

GUIDING SOLUTIONS IN THE NATURAL ENVIRONMENT

Updated Scoped Environmental Impact Study 3016-3032 Kirwin Avenue & 3031 Little John Lane, Mississauga, ON

Prepared For: Nyx Capital Corp.

Prepared By: Beacon Environmental Limited

> Date: Project: March 2019 217067

 BRACEBRIDGE 126 Kimberley Avenue Bracebridge, ON P1L 1Z9 T)705.645.1050 GUELPH 373 Woolwich Street Guelph, ON N1H 3W4 T)519.826.0419 PETERBOROUGH 305 Reid Street Peterborough, ON K9J 3R2 T) 705.243.7251 BARRIE 6 Cumberland Street Barrie, ON L4N 2P4 T) 705.



Table of Contents

page

1.	Introd	luction	1
	1.1	Study Objectives and Scope	1
	1.2	Study Area	2
	1.3	Study Team	2
	1.4	Report Outline	2
2.	Envir	onmental Policy Framework	3
	2.1	Provincial Policy Statement (2014)	4
	2.2	Ontario Endangered Species Act (2007)	5
	2.3	Regional Municipality of Peel Official Plan (2008)	7
		2.3.1 Core Areas	7
		2.3.2 Natural Areas and Corridors (NAC) and Potential Natural Areas and Corridors (PNAC)	8
	2.4	City of Mississauga Official Plan (2017)	9
		2.4.1 Natural Heritage System	9
		2.4.1.1 Significant Natural Areas	10
		2.4.1.2 Natural Green Spaces	10
		2.4.1.3 Special Management Areas	10
		2.4.2 Urban Forest Policies	11
	2.5	Credit Valley Conservation (CVC) Authority Policies and Regulations	11
3.	Metho	odology	.13
3.	Metho 3.1	odology Background Review	13
3.	3.1 3.2	Ddology Background Review Field Investigations	13 13 13
3.	Metho 3.1 3.2	Ddology Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey	13 13 13 14
3.	Metho 3.1 3.2	bdology Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory	13 13 13 14 14
3.	Metho 3.1 3.2	bdology Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory 3.2.3 Breeding Bird Surveys	13 13 14 14 14 14
3. 4.	Metho 3.1 3.2 Study	Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory 3.2.3 Breeding Bird Surveys Findings	13 13 14 14 14 14 14
3.	Metho 3.1 3.2 Study 4.1	Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory 3.2.3 Breeding Bird Surveys Y Findings Topography and Soils	13 13 14 14 14 14 15
3.	Metho 3.1 3.2 Study 4.1 4.2	Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory 3.2.3 Breeding Bird Surveys Findings Topography and Soils Aquatic Habitat	13 13 14 14 14 14 15 15
3.	Metho 3.1 3.2 Study 4.1 4.2 4.3	bdology Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory 3.2.3 Breeding Bird Surveys Findings Topography and Soils Aquatic Habitat Ecological Communities	13 13 14 14 14 14 15 15 16
3.	Metho 3.1 3.2 Study 4.1 4.2 4.3 4.4	Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory 3.2.3 Breeding Bird Surveys V Findings Topography and Soils Aquatic Habitat Ecological Communities Flora	13 13 14 14 14 14 15 15 15 16 17
3.	Metho 3.1 3.2 Study 4.1 4.2 4.3 4.4 4.5 4.6	Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory 3.2.3 Breeding Bird Surveys Findings Topography and Soils Aquatic Habitat Ecological Communities Flora Trees Preoding Pirde	13 13 14 14 14 14 15 15 15 15 17 17
3.	Metho 3.1 3.2 Study 4.1 4.2 4.3 4.4 4.5 4.6 4.7	Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory 3.2.3 Breeding Bird Surveys Findings Topography and Soils Aquatic Habitat Ecological Communities Flora Trees Breeding Birds Evaluation of Significance	13 13 13 14 14 14 14 15 15 15 16 17 17 17
3.	Metho 3.1 3.2 Study 4.1 4.2 4.3 4.4 4.5 4.6 4.7	Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory 3.2.3 Breeding Bird Surveys Findings Topography and Soils Aquatic Habitat Ecological Communities Flora Trees Breeding Birds Evaluation of Significance 4.7.1	13 13 14 14 14 14 15 15 15 15 17 17 17 17 19
3.	Metho 3.1 3.2 Study 4.1 4.2 4.3 4.4 4.5 4.6 4.7	Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory 3.2.3 Breeding Bird Surveys Findings Topography and Soils Aquatic Habitat Ecological Communities Flora Trees Breeding Birds Evaluation of Significance 4.7.1 Habitat of Endangered Species and Threatened Species 4.7.2 Significant Woodlands	13 13 13 14 14 14 14 15 15 15 16 17 17 17 17 17 19 19 20
3.	Metho 3.1 3.2 Study 4.1 4.2 4.3 4.4 4.5 4.6 4.7	Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory 3.2.3 Breeding Bird Surveys Findings Topography and Soils Aquatic Habitat Ecological Communities Flora Trees Breeding Birds Evaluation of Significance 4.7.1 Habitat of Endangered Species and Threatened Species 4.7.2 Significant Woodlands 4.7.3 Significant Wetlands	13 13 13 14 14 14 14 15 15 15 15 17 17 17 17 17 19 19 20 22
3.	Metho 3.1 3.2 Study 4.1 4.2 4.3 4.4 4.5 4.6 4.7	Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory 3.2.3 Breeding Bird Surveys Findings Topography and Soils Aquatic Habitat Ecological Communities Flora Trees Breeding Birds Evaluation of Significance 4.7.1 Habitat of Endangered Species and Threatened Species 4.7.2 Significant Woodlands 4.7.3 Significant Wetlands 4.7.4 Significant Coastal Wetlands	13 13 13 14 14 14 14 15 15 15 16 17 17 17 17 17 17 19 20 22 23
3.	Metho 3.1 3.2 Study 4.1 4.2 4.3 4.4 4.5 4.6 4.7	Background Review Field Investigations 3.2.1 Ecological Communities and Floristic Survey 3.2.2 Tree Inventory 3.2.3 Breeding Bird Surveys Findings Topography and Soils Aquatic Habitat Ecological Communities Flora Trees Breeding Birds Evaluation of Significance 4.7.1 Habitat of Endangered Species and Threatened Species 4.7.2 Significant Woodlands 4.7.3 Significant Wetlands 4.7.4 Significant Coastal Wetlands 4.7.5 Significant Valleylands	13 13 13 14 14 14 15 15 15 16 17 17 17 17 17 17 19 20 23 23



		4.7.6.1 Animal Movement Corridor	
		4.7.6.2 Migratory Landbird Stopover Area	
		4.7.7 Significant Areas of Natural and Scientific Interest	
		4.7.8 Fish Habitat	
		4.7.9 Natural Heritage System	
5.	Cons	traints & Opportunities	26
	5.1	Constraints	
		5.1.1 Natural Heritage Constraints	
		5.1.1.1 Buffers	
		5.1.2 Natural Hazards	
		5.1.2.1 Slope Hazard	27
		5.1.2.2 Flood Hazard	
		5.1.3 Development Limits	
	5.2	Opportunities	
6.	Propo	osed Development	29
7.	Impac	ct Assessment and Mitigation	30
	7.1	Impact Assessment	
	7.2	Mitigation	
8.	Policy	y Conformity	32
9.	Conc	lusion	33
10.	Refer	ences	

Figures

Figure 1.	Site Location	after page 2
Figure 2.	Existing Conditions	after page 16
Figure 3.	Site Plan	after page 30
Figure 4.	Site Grading Plan	after page 30
Figure 5.	Site Servicing Plan	after page 30
Figure 6.	Landscaping Plan	after page 30

Tables

Table 1. Composition of Study Team, Key Roles and Reports Provided	2
Table 2. Breeding Bird Survey Details	15
Table 3. Breeding Bird Survey Results	
Table 4. Policy Compliance Assessment	32

Appendices

A. EIS Checklist

B. Plant List



1. Introduction

Beacon Environmental Limited (Beacon) was retained by Nyx Development Corp. to prepare a Scoped Environmental Impact Study (EIS) is support of a proposed re-development of properties located at 3016, 3020, 3026, and 3032 Kirwin Ave. and 3031 Little John Lane in the City of Mississauga. This report represents an update to the previous EIS that was submitted in December 2017. This EIS report has been updated to reflect the Revised Site Plan and to address comments on the previous EIS submission from the City and agencies. 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 location of the subject property is illustrated on **Figure 1**. NYX Development Corp. is proposing to re-develop the eastern half of the property site to accommodate a medium density residential development comprised of three townhouse blocks for a total of 64 units. The southern half of the property overlaps with lands that are identified as Special Management Area (SMA) and represents a component of the City of Mississauga's Natural Heritage System (NHS). Development is not proposed within the NHS. SMA's are lands adjacent to or near Significant Natural Areas or Natural Green Spaces that are intended to be managed, restored or enhanced in a manner that supports the adjacent Significant Natural Area or Natural Green Space. The Cooksville Creek corridor immediately to the south and west of the site has been identified as a Significant Natural Area.

