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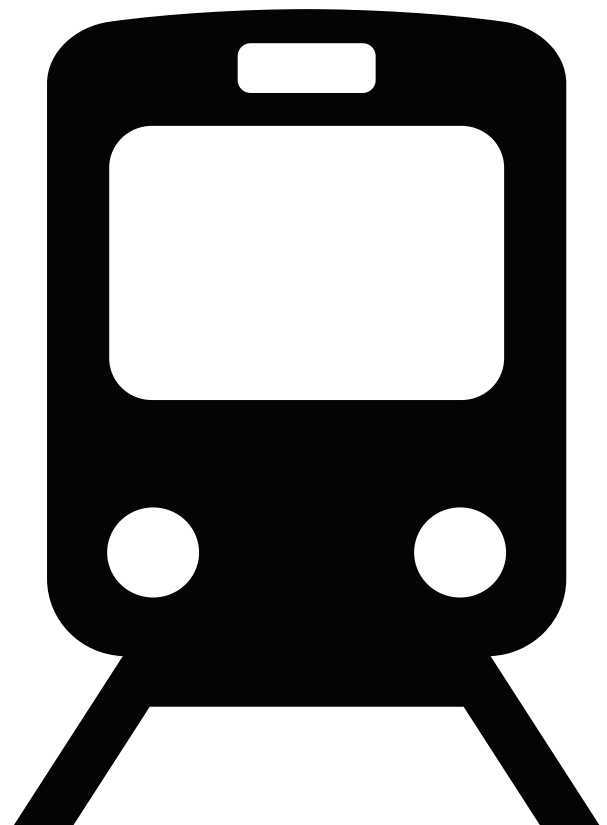
# EGLINTON CROSSTOWN WEST EXTENSION

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## ENVIRONMENTAL PROJECT REPORT – 2020 ADDENDUM

### APPENDIX B

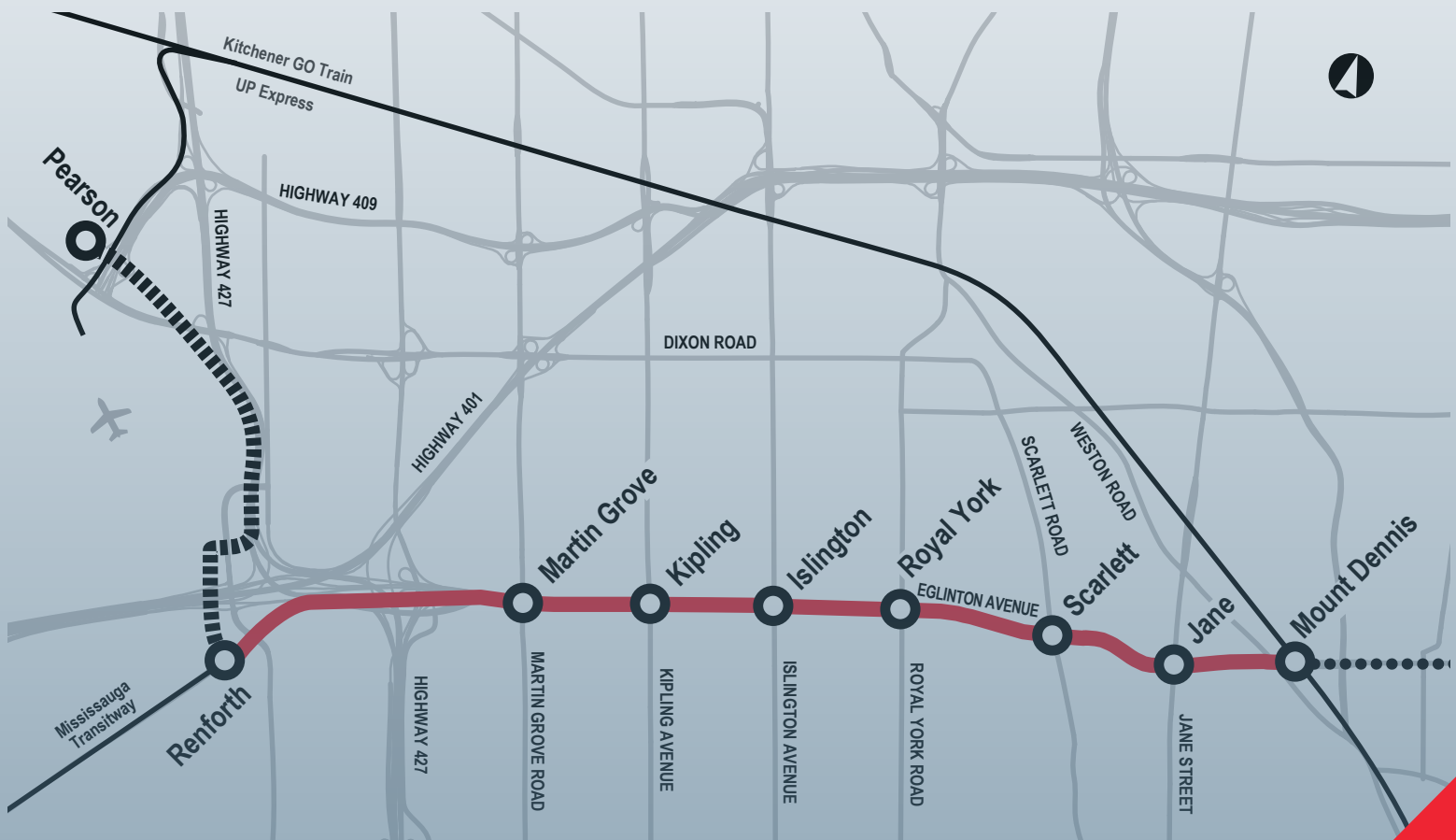
### NATURAL ENVIRONMENT SUMMARY REPORT



# EGLINTON CROSSTOWN WEST EXTENSION

## Transit Project Assessment Process Natural Environment Summary Report

May 2020



**Metrolinx**  
**Eglinton Crosstown West Extension**  
Contract: TC85-3A

## Natural Environment Summary Report

Issue and Revision Record					
Rev	Date	Originator	Checker	Approver	Description
A	February 21, 2020	Nicole Nolan	Martine Esraelian	Marianne Alden	Initial Submission
B	March 5, 2020	Natasha Welch	Martine Esraelian	Marianne Alden	Second Submission
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D	May 29, 2020	Natasha Welch	Martine Esraelian	Marianne Alden	For Information

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- Appendix C - Site Photographs
- Appendix D - Species Lists
- Appendix E - SWH Assessment
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## Acronyms

ANSI	Areas of Natural and Scientific Interest
CGL	Constructed Greenland
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CP	Cross Passage
CTC	Credit Valley-Toronto and Region-Central Lake Ontario
DFO	Department of Fisheries and Oceans Canada
E&S	Erosion and Sedimentation
ECLRT	Eglinton Crosstown Light Rail Transit
ECWE	Eglinton Crosstown West Extension
EEB	Emergency Exit Building
EIS	Environmental Impact Study
ELC	Ecological Land Classification
EPR	Environmental Project Report
ES	Extraction Shaft
ESA	Endangered Species Act
ESC	Erosion and Sediment Control
ESPA	Environmentally Sensitive Policy Area
FOM	Mixed Forest
FOD	Deciduous Forest
FWCA	Fish and Wildlife Conservation Act
GIN	Groundwater Information Network
GPGGH	Growth Plan for the Greater Golden Horseshoe
GTHA	Greater Toronto and Hamilton Area
HADD	Harmful Alteration, Disruption or Destruction

LIO	Land Information Ontario
LRT	Light Rail Transit
LS	Launch Shaft
MAS	Shallow Marsh
MBCA	Migratory Birds Convention Act
MECP	Ministry of Environment, Conservation and Parks
MEM	Mixed Meadow
MMAH	Ministry of Municipal Affairs and Housing
MNDM	Ministry of Northern Development and Mines
MNRF	Ministry of Natural Resources and Forestry
MS	Maintenance Shaft
MSF	Maintenance and Storage Facility
NES	Natural Environmental Summary
NHIC	Natural Heritage Information Centre
NHS	Natural Heritage System
NHSGP	Natural Heritage System for the Growth Plan
OBBA	Ontario Breeding Bird Atlas
OMNR	Ontario Ministry of Natural Resources
O. Reg.	Ontario Regulation
ORAA	Ontario Reptile and Amphibian Atlas
PPS	Provincial Policy Statement
PSW	Provincially Significant Wetland
RNFP	Ravine & Natural Feature Protection
ROW	Right-of-Way
SAC	Spills Action Centre
SAR	Species at Risk
SARA	Species at Risk Act
SARO	Species at Risk in Ontario
SoCC	Species of Conservation Concern
SWD	Deciduous Swamp
SWH	Significant Wildlife Habitat
SWHTG	Significant Wildlife Habitat Technical Guide
TBM	Tunnel Boring Machine
TCG	Transit City Group
TPAP	Transit Project Assessment Process
TPSS	Traction Power Substation
TRCA	Toronto and Region Conservation Authority
TTC	Toronto Transit Commission
VES	Visual Encounter Survey
WOD	Deciduous Woodland

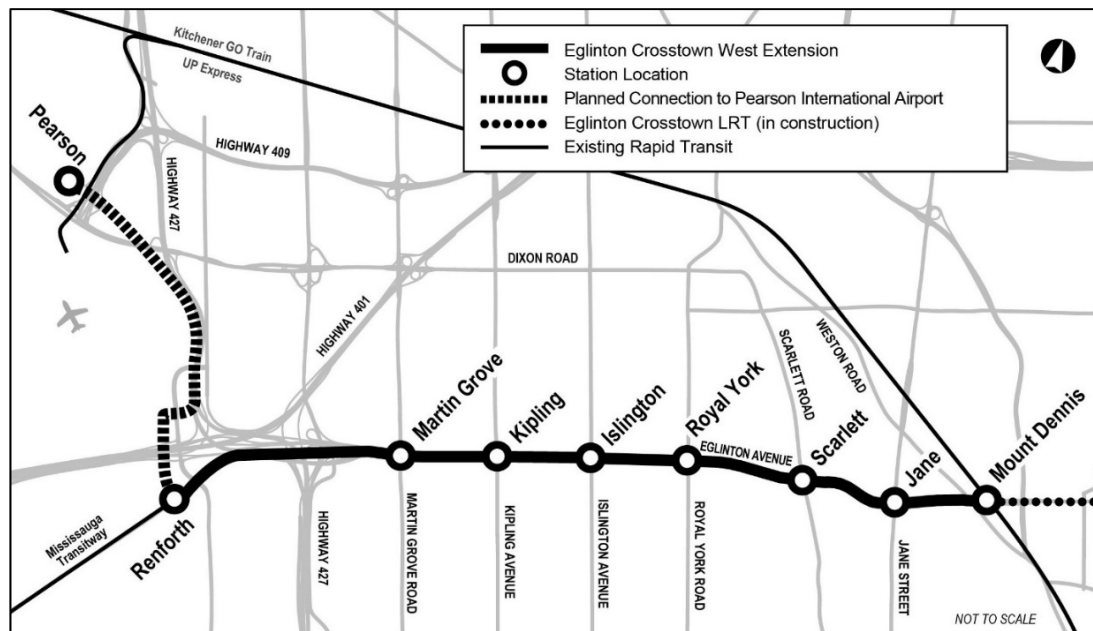
## 1. Introduction

On May 17, 2010, the Minister of the Environment, Conservation and Parks (previously the Minister of the Environment; the Minister) for the Province of Ontario issued a Notice to Proceed to the Toronto Transit Commission (TTC) and the City of Toronto for the Eglinton Crosstown Light Rail Transit (ECLRT) Project, a 33-kilometre electrically-powered Light Rail Transit (LRT) line extending from the Lester B. Pearson International Airport in the City of Mississauga, to Kennedy Station in the City of Toronto. The basis for that Notice was the Environmental Project Report prepared in 2010 (2010 EPR) as part of the *Transit Project Assessment Process (TPAP)* found in Ontario Regulation (*O. Reg.*) 231/08 under the Ontario Environmental Assessment Act.

The 2010 Environmental Project Report (EPR) for the Eglinton Crosstown LRT was undertaken by the City of Toronto and the TTC as co-proponents. Subsequently, in 2012, Metrolinx became the sole proponent for the ECLRT Project and initiated an EPR Addendum for changes to the approved ECLRT Project between Keele Street to Jane Street, as well as the Maintenance and Storage Facility at Black Creek. Assessment of these changes to the 2010 EPR was documented in the 2013 EPR Addendum. After a 30-day public comment period, and the 35-day review by the Minister, the Minister issued a Notice to Allow a Change to the Transit Project in accordance to *O. Reg.* 231/08 in December 2013. Construction of the ECLRT Project is currently underway between Kennedy Station and Mount Dennis Station.

In April 2019, the province announced a \$28.5 billion expansion to Ontario's transit network in an effort to bring relief and new opportunities to transit users and commuters. This rapid transit project plan includes the new Ontario Line (formerly the Downtown Relief Line), the Yonge North Subway Extension, the three-stop Scarborough Subway Extension, and the extension for Eglinton Crosstown West between Mount Dennis Station and Renforth Drive.

Since the completion of the 2010 EPR and 2013 EPR Addendum, a number of changes have been proposed to the segment of the ECLRT project between Mount Dennis Station in the City of Toronto and Renforth Drive in the City of Mississauga, known as the Eglinton Crosstown West Extension (ECWE) (the Project) shown in Figure 1-1. The changes to the Project, were determined to be inconsistent with a previously approved EPR and requires a reassessment of the impacts associated with the project, the identification of potentially new mitigation measures, and potentially new monitoring systems, in accordance with the addendum process prescribed in *O. Reg.* 231/08.



**Figure 1-1: Eglinton Crosstown West Extension**

A connection to Lester B. Pearson International Airport (as originally part of the 2010 ECLRT Project) is also being considered. This planned connection, between Renforth Drive and Lester B. Pearson International Airport, will be assessed separately in accordance with the addendum process prescribed in *O. Reg. 231/08*.

## 1.1 Summary of Proposed Design Changes

The proposed design changes currently being assessed in accordance with *O. Reg. 231/08* are as follows:

### Vertical Alignment

- The Project alignment (approximately 9.2 km in length) will run mostly underground along Eglinton Avenue West from the future Mount Dennis ECLRT Station in the City of Toronto to Renforth Drive in the City of Mississauga;
- The Project will be underground from Mount Dennis Station to east of Jane Station; elevated east of Jane Street to west of Scarlett Road; underground from west of Scarlett Road to east of the Renforth portal; and transitions to partially at-grade to Renforth Station;
- The Project features three portals, which serve as approach entrances where the alignment transitions between underground and elevated, at the following locations:
  - East of Jane Street;
  - West of Scarlett Station; and
  - West of Renforth Drive.

### Stations and Ancillary Features

- There will be a total of seven stations between Mount Dennis Station and Renforth Drive:
  - Scarlett and Jane Stations will be elevated;
  - Martin Grove, Kipling, Islington and Royal York Stations will be below grade and include associated ancillary features (e.g., vent shafts, Traction Power Substations (TPSSs); Emergency Exit Buildings (EEBs), Cross Passages (CPs)); and
  - The new terminal station at Renforth will be partially at-grade.

### Emergency Exit Buildings

Six new EEBs are located along the underground portion of the alignment at the following locations:

- EEB-1 - located near 4000 Eglinton Avenue West, east of Royal York Road;
- EEB-2 - located west of Russell Road and Eden Valley Drive;
- EEB-3 - located east of Wincott Drive/Bemersyde Drive;
- EEB-4 - located west of Mimico Creek;
- EEB-5 - located between the on and off ramps of Highway 427; and
- EEB-6 - located immediately west of the hydro corridor at Eglinton Avenue West.

### Construction

The underground section will be constructed using a Tunnel Boring Machine (TBM) between stations and a cut and cover method at stations and portal locations. A proposed Extraction Shaft (ES), Maintenance Shaft (MS), and Launch Shaft (LS) for the TBM will be located in the following areas:

- A LS for the TBM will be located adjacent to Renforth Station;
- A MS will be located near the west end of the Islington Station. This will be removed at the end of construction; and
- An ES for the TBM will be located west of Scarlett Road.

A new bridge across the Humber River east of Scarlett Road will be constructed as part of the elevated guideway, including two elevated stations (i.e., Jane Station and Scarlett Station).

Table 1-1 compares the project components, as assessed in the 2010 EPR and 2013 EPR Addendum, against the proposed design changes currently being assessed for this Project and provides a rationale for these changes. These changes to the Project were determined to be inconsistent with the 2010 EPR and 2013 EPR Addendum. As described in Section 15 of *O. Reg. 231/08*, any change that is inconsistent with a previously approved EPR requires a reassessment of the impacts associated with the project, the identification of potentially new mitigation measures, and potentially new monitoring systems in an Addendum to the previously approved EPR. This Natural Environment Summary Report documents the reassessment of the impacts associated with the project, the identification of potentially new mitigation measures, and potentially new monitoring systems.

**Table 1-1: Differences between 2010 EPR, 2013 EPR Addendum and 2020 EPR Addendum**

Project Component	2010 EPR and 2013 EPR Addendum	2020 EPR Addendum	Rationale for Change
Vertical Alignment	<p>The 2010 EPR proposed:</p> <ul style="list-style-type: none"> <li>An at-grade alignment from Lester B. Pearson International Airport to Weston Road with a new bridge over Highway 401 to connect Convair Drive to Commerce Boulevard; and</li> <li>Operational crossovers and storage (pocket) tracks between Commerce Boulevard and Renforth Drive and east of the Martin Grove Road stop to provide operational flexibility and allow LRT vehicles to change travel directions from one track to another.</li> </ul> <p>In the 2013 EPR Addendum, changes to the alignment were proposed including:</p> <ul style="list-style-type: none"> <li>Revised LRT alignment between Jane Street and Keelesdale Park from surface alignment with surface stops to a completely grade-separated alignment;</li> <li>Revised track alignment connecting the mainline and the proposed Black Creek Maintenance and Storage Facility (MSF) from an at-grade connection to a grade-separated connection; and</li> <li>New passenger tunnel connection under the GO Transit Kitchener Rail and Canadian Pacific Railway corridors.</li> </ul>	<p>The 2020 EPR Addendum is proposing:</p> <ul style="list-style-type: none"> <li>Below grade alignment from Mount Dennis Station to east of Jane Street;</li> <li>Elevated guideway from east of Jane Street to west of Scarlett Road;</li> <li>Below grade alignment from west of Scarlett Road to west of Renforth Drive;</li> <li>Partially below grade alignment from Renforth Drive to Renforth Station;</li> <li>Portal located just east of Jane Street when the alignment transitions from underground to the elevated guideway;</li> <li>Portal for the advanced tunnelled construction located west of Scarlett Station; and</li> <li>Portal located west of Renforth Drive.</li> </ul>	<p>The change in alignment from at-grade to underground and elevated provides:</p> <ul style="list-style-type: none"> <li>More reliable service due to full grade separation;</li> <li>Higher level of protection from severe weather;</li> <li>Increased number of Greater Toronto and Hamilton Area (GTHA) jobs accessible by transit in 45 minutes;</li> <li>Greater reduction in Greenhouse Gas emissions;</li> <li>Greater increase in GTHAs two-hour peak travel time savings;</li> <li>Larger increase in Transitway and Crosstown weekly boarding's to reduce the connectivity gap;</li> <li>Reduced property impacts; and</li> <li>Reduced potential flooding impacts at the Humber River crossing.</li> </ul>



Project Component	2010 EPR and 2013 EPR Addendum	2020 EPR Addendum	Rationale for Change
Stations and Ancillary Features	<p>The 2010 EPR proposed:</p> <ul style="list-style-type: none"> <li>17 median surface stops at Jane Street, Scarlett Road, Mulham Place, Royal York Road, Russell Road/Eden Valley Drive, Islington Avenue, Wincott Drive/Bemersyde Drive, Kipling Avenue, Widdicombe Hill Boulevard/Lloyd Manor Road, Martin Grove Road, The East Mall, Rangoon Road, Renforth Drive, Commerce Boulevard, Convair Drive, Silver Dart Drive, and Lester B. Pearson International Airport.</li> </ul> <p>In the 2013 EPR Addendum, considerations to stops and other ancillary features included:</p> <ul style="list-style-type: none"> <li>Consolidation of the Weston Stop and the Black Creek Stop into one new underground Mount Dennis Station located at the GO Transit Kitchener Rail corridor;</li> <li>Addition of the Black Creek MSF site at Mount Dennis; and</li> <li>Addition 15-bay bus terminal and Passenger Pick Up and Drop off at the Mount Dennis Station.</li> </ul>	<p>A total of seven stations between Mount Dennis Station and Renforth Drive:</p> <ul style="list-style-type: none"> <li>Scarlett and Jane Stations are elevated;</li> <li>Martin Grove, Kipling, Islington and Royal York Stations are below-grade with associated ancillary features (e.g., vent shafts, TPSSs, EEBs, CPs);</li> <li>New terminal station at Renforth Drive is partially at-grade; and</li> <li>Stations at Rangoon Road, The East Mall, Widdicombe Hill Boulevard/Lloyd Manor Road, Wincott Drive/Bemersyde Drive, Russell Road/Eden Valley Drive and Mulham Place were removed from the Project.</li> </ul>	<p>Change in number of stations provides benefits in terms of:</p> <ul style="list-style-type: none"> <li>Construction complexity and cost for below-grade stations; and</li> <li>Reduced property impacts.</li> </ul>
Emergency Exit Buildings (EEB)	<p>No emergency exits along this section in either the 2010 EPR or the 2013 EPR Addendum as the alignment was at-grade.</p>	<p>Six EEBs at the following approximate locations:</p> <ul style="list-style-type: none"> <li>EEB-1 - near 4000 Eglinton Avenue West, east of Royal York Road;</li> <li>EEB-2 - west of Russell Road and Eden Valley Drive;</li> <li>EEB-3 - east of Wincott Drive / Bemersyde Drive;</li> <li>EEB-4 - west of Mimico Creek;</li> </ul>	<p>Emergency exits for passengers and emergency access for fire fighters are required for tunnels under the National Fire Protection Agency Standard 130. The distance between EEBs and station platform must not exceed 762 m.</p>



