BEACON ENVIRONMENTAL

GUIDING SOLUTIONS IN THE NATURAL ENVIRONMENT

Scoped Environmental Impact Study
86-90 Dundas Street East
City of Mississauga

Prepared For:

Higher Living Development Inc.

Prepared By:

Beacon Environmental Limited

Date: *Project:*

August 2016 **212386**
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Table of Contents

page

Figures

Tables

Appendices

1. Introduction

Beacon Environmental Limited (Beacon) was retained by Higher Living Development Inc. to prepare a Scoped Environmental Impact Study (EIS) in support of a proposed re-development of adjoining properties located at 86 & 90 Dundas Street East in the City of Mississauga. The site location is shown on **Figure 1**. The subject property contains a vacant commercial building, a car dealership building, and parking lot. The valley slope associated with Cooksville Creek is located on the west side of the property.

The proposed re-development of the subject property consists of a 29 storey residential building with three levels of underground parking. The proposed re-development also includes the re-engineering of the valley adjacent Cooksville Creek at a 3:1 slope using engineered soil, the replacement of gabion stone baskets with armour stone retaining walls and additional protection to the toe of the retaining walls in the form of coarse gabion stone or rip-rap stone.

The subject property contains components of the City's Natural Heritage System (NHS). The valleyland is designated "Significant Natural Areas and Natural Green Spaces" on Schedule 3 of the City's Official Plan, which corresponds with the boundary of Natural Area CV 10 in the City's Natural Area Survey. A "Natural Hazards" overlay was also applied to the creek corridor, which corresponds with CVC's regulation area.

The policies of the City of Mississauga Official Plan require that an EIS be prepared in support of those developments and site alterations that are within or adjacent to Significant Natural Areas and Natural Green Spaces. The purpose of the EIS is to demonstrate that the proposed development and/or site alteration will not have a negative impact on natural heritage features or ecological functions associated with the property. Policy 19.4.5 of the City of Mississauga Plan lists an EIS as one of the types of studies that may be required a part of a complete application submission for an official plan amendment, rezoning, draft plan of subdivision or condominium or consent application.

This report is an update to the August 2016 EIS. The report has been updated based on a revised development plan and to address comments received from the City and CVC.

2. Policy Review

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

- Federal Fisheries Act;
- Ontario Endangered Species Act;
- Provincial Policy Statement;
- Region of Peel Official Plan;
- City of Mississauga Official Plan;
- Conservation Authorities Act - Ont Reg. 160/06; and

- Credit Valley Conservation – Watershed Planning and Regulation Policies.

The following review is not intended to be comprehensive, but has been included to highlight key policy, regulatory and legislative requirements as they relate to environmental planning to ensure that the proposed re-development is in conformity with the existing policy framework.

Section 8 of this EIS includes a summary that describes how the proposed development conforms to the various environmental policies, legislation and regulations described above and apply to the subject property.

2.1 Federal Fisheries Act

Fish habitat is protected under the Federal *Fisheries Act* (1985). In Ontario, the federal department of Fisheries and Oceans Canada (DFO) manages fish habitat and the Ontario Ministry of Natural Resources (OMNR) manages fisheries.

Section 35 prohibits causing "*serious harm to fish"* that are part of a commercial, recreational or aboriginal fishery, or to fish that support such a fishery.

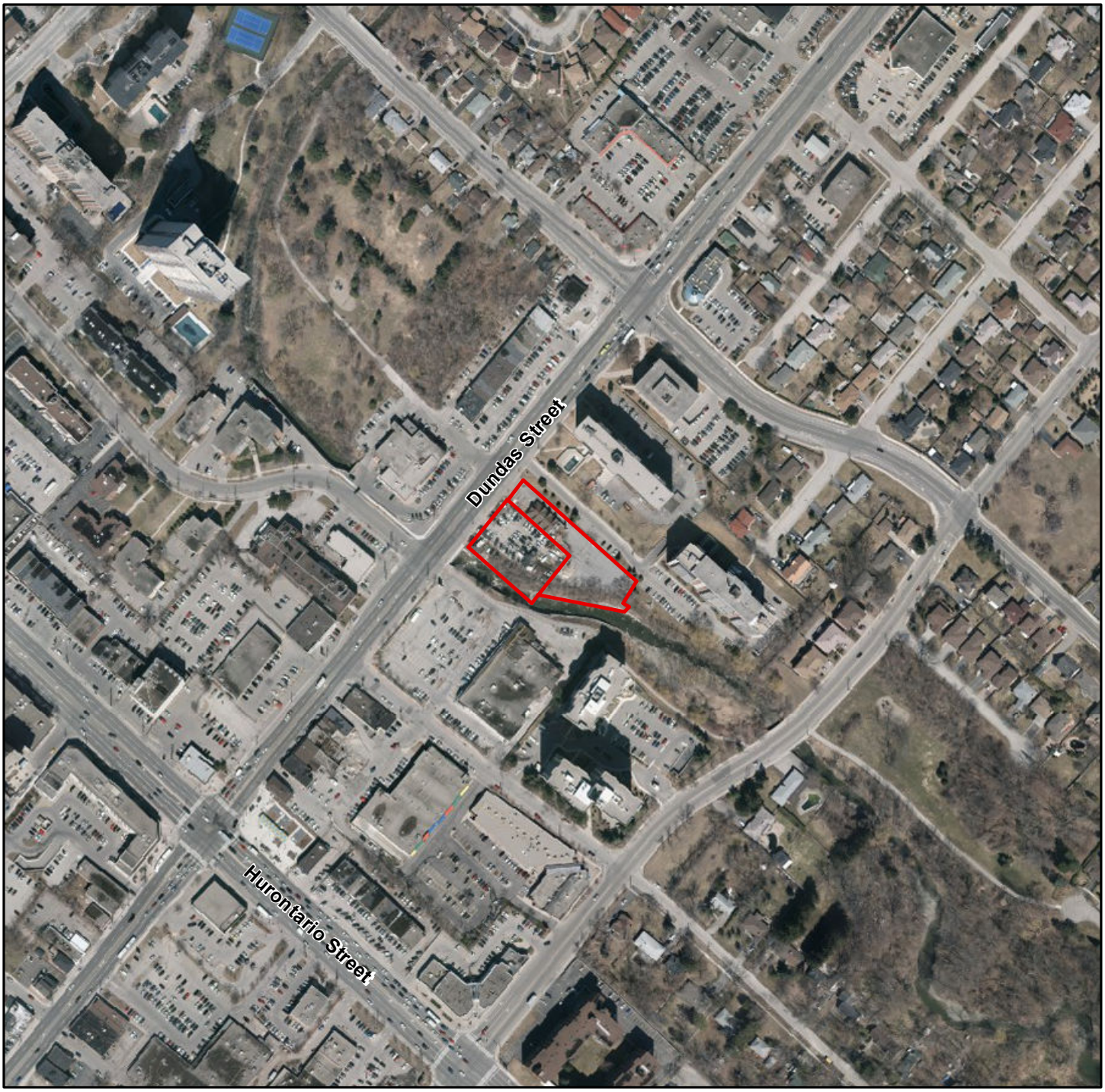
"*Serious harm to fish"* includes the following:

1. *The death of fish;*
2. *A permanent alteration to fish habitat of a spatial scale, duration or intensity that limits or diminishes the ability of fish to use such habitats as spawning grounds, or as nursery, rearing, or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes; and*
3. *The destruction of fish habitat of a spatial scale, duration, or intensity that fish can no longer rely upon such habitats for use as spawning grounds, or as nursery, rearing, or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes.*

Commercial, recreational or aboriginal fisheries include those fish that fall within the scope of applicable federal or provincial fisheries regulations as well as those that can be fished by aboriginal organizations or their members for food, social or ceremonial purposes, or for purposes set out in a land claims agreement. Fish that support these fisheries are those that contribute to the productivity of a fishery and may reside in bodies of water that contain fisheries or in water bodies that are connected by a watercourse to such water bodies.