It is the policy of the City of Mississauga to require that an EIS be prepared in support of applications for development and/or site alteration within or adjacent to certain components of its Natural Heritage System, including SMAs.

The purpose of an EIS is to demonstrate that the proposed development and/or site alteration can proceed without negatively impacting upon significant natural heritage features or ecological functions and to also identify opportunities for protection, restoration, enhancement and expansion of the Natural Heritage System.

The scope of this EIS is limited to confirming whether the proposal has the potential to adversely impact the adjacent Significant Natural Area and to also identify opportunities for stewardship in a manner that is consistent with the City's objectives for SMAs.

The EIS has been prepared in accordance with the City of Mississauga EIS Checklist (October 2017). A copy of the completed checklist is provided in **Appendix A**.

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 and confirm development limits;
- 4. Identify stewardship opportunities for the Special Management Area;
- 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 includes all of the properties located at 3016, 3020, 3026, and 3032 Kirwin Ave. and 3031 Little John Lane in the City of Mississauga as well as immediately adjacent lands. The EIS also considers the relationship of the study area to the overall Natural Heritage System that extends beyond the Study Area.

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, hydrology, and ecology. 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	Ken Ursic	Project Manager / Sr. Ecologist	Project Management
Environmental Ltd.		– M.Sc. Ecol.	EIS Report – Primary Author
	Daniel Westerhof	Ecologist – B.Sc., MES	Vegetation Surveys, Incidental
		Certified Arborist	Wildlife, Tree Inventory and
			Preservation Plan. EIS Report
			Input
Weston Consulting	Sabrina L. Sgotto, MCIP, RPP	Planner	Planning and Policy Review
LEA Consulting Ltd.	Michael Du,	Municipal Engineer	Hydraulic Analysis
	P.Eng.		Stormwater Management &
			Servicing Brief

1.4 Report Outline

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

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









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

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

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

Section 5 - Constraints and Opportunities: identifies potential natural heritage and natural hazard constraints to future land uses and identifies stewardship opportunities for enhancement of the Natural Heritage System.

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

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

Section 8 - Policy Conformity Evaluation: evaluates the proposed site 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 impacts.

2. Environmental Policy Framework

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:

- Provincial Policy Statement (2014)
- Ontario Endangered Species Act (2007)
- 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
- City of Mississauga EIS Checklist (2017)



The environmental policy review presented in this EIS is not intended to be exhaustive, but rather to highlight the key policy, regulatory and legislative requirements to ensure that the proposed Site Plan is in conformity w. **Section 8** describes how the proposed redevelopment conforms to the various environmental policies, legislation and regulations described below.

2.1 **Provincial Policy Statement (2014)**

Section 2.1 of the Provincial Policy Statement (PPS) provides direction to municipalities regarding planning policies specifically for the protection and management of natural heritage features and resources. The PPS identifies seven natural heritage components of interest and establishes policies to ensure their protection as part of land use planning exercises. Natural heritage features include:

- a) significant wetlands;
- b) significant coastal wetlands;
- c) significant habitat of endangered and threatened species;
- d) fish habitat;
- e) significant woodlands;
- f) significant valleylands;
- g) significant Areas of Natural and Scientific Interest (ANSIs); and
- h) significant wildlife habitat.

The policies of Section 2.1 are as follows:

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 & 7E1, 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 1; 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 1;
 - b) significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River); significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River)significant wildlife habitat; significant areas of natural and scientific interest; and coastal wetlands in Ecoregions 5E, 6E and 7E 1 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.

Policy 3.1 of the PPS provides direction to municipalities regarding land use planning in natural hazard areas. These policies generally prohibit or restrict development in hazard lands that are prone to flooding and erosion. Natural hazards are also regulated by Credit Valley Conservation (CVC) under Ontario Regulation 160/06.

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 Act 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 2.1**.

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 (MNRF, 2012) 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 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 ROP.

2.3.1 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
- Core Valley and Stream Corridors

Core Areas of the Greenlands System are mapped on Schedule A of the ROP. 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;
- 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;
- 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.

2.3.2 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;
- 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
- 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.

2.4 City of Mississauga Official Plan (2017)

Section 6.3 of the Mississauga Official Plan (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.

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.

2.4.1 Natural Heritage System

The Natural Heritage System consists of 1) Significant Natural Areas, 2) Natural Green Spaces, 3) SMAs, 4) Residential Woodlands and 5) Linkages.

Portions of the subject property as well as the adjacent park lands to the west and south are identified as SMA on Schedule 3 of the Mississauga Official Plan. This schedule also identifies the Cooksville Creek corridor, further to the south and west of the subject property, as Significant Natural Area and Natural Greenspaces.

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 occur through Environmental Impact Studies or other appropriate studies accepted by the City without and official plan amendment.



2.4.1.1 Significant Natural Areas

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

- Provincially or regional significant life science areas of natural and scientific interest (ANSI);
- Environmentally sensitive or significant areas;
- Habitat of threatened species or endangered species;
- Fish habitat;
- Significant wildlife habitat;
- Significant woodlands;
- Significant wetlands, including Provincially Significant Wetlands (PSW), coastal wetlands, and other wetlands greater than 0.5 hectares;
- 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.

According to MOP Policy 6.3.27, development and site alteration within or adjacent to a Significant Natural Area will not be permitted unless all reasonable alternatives have been considered and any negative impacts minimized through appropriate mitigation measures as determined by an Environmental Assessment or Environmental Impact Study. Negative impacts that cannot be avoided are to be mitigated through restoration and enhancement to the greatest extent possible.

2.4.1.2 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;
- All natural areas greater than 0.5 hectares that have vegetation that is uncommon in the City.

MOP 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.

2.4.1.3 Special Management Areas

Areas identified as SMAs are subject to the following polices:

6.3.15 Special Management Areas are lands adjacent to or near Significant Natural Areas or Natural Green Spaces and will be managed or restored to enhance and support the Significant Natural Area or Natural Green Space.



6.3.16 Where Special Management Areas are on private lands, the City working with the conservation authorities will encourage landowners to promote stewardship and enhancement of their lands.

2.4.2 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.

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.

MOP Policy 6.3.47 states that development and site alteration will not be permitted within erosion hazards associated with valleyland and watercourse features. Where development or site alteration is proposed adjacent to erosion hazards, an appropriate buffer must be applied to the satisfaction of the City and conservation authority.

The majority of the study area is identified as natural hazard on Schedule 3 of the MOP. Natural hazards correspond with the floodplain of Cooksville Creek and overlap with most of the site. It is our understanding that, through consultation with CVC, the limits of the natural hazard have been established and the development limit of the proposed fill pad for the proposed townhouse units has been accepted in principal by CVC.

2.4.3 Urban Forest Policies

MOP polices pertaining to the urban forest are as follows:

6.3.44 Development and site alteration will demonstrate that there will be no negative impacts to the Urban Forest. An arborist report and tree inventory that demonstrates tree preservation and protection both pre and post construction, and where preservation of some trees is not feasible, identifies opportunities for replacement, will be prepared to the satisfaction of the City in compliance with the City's tree permit by-law.

6.3.45 Where tree replacement cannot be accommodated on-site, the City may require cash-in-lieu for replacement trees elsewhere or replacement plantings at a location approved by the City.

