BEACON ENVIRONMENTAL

GUIDING SOLUTIONS IN THE NATURAL ENVIRONMENT

Environmental Impact Study
51 & 57 Tannery Street & 208 Emby Drive Mississauga

Prepared For:

Nyx Capital Corp.

Prepared By:

Beacon Environmental Limited

Date: *Project:*

June 2019 **217069**

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1. Introduction

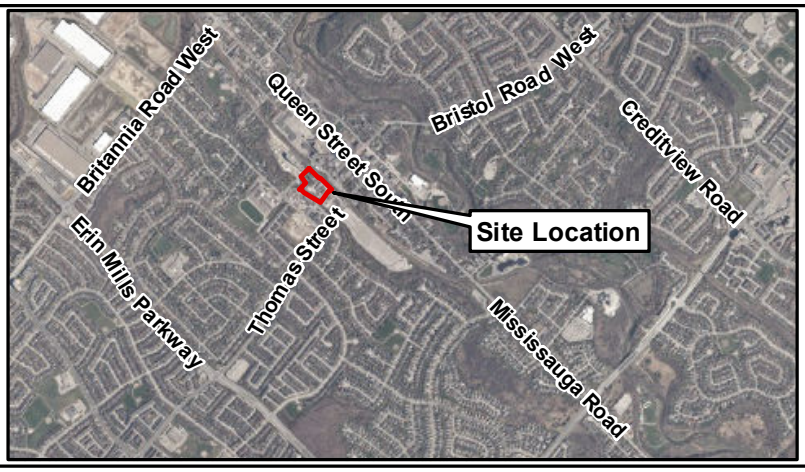
Beacon Environmental Limited (Beacon) was retained by NYX Development Corp. to prepare an Environmental Impact Study (EIS) in support of a proposed re-development of three adjoining properties located at 51 and 57 Tannery Street and 208 Emby Drive in the City of Mississauga. This report represents an update to the previous EIS that was submitted in June 2018. This EIS report has been updated to reflect the Revised Site Plan and to address City and CVC comments on the previous EIS. While the previous EIS was prepared in support of a former Site Plan, many of the findings and recommendations remain applicable to the Revised Site Plan.

The subject property presently supports industrial buildings, valleylands, parking areas, residential buildings and lawn, and the combined area of these properties is 1.85 ha. The location of the site, hereafter referred to as the subject property, is shown on **Figure 1**. A channelized section of Mullet Creek traverses the western portion of the property. Based on the City's Zoning Map 39E, the tableland portions are zoned as Development (D) and the creek valley is zoned as Greenlands (G1). The proponent is proposing to re-develop the subject property to accommodate residential development consisting of 156 townhouse units.

The requirement for an EIS is triggered by the proximity of a proposed development to certain components of the City's Natural Heritage System. In this case, Mullet Creek is identified as "Significant Natural Areas" and "Natural Green Space" on the City of Mississauga Official Plan (MOP) Schedule 3. The purpose of an EIS is to demonstrate, to the satisfaction of the City of Mississauga and appropriate conservation authority, that the proposed development and/or site alteration will not have a negative impact on natural heritage features or their ecological functions, and to also identify opportunities for protection, restoration and enhancement of the Natural Heritage System.

The subject property is located within the Streetsville Community Node and is mostly designated as high density residential on Schedule 10 of the MOP. This schedule also depicts the western portion of the subject property as "Greenlands" with a natural hazard overlay (**Figure 2**).

The scope of investigations to be undertaken as part of the EIS was determined by assessing the likelihood of the proposed development activity impacting upon existing natural features and ecological functions. This scope of the EIS was summarized using the City of Mississauga's EIS Checklist (**Appendix A**).



Site Location	Figure 1
Environmental Impact Study 51 & 57 Tannery Street & 208 Emby Drive, Mississauga	
UTM Zone 17 N, NAD 83	N W E S
First Base Solutions Web Mapping Service 2017	
0 12.5 25 50 Metres	1:1,500
BEACON ENVIRONMENTAL	Project 217069 June 2018

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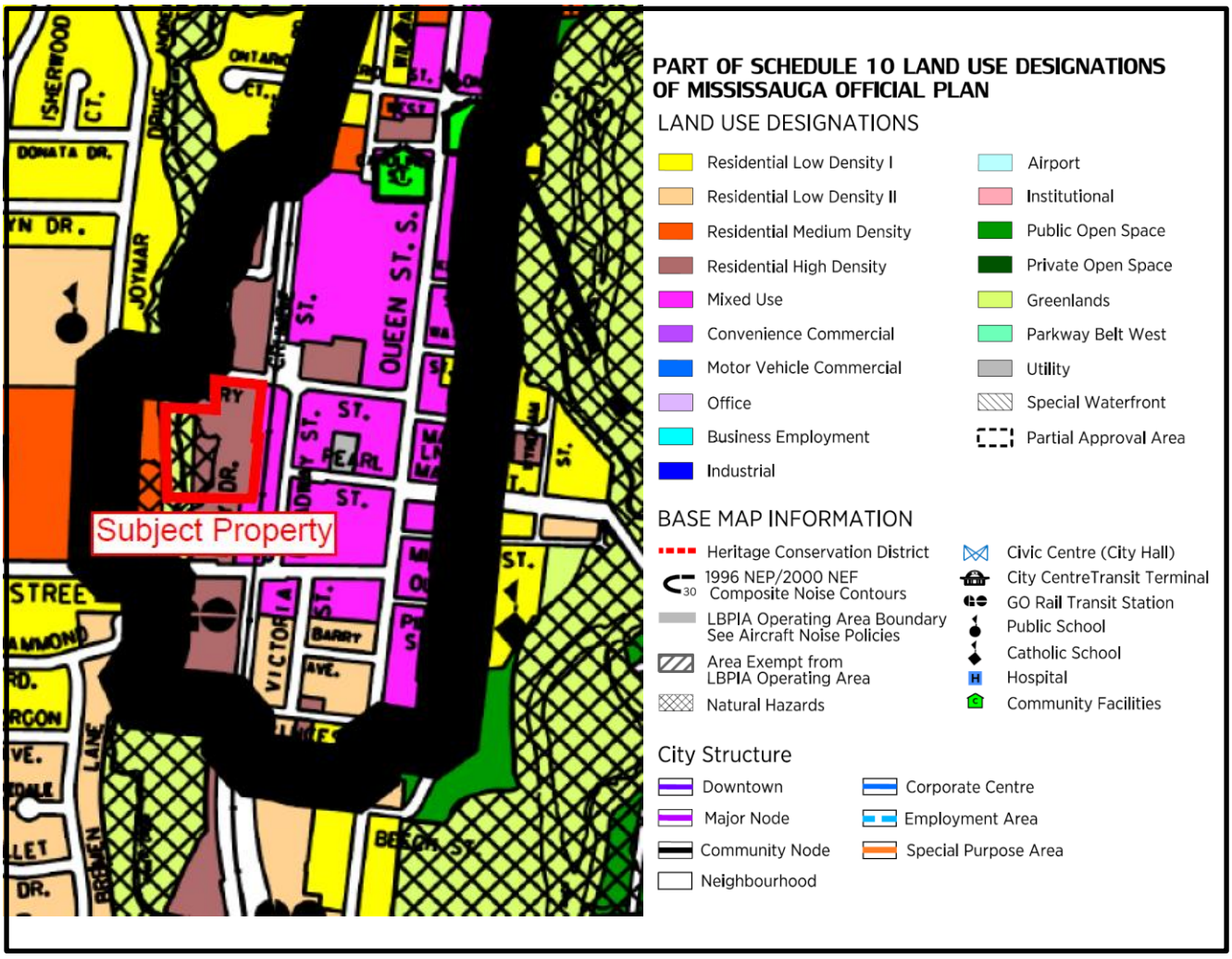


Figure 2. Excerpt from the City of Mississauga Official Plan Schedule 10 – Land Use Schedule

1.1 Study Objectives and Scope

The objectives of this EIS are to:

1. Characterize natural heritage resources and ecological functions in the study area;
2. Identify significant natural heritage resources and functions;
3. Identify environmental constraints to inform the development limits and design;
4. Identify opportunities to restore and enhance the Natural Heritage System;
5. Describe the proposed development plan;
6. Assess potential impacts of the proposed development plan on significant natural heritage features and ecological functions; and
7. Recommend mitigation measures for avoiding or minimizing potential development related impacts to significant natural heritage features and functions.

1.2 Study Area

The study area selected for this EIS includes the subject property (51 and 57 Tannery Street, and 208 Emby Drive) and the immediately adjacent lands. The EIS also gives consideration to the relationship of the study area to the broader Natural Heritage System (ref. **Figure 1**).

1.3 Study Team

This EIS was prepared using an integrated approach with input from a multi-disciplinary project team. The project team is comprised of experts in the fields of land use planning, geology, hydrogeology, hydrology and ecology. The EIS has relied upon technical reports prepared by other team members to ensure that the ecological inter-relationships between groundwater, surface water and natural heritage resources are adequately characterized. The integrated approach to identification of environmental constraints and opportunities was used to arrive at a site plan design. A list of Study Team members, their qualifications, and role in the project is provided in **Table 1**.

Table 1. Composition of Study Team, Key Roles and Reports Provided

Firm	Individuals	Title – Qualifications	Key Role and Reporting
Beacon Environmental Limited	Ken Ursic	Project Manager / Sr. Ecologist – M.Sc. Ecol.	Project Management *EIS Report – Reviewer*
	Daniel Westerhof	Ecologist – B.Sc., MES	Vegetation Surveys, Incidental Wildlife, EIS Report Input
	Anna Corrigan	Ecologist – B.Sc.	EIS Report Input
	Devin Upper	GIS Specialist – B.E.S., GIS Cert.	EIS Mapping
	Mike King	Subconsultant – Ecologist	Breeding Bird Surveys
LEA Consulting Ltd.	Michael Du	Senior Principle Engineer	*Servicing and Stormwater Management Brief*
Kirkor Architects and Planners	Shazad Mohammad	Architect	*Site Plan*
Fiddes Clipsham Inc.	Zach Fiddes	Consulting Engineering/ Land Surveying	*Topographical Plan*
MEP Design Landscape Architecture	Michael Presutti	Landscape Architect	*Landscape Concept Plan*
Patriot Engineering LTD.	Larry Galimanis	P.Eng	*Geotechnical Investigation for Performing Slope Stability Analysis*

1.4 Report Outline

An overview of the sections on this EIS report and their contents is provided below:

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

Section 2 - Environmental Policy Review: 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 assess impacts related to the proposed development.

Section 4 - Study Findings: summarizes the findings of the background reviews 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 opportunities for enhancement to the Natural Heritage System.

Section 6 - Description of the Proposed Development: describes the proposed development for the subject property and details of the preliminary grading, servicing and stormwater management approaches associated with the proposed development.

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

Section 8 - Policy Conformity: evaluates the proposed development plan 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 the overall impact of the proposal.

2. Policy Review

This section includes an overview of key federal, provincial, and local environmental policies, legislation, and regulations that are directly relevant to this EIS and land use planning for the subject property. Key legislation, policies and regulations that have been reviewed and considered in preparing the EIS include the following:

- Federal Fisheries Act (2013);

- Ontario Endangered Species Act (2007);
- Provincial Policy Statement (2014);
- Region of Peel Official Plan (2016);
- City of Mississauga Official Plan (2017);
- Conservation Authorities Act – Ont. Reg. 160/06;
- Credit Valley Conservation – Watershed Planning and Regulation Policies; and
- City of Mississauga EIS Checklist (2017).

The following review is not intended to be comprehensive, but has been included to highlight key policy, regulatory and legislative requirements as they relate to the proposed re-development to ensure that the plan is in conformity with the existing policy framework. **Section 8** of this EIS includes a summary that describes how the proposed re-development conforms to the various environmental policies, legislation and regulations described above, and apply to the subject property.

2.1 Federal Fisheries Act (2013)

There is a watercourse that traverses to the subject property. The watercourse supports indirect fish habitat. Fish habitat is protected under the Federal *Fisheries Act* (1985). In Ontario, the federal department of Fisheries and Oceans Canada (DFO) manages fish habitat and the Ontario Ministry of Natural Resources and Forestry (MNRF, formerly known as OMNR or MNR) manages fisheries. Section 35 (1) of the Federal *Fisheries Act* precludes "any work, undertaking or activity that results in serious harm to fish" that are part of a commercial, recreational or aboriginal fishery, or to fish that support such a fishery. S. 35(2) provides that s. 35(1) does not apply where the work, undertaking or activity has been authorized by the Minister and is carried on in accordance with conditions established by the Minister.

The *Fisheries Act* defines "serious harm" to fish as "serious harm to fish is the death of fish or any permanent alteration to, or destruction of, fish habitat". The Fisheries Protection Policy Statement (2013) was prepared by Fisheries and Oceans Canada (formerly Department of Fisheries and Oceans [DFO]) to provide guidance on compliance with the *Fisheries Act*.

Compliance with the provisions of s. 35 of the *Fisheries Act* in regard to particular water bodies is now made on a case-by-case basis through a self-assessment process to determine impacts to fish and fish habitat and to identify appropriate responses. For development activities that may adversely affect fish or fish habitat, the Fisheries Protection Policy Statement (2013) recommends that proponents of these activities should:

- Understand the types of impacts their projects are likely to cause;
- Take measures to avoid and mitigate impacts to the extent possible; and
- Request authorization from the Minister and abide by the conditions of any such authorization, when it is not possible to avoid and mitigate impacts of projects that are likely to cause serious harm to fish.

As per the Fisheries Protection Policy Statement (2013), efforts should be made to avoid impacts first. When avoidance is not possible, then efforts should be made to mitigate impacts caused by the project in question. After these actions, any residual impacts should then be addressed by offsetting. Proponents are required to submit an offsetting plan to demonstrate that the measures and standards

above are adhered to and will also be required to demonstrate that the offsetting measures will maintain or improve the productivity of fisheries.

2.2 Ontario Endangered Species Act (2007)

Species at Risk 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 and policies pertaining to significant wildlife habitat and are discussed in **Section 2.3**.