Determining the applicability of the Section 35 prohibition to particular water bodies is now made on a case-by-case basis through a self-assessment process to determine impacts fish and fish habitat and next steps. Development activities taking place in or near water may affect fisheries by adversely affecting fish or fish habitat. DFO recommends that proponents of these activities should:

- Understand the types of impacts their projects are likely to cause;
- Take measures to avoid and mitigate impacts to the extent possible; and



Site Location

Figure 1

86-90 Dundas St. E. Mississauga EIS

First Base Solutions
Web Mapping Service 2014

UTM Zone 17 N, NAD 83

N
W E
S

0 35 70 140 Metres

1:4,000

BEACON ENVIRONMENTAL

Project 212386
September, 2018

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

Definitions of avoid, mitigation and offset are outlined below and taken from the Fisheries Protection Policy Statement (2013):

Avoidance

- *Avoidance is the undertaking of measures to completely prevent serious harm to fish. Avoidance measures may include locating infrastructure or designing a project or one or more of its components to avoid serious harm to fish. Careful timing of certain activities may also avoid harm to fish and fish habitat.*
- *For some projects, serious harm to fish may be fully avoided while for others, serious harm to fish may only be partially avoided. When serious harm to fish cannot be fully avoided, measures should be undertaken.*

Mitigation

- *Mitigation is a measure to reduce the spatial scale, duration, or intensity of serious harm to fish that cannot be completely avoided. The best available mitigation measures or standards should be implemented by proponents as much as is practically feasible.*
- *Mitigation measures include the implementation of best management practices during the construction, maintenance, operation and decommissioning of a project.*

Offsetting

If all efforts have been made to avoid and mitigate impacts, any residual serious harm to fish should be addressed by offsetting. An offset measure is one that counterbalances unavoidable serious harm to fish resulting from a project with the goal of maintaining or improving the productivity of the commercial, recreational or Aboriginal fishery. Offset measures should support available fisheries management objectives and local restoration priorities.

2.2 Ontario Endangered Species Act (2007)

Species at Risk in Ontario are those listed as provincially Endangered, Threatened or Special Concern at the provincial level, however the act only regulates the habitat of those that are Endangered or Threatened.

The Ontario Endangered Species Act (2007) provides legal protection to Endangered and Threatened species and their habitat. The ESA states that no person shall:

- *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.*
- *damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species.*

However, under subsection 17(1) of the ESA, MNRF may authorize a person to engage in an activity that would otherwise be prohibited under the ESA. Such activities would require a permit, agreement, or regulatory exemption.

2.3 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; andcoastal 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 areas prone to flooding and erosion. Conservation Authorities also regulate these lands.

2.4 Regional Municipality of Peel Official Plan (2008)

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

- Areas of Natural and Scientific Interest (ANSI);
- Environmentally Sensitive or Significant Areas (ESA);
- Escarpment Natural Areas;
- Escarpment Protection Areas;
- Fish and wildlife habitat;
- Habitats of threatened and endangered species;
- Wetlands;
- Woodlands;
- Valley and stream corridors;
- Shorelines;
- Natural lakes;
- Natural corridors;
- Groundwater recharge and discharge areas;
- Open space portions of the Parkway Belt West Plan; and
- Other natural features and functional areas.

The above key elements are to be interpreted, identified and protected in accordance with the policies of the Regional Official Plan.

2.4.1 Core Areas

Core Areas represent those features and areas that are considered to be significant at the provincial and regional levels. They generally correspond with significant features and areas listed in the PPS and include:

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

Core Areas of the Greenlands System are mapped on Schedule A of the ROP. Criteria for identifying additional core features of the Greenlands System are provided in the ROP.

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

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

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

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

Natural Areas and Corridors (NAC) include:

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

Potential Natural Areas and Corridors (PNAC) include:

- Unevaluated wetlands;
- Cultural woodlands and cultural savannahs within the Urban System and Rural Service Centres meeting one or more of the criteria in Table 1 of the ROP;
- Any other woodlands greater than 0.5 hectares (1.24 acres);
- Regionally significant earth science Areas of Natural and Scientific Interest;
- Sensitive groundwater recharge areas;
- Portions of Historic shorelines;
- Open space portions of the Parkway Belt West Plan Area;
- Potential ESA's identified as such by the conservation authorities; and
- Any other natural features and functional areas interpreted as part of the Greenlands System Potential Natural Areas and Corridors, by the individual area municipalities in consultation with the conservation authorities.

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

2.5 City of Mississauga Official Plan (2016)

Section 6.3 of the Mississauga Official Plan 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.

2.5.1 Natural Heritage System

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

The valley portion of the property is mapped as "Significant Natural Areas and Natural Green Spaces" on Schedule 3 of the OP.

The exact limit of components of the Natural Heritage System will be determined through site specific studies such as an Environmental Impact Study. 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.

2.5.1.1 *Significant Natural Areas*

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

- Provincially or regional significant life science areas of natural and scientific interest (ANSI);
- Environmentally sensitive or significant areas;
- Habitat of Endangered or Threatened species;
- Fish habitat;
- Significant wildlife habitat;
- Significant woodlands;
- Significant wetlands, including Provincially Significant Wetlands (PSW), coastal wetlands, and other wetlands greater than 0.5 hectares; and
- Significant valleylands, including the main branches, major tributaries and other tributaries and watercourse corridors draining directly to Lake Ontario including the Credit River, Etobicoke Creek, Mimico Creek and Sixteen Mile Creek.

According to 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.

2.5.1.2 *Natural Green Spaces*

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

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

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

2.5.2 Natural Hazard Lands

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

Development adjacent to valleylands and watercourse features must incorporate measures to ensure public health and safety; protection of life and property; as well as enhancements and restoration of the Natural Heritage System.

Policy 6.3.47 states 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.

2.5.3 Urban Forest Policies

Official Plan 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.*

2.6 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(l) 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; and*
> *vi. modifications to components of the natural heritage system to implement the recommendations of an environmental assessment, comprehensive environmental study or technical report that has been completed to the satisfaction of CVC.*

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 may recommend lots be set back a distance other than 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

The following background information sources were consulted for this study:

- MNRF Management Biologist (Carolyn Haan);
- Cooksville Creek Flood Evaluation Master Plan EA (Aquafor Beech Ltd, 2012);
- Lake Ontario Integrated Shoreline Strategy (CVC, 2011);
- Cooksville Creek Watershed Study and Impact Monitoring Characterization Report (Aquafor Beech Ltd., 2011);
- City of Mississauga Natural Areas Survey (2014);
- Geotechnical Study (Soil-Mat Engineers and Consultants, 2018);
- Arborist Report (Al Miley and Associates, 2013/2016); and
- Tree Inventory and Preservation Plan (Seferian Design, April 2018).

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.

3.2.1 Aquatic Habitat

An assessment of the aquatic habitat within the subject property and upstream of Dundas Street was completed on July 9, 2016 to determine the quality and function of fish habitat within this reach of Cooksville Creek. Standard measurements of aquatic habitat characteristics such as riparian cover, side channels, channel width and depth profile, bank height and stability, flow, substrate and morphology were completed and a photographic record was made.

3.2.2 Vegetation Communities and Flora Inventory

A site visit was conducted on July 3, 2015 and May 4, 2016 to document the vegetation on the subject property. Vegetation communities were mapped and described according to the Ecological Land Classification System for Southern Ontario (Lee et al., 1998) and a list of a plant species was compiled for the property.

3.2.3 Breeding Bird Surveys

Two breeding birds surveys were completed on June 10 and July 5, 2016. The visits to the subject property took place between 6:45 and 8:00 am, on days with low to moderate winds (0-3 Beaufort Scale), no precipitation, and temperatures within 5˚C of normal average temperature. The entire site was walked such that all singing birds could be heard or observed and recorded. All birds heard and seen were recorded in the location observed on an aerial photograph of the site. Species flying over the subject property were also noted.

An evening visit was conducted on June 14, 2016 in order to assess the potential roosting usage of the chimney on the existing building by Chimney Swift. The survey was conducted ½ hour before sunset to ¾ hour after sunset following the guidelines from *Ontario Swiftwatch* (Bird Studies Canada 2013).

4. Study Findings

4.1 Topography and Soils

The tableland portion of the subject property is relatively flat. The valley slope associated with Cooksville Creek on the west side of the property is approximately 5 to 6 metres high. The base of the slope is reinforced with 2-2.5 m high gabion baskets and armour stone. Above the gabion baskets, the slope is as steep as 1.5 horizontal to 1 vertical (Soil-Mat, 2012, 2018).