6.3.46 Mississauga may require ecologically based woodland management plans of a landowner prior to municipal acquisition.

2.5 Credit Valley Conservation (CVC) Authority Policies and Regulations

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 under Section 28 of the Conservation Authorities Act. A permit must be obtained from CVC for development or site alteration within regulated areas.

CVC's *Watershed Planning and Regulation Policies* (CVC 2010) document contains policies pertaining to the protection of natural heritage features and natural hazards. In general, CVC will not support development or site alteration within the natural heritage system, including natural heritage features and areas (valleylands, environmentally significant areas, ANSI, woodlands, wetlands, watercourse and fish habitat), significant natural areas, or natural hazards except in accordance with Chapters 6 and 7.

The policies contained in Chapter 6 provide guidance for CVC's review of proposals submitted pursuant to the Planning Act.

Policy 6.1(j) states: CVC will not support modifications to components of the natural heritage system, including natural heritage features and areas, significant natural areas, hazardous land, erosion access allowances and associated buffers, to create additional useable area or to accommodate or facilitate development and site alteration unless the modifications have been appropriately addressed through an environmental assessment, comprehensive environmental study or technical report, to the satisfaction of CVC.

Policy 6.1(I) states: CVC recognizes that certain types of development and site alteration by their nature must locate within the natural heritage system, including natural heritage features and areas, significant natural areas, hazardous land, erosion access allowances and associated buffers. Considering this, CVC may support such works where they have been addressed through an environmental assessment, comprehensive environmental study or technical report, completed to the satisfaction of CVC. This may include, but is not limited to, the following:

- *i. infrastructure, including stormwater management facilities;*
- *ii.* development and site alteration associated with passive or low intensity outdoor recreation and education;
- *iii.* development which by its nature must locate within hazardous land;
- *iv.* development and site alteration associated with conservation or restoration projects or management activities following sustainable management practices;
- v. hazardous land remediation or mitigation works required to protect existing development;
- vi. modifications to components of the natural heritage system to implement the recommendations of an environmental assessment, comprehensive environmental study or technical report that has been completed to the satisfaction of CVC.

According to Section 6.2.1:

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.

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.

CVC policies allow for alternate setbacks to those identified above based on the results of a comprehensive environmental study or site-specific technical report completed to the satisfaction of CVC, and consistent with provincial and municipal policy.

3. Methodology

3.1 Background Review

- Region of Peel Official Plan
- City of Mississauga Official Plan
- Natural Heritage Information Centre
- City of Mississauga Natural Areas Survey
- Ministry on Natural Resources and Forestry SAR Screening with Bohdan Kowalyk, Management Biologist, Aurora District
- Physiography of Southern Ontario (Chapman and Putnam 1984)

3.2 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.

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



3.2.1 Ecological Communities and Floristic Survey

A site visit was conducted on May 3 and October 20, 2017 to document the vegetation on the subject property. Ecological 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. Species conservation status is based on NHIC rankings, MNRF list (*Distribution and Status of the Vascular Plants of the Greater Toronto Area,* Varga *et al.*, 2005), and *Plants of the Credit River Watershed* (CVC 2002).

3.2.2 Tree Inventory

A certified arborist completed an inventory of all trees \geq 10 cm in diameter on the subject property as well as trees on neighbouring properties within 6.0 m of the property boundary on April 25, May 3, and October 20, 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.

This information was used to prepare an Arborist Report that includes recommendations for tree preservation and tree removal. A copy of the Arborist Report, Tree Inventory and Preservation Plan was prepared by Beacon (2019) and is provided under a separate cover.

3.2.3 Breeding Bird Surveys

Surveys of avifauna were completed on June 3, 2017 and June 10, 2017. The purpose of the surveys was to document bird species that could potentially be breeding in the study area. Surveys were completed the early morning on days with ideal weather conditions (while the temperature was within 5°C of normal, it was not raining, nor excessively windy). The subject property and adjacent lands were surveyed using visual observations and call. Breeding evidence was noted for each species detected and locations mapped. Survey details are presented in **Table 2**.



	Survey 1	Survey 2
Date:	June 3, 2017	June 10, 2017
Start Time:	7:42 am	7:47 am
End Time:	8:11 am	8:14 am
Temperature (°C):	14°C	17 °C
Wind speed (km/h):	0-5 km/h	0-5 km/h
Cloud cover (%):	0 %	0 %
Precipitation:	None	None

Table 2. Breeding Bird Survey Details

4. Study Findings

4.1 **Topography and Soils**

The study area is located within the Iroquois Plain physiographic region of Southern Ontario, a lowland area bordering Lake Ontario from the Niagara River to the Trent River. The Iroquois Plain represents the ancient shoreline and lakebed of former Lake Iroquois. In the Cooksville district of Mississauga, the old shoreline is cut into the grey shale of the Georgian Bay Formation (Chapman and Putnam 1984). Between the ancient shoreline and the existing Lake Ontario shoreline, the plain is slightly sloping and covered with stratified sand, eroded red shale, or shallow till over bedrock (Chapman and Putnam 1984).

Soils underlying the subject property are mapped as Fox Sand, a well-drained soil that occurs on smooth, gently sloping topography in southern areas of Peel Region (Hoffman and Richards 1953).

The study area is relatively flat and gently slopes west toward Cooksville Creek. The majority of the surface runoff from the subject property is conveyed via sheet flow toward Cooksville Creek, while a small area on the east side drains to Kirwin Ave. The total drainage area is approximately 0.64 ha. (Ref. *Stormwater Management and Servicing Brief* (LEA Consulting Ltd. March 2019).

4.2 Aquatic Habitat

There are no watercourses, waterbodies or aquatic habitat associated with the subject property. The nearest aquatic habitat is Cooksville Creek which is located approximately 70 m to the south and west of the subject property. Until recently, no fish have been recorded in Cooksville Creek upstream of the QEW, which has been attributed to the presence of barriers in the lower reaches. However, fish sampling conducted in 2015 by CVC staff found Longnose Dace downstream of the Study Area between King Street and Dundas Street East (Eric James, CVC Planner, and May 27, 2016).



4.3 Ecological Communities

The subject property is situated adjacent to Natural Area CV12. The Cooksville Creek corridor to the southwest is mapped as Lowland Forest (FOD7-3), however no ecological communities are mapped on or adjacent to the subject property in the City of Mississauga Natural Areas Survey (2017).

There are four ecological units associated with the subject property. All of the units are considered cultural in origin as they are associated with highly modified lands that were developed for residential uses, park, lawn and gardens. A review of historical aerial photographs dating from the 1950 to 2017 has confirmed that there are no remnant natural ecological communities present in the study area.

Descriptions of the individual ecological units are provided below. A map illustrating the locations of the ecological units is presented in **Figure 2**.

ELC Unit 1: Cultural Woodland (CUW1)

This unit is located on the western third of the site. It is dominated by mid-aged non-native trees, notably Manitoba Maple (*Acer negundo*), Siberian Elm (*Ulmus pumila*), Black Locust (*Robinia pseudo-acacia*). Other species include Norway Maple (*Acer platanoides*), Black Walnut (*Juglans nigra*), and Catalapa (*Catalpa* sp.). The understory is dominated by Common Buckthorn (*Rhamnus cathartica*), Tartarian Honeysuckle (*Lonicera tatarica*), and European Spindletree (*Euonymus europaeus*). The ground layer is dominated by Garlic Mustard (*Alliaria petiolata*), with lesser amounts of other species such as Tall Goldenrod (*Solidago altissima*), Urban Avens (*Geum urbanum*), Greater Celandine (*Chelidonium majus*), Goutweed (*Aegopodium podagraria*), and Enchanter's Nightshade (*Circaea lutetiana*). This area has been heavily disturbed by trampling and dumping.

ELC Unit 2: Staghorn Sumac Cultural Thicket (CUT1-1)

This unit, located along the northwestern property boundary, is dominated by Staghorn Sumac (*Rhus hirta*). Ground covers include Tall Goldenrod, Garlic Mustard, Urban Avens, and Greater Celandine.

