE

I HEREBY AUTHORIZE GLEN SCHNARR & ASSOCIATES INC. TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE CITY OF MISSISSAUGA FOR APPROVAL.

SIGNED _____ DATE: DEC. 3, 2019
FABIO MAZZOCCO, PRESIDENT
LAKEVIEW COMMUNITY PARTNERS LIMITED

SURVEYORS CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE CORRECTLY AND ACCURATELY SHOWN.

SIGNED _____ DATE: NOV. 18, 2019
RON QUERUBIN
ONTARIO LAND SURVEYOR

ADDITIONAL INFORMATION

(UNDER SECTION 51(17) OF THE PLANNING ACT) INFORMATION REQUIRED BY CLAUSES A,B,C,D,E,F,G,J & L ARE SHOWN ON THE DRAFT AND KEY PLANS.

H) MUNICIPAL AND PIPED WATER TO BE PROVIDED
I) SILTY CLAY, SANDY SILT, CLAYEY SILT, SILT, SILTY SAND, ETC.
K) SANITARY AND STORM SEWERS TO BE PROVIDED

NOTES

- PAVEMENT & WATERFRONT TRAIL ILLUSTRATIONS ARE DIAGRAMMATIC
- HYDRO ROAD & LAKESHORE ROAD E. DAYLIGHT TRIANGLE DIMENSIONS = 10m x 10m
- DAYLIGHT ROUNDINGS ARE 5m RADII, UNLESS OTHERWISE NOTED

Glen Broll
REGISTERED PROFESSIONAL PLANNER
R.P.P.

SCALE 1:2500
(24 x 36)
DECEMBER 17, 2019

GSAI
Glen Schnarr & Associates Inc.

- Erosion Control – Reducing the impact of development on the stability of down-stream receiving systems.
- Water Balance – Maintaining/ mimicking where possible the natural water cycle in terms of infiltration/groundwater recharge, runoff and evapotranspiration.
- Thermal Mitigation – Stormwater runoff from urban areas is often warmer than pre-development runoff due to warm rooftops, pavement, and long-term retention in ponds. The warm stormwater has the potential to impact temperature-sensitive "cold-water" species.

Due to the proximity to the lake, quantity control is not required. The proposed SWM strategy focuses on water quality treatment and utilizes a treatment train approach to treat runoff, without the need for end-of-pipe facilities. A combination of storm sewers and overland flow routes in the right of ways will provide stormwater conveyance; and a suite of potential LID measures and/or oil-grit separators will provide water quality and water balance throughout the development (Urbantech Consulting and TMIG 2020a). In accordance with the MECP, a minimum water quality target of 80% TSS removal is required. In addition to TSS removal, the discharge of oil and other pollutants commonly encountered on roads is desirable and is typically achieved with measures such as oil/grit separators or other measures (Urbantech Consulting and TMIG 2020a).

Each development block in the Lakeview Village will provide some degree on-site control via attenuation of frequent rainfall events (<5mm). Water quality treatment will be provided through a combination of low impact deign and conventional methods. Runoff will be moved through the community using sewers (as shown on Figure 6.2.2e in the Master Plan; LCPL 2018) and FSR DrawingsSTM-1, road networks (FSR Drawing STM-2) and low-impact development features (FSR Drawing LID-1) to 3 outlets (which relates to the prevailing drainage pattern). Within the individual residential/ commercial development blocks a total water retention of up to 5mm or more is proposed for water balance, in addition to the 80% TSS removal target (Urbantech Consulting and TMIG 2020a).

Infiltration measures are not proposed due to the position of the water table and the soil conditions. Oil-grit separators will be used when need to supplement the other water quality treatment approaches where required (LCPL 2018/FSR 2020).

Other methods of SWM that are being proposed in the Lakeview Village Master Plan (LCPL 2018 & FSR 2020) include the following:

- Reuse of treated water for irrigation of the landscape, recreational areas (such as splash pads), car washes, dust control, toilets and cleaning; and
- Use of signage to educate about SWM goals, practices and benefits.

6.3 Grading

As the subject property was previously developed, minimal grading of the site is required. Existing grades of the subject property generally match the grades of the adjacent lands (Urbantech Consulting and TMIG 2020b). As part of the demolition of the former OPG Lakeview Generating Station, material is being removed from subject property. The site grading design will continue to be refined the maximize the sustainable reuse of soils within the area. For more details, refer to the preliminary grading plan (TMIG 2020b) and the FSR (Urbantech Consulting and TMIG 2020a).

6.4 Low Impact Development

The Lakeview Village Development Master Plan 4.0 (LCPL and Sasaki 2019), Lakeview Village Master Plan (LCPL 2018), the draft FSR (Urbantech Consulting and TMIG 2020a) and the Sustainability Strategy (TMIG *et al.* 2018) describe that the development will incorporate low impact development. One way of doing this is creating green and blue fingers that transverse the community to provide ecological and water linkages, respectfully. The green fingers have been created by placing park space in a linear fashion, while the water features are integrated in the right-of-way corridors which facilitate the principle of the blue fingers (LCPL 2018).

Other low impact developments considered by these three resources are green roofs, permeable pavement, bioswales, bioretention, rainwater harvesting, tree pits with soil cells, bioretention planters, high energy efficient building standards, maximized street tree canopy coverage, district renewable energy systems, natural ventilation, contaminated land remediation, smart LED and “Night-Sky” street lighting, and bird friendly glass.

6.5 Serson Creek Enhancement

Serson Creek is located along the eastern boundary of the subject property and was diverted from its original valley and flow path in the 1950’s as part of the OPG Lakeview Generating Station works. It was relocated to a constructed ditch, while some of the flow passed under the G.E. Booth Wastewater Treatment Facility through a pipe system (**Figure 6a**). A barrier in the flow at the former rail corridor inhibits flow to the lake via the existing Serson Creek corridor downstream of this corridor. As discussed in **Section 4.3.3.1**, this diversion of flow from the main channel of Serson Creek impairs ecological functions within the southern section of Serson Creek and prevents fish migration from the lake to the watershed due to low flow barriers. Additionally, this limits the ability to establish a functioning coastal wetland at its mouth (CVC and TRCA 2012).

The CVC Living by the Lake Action Plan set out some opportunities to improve Serson Creek, including increasing its capacity to eliminate spills, include pocket wetlands within the updated design, improve fish passage from Lake Ontario to the upper reaches of Serson Creek, and improve wildlife connectivity, especially between Serson Creek, the LV2 Woodland (ELC Unit 9a and 9b) and Applewood Creek.

Additionally, rehabilitation of this section of Serson Creek was identified as an objective through the City’s master planning studies for the former Generating Station land as part of Inspiration Lakeview. Rehabilitation plans for this section of Serson Creek were subsequently developed by TRCA through the Lakeview Waterfront Connection project. While these rehabilitation plans have been approved by the responsible authorities and agencies, these plans do not give adequate consideration to future land uses being proposed for Lakeview Village. As most of the Serson Creek corridor overlaps with the LCPL property, it is now necessary to review the plans within the context of the future redevelopment proposal to ensure that there is appropriate integration with the future uses. For this reason, the Lakeview Village project team has been working with the City and partner agencies the further refine the design for the rehabilitation of Serson Creek in a manner that meets the original environmental design objectives but also achieves better integration with the proposed redevelopment plan for Lakeview Village and also accommodated the Region’s requirements related to proposed upgrades to the WWTP.

Beacon Environmental and Urbantech Consulting have developed a channel design that addresses the agencies' objectives by achieving functional improvements over the existing system and linking existing fragmented natural features to create a strengthened, connected NHS extending to the future Jim Tovey Lakeview Conservation Area and Lake Ontario (LCPL 2019). The enhancement will result in some temporary disturbance to the ecological function of the creek but will create an overall benefit in the long term.

This detailed channel design was completed under a separate report covers, the Channel Design Brief (Urbantech Consulting, Beacon Environmental and NAK Design 2019) and the Functional NHS Design Brief (LCPL 2019). The Key Objectives from the Living by the Lake CVC study that are addressed in these reports include:

> *R1-1 (Manage Stormwater Quantity)*
> *Reduce flooding of structures in Serson Creek through improved flow conveyance and other methods (e.g., improve stormwater management, remove structures, etc.).*
>
> *R1-5 (Improve Habitat Quality)*
> *Improve instream and riparian habitat in Serson Creek by increasing diversity of structures and bed form through the Jim Tovey Lakeview Conservation Area and Lakeview Village initiatives.*
>
> *R1-7 (Improve Habitat Quality)*
> *Increase cover of wetlands in the coastal reach through Jim Tovey Lakeview Conservation Area. Channel works associated with land redevelopment should consider pocket wetlands within the creek corridor. Wet meadow should be considered in the hydro corridor associated with Serson Creek, as feasible.*
>
> *R1-10 (Connect Habitat)*
> *Maintain existing terrestrial connectivity between Serson Creek, G.E Booth woodland, Applewood Creek, and Marie Curtis Park.*
>
> *R1-12 (Connect Habitat)*
> *Improve fish passage from the lake to the upper reaches of Serson Creek for spawning, feeding and rearing.*

Additional objectives established in the Lakeview Village DMP (LCPL and Sasaki 2019) and Lakeview Waterfront Connection EA include elimination of the flow diversion, restore channel to historical alignment, where feasible, and creation of pedestrian / cycling links between the lake and Lakeshore Road East (LCPL 2019).

The Channel Design Brief (Urbantech Consulting, Beacon Environmental and NAK Design 2019) and the Functional NHS Design Brief (LCPL 2019) contain the following ecological considerations:

> *The proposed ecological rehabilitation of Serson Creek will benefit from the removal of the diversion, as well as debris and seasonal barriers to improve fish passage and wildlife movement. A suitable wildlife shelf will be implemented into the proposed culvert design.*

Connectivity between the G.E. Booth Woodland will be improved with the proposed channel alignment, which approximates the historical channel that originally traversed the lands east of Lakeview Village. An increase in the riparian area and native riparian vegetation is proposed and the low flow channel will be designed with intermittent online wetlands and bio-engineered habitat features.

Collectively, the revitalized creek corridor will enhance fish and wildlife habitat and strengthen ecological connectivity between the Jim Tovey Lakeview Conservation Area and City of Mississauga Natural Area LV2.

These aforementioned considerations address the ecological Key Objectives from the Living by the Lake CVC study listed above: R1-7, R1-10 and R1-12. It also achieves the elimination of the flow diversion to the adjacent lands (the WWTP) and restores the channel to original alignment, as feasible.

Lakeview Village Channel Design Brief (Urbantech Consulting, Beacon Environmental and NAK Design 2019) includes a Landscaping Plan (including a Planting Plan) for the area outside the immediate channel riparian zone of the reconstructed Serson Creek (Drawings SC1, SC2, SC3, SC4), with ecological input from Beacon. The following considerations are proposed for the various Serson Creek restoration design components: all plantings to be comprised of native tree and shrub species, the main channel and slopes will be planted with shrubs, the top of valley will be planted with a mix of trees and shrubs and generous fish and wildlife habitat elements to be incorporated.

7. Impact Assessment and Mitigation

The impact assessment presented in this EIS includes the site-specific assessment for the subject property and adjacent lands. The impact assessment is based on:

- The most detailed level of information available related to biophysical resources based on primary and secondary data and analyses (as presented in **Section 4**); and
- The findings of the constraint analyses (presented in **Section 5**) to identify sensitive and significant natural features and ecological functions that require protection to maintain the integrity and biodiversity of the natural heritage within the study area.

One of the primary objectives followed in designing the proposed development was to protect the existing NHS features and functions and to enhance the future NHS features and functions. Since impact avoidance is generally the most effective means of reducing the risk of development impacts on the natural environment, the EIS has recommended that the future development limits be established outside of any significant natural heritage features and natural hazards as explained in **Section 5**.

As with the other components of this EIS, an integrated multi-disciplinary approach has been applied to assessing the potential impacts of redeveloping the subject property.

The impact assessment matrix presented in **Table 6** is structured to:

- Identify the specific development activity (impact source);
- Describe the potential effect on environmental receptors (features and functions);
- Recommend mitigation measures to address potential impacts; and
- Describe the net effects on the biophysical environment.

Table 6. Impact Assessment Matrix

Category	Feature/Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
Geology	**Bedrock Geology**	Grading and Servicing	The proposed development will occur on lands that were previously extensively modified to accommodate the Lakeview Generating Station. As such, it is not anticipated that grading and servicing will impact a bedrock resources to the extent that it will affect any natural heritage resources.	Refer to recommendations of geotechnical consultant.	Neutral
	Surficial Geology/ Physiography/ Topography	Site Preparation and Grading	As the subject property was extensively modified in the 1950-1960's, redevelopment of the subject property will not impact on any natural landforms or topographic features.	A cut and fill balance should be maintained for the site to the extent feasible. Limit grading to the development area and attempt to match existing grades at development limits and along tree protection zones.	Neutral
Soils	**Topsoil**	Site Preparation and Grading	As the subject property was extensively modified in the 1950-1960's, redevelopment of the subject property will not impact on any native soils. Soils on most of the site are represented by fill. Some of the soils on the site are undergoing remediation.	Refer to recommendations by remediation specialist.	Neutral
Air Quality	**Air**	Site Preparation and Grading	Due to this size of the development and the potential for high winds (located on Lake Ontario), it is possible that grading and construction activities may contribute dust which can impact on adjacent terrestrial and aquatic environments.	Implement dust control measures during construction as per CVC and City standards.	Neutral
Water	**Groundwater**	Grading, Servicing and Development	There are no natural heritage features associated with the study area that are sustained by groundwater discharge. Based on the borehole data and measured ground water levels some ground water seepage may be encountered within the excavated area, which may require de-watering during construction.	Implement recommendations from geotechnical consultant.	Neutral
	Surface Water Features	Grading, Servicing and Development	Surface water features associated with the subject property include Lake Ontario and Serson Creek. Except for several floating docks, development is not proposed within the lake. As such no impacts are anticipated. Serson Creek is proposed to be re-aligned and naturalized. No negative impacts are anticipated.	Implement recommendations from FSR, Sustainability Report, and Storm Water Management Strategy. Approvals for docks will need to be obtained from DFO. Implement Serson Creek channel realignment and restoration to improve instream and riparian habitat by increasing diversity of structures and bed form.	Neutral-Positive
	Watercourse Flows	Grading, Servicing and Development	Uncontrolled stormwater runoff has the potential to exacerbate flooding and erosion issues in Serson Creek. Increases in surface water runoff entering these watercourses under post-development conditions could negatively impact downstream infrastructure and property.	Implement recommendations for flood and erosion control as per the FSR. Implement recommendations of the Living by the Lake Action Plan (CVC 2018), to reduce flooding in Serson Creek by improving flow conveyance through stormwater management and remove structures within creek.	Neutral
	Water Quality	Grading, Servicing and Development	Uncontrolled erosion, sedimentation, and machine use (including potential spills) during grading, servicing and construction could result in release of deleterious materials (fuel, oil, lubricant, etc.) into Lake Ontario or Serson Creek, and/or degradation of water quality within the limits of construction and outlying areas. Stormwater runoff can also affect water quality in the receiving waterbody if released without quality control. Under the post-development scenario, contaminants such as oil, sand, salt and other debris may also affect the water quality of surface runoff.	Implement recommendations as per FSR and Lakeview Village, Mississauga 2018 Baseline Water Quality Monitoring Reports (Beacon 2019b and 2020a).	Neutral
	Water Temperature	Grading, Servicing and Development	Uncontrolled stormwater runoff has the potential to degrade water quality in Serson Creek and Lake Ontario. Runoff can have adverse thermal impacts on the creek and on the lake.	Implement recommendations as per FSR.	Neutral
	Overall Site Water Balance	Grading and Development	No impacts are anticipated if recommended mitigation measures as discussed in the Master Plan (2018) are implemented.	Implement recommendations as per FSR and Sustainability Report.	Neutral
Natural Heritage System	**NHS Linkages**	Grading, Servicing and Development	Existing linkages on the subject property are limited to the Lake Ontario shoreline and Serson Creek corridor and both are limited in terms of the level of function they provide in their current state. The proposed re-development will improve and enhance these ecological linkages as discussed in **Sections 6.4** and **6.5**. These enhancements are expected to improve their linage functions.	As recommended in the Living by the Lake Action Plan (CVC 2018), terrestrial connection should be improved across the Lakeview Village (specifically from the Lakefront Promenade Park and Jim Tovey Lakeview Conservation Area) through the creation of cover and stepping stone habitat. Linkage function can be improved by implementing the following measures: • Implement the Serson Creek channel design	Positive

Category	Feature/Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
				• Naturalize the Serson Creek and Lake Ontario Shoreline to the extent feasible using native species of trees and shrubs. • Incorporate fish and wildlife habitat elements along Serson Creek. • Incorporate natural habitat elements such as wetlands, treed areas, rock piles, etc., into the park blocks along the shoreline to promote linkage and stepping stone functions.	
	Significant Woodlands	Grading, Servicing and Development	There are no significant woodlands associated with the subject property. The significant woodland feature identified as part of City Natural Area LV2 is located off-site and will be separated from the development by Serson Creek. The proposed flow diversion via the relief pipe will result in inundation of low-lying areas associated with this City Natural Area LV2. Much of this area is presently subjected to inundation as the existing culvert under the road (former rail line) is already perched, However, most of the trees in the area to be inundated are dead or dying and the understorey is dominated by non-native invasive shrubs. It is expected that additional inundation of this area will result in the transformation of the Lowland Ash Forest to a combination of Deciduous Swamp, Swamp Thicket and Marsh wetland communities. While this transformation will impact upon existing conditions, it is important to recognize that it also represents an opportunity for enhancement.	Potential indirect impacts to the woodlands can be eliminated or minimized by implementing a 10 m buffer to the woodland and naturalizing it using native species. The City's NAI acknowledges that that Serson Woodland is in poor condition recommends that the City develop a Management Plan to address the impacts of EAB and DED as well as the invasive species. This proposal creates an opportunity to address not only the flooding issue, but also the management of this natural area in a manner that can reset its ecological trajectory for years to come. Replacement of dead, diseased and invasive species with native species within the City Natural Area LV2 suited to the site conditions can greatly enhance the ecological functions of the woodland. Such enhancements will compliment not only the proposed works along the Serson Creek channel, but also those being implemented in the Jim Tovey Conservation Area.	Positive
	Wetlands	Grading, Servicing and Development	There are no significant wetlands located on the subject property and therefore no impacts are anticipated. The new wetlands being created at the mouth of Serson Creek as part of the LWC project will qualify as significant wetlands once operational. While the proposed redevelopment will not directly affect these wetlands, it is possible that the Serson Creek re-alignment work will reduce flooding impacts to the constructed wetlands, improve water quality and wildlife habitat which will have a positive indirect effect on these wetlands.	Implement Serson Creek channel works and recommendations of the FSR.	Neutral
	Significant Valleylands	Grading, Servicing and Development	There are no significant valleylands in the study area. Serson Creek is a constructed channel and does not represent a natural valley landform. The Serson Creek corridor is proposed to be reconfigured and re-aligned as per the recommendations of the LWC EA (SENES Consultants 2014) and FSR (Urbantech Consulting and TMIG 2020a). While this work will not make this corridor a natural valleyland, it will improve its biophysical condition and ecological functions.	Potential erosion and flooding hazards for Serson Creek and Lake Ontario can be mitigated by avoiding disturbance (i.e., site alteration) within the 10 m setback. Indirect impacts related to sedimentation during construction can be addressed through erosion and sediment control measures along the development limit.	Positive
	Lake Ontario Shoreline	Grading, Servicing and Development	The shoreline of Lake Ontario on the subject property was filled and extensively modified to accommodate the former Lakeview Generating Station. The shoreline environment is engineered and hardened and provides little natural cover or habitat for fish and wildlife. Similarly, the lands that correspond with the former generating station are disturbed and support not natural cover. It is proposed the portions of the site adjacent to the shoreline be redeveloped into parkland and designated Greenlands and Public Open Space. No in water works are proposed. This shorefront area will be developed for passive and low intensity outdoor recreations and education. All other forms of development will occur outside of the flood and erosion hazards determined by Baird (2019b). It is anticipated that portions of these open space blocks will be naturalized to improve linkage and habitat functions.	See section on Linkages above.	Positive
	Significant Wildlife Habitat	Grading, Servicing and Development	The study area was identified as supporting several types of significant wildlife habitats. The forest forested habitats adjacent to the subject property (ELC Units 9a and 9b) comprise part of City Natural Area LV2 have been identified as SWH for migratory stopover habitat for birds and for bat maternity colonies. The subject property has been noted as supporting habitat for two species listed as Special Concern (Snapping Turtle and Monarch). The Lake Ontario shoreline and Serson Creek corridor have been identified as SWH for animal movement corridor. The proposed redevelopment is not anticipated to adversely impact on the various SWH identified through this EIS. In fact, the redevelopment includes numerous measures to enhance and improve the existing SWH.	See mitigation recommendations under NHS Linkages and Significant Woodland. Implement compensation habitat for the proposed development such as planting of Monarch's host plant (Milkweed), bat boxes, and create area for turtle nesting.	Positive
	Tree Resources	Grading, Servicing and Development	The proposed development will result in the removal of 1027 trees from the tableland and within Serson Creek (to allow for restoration). This includes trees both on the subject property and those adjacent to it. Trees that have been identified for removal are generally in good to fair-good condition (51% of trees for removal). 3% of trees of the trees identified for removal are dead and 12% are in poor or fair-poor condition (see Arborist Report,	The loss trees can be mitigated over the long term by restoring an equivalent or greater number of trees and increasing the extent of the canopy. Plantings can be accommodated within the development area as well as on adjacent lands to compensate for these removals and provide a net gain in terms of species quality and overall cover.	Positive

Category	Feature/Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
			Beacon 2020b for details). A portion of trees have already been removed from the subject property to allow for remediation.		
	Fish Habitat	Grading, Servicing and Development, SWM Controls	Both Lake Ontario and Serson Creek provide fish habitat. Grading, servicing and development of the site will occur adjacent to this habitat and are not anticipated to result in a direct impact. Appropriate development setbacks and buffers have been provided. It is not anticipated that the proposed redevelopment will adversely affect fish habitat.	Potential impacts to fish habitat in Lake Ontario and Serson Creek can be reduced by implementing the recommendations of the FSR (Urbantech Consulting and TMIG 2020a) including mitigation measures for flood control, water quality, temperature impacts, and erosion control. Additionally, it is proposed that Serson Creek and Lake Ontario shoreline be enhanced through restoration and naturalization efforts detailed in this EIS. These proposed activities will serve to enhance the habitat and supporting functions for fish.	Positive
	Birds	Grading, Servicing and Development	The breeding bird surveys identified that the existing avian community is comprised primarily of urban tolerant species. The proposed redevelopment will require the removal of existing trees which will result in temporary reduction of available nesting habitats. Given the scale and location of the tree removals, it is not expected to have a significant effect on the existing avian community. The proposed re-development will see the creation of numerous green spaces and replanting of more native trees which over time will benefit the avian community.	Undertake all vegetation / tree clearing between August and early April so as not to impact breeding birds and not contravene the *Migratory Birds Convention Act*. Restore tree canopy by planting replacement trees. Naturalize shoreline to allow for use of waterfowl and shorebirds. Install nest structures on buildings for Peregrine Falcon use as they have historic records in the area.	Positive
	Habitat of Endangered and Threatened Species	Grading, Servicing and Development	The EIS has confirmed that the subject property does not support habitat for endangered or threatened species. The EIS has identified City of Mississauga Natural Area LV2 as potential habitat for endangered bats, because of the habitat type present. It is not anticipated that the proposed re-development will adversely affect the potential habitats of endangered	None	Neutral

8. Policy Conformity

A summary of federal, provincial and municipal environmental protection and planning policies and regulations applicable to the subject property were discussed in **Section 2**. An evaluation of how the proposed re-development complies with the applicable environmental policies and legislation is summarized below in **Table 7**.