Based on borehole analysis conducted by Soil-Mat (2012, 2018), soils on the site consist of silty clay fill extending to depths of 4.5 m below the surface (observed in 4 of 5 boreholes). In one borehole, silty sand fill was encountered to depths of 3 m below grade. Beneath the fill deposits, native grey clayey silt was encountered in each of the boreholes, which transitions to weather Dundas Shale a depths of approximately 5.5 to 8.5 metres.

The static groundwater level is estimated to be 3.7 m to 4.5 m below the existing grade, which is about one metre above the approximate water elevation in Cooksville Creek (Soil-Mat, 2012, 2018). The groundwater level is expected to fluctuate seasonally.

4.2 Aquatic Habitat

A reach of Cooksville Creek within the lower subwatershed flows along the west side of the subject property. It is classified by CVC as a warmwater, permanent watercourse. The east side of the creek is bound by 2 m high gabion baskets and armour stone along the entire length of the subject property. The west side of the creek has been reinforced with a 4-5 m high concrete wall.

The creek is generally 6-8 m wide, with a series of riffles and pools; gravel bars are present in some areas. Depths ranged from 0.5 to 0.1 m. There are several steps located throughout the reach which may have been placed throughout when gabion baskets and armouring was installed along the banks. Substrate is generally sand, with some cobble and boulders (i.e., gabion stone).

The riparian area is a narrow bank of trees on the east side, providing, little (<30%) cover for the watercourse. On the west, above the concrete wall is manicured grass, and approximately 75m further downstream of Dundas Street is a small meadow area, where a trail adjacent the watercourse begins.

Upstream of the culvert under Dundas Street, which is approximately 100m long, evidence of restoration is present, including riffle placement, gabion walls and riparian plantings on the east side of the watercourse.

Much of the Cooksville Creek watershed is uninhabited by fish, which is attributable primarily to the presence of barriers to fish movement in the downstream reaches (Aquafor Beech Ltd., 2011 & 2012; CVC, 2011). The first barrier to fish passage is at the railway line less than 1 km from Lake Ontario, which prevents upstream movement of many fish species, and the next barrier is 400 metres upstream at Atwater Avenue, which further limits fish passage (CVC, 2011). Only Longnose Dace have been found in the section between Atwater Avenue and the QEW (CVC, 2011).

The steps within the watercourse are unlikely to pose barriers to fish passage, however, the large (12 m) concrete double box culvert under Dundas Street is a barrier during times of low flow. No fish were observed throughout the reach at the time of the aquatic assessments.

CVC staff (Eric James, CVC Planner, May 27, 2016) indicated that during fish sampling in 2015, CVC captured 104 Longnose Dace in Cooksville Creek between King Street and Dundas Street East. The barriers downstream still remain so there may have been a flow that allowed these fish upstream or there is a population upstream (Eric James, CVC Planner, May 27, 2016).

4.3 Terrestrial Natural Heritage

4.3.1 Mississauga Natural Areas Survey

The valleyland portion of the subject property corresponds with the CV 10 Natural Area identified in the City of Mississauga Natural Areas Survey (City of Mississauga 2017). CV 10 is classified as a "Significant Natural Area".

CV 10 extends along Cooksville Creek between Dundas Street East and the Queensway East. According to the Natural Areas Factsheet for CV 10 (City of Mississauga 2017), six vegetation communities, 166 floral species, and 34 faunal species have been documented in this Natural Area. CV 10 is currently in poor condition with extensive disturbances including encroachment and channelization, and invasive plant species are prevalent (City of Mississauga 2017).

Significant attributes and functions of CV 10 identified in the Factsheet include:

- One species at risk: Eastern Wood-pewee (designated Special Concern in Ontario);
- One plant species considered rare within the City (known from 1 to 3 locations): Autumn Willow (*Salix serissima*);
- One plant species considered significant within the City (known from 4 to 10 locations): Straw-coloured Cyperus (*Cyperus strigosus*);
- 21 Credit Valley Conservation flora Species of Conservation Concern (Tier 1-3);
- 11 Credit Valley Conservation fauna Species of Conservation Concern (Tier 1-3) including 10 birds and one mammal;
- Contribution to the linkage function of Cooksville Creek; and
- Floodplain provides floodwater storage for Cooksville Creek.

According to the Natural Areas Factsheet for CV 10 (City of Mississauga 2017), the portion of CV 10 that overlaps with the subject property is classified as a Fresh-Moist Willow Lowland Deciduous Forest Type (FOD7-3), with scattered mature White Willow (*Salix alba*) and Green Ash (*Fraxinus pennsylvanica*) forming the canopy and Manitoba Maple dominating the subcanopy.

No rare, threatened, or endangered or other species or species of conservation concern mentioned in the NAS were found on the subject property during recent field investigations. Additionally, the classification of the vegetation community as a Fresh-Moist Willow Lowland Deciduous Forest Type (FOD7-3) is inaccurate, as the vegetation is located on the valley slope (not lowland) and comprised primarily of Manitoba Maple and Siberian Elm (only two willows were documented). A detailed description of vegetation community is provided in the following section.

4.3.2 Vegetation Communities

Vegetation communities on the subject property are illustrated in **Figure 2**. The mapping is based on site specific investigations conducted in 2015 and 2016.

The tableland portion of the site is classified as "anthropogenic", as it is presently developed and includes an existing building and a paved parking area. Weedy herbaceous and woody vegetation can be found growing within the cracks and along the edges of pavement.

Existing Conditions

Figure 2

86-90 Dundas St. E. Mississauga EIS

Legend

- Subject Property
- Dripline (as staked by CVC on May 4, 2016)
- ELC Communites

ELC Code	ELC Community
CUW1	Cultural Woodland
ANT	Anthropogenic

First Base Solutions
Web Mapping Service 2014

UTM Zone 17 N, NAD 83

N W E S

0 4.5 9 18 Metres

1:450

BEACON ENVIRONMENTAL

Project 212386
September, 2018

The slope adjacent to Cooksville Creek, which is part of Natural Area CV 10, supports a narrow band of trees classified as Cultural Woodland (CUW1). The classification of this feature as a Cultural Woodland is based on the site history, species composition, structure and condition. The feature is a narrow strip (essentially a single row) of trees with a predominantly non-native canopy and understory that regenerated on a fill slope. It is not reflective of a natural condition and is the result of cultural influences and disturbances. For the above reasons, it would be inappropriate to classify the community as a deciduous forest under the 1998 SELC.

The canopy is dominated by Manitoba Maple (*Acer negundo*), with scattered occurrences of Siberian Elm (*Ulmus pumila*), Hybrid Willow (*Salix* x *rubens*), and Silver Maple (*Acer saccharinum*). The understory consists of Gray Dogwood (*Cornus racemosa*), Tartarian Honeysuckle (*Loniera tatarica*), Common Buckthorn (*Rhamnus cathartica*), Japanese Knotweed (*Polygonum cuspidatum*), and Choke Cherry (*Prunus virginiana*). Dominant ground covers are Tall Goldenrod (*Solidago canadensis* var. *scabra*), Crown Vetch (*Coronilla varia*), Garlic Mustard (*Alliaria petioloata*), avens (*Geum* spp.), various introduced grasses, and other weedy species.

4.3.3 Flora

A total of 69 species of vascular plants were identified on the subject property. A complete plant list is presented in **Appendix A**. Approximately 66% of the species on the property are non-native, which is very high and reflects the disturbed nature of the site. All 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. No regionally rare or uncommon plant species occur on the property.

4.3.4 Breeding Birds

A total of eight species of breeding, or probable breeding birds, were recorded on or over the subject property. The majority of the species observed are common, urban-tolerant and expected within the disturbed urban matrix that this site is located within. Examples of these type of birds include the 3 most numerous recorded species on the property: European Starling (*Sturnus vulgaris*), House Sparrow (*Passer domesticus*), and Rock Pigeon (*Columba livia*). The remaining species observed were American Robin (*Turdus migratorius*), American Goldfinch (*Spinus tristis*), Chimney Swift (*Chaetura pelagica*), Song Sparrow (*Melospiza melodia*), and Ring-billed Gull (*Larus delawarensis*). A list of birds observed is presented in **Appendix B**.