ELC Unit 3: Anthropogenic

This unit is associated with the eastern half of the subject property and overlaps with areas associated with former single-family homes and areas that have largely been cleared of vegetation. The area consists of pavement and mostly non-native, invasive trees (i.e. Norway Maple).

ELC Unit 4: Hedgerow - Cultural Plantation (CUP)

This unit corresponds with a hedgerow of planted coniferous trees (Norway Spruce and Scotch Pine). Understorey and groundcover vegetation is sparse and dominated by non-native species.



Existing Conditions

Figure 2

EIS 3016-3034 Kirwin Avenue Mississauga Nyx Capital Corp.

Legend

Subject Property

ELC Communities

ELC Unit	ELC Community Type	ELC Code
1	Deciduous Cultural Woodland	CUW1
2	Staghorn Sumac Cultural Thicket	CUT1-1
3	Anthropogenic	ANT
4	Hedgerow	Н







4.4 Flora

A total of 36 species of vascular plants were identified on the subject property. A complete plant list is presented in **Appendix B**. Approximately 58% of the species on the property are non-native, which is very high and reflects the disturbed nature of the site. Of the 15 native species present, Black Walnut is ranked S4? by the Natural Heritage Information Centre (NHIC) indicating that it is Apparently Secure in Ontario. Black Walnut is very common as it has been extensively planted and easily regenerates from plantings. All other native species on the subject property are ranked S5 by the Natural Heritage Information Centre (NHIC) indicating that they are common and secure in Ontario. One species, Cleavers (*Gallium aparine*) is listed as rare in Peel Region (Varga et al. 2005); however, it is Beacon's experience that this species is quite common throughout the GTA, and often occurs in disturbed areas. No species ranked as S1 through S3 (Critically Imperiled through Vulnerable) by the province were present.

4.5 Trees

A total of 228 trees were documented on and adjacent to the subject property. The majority of the trees on the property are non-native, invasive species including Norway Maple, Manitoba Maple, Black Locust, and Siberian Elm. Trees range in size from 10 to 80 cm DBH, with a median DBH of 20 cm. A full list and summary of the trees in provided in the Arborist Report (Beacon 2019).

4.6 Breeding Birds

A total of 10 species of breeding, or potentially breeding birds, were recorded on the subject property. Five 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: American Robin (*Turdus migratorius*), European Starling (*Sturnus vulgaris*), House Finch (*Haemorhous mexicanus*) 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 were limited to Chimney Swift (*Chaetura pelagica*).

There were also a number of species found that are closely associated with more heavily treed areas that were primarily encountered in the wooded section of the property, including species such as Great-crested Flycatcher (*Myiarchus crinitus*) and Downy Woodpecker (*Picoides pubescens*).

One species observed foraging on and adjacent to the subject property, the Chimney Swift (*Chaetura pelagica*), is listed as federally and provincially threatened under the Endangered Species Act (2007). This species is an aerial insectivore and nests in dark, sheltered areas and will attach its nest to vertical surfaces; chimneys are the most common structure use (COSEWIC, 2007). No suitable nesting habitat exists on the property.

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



			Stat	Breeding	Breeding Pairs		
Common Name	Scientific Name	National Species at Risk COSEWIC a	Species at Risk in Ontario Listing ^b	Provincial breeding season SRANK ^c	TRCA Status ^d	Pairs on Subject Property	Adjacent to Subject Property
Rock Pigeon	Columba livia	-	-	SNA	L+	-	2
Chimney Swift	Chaetura pelagica	THR	THR	S4	L4	F	F
Downy Woodpecker	Picoides pubescens	-	-	S5	L5	1	1
Great Crested Flycatcher	Myiarchus crinitus	-	-	S4	L4	1	-
American Robin	Turdus migratorius	-	-	S5	L5	2	2
Gray Catbird	Dumetella carolinensis	-	-	S4	L4		1
Cedar Waxwing	Bombycilla cedrorum	-	-	S5	L5	1	1
European Starling	Sturnus vulgaris	-	-	SE	L+	4	-
Northern Cardinal	Cardinalis cardinalis	-	-	S5	L5	1	1
Chipping Sparrow	Spizella passerina	-	-	S5	L5	-	1
Common Grackle	Quiscalus quiscula	-	-	S5	L5	-	1
Baltimore Oriole	Icterus galbula	-	-	S4	L5	-	1
House Finch	Haemorhous mexicanus	-	-	SNA	L+	4	-
American Goldfinch	Spinus tristis	-	-	S5	L5	1	1
House Sparrow	Passer domesticus	-	-	SNA	L+	4	1

Table 3. Breeding Bird Survey Results

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

^b Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario); THR= Threatened

^c S-Rank (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)

^d Toronto and Region Conservation Authority L rank (Dec 2010): L4 Urban concern; L5 Secure through region; L+ Non-native



4.7 Evaluation of Significance

While the subject property is contained in the City's NHS, it is identified as an SMA as opposed to an SNA. As such, the features associated with the subject property are not considered significant natural heritage features, but rather they represent features that can restored to provide supportive functions to the adjacent natural area. To ensure that the SMA does not support any significant natural heritage features or functions, the EIS has completed an evaluation of significance. The following subsections describe the process for evaluating the significance of any natural heritage features and ecological functions 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 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.

4.7.1 Habitat of Endangered Species and Threatened 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"

Correspondence from MNRF (Ben Keen, June 6, 2017) confirmed that MNRF has records for Butternut (endangered) and Peregrine Falcon (special concern) in the vicinity of the Study Area. There is also potential for endangered bats (i.e., Eastern Small-footed Myotis [*Myotis leibii*], Little Brown Myotis [*Myotis lucifugus*], Northern Myotis [*Myotis septentrionalis*], and Tri-colored Bat [*Perimyotis subflavus*]).

The vegetation surveys and tree inventory work have confirmed that there are no Butternut on or adjacent to the property through the vegetation survey or tree inventory. The study area also does not support suitable habitat (tall buildings) for Peregrine Falcon and none were observed during the breeding bird surveys.

The previous EIS (Beacon 2017) had identified a number of trees on the subject property that exhibited characteristics consistent with potential bat habitat, however based on more recent guidance received from Aurora District MNRF, (Mark Heaton, May 2018), it is our understanding that MNRF does not consider cultural treed features as habitat for Little Brown Myotis and Northern Myotis. The following ecosites are consider as potential habitat for these species:



- Deciduous Forest and Deciduous Swamp (FOD and SWD)
- Mixed Forest and Mixed Swamp (FOM and SWM)
- Coniferous Forest and Coniferous Swamp (FOC and SWC)

According to the Recovery Strategy of the Eastern Small-foot Bat, they require similar habitat to Little Brown Myotis and Northern Myotis (Humphrey 2017). As the subject property does not support these ecosites, we did not consider the site to support habitat for these species.

The fourth endangered bat that was noted as being potentially present was the Tri-coloured Bat. Beacon is of the opinion the that habitat does not support this species. The MNRF guidance document for assessing endangered bat habitat (2017) states that oaks are the preferred tree species for Tri-coloured Bats, and this tree species is not present on the subject property or adjacent lands. The MNRF also noted in their guidance that Tri-coloured Bat is far less likely to occur than Little Brown Myotis or Northern Myotis.

4.7.2 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 ROP and MOP. 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"

As the ROP was approved by MMAH and is considered be consistent with the PPS, we have relied upon the ROP definitions.

The ROP defines Significant Woodlands as follows:

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

The MOP defines Significant Woodlands as follows:

"an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest



cover in the planning area; or economically important due to site quality, species composition, or past management history. <u>These will be identified using criteria</u> established by the Region of Peel in consultation with the City".

Based on the significant woodland definition in the MOP, it appears that 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 included 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.

Similar wording is also included in ROP which identifies certain types of treed features do not warrant classification as Core Woodlands or Significant Woodlands if they meet the criteria in ROP 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

 the degree of threat posed;
 any potential positive and/or negative impact on the ecological functions or biodiversity of nearby or adjacent native communities; and
 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 determined that extent of contiguous treed area on and adjacent to the subject property is collectively 0.37 ha which is less than 0.5 ha requirement to satisfy the definition of a "woodland". As such, the treed areas are not considered woodlands and would also not qualify for consideration as a "significant woodland" under MOP Policy 6.3.12f.