Table 7. Policy Compliance Assessment

APPLICABLE POLICY / LEGISLATION	RELEVANT EIS FINDINGS AND RECOMMENDATIONS	Policy Compliance
Federal Fisheries Act (1985)	Fish habitat will not be impacted by the proposed development provided that the mitigation measure recommended in this report and the FSR are implemented.	Yes. No impacts to fish habitat. Any proposed works in Lake Ontario (docks) will require Project Review from DFO.
Endangered Species Act (2007)	Habitat for endangered bats may exist in the forested communities (ELC Units 9a and 9b) on the adjacent property. These communities are identified as part of City Natural Area LV2 and overlap with the G.E. Booth WWTP property. This potential habitat is not being developed so no contravention to the ESA is anticipated.	Yes. No impacts to endangered species habitat.
Provincial Policy Statement (2014) Section 2.1 – Natural Heritage		
1. Habitat for Threatened and Endangered Species	See above.	Yes. See above.
2. Significant Valleylands	N/A. There are no significant valleylands associated with the study area.	Yes
3. Significant Wetlands	N/A. There are no significant wetlands associated with the study area at this time. It is possible that the wetland being created as part of the LWC project will be determined to be significant in the future.	Yes
4. Significant Woodlands	There are no significant woodlands associated with the subject property. City Natural Area LV2 which is located in the study area immediately adjacent to the subject property does qualify as a significant woodland. It is not anticipated that the development will impact this feature.	Yes
5. Significant Wildlife Habitat	The LV2 Natural Area northeast qualifies as SWH and will be protected from the development. Habitat for Monarch and Snapping Turtle will be compensated as part of the proposed development. The animal movement corridors identified as SWH along Lake Ontario and Serson Creek will be enhanced. It is anticipated that the proposed redevelopment will improve SWH functions.	Yes.
6. Significant Areas of Natural and Scientific Interest	N/A – There are no Areas of Natural of Scientific Interest.	Yes
7. Fish Habitat	Fish habitat will not be impacted by the proposed development provided that the mitigation measure recommended in this report and the FSR are implemented.	Yes. No impacts to fish habitat. Any proposed works in Lake Ontario (docks) will require Project Review from DFO.

APPLICABLE POLICY / LEGISLATION	RELEVANT EIS FINDINGS AND RECOMMENDATIONS	Policy Compliance
Provincial Policy Statement (2014) Section 2.2 - Water	No impacts to sensitive water features anticipated. The EIS and the Master Plan (LCPL 2018) have identified mitigation measures to be implemented to reduce impacts to sensitive surface water and groundwater features and their hydrologic functions.	Yes
Provincial Policy Statement (2014) Section 2.3 – Natural Hazards	Development of the subject property will be limited to areas outside natural hazards (i.e. slopes, floodplains), except for passive and low intensity outdoor recreation within the hazard lands associated with the Lake Ontario Shoreline. According to Policy 3.1.4 in the PPS, "minor additions or passive non-structural uses which do not affect flood flows" will be allowed within natural hazard land.	Yes
Region of Peel OP	There are no Core Areas in the study area. If endangered bat habitat was to be confirmed in City Natural Area LV2 and if the LWC wetlands were evaluated by MNRF as being significant, these off-site areas could qualify as Core Areas. No development is proposed in these potential Core Areas.	Yes
Mississauga OP (2019)		
1. Natural Heritage System		
Significant Natural Areas	Significant Natural Areas include: • Fish Habitat • Significant Woodland • Significant Valleyland • SWH • Habitat of Threatened and Endangered Species No development is proposed within features identified as Significant Woodland, Habitat of Threatened and Endangered Species and therefore, no impacts are anticipated. Development within or adjacent to Fish Habitat in Lake Ontario and Serson Creek is restricted to conservation related initiatives that will have a positive impact. Similarly, development within areas identified as SWH will be conducted in a manner that will positively impact SWH.	Yes
2. Natural Hazard Lands	Development of the subject property will be limited to areas outside natural hazards (i.e. slopes, floodplains), with minor site alteration within the hazard lands associated with the Lake Ontario Shoreline and include the creation of Greenland and Public Open Space. This follows Polices 6.3.56 and 6.3.61.	Yes
CVC Regulations and Policies		
Ontario Regulation 160/06 Watershed Planning and Regulation	Development of the subject property will be limited to areas outside features that are regulated by CVC including watercourses and natural hazards (i.e. valley slopes). Policy 6.1 within CVC's regulation policies states that areas of passive or low intensity outdoor recreation can be developed within hazardous lands where they have been addressed through a comprehensive environmental study.	Yes

APPLICABLE POLICY / LEGISLATION	RELEVANT EIS FINDINGS AND RECOMMENDATIONS	Policy Compliance
Policies (CVC, 2010)		

9. Conclusion

LCPL is proposing to redevelop the former Lakeview Generating Station site to accommodate a new waterfront community. Lakeview Village will be separated into districts that will include residential areas, mixed use buildings (mid-rise buildings with ground-related commercial and cultural uses), open space, natural heritage system, employment areas and roads.

Due to the proximity of the proposed redevelopment to components of the City's Natural Heritage System (i.e. Lake Ontario shoreline, Serson Creek and Woodland LV2) it is the City's policy to require an EIS demonstrating that the redevelopment does not negatively impact upon the adjacent natural features and functions.

This EIS integrates finding from all previous studies done for the study area to ensure natural heritage resources and ecological functions are appropriately characterized. Beacon has also worked closely with the project team and agencies to ensure that the proposed designs not only protect existing natural heritage resources and functions in the study area but also capitalizes on opportunities to create new natural features that will provide improved ecological function in the future.

The EIS has been prepared in accordance with the City of Mississauga's EIS Checklist. The EIS has a) characterized the natural heritage features and ecological functions associated with the subject property and surrounding area, b) evaluated the significance of the natural heritage features, c) identified development constraints and impact avoidance measures, d) assessed the potential direct and indirect impacts of the proposed re-development on these features and functions, and e) provided recommendations for mitigation and enhancement measures that can be implemented to protect and restore the ecological integrity of the NHS.

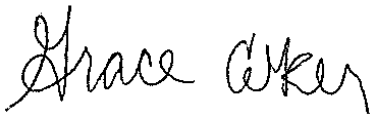
Using background information and data collected by the project team through the various field investigations, inventories and assessments, the EIS has determined the significance of the natural heritage resources and identified natural hazard constraints associated with the study area and identified the limits of these features to establish future development limits. All the significant natural heritage features that have been identified in the study area are associated with the woodland adjacent to the subject property, Lake Ontario and/or Serson Creek. All significant natural heritage features and functions will be protected and/or enhanced under the proposed Draft Plan.

In conclusion, it is our opinion that the proposed redevelopment will not adversely impact on existing natural heritage features and functions and that implementation of the recommendations from the EIS and other technical studies will have a positive effect on the existing and proposed future NHS. Additionally, we are of the opinion that the Draft Plan conforms to applicable natural heritage protection legislation, policies and regulations.

Report prepared by:
Beacon Environmental

Anna Corrigan, B.Sc.
Ecologist

Report prepared by:
Beacon Environmental



Grace Coker, B.Sc.
Ecologist

Report prepared by:
Beacon Environmental

Sarah Aitken, B.Sc.
Ecologist

Report reviewed by:
Beacon Environmental

Ken Ursic, M.Sc.
Principal

10. References

Aquafor Beech Ltd. 2011.
Lake Ontario Integrated Shoreline Strategy – Background Review and Data Gap Analysis, Final Report, Submitted to Credit Valley Conservation, May 2011.

Beacon Environmental Limited. 2019a.
Geomorphic Assessment Serson Creek Lakeview Village City of Mississauga Report Prepared for Lakeview Community Partners Limited, August 2019.

Beacon Environmental Limited. 2019b.
Lakeview Village, Mississauga, 2018 Baseline Water Quality Monitoring Report. Report Prepared for Lakeview Community Partners Limited, May 2019.

Beacon Environmental Limited. 2020a.
2019 Water Quality Monitoring and Aquatic Habitat Characterization Report, January 2020.

Beacon Environmental Limited. 2020b.
Arborist Report for Lakeview, Mississauga, ON. Report Prepared for Lakeview Community Partners Limited, January 2020.

Bird Studies Canada. 2009.
Marsh Monitoring Programs, Participants Handbook for Surveying Amphibians. Published by Bird Studies Canada in cooperation with Environment Canada and the U.S. Protection Agency. February 2009. 13pp.

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, ON. xxii + 706.

Conservation Authorities of Ontario. n.d.
Development, Interference, and Alteration Regulations. Ontario Regulation 42/06 and 146/06 to 182/06. Available online at: http://conservationontario.ca/fileadmin/pdf/conservation_authorities_section_planning___regulations/Development__Interference___Alteration_Regulations_for_all_Conservation_Authorities.pdf

COSEWIC 2003.
COSEWIC assessment and status report on the butternut *Juglans cinerea* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp.

COSEWIC 2006.
COSEWIC assessment and update status report on the deepwater sculpin *Myoxocephalus thompsonii* (Western and Great Lakes-Western St. Lawrence populations) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 39 pp.

COSEWIC 2010.

COSEWIC assessment and status report on the Bobolink *Dolichonyx oryzivorus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 42 pp.

COSEWIC. 2011.
COSEWIC assessment and status report on the Eastern Meadowlark *Sturnella magna* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 40 pp.

Chapman, L.J. and D.F. Putnam. 1984.
The Physiography of Southern Ontario, Third Edition. Ontario Geological Survey, Special Volume 2, 270p. Accompanied by Map P.2715 (coloured), scale 1:600,000.

City of Mississauga Natural Areas Survey. 2016.
Natural Areas Fact Sheet LV2.

City of Mississauga. 2019.
City of Mississauga Official Plan – March 13, 2019 Consolidation.

City of Mississauga. n.d.
Mississauga Mapping. Available online at: http://www6.mississauga.ca/missmaps/maps.aspx#map=12/-8864609.44/5404848.32/0.9075712110370514

Credit Valley Conservation. 2002.
Birds of the Credit River Watershed. Available online at: https://cvc.ca/wp-content/uploads/2011/02/BirdsoftheCRW.pdf

Credit Valley Conservation. 2010.
Watershed Planning and Regulation Policies. April 9, 2010.

Credit Valley Conservation and Toronto and Region Conservation Authority. 2012.
Lakeview Waterfront Connection: Feasibility Study (Draft), January 2012.

Credit Valley Conservation. 2012.
Credit Valley Conservation: Stormwater Management Criteria. August 2012.

Credit Valley Conservation. 2013.
Ontario Power Generation (Lakeview) Summary Report. March 22, 2013. 10 pp.

Credit Valley Conservation and Toronto and Region Conservation Authority. 2014.
Ecology Technical Report. April 2014. 132 pp.

Credit Valley Conservation. 2015.
Native Plant List for Migrating Birds. 15 pp

Credit Valley Conservation. 2018.
Living by the Lake: 2019-2039. An Action Plan to Restore the Mississauga Shoreline. December 2018. 43 pp.

Department of Fisheries and Oceans. 2016.

Upper Great Lakes Kiyi. Available online at: http://www.dfo-mpo.gc.ca/species-especes/profiles-profils/kiyi-eng.html.

DS Consultants Ltd. 2018.
Stability of Existing Berm Slopes and Intake and Discharge Channels, Proposed Lakeview Development, Project No. 18-519-10, November 7, 2018.

DS Consultants Ltd. 2019.
Geotechnical Slope Stability Assessment, Serson Creek, Lakeview Village, 800 Hydro Road, Mississauga, Ontario. Project No. 18-519-102, July 19, 2019.

Decommissioning Consulting Services. 2013.
Supplementary Subsurface Environmental Investigation, Lakeview Waterfront Connection. Prepared for TRCA, September 2013. 218 pp.

EXP Services Inc. 2017.
Preliminary Geotechnical Investigation Proposed Development 800 Hydro Road Mississauga, Ontario. Project Number MRK-00243747-A0. December 20, 2017.

Fisheries and Oceans Canada. 2018.
Aquatic Species at Risk Distribution Mapping. Ontario South West Map 11 of 34. September 2018.

Fisheries and Oceans Canada. 2013.
Fisheries Protection Policy Statement. October 2013. Available online at: http://www.dfo-mpo.gc.ca/pnw-ppe/pol/PolicyStatement-EnoncePolitique-eng.pdf.

GHD Limited. 2015.
Lakeview Waterfront Connection Project, Applewood and Serson Creek, Design Brief. Prepared for the Toronto and Region Conservation Authority. December 2015.

Glen Schnarr and Associates Inc. 2019.
Draft Plan of Subdivision, Lakeview Community Partners Limited. December 3, 2019.

Government of Canada. 1985.
Federal Fisheries Act. Available online at: http://laws-lois.justice.gc.ca/eng/acts/F-14/.

Government of Ontario. 1990
Conservation Authority Act. Available online at: https://www.ontario.ca/laws/statute/90c27

Government of Ontario. 1994.
Migratory Birds Convention Act. Available online at: http://laws-lois.justice.gc.ca/eng/acts/m-7.01/.

Government of Ontario. 2007.
Endangered Species Act. Available online at: https://www.ontario.ca/laws/statute/07e06.

Gregory, D. 2001.

Lakeview Generating Station Biological Survey. Prepared for Ontario Power Generation, December 13, 2001. 156 pp.

Hoffman, D. W. and N. R. Richards. 1953.
Soil Survey of Peel County. Report No. 18 of the Ontario Soil Survey. Guelph, ON.: Department of Agriculture.

Lakeview Community Partners Limited. 2018.
Development Master Plan - Draft. October 2018.

Lakeview Community Partners Limited. 2019.
Lakeview Village Functional Natural Heritage System Design Brief. March 2019.

Lakeview Community Partners Limited and Sasaki. 2019.
Lakeview Village Development Master Plan 4.0. October 2019.

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.

Macnaughton, A., R. Layberry, C. Jones and B. Edwards. 2016.
Ontario Butterfly Atlas. Available online at: http://www.ontarioinsects.org/atlas_online.htm.

Natural Heritage Information Center (NHIC). 2018.
https://www.ontario.ca/page/get-natural-heritage-information. Accessed August 2018.

Newmaster, S.G. and S. Ragupathy, 2012.
Flora Ontario – Integrated Botanical Information System (FOIBIS), Phase I. University of Guelph, Canada. Available at: http://www.uoguelph.ca/foibis/

North South Environmental Inc, Dougan and Associates, and Sorensen Gravely Lowes. 2009.
Peel-Caledon Significant Woodland and Significant Wildlife Habitat Study. June 2009.

Ontario Ministry of Natural Resources. 2000.
Significant Wildlife Habitat Technical Guide. October 200.

Ontario Ministry of Natural Resources. 2010.
Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. March 18, 2010.

Ontario Ministry of Natural Resources. 2015.
Significant Wildlife Habitat Criteria for Ecoregion 7E. January 2015.

Ontario Ministry of Municipal Affairs and Housing. 2014.
Provincial Policy Statement. Toronto, Ontario.

Ontario Ministry of Natural Resources and Forestry. n.d.

Make a Map: Natural Heritage Areas. Available at: http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US. Accessed October 2018.

Ontario Nature. 2018.
Atlas of Ontario Herpetofauna. Available on-line through the Ontario Nature website, https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas/species/.

Ontario Power Generation. 2013.
Ontario Power Generation Lakewview Site Heritage Impact Study. http://www7.mississauga.ca/documents/agendas/committees/heritage/Item_4,_Appendix_1.pdf accessed February 7, 2019.

Parish. 2013.
Fluvial Geomorphology Technical Report. Prepared for SENES Consultants Ltd. April 7, 2013. 19pp.

Region of Peel. 2018.
Peel Region Official Plan – December 2018 Consolidation.

SENES Consultants. 2014.
Environmental Assessment for Lakeview Waterfront Connection. Prepared for Credit Valley Conservation, Regional Municipality of Peel and Toronto and Region Conservation Authority, April 2014. 2290 pp.

Skidmore, Owings & Merrill LLP, Omni Ecosystems, TetraTech, Urban Rivers, O-H Community Partners, Near North Unity Program and d'Escoto Inc. 2019.
Wild Mild Framework Vision. Prepared for the City of Chicago, Department of Planning and Development. June 2019

Stewart, T.J., Todd, A., and LaPan, S. 2017.
Fish community objectives for Lake Ontario [online]. Available from: www.glfc.org/pubs/FisheryMgmtDocs/Fmd17-01.pdf

The Municipal Infrastructure Group, Bicol Consulting Inc., FVB Energy, Glen Schnarr and Associates Inc., and McMurray Environmental. 2018.
Lakeview Sustainability Strategy - Draft. December 2018.

Urban Strategies Inc. 2014.
Inspiration Lakeview Master Plan. Prepared for City of Mississauga, June 2014.

Urbantech Consulting, Beacon Environmental and NAK Design. 2019.
Lakeview Village Channel Design Brief. December 2019.

Urbantech Consulting and The Municipal Infrastructure Group. 2020a.
Functional Servicing Report. Prepared for Lakeview Community Partners Limited.

Urbantech Consulting and The Municipal Infrastructure Group. 2020b.
Lakeview Community Preliminary Grading Plan.

Varga, S., D.Leadbetter, J. Webber, J. Kaiser, B. Crins, J. Kamstra, D. Banville, E. Ashley, G. Miller, C. Kingsley, C.Jacobsen, K. Mewa, L. Tebby, E. Mosley, E. Zajc. 2005. Draft. Distribution and Status of the Vascular Plants of the Greater Toronto Area. Ontario Ministry of Natural Resources. Aurora District. 96 pp.

W.F. Baird and Associates Coastal Engineers Ltd. 2019a. Lakeview Village Erosion Hazard Design Life. December 10, 2019. 6 pp

W.F. Baird and Associates Coastal Engineers Ltd. 2019b. Lakeview Village Shoreline Hazard Assessment. Prepared for Lakeview Community Partners Ltd., January 14, 2019. 126 pp.