In a letter dated June 6, 2017 from B. Keen with the Ontario Ministry of Natural Resources and Forestry (MNRF), it was confirmed that there are records for at least six species at risk within the vicinity of the study area. Species noted include: Butternut (*Juglans cinerea*) (endangered), Little Brown Myotis (*Myotis lucifugus*) (endangered), Northern Myotis (*Myotis septentrionalis*) (endangered), Eastern Small-footed Myotis (*Myotis leibii*) (endangered), Tri-coloured Bat (*Perimyotis subflavus*) (endangered), and Chimney Swift (*Chaetura pelagica*) (threatened).

The *Endangered Species Act* (2007) provides legal protection to endangered and threatened species confirmed on a site. For context, relevant excerpts from this Act are included below:

Subsection 9(1) of the Act 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 Act 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 Act, 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 Act 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 (OMNR, 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 confirmation of habitat of endangered species and threatened species, and for its regulation (under the Endangered Species Act), as well as for the identification of Provincially Significant Wetlands (PSWs) and Areas of Natural and Scientific Interest (ANSIs). Local and regional planning authorities are responsible for the identification of Significant Woodlands, Significant Valleylands, and Significant Wildlife Habitat, with support from applicable guidance documents (i.e., Natural Heritage Reference Manual, OMNR 2010; Significant Wildlife Habitat Technical Guidelines, OMNR 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 non-PSWs 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:*
>
> *i. 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;*
>
> *ii. minimizing potential negative impacts, including cross-jurisdictional and cross-watershed impacts;*
>
> *iii. 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;*
>
> *iv. maintaining linkages and related functions among ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas;*
>
> *v. 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;*
>
> *vi. planning for efficient and sustainable use of water resources, through practices for water conservation and sustaining water quality;*
>
> *vii. ensuring consideration of environmental lake capacity, where applicable; and*

viii. 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 Mullet Creek valleylands.

2.4 Regional Municipality of Peel Official Plan (2008)

The Peel Region Official Plan (ROP) contains policies aimed at protecting, maintaining, and restoring a Greenlands System consisting of "Core Areas", "Natural Areas and Corridors (NAC's)", and "Potential Natural Areas and Corridors (PNAC's)". Key elements of the Region's Greenlands System include the following:

- Areas of Natural and Scientific Interest (ANSI);
- 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 above key elements are to be interpreted, identified and protected in accordance with the policies of the Regional Official Plan.

2.4.1 Core Areas

Core Areas represent those features and areas that are considered to be 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 Greenlands System are mapped on Schedule A of the ROP. There are no Core Areas identified on or adjacent to the subject property. Criteria for identifying additional core features of the Greenlands System are provided in the ROP.

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 21B came into effect. A new dwelling built after the Regional Official Plan Amendment 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.

2.4.2 Natural Areas and Corridors (NAC) and Potential Natural Areas and Corridors (PNAC)

Natural Areas and Corridors (NAC) 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
- The Lake Ontario shoreline and littoral zone and other natural lakes and their shorelines.

Potential Natural Areas and Corridors (PNAC) 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 Potential Natural Areas and Corridors, 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.

2.5 City of Mississauga Official Plan (2017)

Section 6.3 of the MOP contains policies pertaining to the protection of the Green System. The Green System is composed of 1) the Natural Heritage System, 2) the Urban Forest, 3) Natural Hazard Lands; and 4) Parks and Open Spaces. The Natural Heritage System is conceptually illustrated on Schedule 3 of the MOP.

Components of the Green System that overlap with the subject property include the Natural Heritage System, Natural Hazard Lands, and the Urban Forest. Policies pertaining to each of these Green System components are discussed below.

2.5.1 Natural Heritage System

The Natural Heritage System consists of 1) Significant Natural Areas, 2) Natural Green Spaces, 3) Special Management Areas, 4) Residential Woodlands, and 5) Linkages. The Natural Heritage System is conceptually illustrated on Schedule 3 of the MOP. Components of the Natural Heritage 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 Natural Heritage System are to be determined through site specific studies such as an EIS. Minor refinements to the boundaries of the Natural Heritage System may also be made through an EIS or other appropriate studies accepted by the City without and official plan amendment.

2.5.1.1 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 (ESA);
- Habitat of threatened species or endangered species;
- Fish habitat;
- Significant wildlife habitat;
- Significant woodlands;
- Significant wetlands, including Provincially Significant Wetlands (PSW), 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.*

2.5.1.2 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 Environmental Impact Study 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.

2.5.2 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.*

2.5.3 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.

2.6 Credit Valley Conservation (CVC) 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 6.2 (Lot Creation Policies) and general policies pertaining to implementation of Ont. Reg. 160/06 are contained in Section 7.0.

7.2.1 Lot Creation Policies

7.2.2 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.

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 4 - Mullet Creek study, which was last published in 1999. This version is not available at the time of this report as it is undergoing an update.

3. Study Methodology

The following tasks were undertaken in preparing this EIS:

- Background information collection and review;
- Consultations with the Study Team, City and CVC;
- Field Investigations;
- Feature Staking;
- Identification of Constraints and Opportunities;
- Evaluation of the Proposed Development;
- Impact Assessment;
- Recommendations for Mitigation; and
- Policy Compliance.

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

As part of the background review, a number of technical studies have been completed within the study area in support of this EIS by members of the multi-disciplinary Study Team. The technical studies cover

key disciplines that are important for understanding of the environmental conditions and identifying constraints and opportunities that may influence re-development. Technical studies that have been relied upon in preparation of this EIS are listed below:

- Tree Inventory and Arborist Report (Beacon Environmental Ltd., May 2019);
- Servicing and Stormwater Management Brief (LEA Consulting Ltd., June 2019);
- Preliminary Site Servicing Plan (LEA Consulting Ltd., June 2019);
- Preliminary Site Grading Plan (LEA Consulting Ltd., June 2019);
- Topographical Plan (Fiddes Clipsham Inc., July 2017);
- Geotechnical Investigation for Performing Slope Stability Analysis (Patriot Engineering Ltd., March 2017);
- Site Plan, Tannery Townhomes (Kirkor Architects and Planners, June 2019); and
- Landscape Concept Plan, Tannery Townhomes -Mississauga, Ontario (MEP Design, N.D) (2019).

A brief description of the study scope for each of these supporting technical studies is provided in the corresponding report sections. For more detailed study methods and descriptions, please refer to the individual technical reports provided under separate cover.

3.1 Physical Environment

3.1.1 Feature Staking

The physical top of slope along the Mullet Creek valley was staked in the field with CVC staff on July 12, 2017 and was subsequently surveyed by an Ontario Land Surveyor (OLS).

3.1.2 Hydrogeology

A detailed hydrogeological assessment of the subject property was not undertaken; however hydrogeological conditions were characterized using available background information and groundwater level date obtained from several shallow monitoring wells that were installed as part of the geotechnical investigation undertaken by Patriot Engineering Ltd. in 2017.

For further details on the methodologies employed, please refer to the *Geotechnical Investigation for Performing Slope Stability Analysis* prepared by Patriot Engineering Ltd. (2019).

3.1.3 Hydrology

Hydrological conditions were characterized using background information, topographic data and drainage information provided in the *Servicing and Stormwater Management Brief* (LEA Consulting Ltd., 2019).

3.1.4 Geotechnical Assessment

A geotechnical investigation, slope stability analysis, and streambank erosion risk assessment was undertaken for the subject property in March 2017 by Patriot Engineering Ltd. The purpose of the geotechnical investigation was to determine the Long Term Stable Top of Slope (LTSTOS) and erosion hazard land limit along the south-westerly boundary of the subject property. The investigation consisted of analyzing the findings of four (4) boreholes which were strategically positioned throughout the subject property. For additional information regarding the methodologies employed, please refer to the *Geotechnical Investigation for Performing Slope Stability Analysis* prepared by Patriot Engineering Ltd. (2019).

3.1.5 Slope Stability Setbacks

A 7.0 m erosion access allowance was applied to the LTSTOS determined by Patriot Engineering Ltd. The allowance exceeds the provincial standard of 6.0 m and is considered appropriate from a geotechnical perspective. The erosion hazard limits (inclusive of the erosion access allowance) are considered appropriate and do not:

- *Impose any adverse impact to slope stability;*
- *Subject life and property to significant and unacceptable risk; or*
- *Create new hazards or aggravate existing hazards on the subject property or other properties.*

3.2 Natural Heritage Resources

3.2.1 Background Review

The following background information sources were consulted for this study.

- Region of Peel Official Plan;
- City of Mississauga Official Plan;
- Natural Heritage Information Centre;
- City of Mississauga Natural Areas Inventory Data for Streetsville (SV1);
- CVC Subwatershed Studies;
- Ministry on Natural Resources and Forestry – SAR Screening with Ben Keen, Management Biologist, Aurora District;
- Physiography of Southern Ontario (Chapman and Putnam 1984);
- Ontario Breeding Bird Atlas (Cadman *et al*. 2007);
- Ontario Herpetofaunal Summary Atlas (Ontario Nature, 2017);
- Atlas of the Mammals of Ontario (Dobbyn 1994); and
- Historical and current aerial photography.

3.2.2 Feature Staking

The dripline of trees along the Mullet Creek valley and the existing Top of Bank was staked in the field with CVC and City of Mississauga staff on July 12, 2017.

3.2.3 Field Investigations

The following field investigations 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.

- Ecological Land Classification;
- Floristic Surveys;
- Tree Inventory; and
- Wildlife Surveys – Breeding Birds and SAR habitat.

3.2.3.1 Vegetation Communities and Flora Inventory

Site visits were conducted on April 12, July 12, and October 25, 2017 to document the vegetation on the subject property. Vegetation communities were mapped and described according to the Ecological Land Classification System for Southern Ontario (Lee *et al.*, 1998) and a list of a plant species was compiled for the property.

3.2.3.2 Tree Inventory

An ISA Certified Arborist completed an inventory of all trees ≥ 10 cm in diameter on the subject property on April 12, 2017. Trees on the subject property were marked with numbered aluminum forestry tags. Tagged trees were surveyed by a registered Ontario Land Surveyor.

All trees were assessed, and data was collected on species, trunk diameter (DBH), and health and condition. The condition of individual 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; and
- **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. A copy of the Arborist Report and TIPP has been submitted under sperate cover.

3.2.3.3 Breeding Bird Surveys

Two surveys for breeding birds took place in the early morning on days with ideal weather conditions (while the temperature was within 5º C of normal, it was not raining, nor excessively windy). The breeding bird community was surveyed using a roving type survey, in which all parts of the subject property were walked to within 50 m and all birds heard or observed and showing some inclination toward breeding were recorded as breeding species. All birds heard and seen were recorded in the location observed on an aerial photograph of the site. Survey details are presented in **Table 2**.

Table 2. Breeding Bird Survey Details

	Survey 1	Survey 2
Date:	June 3, 2017	June 17, 2017
Start Time:	6:46 am	6:29 am
End Time:	7:22 am	6:58 am
Temperature (˚C):	12°C	18 °C
Wind speed (km/h):	6-11 km/h	0 km/h
Cloud cover (%):	10 %	20 %
Precipitation:	None	None

3.2.3.1 Other Wildlife

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

3.3 Constraints & Opportunities Analysis

A constraint analysis was undertaken for the study area to identify natural heritage and natural hazards that may preclude redevelopment opportunities on portions of the subject property. The purpose of the constraint analysis was to comprehensively identify an environmental constraint line for the purposes of establish limits to future development. Constraints considered included significant natural heritage features and functions and associated ecological buffers as well as natural hazards and their associated setbacks.

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; and
(iii) Applicable environmental policies and regulations.

The analysis consisted of overlaying, on a site plan, 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 Natural Heritage System.

3.4 Impact Assessment

To assess potential impacts associated with the proposed development 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., hydrogeology, 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 Physical Setting

4.1.1 Bedrock, Topography and Soils

The study area is located within the South Slope physiographic region of Southern Ontario and includes a strip south of the Peel plain, which is where the subject property is located. The subject property overlies the grey shales of the Georgian Bay Formation (Chapman and Putnam 1984).

The subject property is relatively flat and gently slopes to the south towards the industrial buildings and to the southwest towards Mullet Creek. There is a downwards slope on the west side of subject property associated with Mullet Creek. Surface runoff from the development site and the Emby Drive extension is conveyed via sheet flow westerly toward Mullet Creek. The total drainage area is approximately 1.084 ha for the proposed condominium area and 0.269 ha for the proposed Embry Drive extension. (Ref. *Stormwater Management and Servicing Brief* (LEA Consulting Ltd. 2018).

Geotechnical investigation completed by Patriot Engineering Ltd. (2019) has confirmed that most of the site has been filled. Various fill layers were detected to depths of 4.0 to 4.9 m below ground surface (bgs). The geotechnical report describes the underlying the fill layers as "*native, compact to very dense, grey, and/or brown, moist to slightly moist, sandy silt till layer was encountered in all boreholes. Some clay, plus traces gravel, cobbles and shale fragments, as well as, isolated wet sand seams were also observed within this material*"

4.1.2 Hydrogeology

Groundwater levels was measured using piezometers installed four boreholes on the subject property. Groundwater elevations documented by Patriot Engineering Ltd. on February 16, 2016 were

encountered 4.1 to 5.5 m bgs. Groundwater levels are expected to fluctuate seasonally. All boreholes were dry at the time of drilling. No seeps or springs were observed.

4.2 Natural Heritage Resources

4.2.1 Background Review

There is some natural heritage data available for the study area that was collected during the City of Mississauga Natural Areas Survey (NAS) (City of Mississauga 2014). The NAS identifies portions of the subject property as overlapping with both Natural Area SV10 (see **Figure 3**). Natural Area SV10 is classified as a Natural Green Space and overlaps with the Mullet Creek valleylands.