All of these observations are confirmed breeders with the exception of Ring-billed Gulls and Chimney Swift, which were noted solely as flyovers. Ring-billed Gulls typically nest coastally and colonially, although are most frequently seen foraging in built-up areas such as this site. Chimney Swift were not observed directly associating with the existing chimney, and are more likely to be nesting in one of the several adjacent high-rise buildings.

4.3.5 Species of Conservation Concern

Correspondence from MNRF (Carolyn Haan, August 10, 2015) indicate that there are no records for species at risk or natural heritage features in the vicinity of the subject property.

During field investigations conducted by Beacon in 2015 and 2016, no provincially or regionally rare species or Species at Risk were identified on the property.

Eastern Wood Pewee has been reported from Natural Area CV 10 (City of Mississauga 2017); however, it was not documented during breeding bird surveys of the subject property. Eastern Wood-pewee is a common forest bird in southern Ontario that can be found in both small and large woodlands of a variety of forest types, particularly deciduous and mixed forest. Despite the wide variety of forest types that the species occupies, the linear strip of Manitoba Maple along the creek on the property is insufficient habitat for this species. The canopy is roughly 10 m wide on average in this location and is far too narrow to provide suitable habitat for Eastern Wood-pewee. Furthermore, the landscape matrix adjacent to the site is highly-urbanized which also precludes the area being used as habitat by this species.

Chimney Swift (a Threatened species) were noted as fly-overs during the breeding bird survey. There is a small uncapped chimney on the existing restaurant building; however, no Chimney Swift were observed associating with this chimney. An evening visit was conducted on June 14, 2016 in order to assess the potential roosting usage of the chimney. The survey was conducted ½ hour before sunset to ¾ hour after sunset, during which time no birds were observed over the property or entering the chimney. The individuals observed flying over during the two morning breeding bird surveys are likely to be utilizing the larger ventilation structures atop the numerous high-rise apartment buildings in the vicinity of the property.

5. Evaluation of Significance

The findings of the background review and field investigations have been relied upon to determine if the subject property supports any of the natural heritage components recognized under the PPS, as well as the Region's and City's Official Plans. The *Natural Heritage Reference Manual* (MNR, 2010) and the *Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study* (NSEI et al, 2009) were consulted to provide additional technical guidance, where required. The subject property was screened for the following natural heritage features:

1. Significant Wetlands;
2. Habitat for Threatened or Endangered Species;
3. Significant Areas of Natural and Scientific Interest (ANSI);
4. Significant Valleylands;
5. Significant Woodlands;
6. Significant Wildlife Habitat; and
7. Fish Habitat.

5.1 Significant Wetlands

There are no significant wetlands or other wetlands on or adjacent to the subject property.

5.2 Significant Coastal Wetlands

There are no significant coastal wetlands on or adjacent to the subject property.

5.3 Habitat for Threatened or Endangered Species

No habitat for threatened or endangered species has been identified on the subject property or adjacent lands.

5.4 Significant Areas of Natural and Scientific Interest (ANSI)

There are no ANSIs on or adjacent to the subject property.

5.5 Significant Valleylands

The City of Mississauga Official Plan criterion 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.*

Cooksville Creek drains directly to Lake Ontario; therefore, the valleyland is considered a significant valleyland according to the above criterion.

5.6 Significant Woodlands

Both the Peel Region Official Plan and Mississauga Official Plan define '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.

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

Based on the application of these criteria, the grouping of trees along Cooksville Creek (ELC unit 2), do not qualify as "woodland" because it is both less than 40 m in width and dominated by non-native species. As ELC unit 2 does not meet the criteria of a woodland, then it cannot be considered a Significant Woodland in the City of Mississauga.

5.7 Significant Wildlife Habitat

According to the significant Wildlife Habitat Technical Guidelines (MNR 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 intended to capture a specialized type of habitat that may or may not be captured by other existing feature-based categories (e.g., significant wetlands, significant woodlands).

Based on a review of the *Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study* (NSEI *et al.,* 2009), the valleyland portion of the property in candidate for two types of SWH:

1. Migratory Landbird Stopover Area; and
2. Animal Movement Corridor.

Migratory Landbird Stopover Area

A "Landbird" refers to North American birds that live largely or entirely on land, and stopover areas are sites located between breeding and wintering grounds where birds rest and forage during migration (NSEI *et al*., 2009).

The Peel-Caledon SWH study (NSEI *et al*., 2009) recommends that 'natural areas' be identified as SWH within:

1. 2 km of Lake Ontario;
2. River and creek valleys within 5 km of Lake Ontario; and
3. 500 m of river valleys within 5 km of Lake Ontario.

Natural areas include all terrestrial and wetland communities, including cultural woodlands, as defined under the Ecological Land Classification (ELC) system for southern Ontario (Lee *et al*. 1998).

Given that subject property is located approximately 4.3 km from the Lake Ontario shoreline, the valley portion of the property technically satisfies the second criterion above. 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 woodland on the subject property is not ideal stopover habitat given that it is a narrow band (approx. 7-10 m wide) of primarily mid-aged, non-native trees (Manitoba Maple and Siberian Elm), and the understory is also predominantly non-native species. Additionally, at 4.5 km north of Lake Ontario, the property is at the extreme limit of the area considered for stopover habitat, and the trees on the property are not likely to support more migratory birds than other urban habitats such as treed parks/residential areas or tree-lined boulevards. Therefore, the significance of the property as a stopover area for migrating birds is questionable and the SWH guidelines were probably not intended to capture these types of features as SWH. Based on this assessment, the cultural woodland likely does not provide high quality SWH for migrating land birds.

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).

Based on this, the Cooksville Creek valley may qualify as a secondary or tertiary movement corridor, perhaps for small mammals and birds.

5.8 Fish Habitat

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 in the reach between King Street and Dundas Street East (Eric James, CVC Planner, May 27, 2016); therefore, this reach is considered direct habitat for warmwater cyprinids.

5.9 Summary

In summary, the valleyland portion of the property supports the following significant natural heritage features:

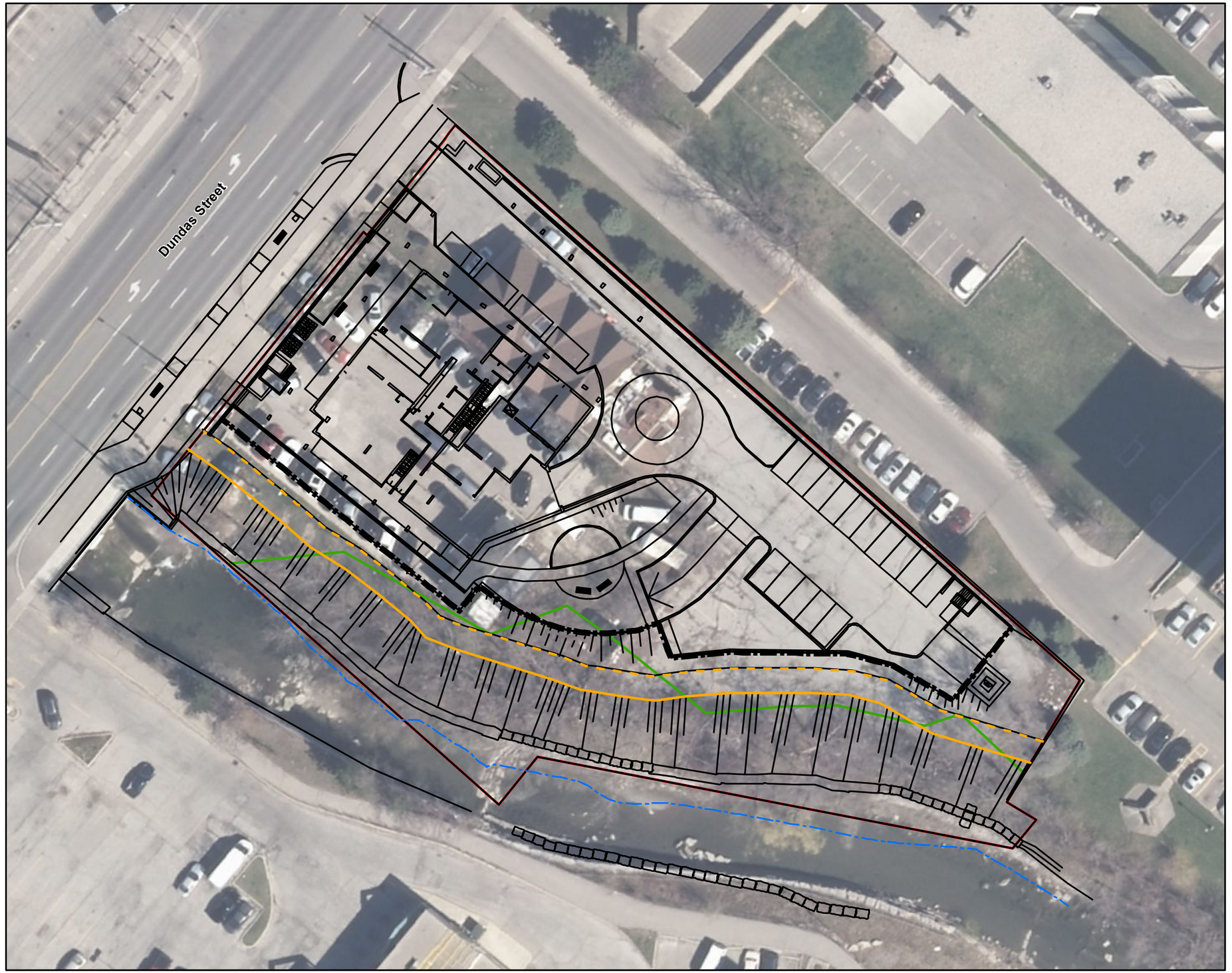
- Significant Valleyland (as per the City's Official Plan criteria);
- Candidate Significant Wildlife Habitat as a tertiary Animal Movement Corridor (as per criteria in the *Peel-Caledon Significant Woodlands and Significant Wildlife Habitat Study*); and
- Fish Habitat.