Appendix A

Flora List

Appendix A

Flora List

Scientific Name	Common Name	S-RANK [a]	Region of Peel [b]	Beacon 2018	SENES 2014 [c]	CVC 2013 [d]	Gregory 2001 [e]
Acer ginnala	Amur Maple	SNA			x		
Acer negundo	Manitoba Maple	S5		x	x	x	x
Acer platanoides	Norway Maple	SNA		x	x	x	x
Acer rubrum	Red Maple	S5			x		
Acer saccharinum	Silver Maple	S5		x	x		x
Acer saccharum var. *saccharum*	Sugar Maple	S5		x	x		
Acer x *freemanii*	Freeman's Maple	S5		x			
Achillea millefolium var. *millefolium*	Common Yarrow	SNA		x	x	x	x
Actaea pachypoda	White Baneberry	S5			x		
Aesculus glabra var. *glabra*	Ohio Buckeye	S1		x			
Agrimonia gryposepala	Tall Hairy Agrimony	S5			x		
Agrostis gigantea	Redtop	SNA		x			x
Agrostis stolonifera	Spreading Bentgrass	SNA		x	x		x
Alliaria petiolata	Garlic Mustard	SNA		x	x	x	x
Alnus glutinosa	European Black Alder	SNA					x
Ambrosia artemisiifolia	Annual Ragweed	S5		x	x	x	x
Amelanchier laevis	Smooth Serviceberry	S5	U				x
Amelanchier sp.	Serviceberry Species			x	x	x	
Anagallis arvensis	Scarlet Pimpernel	SNA					x
Anemone canadensis	Canada Anemone	S5			x		
Anemone quinquefolia var. *quinquefolia*	Wood Anemone	S5			x		
Anemone virginiana var. *virginiana*	Virginia Anemone	S5			x		
Anthemis cotula	Mayweed	SNA				x	
Anthriscus sylvestris	Wild Chervil	SNA		x			
Arabis glabra	Tower-mustard	S5	R3			x	
Arctium lappa	Greater Burdock	SNA			x	x	
Arctium minus	Lesser Burdock	SNA		x	x		x
Arenaria serpyllifolia	Thyme-leaf Sandwort	SNA					x
Argentia anserina	Silverweed	S5	R3		x		
Artemisia biennis	Biennial Wormwood	SNA				x	
Artemisia vulgaris	Mugwort	SNA		x	x	x	
Asclepias syriaca	Common Milkweed	S5		x	x	x	x
Asparagus officinalis	Asparagus	SNA		x	x	x	
Barbarea vulgaris	Yellow Rocket	SNA				x	x
Betula papyrifera	Paper Birch	S5		x	x		x
Bidens cernua	Nodding Beggar's Ticks	S5					x
Bidens frondosa	Devil's Beggar's Ticks	S5		x	x	x	x
Boehmeria cylindrica	False Nettle	S5			x		

Scientific Name	Common Name	S-RANK [a]	Region of Peel [b]	Beacon 2018	SENES 2014 [c]	CVC 2013 [d]	Gregory 2001 [e]
Brassica nigra	Black Mustard	SNA					x
Bromus inermis ssp. *inermis*	Smooth Brome	SNA		x	x	x	x
Buglossoides arvensis	Corn-gromwell	SNA					x
Camelina sativa	Large-seed False-flax	SNA					x
Campanula rapunculoides	Creeping Bellflower	SNA		x	x		x
Capsella bursa-pastoris	Common Shepherd's Purse	SNA					x
Carduus acanthoides	Spiny Plumeless-thistle	SNA		x			
Carduus nutans ssp. *nutans*	Musk Thistle	SNA					x
Carex aurea	Golden-fruited Sedge	S5	U	x			x
Carex bebbii	Bebb's Sedge	S5					x
Carex granularis	Meadow Sedge	S5					x
Carex sp.	Sedge Species			x			
Carex vulpinoidea	Fox Sedge	S5		x	x		
Centaurium pulchellum	Branching Centaury-plant	SNA					x
Cerastium fontanum	Common Mouse-ear Chickweed	SNA					x
Cerastium pumilum	European Chickweed	SNA					x
Chaenorrhinum minus	Common Dwarf Snapdragon	SNA		x			
Chamaesyce vermiculata	Worm Seeded Spurge	S5					x
Chenopodium album var. *album*	White Goosefoot	SNA		x			x
Chenopodium glaucum	Oakleaf Goosefoot	SNA					x
Cichorium intybus	Chicory	SNA		x	x	x	x
Cicuta maculata	Spotted Water-hemlock	S5		x	x		x
Circaea lutetiana ssp. *canadensis*	Enchanter's Nightshade	S5			x	x	x
Cirsium arvense	Creeping Thistle	SNA		x	x	x	x
Cirsium vulgare	Bull Thistle	SNA		x	x	x	x
Convolvulus arvensis	Field Bindweed	SNA		x			x
Cornus racemosa	Gray Dogwood	S5		x			
Cornus sericea ssp. *sericea*	Red-osier Dogwood	S5		x	x	x	x
Coronilla varia	Crown-vetch	SNA		x	x		x
Crataegus monogyna	English Hawthorn	SNA		x	x	x	x
Crataegus pedicellata	Scarlet Hawthorn	S4	R1				x
Crataegus punctata	Dotted Hawthorn	S5			x		x
Crataegus sp.	Hawthorn Species			x			
Cynanchum rossicum	European Swallow-wort	SNA		x	x		
Cynoglossum officinale	Hound's-tongue	SNA					x
Dactylis glomerata	Orchard Grass	SNA			x	x	x
Daucus carota	Queen Anne's Lace	SNA		x	x	x	x
Descurainia sophia	Herb Sophia	SNA					x
Dianthus armeria	Deptford-pink	SNA					x
Diplotaxis muralis	Stinking Wallrocket	SNA					x
Dipsacus fullonum ssp. *sylvestris*	Common Teasel	SNA		x	x	x	x
Draba verna	Spring Whitlow-grass	SNA					x
Echinochloa crusgalli	Barnyard Grass	SNA		x	x		x
Echinocystis lobata	Wild Mock-cucumber	S5		x	x		

Scientific Name	Common Name	S-RANK [a]	Region of Peel [b]	Beacon 2018	SENES 2014 [c]	CVC 2013 [d]	Gregory 2001 [e]
Echium vulgare	Common Viper's-bugloss	SNA		x	x	x	x
Elaeagnus angustifolia	Russian Olive	SNA		x	x	x	x
Eleocharis erythropoda	Bald Spikerush	S5					x
Elodea canadensis	Broad Waterweed	S5	R3				x
Elymus canadensis	Nodding Wild-rye	S4S5	E	x			
Elymus repens	Quack Grass	SNA		x	x		x
Epilobium ciliatum ssp. *glandulosum*	Northern Willow-herb	SU					x
Epilobium coloratum	Purple-leaf Willow-herb	S5	R6				x
Epilobium hirsutum	Great-hairy Willow-herb	SNA					x
Epilobium sp.	Willow-herb Species					x	
Equisetum arvense	Field Horsetail	S5		x	x		x
Eragrostis pectinacea var. *pectinacea*	Tufted Love Grass	S5		x			
Erigeron canadensis	Fleabane	S5					x
Erigeron philadelphicus var. *philadelphicus*	Philadelphia Fleabane	S5		x	x		x
Erucastrum gallicum	Common Dog Mustard	SNA					x
Erysimum cheiranthoides ssp. *cheiranthoides*	Woormseed Mustard	SNA					x
Euonymus europaea	European Spindle-tree	SNA		x			
Euphorbia cyparissias	Cypress Spurge	SNA		x			
Euphorbia dentata	Toothed Spurge	SNA					x
Euphorbia esula	Leafy Spurge	SNA		x	x	x	
Euphorbia sp.	Spurge Species			x			
Euthamia graminifolia	Grass-leaved Goldenrod	S5		x	x	x	x
Festuca rubra ssp. *rubra*	Red Fescue	S5					x
Festuca sp.	Fescue Species			x			
Fragaria vesca ssp. *americana*	Woodland Strawberry	S5			x	x	
Fragaria virginiana	Wild Stawberry	S5		x			x
Fragaria virginiana ssp. *virginiana*	Wild Strawberry	S5			x		
Fraxinus americana	White Ash	S5		x	x	x	x
Fraxinus pennsylvanica	Green Ash	S5		x	x	x	x
Galium aparine	Cleavers	S5	R4	x			
Galium palustre	Marsh Bedstraw	S5			x		
Geranium maculatum	Wild Geranium	S5	U		x		x
Geum aleppicum	Yellow Avens	S5				x	x
Geum canadense	White Avens	S5			x		
Geum sp.	Avens Species			x			
Geum urbanum	Clover-root	SNA		x	x		
Ginkgo biloba	Maiden-hair Tree			x			
Gleditsia triacanthos	Honey Locust	S2		x			x
Glyceria sp.	Manna Grass Species						x
Heracleum maximum	Cow-parsnip	S5	R4				x
Hieracium sp.	Hawkweed Species				x	x	
Hippophae rhamnoides				x			
Hordeum jubatum ssp. *jubatum*	Fox-tail Barley	SNA		x		x	
Hypericum perforatum	St. John's-wort	SNA		x	x		x

Scientific Name	Common Name	S-RANK [a]	Region of Peel [b]	Beacon 2018	SENES 2014 [c]	CVC 2013 [d]	Gregory 2001 [e]
Impatiens capensis	Spotted Jewel-weed	S5		x	x		x
Iris pseudacorus	Yellow Iris	SNA			x		x
Juglans nigra	Black Walnut	S4?		x	x		
Juglans x bixbyi	Bixbyi Walnut			x			
Juncus articulatus	Jointed Rush	S5					x
Juncus dudleyi	Dudley's Rush	S5					x
Juncus effusus ssp. *solutus*	Soft Rush	S5					x
Juncus tenuis	Slender Rush	S5		x			x
Juncus torreyi	Torrey's Rush	S5		x			x
Juniperus virginiana	Eastern Red Cedar	S5		x	x	x	
Kochia scoparia	Mexican Summer-cypress	SNA					x
Lactuca serriola	Prickly Lettuce	SNA		x			x
Laportea canadensis	Wood Nettle	S5			x		
Lappula squarrosa ssp. *squarrosa*	Bristly Stickseed	S5					x
Leersia oryzoides	Rice Cutgrass	S5					x
Lepidium campestre	Field Pepper-grass	SNA					x
Leucanthemum vulgare	Oxeye Daisy	SNA			x		x
Linaria vulgaris	Butter-and-eggs	SNA		x	x	x	x
Linum lewisii var. *lepagei*	Lewis' Yellow Flax	S2					x
Lithospermum officinale	European Gromwell	SNA		x			x
Lolium arundinaceum	Kentucky Fescue	SNA					x
Lolium pratense	Meadow Fescue	SNA			x		x
Lonicera tatarica	Tartarian Honeysuckle	SNA		x	x	x	x
Lotus corniculatus	Bird's-foot Trefoil	SNA		x	x	x	x
Lysimachia ciliata	Fringed Loosestrife	S5			x		
Lysimachia nummularia	Moneywort	SNA			x		
Lythrum salicaria	Slender-spike Loosestrife	SNA		x	x		x
Malus pumila	Common Apple	SNA		x	x	x	x
Malus sp.	Apple Species			x			
Malva neglecta	Cheeses	SNA					x
Matricaria discoidea	Pineapple-weed	SNA					x
Medicago lupulina	Black Medic	SNA		x	x	x	x
Medicago sativa ssp. *sativa*	Alfalfa	SNA		x			x
Melilotus alba	White Sweet Clover	SNA		x	x	x	x
Melilotus officinalis	Yellow Sweet Clover	SNA		x	x		x
Mentha arvensis	Corn Mint	S5		x	x		
Morus alba	White Mulberry	SNA		x			
Myriophyllum spicatum	Eurasian Water-milfoil	SNA					x
Nepeta cataria	Catnip	SNA		x	x		x
Oenothera biennis	Common Evening-primrose	S5	U	x			
Oenothera sp.	Evening-primrose Species						x
Panicum capillare	Old Panic Grass	S5		x			x
Panicum dichotomiflorum	Spreading Panic Grass	SNA				x	

Scientific Name	Common Name	S-RANK [a]	Region of Peel [b]	Beacon 2018	SENES 2014 [c]	CVC 2013 [d]	Gregory 2001 [e]
Panicum virgatum	Switch Grass	S4	R1	x			
Parthenocissus vitacea	Thicket Creeper	S5		x	x	x	x
Pastinaca sativa	Wild Parsnip	SNA			x		x
Penstemon hirsutus	Hairy Beardtongue	S4	R7		x		
Phalaris arundinacea	Reed Canary Grass	S5		x	x	x	x
Phleum pratense	Timothy	SNA		x	x	x	x
Phragmites australis ssp. australis	European Common Reed	SNA		x	x	x	
Physocarpus opulifolius	Eastern Ninebark	S5	R1	x			
Picea abies	Norway Spruce	SNA		x	x		
Picea glauca	White Spruce	S5	R3	x	x	x	
Picea pungens	Colorado Spruce	SNA		x	x	x	x
Pilosella caespitosa	Field Hawkweed	SNA					x
Pinus nigra	Black Pine	SNA		x	x	x	
Pinus strobus	Eastern White Pine	S5			x		x
Plantago lanceolata	English Plantain	SNA		x	x	x	
Plantago major	Nipple-seed Plantain	SNA			x	x	x
Poa compressa	Canada Bluegrass	S5		x			x
Poa pratensis ssp. *pratensis*	Kentucky Bluegrass	SNA		x	x	x	x
Polygonum aviculare	Prostrate Knotweed	SNA					x
Polygonum convolvulus	Black Bindweed	SNA					x
Polygonum cuspidatum	Japanese Knotweed	SNA		x	x	x	
Polygonum hydropiperoides	Mild Water-pepper	S5	R1				x
Polygonum persicaria	Lady's Thumb	SNA			x		x
Polygonum sp.	Smartweed Species			x			
Populus balsamifera ssp. *balsamifera*	Balsam Poplar	S5			x		x
Populus deltoides ssp. *deltoides*	Eastern Cottonwood	S5		x	x		
Populus deltoides ssp. *monilifera*	Eastern Cottonwood	S5			x	x	x
Populus nigra	Black Cottonwood	SNA			x		
Populus tremuloides	Quaking Aspen	S5		x	x	x	x
Populus x *canadensis*	Carolina Poplar	SNA			x		
Potamogeton crispus	Curly Pondweed	SNA					x
Potentilla argentea	Silvery Cinquefoil	SNA					x
Potentilla norvegica ssp. *norvegica*	Norway Cinquefoil	SU		x	x		x
Potentilla recta	Sulphur Cinquefoil	SNA		x	x		x
Potentilla x *inclinata*	Ashy Cinquefoil	SNA					x
Prunella vulgaris ssp. *vulgaris*	Common Heal-all	SNA		x			
Prunus avium	Sweet Cherry	SNA		x			
Prunus nigra	Canada Plum	S4	U				x
Prunus serotina	Wild Black Cherry	S5			x		
Prunus virginiana var. *virginiana*	Choke Cherry	S5		x	x	x	x
Quercus robur	English Oak	SNA		x	x	x	
Quercus rubra	Northern Red Oak	S5		x	x		x
Ranunculus acris	Tall Buttercup	SNA			x		x
Rhamnus cathartica	Buckthorn	SNA		x	x		

Scientific Name	Common Name	S-RANK [a]	Region of Peel [b]	Beacon 2018	SENES 2014 [c]	CVC 2013 [d]	Gregory 2001 [e]
Rhus typhina	Staghorn Sumac	S5		x	x	x	x
Ribes aureum	Golden Currant	SR					x
Ribes rubrum	Northern Red Currant	SNA			x		x
Ribes sp.	Currant Species			x			
Robinia pseudo-acacia	Black Locust	SNA		x	x		
Rosa blanda	Smooth Rose	S5			x		x
Rosa eglantaria	Sweetbrier Rose	SNA					x
Rosa multiflora	Rambler Rose	SNA		x	x	x	
Rosa rugosa	Rugosa Rose	SNA					x
Rosa sp.	Rose Species			x			
Rubus allegheniensis	Allegheny Blackberry	S5			x		
Rubus idaeus ssp. *idaeus*	Red Raspberry	SNA				x	
Rubus idaeus ssp. *strigosus*	Wild Red Raspberry	S5		x	x	x	x
Rubus occidentalis	Black Raspberry	S5			x		
Rubus odoratus	Purple-flowering Raspberry	S5			x		x
Rudbeckia hirta	Black-eyed Susan	S5		x			
Rumex crispus	Curly Dock	SNA		x	x	x	x
Salix alba	White Willow	SNA			x	x	
Salix amygdaloides	Peach-leaved Willow	S5	R6			x	
Salix eriocephala	Heart-leaved Willow	S5		x	x		x
Salix exigua	Sandbar Willow	S5	R5	x	x		
Salix fragilis	Crack Willow	SNA		x	x		x
Salix petiolaris	Meadow Willow	S5			x		
Salix purpurea	Basket Willow	SNA					x
Salix sp.	Willow Species			x			
Salix x *fragilis*	Crack Willow	SNA		x			
Schoenoplectus tabernaemontani	Soft-stemmed Bulrush	S5			x		x
Scirpus sp.	Bulrush Species					x	
Senecio vulgaris	Old-man-in-the-spring	SNA					x
Setaria viridis	Green Bristle Grass	SNA					x
Silene vulgaris	Maiden's Tears	SNA					x
Sisymbrium altissimum	Tall Tumble Mustard	SNA					x
Sisyrinchium montanum	Strict Blue-eyed-grass	S5	R5				x
Solanum dulcamara	Climbing Nightshade	SNA		x	x	x	x
Solanum rostratum	Buffalo Bur	SNA			x		
Solidago altissima var. altissima	Tall Goldenrod	S5		x		x	
Solidago canadensis	Canada Goldenrod	S5		x		x	x
Solidago juncea	Early Goldenrod	S5	U	x	x		x
Solidago nemoralis var. *nemoralis*	Field Goldenrod	S5		x	x	x	
Solidago rugosa ssp. *rugosa*	Rough Goldenrod	S5		x		x	
Solidago sp.	Goldenrod Species			x			
Sonchus arvensis ssp. *arvensis*	Field Sowthistle	SNA		x	x	x	
Sonchus arvensis ssp. *uliginosus*	Perennial Sowthistle	SNA					x
Sorbus aucuparia	European Mountain-ash	SNA		x			x

Scientific Name	Common Name	S-RANK [a]	Region of Peel [b]	Beacon 2018	SENES 2014 [c]	CVC 2013 [d]	Gregory 2001 [e]
Sorbus sp.	Mountain-ash Species				x		
Sporobolus neglectus	Small Dropseed	S4					x
Stachys byzantina	Hedge-nettle	SNA		x			
Stuckenia pectinatus	Sago Pondweed	S5	U				x
Symphyotrichum cordifolium	Heart-leaved Aster	S5		x	x		x
Symphyotrichum ericoides var. *ericoides*	Heath Aster	S5		x	x	x	x
Symphyotrichum lanceolatum ssp. *lanceolatum*	Panicled Aster	S5		x	x	x	
Symphyotrichum lanceolatum var. *hesperium*	Panicled Aster	S5		x			x
Symphyotrichum novae-angliae	New England Aster	S5		x	x	x	x
Symphyotrichum oolentangiense var. *oolentangiense*	Sky-blue Aster	S4	R3		x	x	x
Symphyotrichum x *amethystinum*	Amethyst Aster	S3?		x		x	x
Syringa vulgaris	Common Lilac	SNA		x	x		
Tanacetum vulgare	Common Tansy	SNA		x	x	x	x
Taraxacum officinale	Common Dandelion	SNA		x		x	x
Thalictrum dioicum	Early Meadowrue	S5			x		
Thalictrum pubescens	Tall Meadowrue	S5			x		x
Thlaspi arvense	Field Penny-cress	SNA					x
Thuja occidentalis	Northern White Cedar	S5		x	x		
Tilia americana	American Basswood	S5		x	x		
Tilia cordata	Small leaf Linden	SNA			x		
Tragopogon dubius	Meadow Goat's-beard	SNA			x	x	
Tragopogon pratensis ssp. *pratensis*	Meadow Goat's-beard	SNA			x		x
Tragopogon sp.	Goat's-beard Species			x			
Trifolium hybridum ssp. *elegans*	Alsike Clover	SNA					x
Trifolium pratense	Red Clover	SNA		x	x	x	x
Trifolium repens	White Clover	SNA		x	x		
Tussilago farfara	Colt's Foot	SNA		x	x		x
Typha angustifolia	Narrow-leaved Cattail	S5		x	x	x	x
Typha latifolia	Broad-leaf Cattail	S5			x	x	x
Typha x *glauca*	Blue Cattail	S4?			x		
Ulmus americana	American Elm	S5		x	x		
Ulmus pumila	Siberian Elm	SNA		x	x	x	x
Ulmus sp.	Elm Species			x			
Urtica dioica ssp. *dioica*	Stinging Nettle	SNA					x
Verbascum thapsus	Common Mullein	SNA		x	x	x	x
Verbena hastata	Blue Vervain	S5			x		
Verbena urticifolia	White Vervain	S5		x			
Veronica serpyllifolia ssp. *serpyllifolia*	Thyme-leaved Speedwell	SNA					x
Viburnum lantana	Wayfaring-tree	SNA		x			
Viburnum opulus	Guelder-rose Viburnum	SNA		x	x		
Viburnum opulus var. *americanum*	Highbush Cranberry	S5					x
Vicia cracca	Tufted Vetch	SNA		x	x	x	x
Viola pubescens	Downy Yellow Violet	S5			x		
Viola sororia	Woolly Blue Violet	S5			x		

Scientific Name	Common Name	S-RANK [a]	Region of Peel [b]	Beacon 2018	SENES 2014 [c]	CVC 2013 [d]	Gregory 2001 [e]
Viola tricolor	Three Colored Violet	SNA					x
Vitis riparia	Riverbank Grape	S5		x	x	x	x
Xanthium strumarium	Rough Cockle-bur	S5		x	x		

a - SRANK (from Natural Heritage Information Centre) for breeding status: S1 (Extremelt Rare), S2 (Very Rare), S3 (Rare to Uncommon) (S4 (Common), S5 (Very Common) SNA (Not applicable…'because the species is not a suitable target for conservation activities'; includes non-native species)
b - Varga, 2005 (Distribution and Status of the Vascular Plants of the Greater Toronto Area): U (Uncommon), R1, R2, etc. (Number of Station for Rare Species)
c - SENES Consultants. 2014. Environmental Assessment for Lakeview Waterfront Connection. Prepared for Credit Valley Conservation, Regional Municipality of Peel and Toronto and Region Conservation Authority, April 2014. 2290 pp.
d - Credit Valley Conservation. 2013. Ontario Power Generation (Lakeview) Summary Report. March 22, 2013. 10 pp.
e - Gregory, D. 2001. Lakeview Generating Station Biological Survey. Prepared for Ontario Power Generation, December 13, 2001. 156 pp.