Natural Area SV10 was identified on the Natural Areas Fact Sheet (City of Mississauga, 2015) as being comprised of one ecological community: Fresh-moist Willow Lowland Deciduous Forest Type (FOD7-3). This community is described as having an open canopy of scattered mature Willow (Salix spp.), Green Ash (*Fraxinus pennsylvanica*) and American Elm (*Ulmus americ*ana) that are 10-25 m in height and covers greater than 60%. The sub canopy is 2-10 m with a greater than 60% cover, and is comprised of Manitoba Maple (*Acer negundo*), Norway Maple (*Acer platanoides*), White Willow (*Salix alba*) and American Elm, while the understorey consists of Manitoba Maple, Beaked Willow (*Salix bebbiana*), Inserted Virginia Creeper (*Parthenocissus inserta*), Riverbank Grape (*Vitis riparia*), and Common Hawthorn (*Crategus monogyna*). This layer is between 1-2 m and covers 1-10%. The ground layer is dominated by Goldenrod (*Solidago canadensis*), Purple Loosetrife (*Lythrum salicaria*), Common Burdock *(Arctium minus*) and Reed Canary Grass (*Phalaris arundinacea*) and is 0.5-1 m in height and covers more than 60% of the community.

In terms of fauna, the NAS describes SV10 as supporting 18 bird species, 1 reptile and 1 odonate species. The bird community is described as consisting of a variety of common urban-tolerant species such as Blue Jay (*Cyanocitta cristata*), Northern Cardinal (*Cardinalis cardinalis*), American Goldfinch (*Spinus tristis*) and Common Grackle (*Quiscalus quiscula*). In terms of significant flora and fauna, SV10 is noted as supporting one rare plant species for the City of Mississauga and eleven wildlife species of local conservation concern.

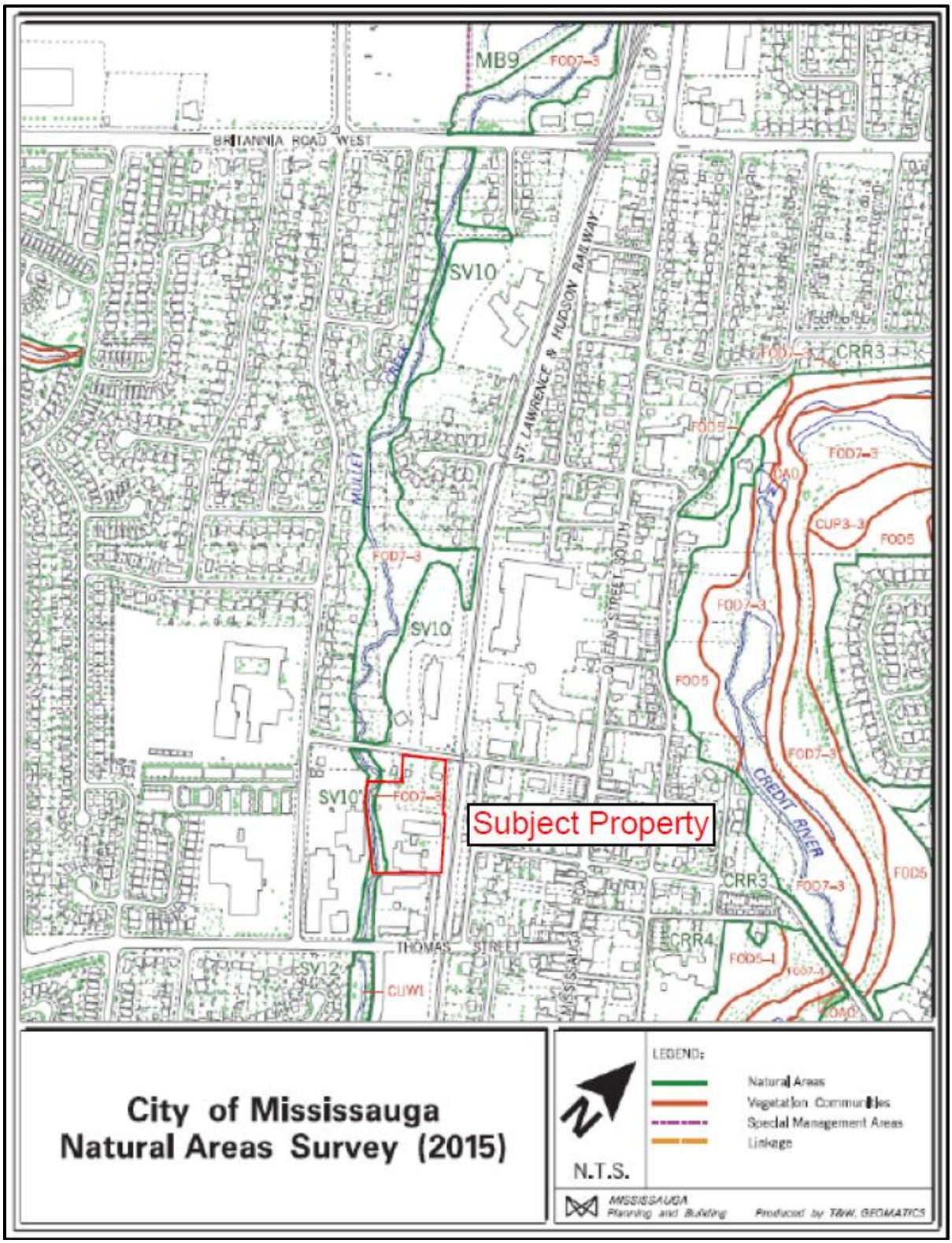


Figure 3. City of Mississauga Natural Areas Survey for Natural Areas SV10

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. All of the records for potential species at risk are considered historical (> 80 years old), and included many aquatic species, mainly associated with the Credit River. None of the species from the NHIC database were documented during field investigations, nor is there suitable habitat for these species.

As discussed in **Section 2.2**, correspondence from the Ministry of Natural Resources and Forestry (MNRF) in a letter from B. Keen dated June 6, 2017, indicated that MNRF has records for a number of Species at Risk in the vicinity of the study area. Species noted include that six species at risk have been recorded within or in the vicinity of the study area. Species include: Butternut (*Juglans cinerea*) (endangered), Little Brown Myotis (*Myotis lucifugus*) (endangered), Northern Myotis (*Myotis septentrionalis*) (endangered), Eastern Small-footed Myotis (*Myotis leibii*) (endangered), Tri-coloured Bat (*Perimyotis subflavus*) (endangered), and Chimney Swift (*Chaetura pelagica*) (threatened). It should be noted that these records do not necessarily correspond with the subject property and are from the broader area.

4.2.2 Vegetation Communities

Vegetation communities on the subject property are illustrated in **Figure 4**. The mapping is based on site specific investigations conducted by Beacon in 2017.

ELC Unit 1: Cultural Woodland

This community is located along the valley slope adjacent to Mullet Creek on the west side of the property. The canopy is dominated by Manitoba Maple (*Acer negundo*), with some Black Walnut (*Juglans nigra*), Hybrid Crack Willow (*Salix* X *rubens*), and Green Ash (*Fraxinus pennsylvanica*). The Green Ash component of the canopy is dead or dying. The understory consists of Tartarian Honeysuckle (*Lonicera tatarica*), Riverbank Grape (*Vitis riparia*), Mantitoba Maple, and Common Buckthorn (*Rhamnus cathartica*). Dominant ground covers are weedy species, notably Garlic Mustard (*Alliaria petiolata*), Urban Avens (*Geum urbanum*), Tall Goldenrod (*Solidago altissima*), and Greater Celadine (*Chelidonium majus*).

This community is extremely disturbed and has been heavily altered by encroachment from surrounding industrial development, notably fill and waste dumping.

ELC Unit 2: Hedgerow

The community consists of a line of trees that is situated along the existing property lines between 51 and 57 Tannery Street and 208 Emby Drive. The canopy consists large of Manitoba Maple, with some Black Walnut, apple and hawthorns. The understory consists of Tartarian Honeysuckle, Common Buckthorn, European Spindletree (*Euonymus europea*) and Choke Cherry (*Prunus virginiana*). Dominant ground covers are Garlic Mustard, Creeping Charlie (*Glechoma hederacea*), Greater Celadine, and Tall Goldenrod.

ELC Unit 3: Anthropogenic

The majority of the subject property contains existing residential and commercial/industrial buildings with associated parking and landscaping. Vegetation consist of planted ornamentals and ruderal species typical of disturbed areas.

4.2.3 Flora

A total of 70 species of vascular plants were identified on the subject property. A complete plant list is presented in **Appendix B**. Approximately 64% (45/70) of the species on the property are non-native, which is very high and reflects the disturbed nature of the site. One species, Black Walnut is ranked S4? in Ontario by the Natural Heritage Information Centre (NHIC) indicating is apparently secure in the province and very common in the GTA. All other native species on the subject property are ranked S5 indicating that they are common and secure in Ontario. No regionally rare or uncommon plant species occur on the property.

4.2.4 Breeding Birds

A total of 10 species of breeding, or potentially breeding birds, were recorded on the subject property. Eight additional species were observed adjacent to the subject property (**Table 3**). The majority of the species encountered were common species that are widespread in open, scrubby habitats or fragmented or disturbed habitats, such is as found on most of the subject property. Some of the more abundant species observed included: Black-capped Chickadee (*Poecile atricapillus*), American Robin (*Turdus migratorius*), European Starling (*Sturnus vulgaris*) and House Sparrow (*Passer domesticus*). Species that were observed flying or foraging over the subject property that were not believed to be breeding on the subject property included Mallard (*Anas platyrhynchos*) and Chimney Swift (*Chaetura pelagica*).

One species observed foraging on and adjacent to the subject property, the Chimney Swift (*Chaetura pelagica*), is listed Threatened under the Endangered Species Act (2007). This bird is an aerial insectivore and nests in dark, sheltered areas and will attach its nest to vertical surfaces; chimneys are the most common structure used (COSEWIC 2007). During the breeding bird surveys, the avian biologist searched for evidence of possible habitat for Chimney Swift. No suitable habitat was observed; all the structures on the subject property were industrial buildings with relatively modern HVAC systems. Therefore, there are no brick or masonry chimney structures on the subject property that could potentially be used by Chimney Swift. Nesting opportunities for Chimney Swift may exist in the broader study area, however there is no evidence to suggest that Chimney Swift are breeding on any of the structures on the property.

No species ranked as S1 through S3 (Critically Imperiled through Vulnerable) by the province were present.

Existing Conditions

Figure 4

Environmental Impact Study
51 & 57 Tannery Street & 208 Emby Drive, Mississauga

Legend

- Subject Property
- ELC Communities
- Contours (0.50 m) *
- Watercourse **

ELC Unit	ELC Community	ELC Code
1	Cultural Woodland	CUW
2	Hedgerow	HR
3	Anthropogenic	ANT

First Base Solutions: Contours (0.50 m) 2017 *
Ministry of Natural Resources and Forestry: Watercourse 2017 **

First Base Solutions
Web Mapping Service 2017

UTM Zone 17 N, NAD 83

N W E S

0 5 10 20 Metres

1:900

BEACON ENVIRONMENTAL

Project 217069
June 2018

C:\Dropbox\Dropbox (Beacon)\All GIS Projects\2017\217069 - EIS 51-57 Tannery Street Mississauga\MXD\217069_Fig04_ExistingConditions_20180416.mxd

Table 3. Results of Breeding Bird Surveys

Common Name	Scientific Name	Status			Locations			
		COSEWIC[a]	COSARRO[a]	S-Rank[b]	On Property Visit 1	On Property Visit 2	Off Property Visit 1	Off Property Visit 2
Great Blue Heron	*Ardea herodias*	n/a	n/a	S4	-	-	F	F
Mallard	*Anas platyrhynchos*	n/a	n/a	S5	-	F	F	-
Mourning Dove	*Zenaida macroura*	n/a	n/a	S5			F	1
Chimney Swift	*Chaetura pelagica*	THR	THR	S4	F	F	-	F
Downy Woodpecker	*Picoides pubescens*	n/a	n/a	S5	-	1	-	1
American Crow	*Corvus brachyrhynchos*	n/a	n/a	S5	-	-	3	F
Black-capped Chickadee	*Poecile atricapillus*	n/a	n/a	S5		4	1	-
American Robin	*Turdus migratorius*	n/a	n/a	S5	7	1	-	1
Cedar Waxwing	*Bombycilla cedrorum*	n/a	n/a	S5	1	-	-	F
European Starling	*Sturnus vulgaris*	n/a	n/a	SE	7	-	3	5
Common Yellowthroat	*Geothlyphis trichas*	n/a	n/a	S5	-	-	1	-
Northern Cardinal	*Cardinalis cardinalis*	n/a	n/a	S5	2	-	-	1
Song Sparrow	*Melospiza melodia*	n/a	n/a	S5	-	-	1	-
Red-winged Blackbird	*Agelaius phoeniceus*	n/a	n/a	S4	1	-	1	3
Common Grackle	*Quiscalus quiscula*	n/a	n/a	S5	1	-	5	-
Brown-headed Cowbird	*Molothrus ater*	n/a	n/a	S4	-	-	1	-
American Goldfinch	*Spinus tristis*	n/a	n/a	S5	1	1	1	1
House Sparrow	*Passer domesticus*	n/a	n/a	SNA	3	9	1	6

a COSEWIC = Committee on the Status of Endangered Wildlife in Canada
a Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario)
END = Endangered, THR = Threatened, SC = Special Concern

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

4.2.5 Aquatic Habitat

According to the Natural Areas Fact sheet for SV10 (as discussed in **Section 4.2.1**), the Mullet Creek is identified as a Type 2 Fishery (City of Mississauga 2015).

4.2.6 Species at Risk

Correspondence from MNRF (pers. comm. B. Keen, MNRF, – 2018) indicates that there are records for six species at risk in the vicinity of the subject property: Butternut (endangered), and Chimney Swift (threatened). No Butternut were observed on or adjacent to the property through the vegetation survey or tree inventory. Chimney Swift were observed flying/foraging over the site during the breeding bird surveys; however, there was no evidence of breeding or nesting on the subject property.

MNRF was consulted at the outset of the project and confirmed that they would not considered the site as providing habitat for listed bats and therefore did not request surveys (pers. comm. B. Kowalyk, MNRF – 2017). Additional direction regarding identification of potential habitats for listed bats was received from MNRF in a correspondence dated May 28, 2108 (pers. comm. M. Heaton, MNRF Fish and Wildlife Biologist). This email correspondence has been included in **Appendix C**.