4.7.3 Significant Wetlands

Regarding 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 wetlands associated with the study area, including Provincially Significant Wetlands (PSWs) or evaluated wetlands.

4.7.4 Significant Coastal Wetlands

The PPS defines coastal wetlands as:

- a) any wetland that is located on one of the Great Lakes or their connecting channels (Lake St. Clair, St. Mary's, St. Clair, Detroit, Niagara and St. Lawrence Rivers); or
- b) any other wetland that is on a tributary to any of the above-specified water bodies and lies, either wholly or in part, downstream of a line located 2 kilometres upstream of the 1:100 year floodline (plus wave run-up) of the large water body to which the tributary is connected.

There are no wetlands associated with the study area, coastal or otherwise.

4.7.5 Significant Valleylands

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

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

Significant valleylands are normally identified by municipalities with input from their agency partners. Significant valleylands are also recognized regionally as Core Areas of the Greenlands System and locally as Significant Natural Areas 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.

As Cooksville Creek drains directly to Lake Ontario, the valleylands associated with this watercourse would qualify as significant valleylands.

4.7.6 Significant Wildlife Habitat (SWH)

Significant Wildlife Habitat (SWH) represents a combination of natural heritage features, attributes and functions that are intended to capture 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 often 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 included in Figure 5 of the ROP. It should be noted that these criteria and the various thresholds have not been adopted as Regional policy. The City of Mississauga definition of SWH defers to the Region of Peel 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"

According to the *Significant Wildlife Habitat Technical Guidelines* (OMNR 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
- 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. To determine the subject property supports candidate SWH, features on the subject property were screened through 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).

4.7.6.1 Animal Movement Corridor

The *Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study* (NSEI *et al.,* 2009) defines three classes of animal movement corridors at different spatial scales.

- 1. Primary: Inter-regional movement corridors following major physiographic features (e.g., along the Niagara Escarpment or ORM);
- 2. Secondary: Regional movement corridors (e.g., along natural linear features such as river valleys, or across active and abandoned agricultural lands in rural areas); and.
- 3. Tertiary: Local movement corridors (e.g., hedgerows, riparian strips).

The Cooksville Creek valley could be considered a tertiary movement corridor and therefore qualify as candidate SWH for Animal Movement Corridor.

4.7.6.2 Migratory Landbird Stopover Area

The *Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study* (NSEI *et al.*, 2009) suggest that any "natural area," including forest, wetland, and cultural ELC communities, located 5 km from Lake Ontario within a stream corridor represents SWH for Migratory Landbird Stopover Area. As there are no size thresholds associated with this particular SWH criterion, it effectively qualifies individual trees as candidate SWH, which in our opinion was not the intent. For this reason, it is



necessary to consider the provincial criteria as well. The *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (OMNR 2015) takes a more conservative approach, identifying forest and treed swamp ELC communities over 5 ha in size within 5 km of Lake Ontario as Migratory Landbird Stopover Area.

Given that subject property is located along a watercourse approximately 4.5 km from the Lake Ontario shoreline, the cultural woodland portion of the property technically satisfies the SWH criterion of the *Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study* (NSEI *et al.*, 2009). However, the Peel-Caledon SWH study (NSEI *et al.*, 2009) also notes that mature upland forests are preferred by more migrating birds over riparian forests, especially in an urban settings, and preferred sites are generally characterized by a dominance of native trees and shrubs, as well as a more mixed layered canopy (i.e., tall trees, mid-level trees and shrubs, and a thick understory). Additionally, (NSEI *et al.*, 2009) suggest that suitable woodland habitat for migratory birds should:

- Exhibit diverse plant species composition and structure;
- Be square or circular (rather than linear) to decrease the amount of edge habitat; and
- Be at least 50 to 100 m wide if used as a corridor.

Based on this information, the cultural treed features on the subject property do not provide the compositional or structural attributes consistent with a significant stopover area. The treed area is very small consists of primarily mid-aged, non-native trees, and the understory is also predominantly non-native species. Additionally, at 4.5 km north of Lake Ontario in a heavily urbanized setting, the vegetation on the property does not support more migratory birds than would be encountered in other urban habitats such as treed parks/residential areas or tree-lined boulevards. Based on this assessment, the cultural woodland likely does not provide high quality SWH for migrating land birds. Therefore, the significance of the cultural woodland as a stopover area for migrating birds is questionable and the provincial guidelines were likely not intended to capture these types of features as SWH, as indicated by the criteria in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (OMNR 2015).

4.7.7 Significant Areas of Natural and Scientific Interest

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."

There are no ANSIs in proximity to the study area.

4.7.8 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).



There are no watercourses associated with the subject property; however, Cooksville Creek is located approximately 70 m to the southwest.

Until recently, no fish have been recorded in Cooksville Creek upstream of the QEW, which has been attributed to the presence of barriers in the lower reaches. However, fish sampling conducted in 2015 by CVC staff found Longnose Dace just downstream of the subject property between King Street and Dundas Street East (Eric James, CVC Planner, and May 27, 2016).

Cooksville Creek is considered fish habitat.

4.7.9 Natural Heritage System

The PPS (2014) describes natural heritage systems as follows:

"A system made up of natural heritage features and areas, linked by natural corridors which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems."

One of the objectives of this EIS is to preserve, enhance and protect environmental features, biological communities and natural heritage system.

All significant features that would comprise Significant Natural Areas (fish habitat, significant woodlands, and significant wildlife habitat) are restricted to the Cooksville Creek corridor and are outside the limits of the subject property. It should however also be noted that the southern portion of the site is identified as a SMA which is considered part of the City's Natural Heritage System.

5. Constraints & Opportunities

The purpose of the constraint analysis is to identify natural heritage features and functions as well as natural hazards that could represent constraints 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. These are discussed below.



5.1.1 Natural Heritage Constraints

Based on a review of the background information, information from the biophysical characterization and evaluation of significance presented in **Section 4**, natural heritage constraints identified within the study area include the following:

- Significant Valleylands (Cooksville Creek off-site)
- Candidate SWH for Animal Movement Corridor (Cooksville Creek off-site)
- Watercourse (Cooksville Creek off-site)
- Fish Habitat (Cooksville Creek lower reaches off-site)

Components of the Regional Greenlands System within the study area include Natural Areas and Corridors (NAC) and Potential Natural Areas and Corridors (PNAC). The Cooksville Creek corridor qualifies as a NAC based the presence of fish habitat. Portion of the subject property and surrounding parklands qualify as PNAC based on their designation by the City as a SMA.

Components of the City's Natural Heritage System within the study area include: 1) Significant Natural Areas and 2) SMA.

- The Cooksville Creek valleylands are identified as Significant Natural Area based on the presence of watercourse, fish habitat, significant valleylands, and candidate significant wildlife habitat. The subject property is not included as Significant Natural Area.
- Portions of the subject property are identified as SMA based on the City's objective to enhance lands adjacent to Significant Natural Areas.

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 as part of an EIS or similar study, to the satisfaction of the City and appropriate conservation authority. CVC's lot creation policies provide recommendations for buffers to be applied to certain natural heritage features. Significant natural heritage features are limited to the Cooksville Creek valley which is situated approximately 70 m to the west of the subject property. Application of CVC's recommended buffers to the watercourse and valleylands would not extend onto the subject property and as such do not represent a constraint. There are no other natural features in proximity to the subject property that would warrant buffers.

5.1.2 Natural Hazards

5.1.2.1 Slope Hazard

There are no constraints related to slope hazards that would constrain the proposed redevelopment. The reach of Cooksville Creek that is adjacent to the site is contained in a constructed channel and is located at least 70 m from the subject property.