Appendix B

Fauna List

Appendix B

Fauna List

Common Name	Scientific Name	Status					Subject Property				Study Area
		National Species at Risk COSEWIC (a)	Species at Risk in Ontario Listing (b)	Provincial SRANK (c)	Toronto Region Conservation Authority Status (d)	Area-Sensitive (e)	ELC Unit*	Beacon 2018/ 2019A	Gregory 2001 (f)	Credit Valley Conservation Authority 2013 (g)	SENES 2014 (h)
BIRDS											
Common Loon	*Gavia immer*	-	-	S5	N/A	A	-	-	x	-	x
Pied-billed Grebe	*Podilymbus podiceps*	-	-	S4	L3	-	-	-	-	-	x
Horned Grebe	*Podiceps auritus*	SC	SC	S1	n/a	-	-	-	-	-	x
Red-necked Grebe	*Podiceps grisegena*	-	-	S3	L3	-	-	-	-	-	x
Double-crested Cormorant	*Phalacrocorax auritus*	-	-	S5	L3	-	-	-	x	x	x
Great Blue Heron	*Ardea herodias*	-	-	S4	L3	-	-	-	-	x	x
Green Heron	*Butorides virescens*	-	-	S4	L4	-	-	-	-	-	x
Black-crowned Night-Heron	*Nycticorax nycticorax*	-	-	S3	L3	-	-	-	x	-	x
Trumpeter Swan	*Cygnus buccinator*	-	-	S4	L+	-	-	-	-	-	x
Mute Swan	*Cygnus olor*	-	-	SNA	L+	-	-	x	B	x	x
Canada Goose	*Branta canadensis*	-	-	S5	L5	-	-	-	B	x	x
Ruddy Duck	*Oxyura jamaicensis*	-	-	S4	N/A	-	-	-	-	-	x
Wood Duck	*Aix sponsa*	-	-	S5	L4	-	-	-	x	-	x
Green-winged Teal	*Anas crecca*	-	-	S4	L2	-	-	-	-	x	x
American Black Duck	*Anas rubripes*	-	-	S4	L3	-	-	-	x	x	x
Mallard	*Anas platyrhynchos*	-	-	S5	L5	-	-	x	B	x	x
Mallard x American Black Duck	*Anas platyrhynchos x rubripes*	-	-	N/A	N/A	-	-	-	-	-	x
Northern Pintail	*Anas acuta*	-	-	S5	N/A	A	-	-	-	-	x

Common Name	Scientific Name	Status					Subject Property				Study Area
		National Species at Risk COSEWIC (a)	Species at Risk in Ontario Listing (b)	Provincial SRANK (c)	Toronto Region Conservation Authority Status (d)	Area-Sensitive (e)	ELC Unit*	Beacon 2018/ 2019A	Gregory 2001 (f)	Credit Valley Conservation Authority 2013 (g)	SENES 2014 (h)
Blue-winged Teal	*Anas discors*	-	-	S4	L3	-	-	-	-	-	x
Northern Shoveler	*Anas clypeata*	-	-	S4	N/A	-	-	-	-	-	x
Gadwall	*Anas strepera*	-	-	S4	L4	-	-	-	x	x	x
American Wigeon	*Anas americana*	-	-	S4	N/A	-	-	-	-	-	x
Canvasback	*Aythya valisineria*	-	-	S1	L2	A	-	-	-	-	x
Redhead	*Aythya americana*	-	-	S2	N/A	A	-	-	-	-	x
Ring-necked Duck	*Aythya collaris*	-	-	S5	N/A	-	-	-	x	-	x
Greater Scaup	*Aythya marila*	-	-	S4	N/A	-	-	-	-	-	x
Lesser Scaup	*Aythya affinis*	-	-	S4	N/A	-	-	-	-	-	x
Long-tailed Duck	*Clangula hyemalis*	-	-	S3	N/A	-	-	-	x	x	x
White-winged Scoter	*Melanitta fusca*	-	-	S4	N/A	-	-	-	-	-	x
Common Goldeneye	*Bucephala clangula*	-	-	S5	N/A	A	-	-	x	x	x
Bufflehead	*Bucephala albeola*	-	-	S4	N/A	-	-	-	x	x	x
Hooded Merganser	*Lophodytes cucullatus*	-	-	S5	L3	-	-	-	-	x	x
Common Merganser	*Mergus merganser*	-	-	S5	L3	A	-	-	x	-	x
Red-breasted Merganser	*Mergus serrator*	-	-	S4	N/A	A	-	-	-	-	x
Turkey Vulture	*Cathartes aura*	-	-	S5	L4	-	-	-	-	-	x
Northern Harrier	*Circus cyaneus*	-	-	S4	L3	A	-	-	-	-	x
Sharp-shinned Hawk	*Accipiter striatus*	-	-	S5	L3	A	-	-	-	-	x
Cooper's Hawk	*Accipiter cooperi*	-	-	S4	L4	A	-	-	-	-	x
Red-tailed Hawk	*Buteo jamaicensis*	-	-	S5	L5	-	2a	x	-	-	x
American Kestrel	*Falco sparverius*	-	-	S4	L4	-	2a	x	x	x	x

Common Name	Scientific Name	Status					Subject Property				Study Area
		National Species at Risk COSEWIC (a)	Species at Risk in Ontario Listing (b)	Provincial SRANK (c)	Toronto Region Conservation Authority Status (d)	Area-Sensitive (e)	ELC Unit*	Beacon 2018/ 2019A	Gregory 2001 (f)	Credit Valley Conservation Authority 2013 (g)	SENES 2014 (h)
Merlin	*Falco columbarius*	-	-	S5	L3	-	-	-	-	x	x
Peregrine Falcon	*Falco peregrinus*	SC	THR	S3	L4	-	-	-	B	-	x
American Coot	*Fulica americana*	-	-	S4	L2	A	-	-	x	-	x
Semipalmated Plover	*Charadrius semiplamatus*	-	-	S4	N/A	-	-	-	-	-	x
Killdeer	*Charadrius vociferus*	-	-	S5	L5	-	1b,2b	3	x	x	x
Greater Yellowlegs	*Tringa melanoleuca*	-	-	S4	N/A	-	-	-	-	-	x
Lesser Yellowlegs	*Tringa flavipes*	-	-	S4	N/A	-	-	-	-	-	x
Pectoral Sandpiper	*Calidris melanotos*	-	-	SHB	N/A	-	-	-	-	-	x
Spotted Sandpiper	*Actitis macularia*	-	-	S5	L4	-	2b	2	x	-	x
Semipalmated Sandpiper	*Calidris pusilla*	-	-	S3	N/A	-	-	-	-	-	x
Least Sandpiper	*Calidris minutilla*	-	-	S4	N/A	-	-	-	-	-	x
White-rumped Sandpiper	*Calidris fuscicollis*	-	-	S5	N/A	-	-	-	-	-	x
Sanderling	*Calidris alba*	-	-	S5	N/A	-	-	-	-	-	x
Baird's Sandpiper	*Calidris bairdii*	-	-	SNA	N/A	-	-	-	-	-	x
Dunlin	*Calidris alpina*	-	-	S4	N/A	-	-	-	-	-	x
Short-billed Dowitcher	*Limnodromus griseus*	-	-	S3	N/A	-	-	-	-	-	x
Wilson's phalarope	*Phalaropus tricolor*	-	-	S3	N/A	-	-	-	-	-	x
Ring-billed Gull	*Larus delawarensis*	-	-	S5	L4	-	-	x	x	-	x
Herring Gull	*Larus argentatus*	-	-	S5	L4	-	-	-	x	x	x
Great Black-backed Gull	*Larus marinus*	-	-	S2	L4	-	-	-	x	x	x
Caspian Tern	*Sterna caspia*	-	-	S3	L3	-	-	-	-	x	x
Common Tern	*Sterna hirundo*	-	-	S4	L3	-	-	-	x	-	x

Common Name	Scientific Name	Status					Subject Property				Study Area
		National Species at Risk COSEWIC (a)	Species at Risk in Ontario Listing (b)	Provincial SRANK (c)	Toronto Region Conservation Authority Status (d)	Area-Sensitive (e)	ELC Unit*	Beacon 2018/ 2019A	Gregory 2001 (f)	Credit Valley Conservation Authority 2013 (g)	SENES 2014 (h)
Rock Pigeon	*Columba livia*	-	-	SNA	L+	-	-	-	x	-	x
Mourning Dove	*Zenaida macroura*	-	-	S5	L5	-	3d,3e	2	x	x	x
Black-billed Cuckoo	*Coccyzus erythropthalmus*	-	-	S5	L3	-	-	-	-	-	x
Eastern Screech-Owl	*Megascops asio*	-	-	S4	L4	-	-	-	-	-	x
Chimney Swift	*Chaetura pelagica*	THR	THR	S4	L4	-	-	-	-	-	x
Ruby-throated Hummingbird	*Archilochus colubris*	-	-	S5	L4	-	-	-	-	-	x
Belted Kingfisher	*Ceryle alcyon*	-	-	S4	L4	-	-	-	x	x	x
Yellow-bellied Sapsucker	*Sphyrapicus varius*	-	-	S5	L3	A	-	-	x	-	-
Red-bellied Woodpecker	*Melanerpes carolinus*	-	-	S4	L4	-	-	-	-	-	x
Downy Woodpecker	*Picoides pubescens*	-	-	S5	L5	-	-	-	-	-	x
Hairy Woodpecker	*Picoides villosus*	-	-	S5	L4	A	-	-	-	-	x
Northern Flicker	*Colaptes auratus*	-	-	S4	L4	-	3e	1	x	x	x
Pileated Woodpecker	*Dryocopus pileatus*	-	-	S5	L3	A	-	-	-	-	x
Eastern Wood-Pewee	*Contopus virens*	SC	SC	S4	L4	-	-	-	-	-	x
Yellow-bellied Flycatcher	*Empidonax flaviventris*	-	-	S5	N/A	-	-	-	-	-	x
Alder Flycatcher	*Empidonax alnorum*	-	-	S5	L3	-	-	-	-	-	x
Willow Flycatcher	*Empidonax traillii*	-	-	S5	L4	-	2b,3c,3d, 3e,5e,5f	4	-	-	x
Least Flycatcher	*Empidonax minimus*	-	-	S4	L3	A	-	-	-	-	x
Eastern Phoebe	*Sayornis phoebe*	-	-	S5	L5	-	-	-	x	-	x
Great Crested Flycatcher	*Myiarchus crinitus*	-	-	S4	L4	-	-	-	-	-	x
Eastern Kingbird	*Tyrannus tyrannus*	-	-	S4	L4	-	2b	2	x	x	x
Horned Lark	*Eremophila alpestris*	-	-	S5	L3	-		-	-	-	x

Common Name	Scientific Name	Status					Subject Property				Study Area
		National Species at Risk COSEWIC (a)	Species at Risk in Ontario Listing (b)	Provincial SRANK (c)	Toronto Region Conservation Authority Status (d)	Area-Sensitive (e)	ELC Unit*	Beacon 2018/ 2019A	Gregory 2001 (f)	Credit Valley Conservation Authority 2013 (g)	SENES 2014 (h)
Purple Martin	*Progne subis*	-	-	S4	L4	-	-	-	x	-	-
Tree Swallow	*Tachycineta bicolor*	-	-	S4	L4	-	-	-	x	-	x
N. Rough-winged Swallow	*Stelgidopteryx serripennis*	-	-	S4	L4	-	-	-	-	-	x
Bank Swallow	*Riparia riparia*	THR	THR	S4	L3	-	1b	x	x	-	x
Cliff Swallow	*Petrochelidon pyrrhonota*	-	-	S4	L5	-	2b	8	x	-	x
Barn Swallow	*Hirundo rustica*	THR	THR	S4	L4	-	1b	x	x	-	x
Blue Jay	*Cyanocitta cristata*	-	-	S5	L5	-	-	-	x	x	x
American Crow	*Corvus brachyrhynchos*	-	-	S5	L5	-	-	-	x	-	x
Black-capped Chickadee	*Poecile atricapillus*	-	-	S5	L5	-	1a	1	x	-	x
Red-breasted Nuthatch	*Sitta canadensis*	-	-	S5	L4	A	-	-	-	-	x
White-breasted Nuthatch	*Sitta carolinensis*	-	-	S5	L4	A	-	-	-	-	x
Winter Wren	*Troglodytes hiemalis*	-	-	S5	L3	A	-	-	-	-	x
Carolina Wren	*Thryothorus ludovicianus*	-	-	S4	L4	-	-	-	-	-	x
Golden-crowned Kinglet	*Regulus satrapa*	-	-	S5	L3	-	-	-	-	x	x
Ruby-crowned Kinglet	*Regulus calendula*	-	-	S4	N/A	-	-	-	x	-	x
Blue-gray Gnatcatcher	*Polioptila caerulea*	-	-	S4	L4	A	-	-	x	-	x
Eastern Bluebird	*Sialia sialis*	-	-	S5	L4	-	-	-	-	-	x
Veery	*Catharus fuscescens*	-	-	S4	L3	A	-	-	-	-	x
Swainson's Thrush	*Catharus ustulatus*	-	-	S4	N/A	-	-	-	-	-	x
Hermit Thrush	*Catharus guttatus*	-	-	S5	L3	A	-	-	-	-	x
Wood Thrush	*Hylocichla mustelina*	THR	SC	S4	L3	-	-	-	-	-	x
American Robin	*Turdus migratorius*	-	-	S5	L5	-	1a,1b,2a, 2b,3c,3e, 5b,5f	8	B	x	x

Common Name	Scientific Name	Status					Subject Property				Study Area
		National Species at Risk COSEWIC (a)	Species at Risk in Ontario Listing (b)	Provincial SRANK (c)	Toronto Region Conservation Authority Status (d)	Area-Sensitive (e)	ELC Unit*	Beacon 2018/ 2019A	Gregory 2001 (f)	Credit Valley Conservation Authority 2013 (g)	SENES 2014 (h)
Northern Mockingbird	*Mimus polyglottus*	-	-	S4	L5	-	2c,3d,3e, 4b	3	B	-	x
Gray Catbird	*Dumetella carolinensis*	-	-	S4	L4	-	2b,5b	2	B	-	x
Brown Thrasher	*Toxostoma rufum*	-	-	S4	L3	-	2b	1	x	-	x
Cedar Waxwing	*Bombycilla cedrorum*	-	-	S5	L5	-	1a,2a,5b, 5e,5f	4	-	-	x
European Starling	*Sturnus vulgaris*	-	-	SE	L+	-	2a,2b,3e,5f	5	B	x	x
Blue-headed Vireo	*Vireo solitarius*	-	-	S5	L3	A	-	-	-	-	x
Warbling Vireo	*Vireo gilvus*	-	-	S5	L5	-	3h,5e,5f	2	-	-	x
Red-eyed Vireo	*Vireo olivaceus*	-	-	S5	L4	-	-	-	-	-	x
Tennessee Warbler	*Oreothlypis peregrina*	-	-	S5	N/A	-	-	-	x	-	-
Nashville Warbler	*Oreothlypis ruficapilla*	-	-	S5	L3	-	-	-	x	-	x
Northern Parula	*Setophaga americana*	-	-	S4	N/A	A	-	-	-	-	x
Yellow Warbler	*Setophaga petechia*	-	-	S5	L5	-	2a,2b,3d, 3e,5e,5f	10	B	-	x
Chestnut-sided Warbler	*Setophaga pensylvanica*	-	-	S5	L3	-	-	-	x	-	x
Black-throated Blue Warbler	*Setophaga caerulescens*	-	-	S5	L3	-	-	-	-	-	x
Magnolia Warbler	*Setophaga magnolia*	-	-	S5	L3	-	-	-	-	-	x
Cape May Warbler	*Setophaga tigrina*	-	-	S5	N/A	-	-	-	x	-	-
Yellow-rumped Warbler	*Setophaga coronata*	-	-	S5	L3	-	-	-	x	-	x
Black-throated Green Warbler	*Setophaga virens*	-	-	S5	L3	-	-	-	-	-	x
Blackburnian Warbler	*Setophaga fusca*	-	-	S5	L3	-	-	-	x	-	x
Pine Warbler	*Setophaga pinus*	-	-	S5	L4	-	-	-	-	-	x
Western Palm Warbler	*Setophaga palmarum*	-	-	S5	N/A	-	-	-	x	-	x
Blackpoll Warbler	*Setophaga striata*	-	-	S4	N/A	-	-	-	-	-	x

Common Name	Scientific Name	Status					Subject Property				Study Area
		National Species at Risk COSEWIC (a)	Species at Risk in Ontario Listing (b)	Provincial SRANK (c)	Toronto Region Conservation Authority Status (d)	Area-Sensitive (e)	ELC Unit*	Beacon 2018/ 2019A	Gregory 2001 (f)	Credit Valley Conservation Authority 2013 (g)	SENES 2014 (h)
Black-and-white Warbler	*Mniotilta varia*	-	-	S5	L2	A	-	-	-	-	x
American Redstart	*Setophaga ruticilla*	-	-	S5	L3	A	-	-	-	-	x
Ovenbird	*Seiurus aurocapillus*	-	-	S4	L3	A	-	-	-	-	x
Northern Waterthrush	*Parkesia noveboracensis*	-	-	S5	L3	-	-	-	-	-	x
Mourning Warbler	*Geothlypis philadelphia*	-	-	S4	L3	-	-	-	-	-	-
Common Yellowthroat	*Geothlyphis trichas*	-	-	S5	L4	-	-	-	-	-	x
Wilson's Warbler	*Cardellina pusilla*	-	-	S4	N/A	-	-	-	-	-	x
Scarlet Tanager	*Piranga olivacea*	-	-	S4	L3	A	-	-	-	-	x
Northern Cardinal	*Cardinalis cardinalis*	-	-	S5	L5	-	3c,5b,5f	2	B	x	x
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	-	-	S4	L4	-	-	-	-	-	x
Indigo Bunting	*Passerina cyanea*	-	-	S4	L4	-	-	-	-	-	x
Eastern Towhee	*Pipilio erythrophthalmus*	-	-	S4	L3	-	-	-	-	-	x
American Tree Sparrow	*Spizelloides arborea*	-	-	S4	N/A	-	-	-	-	-	x
Chipping Sparrow	*Spizella passerina*	-	-	S5	L5	-	-	-	-	-	x
Field Sparrow	*Spizella pusilla*	-	-	S4	L4	-	-	-	-	-	x
Vesper Sparrow	*Pooecetes gramineus*	-	-	S4	L3	-	-	-	-	-	x
Savannah Sparrow	*Passerculus sandwichensis*	-	-	S4	L4	A	1b,2b	14	-	-	x
Song Sparrow	*Melospiza melodia*	-	-	S5	L5	-	1a,1b,2a, 2b,2c,3d, 3e,5c,5f	18	x	-	x
White-throated Sparrow	*Zonotrichia albicollis*	-	-	S5	L3	-	-	-	x	-	-
White-crowned Sparrow	*Zonotrichia leucophrys*	-	-	S4	N/A	-	-	-	x	-	x
Dark-eyed Junco	*Junco hyemalis*	-	-	S5	N/A	-	-	-	x	x	x
Bobolink	*Dolichonyx oryzivorus*	THR	THR	S4	L2	A	1b	1	x	-	x