4.3 Evaluation of Significance

The following subsections describe the process for evaluating the significance of the various natural heritage features and ecological features that associated with the study area.

The relative significance of natural heritage features, ecological functions and attributes is generally determined by applying significance criteria that have been developed at the local and regional level. Where such criteria are not available, provincial criteria and guidelines have been considered.

Key sources of guidance for determining significance of the natural features and areas include: the PPS (OMNR 2014), the Peel Region Official Plan, the Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study (NSEI et al. 2009) and the Mississauga Official Plan (2010). The following sections provide a summary of which natural heritage features and areas within the study area would be considered significant according to the policies, criteria and guidance provided in the above noted guidance documents. An overview of the relevant policies was provided in **Section 2** and additional details provided below.

As was discussed in **Section 1**, portions of the subject property are mapped as part of the City's Natural Heritage System; however, this mapping is based on coarse scale desktop analyses. One of the key tasks of the EIS is to verify which features and areas satisfy regional and local significance criteria using detailed and current site-specific data.

4.3.1 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.*

There is no habitat for endangered and threatened species associated with the subject property. Beacon has confirmed with the MNRF that surveys for bats are not warranted (pers. comm. B. Kowalyk, MNRF – 2017). Additionally, based on direction received from staff from the MNRF on previous files, cultural woodlands are typically not considered by the Aurora District MNRF as SAR bat habitat This correspondence is included in **Appendix C**.

4.3.2 Significant Woodlands

Significant Woodlands are recognized as components of the City's Natural Heritage System. Significant Woodlands are defined in the PPS, and in the Region of Peel and City of Mississauga Official Plans. All of 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.*

While the MNRF has criteria for determining woodland significance in areas subject to provincial plans (i.e. Greenbelt, Oak Ridges Moraine, etc.) as well as for Renewable Energy Act projects, no specific criteria have been included or referenced in the 2014 PPS. It is therefore assumed that guidance is from the *Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005.* (MNRF 2010), a document that provides municipalities with guidance on establishing their own significance criteria would apply. As the Peel ROP was approved by MMAH and is considered be consistent with the PPS, we have relied upon the ROP definition.

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 City of Mississauga Official Plan 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 definition of significant woodland provided in the MOP, the City relies upon Regional criteria in determining woodland significance (underline added for emphasis).

Prior to application of the significant woodland criteria, it is necessary to first identify which of the treed features in the study area satisfy the definition of a "woodland" using the definitions contained in 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…"*

The MOP definition of "woodland" is identical to the ROP definition above but also includes the following additional text:

> *Woodlands may exclude treed communities which are dominated by invasive non-native tree or shrub species such as buckthorn (Rhamnus cathartica) and Norway maple (Acer plantanoides) that threaten the ecological diversity of native communities, good forestry practices and environmental management. Such exceptions may be considered where native tree species comprise less than 10 percent of the tree crown cover and are represented by less than 100 stems of any size per hectare.*

The ROP contains similar policies that exclude certain types of treed features from classification as Core Woodlands or Significant Woodlands provided they meet exclusionary criteria described in Policy 2.3.2.21 which states:

> *Exclude as Core woodlands and significant woodlands, plantations that are:*
>
> *a) managed for production of fruits, nuts, Christmas trees or nursery stock;*
> *b) managed for tree products with an average rotation of less than 20 years (e.g. hybrid willow or poplar); or*
> *c) established and continuously managed for the sole purpose of complete removal at rotation, as demonstrated with documentation acceptable to the Region or area municipality, without a woodland restoration objective.*
>
> *Additional exclusions may be considered for treed communities which are dominated by invasive non-native tree species such as buckthorn (Rhamnus species), Norway maple (Acer platanoides), or others deemed to be highly invasive, that threaten the ecological functions or biodiversity of native communities.*
>
> *Such exceptions should be supported by site-specific studies that consider*
>
> *1) the degree of threat posed;*
> *2) any potential positive and/or negative impact on the ecological functions or biodiversity of nearby or adjacent native communities; and*
> *3) the projected natural succession of the community.*
>
> *Communities where native tree species comprise approximately 10 percent or less of the tree crown cover and approximately 100 or fewer stems of native tree species of any size per hectare would be candidates for exclusion.*

This EIS has applied the woodland definitions and criteria from the ROP and MOP to the one treed community (ELC Unit 1) to determine if it meets the definition of "woodland". While this treed feature was classified as cultural woodland (CUW) under the ELC system, it does not satisfy the woodland criteria in the ROP or MOP as it is too narrow. Treed areas must have a minimum average width of 40 m to be considered woodlands.

While the Mullet Creek valleylands are slightly wider to the north and south of the site, the associated treed features do not meet the woodland definition until points approximately 150 m north and south of the subject properties. This represents a gap of approximately 300 m between woodlands. As neither the ROP or MOP contain guidance on how far apart woodland features need to be to be considered

continuous, we relied on woodland guidance criteria offered in the Natural Heritage Reference Manual to the PPS (MNRF 2010) which recommends not treating woodland as continuous if gaps exceed 20 m. As such, it is our opinion that this approach is consistent with the PPS as it relates to identifying woodlands.

It is recognized that Mullet Creek forms part of the City's Natural Heritage System (NHS), which was identified using a systems-based approach as is required under the policies of the PPS, ROP and MOP. Notwithstanding that the natural heritage features associated with the subject properties form part of an NHS, the evaluation of significance is based on the guidance provided in the City of Mississauga EIS Checklist (Mississauga 2017) which requires evaluating the significance of natural features and impacts to natural features, as opposed to the NHS. This approach is consistent with MOP policy 6.3.32.

Furthermore, the Mississauga Official Plan states: *Woodlands may exclude treed communities which are dominated by invasive non-native tree or shrub species such as buckthorn (Rhamnus cathartica) and Norway maple (Acer plantanoides) that threaten the ecological diversity of native communities, good forestry practices and environmental management.*

Additionally, this feature is dominated by non-native species, notably Manitoba Maple.

Policy 2.3.2.21 was developed to avoid inclusion of wooded features that are dominated by invasive species as significant woodlands in order to protect the ecological integrity of more intact natural woodlands within the Regional Greenlands System and Natural Heritage System.

In our opinion, features such as this CUW exhibit all the attributes necessary for exclusion as is contemplated in the Mississauga Official Plan woodland definition and ROP Policy 2.3.2.21.

While this EIS has recommended that the CUW be excluded as part of the significant woodland for the reasons noted above, this feature is directly associated with the Mullet Creek valley; therefore, the feature is protected through setbacks applied to the valley slope and is entirely outside the proposed development limit.

ELC unit 2, a hedgerow, also does not qualify as a woodland as it too is less than 40 m wide and dominated by invasive species, many of which are in poor condition (ref. Arborist Report, Beacon 2018).

4.3.3 Significant Wetlands

In regard to wetlands, significant is defined by the PPS (2014) as:

> *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.*

There are no Provincially Significant Wetlands (PSWs) or MNRF evaluated wetlands within or adjacent to the subject property. The Creditview Wetland (situated more approximately 2.3 km to the east of the subject property) is identified as PSW.

4.3.4 Significant Valleylands

In regard to 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 and part of the City's Natural Heritage System.

The MOP criteria for significant valleylands reads as follows:

> *6.3.12 g 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, the Mullet Creek valley qualifies as a Significant Valleyland because it is considered a "major tributary" having a direct confluence with the Credit River.

4.3.5 Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) includes a combination of natural heritage features, attributes and functions that are intended to represent the best examples of wildlife habitat within a planning area such as an upper or lower tier municipality. This responsibility for confirming SWH is assigned to the planning authority (i.e., Region); however, municipalities rely upon proponents to identify "candidate SWH" through planning studies.

The Region of Peel has developed SWH criteria and thresholds to be applied throughout the Region. These criteria are presented in Figure 5 of the ROP. It should however be noted that these criteria and the various thresholds have not been adopted as Regional policy. The MOP definition of SWH defers to the ROP definition; however, the ROP does not include a definition for SWH, so it is presumed that it is defined as per the PPS.

> *Significant: means:* d) *"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*

To determine if any of the features in the study area support candidate SWH, the Region of Peel SWH criteria (based on *Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study*, NSEI *et al*., 2009), and the more recent *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF 2015) were considered.

According to the *Significant Wildlife Habitat Technical Guidelines* (MNRF 2000), there are four broad categories of Significant Wildlife Habitat (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 types 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).

Based on a review of the *Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study* (NSEI *et al*., 2009), it was determined the subject property does not support seasonal wildlife concentration areas, rare vegetation communities, specialized habitat or habitat for species of conservation concern. Although, the Mullet Creek valley may qualify as a secondary or tertiary movement corridor for wildlife using the Peel-Caledon SWH criteria; however, it is our opinion that the Mullet Creek is too narrow and degraded to warrant designation as SWH. If however, the valleylands are restored and enhanced to improve corridor functions, it is possible that they could qualify as candidate SWH in the future.

4.3.6 Significant Areas of Natural and Scientific Interest (ANSI)

In regard to 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.*

The study area does not overlap with any designated ANSIs. The closest ANSI to the subject property is the Credit River Georgian Bay Formation Provincial ANSI, which is located approximately 750 m to the east.

4.3.7 Fish Habitat

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* (1985).

As discussed in **Section 4.2.5**, Mullet Creek directly provides fish habitat and is classified as a Type 2 Fishery within the study area (City of Mississauga, 2015).

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 to restore and enhance the natural environment which should be implemented as part of the proposed development.

5.1 Constraints

There are a number of 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 the data gathered through field investigations described in **Section 4.2** and through the evaluation of significance presented in **Section 4.3**, it was determined that all of the significant natural heritage features that have been identified in the study area are associated with the valleyland of Mullet Creek.

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

- Watercourses (Mullet Creek);
- Fish Habitat (Mullet Creek); and
- Valleyland/hazard land (top of bank of Mullet Creek staked by CVC on July 12, 2017).

No components of the Regional Greenlands System (Core areas, NAC, or PNAC) occur on the property. There is also no habitat for endangered or threatened species on the subject property.

5.1.1.1 Buffers

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. CVC's lot creation policies recommend applying a 10 m buffer to the flood and erosion hazard and a 30 m buffer to the watercourse, but also allow for consideration of other appropriate buffer or setback distances based on site specific studies.

Due to the nature of the proposed development (i.e. infill redevelopment and condominium), the risk of encroachment related impacts from development onto the adjacent natural area is considered very low. This is because the valleyland is narrow and steep sided making it difficult to access. Furthermore, the valley segment is isolated and offers no shortcut or connections to trails or paths and would not represent a destination for potential human activities. The proposed limits of development are setback from any natural heritage features and outside the erosion hazard limits. Fencing will be established at the new property line and the setback area will be planted and naturalized and dedicated to the City.

The fencing and the setback plantings will create a barrier for any potential encroachment activities. In our experience, condominium style residential development adjacent to natural areas diminishes the sense of individual ownership and discourages encroach activities that are more commonly associated with individually owned residential lots.

5.1.2 Natural Hazards

5.1.2.1 Slope Hazard

The physical top of slope along the Mullet Creek valleylands was staked by CVC on July 12, 2017. Patriot Engineering Ltd. (2019) has prepared a *Geotechnical Investigation for Performing Slope Stability Analysis* to determine the position of the LTSTOS relative to the physical top of slope. The study determined that, for the majority of the site, the LTSTOS is coincident with the physical top of slope. The LTSTOS represents a constraint to development and is illustrated on **Figure 5**.

5.1.2.2 Flood Hazard

There is a floodplain associated with Mullet Creek. The regional floodline is confined to the valley and does not extend onto the tableland (**Figure 5**).

5.1.2.3 Setbacks

A 7.0 m setback has been applied to the LTSTOS (the greater of the natural hazards) to define the hazard limits (**Figure 5**).

5.1.3 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 erosion hazard as it relates to the valley slope represents the greatest hazard. The erosion hazard limit was established by applying a 7.0 m erosion access allowance setback to the LTSTOS. The erosion hazard limit was used to define the limits of future development for the proposed site plan.

5.2 Opportunities

The biophysical assessments completed as part of this EIS have confirmed that the ecological integrity of the Mullet Creek valleylands have been severely compromised by a) past disturbances (heavily altered by encroachment from surrounding development, notably fill and waste dumping), b) proliferation of invasive species, and c) forest dieback due to Emerald Ash Borer.

Environmental Constraints | **Figure 5**

Environmental Impact Study
51 & 57 Tannery Street & 208 Emby Drive,
Mississauga

Legend

- Subject Property
- Long Term Stable Top of Slope*
- 7 m Setback to Long Term Stable Top of Slope
- Floodline**
- Watercourse

* Patriot Engineering LTD: Long Term Stable Top of Slope 2019
** Fiddes Clipsham Inc: Floodline 2017

First Base Solutions
Web Mapping Service 2017

UTM Zone 17 N, NAD 83

0 10 20m

1:750

BEACON ENVIRONMENTAL

Project: 217069
June 2019

While the level of degradation is considered significant, it is nevertheless possible to implement localized management strategies (i.e. invasive species control, vegetation management, and habitat creation) that can aid in restoring ecological integrity and functions to these areas.

The proposed re-development presents several opportunities for enhancement of the proposed NHS and associated ecological functions.

Opportunities include:

- Installing fencing along the future limit of development where none presently exist;
- Enhancements to the biodiversity of the NHS can be achieved by:
    - Removing highly invasive species such as Manitoba Maple, Common Buckthorn and Honeysuckle from portions of the subject property adjacent to the NHS;
    - Replacing poor quality, non-native trees with native trees;
    - Re-vegetating the buffer area using native trees, shrubs and groundcovers;
    - Incorporating native trees and shrubs into the landscaping of the proposed development to the extent feasible; and
    - Remove garbage and debris from the valley slopes and areas to be naturalized on the subject property;
- Improvements to quality of surface runoff can be achieved by implementing LID measures; and
- Increase tree canopy cover on the site over the long-term by implementing tree preservation measures and planting trees.