6. Proposed Development

The proposed re-development of the subject property consists of a 29-storey residential building with four levels of underground parking, limited surface parking, and driveway access from Dundas Street East. Stabilization of the existing fill slope adjacent to Cooksvillle Creek is also being proposed as part of the project. Refer to **Figure 3** and the drawing set prepared by AJT Architects.

7. Impact Assessment and Mitigation

The following is a discussion of the potential direct and indirect impacts that the proposed development may have on the natural heritage features on the property and mitigation measures to avoid, minimize, or off-set potential impacts are recommended.



Proposed Development

Figure 3

86-90 Dundas St. E. Mississauga EIS
Higher Living Development Inc.

Legend

- Subject Property
- Existing Edge of Water
- Dripline (as staked by CVC on May 4, 2016)
- Top of Bank and Long Term Stable Top of Slope
- 3m Buffer to Long Term Stable Top of Slope
- Proposed Development
- Limit of Underground Parking

First Base Solutions
Web Mapping Service 2017

UTM Zone 17 N, NAD 83

N
W E
S

0 5 10 20 Metres

1:500

BEACON ENVIRONMENTAL

Project 212386
September, 2018

7.1 Impact Assessment

7.1.1 Hazard lands

Re-engineering of the valley slope is proposed as it was determined through a geotechnical investigation that the majority of the slope is anthropogenic fill that is prone to shallow surface failures over time (Soil-Mat, 2012, 2018). In order to stabilize the slope and prevent surface failures, the upper levels of the existing fill material will be removed and replaced by engineered soil and graded at a 3:1 slope.

The gabion stone baskets along the eastern bank of Cooksville Creek are beginning to exhibit signs of deterioration. In time these baskets will deteriorate further, ultimately requiring repair or replacement. Therefore, in order to avoid the need for future access to repair or replace these baskets, during construction the gabion baskets will be replaced with armour stone retaining walls that will be similar in height to the armour stone that is already in place. Additional protection, in the form of coarse gabion or rip-rap stone, will also be added to the toe of the retaining walls (Soil-Mat 2018).

The engineered top of slope line is shown on the **Figure 3**, this represents the long-term stable top of slope. CVC policies typically require a 10 m development setback from the greater of the long-term stable top of slope or the physical top of slope.

At a meeting with staff from the City, CVC and members of the project team on August 14, 2018 a conceptual plan was presented and agreed to that included a reconstructed wall, a 3:1 slope and a 3m buffer from the long-term stable top of slope. Based on this a 3m setback from the long-term stable top of slope has been applied to the long-term stable top of slope.

7.1.2 Terrestrial Vegetation

The proposed residential building and associated structures and amenities will be confined entirely to the tableland portions of the site, which are currently occupied by an existing development; therefore, there are no natural heritage features on the tableland that will be impacted by the development.

The proposed work to stabilize the valley slope will require removal of all vegetation along the slope (CUW1). A total of 35 trees are proposed for removal (Seferian 2017) from the slope. In addition, 14 trees on the tableland of the subject property will also require removal. Seventeen trees adjacent to the Subject Property have been identified for preservation (Seferian 2017).

As discussed in Section 5.6 the vegetation on the slope does not qualify as a woodland or significant woodland in the City of Mississauga due to its dimensions (<20 m wide) and species composition (predominantly non-native). The existing vegetation on the slope is dominated by Manitoba Maple, an invasive tree species. Manitoba Maple is listed as a Category 1 invasive species by CVC (CVC, undated). Species in this category are considered to be the most invasive as they tend to exclude all other species and dominate sites indefinitely. Plants in this category are a threat to natural areas wherever they occur because they tend to disperse widely and are a top priority for control (CVC, undated).

The removal of the vegetation on the valley slope will be temporary as the slope will be fully restored with native species. Replacing the existing low quality, predominantly non-native vegetation with a diversity of native species will result in a net benefit to the natural heritage system.

7.1.3 Wildlife Habitat

The subject property supports a very low diversity and numbers of breeding birds, which are very common and well-adapted to the urban matrix. The habitat for breeding birds associated with subject property will be removed to accommodate the proposed development and slope stabilization.

While the cultural woodland on the property technically meets the criteria for a Migratory Landbird Stopover Area (based on NSEI et al. 2009) there are a number of variables which suggest that the capacity of this habitat to provide this function is limited. These include:

- Its linear shape (square and round habitats are preferred over linear habitats to reduce the amount of edge habitat);
- It's narrow width (wider habitats are preferred over narrower habitats; and
- It's composition, which is pre-dominantly non-native vegetation (mature upland forests are preferred by more migrating birds).

Works to stabilize and naturalize the valley slope are included as part of the proposed development application. The removal of the low-quality vegetation and habitat from the valley slope will be off-set by fully restoring the slope to a more natural condition with native species. The 3 m setback, which is presently asphalt, will also be restored to further protect, expand, and enhance the valley feature. Once mature this restoration work will represent an improvement over existing conditions that will improve the capacity of the habitat on the subject property to provide stopover habitat for migratory birds.

A variety of shrub species identified in the Native Plant List for Migrating Birds (CVC 2015) have also been incorporated into the restoration plan to provide cover and fruit for migrating birds while the planted trees mature.

7.1.4 Aquatic Habitat

No direct impacts to Cooksville Creek are expected to result from the proposed development.

Given that earthworks (excavation, grading) will be occurring on the property, there is potential for water quality impacts to creek if erosion and runoff is not controlled. Standard erosion and sediment control BMPs can be employed to prevent these impacts (see **Section 7.2**).

As discussed in in Section 7.1.1 the gabion stone baskets along the eastern bank of Cooksville Creek are beginning to exhibit signs of deterioration. The replacement of the gabion baskets with armour stone and the placement of additional protection, in the form of coarse gabion or rip-rap stone, will also be added to the toe of the retaining walls as part of the proposed stabilization of the valley slope (Soil-Mat 2018).

If "in-water" work is required as part of the proposed bank stabilization, the work must be conducted within the warmwater timing window, which begins July 1 and ends March 31 (i.e. no work between

April 1 and June 31). Further, works must be conducted in the dry, and any dewatering would require a fish rescue to remove fish from the work area.