Common Name	Scientific Name	Status					Subject Property				Study Area
		National Species at Risk COSEWIC (a)	Species at Risk in Ontario Listing (b)	Provincial SRANK (c)	Toronto Region Conservation Authority Status (d)	Area-Sensitive (e)	ELC Unit*	Beacon 2018/ 2019A	Gregory 2001 (f)	Credit Valley Conservation Authority 2013 (g)	SENES 2014 (h)
Red-winged Blackbird	*Agelaius phoeniceus*	-	-	S4	L5	-	1a,1b,2a, 2b,2c,3c, 3d,3f,5c	27	B	-	x
Eastern Meadowlark	*Sturnella magna*	THR	THR	S4	L3	A	1b	1	x	-	x
Rusty Blackbird	*Euphagus carolinus*	SC	-	S4	N/A	-	-	-	-	-	x
Common Grackle	*Quiscalus quiscula*	-	-	S5	L5	-	2a,2c,3c	2	B	-	x
Brown-headed Cowbird	*Molothrus ater*	-	-	S4	L5	-	1b,2a,2b,5f	4	B	-	x
Orchard Oriole	*Icterus spurius*	-	-	S4	L5	-	2a	1	-	-	-
Baltimore Oriole	*Icterus galbula*	-	-	S4	L5	-	-	-	x	-	x
House Finch	*Haemorhous mexicanus*	-	-	SNA	L+	-	1a,2a	2	B	-	-
American Goldfinch	*Spinus tristis*	-	-	S5	L5	-	1a,1b,2a, 2b,3e	8	-	x	x
Ruddy Turnstone	*Arenaria interpres*	-	-	SNA	N/A	-	-	-	-	-	x
House Sparrow	*Passer domesticus*	-	-	SNA	L+	-	-	-	B	x	x
AMPHIBIANS											
American Toad	*Anaxyrus americanus*	-	-	S5	L4	-	3d	1	x	-	x
Green Frog	*Lithobates clamitans*	-	-	S5	L4	-	-	-	-	-	x
Gray Treefrog	*Hyla versicolor*	-	-	S5	L2	-	-	-	-	-	x
Northern Leopard Frog	*Lithobates pipiens*	-	-	S5	L3	-	-	-	-	-	x
REPTILES											
Eastern Garter Snake	*Thamnophis sirtalis sirtalis*	-	-	S5	L4	-	5b	x	x	-	-
Northern Water Snake	*Nerodia sipedon sipedon*	-	-	S5	L2	-	-	-	x	-	-
Midland Painted Turtle	*Chrysemys picta marginata*	-	-	S4	L3	-	West of 4b (outside of subject property)	x	x	-	x
Snapping Turtle	*Chelydra serpentina*	SC	SC	S3	L2	-	-	-	x	-	-

Common Name	Scientific Name	Status					Subject Property				Study Area
		National Species at Risk COSEWIC (a)	Species at Risk in Ontario Listing (b)	Provincial SRANK (c)	Toronto Region Conservation Authority Status (d)	Area-Sensitive (e)	ELC Unit*	Beacon 2018/ 2019A	Gregory 2001 (f)	Credit Valley Conservation Authority 2013 (g)	SENES 2014 (h)
MAMMALS											
Little Brown Myotis	*Myotis lucifugus*	-	-	S3	L4	-	-	-	-	-	x
Northern Raccoon	*Procyon lotor*	-	-	S5	L5	-	1b	x	x	-	x
Coyote	*Canis latrans*	-	-	S5	L5	-	-	x	x	x	x
Red Fox	*Vulpes vulpes*	-	-	S5	L4	-	-	-	x	-	-
Eastern Grey Squirrel	*Sciurus carolinensis*	-	-	S5	L5	-	-	-	-	-	x
Striped Skunk	*Mephitis mephitis*	-	-	S5	L5	-	-	-	-	-	-
Snowshoe Hare	*Lepus americanus*	-	-	S5	L3	-	-	-	-	-	-
Big Brown Bat	*Eptesicus fuscus*	-	-	S4	L4	-	-	-	-	-	x
Silver-haired Bat	*Lasionycteris noctivagans*	-	-	S4	L4	-	-	-	-	-	x
Eastern Red Bat	*Lasiurus borealis*	-	-	S4	L4	-	-	-	-	-	x
Hoary Bat	*Lasiurus cinereus*	-	-	S4	L4	-	-	-	-	-	x
Woodchuck	*Marmota monax*	-	-	S5	L4	-	-	-	-	-	x
American Mink	*Mustela vison*	-	-	S4	L4	-	2a	x	-	-	x
Northern Long-eared Bat	*Myotis septentrionalis*	-	-	S3	L4	-	-	-	-	-	x
White-tailed Deer	*Odocoileus virginianus*	-	-	S5	L4	-	5f	x	-	-	x
Muskrat	*Ondatra zibethicus*	-	-	S4	L4	-	-	-	-	-	x
Tri-coloured Bat	*Perimyotis subflavus*	-	-	S3	-	-	-	X	-	-	x
Eastern Cottontail	*Sylvilagus floridanus*	-	-	S5	L4	-	-	-	-	-	x
Eastern Chipmunk	*Tamias striatus*	-	-	S5	L4	-	-	-	-	-	x
DRAGONFLIES AND DAMSELFLIES (ODONATES)											
Black Saddlebags	*Tramea lacerata*	-	-	S4	-	-	-	-	-	x	x

Common Name	Scientific Name	Status					Subject Property				Study Area
		National Species at Risk COSEWIC (a)	Species at Risk in Ontario Listing (b)	Provincial SRANK (c)	Toronto Region Conservation Authority Status (d)	Area-Sensitive (e)	ELC Unit*	Beacon 2018/ 2019A	Gregory 2001 (f)	Credit Valley Conservation Authority 2013 (g)	SENES 2014 (h)
Blue Dasher	*Pachydiplax longipennis*	-	-	S5	-	-	-	-	-	x	x
Common Green Darner	*Anax junius*	-	-	S5	-	-	-	-	-	x	x
Twelve-spotted Skimmer	*Libellula pulchella*	-	-	S5	-	-	-	-	-	x	x
Eastern Pondhawk	*Erythemis simplicicollis*	-	-	S5	-	-	-	-	-	-	x
Eastern Forktail	*Ischnura verticalis*	-	-	S5	-	-	-	-	-	-	x
Familiar Bluet	*Enallagma civile*	-	-	S5	-	-	-	-	-	-	x
Wandering Glider	*Pantala flavescens*	-	-	S4	-	-	-	-	-	-	x
Spot-winged Glider	*Pantala hymenaea*	-	-	S4	-	-	-	-	-	-	x
Carolina Saddlebags	*Tramea Carolina*	-	-	SNA	-	-	-	-	-	-	x
Slender Spreadwing	*Lestes rectangularis*	-	-	S5	-	-	-	-	-	-	x
BUTTERFLIES											
Monarch	*Danaus plexippus*	END	SC	S2N,S4B	-	-	3d,3h	x	x	x	B
Black Swallowtail	*Papilio polyxenes*	-	-	S5	-	-	-	-	-	x	x
Cabbage White	*Pieris rapae*	-	-	SNA	-	-	-	-	-	x	x
Clouded Sulphur	*Colias philodice*	-	-	S5	-	-	-	-	-	x	x
Common Buckeye	*Junonia coenia*	-	-	SNA	-	-	-	-	-	x	B
Common Ringlet	*Coenonympha tullia*	-	-	S5	-	-	-	-	-	x	x
Eastern Tailed Blue	*Cupido comyntas*	-	-	S5	-	-	-	-	-	x	x
Mourning Cloak	*Nymphalis antiopa*	-	-	S5	-	-	-	-	-	x	x
Orange Sulphur	*Colias eurytheme*	-	-	S5	-	-	-	-	-	x	B
American Lady	*Vanessa virginiensis*	-	-	S5	-	-	-	-	-	-	x
Question Mark	*Polygonia interrogationis*	-	-	S5	-	-	-	-	-	-	x

Common Name	Scientific Name	Status					Subject Property				Study Area
		National Species at Risk COSEWIC (a)	Species at Risk in Ontario Listing (b)	Provincial SRANK (c)	Toronto Region Conservation Authority Status (d)	Area-Sensitive (e)	ELC Unit*	Beacon 2018/ 2019A	Gregory 2001 (f)	Credit Valley Conservation Authority 2013 (g)	SENES 2014 (h)
Red Admiral	*Vanessa atalanta*	-	-	S5	-	-	-	-	-	-	x
Painted Lady	*Vanessa cardui*	-	-	S5	-	-	-	-	-	-	x
Spring Azure	*Celastrina landon*	-	-	SU	-	-	-	-	-	-	x
Summer Azure	*Celastrina neglecta*	-	-	S4	-	-	-	-	-	-	x
Viceroy	*Limenitis archippus*	-	-	S5	-	-	-	-	-	-	x
Eastern Tiger Swallowtail	*Papilio glaucus*	-	-	S5	-	-	-	-	-	-	x
Little Yellow	*Erurema lisa*	-	-	SNA	-	-	-	-	-	-	x
Fiery Skipper	*Hylephila phyleus*	-	-	SNA	-	-	-	-	-	-	x
Wild Indigo Duskywing	*Erynnis baptisiae*	-	-	S4	-	-	-	-	-	-	x
DECAPODA											
Terrestrial Crayfish Species	Unknown	-	-	n/a	-	-	7a	x	-	-	-

Field Work Conducted On: June 4, 13, & 22, 2018
= Number of Breeding Pairs or Territories; B = Species Breeding within Subject Property; x = Present within Subject Property
***** Location of species by ELC Unit pertaining to work conducted by Beacon only

a COSEWIC = Committee on the Status of Endangered Wildlife in Canada

b 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

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

ELC Unit	ELC Code	ELC Community
Cultural Communities		
1	AG	Agricultural
2 (a, b, c)	ANT	Anthropogenic
3 (a, b, c, d, e, f, g, h, i)	CUM1	Mineral Cultural Meadow
4 (a, b, c)	CUT1	Mineral Cultural Thicket
5 (a, b, d, c, e)	CUW1	Mineral Cultural Woodland
Natural Communities		
6 (a, b)	MAM	Meadow Marsh
7 (a, b, c, d)	MAS2	Mineral Shallow Marsh
8 (a, b)	SWT2-5	Red-Osier Mineral Thicket Swamp
9 (a, b)	FOD7-2	Fresh-Moist Lowland Ash Deciduous Forest

d Toronto and Region Conservation Authority L rank (Dec 2010): If available, L1 to L3 Regional species of concern from highest to lowest; L4 Urban concern; L5 Secure through region; L+ Non-native

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

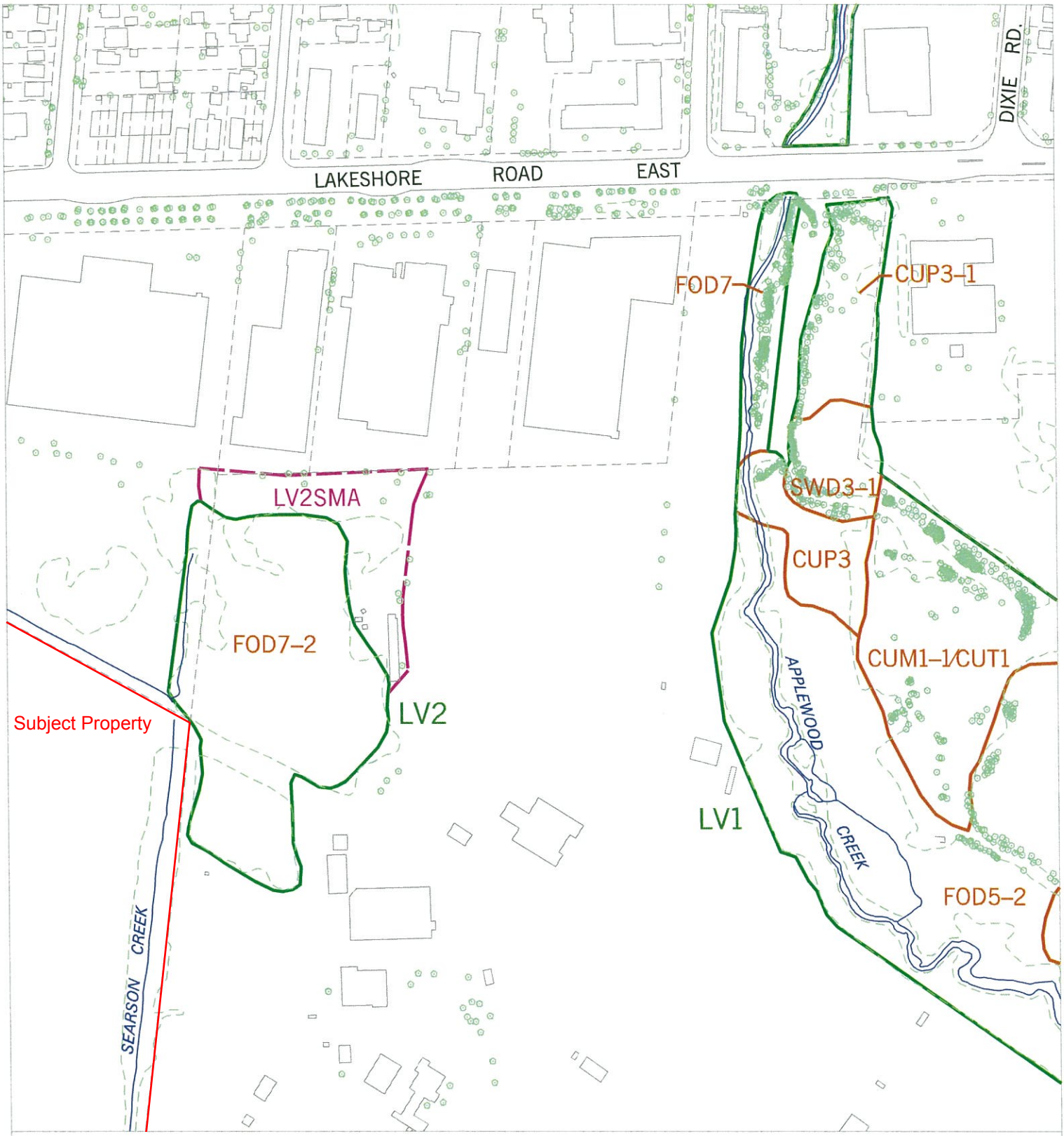
f Gregory, D. 2001. Lakeview Generating Station Biological Survey. Prepared for Ontario Power Generation, December 13, 2001. 156 pp.

g Credit Valley Conservation. 2013. Ontario Power Generation (Lakeview) Summary Report. March 22, 2013. 10 pp.

h SENES Consultants. 2014. Environmental Assessment for Lakeview Waterfront Connection. Prepared for Credit Valley Conservation, Regional Municipality of Peel and Toronto and Region Conservation Authority, April 2014. 2290 pp.

Appendix C

Mississauga Natural Areas Fact Sheet
LVZ



Natural AREAS SYSTEM

2017 NATURAL AREAS UPDATE

SITE LV2

NATURAL AREAS SYSTEM CLASSIFICATION

- NATURAL AREAS
- VEGETATION COMMUNITIES
- SPECIAL MANAGEMENT AREAS
- LINKAGES

N

0 15 30 45 60
metres

MISSISSAUGA

City of Mississauga Natural Areas Survey (2016)

Natural Areas Fact Sheet

Natural Area Name	Planning District	Area (ha)	UTM Grid Reference
LV2	Lakeview	2.51	6169 48259

1. **Location**
   Southeast of the intersection of Lakeshore Road East and Dixie Road. The natural area LV1 is located within 500 m to the east.

2. **Classification**
   Significant Natural Area

3. **Description**

   A. **Physical Features**

   This site is located in the Serson Creek sub-watershed. A small section of the creek bisects this site. The topography of this site is level. Soil moisture is wet-mesic throughout. Soil is imperfectly drained Chinguacousy clay loams that developed within deposits of the Halton till plain. These deposits are underlain by bedrock geology consisting of the grey shales of the Georgian Bay Formation.

   B. **Biota**

   There are 41 floral species and 21 faunal species documented for this site. Fresh-moist lowland ash deciduous forest type (FOD7-2) is present at this site (see accompanying figure).

   Fresh-Moist Lowland Ash Deciduous Forest Type (FOD7-2)

   The canopy contains Green Ash (*Fraxinus pennsylvanica*) and White Elm (*Ulmus americana*). Canopy trees are 10-25 m in height and cover greater than 60% of the community. The sub-canopy is dominated by White Elm. Sub-canopy trees are 2-10 m in height and cover 25-60% of the forest. The understory contains hawthorn (*Crataegus spp.*), European Buckthorn (*Rhamnus cathartica*), and Tartarian Honeysuckle (*Lonicera tatarica*). Understory species are 1-2 m in height and cover 10-25% of the community. The groundcover is dense (greater than 60% cover) with the non-native Garlic Mustard (*Alliaria petiolata*), Spotted Jewelweed (*Impatiens capensis*) and Red Raspberry (*Rubus idaeus*). Ground layer vegetation is 0.5-1 m in height and covers greater than 60% of the community. Access to the site is restricted due to private ownership; however Credit Valley Conservation (2015) indicates that inclusions of jewelweed mineral meadow marsh type (MAM2-9), Green Ash mineral deciduous swamp type (SWD2-2), and a linear portion of dry-moist old field meadow type (CUM1) are found on site.

   Twenty bird species and 1 mammal are documented for this site. This area supports a low diversity of forest edge and late successional bird species, including Song Sparrow, Gray Catbird, and Warbling Vireo. The surrounding successional land can support additional diversity.

4. **Condition**
   This site is currently in poor condition. Unplanned trails, garbage, dumping, and industrial noise and odours were noted. This site is bisected by railway tracks. Invasive plant species include Garlic Mustard, European Buckthorn, and Tartarian Honeysuckle. Thirteen introduced plant species are present at this site (representing 31.71% of the total number of species present). The native FQI is 12.85 and the native mean coefficient is 2.43[1], both of which are low values. The native FQI and native mean coefficient have not changed since 2012. Surrounding land use is industrial.

5. **SIGNIFICANCE**
   - 6 Credit Valley Conservation fauna Species of Conservation Concern (Tier 1-3), 5 bird species and White-tailed Deer.
   - Close proximity to natural area LV1.
   - Only natural area within the Serson Creek sub-watershed.
   - Floodplain provides floodwater storage for Serson Creek.

6. **MANAGEMENT NEEDS**
   - There is a Special Management Area adjacent to this site which offers the potential for expansion of the natural area.
   - A large mountain bike circuit was removed from this site using a bobcat to level the soil. The removal of mountain bike circuits in public natural areas should be investigated.
   - This site should be investigated for the presence and extent of Emerald Ash Borer (*Agrilus planipennis*), as ash tree health was noted to be in decline at this site. A management plan should be developed to deal with the presence and after effects of Emerald Ash Borer within the City's natural areas.