6. Description of Proposed Development

6.1 Site Plan

The proposed redevelopment consists of seven three-storey stacked townhouse condominium blocks with underground parking and a total unit count 156. The redevelopment will be accessed by Emby Drive, which will be extended to Tannery Street. A Site Plan been prepared by Kirkor Architects and Planners (2019). **Figure 6a** shows the Site Plan Statistics and the Context Plan, while **Figure 6b** shows the Lower Level Parking, which is located directly under the development footprint.

6.2 Site Servicing

6.2.1 Water and Sanitary

A *Functional Servicing and Stormwater Management Brief* was prepared by LEA Consulting Ltd. (2019) in support of the proposed development. Water and sanitary services to the proposed development will be achieved by connecting to existing and proposed infrastructure along, Emby Drive and Tannery Street (ref. Figure 7 – Sheet C-101 – LEA Consulting Ltd. 2019). Water will be supplied by a proposed 100 mm watermain that will provide domestic water, which will be connected via a cut-in Tee to a proposed 150 mm fire protection water service. Additionally, there is a proposed 150 mm diameter

sanitary sewer that will connect to the extension of the existing sanitary sewer on Emby Drive. For more details, refer to the *Functional Servicing and Stormwater Management Brief* (LEA Consulting Ltd. 2019).

6.2.2 Stormwater Management

Under existing conditions, stormwater runoff is uncontrolled and not treated. The majority of the runoff from the site drains overland to Mullet Creek. Runoff from the southeast portion of the site drains to Emby Drive. For the purposes of managing runoff under future conditions, the subject property was divided into two subcatchment areas. Once catchment area (C1) corresponds with the future redevelopment and the other catchment area (C2) corresponds with the Emby Drive extension.

Under the post development condition, runoff from roof drains, area drains and catch basins in Catchment Area C1 will be conveyed through storm sewers to a 200 m^3 storm tank at the southeast corner of the development area at underground parking level.

Runoff from the proposed extension of Emby Drive (Catchment Area C2) will be collected by the proposed storm system on the Emby Drive and outlet to the municipal storm sewer on Thomas Street. The overland flow from proposed residential development and Emby Drive extension, will discharge onto existing Emby Drive and outlets to the Thomas Street and Mullet Creek

Stormwater quality will meet the City's requirements of 80% TSS removal, and therefore additional water quality improvement is not recommended. Stormwater quality controls were not considered for rooftop drainage since it is considered "clean" runoff as it won't come in contact with parking lot drainage (LEA Consulting Ltd., 2019).

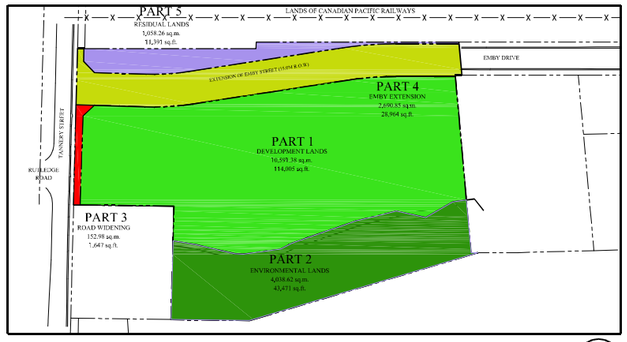
Please refer to **Figure 7** for the location of the proposed storm sewers and **Figure 8** for overland flow routes on Emby Drive**.** Also refer to *Servicing and Stormwater Management Brief* (LEA Consulting Ltd. 2019) for additional details.

6.3 Water Balance

As indicated in the *Functional Servicing and Stormwater Management Brief* (LEA Consulting Ltd. 2019), the site water balance can be achieved by retaining the first 5 mm of rainfall depth on site through infiltration, evapotranspiration, etc. for the condominium area. To satisfy the water balance criteria, an on-site storage volume of 37.4 m^3 is required for this catchment area.

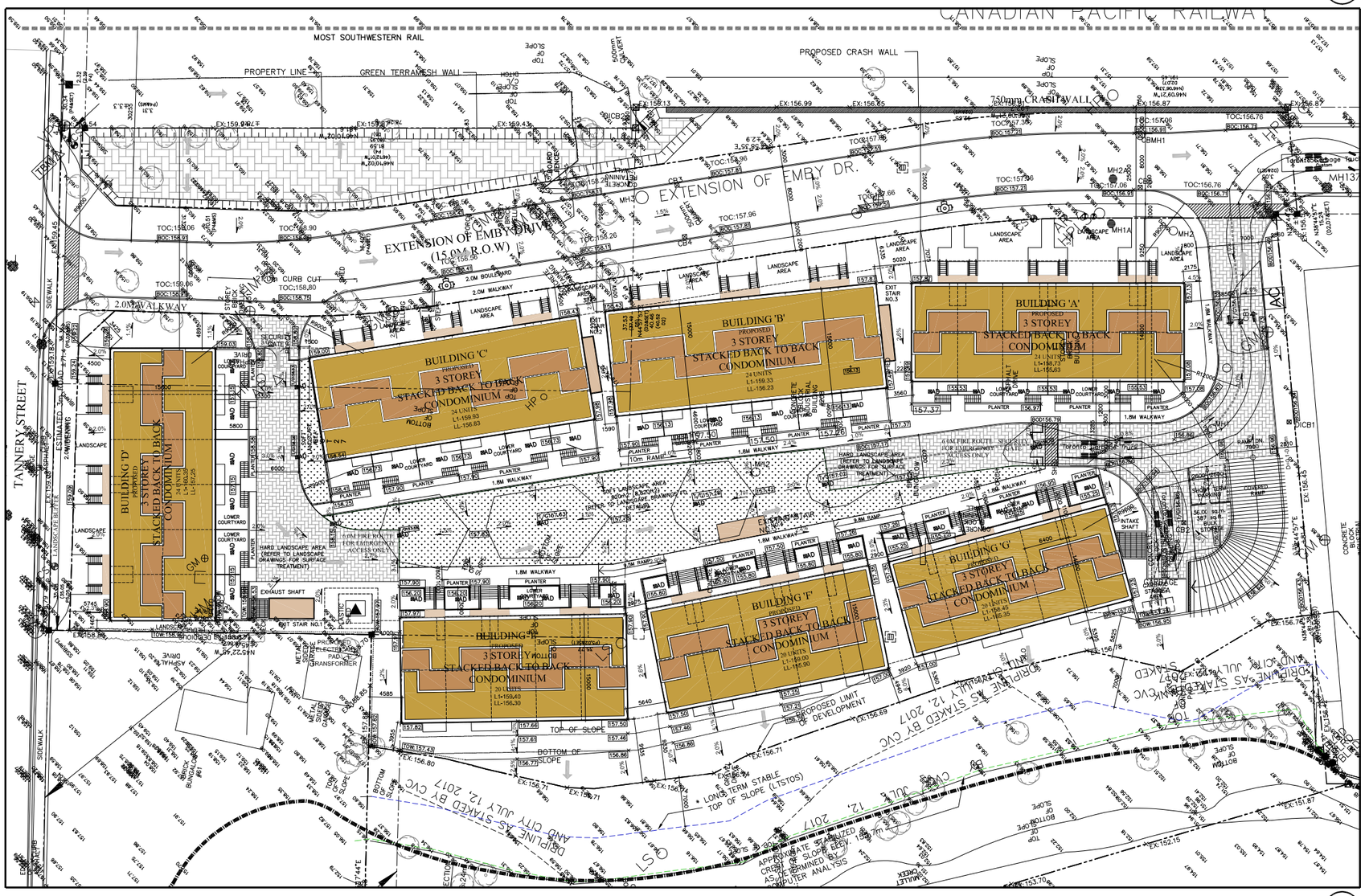
6.4 Grading

The subject property is already developed and grades previously established. Finished grades for the proposed development will match existing grades at the limits of development. No grading is proposed within the valley or the erosion hazard limits. For more details, refer to the site grading plan (**Figure 8** – Sheet C-100 – LEA Consulting Ltd.).



Context Area Plan
1:1000
4
RZ-01

Context Plan
N.T.S
2
RZ-01



Site Plan
1:250
3
RZ-01

WASTE MANAGEMENT NOTES:

UNCOMPACTED RECYCLING WASTE WILL BE BROUGHT TO THE LOADING BAY FROM THE WASTE STORAGE ROOM LOCATED IN THE P1 PARKING GARAGE BY A BIN PULLER / TRACTOR ON GARBAGE DAY FOR PICKUP.

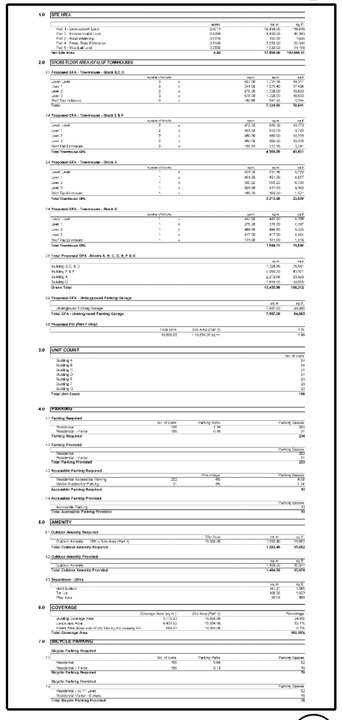
BINS:
G: GARBAGE R: RECYCLING

WASTE STORAGE ROOM REQUIREMENTS

UNCOMPACTED WASTE CALCULATIONS:

Proposed units:	156
G : 18 units / bin:	156 / 18 = 9 bins
R : 45 units / bin:	156 / 45 = 4 bins
Total Waste Storage Room Area:	*83.89m2*
Bulky Items Storage Area:	*10m²*

Waste Management Notes
1
RZ-01



Project Statistics
1
RZ-01

Date:

KIRKOR ARCHITECTS + PLANNERS
20 De Boers Dr, Suite #400 Toronto ON M3J 0H1
T(416) 665-6060, F(416) 665-1234, www.kirkorarchitects.com

No	Revision	Date

EIS Figure 6a

No.	ISSUED	DATE
01	OPA / ZBA	MAY 31,18

Drawing Title:

Site Plan
Statistics & Context Plan

Project:

Phase 12

NYX CAPITAL
Proposed

Townhouse
Residential
Development

TANNERY TOWNHOMES
MISSISSAUGA ,ONTARIO

Scale:
AS NOTED

Drawn By:
T.S

Checked by:
S.M

File No.:
17-145

Plot Date:
June 18, 2019

RZ-01

FILENAME: 17145-Tannery Townhomes

Lower Level Parking — 1:250 — 1 — RZ-02

FILENAME: 17145-Tannery Townhomes

KIRKOR ARCHITECTS + PLANNERS
20 De Boers Dr, Suite #400 Toronto ON M3J 0H1
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No	Revision	Date

EIS Figure 6b

No.	ISSUED	DATE
01	OPA / ZBA	MAY 31,18

Drawing Title:
Lower Level Parking

Project:
Phase 12
NYX CAPITAL
Proposed
Townhouse Residential Development
TANNERY TOWNHOMES
MISSISSAUGA ,ONTARIO

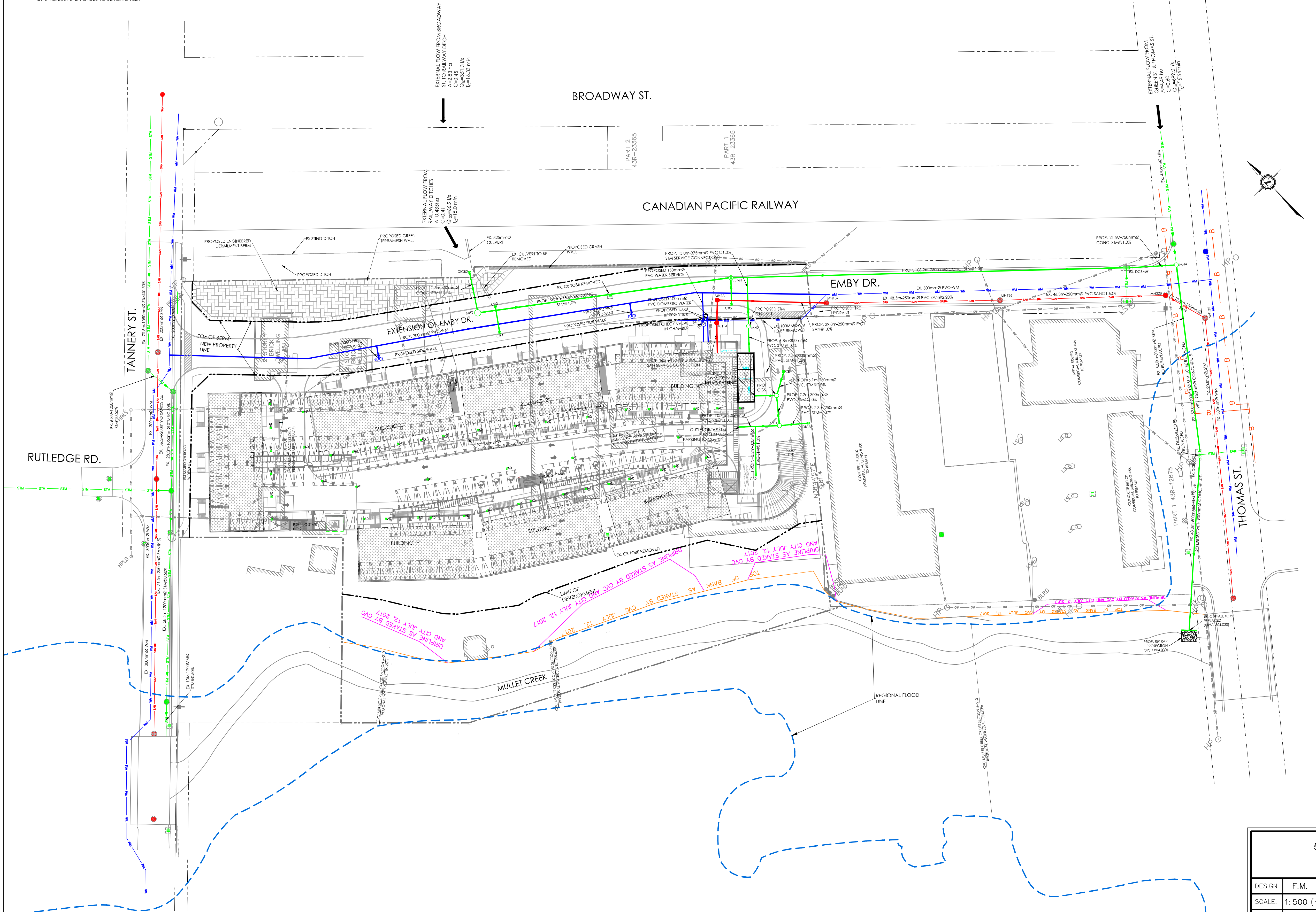
Scale: AS NOTED
Drawn By: T.S
Checked by: S.M
File No.: 17-145
Plot Date: June 18, 2019

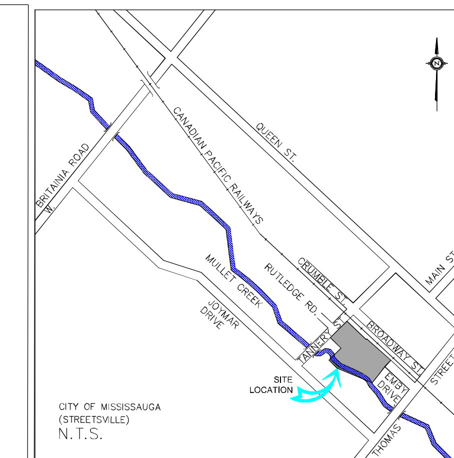
RZ-02

NOTES:

1. ELEVATIONS ARE REFERRED TO THE CITY OF MISSISSAUGA BENCHMARK NO. 63-4, LOCATED ON THE NORTH FACE AT THE CORNER OF THE KENDELLHURST ACADEMY ON THE NORTHEAST SIDE OF QUEEN STREET, OPPOSITE TANNERY STREET AND 28M NORTH OF MAIDEN LANE, HAVING A PUBLISHED ELEVATION OF 163.543 METRES.