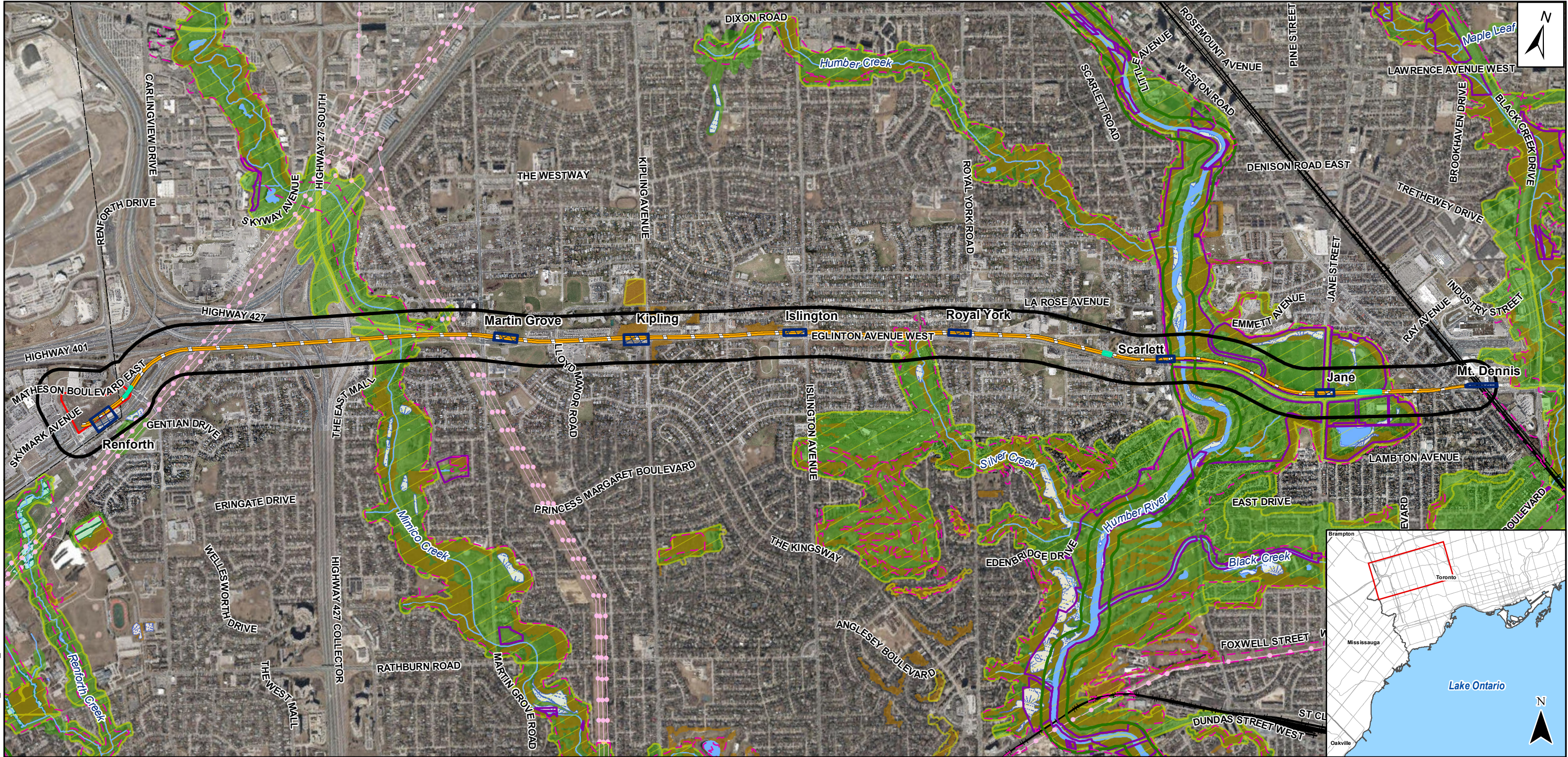
Project Component	2010 EPR and 2013 EPR Addendum	2020 EPR Addendum	Rationale for Change
		<ul style="list-style-type: none"> <li>• EEB-5 - between the on and off ramps of Highway 427; and</li> <li>• EEB-6 - immediately west of the hydro corridor at Eglinton Avenue West.</li> </ul>	
Construction	<p>The 2010 EPR proposed:</p> <ul style="list-style-type: none"> <li>• At-grade construction between Mount Dennis and Renforth Drive with dedicated runningway along the centre line of Eglinton Avenue West, Commerce Boulevard, and Convair Drive;</li> <li>• Cut and cover method will be used to construct stations, portals, and special track work;</li> <li>• Road widening, reconstruction of curb lines and associated sidewalk modifications;</li> <li>• Relocation of utilities and relocation of traffic signals and provision of temporary traffic signals;</li> <li>• Roadway resurfacing following roadway reconstruction;</li> <li>• Construct LRT facilities within the LRT Right-of-Way (ROW);</li> <li>• Construct streetscaping and urban design elements and provide bicycle lanes on both sides of the roadway;</li> <li>• Widening of the existing single span bridge structure over Mimico Creek to accommodate the LRT ROW; and</li> <li>• Construction of a multi-span structure over Highway 401.</li> </ul>	<ul style="list-style-type: none"> <li>• Elevated guideway from east of Jane Street to west of Scarlett Road;</li> <li>• Two elevated stations (Scarlett and Jane). There is potential for impacts to the pedestrian bridge west of Scarlett Road due to the portal; and</li> <li>• Underground section to be constructed using twin tunnelling method between stations and cut and cover method at stations and at portal locations.</li> </ul> <p>Underground tunnel construction approach:</p> <ul style="list-style-type: none"> <li>• A LS for the TBM will be located adjacent to Renforth Station, a MS will be located at the west end of Islington Station, and an ES for the TBM will be located west of Scarlett Road;</li> <li>• Install headwalls, where required, at both ends of EEBs and stations;</li> <li>• Tunnel structure constructed using precast concrete tunnel liner segments that are installed as the TBM progresses;</li> <li>• Excavated soils will be removed from work site for off-site disposal and</li> <li>• EEBs will be constructed once the TBM has completed the tunnelling. Construction is similar to station construction.</li> </ul>	Construction is required to build the alignment and new stations. Refer to the rationale for change listed under Vertical Alignment and Stations and Ancillary Features above.

Project Component	2010 EPR and 2013 EPR Addendum	2020 EPR Addendum	Rationale for Change
	<p>The 2013 EPR Addendum proposed:</p> <ul style="list-style-type: none"> <li>Cut and cover construction at Mount Dennis Station and locations of special track work (focused to 150 m long sections at each station), tail tracks and where the LRT emerges through a tunnel portal to match back into grade along the median of Eglinton Avenue West, and in the underground section west of Weston Road.</li> </ul>	<p>As part of the above ground construction:</p> <ul style="list-style-type: none"> <li>A new bridge across the Humber River east of Scarlett Road will be constructed as part of the elevated guideway, including two elevated stations (i.e., Jane Station and Scarlett Station). Construction of the new bridge will include: <ul style="list-style-type: none"> <li>Building foundations for piers;</li> <li>Constructing piers;</li> <li>Building and placing bridge sections; and</li> <li>Installing systems and track.</li> </ul> </li> </ul>	

## **1.2 Study Area**

The study area for the Natural Environmental Summary (NES) extends 150 m from the Project footprint, as shown in Figure 1-2. The study area was determined in consideration of the design, construction and operation of the Project and potential effects to the natural heritage features present in the area. A study area of 120 m is generally accepted for environmental impact studies, with an additional 30 m added to account for any design changes.





**Legend**

Study Area - 150 m

Station Site (approximate)

Portals (approximate)

Staging Area - approximate, subject to change

Alignment Footprint

Permanent Watercourse

Waterbody

Provincially Significant Wetland

Unevaluated Wetland

Woodland

Greenbelt Plan Area

TRCA Regulation Limit

TRCA Property

Natural Heritage System (NHS)

Ravine and Natural Feature Protection By-Law

Municipal Boundary

Hydro Corridor

Railway

**DATA SOURCES:**

- Ontario Open Data Catalogue - Roads and Railways
- Land Information Ontario - Greenbelt Plan Area, Waterbodies, Wetlands, Municipal Boundaries, Watercourses, Woodland Areas, Hydro Corridor
- Toronto Region Conservation Authority - Ravine By-Law Areas, TRCA Properties, Natural Heritage System Areas, Regulation Limit
- City of Toronto - Basemap

**NOTES:**

Locations of all alignments, stations, and structural elements are conceptual and subject to change

Datum: NAD83 CSRS

Projection: MTM 10

1:25,000



## 2. Environmental Policy Context

Relevant natural heritage planning legislation and policies pertinent to this study are outlined below and organized by level of government - federal, provincial, regional, and municipal.

### 2.1 Federal

#### 2.1.1 *Species at Risk Act*

Species that are classified as Endangered and Threatened in Schedule 1 of the *Species at Risk Act* (SARA) are protected under the provisions of the Act, which includes protection to the species and their residence (e.g., nest, den). While SARA applies to species on federal land, such as Canadian oceans and waterways, national parks, national wildlife areas, some migratory bird sanctuaries and First Nations reserve lands, it also applies to Species at Risk (SAR) migratory birds protected under the Migratory Birds Convention Act (MBCA) and fish, anywhere they occur. Therefore, SARA would only apply to SAR migratory birds and fish for this project.

#### 2.1.2 *Fisheries Act*

*Fisheries Act* (1985) regulates fishing and protects fish and the habitats they need to reproduce, grow, and survive. Amendments to the *Fisheries Act* came into effect on August 28, 2019. With these amendments, the focus of the *Fisheries Act* shifts from protecting the productivity of recreational, commercial and Aboriginal fisheries, to protecting all fish and fish habitat.

Under the updated legislations, the term 'Serious harm to fish', which was defined as "the death of fish or any permanent alteration to, or destruction of, fish habitat", has been repealed, and the previous prohibition against 'Harmful Alteration, Disruption or Destruction of fish habitat' (HADD), restored. Fisheries and Oceans Canada interprets HADD to mean:

"any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes of fish." (Department of Fisheries and Oceans Canada (DFO) 2019)

Under the new fish and fish habitat provisions, the Fisheries Act states:

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

and

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

The term 'fish habitat' is now defined as:

"water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas" (Subsection 2 (1)).

This amendment is designed to protect all fish and fish habitat, opposed to only recreational, commercial and Aboriginal fisheries, and the fish and fish habitat that support those fisheries. The definition of ‘fishery’ has also been modified “with respect to any fish” and includes:

- “(a) any of its [fish] species, populations, assemblages and stocks, whether the fish is fished or not;
- (b) any place where fishing may be carried on;
- (c) any period during which fishing may be carried on;
- (d) any method of fishing used; and
- (e) any type of fishing gear or equipment or fishing vessel used”. (Subsection 2 (1)).

### **2.1.3 *Migratory Birds Convention Act, 1994***

The MBCA and associated Regulations have the goal of ensuring the conservation of migratory bird populations by regulating potentially harmful human activities. Environment and Climate Change Canada administers the MBCA through the Migratory Birds Regulations and Migratory Birds Sanctuary Regulations.

Section 12 of the MBCA prohibits capturing, killing, injuring, taking or disturbing of migratory birds, their eggs and nests. Aquatic and other habitats used by migratory birds is also protected in accordance with Section 5 of the MBCA. This includes prohibitions on depositing (or allowing to be deposited) substances harmful to migratory birds, including in areas frequented by migratory birds, or that has the potential to enter waters where they occur.

Any tree removals would need to be completed outside of the breeding bird season (April 1 to August 31) to avoid disturbing active nests of migratory birds protected under the Act.

## **2.2 Provincial**

### **2.2.1 *Provincial Policy Statement***

The Provincial Policy Statement, 2020 (PPS 2020) was issued under Section 3 of the *Planning Act*, and came into effect May 1, 2020. The PPS 2020 provides the framework for provincial planning documents and regulating land use and development planning policies for specific geographic areas within Ontario. Provincial plans relevant to the Project study area include the Greenbelt Plan (section 2.2.2) and A Place to Grow: Growth Plan for the Greater Golden Horseshoe (section 2.2.3).

There are a number of natural heritage provisions in Section 2.1 of the PPS 2020. These provisions restrict development and site alteration in significant natural areas (e.g., woodlands, wetlands, significant wildlife habitat) unless it can be demonstrated that there will be no negative effects on the features and ecological functions of those natural areas. Technical guidance for implementing the natural heritage policies of the PPS 2020 is found within the second edition of the Natural Heritage Reference Manual (Ministry of Natural Resources and Forestry (MNRF), 2010). This manual recommends the approach and technical criteria for protecting natural heritage features and areas in Ontario.

Section 2.2 of the PPS 2020 requires planning to account for the quality and quantity of water at the watershed level and restricts development and site alteration “in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored”. This includes minimizing potential negative impacts on water resource systems and evaluating and preparing for impacts from a changing climate.

The PPS 2020 applies to projects approved under the *Planning Act* and thus does not apply directly to the Project. However, it is Metrolinx’s objective to meet the intent of the PPS 2020 to the extent possible.

### 2.2.2 **Greenbelt Plan**

The Greenbelt Plan identifies where urbanization should not occur in order to provide permanent protection to existing important features (e.g., agricultural land, ecological, hydrological) and functions occurring within the Greater Golden Horseshoe (Ministry of Municipal Affairs and Housing (MMAH), 2017). The Humber River is designated as an Urban River Valley within the Greenbelt Plan. The goal of the Greenbelt Plan with respect to the Urban River Valley features include:

- Protection of natural and open space lands along river valleys in urban areas which will assist in ecologically connecting the rest of the Greenbelt Area to the Great Lakes and other inland lakes;
- Protection of natural heritage and hydrologic features and functions along urban river valleys, including coastal wetlands;
- Conservation of cultural heritage resources;
- Provision of a gateway to the rural landscape of the Greenbelt; and
- Provision of a range of natural settings on publicly owned lands for recreational, cultural and tourism uses, including parkland, open space land and trails.

Only publicly owned lands are subject to the Urban River Valley designation. Publicly owned lands include “lands in the ownership of the Province, a municipality or a local board, including a conservation authority” (MMAH, 2017).

Public use areas and connectivity for wildlife migration pathways are both priorities and should be balanced accordingly.

### 2.2.3 **A Place to Grow: Growth Plan for the Greater Golden Horseshoe**

The Growth Plan for the Greater Golden Horseshoe (GPGGH) (2019) was prepared and approved under the Places to Grow Act, 2005 and came into effect on May 16, 2019. This Plan builds on the PPS (2020), and requires an environmental assessment be undertaken to demonstrate “any impacts on key natural heritage features<sup>1</sup> in the Natural Heritage System

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<sup>1</sup> Key natural heritage features include: Habitat of endangered species and threatened species; fish habitat; wetlands; life science areas of natural and scientific interest (ANSIs); significant valleylands; significant woodlands; significant wildlife habitat (including habitat of special concern species); sand barrens, savannahs, and tallgrass prairies; and alvars.

for the Growth Plan (NHSGP), key hydrologic features<sup>2</sup> and key hydrologic areas<sup>3</sup> have been avoided or, if avoidance is not possible, minimized and to the extent feasible mitigated” (Section 3.2.5.1 of GPGGH). This NES includes an assessment of potential impacts to avoid or minimize natural heritage features and designated features in the study area, which align with the key features and areas defined in the Plan.

An NHSGP has been mapped by the Province but excludes lands within settlement area boundaries that were approved and in effect as of July 1, 2017. The NHSGP policies in the Plan will apply outside of settlement areas to the Natural Heritage Systems (NHSs) identified in official plans (that were approved and in effect as of July 1, 2017) until the upper- and single-tier municipalities refine the NHSGP provincial mapping in their official plans. The NHSs identified in the Region of Peel, City of Toronto and City of Mississauga official plans apply as the provincial mapping have not been implemented.

#### 2.2.4 ***Endangered Species Act, 2007***

The *Endangered Species Act* (ESA, 2007; Government of Ontario 2008) applies to species that are designated as Extirpated, Endangered or Threatened and listed on the Species at Risk in Ontario (SARO) List (*O. Reg. 230/08*). The ESA, 2007 includes provisions to ensure protection to the species and their habitat. Species designated as Special Concern are not given species or habitat protection under the Act. General habitat protection applies to all Endangered and Threatened species. Species-specific habitat protection is also given to those species with regulated habitat, as identified in *O. Reg. 242/08*.

Key provisions of the Act include:

- Section 9(1) of the ESA, 2007 prohibits the killing, harming, harassment, capture, taking, possession, transport, collection, buying, selling, leasing, trading, or offering to buy, sell, lease, or trade species listed as Extirpated, Endangered, or Threatened on the SARO List;
- Section 10(1) prohibits damaging or destroying habitat of Endangered or Threatened species on the SARO List, and may apply to Extirpated species through special regulations; and
- Section 17(2)(c) includes provisions for permits that would otherwise contravene the Act. Permits related to habitat destruction would require an Overall Benefit Permit.

#### 2.2.5 ***Fish and Wildlife Conservation Act, 1997***

The provincial *Fish and Wildlife Conservation Act, 1997* (FWCA) governs the hunting and trapping of a variety of wildlife including mammals, birds, reptiles, amphibians and fish in Ontario thereby facilitating the protection of wildlife and their habitat. The FWCA outlines the prohibition of hunting or trapping specially protected species and the requirement for provincially issued licenses for the hunting or trapping of “furbearing” or “game” animals.

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<sup>2</sup> Key Hydrologic Features include: permanent streams, intermittent streams, inland lakes and their littoral zones, seepage areas and springs, and wetlands.

<sup>3</sup> Key Hydrologic Areas include: significant groundwater recharge areas, highly vulnerable aquifers, and significant surface water contribution areas that are necessary for the ecological and hydrological integrity of a watershed.



Examples of specifically protected animals include, Little Brown Bat (*Myotis lucifugus*), Northern Harrier (*Circus cyaneus*), American Kestrel (*Falco sparverius*), Blue Jay (*Cyanocitta cristata*), Midland Painted Turtle (*Chrysemys picta marginata*), Northern Watersnake (*Nerodia sipedon*), and Gray Treefrog (*Hyla versicolor*). In particular, raptors not protected under the MBCA, 1994 (including Peregrine Falcon) are protected under the FWCA.

## 2.2.6 **Conservation Authorities Act**

The Toronto and Region Conservation Authority (TRCA) regulates development, interference with wetlands, and alterations to shorelines and watercourses in accordance with *O. Reg. 166/06* made under the *Conservation Authorities Act*. The regulation applies to natural or hazardous areas (i.e., areas in and near rivers, streams, floodplains, wetlands, and slopes) in TRCAs regulation limit. The TRCA Regulated Areas within the study area appear to follow the same boundaries as the City of Toronto Ravine & Natural Feature Protection (RNFP) By-law, which include the Humber River (and surrounding lands to approximately 430 m east of Jane Street), Silver Creek and Mimico Creek. The TRCA has also been delegated the responsibility of representing the provincial interest on natural hazards (erosion and flooding) encompassed by Section 3.1 of the PPS 2020.

The TRCAs Living City Policies (TRCA, 2014) outline the “principles, goals, objectives and policies approved by the TRCA Board for the administration of the TRCAs legislated and delegated roles and responsibilities in the planning and development approvals process” (p.6).

Metrolinx, as a Crown agency, is exempt from the *Conservation Authorities Act*. Metrolinx endeavours to minimize effects to natural features protected by the TRCA. Proponents are responsible for obtaining appropriate approvals independent of TRCA under the *Fisheries Act*, though the proponent can voluntarily seek confirmation from TRCA as to whether the proposed project includes appropriate measures to avoid causing harmful alteration, disruption or destruction to fish and fish habitat, per DFO self-assessment process requirements. Once TRCA concerns are satisfied, a Voluntary Project Review Letter is provided by TRCA staff.

## 2.2.7 **Source Water Protection Plan**

The protection of source water, which is defined as any untreated water found in rivers, lakes and underground aquifers used for the supply of raw water for municipal drinking water systems, is the action taken to prevent and protect the raw source from contamination and overuse. There is a suite of policies, established under the *Clean Water Act*, 2006, which govern how water quality and quantity of source water is protected in Ontario, including through Ministry of the Environment, Conservation and Parks (MECP) approved source water protection plans.

The Approved Source Water Protection Plan for the Credit Valley-Toronto and Region-Central Lake Ontario (CTC) Source Water Protection Area (2015) was reviewed to inform of any source water protection details in the study area. The study area is within the Toronto source protection area and did not contain any wellhead protection areas, intake protection

zones, or significant groundwater recharge areas. It is within a highly vulnerable aquifer area, as is much of the province.

## **2.3 Regional**

### **2.3.1 Region of Peel**

#### **2.3.1.1 Official Plan**

The Region of Peel Official Plan (Region of Peel 2014) identifies a Greenlands System, which is made up of Core Areas, Natural Areas and Corridors and Potential Natural Areas and Corridors.

The Greenlands system includes natural heritage features such as, woodlands, wetlands, natural waterbodies and watercourses, and other natural features, as well as designated natural areas. Section 2.3.2.6 of the Region of Peel Official Plan prohibits development and site alteration within Core Areas of the Greenlands System with some exceptions. Core Areas include designated significant features such as Life Science Areas of Natural and Scientific Interest (ANSI), Provincially Significant Wetlands (PSWs), Environmentally Sensitive Areas, Significant Wildlife Habitat (SWH), Escarpment Natural Areas, and urban valley and stream corridors. No Core Areas of the Greenlands System were identified in the study area.

## **2.4 Municipal**

Metrolinx, as a Crown agency, is generally exempt from municipal legislation. Metrolinx and the City have collaboratively developed mitigation measures in accordance with City by-laws and in support of the City's environmental policies.

### **2.4.1 City of Toronto**

#### **2.4.1.1 Official Plan**

The Toronto Official Plan (June 2019 Office Consolidation) provides goals, objectives and policies to direct land use change and activity in the City. This includes Official Plan Amendment 262 which amends environmental policies within the Official Plan (including those in Chapter 3) and was adopted by Council in November 2015. This amendment also designated 68 new Environmentally Significant Areas and 14 additions to existing Environmentally Significant Areas. Environmentally Significant Areas are defined by the City as spaces within Toronto's NHS that require special protection to preserve their environmentally significant qualities. The amendment also strengthened policies on green infrastructure and bird friendly design.

The Official Plan policies (Policies 3.4.10) generally prohibit development within the NHS. Toronto's NHS is a mosaic of natural features and their associated functions, including: landforms and physical features, watercourses, hydrological features and riparian zones, valley slopes and floodplains, forests, wetlands, successional, meadow, beaches and bluffs, vegetation communities and species of concern, and significant biological features that are directly addressed by provincial policies, such as ANSI. Three sections of the study area are within the NHS (Official Plan Map 9), specifically the lands surrounding the Humber River, Silver Creek, and Mimico Creek.

#### **2.4.1.2** *Ravine and Natural Feature Protection By-law*

The City of Toronto Municipal Code Chapter 658, RNFP, also referred to as the RNFP By-law, protects ravines and forests larger than 0.5 hectares (ha), among other features. This area is associated with the Humber River (and surrounding lands to approximately 430 m east of Jane Street), Silver Creek, and Mimico Creek are protected under this by-law. A map showing the RNFP areas and associated project components, is provided in Appendix A, Figure A-3.

#### **2.4.1.3** *Bird-Friendly Development Guidelines*

The City of Toronto has Bird-Friendly Development Guidelines (2007) which aim to provide a list of strategies for reducing the danger to birds posed by new and existing structures. The City has also produced a Best Practices for Bird-Friendly Glass (2016) document which provides advice on mitigating bird mortality from window collisions and Best Practices for Effective Lighting (2017). In combination, these documents provide guidelines for cladding design of new and existing structures in order to reduce bird mortality.

### **2.4.2** *City of Mississauga*

#### **2.4.2.1** *Official Plan*

Section 6.3.29 of the Official Plan (City of Mississauga 2011) states that an Environmental Impact Study (EIS) will be required should any development or site alteration occur adjacent to provincially significant wetlands, provincially significant coastal wetlands, habitats of endangered or threatened species, or other Significant Natural Areas to demonstrate no negative impact to the features and their associated functions. Significant Natural Areas include:

- Provincially or regionally significant ANSIs;
- Environmentally sensitive or significant areas;
- Habitat of endangered or threatened species;
- Fish habitat;
- Significant wildlife habitat;
- Significant woodlands;
- Significant wetlands; and
- Significant valleylands.

Section 6.3.32 of the Official Plan (City of Mississauga 2011) notes that development and site alteration “will not be permitted within or adjacent to Natural Green Spaces, Linkages and Special Management Areas” unless demonstration of no negative impact to the features have been identified through an EIS. Natural Green Spaces are identified based on criteria that do not fulfil the requirements of significance (i.e., wetlands that do not meet criteria for Provincial significance). No NHS components, within Mississauga’s jurisdiction, were identified within the study area.

### 3. Methodology

#### 3.1 Desktop and Background Data Review

The desktop study included a review of background data from published and non-published sources for information related to natural heritage resources within the study area. The background review was used to characterize the existing environment and identify potential constraints and sensitivities in the study area. A summary of information sources is provided in Table 3-1.