7. **PRINCIPLE REFERENCES**
   Credit Valley Conservation (2015)

---

1. Floristic quality is explained in the introduction.

Appendix D

Background Fish List

Appendix D

Background Fish List

Family	Common Name	Scientific Name	Thermal Regime[1]	Tolerance[1]	Ontario Origin[1]	General Abundance[1]	Status			Habitat			Sampling Station and Year Observed*			
													Lake Ontario			
							SRank[1]	SARO[1]	COSEWIC[1]	Preferred Habitat[1]	Spawning[1]	Nursery[1]	1	2	3	4
Atherinopsidae	Brook Silverside	*Labidesthes sicculus*	warmwater	intermediate	native	common	S4	NAR	NAR	pelagic - surface waters (10-12 cm) of lakes and reservoirs, quiet pools of rivers; preferred water temperature 24.5°C	lacustrine; riverine	lacustrine; riverine	2017	n/a	n/a	n/a
Catostomidae	Shorthead Redhorse	*Moxostoma macrolepidotum*	warmwater	intermediate	native	common	S5	n/a	n/a	benthic - pools, runs and riffles in small to large rivers with sand and gravel substrates, and lake shallows; preferred water temperature range 26-27.5°C	riverine	riverine	n/a	2008	n/a	2013,2014
	White Sucker	*Catostomus commersonii*	coolwater	tolerant	native	common	S5	n/a	n/a	benthic - pools and riffles of creeks and rivers, warm shallow lakes and embayments of larger lakes usually at depths of 6-9 m; preferred water temperature range 17-23°C	lacustrine; riverine	lacustrine; riverine	2014, 2017	2008-2012, 2014	n/a	2012-2014
Centrarchidae	Black Crappie	*Pomoxis nigromaculatus*	coolwater	tolerant	native/introduced	common	S4	n/a	n/a	benthopelagic - clear, quiet waters of large ponds, small lakes, bays and shallower areas of larger lakes and areas of low flow in larger rivers, associated with abundant aquatic vegetation and mud or sand substrate; preferred water temperature range 21-25°C	lacustrine; riverine	lacustrine; riverine	2017	2012	n/a	n/a
	Largemouth Bass	*Micropterus salmoides*	warmwater	tolerant	native/introduced	common	S5	n/a	n/a	benthopelagic - clear, warm, shallow lakes, bays, ponds, marshes and backwaters and pools of creeks and small to large rivers, often with soft mud or sand substrate and dense aquatic vegetation; usually at depths <6 m; preferred water temperature range 26-30°C	lacustrine; riverine	lacustrine; riverine	n/a	2008, 2011, 2012	n/a	2012
	Pumpkinseed	*Lepomis gibbosus*	warmwater	intermediate	native	common	S5	n/a	n/a	benthopelagic - warm, shallows of lakes and ponds, quiet, pools of creeks and small rivers, with aquatic vegetation and organic debris; preferred water temperature range 22-30°C	lacustrine; riverine	lacustrine; riverine	n/a	2008, 2009, 2011, 2012	n/a	n/a
	Rock Bass	*Ambloplites rupestris*	coolwater	intermediate	native	common	S5	n/a	n/a	benthopelagic - rocky or vegetated shallows of lakes and pools of creeks and small	lacustrine; riverine	lacustrine; riverine	2014, 2017	2008, 2009, 2011, 2012	n/a	n/a

Family	Common Name	Scientific Name	Thermal Regime[1]	Tolerance[1]	Ontario Origin[1]	General Abundance[1]	Status			Habitat			Sampling Station and Year Observed*			
							SRank[1]	SARO[1]	COSEWIC[1]	Preferred Habitat[1]	Spawning[1]	Nursery[1]	Lake Ontario			
													1	2	3	4
										to medium rivers; reported to depths of 21 m; preferred water temperature range 21-26°C						
	Smallmouth Bass	*Micropterus dolomieu*	coolwater	intermediate	native/introduced	common	S5	n/a	n/a	benthopelagic - clear, gravel-bottomed runs and flowing pools of small to large rivers and shallow (5-7 m), rocky and sandy areas of lakes; preferred water temperature range 20-27°C	lacustrine; riverine	lacustrine; riverine	2017	2008, 2009, 2011, 2012	n/a	2012, 2013, 2014
	Sunfish Genus	*Lepomis*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2017	n/a	n/a	n/a
Clupeidae	Alewife	*Alosa pseudoharengus*	coldwater	intermediate	introduced	common	SNA	n/a	n/a	pelagic - open, waters (16-28 m) to a depth of 50 m (summer) or 90 m (winter); preferred water temperature range 16-21°C	lacustrine; riverine	lacustrine; riverine	n/a	2008, 2011, 2012,	n/a	n/a
	Gizzard Shad	*Dorosoma cepedianum*	coolwater	tolerant	native/introduced	common	S4	n/a	n/a	pelagic - open surface waters (<33 m) of medium to large rivers, lakes and impoundments over mud bottom; often ascends creeks and small rivers with well-developed pools; preferred water temperature range 19-23°C	lacustrine; riverine	lacustrine; riverine	2017	2008	n/a	2013,2014
Cottidae	Mottled Sculpin	*Cottus bairdii*	coolwater	intermediate	native	common	S5	n/a	n/a	benthic - cobble and gravel riffles of cool creeks, small rivers and rocky shores of lakes (<16 m deep); preferred water temperature range 13-18°C	lacustrine; riverine	lacustrine; riverine	2013, 2017	n/a	n/a	n/a
Cyprinidae	Bluntnose Minnow	*Pimephales notatus*	warmwater	intermediate	native	common	S5	NAR	NAR	benthopelagic - sand and gravel bottomed shallows of clear lakes, creeks, rivers and ponds; preferred water temperature 26.3°C	lacustrine; riverine	lacustrine; riverine	2017	2010, 2011	n/a	2012
	Common Carp	*Cyprinus carpio*	warmwater	tolerant	introduced	common	SNA	n/a	n/a	benthopelagic - pools of small to large low gradient rivers, lakes, reservoirs and ponds, with abundant aquatic vegetation, at depths of <30 m; preferred water temperature range 28-32°C	lacustrine; riverine	lacustrine; riverine	2008,2014	2008, 2009, 2011, 2012	2012	2013,2014
	Common Shiner	*Luxilus cornutus*	coolwater	intermediate	native	common	S5	n/a	n/a	benthopelagic - pools near riffles in clear, cool creeks and small to medium rivers, and nearshore in clear-water lakes; preferred water temperature 21.9°C	riverine	riverine	2017	2008, 2011	n/a	n/a
	Emerald Shiner	*Notropis atherinoides*	coolwater	intermediate	native	common	S5	n/a	n/a	benthopelagic - pools and runs of medium to large rivers with sand or gravel substrates and open waters of lakes;	lacustrine; riverine	lacustrine; riverine	2014,2017	2008, 2009, 2011, 2012	n/a	2013

Family	Common Name	Scientific Name	Thermal Regime[1]	Tolerance[1]	Ontario Origin[1]	General Abundance[1]	Status			Habitat			Sampling Station and Year Observed*			
							SRank[1]	SARO[1]	COSEWIC[1]	Preferred Habitat[1]	Spawning[1]	Nursery[1]	Lake Ontario			
													1	2	3	4
										preferred water temperature range 9-23°C						
	Lake Chub	*Couesius plumbeus*	coldwater	intermediate	native	common	S5	n/a	n/a	benthopelagic - open waters of lakes, lake margins and gravel-bottomed pools and runs of creeks and rivers; moves to deeper waters in the summer; preferred water temperature <27°C	riverine	lacustrine; riverine	2008, 2013 2014, 2017	2011, 2012	n/a	n/a
	Longnose Dace	*Rhinichthys cataractae*	coolwater	intermediate	native	common	S5	n/a	n/a	benthic - cobble, boulder or gravel riffles of clean, cool, swiftly-flowing creeks and small to medium rivers, and rocky shores of lakes; preferred water temperature range 13-21°C	riverine	riverine	n/a	2011	n/a	n/a
	Spottail Shiner	*Notropis hudsonius*	coolwater	intermediate	native	common	S5	n/a	n/a	benthopelagic- lakes, rivers and streams with slow to moderate current and sand, gravel, mud or silt substrates; preferred water temperature range 13-22°C	lacustrine; riverine	lacustrine; riverine	2017	2012	n/a	n/a
Esocidae	Northern Pike	Esox lucius	coolwater	intermediate	native	common	S5	n/a	n/a	benthopelagic - clear, cool to warm, weedy bays of lakes and slow, meandering, heavily vegetated rivers; preferred water temperature range 17-21°C	lacustrine; riverine	lacustrine; riverine	n/a	2012	n/a	2012
Gobiidae	Round Goby	*Neogobius melanostomus*	coolwater	intermediate	introduced	common	SNA	n/a	n/a	benthic - cobble, gravel and sandy substrates in the lower to middle reaches of rivers and nearshore of lakes (to 20 m); optimum water temperature range 23-26°C	lacustrine; riverine	lacustrine; riverine	2013, 2014	2008, 2011, 2012		2012
Ictaluridae	Brown Bullhead	*Ameiurus nebulosus*	warmwater	tolerant	native	common	S5	n/a	n/a	benthic - pools and sluggish runs over sand to mud substrates in creeks and rivers, impoundments, ponds and lake embayments; preferred water temperature range 26-30°C	lacustrine; riverine	lacustrine; riverine	n/a	2008, 2012	2012	2012
Osmeridae	Rainbow Smelt	*Osmerus mordax*	coolwater	intolerant	native/introduced	common	S5	n/a	n/a	pelagic - cool, clear, mid-waters (14-64 m) of lakes and medium to large rivers; preferred water temperature range 7-16°C	lacustrine; riverine	lacustrine; estuarine	2017	n/a	n/a	n/a
Percidae	Yellow Perch	*Pimephales notatus*	warmwater	intermediate	native	common	S5	n/a	n/a	benthopelagic - sand and gravel bottomed shallows of clear lakes, creeks, rivers and ponds; preferred water temperature 26.3°C	lacustrine; riverine	lacustrine	2017	2008, 2011, 2012	n/a	2014
Salmonidae	Brown Trout	*Salmo trutta*	coldwater	intolerant	introduced	common	SNA	n/a	n/a	benthopelagic - cool creeks and rivers with moderate flow, gravelly substrates and riffle-pool habitat, and lake	riverine	riverine	2017	n/a	n/a	n/a

Family	Common Name	Scientific Name	Thermal Regime[1]	Tolerance[1]	Ontario Origin[1]	General Abundance[1]	Status			Habitat			Sampling Station and Year Observed*			
							SRank[1]	SARO[1]	COSEWIC[1]	Preferred Habitat[1]	Spawning[1]	Nursery[1]	Lake Ontario			
													1	2	3	4
										shallows; preferred water temperature range 15-18°C						
	Chinook Salmon	*Oncorhynchus tshawytscha*	coldwater	intolerant	introduced	common	SNA	n/a	n/a	pelagic - mid-waters (15-60 m) in or below the thermocline; preferred water temperature range 12-16°C	riverine	lacustrine; marine	2017	2011	2012	2013
	Coho Salmon	*Oncorhynchus kisutch*	coldwater	intolerant	introduced	uncommon	SNA	n/a	n/a	pelagic - mid-waters (16-60 m); preferred water temperature range 11-17°C	riverine	riverine	n/a	1992	n/a	n/a
	Rainbow Trout	*Oncorhynchus mykiss*	coldwater	intolerant	introduced	common	SE	n/a	n/a	benthopelagic - mid-waters of lakes; creeks and rivers with moderate flow, gravelly bottoms and riffle-pool habitat; preferred water temperature range 12-18°C	riverine	riverine	2017	2008	n/a	n/a
Sciaenidae	Freshwater Drum	*Aplodinotus grunniens*	warmwater	tolerant	native	common	S5	n/a	n/a	benthic - sandy, silty bottoms of lakes and reservoirs (to 18 m), and pools in low to moderate-gradient, often turbid, rivers; preferred water temperature range 24-28°C	lacustrine; riverine	lacustrine; riverine	n/a	1992	n/a	2013

Notes: 1 - Information provided by the Ontario Freshwater Fishes Life History Database (Eakins, 2013)

Tolerance - Ability of a species to adapt to environmental perturbations or anthropogenic stresses

General Abundance - The relative likelihood or frequency of occurrence of a species assuming suitable habitat conditions.

S-rank: The Natural Heritage provincial ranking system (provincial S-rank) is used by the MNR Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities.

Definitions are as follows:
S3 vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 Apparently Secure; uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 Very common and demonstrably secure in Ontario.
SNA Not Applicable; a conservation status rank is not applicable because the species is not a suitable target for conservation activities (i.e., exotic or hybrid).

SARO: Based on ranking by SARO (Species at Risk in Ontario). If a species is classified as at risk they are added to the SARO List and protected under the Endangered Species Act, 2007.

COSEWIC – Committee on the Status of Endangered Wildlife in Canada - a committee of experts that assesses and designates which wildlife species are in some danger of disappearing from Canada. COSEWIC attempts to give priority attention to wildlife species at greatest risk of extinction or extirpation across their ranges in Canada. Eligible candidate wildlife species are prioritized and placed on the SSC candidate lists using a "coarse filter" system. This system blends levels of apparent risk with considerations of taxonomic distinctness, global distribution and proportion of range within Canada to group wildlife species into categories of similar priority. Each SSC will assign their candidate wildlife species into one of three priority groups.

*For the purposes of this report, the CVC sampling stations were grouped into Stations as per below.

Sampling Station	FCR ID
Lake Ontario STN 1	24243301 24244008 24244012 24244006 24244005 24244004 24244013 24244009 24244007 24244010 24244011
Lake Ontario STN 2	24243241

	24243202 24243205 24243203 24244002 24243201 24244001 24244003 24244101 24241101 24241102 24241104
Lake Ontario STN 3	24244102
Lake Ontario STN 4	24241103 24241106 24241107 24241108 24241109

Appendix E

Species at Risk Table

Appendix E

Species at Risk Table

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat[1, 2]	Known Species Range[1, 2]	Source Identifying Species Record	Surveys Conducted to Confirm Species Presence/Absence in Study Area	Species Confirmed within the Study Area During Recent Surveys	Species Habitat Present on Subject Property
Amphibians	Jefferson Salamander *Ambystoma jeffersonianum*	END	THR Schedule 1	END	Adults live in moist, loose soil, under logs or in leaf litter. Your best chance of spotting a Jefferson salamander is in early spring when they travel to woodland ponds to breed. They lay their eggs in clumps attached to underwater vegetation. By midsummer, the larvae lose their gills and leave the pond and head into the surrounding forest. Once in the forest, Jefferson salamanders spend much of their time underground in rodent burrows, and under rocks and stumps. They feed primarily on insects and worms.	In Canada, it is found only in southern Ontario, mainly along the Niagara Escarpment.	Ontario Reptile and Amphibian Atlas - Square 17PJ12 - Last Recorded 2000	Incidental wildlife observations taken by Beacon in 2018, and by three other field studies (SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**
Birds	Henslow's Sparrow *Ammodramus henslowii*	END	END Schedule 1	END	In Ontario, the Henslow's Sparrow lives in open fields with tall grasses, flowering plants, and a few scattered shrubs. It has also been found in abandoned farm fields, pastures, and wet meadows. It tends to avoid fields that have been grazed or are crowded with trees and shrubs. It prefers extensive, dense, tall grasslands where it can more easily conceal its small ground nest.	The Henslow's Sparrow breeds in the northeastern and east-central United States, and reaches its northeastern limit in Ontario. It was once fairly common in scattered areas of suitable habitat south of the Canadian Shield. However, steep declines since the 1960s have all but wiped this bird out as a breeding species in Ontario. A few are still seen each spring at migration hotspots such as Point Pelee National Park, and a few may breed at selected locations.	NHIC Record - UTM Grid ID: 17PJ1626 , 17PJ1624, 17PJ1625, 17PJ1725, 17PJ1726 - Last Record July 1932	Breeding Bird Surveys (Beacon 2018, SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**
Birds	Bank Swallow *Riparia riparia*	THR	No Status	THR	Bank Swallows nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. Many nests are on banks of rivers and lakes, but they are also found in active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs.	The Bank Swallow is found all across southern Ontario, with sparser populations scattered across northern Ontario. The largest populations are found along the Lake Erie and Lake Ontario shorelines, and the Saugeen River (which flows into Lake Huron).	Aurora District MNRF August 24, 2018; NHIC Record - UTM Grid ID: 17PJ1626 , 17 PJ1726 - Last Record July 2017 Ontario Breeding Bird Atlas - Square 17PJ12 SENES 2014 Gregory 2011	Breeding Bird Surveys (Beacon 2018, SENES, 2014, CVC 2013 and Greogory 2001)	**No** Historically there was a Bank Swallow Colony associated with the flay-ash piles of the G.E. Booth Wastewater treatment facility. However, this colony is historic in nature and no longer exists.	**No**

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat[1, 2]	Known Species Range[1, 2]	Source Identifying Species Record	Surveys Conducted to Confirm Species Presence/Absence in Study Area	Species Confirmed within the Study Area During Recent Surveys	Species Habitat Present on Subject Property
Birds	Barn Swallow *Hirundo rustica*	THR	No Status	THR	Barn Swallows often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. The species is attracted to open structures that include ledges where they can build their nests, which are often re-used from year to year. They prefer unpainted, rough-cut wood, since the mud does not adhere as well to smooth surfaces.	The Barn Swallow may be found throughout southern Ontario and can range as far north as Hudson Bay, wherever suitable locations for nests exist.	Aurora District MNRF August 24, 2018; NHIC Record - UTM Grid ID: 17PJ1626 , 17PJ1624, 17PJ1625, 17PJ1725, 17PJ1726 - Last Record July 2017 Ontario Breeding Bird Atlas - Square 17PJ12 SENES 2014 Gregory 2011	Breeding Bird Surveys (Beacon 2018, SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**
Birds	Bobolink *Dolichonyx oryzivorus*	THR	No Status	THR	Historically, Bobolinks lived in North American tallgrass prairie and other open meadows. With the clearing of native prairies, Bobolinks moved to living in hayfields. Bobolinks often build their small nests on the ground in dense grasses. Both parents usually tend to their young, sometimes with a third Bobolink helping.	The Bobolink breeds across North America. In Ontario, it is widely distributed throughout most of the province south of the boreal forest, although it may be found in the north where suitable habitat exists.	Aurora District MNRF August 24, 2018; NHIC Record - UTM Grid ID: 17PJ1726 , 17PJ1725, 17 PJ1625 (No Date Associated with this Record) Ontario Breeding Bird Atlas - Square 17PJ12 CVC Record 2013 SENES 2014 Gregory 2011	Breeding Bird Surveys (Beacon 2018, SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**
Birds	Chimney Swift *Chaetura pelagica*	THR	THR Schedule 1	THR	Before European settlement Chimney Swifts mainly nested on cave walls and in hollow trees or tree cavities in old growth forests. Today, they are more likely to be found in and around urban settlements where they nest and roost (rest or sleep) in chimneys and other manmade structures. They also tend to stay close to water as this is where the flying insects they eat congregate.	The Chimney Swift breeds in eastern North America, possibly as far north as southern Newfoundland. In Ontario, it is most widely distributed in the Carolinian zone in the south and southwest of the province, but has been detected throughout most of the province south of the 49th parallel. It winters in northwestern South America.	Ontario Breeding Bird Atlas - Square 17PJ12 SENES 2014	Breeding Bird Surveys (Beacon 2018, SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**
Birds	Eastern Meadowlark *Sturnella magna*	THR	No Status	THR	Eastern Meadowlarks breed primarily in moderately tall grasslands, such as pastures and hayfields, but are also found in alfalfa fields, weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Small trees, shrubs or fence posts are used as elevated song perches.	In Ontario, the Eastern Meadowlark is primarily found south of the Canadian Shield but it also inhabits the Lake Nipissing, Timiskaming and Lake of the Woods areas.	Ontario Breeding Bird Atlas - Square 17PJ12 SENES 2014 Gregory 2011	Breeding Bird Surveys (Beacon 2018, SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**
Birds	Common Nighthawk *Chordeiles minor*	SC	THR Schedule 1	THR	Traditional Common Nighthawk habitat consists of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. Although the species also nests in cultivated fields, orchards, urban parks, mine tailings and along gravel roads and railways, they tend to occupy natural sites.	The range of the Common Nighthawk spans most of North and Central America. In Canada, the species is found in all provinces and territories except Nunavut. In Ontario, the Common Nighthawk occurs throughout the province except for the coastal regions of James Bay and Hudson Bay.	Ontario Breeding Bird Atlas - Square 17PJ12	Breeding Bird Surveys (Beacon 2018, SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat[1, 2]	Known Species Range[1, 2]	Source Identifying Species Record	Surveys Conducted to Confirm Species Presence/Absence in Study Area	Species Confirmed within the Study Area During Recent Surveys	Species Habitat Present on Subject Property
Birds	Horned grebe *Podiceps auritus*	SC	SC	SC	The Horned Grebe usually nests in small ponds, marshes and shallow bays that contain areas of open water and emergent vegetation. Nests are usually located within a few metres of open water. This vegetation provides adults with nest materials, concealment, and protection for their young. The Horned Grebe occupies natural habitat more often than man-made reservoirs and artificial ponds.	The Horned Grebe is a rare breeder in Ontario. Following the breeding season, most individuals migrate from inland freshwater nesting sites to coastal marine sites, although some individuals overwinter on large bodies of freshwater.	SENES 2014	Breeding Bird Surveys (Beacon 2018, SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**
Birds	Peregrine Falcon *Falco peregrinus*	SC	SC Schedule 1	SC	Peregrine Falcons usually nest on tall, steep cliff ledges close to large bodies of water. Although most people associate Peregrine Falcons with rugged wilderness, some of these birds have adapted well to city life. Urban peregrines raise their young on ledges of tall buildings, even in busy downtown areas. Cities offer peregrines a good year-round supply of pigeons and starlings to feed on.	Although Peregrine Falcons now nest in and around Toronto and several other southern Ontario cities, the majority of Ontario's breeding population is found around Lake Superior in northwestern Ontario.	NHIC Record - UTM Grid ID: 17PJ1625 - Last Record June 2008 SENES 2014 Gregory 2011	Breeding Bird Surveys (Beacon 2018, SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**
Birds	Short-eared Owl *Asio flammeus*	SC	SC Scheudle 1	SC	The Short-eared Owl lives in open areas such as grasslands, marshes and tundra where it nests on the ground and hunts for small mammals, especially voles.	The Short-eared Owl has a world-wide distribution, and in North America its range extends from the tundra south to the central United States. In Ontario, the species has a scattered distribution, found along the James Bay and Hudson Bay coastlines, along the Ottawa River in eastern Ontario, in the far west of the Rainy River District, and elsewhere in southern Ontario, at places such as Wolfe and Amherst Islands near Kingston. Most northern populations are migratory, moving southward in the winter.	CVC Record 2017	Breeding Bird Surveys (Beacon 2018, SENES, 2014, CVC 2013 and Greogory 2001)	**Yes** Species observed in Lakeview Park by a member of the public in January 2017.	**No**
Birds	Wood Thrush *Hylocichla mustelina*	SC	No Status	THR	The Wood Thrush lives in mature deciduous and mixed (conifer-deciduous) forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing perches. These birds prefer large forests, but will also use smaller stands of trees. They build their nests in living saplings, trees or shrubs, usually in sugar maple or American beech.	The wood thrush is found all across southern Ontario. It is also found, but less common, along the north shore of Lake Huron, as far west as the southeastern tip of Lake Superior. There is a very small population near Lake of the Woods in northwestern Ontario, and there have been scattered sightings in the mixed forest of northern Ontario.	Ontario Breeding Bird Atlas - Square 17PJ12 SENES 2014	Breeding Bird Surveys (Beacon 2018, SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**
Birds	Eastern Wood-Pewee *Contopus virens*	SC	No Status	SC	The Eastern Wood-pewee lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age mature forest stands with little understory vegetation.	The eastern wood-pewee is found across most of southern and central Ontario, and in northern Ontario as far north as Red Lake, Lake Nipigon and Timmins.	Ontario Breeding Bird Atlas - Square 17PJ12 SENES 2014	Breeding Bird Surveys (Beacon 2018, SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat[1, 2]	Known Species Range[1, 2]	Source Identifying Species Record	Surveys Conducted to Confirm Species Presence/Absence in Study Area	Species Confirmed within the Study Area During Recent Surveys	Species Habitat Present on Subject Property
Birds	Rusty Blackbird *Euphagus carolinus*	No Status	SC	SC	This speices breeds almost entirely in boreal forest where the habitat is characterized by conferious dominated tree cover that is adjacent to wetlands and slow-moving streams. It is known to migrate through wooded wetlands.	Rusty Blackbird has a wide range of distribution throughout the boreal forest of Canada. It can be found in alll Canadian provinces and territories.	SENES 2014	Breeding Bird Surveys (Beacon 2018, SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**
Fish	American Eel *Anguilla rostrata*	END	No Status	THR	Over the course of its life, the American Eel can be found in both salt and fresh water. In fact, some scientists consider the American Eel to have the broadest diversity of habitats of any fish species in the world.	The American Eel starts life in the Sargasso Sea in the North Atlantic Ocean and migrates along the east coast of North America. In Canada, it is found in fresh water and salt water areas that are accessible from the Atlantic Ocean. This area extends from Niagara Falls in the Great Lakes up to the mid-Labrador coast. In Ontario, American Eels can be found as far inland as Algonquin Park. Once the eels mature (10-25 years) they return to the Sargasso Sea to spawn.	Aurora District MNRF August 24, 2018; NHIC Record - UTM Grid ID: 17PJ1726 , 17PJ1725, 17 PJ1625 (No Date Associated with this Record)	Aquatic Surveys for the study area (SENES, 2014) and background review of CVC Data	**No**	**No**
Fish	Shortnose Cisco *Coregonus reighardi*	END	END Schedule 1	END	The shortnose cisco was only know to occur in lakes Huron, Michigan and Ontario at depths ranging from 22m to 146m. This species is only assocaited with lake Huron, Michigan and Ontario.	This species was only known to occur in lake Huron, Michigan and Ontario. It was last recorded in Lake Huron in 1985, Lake Michigan in 1982 and in Lake Ontario in 1964.	DFO Aquatic SAR Distribution Map	Aquatic Surveys for the study area (SENES, 2014) and background review of CVC Data	**No**	**No**
Fish	Upper Great Lakes Kiyi *Coregonus kiyi kiyi*	SC	SC	SC	The kiyi lives in the clear, cold-water of the Great Lakes at depths ranging from 35 to 200 metres and feeds on deep-water crustaceans. It is rarely found in waters less than 100 metres deep. This species generally spawns in the late fall, at depths greater than 100 metres. The age of maturity is two to three years. Females have been found to live for up to ten years, and up to seven years for males.	The kiyi was historically found in all the Great Lakes except Lake Erie. The Upper Great Lakes kiyi now only occurs in Lake Superior, as it was declared extirpated from Lake Huron in 1973 and Lake Michigan in 1974. The Lake Ontario subspecies is considered extinct, with the last sighting recorded in 1964.	DFO Aquatic SAR Distribution Map	Aquatic Surveys for the study area (SENES, 2014) and background review of CVC Data.	**No**	**No**
Fish	Deepwater Sculpin *Myoxocephalus thompsonii*	No Status	SC	SC	The Deepwater Sculpin Can be found at the bottom of deep, cold lake. Spawning habitat is unkonwn.	This species is relatively common in Lake Suerior, Lake Michigan and Lake Huron. It has been extripated from Lake Ontario and likely Lake Erie as well.	DFO Aquatic SAR Distribution Map	Aquatic Surveys for the study area (SENES, 2014) and background review of CVC Data.	**No**	**No**
Insects	Monarch *Danaus plexippus*	SC	No Status	END	Throughout their life cycle, Monarchs use three different types of habitat. Only the caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers.	The Monarch's range extends from Central America to southern Canada. In Canada, Monarchs are most abundant in southern Ontario and Quebec where milkweed plants and breeding habitat are widespread. During late summer and fall, Monarchs from Ontario migrate to central Mexico where they spend the winter months. During migration, groups of Monarchs numbering in the thousands can	Aurora District MNRF August 24, 2018 Ontario Butterfly Atlas - Square 17PJ12 - Last Recorded 2017 SENES 2014 CVC 2013 Gregory 2001	Incidental wildlife observations taken by Beacon in 2018, and by three other field studies (SENES, 2014, CVC 2013 and Greogory 2001)	**Yes** Species recorded on subject property incidentally during field surveys in 2018.	**Yes**