7.1.5 Hydrogeology

Excavations to accommodate the proposed underground parking levels will extend below the static groundwater level (Soil-Mat, 2012); therefore, dewatering will be required during construction, and post-construction controls will also be necessary.

No wetlands, seepage areas, or other sensitive features were identified along the valley slope or adjacent to the creek during field investigations; therefore, minimal impacts to the NHS are anticipated.

7.2 Mitigation

Potential impacts to the NHS can largely be avoided or minimized through the following mitigation recommendations:

1. In addition to the development itself, all servicing infrastructure (sewers, catch basins, culverts, etc.) should also be contained within the accepted development limits and not encroach into the natural heritage system or buffers, except where agreed to by the City and CVC.

2. 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.

3. Landscaping plans for the site should utilize a diversity of local native species that are complimentary to the adjacent valley corridor.

4. Landscaping plans for the site should utilize shrub species identified in the Native Plant List for Migrating Birds (CVC 2015) should be incorporated into the restoration plan to provide cover and fruit for migrating birds while the planted trees mature.

5. To prevent the need for future access to the valley slope and retaining wall the replacement of the gabion baskets with armour stone and the placement of additional protection, in the form of coarse gabion or rip-rap stone is recommended as part of the proposed stabilization of the valley slope.

6. A de-watering plan should be prepared for the construction-phase of the proposed development and approved by CVC.

7. An erosion and sediment control plan should be prepared for the construction phase of the development and approved by the CVC prior to the start of construction works and to the standard of Erosion and Sediment Control Guideline for Urban Construction (December 2006). The limit of development/grading should be fenced with erosion and sediment control (ESC) fencing (paige wire fencing and fitted with filter cloth) and toed-in to prevent runoff

and encroachment into the adjacent natural area. ESC fencing must be regularly inspected and maintained in good working order throughout the construction period.

8. If “in-water” work is required as part of the proposed bank stabilization, the work must be conducted within the warmwater timing window, which begins July 1 and ends March 31 (i.e. no work between April 1 and June 31). Further, works must be conducted in the dry, and any dewatering would require a fish rescue to remove fish from the work area.

9. All construction and development related activities must be confined to the established limit of development, with the exception of those areas subject to stabilizing and naturalizing the valley slope and/or where landscaping works are approved.

10. Trees should be preserved in accordance with the recommendations of the Tree Preservation Plan prepared by Seferian Design.

11. 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.

12. Permanent fencing should be established along the top of the valley slope do discourage human encroachment.

13. The federal Migratory Bird Convention Act (1994) protects the nests, eggs and young of most bird species from harm or destruction. Environment Canada considers the general nesting period of breeding birds in southern Ontario to be between late March and the end of August. This includes times at the beginning and end of the season when only a few species might be nesting. The broad bird nesting season in southern Ontario is April 1 to August 31. However, we recommend that during the peak period of bird nesting, no vegetation clearing or disturbance to nesting bird habitat occur – i.e., between May 16 and July 15. In the shoulder seasons of April 1 to May 15, and July 16 to August 31, we suggest that vegetation clearing could occur, but only after an ecologist with appropriate avian knowledge has surveyed the area to confirm lack of nesting. If nesting is found, then vegetation clearing (in an area around the nest) has to wait until nesting has concluded. Between September 1 and March 31, vegetation clearing can occur without nest surveys, but the requirement for nest protection under the Act still holds (i.e., if an active nest is known it should be protected).

14. 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 d they sometimes fly into windows when trees or sky are reflected in the glass. There are a number of 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.

15. A slope restoration and buffer planting plan that will naturalize the valley slope and 3 m setback using a diversity of native species is recommended.

The target community for the valley slope and 3m setback should be a Sugar Maple – Oak hardwood forest (FOD5-3). This is consistent with the community on the valley slopes of the Credit River, located west of the site.

As this forest community matures, it will provide shade to Cooksville Creek, support migratory birds, and contribute to the linkage function of Cooksville Creek. As this is a late successional community type that will take time to develop faster-growing, early successional species such as Trembling Aspen and White Birch are also recommended to address the lag time and provide canopy cover over the short-medium term.

Plantings should be maintained and monitored for a two-year establishment period to ensure adequate weed suppression and growing conditions.

16. An invasive species monitoring and control program should be implemented to control the spread of non-native and invasive species on the restored valley slope. This should consist of surveys of the restored valley slope for non-native and invasive species at years 1, 3 and 5 following 100% build out. If non-native and invasive species are identified best management practices that minimize impact to desired native species should be implemented to remove them from the subject property.

7.3 Summary

The proposed building, including the associated amenities and servicing infrastructure will be set back 3 m from the long-term stable top of bank of the Cooksville Creek valley. This setback was agreed to in principle by staff from the City, CVC and the proponent at a meeting on August 14, 2018. This setback represents an improvement over existing conditions where there is currently no setback from the existing development and the Cooksville Creek Valley.

Works to stabilize and naturalize the valley slope are included as part of the proposed development application. The removal of the low-quality vegetation and habitat from the valley slope will be off-set by fully restoring the slope to a more natural condition with native species. The 3 m setback, which is presently asphalt, will also be restored to further protect, expand, and enhance the valley feature. It is expected that the increased buffer and restoration of the valley will provide greater benefits to wildlife and aquatic habitat over the long term.

Provided that the mitigation measures identified above are implemented, the proposed development result in improvements and additional protection to the natural heritage system.

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 l policies and legislation is summarized in **Table 1.**

Table 1. Policy Compliance Assessment

APPLICABLE POLICY / LEGISLATION	RELEVANT EIS FINDINGS AND RECOMMENDATIONS
Federal Fisheries Act (1985)	If "in-water" work is required as part of the proposed bank stabilization, the work must be conducted within the warmwater timing window, which begins July 1 and ends March 31 (i.e. no work between April 1 and June 31). Further, works must be conducted in the dry, and any dewatering would require a fish rescue to remove fish.
Endangered Species Act (2007)	Not applicable.
Provincial Policy Statement (2014) Section 2.1 – Natural Heritage	
1. Habitat for Threatened and Endangered Species	Not applicable.
2. Significant Valleylands	According the criteria set out in the ROP and City OP, Cooksville Creek is a Significant Valleyland. The proposed building, including the associated amenities and servicing infrastructure, will be set back 3 m from the Cooksville Creek valley. This setback represents an improvement over existing conditions under which there is no setback between the existing development and the Cooksville Creek Valley. Works to stabilize and naturalize the valley slope are included as part of the proposed development application. This includes the re-engineering of the valley adjacent Cooksville Creek at a 3:1 slope using engineered soil, the replacement of gabion stone baskets with armour stone retaining walls and additional protection to the toe of the retaining walls in the form of coarse gabion stone or rip-rap stone. The removal of the low-quality vegetation and habitat from the valley slope will be off-set by fully restoring the slope to a more natural condition with native species. The 3 m setback, which is presently asphalt, will also be restored to further protect, expand, and enhance the valley feature. These works represent an improvement to the significant valleylands associated with the subject property over the long term.
3. Significant Wetlands	Not applicable.
4. Significant Coastal Wetlands	No applicable.
5. Significant Woodlands	No applicable.
6. Significant Wildlife Habitat	While the cultural woodland on the property technically meets the criteria for a Migratory Landbird Stopover Area (based on NSEI et al. 2009) there are a number of variables which suggest that the capacity of this habitat to provide this function is limited. These include: - Its linear shape (square and round habitats are preferred over linear habitats to reduce the amount of edge habitat); - It's narrow width (wider habitats are preferred over narrower habitats; and - It's composition, which is pre-dominantly non-native vegetation (mature upland forests are preferred by more migrating birds),