5.1.2.2 Flood Hazard

LEA Consulting Ltd. has undertaken a preliminary floodplain analysis to assess the flood hazard constraint. A summary of their findings are as follows:

The Credit Valley Conservation Authority (CVC) advised through the formal preapplication consultation process with the City of Mississauga (known as the Development Application Review Committee or DARC) that "...CVC can support development within the building envelope as represented in the previous site plan application (SP 03/239)." This results in minor modifications to the flood plain. LEA Consulting Ltd. completed a preliminary floodplain analysis to assess the impacts of proposed development on the regional storm floodplain by updating the hydraulic model prepared by Credit Valley Conservation (CVC). Based on the hydraulic analysis results, the proposed development will not have significant impacts on floodplain and hydraulic condition of Cooksville Creek in the study area. The regional flood water surface elevation at the development site is estimated at 112.40 m under Regional storm condition (280 m3/s). Further correspondence occurred between the proponent and CVC regarding the limit of development for the fill pad. It is our understanding that the concept plan is acceptable to CVC staff as it relates to the limits of development for the fill pad.

5.1.3 Development Limits

Based on consideration of the constraints described above, as well as the limits of development that were established by the previously approved site plan application (SP 03/329), it is recommended that the development limits be established to generally coincide with the former approved development limits. This will ensure that natural hazards are addressed and that the SMA is maintained.

5.2 **Opportunities**

The characterization of natural heritage features completed as part of this EIS has confirmed that the ecological integrity of the cultural woodland on the subject property has been severely compromised by former land uses, ongoing disturbances, and dominance and proliferation of invasive tree and shrub species. All these factors contribute to the decline of native diversity and ecological integrity of the broader NHS. The previous EIS (Beacon 2017) had recommended that that the portion of the property identified as SMA be restored to a native woodland using progressive restoration methods, including replacement of existing non-native trees and shrubs with native trees, shrubs and groundcover to provide enhanced ecological function within the natural heritage system. Through subsequent consultation with the City and CVC, it was decided that the existing trees within the SMA would be maintained and the lands dedicated to the City. It is our understanding that the City will assume responsibility for future stewardship and management of these lands.



6. **Proposed Development**

The proposed redevelopment for the subject consists of three blocks of four-story townhouses with underground parking (ref. Site Plan - **Figure 3**).

Grading

Grading and excavation will be required to accommodate the proposed redevelopment. Grading and excavation will be confined to the limits of development established on the Site Plan and will correspond with the limits of the previously approved development fill pad. A copy of the preliminary grading plan is included on **Figure 4** (Drawing C-01 - LEA Consulting Inc. 2019a).

<u>Servicing</u>

The proposed redevelopment will be serviced via water and sanitary connections to existing municipal infrastructure along Kirwin Ave. A copy of the servicing plan is included on **Figure 5** (Drawing C-02 - LEA Consulting Inc. 2019b).

Stormwater

The majority of the existing runoff from the subject property drains toward Cooksville Creek, with only a small area fronting Kirwin Ave. that drains east. Under the proposed re-development plan, drainage will be split into two sub-catchments. Drainage from the future development on the western portion of the site will be stored and treated to City standards prior to discharging to the storm sewer system along Kirwin Avenue. An on-site storage tank with approximate 170.0 m³ in volume will be provided to control the post-development 100-year stormwater flows to 2-year pre-development level.

The impact of the proposed amenity areas and walkways is negligible, no SWM facilities are necessary, and therefore not proposed

Drainage from the southern portion of the site will remain in its existing condition and continue to flow to Cooksville Creek.

Landscaping

A Landscape Plan has been prepared for the site by Marton Smith Landscape Architects (MSLA; 2019) and is included as (**Figure 6**). The landscape plan incorporates some native species of trees, shrubs and groundcovers.



7. Impact Assessment and Mitigation

This section discusses the potential direct and indirect impacts that the proposed development may have on components of the City's Natural Heritage System, including recommendations for impact avoidance, mitigation and compensation.

7.1 Impact Assessment

Terrestrial Vegetation

The western portion of the subject property supports a treed feature that is classified as a cultural woodland and is also identified as a SMA. The EIS has confirmed that based on the size, shape and composition of the treed features, they are too small to qualify as a woodland as defined by the Region and City. The treed areas are largely comprised of non-native invasive trees, many in poor condition, which represent a threat to the native biodiversity of other woodlands in the area. It is for this reason that the City has been identified as a SMA. The treed area corresponding with the SMA will be preserved, with only a small encroachment requiring the removal of eight trees from the western edge of the woodland, including six Manitoba Maple, one Norway Maple, and one Black Walnut.

Erosion Hazards and Valleylands

The proposed redevelopment will be confined to a similar footprint as the previously approved site plan for the hotel. All proposed structures are located outside of the future regional floodline and approximately 120 m from the creek. Therefore, no direct impacts to the valleyland are anticipated. Indirect impacts can be avoided by implementing the mitigation measure outlined below.

7.2 Mitigation

Impacts to the City's NHS can largely be avoided or minimized through implementation of the following mitigation recommendations:

- 1. All servicing infrastructure (sewers, catch basins, culverts, etc.) should also be contained within the accepted development limits.
- 2. All grading should be confined to the grading limits identified on the proposed grading plans.
- 3. Low impact design measures should be utilized to the extent feasible in the design to promote on-site infiltration (i.e., bioswales, infiltration trenches). Runoff from paved surfaces should be diverted to the City's storm water system or equivalent onsite storage and treatment. Runoff from the eastern portion of the site should be permitted to drain to Cooksville Creek as it does under pre-development conditions.







H4 PROPC PROPC Some WAITER WAITER MITARY S	DSED DSED DSEP Com DEVICE SERVICE SERVICE			1		EEGEND: PROPOSED STORM MANHOLE PROPOSED SANITARY MANHOLE PROPOSED OIL GRIT SEPARATOR PROPOSED V & B
					Centeral NC Cente	PROPOSED VALVE CHAMBER PROPERTY LINE EXISTING CATCHBASIN EXISTING SANITARY MANHOLE EXISTING STORM MANHOLE EXISTING STORM MANHOLE EXISTING FIRE HYDRANT EXISTING FIRE HYDRANT EXISTING FIRE HYDRANT EXISTING AVDRO POLE EXISTING STORM SEWER EXISTING STORM SEWER EXISTING GAS MAIN EXISTING GAS MAIN EXISTING BELL CABLE EXISTING AERIAL ROGERS CABLE EXISTING AERIAL ROGERS C.06. "STREETSCAPE CROSS SECTIONS" FOR SS SECTIONS
(CA		STM SV0 - STM - St	OHN & PRELIN DRAWN	3016-3 ////////////////////////////////////	032 KIRWI BITE SERVICI CHECKED R.B.	N AVE DEVELOPMENT
2	SCALE:	1:250 (FULL	SIZE)		DRAWING NUMBER	C-02









Key Map



170 The Donway W Suite 206. Toronto, Ontario, Canada. M3C 2G3 tel. 416.492.9966 | email. info@msla.ca

Architect:

Municipality:



INUES.	is sealed & SIGNED. Tability for damages.
	construction unle and shall assum
	not be used for a and fadilities, TRUCTION
	Drawings shall I existing utilitie IOR TO CONS'
	ment of L. A. I clocation of al MGINEER PRI
	with written oc onfirm the exce RUCTURAL E
	y be permitted Wactor shall or ROVED BY ST
	thole shall only a work, the cor- UST BE APPR
	tion in part or v Before starting NG WALLS M DATE
	rany reproduc of guaranteed. ALL RETAIN
	sd. Copying o r facilities is n N • ANY ANE
	dacape Archib ion of utilities o ONSTRUCTIC SNED
	serty of the Lar soy of the posi- R PRIOR TO C T SIG
	emain the proj wm. the acoun CONTRACTOR ARCHITEC
	oht and shall r and where sho FIRMED BY (
	gs have copyri the drawings, NUST BE CON
•	ion. All drawin aily shown on SETBACKS h IN UNTIL CI
03 Issued for Review 03/13/19	with construc e not necess 'LINES AND STRUCTIC
01 Issued for Review 11/29/17	mencing lactities an ROPERTY DR CON
No. Revision Date	efore com tites and i E 3:1 • PI
North: Stamp:	et (LA) bi ground uti 0 EXCEDI TO BE L
	eported to the Landscape Archib existing above ground and unde RAWINGS. NO SLOPES ARE 1 SEE DIRAWINGS ARE NOT
Project: Proposed Residential Development 3016 Kirwin Ave	II discrepancies shall be 1.2% min. The position of ADING ENGINEERING I (STRUC TION • THE
Mississauga, Ontario	Inchures a functures a functures a core GF
Scale: 1:200 Date: Sept. 2017	d by the co kings or s REFER TO Y NOT F
Drawin By: S.P. Checked By: L.M. Drawing Title:	be checke sy from bu WATION
Landscano	ans shall t threfy awa NG INFOF
Master Plan	in these put drain post LLL GRADIT 4 WIVGS
	contained ttems mus VY AND AI
Project No. Sheet No. 17169 L1-01	All information All drainage pet NOTE: FOR AN DO NOT SCI