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat[1, 2]	Known Species Range[1, 2]	Source Identifying Species Record	Surveys Conducted to Confirm Species Presence/Absence in Study Area	Species Confirmed within the Study Area During Recent Surveys	Species Habitat Present on Subject Property
						be seen along the north shores of Lake Ontario and Lake Erie.				
Insects	Mottled Duskying *Erynnis martialis*	END	No Status	END	In southern Ontario, the Mottled Duskywing requires the host plant called New Jersey Tea (*Ceanothus americanus*) to carry out its life cycle. These plants can be found in dry, well-drained soils or alvar habitat in oak and pine woodland, roadsides, riverbanks,shady hillsides and tall grass prairies.	This species is distributed into two populations in Canada: the Great Lakes Plain Population (southern Ontario and historically Quebec) and the Borel Population (southern Manitoba).	Ontario Butterfly Atlas - Square 17PJ12 - Last Recorded 1950	Incidental wildlife observations taken by Beacon in 2018, and by three other field studies (SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**
Mammals	Little Brown Myotis (Bat) *Myotis lucifugus*	END	END Schedule 1	END	Bats are nocturnal. During the day they roost in trees and buildings. They often select attics, abandoned buildings and barns for summer colonies where they can raise their young. Bats can squeeze through very tiny spaces (as small as six millimetres across) and this is how they access many roosting areas. Little brown bats hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing. This species can typically be associated with any community where suitable roosting (i.e. caviety trees, houses, abandoned buildings, barns, etc.) habitat is available.	The Little Brown Myotis is widespread in southern Ontario and found as far north as Moose Factory and Favourable Lake. Outside Ontario, this bat is found across Canada (except in Nunavut) and most of the United States.	Aurora District MNRF August 24, 2018 SENES 2014	Acoutic Monitoring (SENES 2014)	**Yes** Species recorded in the study area adjacent to the subject property during acoustic monitoring surveys in 2011 (CVC 2013).	**No**
Mammals	Northern Myotis *(Bat) Myotis septentrionalis*	END	END Schedule 1	END	Northern Myotis bats are associated with boreal forests, choosing to roost under loose bark and in the cavities of trees. These bats hibernate from October or November to March or April, most often in caves or abandoned mines.	The Northern Myotis is found throughout forested areas in southern Ontario, to the north shore of Lake Superior and occasionally as far north as Moosonee, and west to Lake Nipigon.	SENES 2014	Acoutic Monitoring (SENES 2014)	**Yes** Species recorded in the study area adjacent to the subject property during acoustic monitoring surveys in 2011 (CVC 2013).	**No**
Mammals	Tricoloured Bat *Perimyotis subflavus*	END	END Schedule 1	END	Tricoloured Bat inhabits a variety of forested communities, and will roost older forests and barns (or other structures). Foraging habitats include areas over water and streams. They hibernate in cave where they typically roost independently rather than in groups.	Tricoloured Bat is found in southern Ontario, where its northern limit is in proximity to Sudbury. Due to its rarity, their distribution is scattered.	SENES 2014	Acoutic Monitoring (SENES 2014)	**Yes** Species recorded in the study area adjacent to the subject property during acoustic monitoring surveys in 2011 (CVC 2013).	**No**

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat[1, 2]	Known Species Range[1, 2]	Source Identifying Species Record	Surveys Conducted to Confirm Species Presence/Absence in Study Area	Species Confirmed within the Study Area During Recent Surveys	Species Habitat Present on Subject Property
Molluscs	Eastern Pondmussel *Ligumia nasuta*	END	END Schedule 1	END	The Eastern Pondmussel is typically found in sheltered areas of lakes and in slow-moving areas of rivers and canals with sand or mud bottoms. All mussels filter water to find food, such as bacteria and algae. Mussel larvae must attach to a fish (called a "host"), where they consume nutrients from the fish body until they transform into juvenile mussels and drop off the fish host. It is not known which species of fish act as hosts for the Eastern Pondmussel.	In North America, the Eastern Pondmussel was once one of the most common mussels in the lower Great Lakes. In Canada, there are now only two known populations: one in the delta area of Lake St. Clair and the second in Lyn Creek, a small tributary of the upper St. Lawrence River.	DFO Aquatic SAR Distribution Map	Aquatic Surveys for the study area (SENES, 2014) and background review of CVC Data	**No**	**No**
Plants	Butternut *Juglans cinerea*	END	END Schedule 1	END	In Ontario, Butternut usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found along streams. It is also found on well-drained gravel sites and rarely on dry rocky soil. This species does not do well in the shade, and often grows in sunny openings and near forest edges.	Butternut can be found throughout central and eastern North America. In Canada, Butternut occurs in Ontario, Quebec and New Brunswick. In Ontario, this species is found throughout the southwest, north to the Bruce Peninsula, and south of the Canadian Shield.	NHIC Record - UTM Grid ID: 17PJ1726 - Last Recorded in 2003 SENES, 2014	Botany Surveys (Beaon 2018) Beacon Arborist Report (2018) Previous botany surveys conducted for the subject property and study area (SENES 2014, CVC 2013 and Gregory 2001)	**No**	**No**
Reptiles	Blanding's Turtle *Emydoidea blandingii*	THR	THR Schedule 1	THR	Blanding's Turtles live in shallow water, usually in large wetlands and shallow lakes with lots of water plants. It is not unusual, though, to find them hundreds of metres from the nearest water body, especially while they are searching for a mate or traveling to a nesting site. Blanding's Turtles hibernate in the mud at the bottom of permanent water bodies from late October until the end of April.	The Blanding's Turtle is found in and around the Great Lakes Basin, with isolated populations elsewhere in the United States and Canada. In Canada, the Blanding's Turtle is separated into the Great Lakes-St. Lawrence population and the Nova Scotia population. Blanding's Turtles can be found throughout southern, central and eastern Ontario.	NHIC Record - UTM Grid ID: 17PJ1726 - Last Recorded in 1982 Ontario Reptile and Amphibian Atlas - Square 17PJ12 - Last Recorded 1982	Incidental wildlife observations taken by Beacon in 2018, and by three other field studies (SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**
Reptiles	Eastern Musk Turtle (Stinkpot) *Sternotherus odoratus*	THR	THR Schedule 1	SC	Eastern Musk Turtles are found in ponds, lakes, marshes and rivers that are generally slow-moving have abundant emergent vegetation and muddy bottoms that they burrow into for winter hibernation. Nesting habitat is variable, but it must be close to the water and exposed to direct sunlight. Nesting females dig shallow excavations in soil, decaying vegetation and rotting wood or lay eggs in muskrat lodges, on the open ground or in rock crevices.	In Canada, the Eastern Musk Turtle is found mostly along the southern edge of the Canadian Shield in Ontario and Quebec. In Ontario, it also occurs at various locations throughout southwestern and eastern Ontario. The limited data available indicate that the stinkpot has disappeared from much of its original range in southwestern Ontario.	Ontario Reptile and Amphibian Atlas - Square 17PJ12 - Last Recorded 1952	Incidental wildlife observations taken by Beacon in 2018, and by three other field studies (SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**

Taxonomy	Species	ESA Status	SARA Status	COSEWIC Status	Preferred Habitat[1, 2]	Known Species Range[1, 2]	Source Identifying Species Record	Surveys Conducted to Confirm Species Presence/Absence in Study Area	Species Confirmed within the Study Area During Recent Surveys	Species Habitat Present on Subject Property
Reptiles	Northern Map Turtle *Graptemys geographica*	SC	SC Schedule 1	SC	The Northern Map Turtle inhabits rivers and lakeshores where it basks on emergent rocks and fallen trees throughout the spring and summer. In winter, the turtles hibernate on the bottom of deep, slow-moving sections of river. They require high-quality water that supports the female's mollusc prey. Their habitat must contain suitable basking sites, such as rocks and deadheads, with an unobstructed view from which a turtle can drop immediately into the water if startled.	The Northern Map Turtle's range extends from the Great Lakes region west to Oklahoma and Kansas, south to Louisiana and east to the Adirondack and Appalachian mountain barrier. There are isolated populations in New Jersey and New York states. In Canada, it is found in southwestern Quebec and southern Ontario. In southern Ontario, it lives primarily on the shores of Georgian Bay, Lake St. Clair, Lake Erie and Lake Ontario, and along larger rivers including the Thames, Grand and Ottawa.	Ontario Reptile and Amphibian Atlas - Square 17PJ12 - Last Recorded 2013	Incidental wildlife observations taken by Beacon in 2018, and by three other field studies (SENES, 2014, CVC 2013 and Greogory 2001)	**No**	**No**
Reptiles	Snapping turtle *Chelydra serpentina*	SC	SC Schedule 1	SC	Snapping Turtles spend most of their lives in water. They prefer shallow waters so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. During the nesting season, from early to mid summer, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.	The Snapping Turtle's range extends from Ecuador to Canada. In Canada this turtle can be found from Saskatchewan to Nova Scotia. It is primarily limited to the southern part of Ontario. The Snapping Turtle's range is contracting.	Ontario Reptile and Amphibian Atlas - Square 17PJ12 - Last Recorded 2018 Gregory 2001	Incidental wildlife observations taken by Beacon in 2018, and by three other field studies (SENES, 2014, CVC 2013 and Greogory 2001)	**Yes** Species recorded in study area by Gregory (2001).	**No**

Glossary

EXP	ESA - Extripated - a species that no longer exists in the wild in Ontario but still occurs elsewhere. SARA - Extripated - a wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END	ESA - Endangered - a species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act. SARA - Endangered - a wildlife species that is facing imminent extirpation or extinction.
THR	ESA - Threatened - a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed. SARA - Threatened - a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC	ESA - Special Concern (formerly Vulnerable) - a species with characteristics that make it sensitive to human activities or natural events. SARA - Special Concern - a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
MNRF	Ontario Ministry of Natural Resources and Forestry
ESA	Endangered Species Act
SARA	Species at Risk Act (Federal)

Schedule 1	The official list of species that are classified as extirpated, endangered, threatened, and of special concern.
Schedule 2	Species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3	Species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
COSEWIC	Committee on the Stauts of Endangerd Wildlife in Canada - a committee of experts that assesses and designates which wild species are in some danger of disappearing from Canada.

References

1 - Species at Risk . Ontario Ministry of Natural Resources and Forestry. http://www.mnr.gov.on.ca/en/Business/Species/index.html. © Queens Printer For Ontario, 2013.

2 - Species at Risk Status Reports. Committed on the Status of Endangered Wildlife in Canada. Ottawa. http://www.sararegistry.gc.ca/search/advSearchResults_e.cfm?stype=doc&docID=18.

Appendix F

Significant Wildlife Habitat (SWH) Evaluation for the Subject Property and Adjacent Lands

Appendix F

Significant Wildlife Habitat (SWH) Evaluation for the Subject Property and Adjacent Lands

Wildlife Habitat Category and Associated Species*	Provincial Guidance for Ecoregion 7E*	Application to the Subject Property and Adjacent Lands	Candidate SWH
Seasonal Concentration Areas			
Waterfowl Stopover and Staging Areas (Terrestrial) American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan	Suitable Habitat • Fields with sheet water during Spring (mid-March to May) Suggested Criteria • Studies carried out and verified presence of an annual concentration of any listed species	• No suitable habitat or associated species present on the subject property. • Although some of the listed species have been recorded on the adjacent lands, no suitable habitat is present.	NO
Waterfowl Stopover and Staging Areas (Aquatic) Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback	Suitable Habitat • Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration • Sewage treatment ponds and storm water ponds do not qualify as SWH, however a reservoir managed as a large wetland or pond/lake does qualify • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water) Suggested Criteria Studies carried out and verified presence of: • Aggregations of 100 or more of listed species for 7 days, results in > 700 waterfowl use days • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH • Wetland area and shorelines associated with sites identified within the Significant Wildlife Habitat Technical Guide (SWHTG) (MNRF 2000) Appendix K are SWH	• This habitat type occurs in the negligible amounts on the subject property and adjacent lands. Lake Ontario south of the study area does not currently contain wetlands and is mostly armour rock. • Several listed species for this SWH type have been recorded in the study area, especially at the Region of Peel's G.E. Booth Wastewater Treatment Facility (SENES 2014). Although, treatment ponds do not qualify as SWH.	NO
Shorebird Migratory Stopover Area Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper	Suitable Habitat • Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH Suggested Criteria	• This habitat type occurs on the shoreline of Lake Ontario south of the subject property and adjacent lands. Even though the ELC codes identified as being candidate habitat for this SWH type are not present on the subject property (i.e. open beaches, beach bars, and meadow marshes), armour rock is present.	NO

Wildlife Habitat Category and Associated Species*	Provincial Guidance for Ecoregion 7E*	Application to the Subject Property and Adjacent Lands	Candidate SWH
Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	• Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100 m radius area	• Only Spotted-Sandpiper (*Actitis macularius*) has been recorded on the subject property (Gregory 2001) during the migratory bird surveys. Not only does the subject property not support a sufficient number of SWH indicator species, but actual stopover on the shoreline is limited due to a lack of suitable habitat. • Sufficient number of the associated species for this SWH type have been recorded in the study area, specifically at the Region of Peel's G.E. Booth Wastewater Treatment Facility (SENES 2014). Although, treatment ponds do not qualify as SWH. • There are beach communities present at Marie Curtis Park, which is east of the wastewater treatment facility. This beach habitat could support Shorebird Migratory Stopover area. However, this habitat is over 700 m away from the subject property.	
Raptor Wintering Area Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Short-eared Owl Bald Eagle	Suitable Habitat • The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors • Raptor wintering (hawk/owl) sites need to be > 20 ha with a combination of forest and upland Suggested Criteria Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or at least 10 individuals and two listed hawk/owl species • To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area	• No suitable habitat is present on the subject property or adjacent lands. There is a deciduous forest adjacent to the subject property that is roughly 2 ha in size that is combined with upland habitat (including cultural meadow and soy fields). However, this upland habitat is frequently disturbed by ongoing construction and is surrounded by a highly urbanized area. According the to Significant Wildlife Technical Guide (MNRF 2000), preferred raptor wintering sites are those that are least disturbed and within rural landscapes rather than urban areas. • There is public record from the winter of 2016/2017 that states that Short-eared Owl (*Asio flammeus*) was observed overwintering on OPG Lands. Since that time, the suitable habitat for overwintering raptors have been removed for the purposes of phytoremediation practices. The cultural meadows have been greatly replaced by soya agriculture. • Additionally, Northern Harrier (*Circus cyaneus*), Red-tailed Hawk (*Buteo jamaicensis*) and American Kestrel (*Falco sparverius*) have been recorded on the subject property (Beacon 2018, SENES 2014, CVC 2013 and Gregory 2001). However, these species occurred in small numbers and suitable habitat is not present (and will not be present in the future), so it is not considered Candidate SWH.	NO
Bat Hibernacula Big Brown Bat Tri-colored Bat	Suitable Habitat • Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. Suggested Criteria • All sites with confirmed hibernating bats are SWH • The area includes 200m radius around the entrance of the hibernaculum for most development types and for wind farms	• Bat acoustic surveys were undertaken in the Region of Peel's G.E. Booth Wastewater Treatment Facility (SENES 2014), and resulted in calls from Big Brown Bat (*Eptesicus fuscus*). Despite the presence of this listed species, no suitable habitat is present on the subject property or adjacent lands.	NO
Bat Maternity Colonies Big Brown Bat Silver-haired Bat	Suitable Habitat • Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH)	• No suitable habitat is present on the subject property as the treed areas do not meet the minimum habitat requirements for candidate bat maternity colonies.	YES (Adjacent Lands)