2. ALL EXISTING UTILITIES WITHIN THE MAIN PROPERTY LINE INCLUDING CATCH BASINS, LIGHT STANDARDS, HYDRO POLES, OVERHEAD WIRES, GAS METERS AND FENCES TO BE REMOVED.





LEGEND

- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING CATCHBASIN
- HP — EXISTING HYDROPOLE
- LS — EXISTING LIGHT STANDARD
- HPLS — EXISTING HYDROPOLE/LIGHT STANDARD
- WV — EXISTING WATER VALVE
- HYD — EXISTING FIRE HYDRANT
- BLRD — EXISTING BOLLARD
- CS — EXISTING CURB STOP
- EXISTING MONITORING WELL
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED CATCHBASIN
- AD — PROPOSED AREA DRAIN
- PROPOSED FIRE HYDRANT
- STM — EXISTING STORM SEWER
- SAN — EXISTING SANITARY SEWER
- WM — EXISTING WATER MAIN
- B — EXISTING BELL CABLE
- OW — EX. OVERHEAD WIRES
- X — EXISTING FENCE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATER MAIN
- PROPERTY LINE
- NEW PROPERTY LINE
- EXISTING DITCH
- EXISTING TREE
- GM — EXISTING GAS METER
- EXISTING SIGN
- TO BE CONVEYED TO CITY OR CVC
- CONTIGUOUS AMENITY
- REGIONAL FLOOD LINE (FROM MULLET CREEK FLOOD RISK MAP)

mississauga

CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

No.	DATE	DESCRIPTION
1	2018/06/08	ISSUED FOR ZBA
2	2019/06/14	ISSUED FOR COORDINATION

EIS Figure 7

625 Cochrane Drive, Suite 900
Markham, Ontario
L3R 9R9, Canada
Tel: (905)470-0015, Fax: (905)470-0030

LEA Consulting Ltd.
Consulting Engineers and Planners
www.LEA.ca

51-57 TANNERY STREET DEVELOPMENT
PRELIMINARY SITE SERVICING PLAN

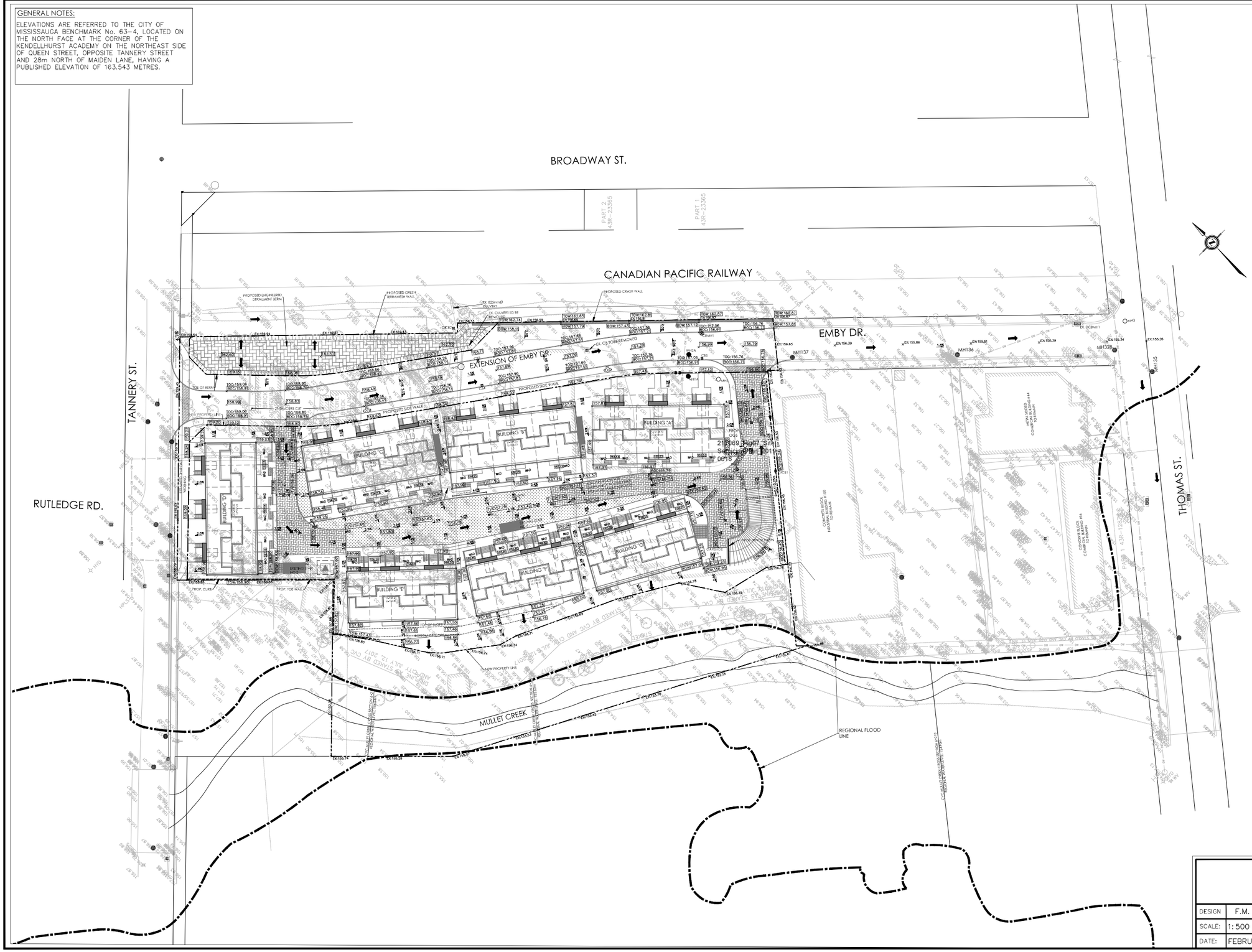
DESIGN	F.M.	DRAWN	F.M.	CHECKED	M.D.	CONTRACT No.	18038
SCALE:	1:500 (FULL SIZE)			DRAWING NUMBER		C-101	
DATE:	FEBRUARY 10, 2018						

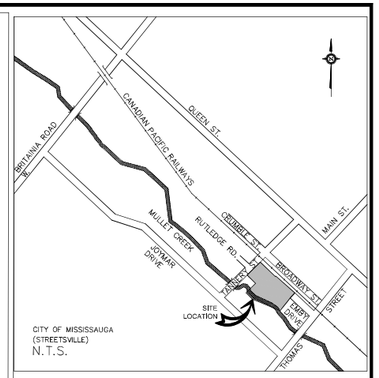
Jun 14, 2019–10:47am

DRAWING NAME: F:\18038 – 51 Tannery\Drafting\Contract Drawings\C101–Site Servicing Plan.dwg

GENERAL NOTES:

ELEVATIONS ARE REFERRED TO THE CITY OF MISSISSAUGA BENCHMARK No. 63-4, LOCATED ON THE NORTH FACE AT THE CORNER OF THE KENDELLHURST ACADEMY ON THE NORTHEAST SIDE OF QUEEN STREET, OPPOSITE TANNERY STREET AND 28m NORTH OF MAIDEN LANE, HAVING A PUBLISHED ELEVATION OF 163.543 METRES.





LEGEND

- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED FIRE HYDRANT
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING CATCHBASIN
- HP EXISTING HYDROPOLE
- LS EXISTING LIGHT STANDARD
- HPLS EXISTING HYDROPOLE/LIGHT STANDARD
- WV EXISTING WATER VALVE
- HYD EXISTING FIRE HYDRANT
- BLRD EXISTING BOLLARD
- CS EXISTING CURB STOP
- EXISTING MONITORING WELL
- EX. OVERHEAD WIRES
- EXISTING FENCE
- PROPERTY LINE
- EXISTING DITCH
- PROPOSED DITCH
- CBAD PROPOSED CATCHBASIN
- 159.47 EXISTING SURVEY ELEVATION
- EX:158.32 EXISTING ELEVATION
- 158.32 PROPOSED ELEVATION
- TOC158.26 PROPOSED TOP OF CURB ELEVATION
- BOC158.11 PROPOSED BOTTOM OF CURB ELEVATION
- BOD157.20 PROPOSED BOTTOM OF DITCH ELEVATION
- OVERLAND FLOW ROUTE
- GM EXISTING GAS METER
- EXISTING TREE
- EXISTING SIGN
- TO BE CONVEYED TO CITY OR CVC
- CONTIGUOUS AMENITY
- REGIONAL FLOOD LINE (FROM MULLET CREEK FLOOD RISK MAP)

MISSISSAUGA

CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

No.	DATE	DESCRIPTION
1	2018/06/08	ISSUED FOR ZBA
2	2019/06/14	ISSUED FOR COORDINATION

EIS Figure 8

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LEA Consulting Ltd.
Consulting Engineers and Planners
www.LEA.ca

51-57 TANNERY STREET DEVELOPMENT
PRELIMINARY SITE GRADING PLAN

DESIGN	F.M.	DRAWN	F.M.	CHECKED	M.D.	CONTRACT No.	18038
SCALE:	1:500 (FULL SIZE)			DRAWING NUMBER		C-100	
DATE:	FEBRUARY 10, 2018						

DRAWING NAME: P:\18038 - 51 Tannery\Drafting\Contract Drawings\C100-Site Grading Plan.dwg Jun 14, 2019 - 12:07pm

6.5 Landscaping

A Landscape Concept Plan has been prepared for the site by MEP Design Landscape Architecture (2019) (ref. **Figure 9)**. The concept plan identifies areas to be landscapes and areas to be restored and enhanced as well as building locations, proposed entry locations to the development and the outdoor amenity area. A detailed Landscaping Plan will be submitted for the development site in the future. Additionally, Beacon will prepare and submit a separate Valleyland Restoration and Enhancement Plan for the site. This plan will include details of various works to be undertaken in the buffer area, including, but not limited to the following:

- Removal of invasive non-native vegetation;
- Removal of asphalt and concrete and fill;
- Rehabilitation of disturbed areas with clean soil; and
- Replanting with native trees, shrubs and groundcovers.

7. Impact Assessment and Mitigation

The impact assessment presented in this section 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 NHS features and functions. Since impact avoidance is generally the most effective means of reducing the risk of development impacts on the natural environment, it is recommended that development limits be established outside of any significant natural heritage features. This can be achieved by establishing development limits outside the areas identified as being environmentally constrained.

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 4** 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 effects on the biophysical environment.

7.1 Erosion and Sediment Control

Per Section 8 of the *Servicing and Stormwater Management Brief* (LEA Consulting Ltd. 2019), it is recommended that Best Management Practices (BMPs) shall be installed and maintained during construction in accordance to the CVC's Stormwater Management Criteria (August 2012). This should include sediment controls measures to prevent silt entry to existing area drains and catch basins, mud-mats at all entrance locations, and having inspection and monitoring programs that follows the CVC Stormwater Management Criteria (August 2012).