APPLICABLE POLICY / LEGISLATION	RELEVANT EIS FINDINGS AND RECOMMENDATIONS
	Works to stabilize and naturalize the valley slope are included as part of the proposed development application. The removal of the low-quality vegetation and habitat from the valley slope will be off-set by fully restoring the slope to a more natural condition with native species. The 3 m setback, which is presently asphalt, will also be restored to further protect, expand, and enhance the valley feature. Once mature this restoration work will represent an improvement over existing conditions that will improve the capacity of the habitat on the subject property to provide stopover habitat for migratory birds. A variety of shrub species identified in the Native Plant List for Migrating Birds (CVC 2015) have also been incorporated into the restoration plan to provide cover and fruit for migrating birds while the planted trees mature.
7. Significant Areas of Natural and Scientific Interest	Not applicable.
8. Fish Habitat	If "in-water" work is required as part of the bank stabilization, in order to avoid harmful alternation, disruption, or destruction of fish habitat the work must be conducted within the warmwater timing window, which begins July 1 and ends March 31 (i.e. no work between April 1 and June 31). Obtain necessary permits from DFO and CVC for work in or adjacent to fish habitat.
Provincial Policy Statement (2014) Section 2.3 – Natural Hazards	The proposed building, including the associated amenities and servicing infrastructure, will be set back 3 m from the Cooksville Creek valley. This setback represents an improvement over existing conditions under which there is no setback between the existing development and the Cooksville Creek Valley. Works to stabilize and naturalize the valley slope are included as part of the proposed development application. This includes the re-engineering of the valley adjacent Cooksville Creek at a 3:1 slope using engineered soil, the replacement of gabion stone baskets with armour stone retaining walls and additional protection to the toe of the retaining walls in the form of coarse gabion stone or rip-rap stone. The removal of the low-quality vegetation and habitat from the valley slope will be off-set by fully restoring the slope to a more natural condition with native species. The 3 m setback, which is presently asphalt, will also be restored to further protect, expand, and enhance the valley feature. These works represent an improvement to the valleylands associated with the subject property over the long term.
Region of Peel OP	The Regional Greenlands System consists of "Core Areas", "Natural Areas and Corridors (NAC)", and "Potential Natural Areas and Corridors (PNAC)". Core Areas of the Greenlands System are mapped on Schedule A of the Regional Official Plan. Based on this mapping there are no Core Areas associated with the subject property or adjacent lands; however, Cooksville Creek may qualify as Core Valley and Stream Corridor as it drains directly to Lake Ontario.

APPLICABLE POLICY / LEGISLATION	RELEVANT EIS FINDINGS AND RECOMMENDATIONS
	The proposed building, including the associated amenities and servicing infrastructure, will be set back 3 m from the Cooksville Creek valley. This setback represents an improvement over existing conditions under which there is no setback between the existing development and the Cooksville Creek Valley. Works to stabilize and naturalize the valley slope are included as part of the proposed development application. This includes the re-engineering of the valley adjacent Cooksville Creek at a 3:1 slope using engineered soil, the replacement of gabion stone baskets with armour stone retaining walls and additional protection to the toe of the retaining walls in the form of coarse gabion stone or rip-rap stone. The removal of the low-quality vegetation and habitat from the valley slope will be off-set by fully restoring the slope to a more natural condition with native species. The 3 m setback, which is presently asphalt, will also be restored to further protect, expand, and enhance the valley feature. It is expected that stabilization of the valley slope, the increased buffer and restoration of the valley will provide greater benefits to the Regional Greenlands System associated with the subject property over the long term.
Mississauga OP (2016)	
1. Natural Heritage System	The Cooksville Creek valley is part of the City's Natural Heritage System as it supports significant natural areas including: • *Candidate* Significant Wildlife Habitat; • Significant Valleyland; and • Fish Habitat. The proposed building, including the associated amenities and servicing infrastructure, will be set back 3 m from the Cooksville Creek valley. This setback represents an improvement over existing conditions under which there is currently no setback between the existing development and the Cooksville Creek Valley. Works to stabilize and naturalize the valley slope are included as part of the proposed development application. The removal of the low-quality vegetation and habitat from the valley slope will be off-set by fully restoring the slope to a more natural condition with native species. The 3 m setback, which is presently asphalt, will also be restored to further protect, expand, and enhance the valley feature. It is expected that the increased buffer and restoration of the valley will improve the form, feature and functions of the valleyland and the significant natural areas associated with it over the long term by: - Increasing the size and quality of woodland habitat on the subject property that could potentially be used by migratory breeding birds; and - Increasing the width of the natural vegetation associated with the valleyland on the subject property. No changes to the fish habitat associated with Cooksville Creek are anticipated as a result of the proposed development provided the appropriate mitigation measures are implemented during a following construction.

APPLICABLE POLICY / LEGISLATION	RELEVANT EIS FINDINGS AND RECOMMENDATIONS
	It is expected that stabilization of the valley slope, the increased buffer and restoration of the valley will provide greater benefits to the City of Mississauga Natural Heritage System over the long term.
2. Natural Hazard Lands	The proposed building, including the associated amenities and servicing infrastructure, will be set back 3 m from the Cooksville Creek valley. This setback represents an improvement over existing conditions under which there is no setback between the existing development and the Cooksville Creek Valley. Works to stabilize and naturalize the valley slope are included as part of the proposed development application. This includes the re-engineering of the valley adjacent Cooksville Creek at a 3:1 slope using engineered soil, the replacement of gabion stone baskets with armour stone retaining walls and additional protection to the toe of the retaining walls in the form of coarse gabion stone or rip-rap stone. The removal of the low-quality vegetation and habitat from the valley slope will be off-set by fully restoring the slope to a more natural condition with native species. The 3 m setback, which is presently asphalt, will also be restored to further protect, expand, and enhance the valley feature. These works represent an improvement to the valleylands associated with the subject property over the long term.
3. Urban Forest	A tree inventory and preservation plan were prepared for the subject property (Seferian Design Group, 2016). The proposed development and slope restoration will require the removal of 49 trees, 37 of which are ≥15 cm DBH (regulated under the City's private tree by-law). Trees identified for preservation will be protected as per the recommendations in the arborist report recommendations. Replacement trees will be planted on the subject property to restore the urban forest canopy.
CVC Regulations and Policies	
Ontario Regulation 160/06 **Watershed Planning and Regulation Policies (CVC, 2010)**	The proposed building, including the associated amenities and servicing infrastructure, will be limited to areas outside of the Natural Heritage System, including features that are regulated by the CVC, such as wetlands, watercourses, and natural hazards (i.e. valley slopes). Works to stabilize and naturalize the valley slope are included as part of the proposed development application. This includes the re-engineering of the valley adjacent Cooksville Creek at a 3:1 slope using engineered soil, the replacement of gabion stone baskets with armour stone retaining walls and additional protection to the toe of the retaining walls in the form of coarse gabion stone or rip-rap stone. The removal of the low-quality vegetation and habitat from the valley slope will be off-set by fully restoring the slope to a more natural condition with native species. The 3 m setback, which is presently asphalt, will also be restored to further protect, expand, and enhance the valley feature.

APPLICABLE POLICY / LEGISLATION	RELEVANT EIS FINDINGS AND RECOMMENDATIONS
	CVC policies typically require a 10 m development setback from the greater of the long-term stable top of slope or the physical top of slope. However, CVC staff members were present at a meeting between members of the project team and staff from the City where a conceptual plan was presented and agreed to that included a reconstructed wall, a 3:1 slope and a 3m buffer from the long-term stable top of slope. Based on this a 3m setback from the long-term stable top of slope has been applied to the long-term stable top of slope. It will be necessary to obtain a permit from the CVC as part of the valley stabilization and naturalization.

9. Conclusion

Higher Living Development Inc. is proposing to redevelop the property located at 86 and 90 Dundas Street East in the City of Mississauga.

Under existing conditions the subject property currently contains a vacant building and car dealership. The tableland portion of the site is currently developed and consisted of pavement. The Cooksville Creek valley is located on the west side of the property which is part of the City of Mississauga's Natural Heritage System.

This EIS describes the natural heritage features and ecological functions associated with the property and surrounding area, 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.

The proposed redevelopment consists of a 29-storey residential building with four levels of underground parking. The proposed building, and its associated amenities and servicing infrastructure will be set back 3.0 m from the Cooksville Creek valley, outside of any natural hazard lands.

Works to stabilize and naturalize the valley slope are included as part of the proposed development application. The removal of the low-quality vegetation and habitat from the valley slope will be off-set by fully restoring the slope to a more natural condition with native species. The 3.0 m setback, which is presently asphalt, will also be restored to further protect, expand, and enhance the valley feature. The increased buffer and restoration of the valley represent an improvement to the existing valleylands on the subject property and will result in an improvement to its form, features and functions over the long term.