- 4. Landscaping plans for the site should utilize a diversity of local native species that are complimentary to the adjacent valley corridor.
- 5. The erosion and sediment control plan should be implemented prior to the start of construction works.
- 6. The recommendations from the Arborist Report (Beacon 2017) should be implemented to ensure protection of trees identified for preservation.
- 7. Following construction, temporary erosion and sediment control measures should be removed after soils are sufficiently covered and stabilized. Exposed soils should be stabilized as soon as possible through re-vegetation using native species or other appropriate methods.
- 8. Permanent fencing should be established along the limit of development adjacent to the cultural woodland to discourage residential encroachments (e.g. debris dumping, informal trails).
- 9. A total of 68 trees are proposed for removal from the subject property and adjacent lands. To off-set the loss of trees from the urban forest, an equivalent number of trees should be planted on the subject property. A total of 35 trees are proposed on the Landscape Plan (MSLA 2019) within the proposed development. Additional native trees can be planted within the cultural woodland that is being dedicated to the City or in the adjacent parkland.
- 10. The removal of trees from the site has the potential to disturb breeding birds that may be nesting in the trees. The federal Migratory Birds Convention Act protects the nests, eggs and young of most bird species from harassment, harm, or destruction. The breeding bird season in southern Ontario is generally from April 1 to August 31; therefore, the clearing of vegetation should be outside of these dates. For any proposed clearing of vegetation between mid-April and late July an ecologist should undertake detailed nest searches immediately prior (within two days) to site alteration to ensure that no active nests or territorial birds are present.
- 11. With the construction of buildings adjacent to treed areas, there is a risk of birds colliding against windows. Birds are unable to perceive clear or reflective glass they sometimes fly into windows when trees or sky are reflected in the glass. There are several options available that help make glass visible to birds. For example, patterns or films applied to glass can reduce reflection and provide visual markers that allow birds to perceive and avoid the windows. Window applications are especially important at the first 12 m above grade. It is recommended that the building architects consult the Bird-Friendly Development Guidelines (City of Toronto 2007) for building design recommendations to reduce the risk of bird strikes.
- 12. No ecological buffers are recommended as there are no significant natural heritage features located adjacent to the proposed development.



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 I policies and legislation is summarized in **Table 4**.

APPLICABLE POLICY /	RELEVANT EIS FINDINGS AND RECOMMENDATIONS
Endongorod	Not applicable. There is no babitat for andangered or threatened species associated
Species Act (2007)	with the subject property
Provincial Policy Sta	Itement (2014) Section 2.1 – Natural Heritage
1. Habitat for	See above.
Threatened and	
Endangered	
Species	
2. Significant	According to ROP and MOP policies, Cooksville Creek satisfied criteria as a Significant
Valleylands	Valleyland. Development is not permitted within significant valleylands unless it can be demonstrated though and EIS that there will be no negative impact on the feature or its functions. The proposed redevelopment will be setback from the Cooksville Creek valley by more than 70 m and will not negatively impact the Significant Valleyland.
3. Significant Wetlands	Not applicable – There are no Significant Wetlands in the Study Area.
4. Significant Woodlands	Not applicable - There are no Significant Woodlands in the Study Area.
5. Significant Wildlife Habitat	There is no Significant Wildlife Habitat associated with the subject property. The EIS has identified the Cooksville Creek valleylands as Candidate Significant Wildlife Habitat for its Animal Movement Corridor functions. The proposed redevelopment will not negatively impact on this function.
6. Significant Areas of Natural and Scientific	Not applicable – There are no Areas of Natural or Scientific Interest in the Study Area.
7 Fish Habitat	All development will be setback over 75 from the Cooksville Creek: therefore no
7. 1 ISII Hasilat	impacts to fish habitat are anticipated.
Region of Peel OP	The Regional Greenlands System consists of "Core Areas", "Natural Areas and
-	Corridors (NAC)", and "Potential Natural Areas and Corridors (PNAC)".
	The subject property does not support Core Areas or NAC. The cultural woodland may qualify as a PNAC. Regional policies pertaining to NAC's and PNAC's defer their interpretation, protection, restoration, enhancement, proper management and stewardship to local municipalities (in this case the City of Mississauga, see below).
Mississauga OP (201	7)
1. Natural Heritage System	The western portion of the subject property is mapped as a SMA. It is the policy of the City to manage, restore and enhance SMAs in a manner that compliments and supports the adjacent Significant Natural Area or Natural Green Space. The SMA corresponds

Table 4. Policy Compliance Assessment



APPLICABLE POLICY / LEGISLATION	RELEVANT EIS FINDINGS AND RECOMMENDATIONS
	with parkland to the west and a cultural woodland feature on the subject property. The cultural woodland will be preserved and dedicated to the City for management.
2. Natural Hazard Lands	The western portion of the subject property corresponds with the Cooksville Creek floodplain and is mapped as Natural Hazard Land in the MOP. All proposed structures will be located outside the natural hazard lands. Refer to LEA SWM Design Brief 2019.
3. Urban Forest	The City's Urban Forest is recognized as a component of the NHS. The proposed development will require removal of 68 trees from the subject property and adjacent lands. The removal of these trees will be off-set by planting an equivalent number of trees on the subject property.
CVC Regulations and Policies	CVC regulates hazard lands including floodplains. The western portion of the property overlaps with the Cooksville Creek floodplain. No structures are proposed within the proposed future floodplain.

9. Conclusion

Nyx Capital Corp. is proposing to redevelop properties located at 3016, 3020, 3026, and 3032 Kirwin Avenue and 3031 Little John Lane in the City of Mississauga (subject property). The proposed redevelopment consists of three townhouse blocks totalling 64 units and associated underground parking as well as an outdoor amenity space. The proposed redevelopment will be limited to the area that was previously approved for the former hotel proposal.

The subject property corresponds with former single-family residential developments fronting Kirwin Avenue and a vacant parcel on Little John lane. The residences have been demolished and much of the site has been cleared. The western portion of the subject property has been identified as a SMA and forms part of the City's Natural Heritage System. It is the policy of the City of Mississauga to require that an EIS be prepared in support of applications for development and/or site alteration within or adjacent to certain components of its Natural Heritage System, including SMAs.

Beacon was retained by Nyx Development Corp. to prepare a Scoped Environmental Impact Study (EIS) in support of the proposed redevelopment application. The purpose of an EIS is to demonstrate that the proposed development and/or site alteration can proceed without negatively impacting upon on significant natural heritage features or ecological functions and to also identify opportunities for protection, restoration, enhancement and expansion of the Natural Heritage System.

The EIS was prepared in accordance with the City of Mississauga EIS Checklist (October 2017) and has been scoped to confirm whether the redevelopment proposal has the potential to adversely impact the adjacent Significant Natural Area and to identify stewardship opportunities for the SMA. The EIS describes the natural heritage features and ecological functions associated with the property, assesses the potential direct and indirect impacts of the proposed re-development on these features and functions, and recommends mitigation and enhancement measures to protect and restore the ecological integrity of the Natural Heritage System.

Significant natural heritage features in the broader Study Area include fish habitat, significant valleylands and significant wildlife habitat. All these significant natural heritage features are associated with the Cooksville Creek corridor which is located 70 m to the west and west of the subject property



and more than 120 m from the proposed development. The impact assessment presented in the EIS has confirmed that the proposed re-development will not adversely impact upon the identified Significant Natural Area.