Wildlife Habitat Category and Associated Species*	Provincial Guidance for Ecoregion 7E*	Application to the Subject Property and Adjacent Lands	Candidate SWH
	• Maternity colonies located in mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees • Female bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2 • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred Suggested Criteria • Maternity colonies with confirmed use by; – >10 Big Brown Bats – >5 Adult Female Silver-haired Bats – The area of the habitat includes the entire woodland or the forest stand ELC Ecosite or an Ecoelement containing the maternity colonies	• Suitable habitat could be present adjacent to the subject property within the deciduous forest. • Bat acoustic surveys were undertaken in the Region of Peel's G.E. Booth Wastewater Treatment Facility (SENES 2014), and resulted in calls from Big Brown Bat (*Eptesicus fuscus*) and Silver-haired Bat (*Lasionycteris noctivagans*). The specific presence or absence of at least 11 Big Brown or six Silver-Haired Bats is very difficult to confirm.	
Turtle Wintering Areas Midland Painted Turtle Northern Map Turtle Snapping Turtle	Suitable Habitat • For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH Suggested Criteria • Presence of 5 over-wintering Midland Painted Turtles is significant • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH	• Suitable habitat is present on the subject property or adjacent lands within Lake Ontario. • One Midland Painted Turtle (*Chrysemys picta marginata*) was observed in 2018 by Beacon basking in Lake Ontario adjacent to the subject property, in close proximity to ELC unit 4b (**Figure 6b**). One other Midland Painted Turtle was also observed in the study area at Marie Curtis Park in 2012 (SENES 2014). Gregory (2001) notes that staff that had worked at the coal plant had seen the occasion Midland Painted Turtle and Snapping Turtle (*Chelydra serpentina*). Since these species occurred in small numbers, it is not considered Candidate SWH.	NO
Reptile Hibernaculum Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Milksnake Eastern Ribbonsnake	Suitable Habitat • For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations • The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying Candidate SWH • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover Suggested Criteria Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (e.g. foundation or rocky slope) on sunny warm days in spring	• Suitable habitat is present on the subject property as there he remaining foundations from the historic coal plant (which was closed in 2005) that could provide hibernacula habitat. Additionally, there are armour rocks that make up the shorelines of Lake Ontario on the subject property, and it is possible that this rock can go below the frostline. • Suitable habitat could be present on the adjacent lands if cracking foundations are present within the anthropogenic structures. • Gregory (2001) noted one Eastern Gartersnake (*Thamnophis sirtalis)* on the subject property in 2001. He also noted the presence of Northern Watersnake (*Nerodia sipedon sipedon*) in the locality of the subject property, but did not discuss species numbers. Since this species occurred in small numbers, it is not considered Candidate SWH.	NO
Colonially-Nesting Bird Breeding Habitat (Bank and Cliff) Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Suitable Habitat • Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles • Does not include a licensed/permitted Mineral Aggregate Operation Suggested Criteria Studies confirming:	• Minimal suitable, natural habitat for colonial-nesting birds (bank and cliff) is present on the subject property along the banks of Serson Creek. Suitable habitat could be present on the adjacent lands. • Cliff Swallow (*Petrochelidon pyrrhonota*) was observed nesting on man-made structures (within ELC community 2b) in two different locations along the lakeshore. As they were nesting in man-made structures, these nests are not included as SWH.	NO

Wildlife Habitat Category and Associated Species*	Provincial Guidance for Ecoregion 7E*	Application to the Subject Property and Adjacent Lands	Candidate SWH
	• Presence of 1 or more nesting sites with 8 or more cliff swallow pairs or 50 bank swallow and/or rough-winged swallow pairs during the breeding season • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests	• Cliff Swallow were also noted on the subject property by Gregory (2001) and SENES Consultants (2014), but no nesting was specified. SENES Consultants (2014) also noted the presence of Northern Rough-Winged Swallow (*Stelgidopteryx serripennis*) in the study area. Since these species were not breeding, it is not considered Candidate SWH.	
Colonially-Nesting Bird Breeding Habitat (Tree/Shrubs) Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	Suitable Habitat • Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used • Most nests in trees are 11 to 15 m from ground, near the top of the tree Suggested Criteria Studies confirming: • Presence of 2 or more active nests of Great Blue Heron or other listed species • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the forest ecosite containing the colony or any island <15.0 ha with a colony is the SWH	• Minimal suitable habitat for colonial-nesting birds (trees and shrubs) is present on the subject property and adjacent lands within the trees adjacent to Lake Ontario. • No SWH indicator species were noted during breeding bird species in 2018. Black-crowned Night-heron (*Nycticorax nycticorax*), Great Blue Heron (*Ardea herodias*) and Green Heron (*Butorides virescens*) were observed in the study area by SENES Consultants (2014), while CVC (2013) only noted Great Blue Heron on the subject property. Black-crown Night-heron adults and juveniles were noted within area of subject property in 2001 (Gregory 2001). Since these species were not breeding, it is not considered Candidate SWH.	NO
Colonially-Nesting Bird Breeding Habitat (Ground) Herring Gull Great Black-backed Gull Little Gull Common Tern Caspian Tern Brewer's Blackbird	Suitable Habitat • Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas • Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands Suggested Criteria Studies confirming: • Presence of >25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant • Presence of 5 or more pairs for Brewer's Blackbird • The edge of the colony and a minimum 150m area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH	• Suitable habitat is present on the subject property or adjacent lands within the meadows and marshes that are in close proximity to Lake Ontario. • No SWH indicator species were noted during breeding bird surveys in 2018. Previous field studies for the subject property and adjacent lands note the presence of several indicator species. Since these species were not breeding, it is not considered Candidate SWH.	NO
Migratory Butterfly Stopover Areas Painted Lady Red Admiral Monarch	Suitable Habitat • A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario or Lake Erie • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest Suggested Criteria Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site.	• Little to no suitable habitat is present on the subject property or adjacent lands. Although there are cultural meadows and deciduous forest present within 5 km of Lake Ontario, they do not meet the size requirement of 10 ha or greater. Additionally, the meadow habitat is highly disturbed.	NO

Wildlife Habitat Category and Associated Species*	Provincial Guidance for Ecoregion 7E*	Application to the Subject Property and Adjacent Lands	Candidate SWH
	• Numbers of butterflies can range from 100-500/day - significant variation can occur between years and multiple years of sampling should occur • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admirals is to be considered significant		
Landbird Migratory Stopover Areas All migratory songbirds	Suitable Habitat • Woodlots >5 ha in size and within 5 km of Lake Ontario and Lake Erie • If woodlands are rare in an area of shoreline, woodland fragments 2 ha to 5ha can be considered for this habitat • If multiple woodlands are located along the shoreline those Woodlands <2 km from Lake Erie or Ontario are more significant • Sites have a variety of habitats; forest, grassland and wetland complexes • The largest sites are more significant • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Ontario are Candidate SWH Suggested Criteria Studies confirm: • Use of the woodlot by >200 birds/day and with >35 species with at least 10 bird spp. recorded on at least 5 different survey dates • This abundance and diversity of migrant bird species is considered above average and significant	• No suitable habitat is present on the subject property. There is a deciduous forest located northeast of the subject property that could provide landbird migratory stopover area that is about 2.5 ha is size. This deciduous forest is rare in the area should be considered Candidate SWH.	YES
Deer Winter Congregation Areas White-tailed Deer	Suitable Habitat • Woodlots >100 ha in size or if large woodlots are rare in a planning area woodlots >50 ha • Deer movement during winter in Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands • Large woodlots > 100 ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha • Woodlots with high densities of deer due to artificial feeding are not significant Suggested Criteria Studies confirm: • Deer management is an MNR responsibility, deer winter congregation areas considered significant will be mapped by MNRF • Use of the woodlot by white-tailed deer will be determined by MNR, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF	• No suitable habitat identified on the subject property or adjacent lands by the MNRF.	NO
Rare Vegetation Communities			
Cliffs and Talus Slopes	• A Cliff is vertical to near vertical bedrock >3m in height • A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris • Most cliff and talus slopes occur along the Niagara Escarpment Suggested Criteria • ELC Communities: TAO, TAS, TAT, CLO, CLS or CLT	• Vegetation community not present on subject property or adjacent lands.	NO
Sand Barren	• Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion • Usually located within other types of natural habitat such as forest or savannah • Vegetation can vary from patchy and barren to tree covered but less than 60%	• Vegetation community not present on subject property or adjacent lands.	NO

Wildlife Habitat Category and Associated Species*	Provincial Guidance for Ecoregion 7E*	Application to the Subject Property and Adjacent Lands	Candidate SWH
	Suggested Criteria • A sand barren area >0.5 ha in size • ELC Communities: SBO1, SBS1, SBT1 • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics)		
Alvar	• An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil • The hydrology of alvars is complex, with alternating periods of inundation and drought • Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant • Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. • Vegetation cover varies from patchy to barren with a less than 60% tree cover Suggested Criteria • An Alvar site > 0.5 ha in size • Alvar is particularly rare in ecoregion 7E where the only known sites are found in the western islands of Lake Erie • Five indicator species specific to alvars within Ecoregion 7E: *1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum* • Field studies identify four of the five Alvar indicator species within ELC communities: ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2 • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics) • The Alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses	• Vegetation community not present on subject property or adjacent lands.	NO
Old Growth Forest	• Old-growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris. Suggested Criteria • Woodland area is >0.5 ha • If dominant trees species of the ecosite are >140 years old, then stand is SWH • The-forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present) • The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH	• Vegetation community not present on subject property or adjacent lands.	NO
Savannah	• A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60% • In ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario) Suggested Criteria • No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH • Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 7E should be used • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics)	• Vegetation community not present on subject property or adjacent lands.	NO

Wildlife Habitat Category and Associated Species*	Provincial Guidance for Ecoregion 7E*	Application to the Subject Property and Adjacent Lands	Candidate SWH
Tallgrass Prairie	• A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover • In ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario) Suggested Criteria • No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH • ELC communities TPO1, TPO2 • Field studies confirm one or more of the Prairie indicator species listed in Appendix N in SWHTG (MNRF 2000) should be present • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics)	• Vegetation community not present on subject property or adjacent lands.	NO
Other Rare Vegetation Communities	• Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG (MNRF 2000) • Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps • ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in SWHTG (MNRF 2000) Appendix M • The MNRF/NHIC will have up to date listing for rare vegetation communities	• No rare vegetation communities present on subject property or adjacent lands. Planted ornamental species such as Honey Locust (*Gleditsia triacanthos*) or Ohio Buckeye (*Aesculus glabra var glabra*) have not been considered in this analysis.	NO
Specialized Habitat for Species			
Waterfowl Nesting Area American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	Suitable Habitat • A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5 ha) with small wetlands (<0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur • Upland areas should be at least 120m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests Suggested Criteria Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or presence of 10 or more nesting pairs for listed species including Mallards • Any active nesting site of an American Black Duck is considered significant • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites	• No suitable habitat is present on the subject property or adjacent lands. • No SWH indicator species were noted during breeding bird species in 2018. Previous known breeding species on the subject property consist of 2 pairs of Mallards (Gregory 2001). Since this species occurred in small numbers and habitat is not present, it is not considered Candidate SWH.	NO
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Suitable Habitat • Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy • Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms) Suggested Criteria Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH	• Minimal suitable habitat is present on the subject property. However, none of the listed species were recorded on the subject property or adjacent lands.	NO

Wildlife Habitat Category and Associated Species*	Provincial Guidance for Ecoregion 7E*	Application to the Subject Property and Adjacent Lands	Candidate SWH
	• For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH [ccvii], maintaining undisturbed shorelines with large trees within this area is important • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant		
Woodland Raptor Nesting Habitat Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	Suitable Habitat • All natural or conifer plantation woodland/forest stands combined >30ha or with >4 ha of interior habitat. Interior habitat determined with a 200 m buffer • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore island • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest Suggested Criteria Studies confirm: • Presence of 1 or more active nests from species list is considered significant • Red-shouldered Hawk and Northern Goshawk – a 400m radius around the nest or 28 ha of suitable habitat is the SWH. (the 28-ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) • Barred Owl – a 200m radius around the nest is the SWH • Broad-winged Hawk and Coopers Hawk, – a 100m radius around the nest is the SWH • Sharp-Shinned Hawk – a 50m radius around the nest is the SWH	• No suitable habitat is not present on the subject property or adjacent lands. • SWH indicator species noted on subject property or adjacent lands were not recorded breeding during 2018 studies or during other studies conducted for the area (Gregory 2001, CVC 2013 and SENES 2014).	NO
Turtle Nesting Areas Midland Painted Turtle Northern Map Turtle Snapping Turtle	Suitable Habitat • Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas • Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used Suggested Criteria Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles • One or more Northern Map Turtle or Snapping Turtle nesting • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH • Travel routes from wetland to nesting area are to be considered within the SWH	• Minimal suitable habitat on subject property and adjacent lands within the mouth area of Serson Creek and in ELC unit 4b (**Figure 6b**). Turtle nest survey conducted on September 19, 2018 for these two areas did not result in any evidence of turtle nesting in this area. • One Midland Painted Turtle (*Chrysemys picta marginata*) was observed in 2018 by Beacon basking in Lake Ontario in close proximity to ELC unit 4b (**Figure 7b**). One other Midland Painted Turtle was also observed adjacent to he subject property at Marie Curtis Park in 2012 (SENES 2014). Gregory (2001) notes that staff that had worked at the coal plant had seen the occasion Midland Painted Turtle and Snapping Turtle (*Chelydra serpentina*). • Since the indicator species occurred in small numbers, suitable habitat it is not considered Candidate SWH.	NO
Seeps and Springs Wild Turkey Ruffed Grouse Spruce Grouse	Suitable Habitat • Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system (could contain a seep or spring - areas where ground water comes to the surface)	• No seeps or springs were observed in the subject property or adjacent lands.	NO

Wildlife Habitat Category and Associated Species*	Provincial Guidance for Ecoregion 7E*	Application to the Subject Property and Adjacent Lands	Candidate SWH
White-tailed Deer Salamander spp.	• Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species • The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat Suggested Criteria Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH • The area of an ELC forest ecosite containing the seeps/springs is the SWH		
Amphibian Breeding Habitat (Woodland) Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	Suitable Habitat • Presence of a wetland, pond, or woodland pool within or adjacent (within 120m) to a woodland (no minimum size) • Some small wetlands may not be mapped and may be important breeding pools for amphibians • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat Suggested Criteria Studies confirm; • Presence of breeding population of 1 or more of the listed salamander species or 2 or more of the listed frog species with at least 20 individuals (adults, juveniles, eggs/larval masses) or 2 or more of the listed frog species with Call Level Codes of 3	• No suitable habitat or associated species present on the subject property. • Gray Treefrog (*Hyla versicolor*) was recorded in Marie Curtis Park in 2011 (SENES 2014), which is roughly a kilometer away from the subject property.	NO
Amphibian Breeding Habitat (Wetland) Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Suitable Habitat • Wetlands >500 m^2 (about 25 m diameter) supporting high species diversity are significant • Some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators • Bullfrogs require permanent water bodies with abundant emergent vegetation. Suggested Criteria Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog or toad species and with at least 20 individuals (adults, juveniles, eggs/larval masses) or 2 or more of the listed frog species with Call Level Codes of 3 • The ELC ecosite wetland area and the shoreline are the SWH	• No suitable habitat or associated species present on the subject property. • Four of the indicator species were recorded in Marie Curtis Park in 2011 (SENES 2014), which is roughly a kilometer away from the subject property. American Toad (*Anaxyrus americanus*) was heard calling from adjacent lands in 2001 (Gregory 2001).	NO
Woodland Area-Sensitive Bird Breeding Habitat Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Pileated Woodpecker	Suitable Habitat • Habitats where interior forest breeding birds are breeding • Typically large mature (>60 yrs old) forest stands or woodlots >30 ha • Interior forest habitat is at least 200 m from forest edge habitat Suggested Criteria Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH	• No suitable habitat is present on the subject property or adjacent lands. • No SWH indicator species were noted during breeding bird surveys in 2018. Previous field studies for the subject property and adjacent lands note the presence of several indicator species. Since these species were not specified to be breeding, it is not considered Candidate SWH.	NO

Wildlife Habitat Category and Associated Species*	Provincial Guidance for Ecoregion 7E*	Application to the Subject Property and Adjacent Lands	Candidate SWH
Cerulean Warbler Canada Warbler			
Habitat for Species of Conservation Concern			
Marsh Bird Breeding Habitat American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Green Heron Trumpeter Swan Black Tern Yellow Rail	Suitable Habitat • Nesting occurs in wetlands • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water Suggested Criteria Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species • Note: any wetland with breeding of 1 or more Trumpeter Swans, Black Terns or Yellow Rail is SWH • Area of the ELC ecosite is the SWH	• Negligible marsh habitat is present in subject property and adjacent lands. • No SWH indicator species were noted during breeding bird surveys in 2018. Previous field studies for the subject property and adjacent lands note the presence of several indicator species. Since these species were not specified to be breeding, it is not considered Candidate SWH.	NO
Open Country Bird Breeding Habitat Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Short-eared Owl	Suitable Habitat • Large grassland areas (includes natural and cultural fields and meadows) >30 ha • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years) • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older • The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species Suggested Criteria Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas	• The subject property and adjacent lands do not support significant communities of grassland birds nor grassland species. • Savannah Sparrow (*Passerculus sandwichensis*) was the only indicator species recorded breeding on the subject property in 2018 by Beacon Environmental. Since this was the only breeding grassland species on the subject property, it is not considered Candidate SWH. • Previous field studies for the subject property and adjacent lands note the presence of several indicator species. Since these species were not specified to be breeding, it is not considered Candidate SWH.	NO
Shrub/Early Successional Bird Breeding Habitat <u>Indicator Species</u>: Brown Thrasher Clay-coloured Sparrow <u>Common Species:</u> Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher <u>Special Concern:</u> Yellow-breasted Chat Golden-winged Warbler	Suitable Habitat • Large natural field areas succeeding to shrub and thicket habitats >10ha[clxiv] in size. Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years) • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. Suggested Criteria Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat • The area of the SWH is the contiguous ELC ecosite field/thicket area	• Negligible shrub/thicket habitat present in subject property and adjacent lands. • An indicator species, Brown Thrasher (*Toxostoma rufum*), and a common species, Willow Flycatcher (*Empidonax traillii*), have been recorded on the subject property in 2018 by Beacon Environmental. Due to minimal habitat and lack of indicator species, it is not considered Candidate SWH. • Previous field studies for the subject property and study area note the presence of several indicator and common species. Since these species were not specified to be breeding, it is not considered Candidate SWH.	NO

Wildlife Habitat Category and Associated Species*	Provincial Guidance for Ecoregion 7E*	Application to the Subject Property and Adjacent Lands	Candidate SWH
Terrestrial Crayfish Chimney or Digger Crayfish (*Fallicambarus fodiens*) Devil Crawfish or Meadow Crayfish (*Cambarus Diogenes*)	Suitable Habitat • Wet meadow and edges of shallow marshes (no minimum size) identified should be surveyed for terrestrial crayfish • Constructs burrows in marshes, mudflats, meadows; the ground can't be too moist • Can often be found far from water • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels; usually the soil is not too moist so that the tunnel is well formed Suggested Criteria Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable marsh meadow or terrestrial sites • Area of ELC Ecosite polygon is the SWH	• Suitable habitat is present on the subject property and adjacent lands. Terrestrial Crayfish chimneys were found west of ELC unit 7a (**Figure 6a**). • Even though the presence of one or more chimneys in moist, terrestrial sites should stipulate SWH, the area where it was observed is heavily polluted with hydrocarbons. Therefore, this habitat is not considered to be Candidate SWH.	NO
Special Concern and Rare Wildlife Species	• All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species • When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially rare species • Linking candidate habitat on the site needs to be completed to ELC Ecosites Suggested Criteria Studies confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable • Habitat form and function needs to be assessed from the assessment of ELC vegetation types and an area of significant habitat that protects the rare or special concern species identified • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH; this must be delineated through detailed field studies • The habitat needs be easily mapped and cover an important life stage component for a species (e.g. specific nesting habitat or foraging habitat)	• Special Concern species recorded on the subject property in 2018 and during previous field studies included Monarch (*Danaus plexippus*), and Snapping Turtle. These species are discussed in **Appendix F**. • Species that are listed as S1-S3 and known to be breeding on the subject property or within the study area have also been listed provincially or federally as endangered, threatened or special concern, and therefore are all addressed in **Appendix F**.	YES
Animal Movement Corridors			
Amphibian Movement Corridors Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	• Animal movement corridors should only be identified as SWH where a confirmed or Candidate SWH has been identified by MNRF or the planning authority • Movement corridors between breeding habitat and summer habitat • Movement corridors must be considered when amphibian breeding habitat is confirmed as SWH • Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites • Corridors should consist of native vegetation, with several layers of vegetation • Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant • Corridors should be at least 15 m of vegetation on both sides of waterway or be up to 200 m wide of woodland habitat and with gaps <20 m • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat	• Amphibian breeding habitat not Candidate SWH for the subject property and adjacent lands.	NO

* Adapted from the listed species and habitat criteria provided in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF 2015) but updated to reflect any relevant changes in species status. For example, Tri-coloured Bat (*Perimyotis subflavus*) is now listed as Threatened so needs to be addressed under the *Endangered Species Act* and not under SWH.