**Table 3-1: Summary of Background Information Sources Reviewed**

Source	Data
Past Studies	<ul style="list-style-type: none"> <li>• Toronto ECLRT Transit Project Assessment Study, EPR. Appendix G: Natural Heritage Assessment Report. Prepared by LGL (Transit City Group, 2010);</li> <li>• ECLRT Transit Project Assessment Study, Environmental Project Report Addendum. Appendix B: Eglinton Crosstown LRT - West Section and Maintenance and Storage Facility: Natural Environment Existing Conditions, Impact Assessment and Mitigation Recommendations. Prepared by MMM Group (Metrolinx, 2013); and</li> <li>• Final Environmental Study Report for the Lower Humber River Wetland Complex. Prepared by Harrington McAvan Ltd (Ministry of Natural Resources, 2012).</li> </ul>
Municipalities	<ul style="list-style-type: none"> <li>• City of Toronto Official Plan; and</li> <li>• City of Mississauga Official Plan.</li> </ul>
MECP	<ul style="list-style-type: none"> <li>• Information Request Letter.</li> </ul>
MNRF	<ul style="list-style-type: none"> <li>• MNRF Aurora District Information Request Letter;</li> <li>• Land Information Ontario (LIO) geospatial data;</li> <li>• Natural Heritage Information Centre (NHIC) database;</li> <li>• Natural Heritage Areas Make a Map (including NHIC database); and</li> <li>• Fish ON-Line.</li> </ul>
TRCA	<ul style="list-style-type: none"> <li>• Information Request Letter;</li> <li>• On-line Mapping;</li> <li>• Etobicoke and Mimico Creek Watershed Plan;</li> <li>• Humber River Watershed Plan;</li> <li>• Humber River Fisheries Management Plan; and</li> <li>• Source Water Protection.</li> </ul>
DFO	<ul style="list-style-type: none"> <li>• SAR Mapping.</li> </ul>
Other Publicly Available Data	<ul style="list-style-type: none"> <li>• Atlas of Ontario Breeding Bird Atlas (OBBA);</li> <li>• eBird Database;</li> </ul>

Source	Data
	<ul style="list-style-type: none"> <li>• iNaturalist Database;</li> <li>• Atlas of the Mammals of Ontario;</li> <li>• Ontario Reptile and Amphibian Atlas;</li> <li>• The Physiography of Southern Ontario (Chapman and Putnam, 1984); and</li> <li>• Ontario Geological Survey.</li> </ul>

### 3.2 Agency Consultation

Information requests were sent to the following agencies on November 18, 2019 and January 13, 2020 to obtain available natural heritage background information for the study area. All records of agency liaison can be found in Appendix B.

- **MECP** - Data related to SAR for both aquatic and terrestrial species was requested. MECP provided a response dated January 13, 2020;
- **MNRF (Aurora District)** - The following data was requested: species of conservation concern records, significant wildlife habitat, designated natural features, fish sampling and community data, sensitive habitats and thermal and flow regime information for Mimico Creek, Silver Creek, and the Humber River. A response from the MNRF is still pending;
- **TRCA** - GIS data and other records related to natural heritage resources, SAR, and fish communities were requested. TRCA provided a response dated December 16, 2019;
- **City of Toronto** - Data was requested for natural heritage inventory information for Environmentally Sensitive Policy Areas (ESPAs) and/or Core Environmental Features within the study area. A response from the City of Toronto was received on January 13, 2020; and
- **City of Mississauga** - Data was requested for natural heritage inventory information for ESPAs, and City owned trees within the study area. The City of Mississauga provided a response dated January 24, 2020.

### 3.3 Field Surveys

Aquatic ecosystem assessments were undertaken by qualified staff on November 2, 2019 and terrestrial ecosystem assessments were undertaken by qualified staff on October 30, 2019 and January 22, 2020. As a result of access limitations, the site investigations covered only the rail corridor and municipal road ROW. Additional field investigations will be planned if additional access permissions are obtained for lands not previously assessed.

A summary of the approach to aquatic and terrestrial ecosystem investigations is provided in the following sections. Additional confirmatory field investigations are required during appropriate timing windows, prior to construction. A summary of additional field studies is provided in Section 7.

### **3.3.1 Aquatic Environment**

The aquatic features in the study area are contained within the Humber River Watershed and the combined Etobicoke and Mimico Creeks Watershed, all of which drain southwards into Lake Ontario.

Aquatic investigations focused on describing general habitat and documentation of habitat features where accessible for a distance 50 upstream and 200 m downstream from the Eglinton Avenue West crossing of the Humber River, Silver Creek, and Mimico Creek. Fish habitat information collected during the habitat assessment encompassed the following general parameters, where feasible and relevant:

- Flow characteristics, including evidence of groundwater discharge;
- Presence of physical barriers to fish movement;
- Bank characteristics;
- Morphology and substrates;
- In-stream/in-water cover opportunities (e.g., woody debris, boulders, vegetation);
- Riparian vegetation;
- Presence of potential critical or specialized habitat areas including potential spawning areas, good nursery cover, holding habitat (deeper refuge pools); and
- Disturbances and past habitat alterations (e.g., channelization, potential pollutant point sources).

Representative site photos were taken at the identified features, and have been included in Appendix C.

Due to the extensive existing fish community information collected during background review, fish community surveys were not completed during field investigations. Should agency consultation identify the need for additional fish community information, surveys will be completed as required, during the in-water works fisheries timing window.

### **3.3.2 Terrestrial Environment**

#### **3.3.2.1 Vegetation and Vegetation Communities**

Vegetation communities were mapped and classified using the Ecological Land Classification (ELC) system for southern Ontario (Lee et al. 1998). Polygons were delineated using aerial imagery while vegetation communities and local habitat characteristics were verified in the field. Information gathered included vegetation community type, species associations, and condition/level of disturbance. A vascular plant species list was compiled for the study area and has been included in Appendix D.

Field investigations were completed in 2019 and 2020 to verify vegetation communities identified from the background review and map any new communities. Targeted searches for significant or sensitive flora, including SAR, will be conducted during the appropriate timing

windows, to evaluate the presence or absence of species that are historically known to be near or have potential to be found in the general area.

#### 3.3.2.2 *Wildlife*

A list of wildlife that have been recorded or have the potential to occur in the study area were compiled from past studies and other information sources. All species were screened to determine the presence of Species of Conservation Concern (SoCC) (see Section 3.3.2.3) and SAR (see Section 3.4). Field investigations were completed to verify habitat potential of SoCC and SAR, as well as documenting incidental wildlife observations and evidence of wildlife use (e.g., browse, tracks/trails, animal scat, nesting activity, burrows, excavated holes). Targeted wildlife surveys were not included in the scope of work. A list of wildlife documented during the background review and from field observations is provided in Appendix D.

#### 3.3.2.3 *Significant Wildlife Habitat*

An assessment of SWH was completed following protocols established by the MNRF and based on information obtained from the background review and data collected during field investigations. The screening-level assessment is provided in Appendix E and discussed in Section 4.4.3.

The MNRF provides specific guidance on identifying and assessing wildlife habitat in the SWH Criteria Schedules for Ecoregion 7E (MNRF, 2015). Other guidance documents used as part of the SWH assessment included the Significant Wildlife Habitat Technical Guide (SWHTG) (MNRF, 2000) and Natural Heritage Reference Manual (NHRM; MNRF, 2010).

The MNRF recognizes five main categories of wildlife habitat, each with several wildlife habitat types. The general definitions of these habitat types are provided below:

- **Seasonal Concentration Areas of Animals** - defined as “areas where animals occur in relatively high densities for the species at specific periods in their life cycles and/or in particular seasons” and areas that are “localized and relatively small in relation to the area of habitat used at other times of the year” (MNRF, 2010);
- **Rare Vegetation Communities** - defined as “areas that contain a provincially rare vegetation community and areas that contain a vegetation community that is rare within the planning area” (MNRF, 2010);
- **Specialized Habitat for Wildlife** - defined as “areas that support wildlife species that have highly specific habitat requirements, areas with high species and community diversity, and areas that provide habitat that greatly enhances species’ survival” (MNRF, 2010);
- **Habitat for SoCC** - defined as “habitats of species that are designated at the national level as endangered or threatened by Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which are not protected in regulation under Ontario’s ESA, 2007; habitats of species listed as special concern under the ESA, 2007 on the SARO List (formerly referred to as “Vulnerable” in the SWHTG); and habitats of species that are rare



or substantially declining, or have a high percentage of their global population in Ontario” (MNR, 2010). More specifically, SoCC include:

- **Globally Rare Species** - These species are assessed by NatureServe and assigned a global conservation status rank (G-rank) of G1 to G3;
- **Nationally Rare Species** - These species are assessed by COSEWIC as Extirpated, Endangered, Threatened, or Special Concern but not listed in SARA; species not protected under SARA including those designated as Special Concern on Schedule 1 (e.g., Monarch) or any of the listed species in Schedule 2 and Schedule 3; species on non-federal land listed on Schedule 1 of SARA, other than migratory birds and fish;
- **Provincially Rare Species** - These species are designated and assessed under two categories: species listed as Special Concern on the SARO List, and species that are assigned a provincial sub-national conservation status rank of S1 to S3. There are species that can be found in both categories;
- **Regionally Rare Species** - These species are not assigned a formal designation, however, have been recognized as declining within a planning jurisdiction by government and/or non-government authorities; and
- **Conservation Priority Species** - These include priority species that are recognized in government and/or non-government conservation plans and assigned a conservation objective.
- **Animal Movement Corridors** - defined as “elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another” (MNR, 2000).

An assessment of candidate significant wildlife habitat is discussed further in Section 4.4.3.

### 3.4 Species at Risk Screening

This report considers SAR as those classified as Extirpated, Endangered or Threatened and protected under the ESA, 2007, as well as fish and migratory birds protected under the SARA. This includes:

- Provincially protected species on the SARO List under *O. Reg. 230/08*; and
- Federally listed migratory birds and fish on Schedule 1 of SARA; these species are protected anywhere they occur, including non-federal lands. All other federally listed species are generally<sup>4</sup> (except through an Order) only protected under SARA if they occur on federal lands.

All SAR identified during the background review were screened for habitat potential and likelihood to occur within the study area. The habitat assessments were based on vegetation communities present and incidental observations; targeted SAR surveys were not included in

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<sup>4</sup> SARA can make a ministerial order to protect species and their critical habitat on non-federal lands that are not already subject to the provisions of the Act.



the scope of this work. The screening-level assessment is provided in Appendix F and discussed in Section 4.5.

### **3.5 Effects Assessment**

The methods used to conduct the effects assessment for the natural environment components of the Project were designed to meet the requirements of the TPAP. During the process the following were considered:

- Existing environmental conditions of the Project area; and
- Potential direct and indirect effects to the natural environment resulting from the construction and operation of the project were identified, analyzed, and described for each feature. This also included avoidance, mitigation and compensation measures to address potential effects and monitoring activities to evaluate effectiveness of proposed mitigation measures and provide feedback for adaptive management.

## **4. Existing Conditions**

The following sections describe the existing conditions within the study area and their associated sensitivities.

### **4.1 Physical Environment**

#### **4.1.1 Landforms and Physiography**

The study area is located in the St. Lawrence Lowland physiographic region of Canada. This landform region is the smallest in Canada and comprises the peninsula of southern Ontario bounded by the Canadian Shield and Lakes Huron, Erie, and Ontario. It extends along the St. Lawrence River to the Atlantic Ocean. Within southern Ontario, the study area is within the Iroquois Plain which lies adjacent to the South Slope Physiographic Region and Lake Ontario (Chapman and Putnam, 1984).

#### **4.1.2 Soils and Bedrock Geology**

Surficial geology within the study area consists of both glacial till and coarse textured glaciomarine deposits. The glacial till has been characterized as undifferentiated older tills that may contain stratified deposits. The glaciomarine deposits identified are coarse and generally contain sand, gravel, minor silt and clay (Ministry of Northern Development and Mines (MNDM), 2010).

Bedrock within the study area consists of shale, limestone, dolostone and siltstone. Provincial mapping indicates the bedrock elevation is generally high with little surficial overburden (MNDM, 2011). Water well and borehole information retrieved from the Groundwater Information Network (GIN) indicates that depth to bedrock in some areas can exceed 20 m (GIN, 2017).

#### **4.1.3 Groundwater**

The approved Source Protection mapping was reviewed for the CTC Source Protection Region. The study area is located outside (greater than 20 km) all wellhead protection areas identified in the Plan (CTC Source Protection Region, 2015).

Hydrogeological and geo-environmental studies will be completed in support of detailed design to further characterize existing conditions.

## 4.2 Designated Areas

Designated areas are considered in this report as areas defined by resource agencies and municipalities, through legislation, policies, or approved management plans, to have special or unique value. This includes provincial land use and environmental plan areas (e.g., Greenbelt), national and provincial parks, designated federal wildlife/marine areas, ANSI, PSWs, Environmentally Sensitive Areas, and NHSs included in Official Plans.

The background review identified the following designated areas within the study area, both of which are within the proposed project footprint:

- **Greenbelt Plan Area** - The Humber River is within the Urban River Valley Designation (Appendix A, Figure A-3), immediately east of Scarlett Road. Direct encroachment of this area is anticipated, primarily north of Eglinton Avenue West. A segment of the proposed alignment will be elevated in this area spanning approximately 150 m. A portion of Scarlett Station (elevated) may extend within the Greenbelt Plan Area;
- **Natural Heritage System** - The naturalized areas surrounding the Humber River (including an area extending 1.3 km further east), Silver Creek and Mimico Creek are within the City of Toronto's NHS (Appendix A, Figure A-3);
- **Humber River Area** - The NHS boundary in this area extends approximately 430 m east of Jane Street, west to Scarlett Road, and encompasses the Humber River. Direct encroachment of this area is anticipated, primarily north of Eglinton Avenue West. Within the Humber River Area, the proposed alignment transitions from below grade to elevated east of Jane Street, the elevated guideway then continues west to Scarlett Road. There are two elevated stations anticipated to encroach into the NHS: Jane Station and Scarlett Station;
- **Silver Creek Area** - The NHS boundary in this area follows Silver Creek, including a portion of the golf course and surrounding wooded areas (extends from approximately 275 m west of Royal York Road to east of Russell Road/Eden Valley Drive). Two small areas north of Eglinton Avenue West, north of Silver Creek, are also included in the NHS mapping (immediately east of Russell Road). Although a small portion of the NHS mapping extends across Eglinton Avenue West (approximately 30 m wide), direct encroachment in this area is not expected, especially with this proposed segment of the alignment being underground; and
- **Mimico Creek Area** - The NHS boundary in this area follows Mimico Creek as well as surrounding greenspace (west of the transmission line corridor at Martin Grove Road and east of Highway 27). A segment of the proposed alignment will be underground in this area. The natural communities in this area is primarily cultural meadow with the more naturalized areas associated with Mimico Creek, south of the proposed alignment.

## 4.3 Aquatic Environment

Within the study area, the proposed alignment crosses three watercourses: the Humber River, Silver Creek and Mimico Creek. These watercourses are under TRCA and MNRF

Aurora District jurisdiction. The locations of the watercourse crossings are illustrated in Appendix A, Figure A-3.

#### 4.3.1 ***Fish Habitat Characterization***

The study area is located within the Humber River and the Mimico Creek watersheds, which drain southward towards Lake Ontario. The Humber River drains a catchment area of 911 square kilometres (km<sup>2</sup>), of which a large portion remains as rural and natural cover (TRCA 2019b; TRCA, 2018). Five main subwatersheds comprise the Humber River, including the Lower Main Humber River located within the study area (Ontario Ministry of Natural Resources (OMNR) & TRCA, 2005). Due to its heritage and recreational values, the Humber River is designated as a Canadian Heritage River (OMNR & TRCA, 2005). The Mimico Creek watershed is formed by an upper west and east branch that feed its main channel, which flows through the study area (TRCA, 2010). Mimico Creek drains a predominantly urban catchment area of approximately 77 km<sup>2</sup> (TRCA, 2019a). Due to its narrow shape, steep stream gradients, and impervious surfaces throughout its catchment areas, Mimico Creek has become “flashy” due to the speed with which surface runoff is discharged to the creek following precipitation events (TRCA, 1998).

##### **Lower Main Branch of the Humber River**

The Humber River is a permanent warmwater watercourse, identified by TRCA as a large riverine habitat (OMNR & TRCA, 2005). The river is conveyed south under Eglinton Avenue West by a large concrete bridge, approximately 80 m east of Scarlett Road, and discharges to Lake Ontario approximately 9 km southeast of the study area.

Across the study area, the channel flows through a natural area dominated by deciduous forest, designated by the Greenbelt plan as an urban river valley. Within the study reach, a fast-flowing continuous riffle dominates the stream morphology. Water depth could not be determined at the time of the field survey and no in-stream vegetation was observed.

Upstream, boulders and cobble overlaid by gravel and detritus form the riffle substrate of the channel, estimated to be 30 m wide. Within this area, cement and metal debris were scattered across the substrate. Rocks covered by vegetation formed the riverbanks, and were lined by riparian vegetation, including grasses, sedges, herbaceous plants (e.g., Goldenrod (*Solidago spp.*)), shrubs, and trees (e.g., White Elm (*Ulmus americana*)). Due to channel width, riparian vegetation provided little overhead cover. In-stream habitat was limited primarily to coarse substrates, with undercut banks and in-stream woody debris functioning as additional cover. At the existing bridge structure, silt settled around the in-stream piers and erosion was noted along the west bank, resulting from surface water runoff.

Downstream, the active channel narrowed to a width of 20 m, and the stream and bank characteristics resembled the upstream reach. Immediately downstream of the bridge, a small patch of Phragmites was observed along the west bank. The riffle morphology continued through the downstream channel, extending roughly 85 m before transitioning into a run. Approximately 20 m downstream of the Eglinton Avenue West bridge, a culvert, believed to be a storm sewer outfall, discharges to the channel. As the study area is located

within a combined sewer area, this culvert may convey both stormwater and human sewage to the channel during large storm events (OMNR & TRCA, 2005).

No barriers to fish passage were observed within the study area, which provides homogenous, non-limiting habitat in a fast moving, highly impacted system. The study reach is located within Management Zone 9, which targets smallmouth bass and rainbow darter, and functions as a migration corridor for fall spawning salmonids (OMNR & TRCA, 2005; MNR, 2012).

### **Silver Creek**

Silver Creek, a tributary of the Humber River, is a permanent warmwater watercourse that is conveyed south under Eglinton Avenue West by a corrugated steel pipe culvert. The channel daylights on the south side of Eglinton Avenue West and is believed to be the outflow of an upstream sewershed, with no upstream channel present within the study area (Transit City Group (TCG), 2010). The watercourse discharges to the lower main branch of the Humber River at their confluence, approximately 3 km downstream.

Due to the downstream reach residing within the private property of the St. George's Golf and Country Club, which is enclosed by a fence, access to the watercourse was restricted, preventing the collection of in-stream measurements. However, a visual assessment of the creek from Eglinton Avenue West suggests that the channel has a 'pool' morphology within the study area. In a previous study conducted by LGL Limited for TCG, 2010, the downstream reach was reported to have a pool morphology, with a bankfull width of 16 m and bankfull depth of 2.5 m. At the time of LGL's survey, LGL did not have access to the channel preventing the creek from being sampled.

At the outlet, large boulders formed the east bank, while grasses comprised the west bank, with large trees forming the riparian habitat along the channel. This treed area extended downstream for approximately 30 m, providing overhead cover and inputs of organic debris in the form of leaves and downed trees. Downstream, the riparian trees gave way to manicured grass where the channel flows through the golf course.

The absence of an upstream channel functions as a barrier to fish passage. This section of Silver Creek can be described as a heterogenous, slow moving system. However, due to the "discontinuity" with the channel's upstream reach, this watercourse does not function as a migration corridor. Furthermore, the anthropogenic impacts from the golf course operations, as well as the urbanization downstream, likely result in an impacted system, limiting the presence of significant or unique fish habitat. The study reach is located within management Zone 4, which targets darter species (OMNR & TRCA, 2005).

### **Mimico Creek**

Mimico Creek is a permanent warmwater watercourse that flows through the study area in a southward direction, conveyed under Eglinton Avenue West by a concrete bridge. Within the study area, the creek has been channelized and hardened into a trapezoidal concrete lined system, which has been subject to minor bank and bed erosion. Throughout the study area, natural bed substrates and in-stream habitat structures were limited.

Upstream of the study area, north-west of Highway 401 and Highway 27, a weir functions as an in-stream barrier to fish migration; however, no barriers to fish passage were observed within 200 m of the Eglinton Avenue West bridge (TRCA, 2010). The 2019 field investigations confirmed these findings, with no in-stream barriers to fish movement observed upstream or downstream of Eglinton Avenue West.

Within the study area, upstream of the Eglinton Avenue West bridge, fine substrate had settled around the storm sewer outfall discharging to the channel, supporting minimal emergent vegetation (e.g., *Phragmites*). Boulders were also present beneath the Highway 427 and Eglinton Avenue West interchange trapping fine sediment.

Within the downstream study reach, a pedestrian foot bridge crosses the channel. Two storm sewer outfalls, and a small culvert of unknown origin, were also observed to discharge into the channel. As the channel continues south, the watercourse widens and the concrete channel transitions into a flat, natural meandering stream approximately 130 m downstream of the Eglinton Avenue West bridge. Rip-rap and gabion baskets stabilized the east bank and woody vegetation lined the west bank of this naturalized channel. This natural channel continues downstream flowing through an urbanized landscape before discharging into Lake Ontario, approximately 13 km southeast of the study area.

Due to the artificial nature of this channel, bankfull and in-stream measurements were not collected. Little in-stream vegetation was observed within the study reach and vegetation was absent from the bank slopes, save for the limited herbaceous plants and the occasional tree or shrub growing within cracks along the concrete.

The riparian areas were dominated by hardened banks and impervious surfaces (e.g., Eglinton Avenue West, Highway 427/Eglinton Avenue West interchange), which are bordered by manicured grass and few shrubs providing little overhead cover.

This section of Mimico Creek provides homogenous, non-limiting habitat in a flashy, highly impacted system. It is unlikely this area provides significant or unique habitats for fish.

#### 4.3.2 **Fish Community**

Fish collection was not undertaken during field investigations. Alternatively, fish community information was primarily obtained from background information sources. The background review identified a total of 44 fish species that have been reported in the study area, specifically the Humber River, Silver Creek, and Mimico Creek; four additional fish were recorded but the species are unknown (Table 4-1).

Of the species documented, only one SAR was recorded in the study area: Redside Dace (*Clinostomus elongatus*), classified as Endangered and protected under the provincial ESA and federal SARA. MECP has confirmed there are historical records of this species in Mimico Creek (1949) and the Humber River (1972) and that this species is not present within the study area.

A record for Atlantic Salmon (*Salmo salar*) was also identified for the Humber River, having been stocked in the 1990s (LIO, 2019). However, the Lake Ontario population is considered Extinct by COSEWIC, with this species last reported in 1898 (COSEWIC, 2011). Atlantic

Salmon - Lake Ontario Population (*Salmo salar pop. 2*) is not listed or protected under the ESA or SARA. Re-introduction efforts using strains genetically different from the Lake Ontario population are currently underway in the Humber River headwaters; however, no stocking or re-introduction is focused on the reach of river within the study area.