The EIS has evaluated the SMA that overlaps with the western portion of the subject property and determined that the area is partially wooded and in very poor condition due to past land uses and the predominance of non-native invasive vegetation cover. The previous EIS (Beacon 2017) recommended a comprehensive restoration plan for this area, which was to be undertaken by the proponent; however, through subsequent consultation with the City and CVC, it was agreed that the lands corresponding with the SMA be dedicated to the City. The SMA has been subject to debris dumping and informal human use and illegal activities for many years; therefore, in the interest of both the public and the future residents, its recommended that the City clean up the SMA to address safety concerns.

In summary, the proposed redevelopment will not adversely impact upon any significant natural heritage features and ecological functions associated with the Natural Heritage System. Therefore, it is our opinion that the proposed re-development is in conformity with the various environmental policies and regulations that apply to the site.

Report prepared by: Beacon Environmental

Dan Westerhof, B.Sc, MES Terrestrial Ecologist, Certified Arborist

Report reviewed by: Beacon Environmental

Ken Ursic, B.Sc., M.Sc. Principal, Senior Ecologist



10. References

Aquafor Beech Ltd. and Limniotech. 2012.

Cooksville Creek Flood Evaluation Master Plan EA. July 2012.

Aquafor Beech Ltd. 2011.

Cooksville Creek Watershed Study and Impact Monitoring Characterization Report. March 2011.

Beacon Environmental Ltd. 2019.

Revised Arborist Report for 3016-3032 Kirwin Avenue & 3031 Little John Lane, Mississauga, ON.

COSEWIC. 2007.

COSEWIC assessment and status report on the Chimney Swift *Chaetura pelagica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 49 pp.

Credit Valley Conservation. 2002

- Credit Vally Conservation (CVC). 2002. Plants of the Credit River Watershed.
- Credit Valley Conservation (CVC). 2010. Watershed Planning and Regulation Policies. April 9, 2010.

Credit Valley Conservation (CVC). No date. A Landowner's Guide to Managing and Controlling Invasive Plants.

Chapman, L.J. and D.F. Putnam. 1984.

The Physiography of Southern Ontario, Third Edition. Ontario Geological Survey, Special Volume 2, 270p. Accompanied by Map P.2715 (coloured), scale 1:600,000.

City of Mississauga. 2017. City of Mississauga Official Plan – August 2, 2017 Consolidation.

Dougan and Associates and North South Environmental Inc. 2009. Migratory Birds in the City of Toronto. August 2009.

Hoffman, D. W. and N. R. Richards. 1953.

Soil Survey of Peel County. Report No. 18 of the Ontario Soil Survey. Guelph, ON.: Department of Agriculture.

Humphrey, C. 2017.

Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 76 pp.



- LEA Consulting Inc. 2019. Functional Servicing and Stormwater Management Report (March 2019).
- LEA Consulting Inc. 2017. Memorandum to CVC re: Floodplain Analysis (November 21, 2017)
- LEA Consulting Inc. 2019a. Preliminary Site Grading Plan. Sheet C-01.
- LEA Consulting Inc. 2019b. Preliminary Site Servicing Plan. Sheet C-02.
- Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. *Ecological Land Classification for Southern Ontario: First Approximation and Its Application*. Ontario Ministry of Natural Resources. SCSS Field Guide FG-02. 225 pp.
- Marton Smith Landscape Architects. 2019. Landscape Master Plan. March 13, 2019
- Newmaster, S.G. and S. Ragupathy. 2012. Flora Ontario – Integrated Botanical Information System (FOIBIS), Phase I. University of Guelph, Canada. Available at: http://www.uoguelph.ca/foibis/
- North South Environmental Inc. (NSEI) and City of Mississauga. 2017. Natural Areas Fact Sheet CV 12.
- North South Environmental Inc (NSEI), Dougan and Associates, and Sorensen Gravely Lowes. 2009. Peel-Caledon Significant Woodland and Significant Wildlife Habitat Study. June 2009.
- Ontario Ministry of Natural Resources. 2000. Significant Wildlife Habitat Technical Guide. October 2000.
- Ontario Ministry of Natural Resources. 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. March 18, 2010.
- Ontario Ministry of Natural Resources. 2012. Endangered Species Act Submission Standards for Activity Review and 17 (2)(c) Overall Benefit Permits. February 2012.
- Ontario Ministry of Natural Resources. 2015. Significant Wildlife Habitat Criteria for Ecoregion 7E. January 2015.
- Ontario Ministry of Natural Resources and Forestry. 2016 Guelph District. 2017. Bat and bat habitat surveys of treed habitats. Updated April 2017. 13 p.
- Ontario Ministry of Municipal Affairs and Housing (MMAH). 2014. Provincial Policy Statement. Toronto, Ontario.



Region of Peel. 2016.

Peel Region Official Plan – December 2016 Consolidation.

Varga. 2005.

Distribution and Status of the Vascular Plants of the Greater Toronto Area.



Appendix A

EIS Checklist



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: DAKC 17-	45, May 17, 2017

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

Site / Property Address: 3016, 3020, 3026, and 3032 Kirwin Avenue and 3031 Little John Lane

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
 - B 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
- nclude map(s) showing locations for field studies (i.e. points, plots, transects) Site is very small and entire area
- Tree inventory and preservation plan for trees outside of the NAS

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

m 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)

11/201

Signatures

Env. Consultant:

Date: December 8, 2017

City Of Mississauga: __

Date:



Appendix B

Plant List



Appendix B

Plant List

Family Name	Scientific Name	Common Name	S-RANK ^a	Peel ^b
Juglandaceae	Juglans nigra	Black Walnut	S4?	
Aceraceae	Acer negundo	Manitoba Maple	S5	
Anacardiaceae	Rhus hirta	Staghorn Sumac	S5	
Asteraceae	Solidago altissima var. altissima	Tall Goldenrod	S5	
Asteraceae	Symphyotrichum lanceolatum ssp. Ianceolatum	Panicled Aster	S5	
Cupressaceae	Juniperus virginiana	Eastern Red Cedar	S5	
Geraniaceae	Geranium robertianum	Herb-robert	S5	
Oleaceae	Fraxinus pennsylvanica	Green Ash	S5	
Rosaceae	Prunus virginiana var. virginiana	Choke Cherry	S5	
Rosaceae	Rubus idaeus ssp. strigosus	Wild Red Raspberry	S5	
Rubiaceae	Galium aparine	Cleavers	S5	R4
Ulmaceae	Ulmus americana	American Elm	S5	
Violaceae	Viola sororia	Woolly Blue Violet	S5	
Vitaceae	Parthenocissus vitacea	Thicket Creeper	S5	
Vitaceae	Vitis riparia	Riverbank Grape	S5	
Aceraceae	Acer platanoides	Norway Maple	SNA	
Apiaceae	Aegopodium podagraria	Goutweed	SNA	
Asteraceae	Taraxacum officinale	Common Dandelion	SNA	
Bignoniaceae	Catalpa speciosa	Northern Catalpa	SNA	
Brassicaceae	Alliaria petiolata	Garlic Mustard	SNA	
Brassicaceae	Hesperis matronalis	Dame's Rocket	SNA	
Caprifoliaceae	Lonicera tatarica	Tartarian Honeysuckle	SNA	
Celastraceae	Euonymus europaea	European Spindle-tree	SNA	
Cyperaceae	Carex spicata	Spiked Sedge	SNA	
Fabaceae	Robinia pseudo-acacia	Black Locust	SNA	
Lamiaceae	Leonurus cardiaca ssp. cardiaca	Common Motherwort	SNA	
Liliaceae	Convallaria majalis	European Lily-of-the- valley	SNA	
Papaveraceae	Chelidonium majus	Greater Celadine	SNA	
Pinaceae	Picea abies	Norway Spruce	SNA	
Pinaceae	Pinus sylvestris	Scotch Pine	SNA	
Poaceae	Dactylis glomerata	Orchard Grass	SNA	
Poaceae	Poa pratensis ssp. pratensis	Kentucky Bluegrass	SNA	



Family Name	Scientific Name	Common Name	S-RANK ^a	Peel ^b
Rhamnaceae	Rhamnus cathartica	Buckthorn	SNA	
Rosaceae	Geum urbanum	Clover-root	SNA	
Salicaceae	Salix x rubens	Reddish Willow	SNA	
Ulmaceae	Ulmus pumila	Siberian Elm	SNA	

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): R^x, where x is the number of stations for a rare native specie