TANNERY TOWNHOMES - Mississauga, Ontario

MEPDESIGN
LANDSCAPE ARCHITECTS
1060 Sheppard Ave. West - Suite 100
Toronto, Canada M3J 0G7
+1 416.781.9205
studio@mepdesign.com

EIS - FIGURE 9

Table 4. Impact Assessment Matrix

Category	Feature/Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
Geology	**Bedrock Geology**	Grading and Servicing	It is not anticipated that grading and servicing will be within the bedrock, therefore no impacts to bedrock resources are anticipated.	None	Neutral
	Surficial Geology/ Physiography/ Topography	Site Preparation and Grading	The site is flat and overlain with a thin layer of glacial till that has been previously modified, including fill. The proposed grading will not significantly alter the topography of the landscape.	• 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	None. There are limited topsoil resources on the property as the site is fully developed.	Good quality topsoil resources should be salvaged and reused.	Neutral
Air Quality	**Air**	Site Preparation and Grading	Due to the scale of the redevelopment and its setting which is sheltered from prevailing winds, it is not anticipated that dust from grading and construction will result in adverse environmental impacts.	Dust control will be the responsibility of the Contractor and will be managed through construction specifications – for example, construction requirements may include the application of water to cleared and unpaved construction areas.	Neutral
Groundwater	**Groundwater Flows**	Grading, Servicing and Development	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.	• Use trench plugs or anti-seepage collars along installed services to prevent redirection of groundwater flows and water table lowering, if necessary • A construction dewatering plan should be prepared to the satisfaction of CVC, if required. • If permanent ground water controls are required; then a passive system for redirecting ground water flows is recommended.	Neutral
	Groundwater Quality	Grading, Servicing and Development	Site preparation activities such as grading can increase the risk of erosion and sedimentation to the NHS. Under the post-development scenario, contaminants such as oil, sand, salt and other debris may also affect the water quality of surface runoff.	Implement sediment and erosion control plans to ensure that sediments are contained on the site and do not enter the watercourses.	Neutral
Surface Water	**Watercourse Features**	Grading, Servicing and Development	No direct impacts to watercourses are anticipated.	None	Neutral
	Watercourse Flows	Grading, Servicing and Development	Uncontrolled stormwater runoff has the potential to exacerbate flooding and erosion issues in Mullet Creek. Increases in surface water runoff entering these watercourses under post-development conditions could negatively impact downstream infrastructure and property.	Implement appropriate BMP's and SWM controls recommended in the Servicing and Stormwater Management Brief.	Neutral
	Water Quality	Grading, Servicing and Development	Uncontrolled erosion, sedimentation, and machine use (including potential spills) during construction could result in release of deleterious materials (fuel, oil, lubricant, etc.) into the watercourses, and/or degradation of water quality within the limits of construction and outlying areas.	Implement appropriate BMP's and SWM controls recommended in the Servicing and Stormwater Management Brief.	Neutral
	Water Temperature	Grading, Servicing and Development	Uncontrolled stormwater runoff has the potential to further degrade water quality in Mullet Creek. Runoff can have adverse thermal impacts on the creek.	Implement appropriate BMP's and SWM controls recommended in the Servicing and Stormwater Management Brief.	Neutral
Site Water Balance	**Overall Site**	Grading and Development	No impacts are anticipated if recommended mitigation measures are implemented.	Based on the site conditions of the condominium area, a 200 m^3 stormwater storage tank is proposed in the underground parking lot. This storage tank will then outlet to a proposed storm sewer in Emby Drive. The water-balance criteria can be satisfied with an onsite storage volume of approximately 37.4 m^3 for the condominium area.	Neutral
Natural Hazards	**Erosion Hazard**	Grading, Servicing and Development	The erosion hazard is defined by the valley slope. The limits of the proposed redevelopment have been establish based on avoidance of the erosion hazard.	None	
Natural Heritage System	**NHS Linkages**	Grading, Servicing and Development	Re-development on the subject property will be confined to lands that are presently developed. Connectivity along the Mullet Creek valleylands will be maintained as the re-development will be restricted to the tableland.	Remove invasive species and planting native species within Mullet Creek valleylands. Cleaning garbage out of natural features.	Positive

Category	Feature/Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
	Significant Woodlands	Grading, Servicing and Development	There are no significant woodlands on or adjacent to the subject property.	No Mitigation necessary. Opportunity to restore and enhance functions through implementation of a Valleyland Restoration and Enhancement Plan.	Neutral
	Wetlands	Grading, Servicing and Development	There are no wetlands on or adjacent to the subject property.	Not Applicable.	Neutral
	Significant Valleylands/Hazard Lands	Grading, Servicing and Development	The Mullet Creek valley qualifies as a significant valleyland, according the City's OP criteria, and will be protected from any direct development. The proposed redevelopment will not affect this designation. The proposed redevelopment is situated outside the erosion hazard.	No Mitigation necessary. Opportunity to restore and enhance functions through implementation of a Valleyland Restoration and Enhancement Plan.	Positive
	Significant Wildlife Habitat	Grading, Servicing and Development	The valleylands associated with Mullet Creek provide some limited connectivity for local wildlife. These functions are presently not at a level to warrant identification of the valley as Candidate SWH, however it is anticipated that the proposed redevelopment will result in the restoration and enhancement of the corridor which will improve connectivity functions. Refer to the NHS Linkage section above.	None. Opportunity to restore and enhance functions through implementation of a Valleyland Restoration and Enhancement Plan.	Positive
	Trees	Grading, Servicing and Development	The proposed development will result in the removal of 82 trees from the tableland, many of which are in poor condition or dead (see Arborist Report, Beacon 2019 for details).	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.	Neutral - Positive
	Fish Habitat	Grading, Servicing and Development, SWM Controls	Mullet Creek supports Type 2 Fish Habitat. No impacts to fish habitat are anticipated. The redevelopment will introduce protection measures such as SWM and BMP measures that presently do not exist.	Implement ESC measures during construction. Opportunities to improve fish habitat by implementing SWM Plan and Valleyland Restoration and Enhancement Plan.	Neutral-Positive
Wildlife	**Birds**	Grading, Servicing and Development	The breeding bird surveys documented a number of urban tolerant species on and adjacent to the subject property. It is not expected that the redevelopment will have a significant effect on the avian community. Proposed vegetation removals from the tablelands will result in a temporary reduction in nesting habitat; however, this will be offset through the proposed site landscaping and valleyland restoration and enhancement which will introduce native species of trees and shrubs which will benefit native bird communities. Furthermore, the redevelopment will introduce more landscaped areas relative to what presently exists. Construction activity on the site could potentially disturb the birds during the nesting season.	• Limit 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	Neutral
Species at Risk (SAR)	**SAR Habitat**	Grading, Servicing and Development	There is no habitat for Species at Risk (SAR) on or adjacent to the subject property.	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 5**.

Table 5. Policy Compliance Assessment

APPLICABLE POLICY / LEGISLATION	RELEVANT EIS FINDINGS AND RECOMMENDATIONS
Federal Fisheries Act (1985)	Fish were noted at the confluence of Mullet Creek. Fish habitat will not be impacted by the proposed development provided that the mitigation measure recommended in this report and the Servicing and Stormwater Management Brief are implemented.
Endangered Species Act (2007)	N/A. There is no habitat for threatened or endangered species.
Provincial Policy Statement (2014) Section 2.1 – Natural Heritage	
1. Habitat for Threatened and Endangered Species	N/A. There is no habitat for threatened or endangered species.
2. Significant Valleylands	Mullet Creek qualifies as a significant valleyland. The valleylands and their functions will be protected, restored and enhanced. It is anticipated that this will have a positive impact on the valley and its ecological functions.
3. Significant Wetlands	N/A. There is no wetland habitat.
4. Significant Woodlands	N/A. There are no significant woodlands.
5. Significant Wildlife Habitat	In our opinion, the Mullet Creek valleylands are too narrow and degraded to qualify as candidate SWH for Animal Movement Corridor, however once restored and enhanced, they may potentially qualify as SWH.
6. Significant Areas of Natural and Scientific Interest	There are no Areas of Natural of Scientific Interest near the study area.
7. Fish Habitat	No negative impacts to fish habitat are anticipated. The EIS and companion technical studies recommend measures (ESC Plan, SWM Plan, Valleyland Restoration and Enhancement Plan) be implemented to improve water quality and fish habitat.
Provincial Policy Statement (2014) Section 2.2 - Water	No negative impacts to sensitive water resources are anticipated. The EIS and companion technical studies have identified mitigation measures to be implemented to reduce impacts to sensitive surface water and groundwater features and their hydrologic functions.
Provincial Policy Statement (2014) Section 2.3 – Natural Hazards	The proposed redevelopment is will occur outside any identified natural hazards (i.e. flood and erosion). The erosion hazard limit has been used to establish the limit of the proposed development.
Region of Peel OP	The Mullet Creek valleylands are not identified as a Core Area and do not meet the criteria.
Mississauga OP (2016)	

APPLICABLE POLICY / LEGISLATION	RELEVANT EIS FINDINGS AND RECOMMENDATIONS
1. Natural Heritage System	
Significant Natural Areas	Significant natural areas associated with the subject property and adjacent lands include: • Fish Habitat • Significant Valleyland No development is proposed within Mullet Creek or the valleyland; therefore, there no direct impacts are anticipated. Indirect impacts can be avoided or minimized by implementing the recommendations of his report.
Natural Green Spaces	Natural Green Spaces correspond with the valleylands which will be protected, restored and enhanced.
2. Natural Hazard Lands	The proposed redevelopment will be located outside natural hazards associated with Mullet Creek. The erosion hazard limit was used to define the limit of development.
CVC Regulations and Policies	
Ontario Regulation 160/06 Watershed Planning and Regulation Policies (CVC, 2010)	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 and floodplain). The development limit is based on the erosion hazard limit. The proposed redevelopment will not: i. subject life and property to significant (and unacceptable) risk; ii. create new hazards or aggravate existing hazards on the subject or other properties; iii. result in a measurable and unacceptable cumulative effect on the control of flooding, erosion, dynamic beaches, pollution or the conservation of land; and iv. prevent access for maintenance, evacuation or during an emergency.

9. Conclusion

NYX Development Corp. is proposing to redevelop the 1.85 ha property located at 51 and 57 Tannery Street and 208 Emby Drive in the City of Mississauga. The property currently supports industrial buildings, valleylands, parking areas, residential buildings and lawn. The proponent is proposing to redevelop the property to accommodate seven three-storey stacked condominium blocks consisting of a total of 156 units.

The subject property is located within the Streetsville Community Node, and is mostly designated as high density residential on Schedule 10 of the City's OP. This schedule also shows that the western portion of the subject property is considered "Greenlands" and contains natural hazards. Schedule 3 of the City's OP considers the valleylands associated with Mullet Creak along the south-western border of the site as "Significant Natural Areas and Natural Green Space," and a natural hazards overlay has been applied to the floodplains associated with this creek.

Due to the proximity of the proposed re-development to the Significant Natural Area, it is the City's policy to require an EIS demonstrating that the re-development does not negatively impact upon the

adjacent natural features and functions. Beacon was retained by NYX Development Corp to prepare an EIS in support of their applications for the Official Plan Amendment (OPA), Zoning By-law Amendment (ZBLA), and Draft Plan of Subdivision or Condominium for the proposed redevelopment.

This EIS was prepared by Beacon with input from a multi-disciplinary team comprised of experts in the fields of ecology, arboriculture, geology, hydrogeology and hydrology. The EIS integrates key findings from other technical reports prepared by the project team to ensure that the ecological inter-relationships between surface water and natural heritage resources are adequately characterized.

This 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, e) provided recommendations for mitigation and enhancement, and f) demonstrated compliance with applicable environmental policies.

Using background information and data collected by the study 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. All of the significant natural heritage features that have been identified in the study area are associated with the valleylands of Mullet Creek. Significant natural heritage features are limited to fish habitat and significant valleyland. Collectively, these features represent the Significant Natural Area and form part of the City's NHS.

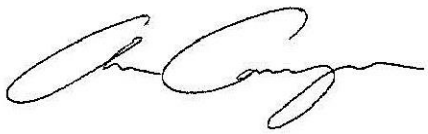
Similarly, natural hazards related to Mullet Creek (flood hazard and erosion hazard) have been identified through companion technical studies. The hazard limits were determined using the erosion hazard which represents the greatest of the hazards. The limit of future development was established using the erosion hazard limit. The proposed limit of development is much further inland than the existing development and affords protection to the natural heritage features and functions of the NHS and respects the natural hazards.

In conclusion, it is our opinion that the proposed redevelopment will not result in negative impacts to ecological features or functions associated with the Natural Heritage System provided that the recommended impact avoidance and mitigation measures specified in this EIS and corresponding technical reports are implemented accordingly. Additionally, implementation of the proposed stormwater management systems, landscaping plans, and the valleyland restoration and enhancement plan will have a net positive impact on the adjacent Natural Heritage System. Furthermore, the proposed development complies with applicable environmental protection polices and regulations.

Report prepared by:
Beacon Environmental

Dan Westerhof, B.Sc., MES
Terrestrial Ecologist,
Certified Arborist (ON-1536A)

Report prepared by:
Beacon Environmental



Anna Corrigan, B.Sc. (Hons)
Ecologist

Report reviewed by:
Beacon Environmental

Ken Ursic, M.Sc.
Principal

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Appendix A

City of Mississauga EIS Checklist

Environmental Impact Study Checklist
October 2017

Applicant: Tim Jessop (Nyx Capital Corp.) Env. Consultant: Ken Ursic (Beacon Environmental)

Phone: (416) 548-5590 x1006 Phone: (519) 826-0419 x23

Email: tim@nyxcapital.com Email: kursic@beaconenviro.com

PAM and/or DARC # and Date: _____

Development Application (check): ☐ Official Plan Amendment ☐ Zoning By-law Amendment ☒ Site Plan Application ☐ Subdivision ☐ Condominium ☐ Other

Site / Property Address: 55 and 57 Tannery Street, and 208 Emby Drive

Process

- Applicant requests site meeting prior to initial submission
- After site meeting, environmental consultant completes EIS Checklist based on on-site discussion and submits to City for confirmation
- EIS, with EIS Checklist included as an appendix, becomes part of complete application
- Depending on application type, an addendum may be required with subsequent applications (eg. level of detail required at OPA versus Site Plan)
- Natural heritage records generally require updates or field verification after 5 years
- If additional questions, please contact Ken Ursic (Beacon Environmental)

Content

The following is a checklist of all the potential sections that may need to be addressed as part of an EIS. However, depending on the scope and scale of the proposed development and/or site alteration, as well as the nature and extent of natural heritage features and areas to be considered, not all elements will necessarily be required. Components not included in the Terms of Reference, with a rationale for their exclusion, should be marked as "N/A".