Table 4-1: Fish Community Records for Watercourses within the ECWE Study Area

Species		SAR Status		Conservation Rank			Watercourses		
Common Name	Scientific Name	National (SARA)	Provincial (ESA, 2007)	National (COSEWIC)	Global (G-rank)	Provincial Status (S Rank)	Humber River	Silver Creek	Mimico Creek
American Brook Lamprey	<i>Lethenteron appendix</i>	-	-	-	G4	S3	X		
Atlantic Salmon (Lake Ontario pop.)	<i>Salmo salar pop. 2</i>	-	-	EXT	G5TX	SX	H		
Black Crappie	<i>Pomoxis nigromaculatus</i>	-	-	-	G5	S4			X
Blackchin Shiner	<i>Notropis heterodon</i>	-	NAR	NAR	G5	S4	X		
Blacknose Dace	<i>Rhinichthys atratulus</i>	-	-	-	G5	S5	X	X	X
Bluegill	<i>Lepomis macrochirus</i>	-	-	-	G5	S5	X		
Bluntnose Minnow	<i>Pimephales notatus</i>	-	NAR	NAR	G5	S5	X		X
Brook Stickleback	<i>Culaea inconstans</i>	-	-	-	G5	S5	X		X
Brown Bullhead	<i>Ameiurus nebulosus</i>	-	-	-	G5	S5	X		
Brown Trout	<i>Salmo trutta</i>	-	-	-	G5	SNA			X
Carps and Minnows	-	-	-	-	-	-	X		
Central Stoneroller	<i>Campostoma anomalum</i>	-	NAR	NAR	G5	S4	X	X	
Common Carp	<i>Cyprinus carpio</i>	-	-	-	G5	SNA	X		X
Common Shiner	<i>Luxilus cornutus</i>	-	-	-	G5	S5	X	X	X
Creek Chub	<i>Semotilus atromaculatus</i>	-	-	-	G5	S5	X	X	X
Emerald Shiner	<i>Notropis atherinoides</i>	-	-	-	G5	S5	X		
Etheostoma sp.	-	-	-	-	-	-	X		
Fantail Darter	<i>Etheostoma flabellare</i>	-	-	-	G5	S4	X		
Freshwater Drum	<i>Aplodinotus grunniens</i>	-	-	-	G5	S5			X
Fathead Minnow	<i>Pimephales promelas</i>	-	-	-	G5	S5	X	X	X
Goldfish	<i>Carassius auratus</i>	-	-	-	G5	SNA			X
Hornyhead Chub	<i>Nocomis biguttatus</i>	-	NAR	NAR	G5	S4	X		
Ichthyomyzon sp.	-	-	-	-	-	-	X		
Iowa Darter	<i>Etheostoma exile</i>	-	-	-	G5	S5	X		
Johnny Darter	<i>Etheostoma nigrum</i>	-	-	-	G5	S5	X		
Johnny Darter/Tesselated Darter	-	-	/NAR	/NAR	G5/G5	S5/S4		X	X
Lake Trout	<i>Salvelinus namaycush</i>	-	-	-	G5	S5			X
Largemouth Bass	<i>Micropterus salmoides</i>	-	-	-	G5	S5	X	X	
Longnose Dace	<i>Rhinichthys cataractae</i>	-	-	-	G5	S5	X	X	X
Mottled Sculpin	<i>Cottus bairdii</i>	-	-	-	G5	S5	X		



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Species		SAR Status		Conservation Rank			Watercourses		
Common Name	Scientific Name	National (SARA)	Provincial (ESA, 2007)	National (COSEWIC)	Global (G-rank)	Provincial Status (S Rank)	Humber River	Silver Creek	Mimico Creek
Northern Hog Sucker	<i>Hypentelium nigricans</i>	-	-	-	G5	S4	X		
Pumpkinseed	<i>Lepomis gibbosus</i>	-	-	-	G5	S5	X		X
Rainbow Darter	<i>Etheostoma caeruleum</i>	-	-	-	G5	S4	X		
Rainbow Smelt	<i>Osmerus mordax</i>	-	-	-	G5	S5			X
Rainbow Trout	<i>Oncorhynchus mykiss</i>	-	-	-	G5	SNA		X	
Redside Dace	<i>Clinostomus elongatus</i>	END	END	END	G3G4	S2	H		H
River Chub	<i>Nocomis micropogon</i>	-	NAR	NAR	G5	S4	X		X
Rock Bass	<i>Ambloplites rupestris</i>	-	-	-	G5	S5	X		
Rosyface Shiner	<i>Notropis rubellus</i>	-	NAR	NAR	G5	S4	X		
Sand Shiner	<i>Notropis stramineus</i>	-	-	-	G5	S4			X
Sea Lamprey	<i>Petromyzon marinus</i>	-	-	-	G5	SNA	X		
Smallmouth Bass	<i>Micropterus dolomieu</i>	-	-	-	G5	S5	X		
Stonecat	<i>Noturus flavus</i>	-	-	-	G5	S4	X		
White Bass	<i>Morone chrysops</i>	-	-	-	G5	S4			X
White Perch	<i>Morone americana</i>	-	-	-	G5	SNA			X
White Sucker	<i>Catostomus commersonii</i>	-	-	-	G5	S5	X	X	X
Yellow Bullhead	<i>Ameiurus natalis</i>	-	-	-	G5	S4	X		
Yellow Perch	<i>Perca flavescens</i>	-	-	-	G5	S5	X		

Definitions, Acronyms and Symbols

SARA or ESA Designation  
**EXT** - Extinct

**END** - Endangered

**THR** - Threatened  
**SC** - Special Concern

**NAR** - Not at Risk

**COSEWIC**: Committee on the Status of Endangered Wildlife in Canada  
**ESA**: Endangered Species Act

**SARA**: Species at Risk Act

Global G-rank

**G1**: Critically Imperiled (at very high risk of extinction)

**G2**: Imperiled (at high risk of extinction)

**G3**: Vulnerable (at moderate risk of extinction)  
**G4**: Apparently Secure (Uncommon but not rare)

**G5**: Secure (common, widespread and abundant)

**G#G#**: Range Rank (range of uncertainty about the status of a taxon or ecosystem type)

**GU**: Unrankable (currently unrankable due to lack of information)

**GNR**: Unranked (global rank not yet assessed)

**GNA**: Not Applicable (species is not a suitable target for conservation activities)

**T**: Denotes that the rank applies to a subspecies or variety

**B**: Breeding

**N**: Non-breeding

Provincial S-rank

**S1**: Critically Imperiled (i.e., fewer than 5 occurrences in the nation and/or province)

**S2**: Imperiled (i.e., fewer than 20 occurrences in the nation and/or province)

**S3**: Vulnerable (i.e., 20-80 occurrences in the nation and/or province)

**S4**: Apparently Secure (uncommon, but not rare in the nation and/or province)

**S5**: Secure (common, widespread and abundant in the nation and/or province)

**SNA**: Not Applicable (species is not a suitable target for conservation activities)

**SHB**: Breeding is not confirmed in Ontario

**S#S#**: Range Rank (range of uncertainty about the status of the species or community)

**S#?**: Rank is Uncertain

**S?**: Not Ranked Yet

**B**: Breeding migrants/vagrants

**N**: Non-breeding migrants/vagrants

Record

**X**: Recent record (reported within the last 30 years)

**H**: Historical record (reported 30 or more years ago)



## 4.4 Terrestrial Environment

The study area is located predominately within the ROW of the existing Eglinton Avenue West and adjacent to commercial and industrial development. The naturalized areas are predominantly associated with the Humber River, Silver Creek and Mimico Creek and any surrounding lands associated with the City of Toronto's NHS.

### 4.4.1 Vegetation and Vegetation Communities

A total of 43 vascular plant taxa were identified during site visits within the study area. Of the identified species, 22 (51%) were native and 21 (49%) were non-native (Appendix D). Many of the native tree species identified were planted in urban settings. A preliminary tree inventory was also completed for the project.

Several vegetation communities were documented within the study area and are summarized in Table 4-2. Most of the communities were previously documented in the 2010 EPR and re-confirmed during the 2019/2020 field investigations. Vegetation communities associated with the new MSF that is under construction for the ECLRT Project north of Eglinton Avenue West, east of Mount Dennis Station and as identified in the 2013 EPR Addendum, have since been removed. Vegetation communities are shown in Appendix A, Figure A-3.

**Table 4-2: ELC Vegetation Communities in the Study Area**

ELC Code	Ecosite Name	Description
<b>Cultural and Constructed Lands</b>		
CGL  (Not mapped in 2010 EPR)	Constructed Greenland	Includes any green space that is actively maintained or manicured such as golf courses, manicured parks, gardens, cemeteries, as well as large manicured green spaces that may be part of commercial or institutional areas. This ecosite type represents the majority of green space within the study area. CGL areas are differentiated from naturalized habitats by the presence of a regularly mowed lawn and may include both open areas and those with planted tree cover.
TAGM5  (Not mapped in 2010 EPR)	Fencerow	Includes linear treed communities that are generally planted along the edges of agricultural fields, roadways, and rail corridors. These are distinguished from CGL treed communities by being left largely unmanicured, with a variety of shrubs, tall grasses, and wildflowers growing alongside them. These communities are often dominated by Manitoba Maple, hawthorn, and apple species.
MEM  (CUM1-1 in the 2010 EPR)	Mixed Meadow  (Dry-Moist Old Field Meadow Type)	Includes open vegetated areas that are not actively maintained and may include old fields or un-mowed ROWs as well as early successional areas on recently disturbed land. This vegetation contains a roughly equal division of graminoids and forbs (wildflowers). These areas are limited in the Study Area, and present in small patches bordering larger green areas.
<b>Woodlands</b>		
WOD	Deciduous Woodland	Includes wooded areas with 25-60% tree cover that are dominated by deciduous species. These areas are generally mid-successional areas with a history of disturbance, and are dominated by introduced and disturbance tolerant species. Within the Study Area, these areas are limited to small regenerative patches at the edges of meadow and forest communities.
FOD	Deciduous Forest	Includes wooded areas with greater than 60% tall tree cover and dominated by deciduous species. These communities are

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ELC Code	Ecosite Name	Description
		uncommon throughout the Study Area and often overlap with designated natural heritage features. These communities generally include a diverse range of native tree species and ephemeral wildflowers, and provide important habitat for wildlife.
FOD3-1	Dry-Fresh Poplar Deciduous Forest Type	This community type was characterized in the 2010 EPR as being dominated by Trembling Aspen, Large-tooth Aspen, Balsam Poplar and Eastern Cottonwood.
FOD4	Dry-Fresh Deciduous Forest Ecosite	This community type was characterized in the 2010 EPR as being dominated by Manitoba Maple with Red Ash, Siberian Elm and Black Locust.
FOD5-1	Dry-Fresh Sugar Maple Deciduous Forest Type	This community type was characterized in the 2010 EPR as being dominated by Sugar Maple with American Beech and Ironwood associates.
FOD5-3	Dry-Fresh Sugar Maple - Oak Deciduous Forest Type	This community type was characterized in the 2010 EPR as being dominated by Sugar Maple with Red Oak, American Beech and Manitoba Maple.
FOD7	Fresh-Moist Lowland Deciduous Forest Ecosite	This community type was characterized in the 2010 EPR as being dominated by Manitoba Maple, Siberian Elm, Black Locust, Red Ash and Willow species.
FOD7-3	Fresh-Moist Willow Lowland Deciduous Forest Type	This community type was characterized in the 2010 EPR as being dominated by Manitoba Maple, White Elm, Siberian Elm, Black Locust, Sugar Maple and Willow species.
FOD8	Fresh-Moist Poplar - Sassafras Deciduous Forest Ecosite	This community type was characterized in the 2010 EPR as being dominated by Eastern Cottonwood, Silver Poplar, Manitoba Maple and Willow species.
FOM	Mixed Forest	Includes wooded areas with greater than 60% tall tree cover with both deciduous and coniferous species. These communities are uncommon throughout the Study Area and often overlap with designated natural heritage features. These communities generally include a diverse range of native tree species and ephemeral wildflowers, and provide important habitat for wildlife.
<b>Wetlands</b>		
MAS	Shallow Marsh	These communities are present in limited number throughout the study area, in the form of drainage ditches and storm water management ponds as well as along watercourses. These areas are distinguished by saturated and regularly inundated soils and often include small areas of standing water, while vegetation is generally dominated by robust emergent aquatic species including cattails ( <i>Typha</i> sp.).
Deciduous Swamp (SWD)2-2	Green Ash Mineral Deciduous Swamp Type	This community type was characterized in the 2010 EPR as being dominated by Red Ash and Manitoba Maple with European Black Alder and Common Buckthorn associates.
SWD4	Mineral Deciduous Swamp Ecosite	This community type was characterized in the 2010 EPR as being dominated by Manitoba Maple and Willow species.

#### 4.4.2 Wildlife

The following sections include the results of the background review and wildlife documented during the field investigation, with a complete list of species provided in Appendix D.

##### 4.4.2.1 Mammals

The 2019 field investigations documented three mammal species: Eastern Grey Squirrel (*Sciurus carolinensis*) observed directly, and two species observed through tracks, Raccoon (*Procyon lotor*), and unknown canid (*Canidae* spp.) tracks likely belonging to a domestic dog

(*Canis lupus familiaris*) or coyote (*Canis latrans*). The 2010 EPR identified the following SoCC mammals within the study area (see Section 4.4.3): Ermine (*Mustela erminea*) and Northern Short-tailed Shrew (*Blarina brevicauda*). Overall the general area likely supports a range of other mammals often found in urban environments, including: Eastern Cottontail (*Sylvilagus floridanus*), Striped Skunk (*Mephitis mephitis*), and a number of small mammals that often go undetected (e.g., shrews, voles, mice) (Dobbyn, 1994). Bats also have the potential to occur in the study area where woodlands are present. Of Ontario's eight species of bat, four are SAR (see Section 4.5): Little Brown Bat (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), Eastern Small-footed Bat (*Myotis leibii*), and Eastern Pipistrelle (*Perimyotis subflavus*).

#### 4.4.2.2 *Birds*

The background review identified a total of 122 bird species that have the potential to occur within the study area. Of these, six were observed during field investigations: Northern Cardinal (*Cardinalis cardinalis*), Rock Pigeon (*Columba livia*), Dark-eyed Junco (*Junco hyemalis*), Downy Woodpecker (*Picoides pubescens*), Common Grackle (*Quiscalus quiscula*), and American Robin (*Turdus migratorius*). Breeding bird surveys were not completed as part of the 2019 field investigations; however, it is expected that the study area supports a range of bird species common to both urban environments and those found in woodlands and more naturalized areas along the Humber River, Silver Creek and Mimico Creek. All species identified from the background review were considered as part of the SWH assessment, including SoCC (see Section 4.4.3) and screened for SAR (see Section 4.5).

#### 4.4.2.3 *Herpetofauna*

A total of 31 herpetofaunal species were identified through background records as having the potential for occurrence within the study area. Targeted surveys were not completed as part of the 2019 field investigations; however, the naturalized areas surrounding the Humber River, Silver Creek and Mimico Creek likely provide suitable habitat for some reptiles and amphibians. All species identified from the background review were considered as part of the SWH assessment, including SoCC (see Section 4.4.3) and screened for SAR (see Section 4.5).

#### 4.4.3 *Significant Wildlife Habitat*

An assessment of SWH was completed for the study area following the SWH Criteria Schedule for Ecoregion 7E (MNR 2015), as defined in Section 3.3.2.3. The assessment was primarily based on the results of the background review and past studies completed for the project. Vegetation communities were used to inform the type of candidate SWH present within the study area and determine whether targeted wildlife studies are needed to confirm significance.

The details for each of the SWH types assessed, including SoCC screening, are provided in Appendix E. The candidate SWH that have the potential to occur in the study are summarized below, organized by each of the five main categories of wildlife habitats from the SWHTG (i.e., MNR 2015; MNR 2000).

### Seasonal Concentration Areas of Animals

The following candidate SWH for seasonal concentration areas of animals have been identified:

- **Raptor Wintering Area** - The areas associated with the Humber River and Mimico Creek have the potential to support wintering habitat for raptors. It is noted that the study area alone would unlikely be considered SWH and is being considered in the context of the contiguous, naturalized areas that extend well beyond the study area;
- **Bat Maternity Colonies** - All treed areas with snags and cavities have the potential to support bat maternity colonies. As a result, all woodlands in the study area are considered to support this habitat type;
- **Turtle Wintering Areas** - The study area is considered to provide limited habitat for turtle winter areas, although potential habitat may be present in the swamp and marsh communities associated with or near the Humber River. If present, deep-water pools within the Humber River, Silver Creek and Mimico Creek may also provide overwintering habitat; and
- **Reptile Hibernaculum** - Suitable rock piles, fissures or burrows may be found in any ecosite where there is access to subterranean sites below the frost line. Targeted snake surveys were not completed; however, it is noted that even with surveys it is difficult to confirm this habitat type. In the absence of any surveys, all areas associated with the City's NHS boundary will be considered candidate SWH for reptile hibernaculum.

### Rare Vegetation Communities

All vegetation communities were reviewed to determine provincial and local significance. None of the vegetation communities are considered provincially or locally rare; all are considered common to the area.

### Specialized Habitat for Wildlife

The following candidate SWH for specialized habitat for wildlife have been identified:

- **Waterfowl Nesting** - The swamp communities located east of the Humber River have the potential to support waterfowl nesting habitat;
- **Turtle Nesting Areas** - Although the requisite ecosites do not appear to be present in the study area, potential habitat may exist along the Humber River, Silver Creek and Mimico Creek if sand and gravel areas are present. In the absence of this information, candidate SWH is considered for those three watercourse areas; and
- **Amphibian Breeding Habitat (Woodland)** - All woodlands and swamp communities in the study area have the potential to provide habitat for amphibians. This includes the two swamp communities east of the Humber River; SWD4 (Mineral Deciduous Swamp Ecosite) is located approximately 75 m east of the Humber River just west of Emmett Avenue and approximately 68 m north of Eglinton Avenue West; SWD 2-2 (Green Ash Mineral Deciduous Swamp Type) is located approximately 360 m east of the Humber River, immediately north of Eglinton Avenue West and west of Emmett Avenue (see Appendix A, Figure A-3).

### **Habitat for SoCC**

The background review identified several SoCC that have the potential to occur in the study area, most of which are considered locally rare. This includes: six regionally and/or locally rare plant species (primarily identified in the 2010 EPR); 22 regionally or locally rare birds; 11 locally rare amphibians; eight provincially or locally rare reptiles; two locally rare mammals; and two invertebrates (Monarch and terrestrial crayfish). Habitat for most of these species are limited to the Humber River, Silver Creek, Mimico Creek and woodlands within the study area. A complete list of species is provided in Appendix E, Table E-2.

### **Animal Movement Corridors**

Candidate SWH for amphibian breeding habitat (woodland) may be present in the two swamp communities east of the Humber River; SWD4 (Mineral Deciduous Swamp Ecosite) is located approximately 75 m east of the Humber River just west of Emmett Avenue and approximately 68 m north of Eglinton Avenue West; SWD 2-2 (Green Ash Mineral Deciduous Swamp Type) is located approximately 360 m east of the Humber River, immediately north of Eglinton Avenue West and west of Emmett Avenue (see Appendix A, Figure A-3). The areas surrounding the swamps include woodlands and the Humber River which may function as an amphibian movement corridor. As a result, candidate SWH for amphibian movement corridors is considered present in the area surrounding the swamp communities and extending to the Humber River.

## **4.5 Species at Risk**

A screening for SAR (as defined in Section 3.4) was completed based on information obtained from the background review Appendix F). Of the species assessed, only 12 are considered as having the potential to occur based on potential habitat suitability and species distribution in the study area. As described in Table 4-3, only terrestrial species were identified as having the potential to occur, comprising turtles, bats, birds and one tree; no aquatic SAR were considered as having the potential to occur. The conservation status of each of the SAR is provided in Appendix E, with Table 4-3 only listing the legal framework for which protection is provided (e.g., ESA, SARA). None of these species were documented during field investigations; however, targeted surveys were not completed and are required during appropriate timing windows to determine presence/absence.

One SAR plant, Kentucky Coffeetree (*Gymnocladus dioica*) was documented during the preliminary tree inventory. Naturally occurring Kentucky Coffeetrees are rare throughout Ontario; however, this species is commonly used as a street tree in Toronto. Within the study area, Kentucky Coffeetrees identified during the tree inventory were located within the public road allowance and confirmed to be planted. Therefore, Kentucky Coffeetrees documented within the study area are considered exempt under the ESA. Butternut (*Juglans cinerea*), a provincially endangered tree species, was not confirmed within the study area during the preliminary tree inventory or in past studies, however, suitable habitat is present in the areas surrounding Mimico Creek, Silver Creek and Humber River. Additional studies are required to confirm presence/absence and/or to verify the limits of potential habitat within the project footprint in order to assess the probability of species occurrence.



**Table 4-3: Summary of Potential SAR within the Study Area**

Species	Legal Framework	Assessment	Next Steps
<b>Turtles</b>			
Blanding's Turtle ( <i>Emydoidea blandingii</i> )	ESA	Ontario Reptile and Amphibian Atlas (ORAA) has recent records of this species from 2017 within the 10 km <sup>2</sup> map squares (17PJ13, 17PJ23) that overlap the study area. Potential habitat for this species may be present in the areas surrounding the Humber River, Silver Creek and Mimico Creek.	Additional studies are needed to confirm presence/absence and habitat potential, particularly if encroachment of these areas will occur.  Turtle surveys should be completed at the Humber River, Silver Creek and Mimico Creek between June and July to search for basking turtles or evidence of turtle nesting activity. These surveys will include an assessment of nesting potential. Confirmation with MECP is recommended to determine if this level of effort is appropriate.
<b>Mammals</b>			
<ul style="list-style-type: none"> <li>Eastern Small-footed Myotis (<i>Myotis leibii</i>)</li> <li>Little Brown Myotis (<i>Myotis lucifugus</i>)</li> <li>Northern Myotis (<i>Myotis septentrionalis</i>)</li> <li>Tricolored Bat (<i>Perimyotis subflavus</i>)</li> </ul>	ESA	All woodlands within the study area have the potential to provide habitat for bats.	Additional studies are needed to confirm presence/absence of snag trees within the project footprint and any permitting requirements.  Snag tree surveys should be completed during leaf-off and leaf-on periods following the MNR "Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis, and Tri-coloured Bat" (MNR, 2017).  Tree removal in the study area should occur between October 1 - March 31, which is outside of the active bat window.
<b>Birds</b>			
Bank Swallow ( <i>Riparia riparia</i> )	ESA SARA	NHIC has recent records of this species from 2017 within the 1 km <sup>2</sup> map squares (17PJ1837, 17PJ1937, 17PJ2037) near Silver Creek eastward to Jane Street. E-bird did not have any recent records of this species in the study area, although there were 2017 records near the western limit in August within a residential community, confirming that Bank Swallows are in the area. Habitat potential may be present in the areas surrounding the Humber River, Silver Creek and Mimico Creek.	Breeding bird surveys are required to confirm presence/absence and any permitting requirements. Two surveys should be completed between May 24-July 10, with survey locations selected in different habitat types across the study area. Surveys would follow the OBBA Guide for Participants (2001) standard protocols.
Barn Swallow ( <i>Hirundo rustica</i> )	ESA SARA	There are recent records from NHIC (2017) and e-bird (2019) of this species throughout the study area. This species was also documented by LGL in 2008 and/or 2009 where active nests were observed at the Dixon Road Bridge and Black Creek Bridge. All bridge and concrete culvert structures may provide suitable nesting habitat within the study area.	Breeding bird surveys at all structures (e.g., bridges, culverts) are required to confirm presence/absence and permitting requirements.  Targeted surveys should be completed between May 24-July 10 at all structures and culverts that may be impacted by the project and that provide suitable habitat.
Chimney Swift ( <i>Chaetura pelagica</i> )	ESA SARA	There are recent records from e-bird from 2019 of this species throughout the study area. This species nests in manmade structures, which may include bridges. LGL noted this species in 2008 and/or 2009 near the Black Creek bridge. All bridges within the study area may provide habitat for this species.	
Common Nighthawk ( <i>Chordeiles minor</i> )	SARA	There are recent records from e-bird of this species within the study area: 2019 (west of Islington Avenue, north of Eglinton Avenue West); 2018 near Buttonwood Park (west of Scarlett Road south of Eglinton Avenue West) and 2016 records at Topham Pond (east of Jane Street, south of Eglinton Avenue West). This species is considered a habitat generalist with opportunities to nest anywhere in the study area (e.g., woodlands, cultural meadows, wetlands, parks).	Breeding bird surveys are required to confirm presence/absence if avoidance of habitat is not possible.  Two surveys should be completed between May 24-July 10, with survey locations selected in different habitat types across the study area. Surveys would follow the OBBA Guide for Participants (2001) standard protocols.
Red-headed Woodpecker ( <i>Melanerpes erythrocephalus</i> )	SARA	There are recent records from e-bird in 2019 of this species in the study area in a residential neighbourhood east of Renforth Drive (south of Eglinton Avenue West). There are woodlands, parks and golf courses within the study area that may provide suitable habitat for this species.	SARA protects the species and their residence (e.g., nests). Permitting can be avoided through appropriate mitigation. For example, avoid vegetation removal in potential habitat during the breeding bird window which extends from April 1-August 31.
Wood Thrush ( <i>Hylocichla mustelina</i> )	SARA	There are recent records from e-bird of this species within the study area: 2019 (west of Islington Avenue, north of Eglinton Avenue West). The woodlands in the study area have the potential to provide habitat for this species.	
<b>Plants</b>			
Butternut ( <i>Juglans cinerea</i> )	ESA	NHIC has a record of this species from 2002 within the 1 km <sup>2</sup> map square (17PJ2137) east of Jane and south of Eglinton Avenue West, beyond the project footprint. Although there are no confirmed records of this species based on the 2019 tree inventory and past studies, suitable habitat is present in the areas surrounding the Humber River, Silver Creek and Mimico Creek. Other woodlands in the area also have the potential to support these species.	Targeted surveys are required to confirm presence/absence in areas where direct impacts to woodlands are proposed and that haven't been surveyed previously.