The proposed re-development also includes the re-engineering of the valley adjacent Cooksville Creek at a 3:1 slope using engineered soil, the replacement of gabion stone baskets with armour stone retaining walls and additional protection to the toe of the retaining walls in the form of coarse gabion stone or rip-rap stone.

Potential indirect impacts to the NHS include disturbances to nesting birds; runoff related impacts (e.g. sediment and erosion); and alteration to groundwater flows. A variety of mitigation measures have been recommended to avoid, minimize, or off-set these impacts.

In summary, the proposed development will not adversely impact the natural heritage features and ecological functions associated with the Natural Heritage System provided that the mitigation measures recommended in this report are implemented. Furthermore, by establishing the proposed 10 m setback to the valleyland, where currently no setback exists, and fully restoring the valley slope, the proposed re-development of the site will result in a net benefit to the NHS.

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Appendix A

Vascular Plant Species List

Appendix A

Vascular Plant Species List

Family Name	Scientific Name	Common Name	S-Rank
Aceraceae	*Acer negundo*	Manitoba Maple	S5
Aceraceae	*Acer platanoides*	Norway Maple	SNA
Aceraceae	*Acer* x *freemanii*	Freeman's Maple	S5
Aceraceae	*Acer saccharinum*	Silver Maple	S5
Anacardiaceae	*Rhus hirta*	Staghorn Sumac	S5
Asclepiadaceae	*Asclepias syriaca*	Common Milkweed	S5
Asteraceae	*Ambrosia artemisiifolia*	Annual Ragweed	S5
Asteraceae	*Arctium* sp.	Burdock Species	SNA
Asteraceae	*Artemisia* sp.	Wormwood Species	SNA
Asteraceae	*Cichorium intybus*	Chicory	SNA
Asteraceae	*Cirsium arvense*	Creeping Thistle	SNA
Asteraceae	*Cirsium vulgare*	Bull Thistle	SNA
Asteraceae	*Erigeron philadelphicus* var. *philadelphicus*	Philadelphia Fleabane	S5
Asteraceae	*Leucanthemum vulgare*	Oxeye Daisy	SNA
Asteraceae	*Matricaria discoidea*	Pineapple-weed	SNA
Asteraceae	*Solidago canadensis*	Canada Goldenrod	S5
Asteraceae	*Solidago canadensis* var. *scabra*	Tall Goldenrod	S5
Asteraceae	*Sonchus arvensis* ssp. *arvensis*	Field Sowthistle	SNA
Asteraceae	*Symphyotrichum lanceolatum* ssp. *lanceolatum*	Panicled Aster	S5
Asteraceae	*Symphyotrichum lateriflorum* var. *lateriflorum*	Calico Aster	S5
Asteraceae	*Taraxacum officinale*	Common Dandelion	SNA
Asteraceae	*Tussilago farfara*	Colt's Foot	SNA
Brassicaceae	*Alliaria petiolata*	Garlic Mustard	SNA
Caprifoliaceae	*Lonicera tatarica*	Tartarian Honeysuckle	SNA
Caprifoliaceae	*Sambucus nigra* ssp. *canadensis*	Common Elderberry	S5
Celastraceae	*Euonymus europaea*	European Spindle-tree	SNA
Cornaceae	*Cornus racemosa*	Gray Dogwood	S5
Cornaceae	*Cornus sericea* ssp. *sericea*	Red-osier Dogwood	S5
Dipsacaceae	*Dipsacus fullonum* ssp. *sylvestris*	Common Teasel	SNA
Fabaceae	*Coronilla varia*	Crown-vetch	SNA
Fabaceae	*Lotus corniculatus*	Bird's-foot Trefoil	SNA
Fabaceae	*Medicago lupulina*	Black Medic	SNA
Fabaceae	*Melilotus alba*	White Sweet Clover	SNA

Family Name	Scientific Name	Common Name	S-Rank
Fabaceae	*Trifolium hybridum* ssp. *elegans*	Alsike Clover	SNA
Fabaceae	*Trifolium pratense*	Red Clover	SNA
Fabaceae	*Trifolium repens*	White Clover	SNA
Lamiaceae	*Leonurus cardiaca* ssp. *cardiaca*	Common Motherwort	SNA
Lamiaceae	*Nepeta cataria*	Catnip	SNA
Liliaceae	*Hemerocallis fulva*	Orange Daylily	SNA
Lythraceae	*Lythrum salicaria*	Slender-spike Loosestrife	SNA
Moraceae	*Morus alba*	White Mulberry	SNA
Oleaceae	*Fraxinus pennsylvanica*	Green Ash	S5
Pinaceae	*Picea pungens*	Colorado Spruce	SNA
Pinaceae	*Pinus strobus*	Eastern White Pine	S5
Plantaginaceae	*Plantago major*	Nipple-seed Plantain	SNA
Poaceae	*Bromus inermis* ssp. *inermis*	Smooth Brome	SNA
Poaceae	*Dactylis glomerata*	Orchard Grass	SNA
Poaceae	*Elymus repens*	Quack Grass	SNA
Poaceae	*Phalaris arundinacea*	Reed Canary Grass	S5
Poaceae	*Poa pratensis* ssp. *pratensis*	Kentucky Bluegrass	S5
Polygonaceae	*Polygonum cuspidatum*	Japanese Knotweed	SNA
Ranunculaceae	*Clematis virginiana*	Virginia Virgin-bower	S5
Ranunculaceae	*Ranunculus acris*	Tall Buttercup	SNA
Rhamnaceae	*Rhamnus cathartica*	Buckthorn	SNA
Rosaceae	*Geum canadense*	White Avens	S5
Rosaceae	*Geum urbanum*	Clover-root	SNA
Rosaceae	*Malus pumila*	Common Apple	SNA
Rosaceae	*Prunus virginiana* var. *virginiana*	Choke Cherry	S5
Rosaceae	*Rubus idaeus* ssp. *strigosus*	Wild Red Raspberry	S5
Rosaceae	*Rubus occidentalis*	Black Raspberry	S5
Rosaceae	*Sorbus intermedia*	Swedish Whitebeam	SNA
Salicaceae	*Salix discolor*	Pussy Willow	S5
Salicaceae	*Salix* x *rubens*	Reddish Willow	SNA
Scrophulariaceae	*Linaria vulgaris*	Butter-and-eggs	SNA
Scrophulariaceae	*Verbascum thapsus*	Common Mullein	SNA
Solanaceae	*Solanum dulcamara*	Climbing Nightshade	SNA
Ulmaceae	*Ulmus pumila*	Siberian Elm	SNA
Vitaceae	*Parthenocissus vitacea*	Thicket Creeper	S5
Vitaceae	*Vitis riparia*	Riverbank Grape	S5

Appendix B

Breeding Bird List

Appendix B

Breeding Bird List

Common Name	Scientific Name	Status						Breeding Status[f]
		National Species at Risk COSEWIC[a]	Species at Risk in Ontario Listing[b]	Provincial Breeding Season SRANK[c]	TRCA Status[d]	Regional Status	Area-sensitive (OMNR)[e]	
Ring-billed Gull	*Larus delawarensis*			S5	L4			FO/NB
Rock Pigeon	*Columba livia*			SNA	L+			X
Chimney Swift	*Chaetura pelagica*	THR	THR	S4	L4			FO/NB
American Robin	*Turdus migratorius*			S5	L5			X
European Starling	*Sturnus vulgaris*			SE	L+			X
Song Sparrow	*Melospiza melodia*			S5	L5			X
American Goldfinch	*Spinus tristis*			S5	L5			X
House Sparrow	*Passer domesticus*			SNA	L+			X

KEY
[a] COSEWIC = Committee on the Status of Endangered Wildlife in Canada
[b] Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario)
END = Endangered, THR = Threatened, SC = Special Concern
[c] SRANK (from Natural Heritage Information Centre) for breeding status if:
S1 (Critically Imperiled), S2 (Imperiled),S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure)
SNA (Not applicable…'because the species is not a suitable target for conservation activities'; includes non-native species)
[d] Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide (Appendix G). 151 p plus appendices.
[e] Breeding Status: X = Breeding; FO =flyover; NB = Not Breeding