1. Introduction

- ☒ Description of subject property (natural features and areas, land cover, existing hard surfaces or buildings)
- ☒ Description of the type and scale of the development proposal (including, but not limited to, servicing, above and below ground structures, proposed grading)
- ☒ Describe the historical and present uses of the subject property:
  - ☒ grading/filling activities
  - ☐ brownfield contamination
- ☒ Description of the site context/study area and the subject property's relationship to the surrounding landscape
- ☒ Include map(s) of the development location, subject property and study area
  - ☒ Orthographic map with known natural heritage features/areas overlaid

2. Planning Context

- ☒ Current land uses designation and zoning for the subject property and for the adjacent lands, including Upper and Lower Tier designations
- ☒ Identify the type of required development applications
- ☒ Include map(s) of the development location and extent of the area to be studied including current Land Use / Zoning City Land Use and Zoning are discussed in EIS.
- ☒ Identify environmental legislative, regulatory and policy requirements that may affect the development proposal, including clauses relevant to the proposal (Federal, Provincial, Municipal – Upper and Lower Tier, and Conservation Authority)

3. Background Review

- ☒ Identify relevant information from existing studies, plans, databases and other sources to be analyzed as part of the EIS including, but not limited to, Natural Heritage and Urban Forest Strategy, Natural Areas Survey, Region of Peel data, Conservation Authority data, Natural Heritage Information Centre

4. Characterizing the Natural Environment: Approach and Methodology

- ☒ Detailed study methods for studying natural heritage features and areas, wildlife habitat and Species at Risk (including time of year, level of searcher effort, etc.)
- ☒ Identify and describe the approach and methods to be used to assess natural environment of the subject property and the adjacent lands for:
  - ☒ Geology and Soils
  - ☒ Hydrology and Hydrogeology
  - ☒ Aquatic and Fish Habitat
  - ☒ Terrestrial Vegetation (including wetlands)
  - ☒ Vegetation Communities (Ecological Land Classification)
  - ☒ Wildlife
  - ☒ Natural Hazards
  - ☒ Connectivity and Ecological Linkages
- ☒ Identify whether there are potential natural heritage features and areas that do not need to be assessed, and provide a rationale for their exclusion
- ☒ Complete a screening for Significant Wildlife Habitat
- ☒ Include map(s) showing locations for field studies (i.e. points, plots, transects)
- ☒ Tree inventory and preservation plan for trees outside of the NAS

Site is very small and entire area was surveyed. EIS explains the methodology further.

5. Data Analysis: Approach and Methodology

- ☒ Evaluation of Significance and Natural Hazards—identify that the following assessments are in scope and any known analysis that will need to be included
  - ☒ Natural heritage features and areas against the appropriate policies and guidelines to determine significance:
  - ☒ Natural heritage features and areas against the appropriate policies and guidelines related to natural hazards:
  - ☒ Appropriate buffers and/or setbacks to the natural heritage features
- ☒ Natural Heritage Opportunities and Constraints— identify that it is in scope
- ☒ Environmental Policy Analysis (confirmation of policies and legislation to be addressed)
- ☒ Impact Assessment—identify that the scope includes direct, indirect, and cumulative impacts

n/a ☐ Evaluation of Alternative Options/Measures—establish key analysis points to be addressed in the EIS

- ☒ Recommended Mitigation Measures (including, but not limited to avoidance, enhancement, restoration, education and stewardship)

6. Monitoring

- ☒ Monitoring Plan (outline of the types of monitoring to be included in the EIS)

7. Recommendations and Conclusion

- ☒ Recommendations Concluding Statement (confirm they are to be provided in the EIS)

Signatures

Env. Consultant: _____ Date: _____

City Of Mississauga: _____ Date: _____

Appendix B

List of Vascular Plants

Appendix B

Vascular Plant Species List

Family Name	Scientific Name	Common Name	S-RANK[a]	Peel[b]
Aceraceae	*Acer negundo*	Manitoba Maple	S5	n/a
Aceraceae	*Acer platanoides*	Norway Maple	SNA	n/a
Aceraceae	*Acer* x *freemanii*	Freeman's Maple	S5	n/a
Anacardiaceae	*Rhus hirta*	Staghorn Sumac	S5	n/a
Apiaceae	*Aegopodium podagraria*	Goutweed	SNA	n/a
Apiaceae	*Daucus carota*	Queen Anne's Lace	SNA	n/a
Asteraceae	*Ambrosia artemisiifolia*	Annual Ragweed	S5	n/a
Asteraceae	*Arctium minus*	Lesser Burdock	SNA	n/a
Asteraceae	*Artemisia* sp.	Wormwood Species	SNA	n/a
Asteraceae	*Bidens frondosa*	Devil's Beggar's Ticks	S5	n/a
Asteraceae	*Cichorium intybus*	Chicory	SNA	n/a
Asteraceae	*Cirsium arvense*	Creeping Thistle	SNA	n/a
Asteraceae	*Cirsium vulgare*	Bull Thistle	SNA	n/a
Asteraceae	*Conyza canadensis*	Fleabane	S5	n/a
Asteraceae	*Solidago altissima var. altissima*	Tall Goldenrod	S5	n/a
Asteraceae	*Sonchus arvensis* ssp. *arvensis*	Field Sowthistle	SNA	n/a
Asteraceae	*Symphyotrichum lanceolatum* ssp. *lanceolatum*	Panicled Aster	S5	n/a
Asteraceae	*Symphyotrichum novae-angliae*	New England Aster	S5	n/a
Asteraceae	*Taraxacum officinale*	Common Dandelion	SNA	n/a
Asteraceae	*Tussilago farfara*	Colt's Foot	SNA	n/a
Betulaceae	*Betula papyrifera*	Paper Birch	S5	n/a

Family Name	Scientific Name	Common Name	S-RANK[a]	Peel[b]
Boraginaceae	*Lithospermum officinale*	European Gromwell	SNA	n/a
Brassicaceae	*Alliaria petiolata*	Garlic Mustard	SNA	n/a
Brassicaceae	*Hesperis matronalis*	Dame's Rocket	SNA	n/a
Caprifoliaceae	*Lonicera tatarica*	Tartarian Honeysuckle	SNA	n/a
Celastraceae	*Euonymus europaea*	European Spindle-tree	SNA	n/a
Cornaceae	*Cornus sericea* ssp. *sericea*	Red-osier Dogwood	S5	n/a
Cupressaceae	*Thuja occidentalis*	Northern White Cedar	S5	n/a
Fabaceae	*Lotus corniculatus*	Bird's-foot Trefoil	SNA	n/a
Fabaceae	*Medicago lupulina*	Black Medic	SNA	n/a
Fabaceae	*Melilotus alba*	White Sweet Clover	SNA	n/a
Fabaceae	*Trifolium pratense*	Red Clover	SNA	n/a
Fabaceae	*Trifolium repens*	White Clover	SNA	n/a
Fabaceae	*Vicia cracca*	Tufted Vetch	SNA	n/a
Fagaceae	*Quercus macrocarpa*	Bur Oak	S5	n/a
Grossulariaceae	*Ribes rubrum*	Northern Red Currant	SNA	n/a
Juglandaceae	*Juglans nigra*	Black Walnut	S4?	n/a
Juglandaceae	*Juglans regia*	English Walnut	SNA	n/a
Lamiaceae	*Glechoma hederacea*	Ground Ivy	SNA	n/a
Lamiaceae	*Leonurus cardiaca* ssp. *cardiaca*	Common Motherwort	SNA	n/a
Lamiaceae	*Nepeta cataria*	Catnip	SNA	n/a
Lythraceae	*Lythrum salicaria*	Slender-spike Loosestrife	SNA	n/a
Oleaceae	*Fraxinus americana*	White Ash	S5	n/a
Oleaceae	*Fraxinus pennsylvanica*	Green Ash	S5	n/a
Oleaceae	*Ligustrum vulgare*	European Privet	SNA	n/a
Oleaceae	*Syringa vulgaris*	Common Lilac	SNA	n/a
Papaveraceae	*Chelidonium majus*	Greater Celandine	SNA	n/a
Pinaceae	*Picea abies*	Norway Spruce	SNA	n/a

Family Name	Scientific Name	Common Name	S-RANK[a]	Peel[b]
Pinaceae	*Picea pungens*	Colorado Spruce	SNA	n/a
Pinaceae	*Pinus nigra*	Black Pine	SNA	n/a
Plantaginaceae	*Plantago lanceolata*	English Plantain	SNA	n/a
Poaceae	*Dactylis glomerata*	Orchard Grass	SNA	n/a
Poaceae	*Elymus repens*	Quack Grass	SNA	n/a
Poaceae	*Phalaris arundinacea*	Reed Canary Grass	S5	n/a
Poaceae	*Poa pratensis* ssp. *pratensis*	Kentucky Bluegrass	SNA	n/a
Rhamnaceae	*Rhamnus cathartica*	Buckthorn	SNA	n/a
Rosaceae	*Crataegus* sp.	Hawthorn Species	n/a	n/a
Rosaceae	*Geum urbanum*	Clover-root	SNA	n/a
Rosaceae	*Malus* sp.	Apple Species	SNA	n/a
Rosaceae	*Prunus virginiana* var. *virginiana*	Choke Cherry	S5	n/a
Rosaceae	*Rubus idaeus* ssp. *strigosus*	Wild Red Raspberry	S5	n/a
Rosaceae	*Rubus occidentalis*	Black Raspberry	S5	n/a
Salicaceae	*Populus deltoides* ssp. *deltoides*	Eastern Cottonwood	S5	n/a
Salicaceae	*Salix* x *rubens*	Reddish Willow	SNA	n/a
Scrophulariaceae	*Verbascum thapsus*	Common Mullein	SNA	n/a
Solanaceae	*Solanum dulcamara*	Climbing Nightshade	SNA	n/a
Ulmaceae	*Ulmus americana*	American Elm	S5	n/a
Ulmaceae	*Ulmus pumila*	Siberian Elm	SNA	n/a
Vitaceae	*Parthenocissus vitacea*	Thicket Creeper	S5	n/a
Vitaceae	*Vitis riparia*	Riverbank Grape	S5	n/a

a - SRANK (from Natural Heritage Information Centre) for breeding status if: S4 (Apparently Secure), S5 (Secure) 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): Species are present in Peel, but none of the observed have a ranking.

Appendix C

MNRF Correspondence and Guidance on Species at Risk Bats

-----Original Message-----
From: Heaton, Mark (MNRF) [mailto:mark.heaton@ontario.ca]
Sent: Monday, May 28, 2018 7:04 AM
To: Jo-Anne Lane <jlane@beaconenviro.com>
Subject: RE: Our Bat Discussion

Hello Jo-Anne,

As per telephone conversation:

There are 5 steps in the evaluation process that MNRF will use to determine whether there is potential for negative impacts to bat maternity roosting habitat in relation to the Endangered Species Act (ESA):

1. Identify potential Maternity Roost Habitat

2. Snag Density Calculations

3. Selection of Acoustic Monitoring Locations

4. Acoustic Field Data Collection

5. Detailed Mapping of Snag/Cavity Trees

For little brown myotis and northern myotis the following ELC community series are considered. Currently, there is no direction provided for Tri-coloured bat habitat.

- Deciduous Forests (FOD)

- Mixedwood Forests (FOM)

- Coniferous Forests (FOC)

- Deciduous Swamp (SWD)

- Mixedwood Swamps(SWM)

- Coniferous Swamps (SWC)

Following the completion of ELC mapping and assessment of structures within a project study area, any FOD, FOM, FOC, SWD, SWM, SWC or accessible structure should be considered suitable maternity roost habitat and the proponent referred to MNRF for further discussion in order to address the Endangered Species Act. MNRF can then provide clarification if additional snag surveys or acoustic surveys should be conducted.

For acoustic surveys:

If maternity roost habitat is identified using ELC, acoustic monitoring is recommended to determine if little brown myotis and/or northern myotis are recorded in the area.

 If the snag density is calculated to be ≥10 snags/hectare then this ELC polygon should be considered high quality potential maternity roost habitat.

 All high quality maternity roost habitat should be monitored to ensure full coverage of the ELC polygon.

 Recommend positioning acoustic monitoring stations within 10m of a candidate roost tree. Multiple stations may be required to cover the area adequately. Most broadband acoustic detectors have a microphone range of 20-30m therefore full coverage would require 4 stations/hectare.

 The best candidate roost trees are selected according to the following criteria (in order of importance):

- Tallest snag/cavity tree

- Exhibits cavities or crevices most often originating as cracks, scars, knot holes or woodpecker cavities

- Has the largest diameter breast height (>25cm diameter at breast height)

- Is within the highest density of snags/cavity trees (e.g., cluster of snags)

- Has a large amount of loose, peeling bark

- Cavity or crevice is high in snag/cavity tree (>10m)

- Tree species that provide good cavity habitat (e.g., white pine, maple, aspen, ash, oak)

- Canopy is more open (to determine canopy cover, determine the percentage of the ground covered by a vertical projection of the outermost perimeter of the natural spread of the foliage of trees); and

- Exhibits early stages of decay (decay Class 1-3; refer to Watt and Caceres 1999).

Acoustic Field Data Collection

 Monitoring in Ontario should occur in the evenings between June 1 and June 30. If activity is not observed at the site on the initial visit, a minimum of 10 visits should take place to confirm that the site is not maternity roost habitat.

 Acoustic monitoring should begin at dusk and continue for 5 hours, for up to 10 nights, or until the maternity roost habitat is confirmed.

 Surveys should occur on warm/mild nights (i.e., ambient temperature above approximately 10°C) with low winds and no precipitation.

 Acoustic monitoring should use modern broadband bat detectors (these may be automated systems in conjunction with computer software analysis packages or manual devices) with condenser microphones.

 Acoustic monitoring systems should allow the observer to determine the signal to noise ratio of the recorded signal (e.g., from oscillograms or time-amplitude displays). These systems provide information about signal strength and increase the quality and accuracy of the data being analyzed.

 Microphones should be positioned to maximize bat detection (e.g., microphone(s) situated away from nearby obstacles to allow for maximum range of detection, microphone(s) angled slightly away from the prevailing wind to minimize wind noise).

 It is recommended that the same brand and/or model acoustic recording system be used throughout the survey (if multiple devices are required), as the type of system may influence detection range/efficiency. If different systems must be used, this variation should be quantified.

 Information on the equipment used should be recorded, including information on all adjustable settings (e.g., gain level), the position of the microphones, dates and times by station when recoding was conducted.

Regards,

Mark Heaton
Fish and Wildlife Biologist
OMNRF Aurora District
(905) 713 7406 office
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