## 4.6 Summary

A summary of conceptual design and construction components potentially within a natural heritage feature is provided in Table 4-4. Potential impacts and recommended mitigation measures are provided in Section 5 (Table 5-1).

**Table 4-4: Summary of Project Components and Natural Heritage Features**

Project Component	Location (Approximate - Subject to Change)	Natural Heritage Features	Impact Potential
Underground Alignment	Mount Dennis Station to East of Jane Street	N/A	None - underground work will include tunnelling and is not expected to impact the natural environment, including natural heritage features.
	West of Scarlett Road to Renforth Drive	Silver Creek and Mimico Creek	
Elevated Alignment/ Guideway	East of Jane Street to West of Scarlett Road	Humber River, Greenbelt Plan Area (Humber River Valley), NHS, Woodland, Wetland, Candidate SWH, Potential SAR	<b>High</b> - direct encroachment of natural heritage features, including general vegetation removal, removal of individual trees, and placement of piers within terrestrial natural heritage features.
Partially Underground Alignment	Renforth Drive to Renforth Station	None	Low - impacts will be limited to typical ground vegetation disturbance/removal. Individual trees may also be removed.
Station Sites	Jane Street	NHS, Woodland, Candidate SWH, Potential SAR	<b>High</b> - direct encroachment of natural heritage features, including general vegetation removal, removal of individual trees, and placement of piers within terrestrial natural heritage features.
	Scarlett Road	Greenbelt Plan Area, NHS, Woodland, Candidate SWH, Potential SAR	
	Royal York Road	Potential Woodland (with associated Candidate SWH and Potential SAR)	<b>Medium to High</b> - Potential for direct encroachment of natural heritage features and/or indirect effects to woodlands, including general vegetation removal and removal of individual trees.
	Islington Avenue		
	Kipling Avenue		
	East of Martin Grove Road	None	Low - impacts will be limited to typical ground vegetation disturbance/removal. Individual trees may also be removed.
	West of Renforth Drive		
Renforth Staging Area	North of Eglinton Avenue West, between Renforth Drive and Commerce Boulevard	None	Low - impacts will be limited to typical ground vegetation disturbance/removal. Individual trees may also be removed
Staging Areas, Portal locations and Ancillary Features	Locations of these project components are approximate or unknown at this time and will be confirmed in the next design phase. Impact potential for these components will be determined once locations are confirmed.		



## **5. Effects Assessment, Mitigation and Monitoring**

This section documents the potential effects on the natural environment, resulting from construction and operation of the project. This section also documents mitigation measures to avoid or reduce negative effects and monitoring activities, verify effectiveness of these mitigation measures and provide feedback for adaptive management. A preliminary assessment of potential effects and mitigation is provided in Section 5.1.

The assessment is based on the project components identified in Table 1-1, Section 1.1. The locations of the stations, portals, staging areas and ancillary features are approximate or unknown at this time and will be assessed once these components are confirmed in the next design phase. Furthermore, direct and indirect impacts to groundwater will be confirmed as part of the hydrogeological and geo-environmental studies to be completed during the next stage of the design process. Effects to groundwater users and the natural environment, as a result of dewatering, will be assessed in the hydrogeological study.

### **5.1 Summary of Project Components and Potential Impacts and Mitigation**

All locations and/or potential impacts summarized in the following sections below are based on the conceptual design and are subject to change. These impacts and mitigation measures will be re-assessed and refined once the location and design of project components is confirmed in the next design phase.

#### **5.1.1 Underground/Below Grade Components**

##### **5.1.1.1 Royal York to Martin Grove Stations/Underground Alignments**

The following stations are underground: Royal York, Islington, Kipling, and Martin Grove. The proposed underground alignment extends from Mount Dennis Station to east of Jane Street, and from west of Scarlett Road to Renforth Drive. Underground stations and alignments will limit the amount of required above ground infrastructure in the long term, but may present construction impacts resulting from cut and cover construction of the underground stations, the construction of the LS and ES for the TBM, and the implementation of supporting infrastructure (e.g., ventilation shafts, EEBs, TPSSs, CPs, etc.).

Impacts associated with the below grade components are anticipated to be limited to typical ground vegetation disturbance/removal and potential removal of individual trees outside of natural heritage features. However, the conceptual locations of the Royal York, Islington and Kipling stations have the potential to directly and/or indirectly impact woodlands that are associated with candidate SWH and potential SAR. Once the locations of the underground stations are confirmed, the below grade components and their associated above ground structures will be assessed to determine potential effects on the natural environment.

No operational impacts other than accidental spills and malfunctions are anticipated for the below grade project components.

## **5.1.2 *Elevated/Above-grade Components***

### **5.1.2.1 *Jane and Scarlett Stations/Elevated Alignment***

The Jane and Scarlett Stations are both elevated, with an elevated alignment extending from east of Jane Street to west of Scarlett Road. These components may encroach within designated areas (i.e., Greenbelt Plan Area and NHS), woodlands, potential wetlands at the Humber River, candidate SWH and potential SAR habitat. Direct encroachment within these natural heritage features may impact vegetation and vegetation communities, and wildlife and wildlife habitat, through vegetation clearing and the placement of structural elements within natural heritage features (i.e., Guideway piers) resulting in temporary and permanent habitat loss.

Potential construction impacts resulting from the elevated project components may also include habitat alteration, habitat disturbance and wildlife avoidance, and potential wildlife injury and incidental take. Minimizing the extent of encroachment into natural areas and implementation of appropriate mitigation measures (see Table 5-1) can help to avoid and minimize potential effects.

Immediately east of Scarlett Station, the elevated alignment will span the Humber River, preventing encroachment into the watercourse and minimizing the potential impacts of the proposed work. By avoiding encroaching into the Humber River, direct impacts to fish and fish habitat are not anticipated provided mitigation measures are properly implemented (see Table 5-1).

During operations, train traffic associated with the elevated alignment will result in noise, which may affect and possibly displace wildlife. Injury and incidental take to general wildlife and migratory birds may also occur due to collisions with trains (e.g., birds flying into the path of a moving train). Wildlife accustomed to the urban environment will likely adapt to these changes. Accidental spills and malfunctions during operations and maintenance activities may also occur.

Potential impacts and mitigation measures will be reassessed and refined once the location and design of the elevated components are confirmed in the next design phase. Through consultation with TRCA, design of the guideway, including piers and abutments will consider impacts to the natural environment and natural hazards. Construction methods that do not require significant excavations will also be considered to address the highly variable stratigraphy in the area.

## **5.1.3 *Partially Underground/Partially Below-grade Components***

### **5.1.3.1 *Renforth Station***

Renforth Station will be partially underground. Potential construction impacts associated with Renforth Station are anticipated to be limited to typical ground vegetation disturbance/removal and potential removal of individual trees. Potential impacts and mitigation measures will be reassessed and refined once the location and design of Renforth Station is confirmed in the next design phase. No operational impacts other than accidental spills and malfunctions are anticipated.

## **5.1.4 At Surface/At-grade Components**

### **5.1.4.1 Portals**

Three portals are located within the study area and are proposed east of Jane Street (eastern portal), west of Scarlett Station (mid-portal), and at Renforth Drive (western portal). Potential impacts and mitigation measures will be assessed once the portal locations are confirmed in the next design phase. However, the potential drainage and stormwater impacts associated with the approximate portal locations are documented in the *Drainage and Stormwater Management Report*.

### **5.1.4.2 Staging Areas**

Temporary staging areas are required to facilitate construction of the stations and alignments, including tunnels (e.g., portals) and supporting infrastructure. The staging area at Renforth Drive is associated with the western portal and located in open cultural meadow communities. Potential impacts are anticipated to be limited to typical ground vegetation disturbance/removal and potential removal of individual trees.

The location and extent of staging areas throughout the study area, except for the staging area associated with the western portal, have not been confirmed at this time. The remaining staging areas will be confirmed in the next design phase and will be sited to minimize encroachment and impacts to natural areas, designated areas and regulated areas. Potential impacts and mitigation measures will be assessed at that time.

### **5.1.4.3 Ancillary Features**

The location of ancillary features including ventilation shafts, EEBs, TPSSs and CPs are approximate or unknown at this time and will be confirmed in the next design phase. Assessment and recommendation of mitigation measures for these features will be completed once locations are confirmed.

## **5.2 Summary of Mitigation Measures**

### **5.2.1 Wildlife and Wildlife Habitat**

The following includes a summary of key mitigation measures to minimize impacts to wildlife and wildlife habitat, including SAR. All mitigation measures identified for the species listed below would also apply to general wildlife.

#### **5.2.1.1 Turtles and Snakes**

- Where feasible, vegetation removal should occur outside of the active period for reptiles, which extends from late March/early April to late October;
- If potential turtle nest sites (i.e., areas of fresh digging in loose gravel or sandy material) are found within the work areas, work shall temporarily cease in the immediate area and the project biologist should be consulted to discuss appropriate mitigation options. If the nest is confirmed to be a SAR or has the potential to be a SAR, MECP should also be consulted. The nests should be left undisturbed, flagged and a 5 m buffer (unless otherwise directed by MECP, where applicable) applied to protect against construction activities;

- If turtles or snakes are encountered during construction, whenever possible, work should be temporarily suspended until the species is out of harm's way;
- If reptile hibernacula or an egg-laying site is discovered during construction, all work shall cease in that area and MECP shall be contacted to discuss mitigation measures; and
- Install exclusionary fencing to prevent wildlife from entering the construction site. This also includes areas where potential nesting (e.g., upland communities) and overwintering habitat (open water and marsh communities) may be present. Exclusionary fencing should not prohibit access to nearby habitats. Where required, redirect species to areas where they can avoid the potential for incidental take and still have access to habitats. If ESC measures are used on-site, mesh backing is not permitted. If wire-backed fencing is necessary, the openings should be large such as 2 inches by 4 inches. Snakes, can become entangled in mesh openings that are ¼ inch. ESC measures shall be monitored twice daily at the beginning of work and end of day.

#### 5.2.1.2 *Birds*

- Where feasible, vegetation removal should occur between September 1 - March 31, which is outside of the breeding bird window;
- If vegetation removal is required during this timing window, the following is recommended:
  - A nest sweep should be completed by a Qualified Biologist prior to construction to verify nesting activity. Vegetation clearing must take place within 48 hours of the inspection;
  - Preventative measures (e.g., tarps) should be installed at bridge and culvert locations where work is proposed, prior to April 1 to inhibit birds from nesting within the structures; and
  - Regular inspection of the culverts during the nesting season should be completed to ensure the exclusion measures have been effective and no nests are present.
- If an active nest is found within the work area, at any time (including times outside of the typical nesting season), construction in the vicinity must cease until the young birds have fledged or the nest is otherwise abandoned. A setback from the nest (e.g., 30 m) should be identified and the area demarcated to ensure work does not occur within the setback limits. A qualified biologist should be consulted to determine the setback limits.

#### 5.2.1.3 *Bats*

- Where feasible, vegetation removal in bat habitat should occur between October 1 - March 31, which is outside of the active bat window;
- Avoid removal of dead standing trees or trees with snags or cavities, if feasible;
- Minimize noise and lighting near woodlands; and
- Work near wooded areas should occur during daylight hours, where feasible.

### **5.2.2 Environmental Management and Monitoring**

- Conduct visual inspections for wildlife prior to the start of construction each day and regularly throughout the day during the active season. This will include a thorough walk-through of the work area and searching any brush piles, logs or rock piles and equipment. Inspections shall be completed by a Qualified Biologist trained in the verification and relocation of SAR;
- Wildlife relocations will only be performed if an animal is in danger and if field staff can do so safely. Relocations will be completed by a qualified ecologist following the techniques outlined in the MNRFs Ontario Species at Risk Handling Manual: For Endangered Species Act Authorization Holders. The manual includes measures for safe handling, relocation, and transportation of live, injured, and dead animals. Injured wildlife will be captured and relocated to the nearest appropriate authorized wildlife rehabilitator (<https://learningcompass.learnflex.net/Upload/Public/WildlifeRehabilitatorsPublicList.htm>);
- All observations of SAR will be reported directly to the MECP and the MNRF NHIC using the online rare species reporting form, or will be emailed to them in spreadsheet format in the event of multiple observations;
- Wildlife protocols should be developed to educate workers of potential wildlife occurrences, including SAR, and measures to take in the event of potential encounters. Preventative measures to minimize encounters, injury and incidental take should also be provided;
- A monitoring plan should be developed to ensure mitigation and contingency measures are implemented and performance objectives are being met. Construction monitoring should be completed to ensure Erosion and Sedimentation (E&S) measures are in place and working effectively. E&S controls should be checked weekly and after major rain events (>10 mm) to ensure it is installed and functioning properly. Daily monitoring should be completed by the Contractor. Any deficiencies should be repaired immediately. A construction monitoring log should be maintained to ensure any deficiencies and corrective actions are documented;
- Following construction, it is recommended that disturbed areas are re-stored and vegetated to pre-construction conditions. Vegetation plantings should include seed mixes that are appropriate for the area and similar to or better than pre-construction conditions; and
- The Clean Equipment Protocol for Industry (Halloran et al., 2013) should be implemented throughout the duration of construction.

### **5.2.3 Erosion and Sedimentation**

Erosion of exposed soil, and subsequent sediment inputs into watercourses have the potential to occur during construction of the project. Exposed soil, especially on slopes and in ditches, are vulnerable to erosion until vegetation has re-established.

An Erosion and Sediment Control (ESC) plan should be prepared and implemented prior to and throughout the duration of construction. The ESC plan should include measures to prevent and minimize erosion and off-side sedimentation.

The ESC plan should consider the following:

- Maintain vegetative buffers to the extent feasible;
- Timing of vegetation removal should consider rainfall and other weather conditions that could increase the likelihood of E&S. For example, if feasible, avoid vegetation and earthworks in the spring;
- Minimize the extent and duration of exposed soil and re-vegetate as soon as possible to help re-stabilize soils. Vegetation plantings should include a seed mix that is appropriate to the area and similar to or better than pre-construction conditions;
- Selection of ESC controls should be appropriate for the site and extent of disturbance, and potential impacts to wildlife, such as entanglement (e.g., measures that contain plastic mesh or netting) or restriction to movement and access to habitat (as required) should be considered;
- ESC measures should be installed prior to vegetation removal and remain in place until vegetation has become established and soils re-stabilized; and
- A monitoring plan should be developed to ensure ESC measures are installed in accordance with manufacturer's instructions and maintained to ensure controls are working effectively and per design. The frequency of monitoring should be established and may include daily inspections or less frequently, after major rainfall events. A monitoring log should be maintained and include any corrective actions taken and additional recommendations to ensure compliance.

#### **5.2.4 Deleterious Substances**

Fuels, oils and other hazardous materials will likely be present on-site through the operation of vehicles and on-site equipment. Accidental spills of these materials could result in potential negative impacts to the natural environment. The following mitigation measures have been identified to minimize the potential for accidental spills:

- Ensure all on-site hazardous materials are properly stored and located at least 30 m away from watercourses and other sensitive natural features, such as wetlands, including all handling and refueling activities;
- All on-site materials should be self-contained, maintained according to manufacturer's instructions and disposed of appropriately;
- Develop and implement an emergency response management and monitoring plan that includes measures for preventing and addressing potential spills and monitoring activities; and
- Spill kits should be kept on-site and accessible at all times.

All waste resulting from construction should be removed from the site and disposed of at an appropriate facility. This includes packaging (bags, wraps, boxes, ties, etc.), waste materials (excess fill, cement, grout, asphalt, or other substances), and ESC structures (silt fencing, flow checks, etc.) once permanent vegetation has established and ESC measures are no longer required.



**Table 5-1: Summary of Potential Impacts and Mitigation Measures**

Environmental Component	Potential Impacts	Mitigation Measures	Monitoring Activities
<b>Construction</b>			
Fish and Fish Habitat	<p><u>Humber River</u></p> <p>Effects to the Humber River are anticipated to be minimal given that no works are proposed in the river or below the High-Water mark. Effects associated with the proposed works will be limited to indirect effects of construction activities. No direct effects are anticipated, as the new bridge structure will span the river, avoiding the placement of piers within the watercourse.</p> <p>Potential indirect effects may occur to fish and fish habitat in the Humber River due to the construction of Scarlett station, the elevated guideway, and clear span bridge. Potential impacts include:</p> <ul style="list-style-type: none"> <li>Removal of riparian vegetation adjacent to the watercourse that functions as fish habitat by providing shade, cover, and areas for spawning and food production;</li> <li>Stormwater run-off and the use of machinery adjacent to the watercourse can introduce deleterious substances (e.g., debris, oil, fuel, and grease) to the Humber River and result in E&amp;S; and</li> <li>Erosion and downstream transport of sediment associated with construction activities, including exposed soils, stockpiled soils or other materials from clearing and grubbing.</li> </ul> <p>Impacts to fish and fish habitat may also result from construction dewatering if water taking activities are required adjacent to the Humber River. Impacts associated with dewatering will be identified by hydrogeological assessment studies completed during the next design phase. If dewatering is required within the Humber River Valley, impacts may include:</p> <ul style="list-style-type: none"> <li>Water taking activities may reduce ground water inputs into the watercourse altering base flow, water quality, and/or thermal regime; and</li> <li>Dewatering discharge may enter the watercourse and impact in-stream water volume and velocity, increasing</li> </ul>	<p>No in-water work or work below the High-Water mark is proposed and therefore there is low potential for the Project to directly affect aquatic species. There is potential for the Project to indirectly affect the aquatic environment. Potential effects from the construction of the Project to the aquatic environment can be managed through implementation of the following mitigation measures:</p> <ul style="list-style-type: none"> <li>Implement Stormwater Management Plan to maintain pre-construction drainage patterns and flows. Measures to mitigate drainage and stormwater impacts to the Humber River are documented under a separate cover titled <i>Drainage and Stormwater Management Report</i>;</li> <li>Develop and implement Environmental Management Plans to mitigate impacts associated with construction dewatering. Measures to mitigate dewatering impacts to the Humber River will be identified by future hydrogeological assessment studies, which will consider applicable TRCA guidelines and policies including <i>TRCA Geotechnical Engineering Design and Submission Plan Guidelines (2007)</i> and <i>TRCA Technical Guidelines for the Development of Environmental Management Plans for Dewatering (2013)</i>.</li> <li>The TRCA Stream Crossing Guide will be followed during the detailed design phase for the Humber River guideway crossing;</li> <li>Schedule construction to avoid wet and rainy periods;</li> <li>Ensure equipment and materials storage is located in designated and properly contained areas located well away from the watercourse;</li> <li>Construction will minimize the use of fill within the floodplain;</li> <li>Ensure equipment does not enter nor is operated in the Humber River or on the river banks. All equipment shall be operated on land above the high water level, in a manner that minimizes disturbance to the waterbody banks of the watercourse;</li> <li>Maintain the buffers established during the design phase to minimize potential negative impacts to wetlands and waterbodies by delineating work areas with construction fencing to minimize the area of disturbance;</li> <li>Develop an ESC Plan in accordance with the <i>TRCA Erosion and Sediment Control Guidelines for Urban Construction (2019)</i>, prior to construction for implementation throughout construction. This plan will encompass all areas of soils disturbance, particularly in the vicinity of the Humber River. The ESC plan described for soils mitigation will include the following measures: <ul style="list-style-type: none"> <li>All disturbed areas/construction zones that drain to the watercourse will be isolated using standard perimeter ESC fencing to isolate the general construction zone up and downstream. The ESC fencing will be heavy duty/reinforced fencing, but with no exposed mesh that might entangle wildlife;</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include alteration of activities to minimize impacts and enhance mitigation measures.</li> <li>Retain a qualified environmental professional to ensure appropriate protocols are applied and applicable permits are obtained, if required.</li> </ul>

Environmental Component	Potential Impacts	Mitigation Measures	Monitoring Activities
	erosion and restricting fish passage. The release of effluent may also introduce sediment and other deleterious substances into the watercourse impairing water quality.	<ul style="list-style-type: none"><li>• Use of effective erosion control measures including topsoil and seed, silt fence barriers, and erosion control blankets;</li><li>• Measures for containing and stabilizing waste material (e.g., dredging spoils, construction waste and materials, uprooted or cut aquatic plants, accumulated debris) above the high water mark of watercourses to prevent re-entry;</li><li>• Regular inspection and maintenance of ESC measures and structures during the course of construction;</li><li>• Repairs to ESC measures and structures if damage occurs; and</li><li>• Removal of non-biodegradable ESC materials once site is stabilized.</li><li>• Locate all salvaged or stockpiled materials a safe distance from the edge of the watercourse and stabilize to prevent migration of any sediment or other material to the watercourse;</li><li>• Immediately stabilize shorelines or banks disturbed by construction activities to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site;</li><li>• Stabilize and re-vegetate all work areas or other disturbed surfaces draining to the watercourse and/or in the floodplains as soon as feasible following construction as described above;</li><li>• Develop and implement a riparian planting plan to ensure that cleared areas are restored to pre-construction conditions or better through planting of native trees and vegetation;</li><li>• Control all activity to prevent entry of any petroleum products, debris or other potential contaminants/deleterious substances, in addition to sediment as outlined above, to the watercourse. Conduct storage, refueling or maintenance of equipment at least 30 m away from the watercourse. An Emergency Preparedness and Response Plan will govern spill response;</li><li>• Retain and protect as much of the natural vegetation as reasonably possible to help ensure bank stability and control erosion;</li><li>• Ensure that cleared areas are restored to pre-construction conditions or better through planting of native trees and vegetation; and</li><li>• Report any spills to the MECP SAC hotline (1-800-268-6060) and Fisheries and Oceans Canada. In addition, the construction contractor should maintain a spill kit on-site at all times during construction.</li></ul> <p>In the event in-water work or work below the High-Water mark is required for the project, the following Best Management Practices for in-water work should be implemented:</p> <ul style="list-style-type: none"><li>• Time in-water work to respect timing windows (to be confirmed by MNRF) to protect fish, including their eggs, juveniles, spawning adults and/or the organisms upon which they feed;</li></ul>	

Environmental Component	Potential Impacts	Mitigation Measures	Monitoring Activities
		<ul style="list-style-type: none"><li>• Contain all in-water works with use of a coffer dam designed and installed according to relevant Contract Specifications;</li><li>• Retain a qualified environmental professional to ensure applicable permits for relocating fish from within the contained work area (i.e., cofferdams) are obtained and to capture any fish trapped within an isolated/enclosed area at the work site and safely relocate them to an appropriate location in the same waters. Fish may need to be relocated again, should flooding occur on the site;</li><li>• Minimize duration of in-water work and conduct instream work during periods of low flow to further reduce the risk to fish and their habitat or to allow work in water to be isolated from flows;</li><li>• Schedule work to avoid wet, windy and rainy periods that may increase E&amp;S;</li><li>• Design and plan activities and works in the waterbody such that loss or disturbance to aquatic habitat is minimized and sensitive spawning habitats are avoided;</li><li>• Design and construct approaches to the waterbody such that they are perpendicular to the watercourse to minimize loss or disturbance to riparian vegetation;</li><li>• Avoid building structures on meander bends, braided streams, alluvial fans, active floodplains or any other area that is inherently unstable and may result in erosion and scouring of the stream bed or the built structures;</li><li>• Undertake all instream activities in isolation of open or flowing water (i.e., coffer dam) prior to construction, ensuring work below the High-Water mark is carried out under dry conditions, and maintain the natural flow of water downstream avoiding the introduction of sediment into the watercourse;</li><li>• Ensure that building material used in a watercourse has been handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish;</li><li>• Develop and implement an ESC Plan for the site, in accordance with the TRCA ESC Guidelines for Urban Construction (2019), that minimizes risk of sedimentation of the waterbody during all phases of the project. ESC measures should be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the waterbody or settling basin, and runoff water is clear. The plan should, where applicable, include:<ul style="list-style-type: none"><li>• Installation of effective ESC measures before starting work to prevent sediment from entering the water body;</li><li>• Measures for managing water flowing onto the site, as well as water being pumped/diverted from the site such that sediment is filtered out prior to the water entering a waterbody. For example, pumping/diversion of water to a vegetated area, construction of a settling basin or other filtration system;</li></ul></li></ul>	

Environmental Component	Potential Impacts	Mitigation Measures	Monitoring Activities
		<ul style="list-style-type: none"> <li>Site isolation measures (e.g., silt boom or silt curtain) for containing suspended sediment where in-water work is required (e.g., dredging, underwater cable installation);</li> <li>Measures for containing and stabilizing waste material (e.g., dredging spoils, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the High-Water mark of nearby waterbodies to prevent re-entry;</li> <li>Regular inspection and maintenance of ESC measures and structures during the course of construction;</li> <li>Repairs to erosion and sediment control measures and structures if damage occurs; and</li> <li>Removal of non-biodegradable ESC materials once site is stabilized.</li> <li>Clearing of riparian vegetation should be kept to a minimum: use existing trails, roads or cut lines wherever possible to avoid disturbance to the riparian vegetation and prevent soil compaction. When practicable, prune or top the vegetation instead of grubbing/uprooting;</li> <li>Minimize the removal of natural woody debris, rocks, sand or other materials from the banks, the shoreline or the bed of the waterbody below the ordinary High-Water mark. If material is removed from the waterbody, set it aside and return it to the original location once construction activities are completed;</li> <li>Restore bed and banks of the waterbody to their original contour and gradient; if the original gradient cannot be restored due to instability, a stable gradient that does not obstruct fish passage should be restored;</li> <li>If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, then ensure that appropriately sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform bank/shoreline and natural stream/shoreline alignment;</li> <li>Remove all construction materials from site upon project completion;</li> <li>Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows, or result in the stranding or death of fish;</li> <li>Prior to dewatering isolated work areas, capture and relocate fish to suitable habitat outside of the work area under a Licence to Collect Fish for Scientific Purposes from MNRF;</li> <li>Ensure that machinery arrives on-site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds;</li> <li>Whenever possible, operate machinery on land above the High-Water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the waterbody;</li> </ul>	

Environmental Component	Potential Impacts	Mitigation Measures	Monitoring Activities
		<ul style="list-style-type: none"> <li>Limit machinery fording of the watercourse to a one-time event (i.e., over and back), and only if no alternative crossing method is available and if approved by regulatory agencies. If repeated crossings of the watercourse are required, construct a temporary crossing structure;</li> <li>Use temporary crossing structures or other practices to cross streams or waterbodies with steep and highly erodible (e.g., dominated by organic materials and silts) banks and beds. For fording equipment without a temporary crossing structure, use stream bank and bed protection methods (e.g., swamp mats, pads) if minor rutting is likely to occur during fording;</li> <li>Wash, refuel, and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water; and</li> <li>Develop mitigation measures in consultation with the TRCA, MNRF, MECP, and DFO, as applicable.</li> </ul>	
	<p><u>Silver Creek and Mimico Creek</u></p> <ul style="list-style-type: none"> <li>No direct or indirect effects to fish or fish habitat are anticipated at Silver Creek or Mimico Creek given that all work at or near these watercourses are proposed below ground (i.e., tunnels will be 8 m underground); and</li> <li>Impacts associated with underground tunnelling, including construction dewatering, will be determined by hydrogeological assessment studies undertaken during the next design phase. If dewatering is required within the vicinity of Silver Creek or Mimico Creek, potential impacts may include erosion, and changes to water quality and in-stream flow characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>If required, develop a frac-out response plan for Silver Creek and Mimico Creek in the event drilling mud is released during tunnelling activities into the surrounding substrate and travels toward the surface beneath these watercourses. The frac-out response plan will include measures to stop work, contain the drilling mud, prevent further sediment migration to the watercourse, and identify materials and equipment needed to contain and clean up release on-site as a result of a frac-out; and,</li> <li>Develop and implement Environmental Management Plans to mitigate impacts associated with construction dewatering. Measures to mitigate dewatering impacts to Silver Creek and Mimico Creek will be identified by future hydrogeological assessment studies, which will consider applicable TRCA guidelines and policies including TRCA Geotechnical Engineering Design and Submission Plan Guidelines (2007) and TRCA Technical Guidelines for the Development of Environmental Management Plans for Dewatering (2013).</li> </ul>	<ul style="list-style-type: none"> <li>On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.</li> </ul>
Vegetation and Vegetation Communities	<p>None of the vegetation communities documented within the study area are considered provincially or locally rare; all are considered common to the area. However, 26 regionally and/or locally rare plant species have the potential to occur in the study area. Habitat for most of these species are limited to NHSs surrounding the Humber River, Silver Creek and Mimico Creek, as well as woodlands within the study area. The extent of encroachment will be evaluated in the next design phase.</p> <p>Work associated with the underground alignment will include tunnelling and is not expected to impact the natural environment. However, impacts to vegetation and vegetation communities are anticipated for surface and elevated alignments, stations, staging areas, portals and ancillary features. The extent of impacts will be re-assessed in the next</p>	<ul style="list-style-type: none"> <li>Detailed design to consider minimizing encroachment of these areas, to the extent possible, and reduce vegetation removals;</li> <li>Revisit areas for vegetation removal during detailed design, if required, to identify changes in the area of construction disturbance;</li> <li>Limit construction activities to the work area, and if necessary, sensitive features should be demarcated if they are located immediately adjacent to the work zone;</li> <li>An Arborist Report will be completed by an I.S.A. Certified Arborist at design stage. The report will include all trees within 6 m of the construction project boundary and all trees within 12 m of the construction project boundary if within a ravine protected area, and identify best management practices as applicable. Mitigation measures identified in the Arborist Report will be implemented during construction;</li> </ul>	<ul style="list-style-type: none"> <li>On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. Undertake on-site inspection to:</li> <li>Ensure that only specified trees are removed, fencing is intact and there is no damage caused to the remaining trees and adjacent vegetation communities. Construction and/or ESC fencing will be repaired if it is damaged. Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester;</li> </ul>



Environmental Component	Potential Impacts	Mitigation Measures	Monitoring Activities
	<p>design phase once the project components and locations are confirmed.</p> <p>Both direct and indirect effects to vegetation and vegetation communities are anticipated during construction of the Project and include:</p> <ul style="list-style-type: none"> <li>Direct and indirect impacts to woodlands, wetlands and general vegetation through vegetation disturbance and clearing resulting in the permanent and temporary loss of habitat;</li> <li>Change in habitat quality due to the alteration of community structure, edge effects, changes in species composition, and damage to adjacent vegetation and trees through: <ul style="list-style-type: none"> <li>Soil compaction;</li> <li>Changes in moisture regime;</li> <li>Introduction/spread of invasive species;</li> <li>Fugitive dust;</li> <li>E&amp;S; and</li> <li>Accidental spills (e.g., fuel).</li> </ul> </li> <li>Direct and indirect impacts to trees resulting from the loss and injury to trees during construction.</li> </ul>	<ul style="list-style-type: none"> <li>Delineate Tree Protection Zone in the Arborist Report and/or Tree Protection Plan at the design stage and install fencing during construction to protect and prevent tree injuries in accordance with local by-law requirements. Where feasible, a setback from the dripline of adjacent trees will be maintained to protect the rooting zone of edge trees;</li> <li>A Tree Protection Plan will be developed to demonstrate protection of the existing trees during construction that includes RNFP regulated trees and natural areas;</li> <li>Tree protection hoarding and sediment control measure will be installed in accordance with the City's Tree Protection Policy and Specifications for Construction Near Trees prior to any construction activities;</li> <li>Where feasible, areas temporarily disturbed by construction should be re-vegetated with a native seedmix in accordance with <i>TRCA Seed Mix Guidelines</i>, and returned to pre-construction conditions or better;</li> <li>Implement surface protection measures to minimize soil compaction;</li> <li>Where feasible, maintain vegetated buffers and setbacks from the dripline of adjacent trees to protect the rooting zone of edge trees and install tree protection fencing;</li> <li>Implement a stormwater management plan to maintain pre-construction drainage patterns and flows;</li> <li>Implement the <i>Clean Equipment Protocol for Industry</i> (Halloran et al., 2013) to minimize the introduction and spread of invasive species;</li> <li>Removal of ash trees, or portions of ash trees, will be carried out in compliance with the Canada Food and Inspection Agency Directive D-03-08: <i>Phytosanitary Requirements to Prevent the Introduction into and Spread within Canada of the Emerald Ash Borer, Agrilus planipennis</i> (Fairmaire) (2014), as amended from time to time. To comply with this Directive, all Ash trees requiring removal, including any wood, bark or chips, will be restricted from being transported outside of the emerald ash borer regulated areas of Canada;</li> <li>Develop and implement a dust management plan for the suppression of fugitive dust;</li> <li>Minimize the extent and duration of exposed soil and re-vegetate as soon as possible to help re-stabilize soils. Vegetation plantings should be in accordance with <i>TRCA Seed Mix Guidelines</i>, and include a seed mix that is appropriate to the area and similar to or better than pre-construction conditions;</li> <li>Timing of vegetation removal should consider rainfall and other weather conditions that could increase the likelihood of E&amp;S. For example, if feasible, avoid vegetation and earthworks in the spring;</li> </ul>	<ul style="list-style-type: none"> <li>Ensure vehicles are being cleaned in accordance with the Clean Equipment Protocol for Industry (Halloran et al., 2013) and confirm implementation of the mitigation measures; and</li> <li>Ensure precautions are being taken to minimize the spread of invasive species by cleaning equipment prior to moving sites.</li> <li>Construction monitoring should be completed to ensure E&amp;S measures are in place and working effectively. E&amp;S controls should be checked weekly and after major rain events (&gt;10 mm) to ensure it is installed and functioning properly. Daily monitoring should be completed by the Contractor. Any deficiencies should be repaired immediately. A construction monitoring log should be maintained to ensure any deficiencies and corrective actions are documented;</li> <li>Metrolinx will obtain all necessary permits and approvals and meet applicable monitoring and compensation requirements, as needed;</li> <li>On-site inspection will be undertaken as required during construction to ensure that only specified trees are removed, fencing is intact and there is no damage caused to the remaining trees and adjacent vegetation communities. Construction and/or ESC fencing will be repaired if it is damaged. Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester;</li> <li>Post-planting monitoring of restoration areas for one year after installation. One site visit will be conducted during the subsequent growing season to confirm survival of plantings and/or seed mix. Should the plantings and/or seed mix not survive, additional seeding and/or plantings will be undertaken one year thereafter with one additional monitoring visit in the following growing season; and</li> <li>Restoration/compensation monitoring will be confirmed through regulatory agency consultation during detailed design.</li> </ul>

Environmental Component	Potential Impacts	Mitigation Measures	Monitoring Activities
		<ul style="list-style-type: none"> <li>Vegetation removals will also consider and mitigate potential impacts to sensitive species (e.g., migratory birds and SAR) and features (e.g., Designated Natural Areas and Significant Wildlife Habitat);</li> <li>Naturalized plantings to enhance connectivity within the Humber River corridor will be recommended;</li> <li>Compensation will be provided for the loss or injury of trees, woodlands or wildlife habitat (including SAR) in accordance with <i>TRCA's Guideline for Determining Ecosystem Compensation</i> and/or <i>Metrolinx's Vegetation Guideline (2020)</i> once losses have been determined, and will be confirmed through consultation with regulatory agencies. Permitting and approvals will also be obtained, as required;</li> <li>Develop and implement an ESC plan, per <i>TRCA Erosion and Sediment Control Guidelines for Urban Construction (2019)</i>, to minimize erosion and prevent off-site sedimentation;</li> <li>Immediately stabilize shorelines or banks disturbed by construction activities to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site;</li> <li>Ensure heavy equipment and all storage materials (hazardous and non-hazardous) are properly stored at least 30 m from sensitive features, such as wetlands, including all handling and refueling activities;</li> <li>Develop and implement an emergency and response control plan to address potential spills; and</li> <li>Report any spills to the MECP Spills Action Centre (SAC) hotline (1-800-268-6060) and Fisheries and Oceans Canada. In addition, the construction contractor should maintain a spill kit on-site at all times during construction.</li> </ul>	
Wildlife and Wildlife Habitat	<p>Direct and indirect effects to general wildlife and wildlife habitat including, birds protected under the MBCA, potential SoCC (assumed), candidate SWH (assumed) and potential SAR Habitat (assumed), are anticipated during construction. These impacts will be re-assessed in the next design phase for the project components that have not been confirmed. Potential impacts include:</p> <ul style="list-style-type: none"> <li>Permanent and temporary habitat loss and/or alteration due to vegetation removal;</li> <li>Disturbance and changes in behaviour to wildlife due to increased noise, lighting, and human presence;</li> <li>Injury and incidental take to wildlife and migratory birds resulting from: <ul style="list-style-type: none"> <li>Collision with vehicles/machinery; and</li> </ul> </li> </ul>	<p>In addition to the mitigation measures identified for vegetation and vegetation communities described above:</p> <ul style="list-style-type: none"> <li>Where feasible, time vegetation removal and site preparation for the winter months, outside of active wildlife periods, including spring and fall migration. The active period for wildlife is provided below: <ul style="list-style-type: none"> <li>Turtles: late March/early April - late October;</li> <li>Bats: April 1 - September 30; and</li> <li>Birds: April 1 - August 31.</li> </ul> </li> <li>Exclusionary fencing shall be installed to prevent wildlife from entering the construction site, ensuring they do not prohibit access to necessary habitats;</li> <li>Any wildlife incidentally encountered during construction will not be knowingly harmed and will be allowed to move away from the construction area on its own if at all possible;</li> </ul>	<ul style="list-style-type: none"> <li>Conduct visual inspections for wildlife prior to the start of construction each day and regularly throughout the day during the active season. This will include a thorough walk-through of the work area and searching any brush piles, logs or rock piles and equipment. Inspections shall be completed by a Qualified Biologist trained in the verification and relocation of SAR;</li> <li>Monitoring will be completed to ensure mitigation and contingency measures are implemented and performance objectives are being met. Construction monitoring should be completed to ensure wildlife exclusionary and E&amp;S measures are in place and working effectively. E&amp;S controls should be checked weekly and after major rain events (&gt;10 mm) to ensure it is installed and functioning properly. Daily monitoring should be completed by the Contractor. Any deficiencies should be repaired immediately. A</li> </ul>



Environmental Component	Potential Impacts	Mitigation Measures	Monitoring Activities
	<ul style="list-style-type: none"> <li>Removal of nest and eggs.</li> </ul>	<ul style="list-style-type: none"> <li>If wildlife is encountered, measures will be implemented to avoid destruction, injury, or interference with the species, and/or its habitat. For example, construction activities will cease or be reduced and wildlife will be encouraged to move off-site and away from the construction area on its own. A qualified biologist will be contacted to define the appropriate buffer required for wildlife;</li> <li>Wildlife relocations will only be performed if an animal is in danger and if field staff can do so safely. Relocations will be completed by a qualified ecologist following the techniques outlined in the MNR Ontario Species at Risk Handling Manual: For Endangered Species Act Authorization Holders. The manual includes measures for safe handling, relocation, and transportation of live, injured, and dead animals. Injured wildlife will be captured and relocated to the nearest appropriate authorized wildlife rehabilitator (<a href="https://learningcompass.learnflex.net/Upload/Public/WildlifeRehabilitatorsPublicList.htm">https://learningcompass.learnflex.net/Upload/Public/WildlifeRehabilitatorsPublicList.htm</a>);</li> <li>Wildlife protocols should be developed to educate workers of potential wildlife occurrences, including SAR, and measures to take in the event of potential encounters. Preventative measures to minimize encounters, injury and incidental take should also be provided;</li> <li>All on-site materials should be self-contained, maintained according to manufacturer's instructions and disposed of appropriately;</li> <li>All works must comply with the MBCA, including timing windows for the nesting period (i.e., April 1 - August 31);</li> <li>If activities are proposed during the general bird nesting period for breeding birds (i.e., April 1 - August 31), the following is recommended: <ul style="list-style-type: none"> <li>A nest sweep shall be completed by a qualified biologist prior to construction to verify nesting activity. Any vegetation removal occurring during the general bird nesting period must take place within 48 hours of the inspection;</li> <li>Bird nesting preventative measures (e.g., tarps) shall be installed at structures (e.g., bridge/culvert) prior to April 1 to inhibit birds from nesting within the structures; and</li> <li>Regular inspection of the structures during the nesting season should be completed to ensure the exclusion measures are effective and no nests are present.</li> </ul> </li> <li>If an active bird nest is found within the work area, at any time (including times outside of the typical nesting season), construction in the vicinity must cease until the young birds have fledged or the nest is otherwise abandoned. A setback from the nest (e.g., 30 m) should be identified and the area demarcated to ensure work does not occur within the setback limits. A qualified biologist should be consulted to determine the setback limits;</li> <li>Develop wildlife protocols and training to educate workers of potential wildlife occurrences and measures to take if encountered;</li> </ul>	<p>construction monitoring log should be maintained to ensure any deficiencies and corrective actions are documented. Monitoring shall include:</p> <ul style="list-style-type: none"> <li>Inspect exclusionary fencing prior to construction to confirm proper installation and carry out regular monitoring during construction to ensure exclusionary measures remain effective.</li> <li>Regular monitoring will be undertaken to survey for wildlife potentially trapped within exclusionary areas;</li> <li>Regular monitoring will be undertaken to confirm that construction remains in the work limits and that activities do not disturb active nesting sites; and</li> <li>Regular inspection of the structures during the bird nesting season should be completed to ensure the exclusion measures are effective and no nests are present.</li> <li>On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.</li> </ul>

Environmental Component	Potential Impacts	Mitigation Measures	Monitoring Activities
		<ul style="list-style-type: none"> <li>Where feasible, minimize the extent and duration of construction noise and lighting during sensitive seasons and to daylight hours; and</li> <li>Avoid idling and ensure construction vehicles and machinery are kept in good repair.</li> </ul> <p><b><u>Turtles and Snakes</u></b></p> <ul style="list-style-type: none"> <li>If turtles or snakes are encountered during construction, whenever possible, work should be temporarily suspended until the species is out of harm's way;</li> <li>The active turtle nesting window is between late May to early July. If a turtle is observed actively nesting, all work in the area shall cease that is within the line of site of the turtle, to allow the female to finish laying eggs. Startling a nesting female could lead to abandonment of the partially laid nest before the eggs are concealed. MECP should be consulted immediately to discuss mitigation options, including measures to take if relocation of hatchlings or egg salvage is needed; and</li> <li>Install exclusionary fencing to prevent wildlife from entering the construction site. This also includes areas where potential nesting (e.g., upland communities) and overwintering habitat (open water and marsh communities) may be present. Exclusionary fencing should not prohibit access to nearby habitats. Where required, redirect species to areas where they can avoid the potential for incidental take and still have access to habitats. If ESC measures are used on-site, mesh backing is not permitted. If wire-backed fencing is necessary, the openings should be large (such as 2 inches by 4 inches). Snakes can become entangled in mesh openings that are ¼ inch. ESC measures shall be monitored twice daily at the beginning of work and end of day.</li> </ul>	
SAR	<p>A total of 12 SAR have the potential to occur within the study area. If present, these SAR may be impacted by the Project during construction activities. The SAR and their potential habitat within the study area are as follows:</p> <p><b><u>Turtles</u></b></p> <ul style="list-style-type: none"> <li>Blanding's Turtle - The Humber River, Silver Creek, and Mimico Creek.</li> </ul> <p><b><u>Bats</u></b></p> <ul style="list-style-type: none"> <li>Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis, and Tricolored Bat - All woodlands in the study area.</li> </ul> <p><b><u>Birds</u></b></p>	<p>In addition to the mitigation measures described above:</p> <ul style="list-style-type: none"> <li>Targeted surveys will be undertaken to confirm presence/ absents of SAR within the study area;</li> <li>A permit/registration under the ESA shall be obtained for any impacted SAR, in consultation with MECP to fulfil requirements the ESA and its associated regulations;</li> <li>All requirements of the ESA will be met and species-specific mitigation measures will be implemented based on any recommended surveys undertaken prior to construction, and in consultation with MECP;</li> <li>If SAR is present and conservation strategies have been developed by MNRF/MECP, the Constructor will follow the commitments in the recover strategy;</li> <li>All observations of SAR will be reported directly to the MECP and the MNRF NHIC using the online rare species reporting form, or will be emailed to them in spreadsheet format in the event of multiple observations; and</li> <li>On-site personnel will be provided with information (e.g., factsheets) that address the existence of potential SAR on-site, the identification of the SAR species and the procedure(s) to follow if an individual is encountered or injured.</li> </ul>	<p>In addition to the monitoring activities described for Vegetation and Vegetation Communities, and Wildlife and Wildlife Habitat above:</p> <ul style="list-style-type: none"> <li>Species-specific monitoring activities will be developed in accordance with any registration and/or permitting requirements under the ESA; and</li> <li>Additional monitoring, mitigation and compensation for removal of suitable cavity trees may be required based on the results of additional surveys and consultation with the MECP.</li> </ul>

Environmental Component	Potential Impacts	Mitigation Measures	Monitoring Activities
	<ul style="list-style-type: none"> <li>Bank Swallow - the Humber River, Silver Creek, and Mimico Creek;</li> <li>Barn Swallow - All bridge and culvert structures may provide nesting habitat in the study area;</li> <li>Chimney Swift - All bridges may provide nesting habitat in the study area;</li> <li>Common Nighthawk - habitat generalist and can nest anywhere in the study area;</li> <li>Red-headed Woodpecker - woodlands, parks and golf courses; and</li> <li>Wood Thrush - all woodlands in the study area.</li> </ul> <p><b><u>Vegetation</u></b></p> <ul style="list-style-type: none"> <li>Butternut - The Humber River, Silver Creek, Mimico Creek and all other woodlands in the study area.</li> </ul>	<p><b><u>SAR Turtles</u></b></p> <ul style="list-style-type: none"> <li>If potential turtle nest sites (i.e., areas of fresh digging in loose gravel or sandy material) are found within the work areas, work shall temporarily cease in the immediate area and the project biologist should be consulted to discuss appropriate mitigation options. If the nest is confirmed to be a SAR or has the potential to be a SAR, MECP should also be consulted. The nests should be left undisturbed, flagged and a 5 m buffer (unless otherwise directed by MECP, where applicable) applied to protect against construction activities;</li> <li>In areas identified as being potential turtle habitat (including SAR), an inspection for turtles will be conducted. If a nesting turtle is found, the MECP will be notified immediately, a suitable buffer zone will be flagged around the site, and that area will be protected from harm during the nesting season; and</li> <li>In-water works are not currently anticipated. However, should in-water works be required In areas identified as being potential SAR turtle habitat, works will be scheduled to occur outside of the turtle overwintering period of October 1<sup>st</sup> to April 30<sup>th</sup> in any given year and in accordance with MECP requirements.</li> </ul> <p><b><u>SAR Bats</u></b></p> <ul style="list-style-type: none"> <li>Disturbance to bat roosting habitat will be avoided during the bat roosting period of April 1 to September 30, with emphasis on avoiding potential effects during the maternity period of June 1<sup>st</sup> to July 31<sup>st</sup> and in accordance with MECP requirements;</li> <li>Additional mitigation and compensation may be required if removal of suitable cavity trees is required, based on the results of additional surveys and consultation with the MECP; and</li> <li>Where feasible, minimize the extent and duration of construction noise and lighting during sensitive seasons and to daylight hours, particularly near woodlands.</li> </ul> <p><b><u>SAR Birds (Barn Swallow, Bank Swallow, and Chimney Swift)</u></b></p> <ul style="list-style-type: none"> <li>Same as those identified for migratory birds under incidental take and including the following:</li> <li>Field surveys will be undertaken prior to construction to confirm the number of nests present at the known locations and whether the nests remain active;</li> <li>Where loss or disturbance cannot be avoided (e.g., due to work on bridges or banks), all requirements under the ESA will be met, including any registration, compensation, replacement structures and/or permitting requirements;</li> <li>If construction activities are scheduled during the nesting season for Barn and/or Bank Swallow (April 1st to August 31st), a nest search will be undertaken to confirm that no Barn and/or Bank Swallow are nesting on structures or banks that may be affected by construction activities on or near these areas. If possible, the area will be netted prior to nesting season to dissuade use of these areas for nesting.</li> </ul>	

Environmental Component	Potential Impacts	Mitigation Measures	Monitoring Activities
		<ul style="list-style-type: none"> <li>If repair, maintenance or demolition of buildings/structures with suitable roosting/nesting habitat (e.g., chimneys) is to take place, targeted surveys for Chimney Swift will be completed as per the Bird Studies Canada Chimney Swift Monitoring Protocol (2009); and</li> <li>Repair, maintenance, or demolition of an identified roosting/nesting structure may constitute destruction of critical habitat and would be discussed in advance with the MECP and requirements of the ESA will be met.</li> </ul> <p><b>SAR Vegetation</b></p> <ul style="list-style-type: none"> <li>If present, each Butternut that may potentially be removed or impacted must be assessed by a qualified Butternut Health Assessor, in accordance with MNRF Butternut Assessment Guidelines (2014). The Assessor will prepare a Health Assessment Report for submission to MECP to determine the next course of action.</li> </ul>	
Designated Areas	<p>Direct encroachment of designated areas will result in permanent and temporary impacts to these features during construction. The extent of encroachment will depend on the construction methodology and design of the Project which will be confirmed in the next design phase. Designated areas that may be impacted by the project include:</p> <ul style="list-style-type: none"> <li>Greenbelt Plan Area: designated area that extends approximately 60 m on either side of the Humber River (see Appendix A, Figure A-3); and</li> <li>NHS: designated area surrounding the Humber River from approximately 430 m east of Jane Street west to Scarlett Road, as well as the area surrounding Silver Creek and Mimico Creek (see Appendix A, Figure A-3).</li> </ul>	<ul style="list-style-type: none"> <li>Minimize encroachment into natural areas and implement appropriate mitigation measures outlined above to avoid and minimize potential effects.</li> </ul>	<ul style="list-style-type: none"> <li>On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions, if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts.</li> </ul>
<b>Operation</b>			
Fish and Fish Habitat	<ul style="list-style-type: none"> <li>Accidental spills of fuel and/or application of other hazardous materials (e.g., de-icing substances during winter months) have the potential to affect surface water quality at the Humber River.</li> </ul>	<ul style="list-style-type: none"> <li>Implement an emergency and response management plan to address the potential for spills;</li> <li>Ensure all on-site hazardous materials are properly stored and located at least 30 m away from watercourses and other sensitive natural features, such as wetlands, including all handling and refueling activities;</li> <li>All on-site materials should be self-contained, maintained according to manufacturer's instructions and disposed of appropriately;</li> <li>Develop and implement an emergency response management and monitoring plan that includes measures for preventing and addressing potential spills and monitoring activities;</li> <li>Spill kits should be kept on-site and accessible at all times; and</li> </ul>	<ul style="list-style-type: none"> <li>Contractors and rail staff will be responsible for monitoring the effects of operations and maintenance activities. Any significant concerns will be reported to superiors for timely resolution.</li> </ul>

Environmental Component	Potential Impacts	Mitigation Measures	Monitoring Activities
		<ul style="list-style-type: none"> <li>Report any spills to the MECP SAC hotline (1-800-268-6060) and the DFO.</li> </ul>	
Vegetation and Vegetation Communities	<ul style="list-style-type: none"> <li>Accidental spills of fuel and/or application of other hazardous materials (e.g., de-icing substances during winter months) have the potential to impact retained vegetation.</li> </ul>	<ul style="list-style-type: none"> <li>Implement appropriate mitigation measures outlined above for Fish and Fish Habitat to mitigate potential effects.</li> </ul>	<ul style="list-style-type: none"> <li>Implement monitoring activities identified above for Fish and Fish Habitat.</li> </ul>
Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>Accidental spills of fuel and/or application of other hazardous materials (e.g., de-icing substances during winter months) have the potential to impact habitat quality due to unplanned events;</li> <li>During operations, train traffic associated with the Project will result in an increase in noise, which may disturb wildlife potentially leading to changes in behaviour; and</li> <li>Train traffic associated with project operations may result in injury and incidental take to general wildlife and migratory birds, due to collisions with trains.</li> </ul>	<ul style="list-style-type: none"> <li>Implement appropriate mitigation measures outlined above for Fish and Fish Habitat to mitigate potential effects;</li> <li>Wildlife accustomed to the urban environment will likely adapt to the train traffic; and</li> <li>Design of the rail will consider impacts to wildlife.</li> </ul>	<ul style="list-style-type: none"> <li>Implement monitoring activities identified above for Fish and Fish Habitat.</li> </ul>
SAR	<ul style="list-style-type: none"> <li>Accidental spills of fuel and/or application of other hazardous materials (e.g., de-icing substances during winter months) have the potential to impact retained vegetation and wildlife.</li> <li>During operations, train traffic associated with the Project will result in an increase in noise, which may disturb wildlife potentially leading to changes in behaviour; and</li> <li>Train traffic associated with project operations may result in injury and incidental take to general wildlife and migratory birds, due to collisions with trains.</li> </ul>	<ul style="list-style-type: none"> <li>Implement appropriate mitigation measures outlined above for Fish and Fish Habitat to mitigate potential effects;</li> <li>Wildlife accustomed to the urban environment will likely adapt to the train traffic; and</li> <li>Design of the rail will consider impacts to wildlife.</li> </ul>	<ul style="list-style-type: none"> <li>Implement monitoring activities identified above for Fish and Fish Habitat.</li> </ul>



## **6. Permitting and Approvals**

The sections below highlight anticipated future permitting and approval requirements for the Project. Metrolinx will obtain all necessary permits and approvals and meet applicable compensation requirements, as needed.

### **6.1 Federal Permitting Requirements**

#### **6.1.1 Fisheries Act**

The proposed work at the Humber River is not anticipated to cause significant negative residual effects to fish or fish habitat. With the proper enactment of mitigation measures, this project is not likely to result in the *harmful alteration, disruption or destruction* of fish or fish habitat. A fisheries authorization is not anticipated.

#### **6.1.2 Species at Risk Act**

Schedule 1 of the SARA identifies Endangered or Threatened species that are afforded protection including their critical habitat on federal lands. Federally listed Endangered, Threatened or Extirpated aquatic species and migratory birds are also protected on provincially owned and privately-owned lands under the SARA. There is potential for SAR within the study area, although none have been confirmed. It is not anticipated that a permit will be required under SARA through implementation of appropriate mitigation.

#### **6.1.3 Migratory Birds Convention Act**

Under Section 5 of the MBCA, killing or harming migratory birds, disturbing or destroying their nest or eggs is prohibited under the Act without authorization. The legislation applies to all lands within Canada regardless of ownership. Compliance under the MBCA can be mitigated through avoidance, such as adhering to timing windows (e.g., avoid activities between April 1 - August 31 that may kill, harm or disturb a migratory bird, its eggs or nest). If activities are occurring in bird habitat during the breeding period, nest sweeps should be completed prior to any works to minimize risk of injury or incidental take.

### **6.2 Provincial Permitting Requirements**

#### **6.2.1 Endangered Species Act**

The ESA, 2007 provides specific protection to Endangered and Threatened species and their habitat within the province of Ontario on both private and provincial lands. Impacts to Endangered or Threatened species or their critical habitat may either require a permit or activity registration under the Act. There is potential for SAR within the study area, although none have been confirmed. Additional studies may be required to verify presence/absence of SAR and any permitting requirements. This may include bat habitat and snag tree surveys (where woodlands will be impacted, as well as individual trees), breeding bird surveys (e.g., structures, woodlands and other natural areas where direct encroachment may occur) and turtle nest surveys at Humber River, Silver Creek and Mimico Creek, if construction has the potential to impact those areas.

### **6.2.2 Conservation Authorities Act**

The Project include areas is regulated by the TRCA under *O. Reg. 166/06 and 160/06 - Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses*. To ensure that development has regard for natural hazard features and the natural environment, while conforming to watershed development policies, the TRCA is authorized under Section 28 of the *Conservation Authorities Act* to implement and enforce their own regulation.

### **6.3 Municipal Permitting Requirements**

Under the *Metrolinx Act, 2006*, Metrolinx is exempt from municipal permitting and approval requirements within Metrolinx-owned lands; regardless, Metrolinx works in co-operation with municipalities to meet the requirements of municipal By-laws, where applicable and possible.

## **7. Summary and Recommendations**

The findings in this report are based on the conditions observed at the time and are generally considered valid for a two-year window. The study area should be revisited should there be a significant lag in time between the completion of this report and Project construction or design changes.

The alignment generally follows the north side of the existing footprint of Eglinton Avenue West from Mount Dennis Station to Renforth Station, with the exception of the Highway 427 interchange where it will be located on the north side of Eglinton Avenue West. The alignment will be underground from Mount Dennis Station to east of Jane Street, before continuing above grade (i.e., elevated) from east of Jane Street to west of Scarlett Road. The alignment will then continue underground, before emerging west of Renforth Drive to the partially at-grade Renforth Gateway Station. Underground alignments comprise the majority of the transit project and are not expected to impact natural heritage features. However, impacts to natural heritage features are anticipated for the partially at-grade and elevated alignments, and elevated stations, as well as the surface components including staging areas, portals and ancillary features to be confirmed during detail design. These components have the potential to encroach within designated areas (i.e., Greenbelt Plan Area and NHS), woodlands, potential wetlands at the Humber River, candidate SWH and potential SAR habitat. Encroachment into these areas will be minimized and mitigated, if they cannot be avoided. It is noted that potential impacts and mitigation measures for project components that have not been confirmed will need to be assessed or refined in the next design phase.

Additional studies may be required to confirm presence/absence of SAR and significance of wildlife habitat that may be impacted by the project. Field studies and level of effort will be determined at the detailed design stage and through agency consultation. Potential field studies and timing windows are provided below:

- Fish surveys - surveys may be required to obtain fish community information. Should surveys be required, they would be completed during the in-water works fisheries window. The timing and survey methodology would be determined in consultation with agencies;

- Breeding bird surveys - two surveys should be completed between May 24-July 10, with survey locations selected in different habitat types across the study area. Surveys would follow the OBBA Guide for Participants (2001) standard protocols. Surveys will include searching structures and culverts that may be impacted by the project and that may provide habitat for birds (including SAR and birds protected under the MBCA);
- Bat snag surveys - snag tree surveys should be completed during leaf-off and leaf-on periods following the MNRF "Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis, and Tri-coloured Bat" (MNRF, 2017);
- Turtle Visual Encounter Surveys (VES) - turtle surveys should be completed at Mimico Creek, Silver Creek and the Humber River between June and July to search for basking turtles or evidence of turtle nesting activity. These surveys will include an assessment of nesting potential. Confirmation with MECP is recommended to determine if this level of effort, particularly for Blanding's Turtle, is appropriate;
- Snake VES - snake surveys should occur in late March/early April and October to search for congregations of snakes to determine if hibernacula is present;
- Butternut survey - additional surveys for Butternut should be completed in areas where direct impacts to woodlands may occur and that have not been surveyed previously; and
- ELC - any gaps in ELC characterization should be refined and can be completed alongside other targeted wildlife/SAR surveys.

Other recommendations for commitments to future work include:

- Opportunities to reduce the impacts of the project on vegetation and wildlife will be investigated during the design process. Where necessary, a restoration plan will be developed per *TRCA's Post Construction Restoration Guidelines* to compensate for the loss of vegetation and vegetation communities. Compensation will be provided for the loss or injury of trees, woodlands or wildlife habitat (including SAR) in accordance with *TRCA's Guideline for Determining Ecosystem Compensation* and/or *Metrolinx's Vegetation Guideline (2020)* once losses have been determined. Restoration and compensation monitoring will be confirmed through agency consultation during detailed design;
- An Arborist Report will be completed for all trees and shrubs (i.e., woody vegetation) within 6 m of the construction project boundary, and all trees within 12 m of the construction project boundary if within a ravine protected area, including trees/shrubs to be preserved, removed or injured;
- Engage with the appropriate authorities, as necessary, to obtain all applicable permits and approvals;
- Develop a monitoring plan to ensure mitigation measures are working effectively;
- Develop wildlife protocols and training to educate workers of potential wildlife occurrences and measures to take if encountered;

- Monitoring will be completed to ensure mitigation and contingency measures are implemented and performance objectives are being met. Construction monitoring should be completed to ensure wildlife exclusionary and erosion and sediment measures are in place and working effectively. Erosion and sediment controls should be checked weekly and after major rain events to ensure it is installed and functioning properly. Daily monitoring should be completed by the Contractor. Any deficiencies should be repaired immediately. A construction monitoring log should be maintained to ensure any deficiencies and corrective actions are documented;
- On-site inspection will be undertaken as required during construction to ensure that only specified trees are removed, fencing is intact and there is no damage caused to the remaining trees and adjacent vegetation communities. Construction and/or erosion and sediment control fencing will be repaired if it is damaged. Any damaged trees will be pruned through the implementation of proper arboricultural techniques, under supervision of an Arborist or Forester;
- A Construction Emergency Response and Communications Plan will be developed prior to construction and followed throughout the construction phase (includes spill response and contingency plans);
- A Hazardous Materials and Fuel Handling Plan will be developed prior to Project construction, to confirm that fuels and other hazardous materials are handled and stored in a safe manner during the construction process. Hazardous material and fuel storage, refueling and maintenance of construction equipment will occur within designated areas only; and
- A Spill Prevention and Contingency Plan will be developed and will be in place prior to construction of the Project. Personnel will be trained in how to apply the plans and the plans will be reviewed on a regular basis to strengthen their effectiveness and facilitate continuous improvement. Spills or depositions into natural features will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. A hydrocarbon spill response kit will be on-site at all times during the work. Spills will be reported to the Ontario SAC at 1-800-268-6060.

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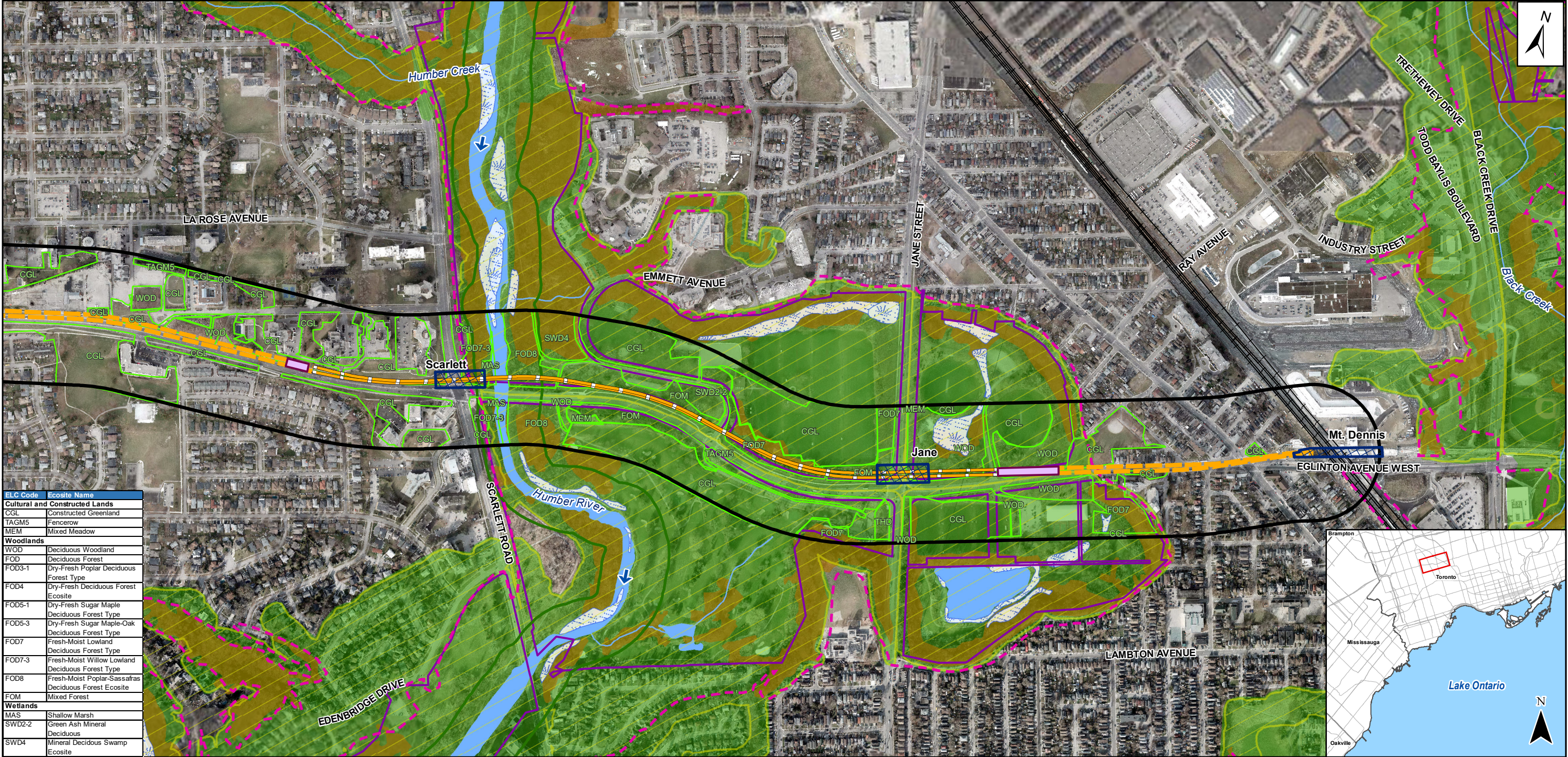
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# Appendix A

## Project Maps





ELC Code	Ecosite Name
<b>Cultural and Constructed Lands</b>	
CGL	Constructed Greenland
TAGM5	Fencerow
MEM	Mixed Meadow
<b>Woodlands</b>	
WOD	Deciduous Woodland
FOD	Deciduous Forest
FOD3-1	Dry-Fresh Poplar Deciduous Forest Type
FOD4	Dry-Fresh Deciduous Forest Ecosite
FOD5-1	Dry-Fresh Sugar Maple Deciduous Forest Type
FOD5-3	Dry-Fresh Sugar Maple-Oak Deciduous Forest Type
FOD7	Fresh-Moist Lowland Deciduous Forest Type
FOD7-3	Fresh-Moist Willow Lowland Deciduous Forest Type
FOD8	Fresh-Moist Poplar-Sassafras Deciduous Forest Ecosite
FOM	Mixed Forest
<b>Wetlands</b>	
MAS	Shallow Marsh
SWD2-2	Green Ash Mineral Deciduous
SWD4	Mineral Deciduous Swamp Ecosite

**Legend**

**Alignment**

**DATA SOURCES:**

- Ontario Open Data Catalogue - Roads and Railways
- Land Information Ontario - Greenbelt Plan Area, Waterbodies, Wetlands, Municipal Boundaries, Watercourses, Woodland Areas, Hydro Corridor
- Toronto Region Conservation Authority - Ravine By-Law Areas, TRCA Properties, Natural Heritage System Areas, Regulation Limit
- City of Toronto - Basemap

**NOTES:**  
Locations of all alignments, stations, and structural elements are conceptual and subject to change  
Datum: NAD83 CSRS  
Projection: MTM 10

0100200400600

Metres

1:9,000

**Project:**

**Eglinton Crosstown West Extension**

**Figure Title:**

**Natural Heritage Features**

**Prepared By:**

PARSONS HATCH WSP

**Date:** May 05 2020

**Version:**

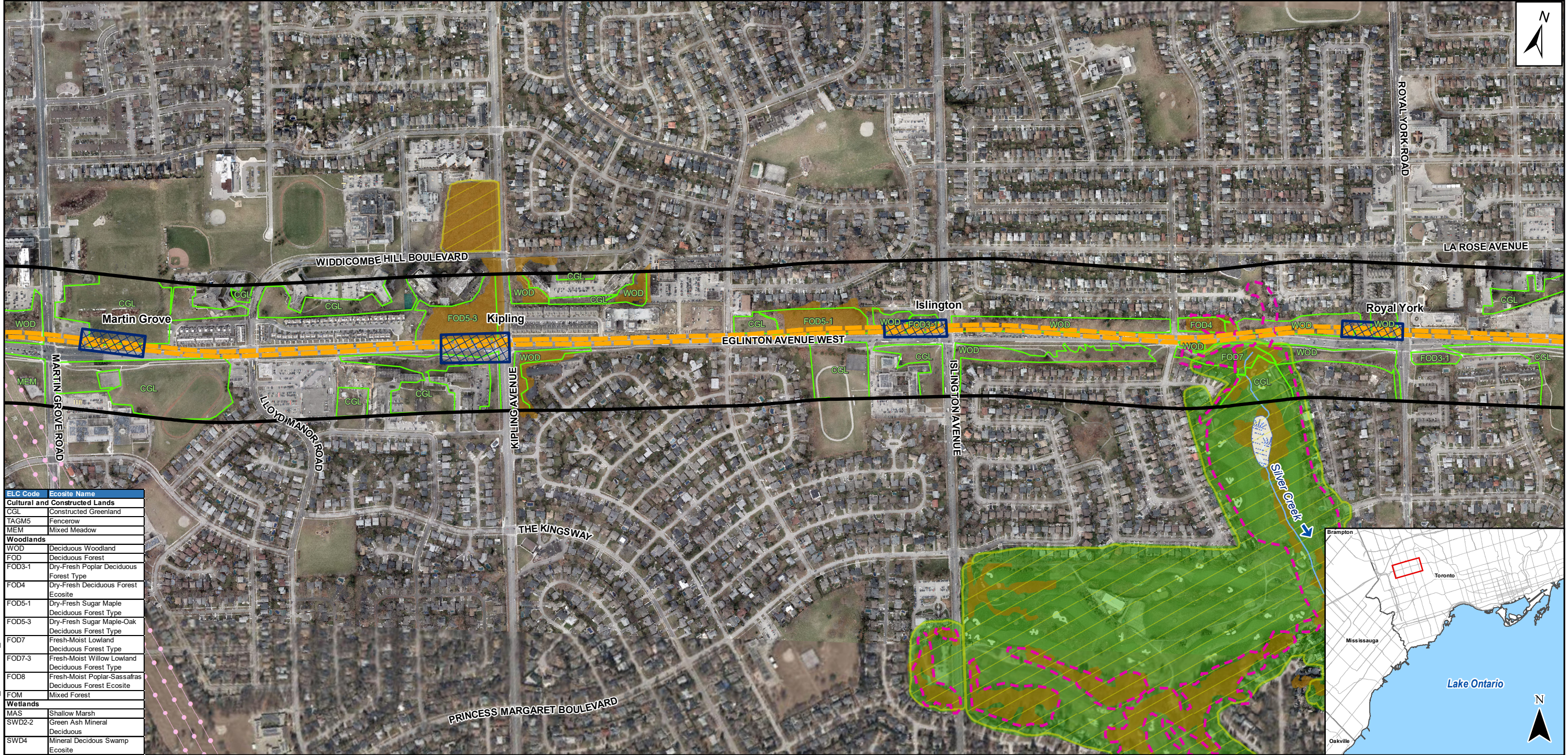
1-1

**Review:**

**Page:**

1 of 3





ELC Code	Ecosite Name
<b>Cultural and Constructed Lands</b>	
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MAS	Shallow Marsh
SWD2-2	Green Ash Mineral Deciduous
SWD4	Mineral Deciduous Swamp Ecosite

**Legend**

Study Area - 150 m

Station Site (approximate)

Portals (approximate)

Staging Area - approximate, subject to change

Alignment

Elevated

Transition to at-grade

Underground

Flow Direction

Permanent Watercourse

Waterbody

Provincially Significant Wetland

Unevaluated Wetland

Woodland

ELC

Greenbelt Plan Area

TRCA Regulation Limit

TRCA Property

Natural Heritage System (NHS)

Ravine and Natural Feature Protection By-Law

Municipal Boundary

Hydro Corridor

Railway

**DATA SOURCES:**

- Ontario Open Data Catalogue - Roads and Railways
- Land Information Ontario - Greenbelt Plan Area, Waterbodies, Wetlands, Municipal Boundaries, Watercourses, Woodland Areas, Hydro Corridor
- Toronto Region Conservation Authority - Ravine By-Law Areas, TRCA Properties, Natural Heritage System Areas, Regulation Limit
- City of Toronto - Basemap

**NOTES:**

Locations of all alignments, stations, and structural elements are conceptual and subject to change

Datum: NAD83 CSRS

Projection: MTM 10

0

100

200

400

600

Metres

1:9,000

Project:

Eglinton Crosstown West Extension

Figure Title:

Natural Heritage Features

Prepared By:

PARSONS HATCH WSP

Date:

May 05 2020

Version:

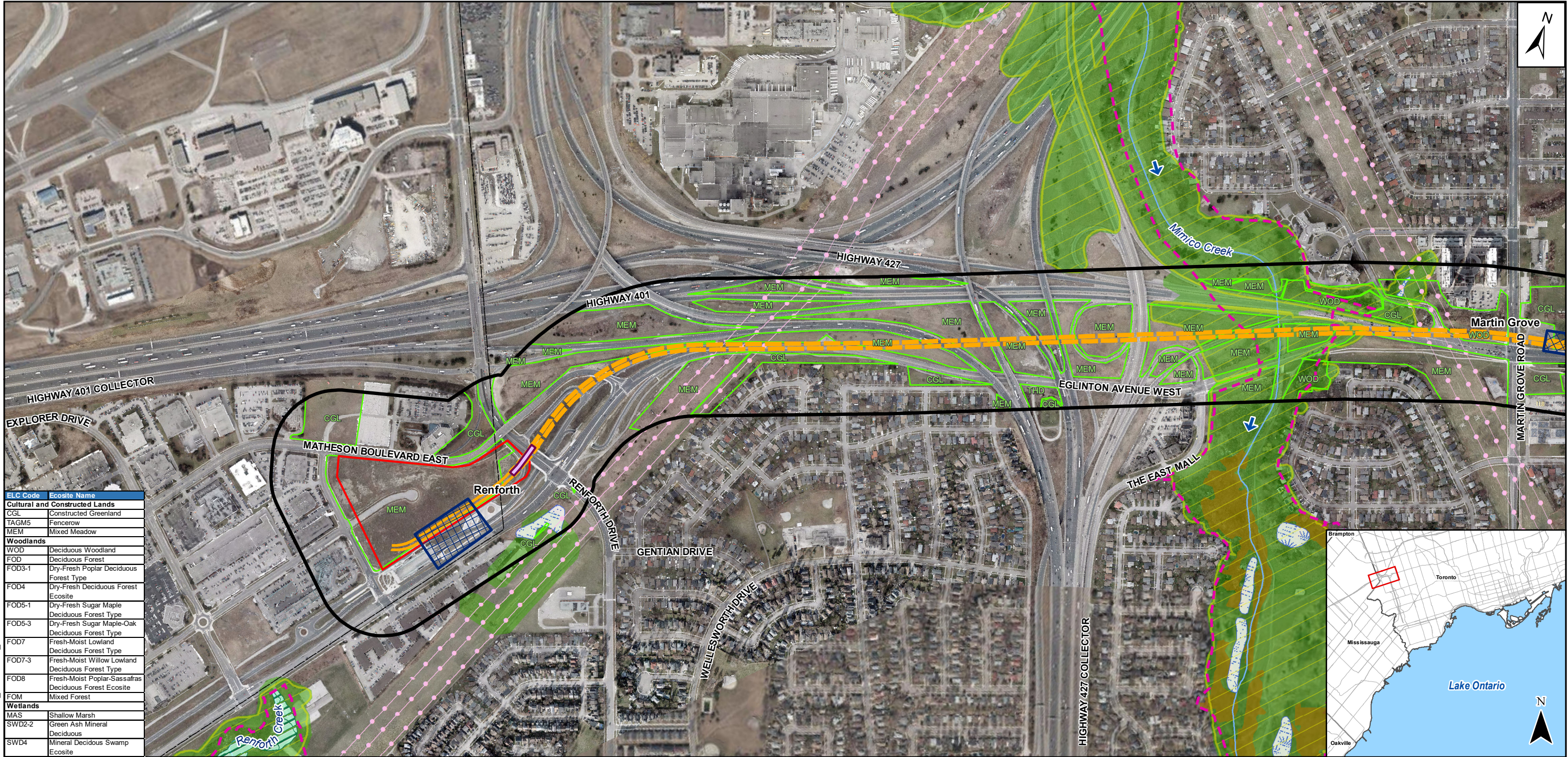
1-1

Review:

Page:

2 of 3





ELC Code	Ecosite Name
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SWD2-2	Green Ash Mineral Deciduous
SWD4	Mineral Deciduous Swamp Ecosite

**Legend**

Study Area - 150 m

Station Site (approximate)

Portals (approximate)

Staging Area - approximate, subject to change

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Transition to at-grade

Underground

Flow Direction

Permanent Watercourse

Waterbody

Provincially Significant Wetland

Unevaluated Wetland

Woodland

ELC

Greenbelt Plan Area

TRCA Regulation Limit

TRCA Property

Natural Heritage System (NHS)

Ravine and Natural Feature Protection By-Law

Municipal Boundary

Hydro Corridor

Railway

**DATA SOURCES:**

- Ontario Open Data Catalogue - Roads and Railways
- Land Information Ontario - Greenbelt Plan Area, Waterbodies, Wetlands, Municipal Boundaries, Watercourses, Woodland Areas, Hydro Corridor
- Toronto Region Conservation Authority - Ravine By-Law Areas, TRCA Properties, Natural Heritage System Areas, Regulation Limit
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**NOTES:**  
Locations of all alignments, stations, and structural elements are conceptual and subject to change  
Datum: NAD83 CSRS  
Projection: MTM 10

0100200400600

Metres

1:9,000

Project:

Eglinton Crosstown West Extension

Figure Title:

Natural Heritage Features

Prepared By:

PARSONS HATCH WSP

Date:

May 05 2020

Version:

1-1

Review:

Page:

3 of 3



# **Appendix B**

## **Agency Consultation**

## Welch, Natasha

---

**From:** Myschowoda, Clairissa (MECP) <Clairissa.Myschowoda@ontario.ca>  
**Sent:** Monday, January 13, 2020 1:25 PM  
**To:** Welch, Natasha  
**Cc:** Andersen, Jeff (MECP)  
**Subject:** [EXTERNAL] RE: Species at Risk and Natural Heritage Information Request – Metrolinx Subways Program

Hi Natasha,

I hope you are well.

Jeff and I touched base on this one. From our perspective, MECP has no further species occurrence information to provide to supplement what you have already found.

The next step in the process is for you to conduct appropriate surveys to determine which species and habitat exist at/near the site and to determine if any of these will be adversely impacted by your activities.

If you feel your activity is likely to adversely impact any species at risk or their habitat, please complete an ESA Information Gathering Form (IGF) and submit it to [sarontario@ontario.ca](mailto:sarontario@ontario.ca)

Thanks,  
Clairissa

---

**From:** Welch, Natasha <Natasha.Welch@parsons.com>  
**Sent:** Monday, January 13, 2020 11:40 AM  
**To:** Myschowoda, Clairissa (MECP) <Clairissa.Myschowoda@ontario.ca>  
**Cc:** MacVeigh, Brydon <Brydon.MacVeigh@parsons.com>; Nolan, Nicole <Nicole.Nolan@parsons.com>; Esraelian, Martine <martine.esraelian@parsons.com>; Merlin Yuen <Merlin.Yuen@metrolinx.com>  
**Subject:** RE: Species at Risk and Natural Heritage Information Request – Metrolinx Subways Program

**CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.**

Sensitive

Good morning Clairissa,

On behalf of Metrolinx, I am following up on the status of our information request sent on December 4, 2019 following our conversation (see email below). Please find attached our updated request letter for your review. Please note, this data request is separate from Metrolinx's ongoing permit D work, and is being made to fulfill project reporting needs.

If you require additional information to process our request, please let me know.

Regards,

**Natasha Welch, B.Sc.**  
Fisheries Biologist

625 Cochrane Drive, Suite 500

Markham, Ontario L3R 9R9  
[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com) Mobile +1 416 276 7266

---

**From:** Welch, Natasha  
**Sent:** Wednesday, December 4, 2019 3:25 PM  
**To:** Myschowoda, Clairissa (MECP) <[Clairissa.Myschowoda@ontario.ca](mailto:Clairissa.Myschowoda@ontario.ca)>  
**Cc:** MacVeigh, Brydon <[Brydon.MacVeigh@parsons.com](mailto:Brydon.MacVeigh@parsons.com)>; Malindzak, Edward <[Edward.Malindzak@parsons.com](mailto:Edward.Malindzak@parsons.com)>; Nolan, Nicole <[Nicole.Nolan@parsons.com](mailto:Nicole.Nolan@parsons.com)>  
**Subject:** FW: Species at Risk and Natural Heritage Information Request – Metrolinx Subways Program

Sensitive

Hi Clairissa,

Thank you for speaking with me Monday. As discussed, please see Jeff's response to our information request below, and our original MECP information request, which includes our preliminary SAR screening, attached.

Thank you,

Natasha

---

**From:** Species at Risk (MECP) <[SAROntario@ontario.ca](mailto:SAROntario@ontario.ca)>  
**Sent:** Thursday, November 28, 2019 8:37 AM  
**To:** Welch, Natasha <[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com)>  
**Subject:** [EXTERNAL] RE: Species at Risk and Natural Heritage Information Request – Metrolinx Subways Program

Ms. Welch;

MECP has nothing further to contribute to your extensive species at risk list and findings.

An Information Gathering Form (IGF) should be submitted if any species at risk or their habitat would be affected by the development.

Regards;

JEFF J. ANDERSEN

MANAGEMENT BIOLOGIST  
PERMISSIONS AND COMPLIANCE SECTION, SPECIES AT RISK BRANCH  
LAND AND WATER DIVISION  
ONTARIO MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS

50 Bloomington Road, Aurora ON L4G 0L8 | [jeff.andersen@ontario.ca](mailto:jeff.andersen@ontario.ca) | 289-221-1705



---

**From:** Welch, Natasha <[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com)>  
**Sent:** November 25, 2019 4:42 PM  
**To:** Species at Risk (MECP) <[SAROntario@ontario.ca](mailto:SAROntario@ontario.ca)>  
**Subject:** FW: Species at Risk and Natural Heritage Information Request – Metrolinx Subways Program



Sensitive

Good afternoon,

Metrolinx, as part of their Subways Program, are completing existing condition surveys for select locations in the City of Toronto. 4Transit, a joint venture of WSP, Hatch and Parsons, has been retained by Metrolinx to complete these surveys. Please find attached our formal information request for your review.

Please let me know if you have any questions or concerns,

**Natasha Welch, B.Sc.**

Fisheries Biologist

625 Cochrane Drive, Suite 500

Markham, Ontario L3R 9R9

[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com) Mobile +1 416 276 7266

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---

**From:** Welch, Natasha

**Sent:** Monday, November 18, 2019 3:02 PM

**To:** [sarontario@otario.ca](mailto:sarontario@otario.ca)

**Cc:** Malindzak, Edward <[Edward.Malindzak@parsons.com](mailto:Edward.Malindzak@parsons.com)>; MacVeigh, Brydon <[Brydon.MacVeigh@parsons.com](mailto:Brydon.MacVeigh@parsons.com)>

**Subject:** Species at Risk and Natural Heritage Information Request – Metrolinx Subways Program

Sensitive

Good afternoon,

Metrolinx, as part of their Subways Program, are completing existing condition surveys for select locations in the City of Toronto. 4Transit, a joint venture of WSP, Hatch and Parsons, has been retained by Metrolinx to complete these surveys. Please find attached our formal information request for your review.

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Fisheries Biologist

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[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com) Mobile +1 416 276 7266

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## Welch, Natasha

---

**From:** Species at Risk (MECP) <SAROntario@ontario.ca>  
**Sent:** Thursday, November 28, 2019 8:52 AM  
**To:** Welch, Natasha  
**Cc:** Andersen, Jeff (MECP)  
**Subject:** [EXTERNAL] RE: Natural Heritage Information Request – Metrolinx Subways Program

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Hi Natasha,

Would you be able to call me? We have been working with MTO and Metrolinx on the accelerating transit initiative that involves some subway expansions. I want to be sure we're not duplicating efforts.

Cheers,  
Clairissa

---

**CLAIRISSA MYSCHOWODA**  
SPECIES AT RISK SPECIALIST  
PERMISSIONS AND COMPLIANCE SECTION, SPECIES AT RISK BRANCH  
MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS  
300 Water Street | Peterborough | K9J 3C7  
Phone: 705-755-3227  
[clairissa.myschowoda@ontario.ca](mailto:clairissa.myschowoda@ontario.ca)  
[Learn more \[ontario.ca\]](#) about Species at Risk in Ontario.

---

**From:** Welch, Natasha <Natasha.Welch@parsons.com>  
**Sent:** Monday, November 18, 2019 3:02 PM  
**To:** ESA Aurora (MNRF) <ESA.Aurora@ontario.ca>  
**Cc:** Kowalyk, Bohdan (MNRF) <bohdan.kowalyk@ontario.ca>; Malindzak, Edward <Edward.Malindzak@parsons.com>; MacVeigh, Brydon <Brydon.MacVeigh@parsons.com>  
**Subject:** Natural Heritage Information Request – Metrolinx Subways Program

**CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.**

Sensitive

Good afternoon,

Metrolinx, as part of their Subways Program, are completing existing condition surveys for select locations in the City of Toronto. 4Transit, a joint venture of WSP, Hatch and Parsons, has been retained by Metrolinx to complete these surveys. Please find attached our formal information request for your review.

Please let me know if you have any questions or concerns,

**Natasha Welch, B.Sc.**  
Fisheries Biologist

625 Cochrane Drive, Suite 500  
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[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com) Mobile +1 416 276 7266

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[\[can01.safelinks.protection.outlook.com\]](https://can01.safelinks.protection.outlook.com) | [Twitter](#) [\[can01.safelinks.protection.outlook.com\]](https://can01.safelinks.protection.outlook.com) | [Facebook](#)  
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January 10, 2020

Clairissa Myschowoda  
Species at Risk Specialist - Permissions and Compliance Section, Species at Risk Branch  
Ministry of the Environment, Conservation and Parks  
300 Water Street  
Peterborough, ON K9J 3C7  
Email: [clairissa.myschowoda@ontario.ca](mailto:clairissa.myschowoda@ontario.ca)

Dear Clairissa Myschowoda:

**Subject: Species at Risk and Natural Heritage Information Request – Metrolinx Subways Program**

Metrolinx, as part of their Subways Program, are completing existing condition surveys for select locations in the City of Toronto. 4Transit, a joint venture of WSP, Hatch and Parsons, has been retained by Metrolinx to complete these surveys.

**Study Area Definition**

We are requesting information for the lands that extend along, and within 1km from, Eglinton Avenue West between the following locations, herein referred to as the study area (Figure 1):

- **Western limit of study area** (NAD83 CSRS MTM 10 X: 297109.664, Y: 4836902.975) - The west end of the study area is located in the City of Mississauga, north of Commerce/Renforth Station, extending southwest along Renforth Drive, before crossing the 401 and continuing southeast along Commerce Boulevard to Eglinton Avenue West, before turning east. The study area continues east along Eglinton Avenue West, to the eastern limit of the study area.
- **Eastern limit of study area** (NAD83 CSRS MTM 10 X: 305728.472, Y: 4838608.544) – The east end of the study area is located in the City of Toronto, east of the Eglinton Avenue West and Weston Road intersection.

**Existing Data**

We have completed a review of the relevant online databases and previous studies, within the study area, to determine species listed on Species at Risk Ontario (SARO) and/or Schedule 1 of the Species at Risk Act (SARA) that may occur within or near our locations of interest.

*Aquatic Resources*

The most current Fisheries and Oceans Canada (DFO) Species at Risk mapping (DFO 2019) does not indicate any aquatic species at risk within the study area.

The Natural Heritage Information Centre (NHIC) database does not indicate the presence of any Provincially listed aquatic species in the last 30 years, within 1 km of the study area.

Two records for Redside Dace (SARO Endangered/ SARA Endangered) were identified by Land Information Ontario (LIO). However, the record for Redside Dace within Mimico Creek is believed to be historical, with the last observation recorded in 1950 by the NHIC. The second record for Redside Dace identified by LIO was within the Humber River, but was confirmed by a 2010 study to be absent from the Humber River within the vicinity of the study area.



### *Terrestrial Resources*

A list of species at risk and species of conservation concern identified from the background review is provided in **Appendix A**, and records from the last 30 years have been summarized below.

- Reptiles
  - Blanding's Turtle (SARO Threatened / SARA Threatened)
  - Midland Painted Turtle (SARO Not listed / SARA Under consideration)
  - Milksnake (SARO Not at Risk / SARA Special Concern)
  - Northern Map Turtle (SARO Special Concern / SARA Special Concern)
  - Snapping Turtle (SARO Special Concern / SARA Special Concern)
  - Western Chorus Frog (SARO Not at Risk / SARA Threatened)
- Mammals
  - Little Brown Myotis (SARO Endangered / SARA Endangered)
  - Northern myotis (SARO Endangered / SARA Endangered)
- Birds
  - Bank Swallow (SARO Threatened / SARA Threatened)
  - Barn Owl (SARO Endangered / SARA Endangered)
  - Barn Swallow (SARO Threatened / SARA Threatened)
  - Bobolink (SARO Threatened / SARA Threatened)
  - Chimney Swift (SARO Threatened / SARA Threatened)
  - Common Nighthawk (SARO Special Concern / SARA Special Concern)
  - Eastern Meadowlark (SARO Threatened / SARA Threatened)
  - Eastern Wood-pewee (SARO Special Concern / SARA Special Concern)
  - Peregrine Falcon (SARO Special Concern / SARA Special Concern)
  - Red-headed Woodpecker (SARO Special Concern / SARA Threatened)
  - Wood Thrush (SARO Special Concern / SARA Threatened)
- Insects
  - Monarch (SARO Special Concern / SARA Special Concern)

A search of the NHIC website indicated the presence of Butternut (SARO Endangered/ SARA Endangered) within the study area; however, MNR confirmed the absence of Butternut within the study area in 2010.

### **MECP Information Request**

To support the existing condition surveys, we are requesting the following data for the study area, if available:

- Confirmation of the above findings.
- Species, locations, observation dates, community information and any other relevant information about Species at Risk, including aquatic Species at Risk.
- Locations of any habitats afforded protection under the Endangered Species Act, 2007, including recovery habitat and Special habitat features.
- Requirements for Species at Risk under the Endangered Species Act.

Please let me know if you require any additional information to process this request or if you have questions or concerns.





Regards,

A handwritten signature in black ink, appearing to read 'Natasha Welch'.

Natasha Welch, B.Sc.,  
Fisheries Biologist  
4Transit  
Phone – 416-276-7266  
Natasha.welch@parsons.com






- Legend**
-  Study Area
  -  Municipal Boundary
  -  Permanent Watercourse
  -  LIO\_RoadNetwork\_MTM10\_11...

**DATA SOURCES:**

Ontario Open Data Catalogue - Roads and Railways  
Land Information Ontario - Watercourses, Waterbodies, Municipal Boundaries  
ESRI - Basemap

Datum: NAD83 CSRS  
Projection: MTM 10

0 100 200 400 600 800 1,000 1,200 1,400 1,600 1,800 2,000 Metres

Project:		Subways Program	
Figure 1:		Natural Sciences Study Area	
Prepared By:		 PARSONS HATCH WSP	
Date:		January 09 2020	
Version:	1-1	Review:	
Figure:	1	Page:	of



## Background Review - Species at Risk and Species of Conservation Concern

Species		SAR Status		Conservation Rank and Rarity Status			ORAA	OBBA			OBA	NHIC
Common Name	Scientific Name	National (SARA)	Provincial (ESA, 2007)	National (COSEWIC)	Global (G-rank)	Provincial (S-rank)	17P113, 17P123	17P113, 17P124	AMO	LUO	17P113, 17P123	17P11335, 17P11336, 17P11435, 17P11436, 17P11536, 17P11537, 17P11636, 17P11637, 17P11736, 17P11737, 17P11837, 17P11937, 17P11938, 17P12037, 17P12038, 17P12137, 17P12138, 17P12238
<b>REPTILES &amp; AMPHIBIANS</b>												
Blanding's Turtle	<i>Emydoidea blandingii</i>	THR, Schedule 1	THR	END	G4	S3	x					
Eastern Hog-nosed Snake*	<i>Heterodon platirhinos</i>	THR, Schedule 1	THR	THR	G5	S3	x					
Eastern Musk Turtle*	<i>Stemotherus odoratus</i>	SC, Schedule 1	SC	SC	G5	S3	x					
Eastern Ribbonsnake*	<i>Thamnophis sauritus</i>	SC, Schedule 1	SC	SC	G5	S4	x					x
Jefferson/Blue-spotted Salamander Complex*	<i>Ambystoma hybrid pop. 1</i>	Not listed, Schedule 1	END	END	GNA	S2	x					
Midland Painted Turtle	<i>Chrysemys picta marginata</i>	Not listed, Schedule 1		SC	G4T5	S4	x					
Milksnake	<i>Lampropeltis triangulum</i>	SC, Schedule 1	NAR	SC	G5	S4	x					
Northern Map Turtle	<i>Graptemys geographica</i>	SC, Schedule 1	SC	SC	G5	S3	x					
Queensnake*	<i>Regina septemvittata</i>	END, Schedule 1	END	END	G5	S2						x
Snapping Turtle	<i>Chelydra serpentina</i>	SC, Schedule 1	SC	SC	G5	S3	x					x
Western Chorus Frog	<i>Pseudacris maculata pop. 1</i>	THR, Schedule 1	NAR	THR	G5TNR	S3	x					
<b>MAMMALS</b>												
Little Brown Myotis	<i>Myotis lucifugus</i>	END, Schedule 1	END	END	G3G4	S3			x			
Northern myotis	<i>Myotis septentrionalis</i>	END, Schedule 1	END	END	G1G2	S3			x			
<b>BIRDS</b>												
Bank Swallow	<i>Riparia riparia</i>	THR, Schedule 1	THR	THR	G5	S4B		x				x
Barn Owl	<i>Tyto alba</i>	END, Schedule 1	END	END	G5	S1		x				
Barn Swallow	<i>Hirundo rustica</i>	THR, Schedule 1	THR	THR	G5	S4B		x				x
Bobolink	<i>Dolichonyx oryzivorus</i>	THR, Schedule 1	THR	THR	G5	S4B		x				
Chimney Swift	<i>Chaetura pelagica</i>	THR, Schedule 1	THR	THR	G4G5	S4B,S4N		x				
Common Nighthawk	<i>Chordeiles minor</i>	THR, Schedule 1	SC	SC	G5	S4B		x				
Eastern Meadowlark	<i>Sturnella magna</i>	THR, Schedule 1	THR	THR	G5	S4B		x				
Eastern Wood-pewee	<i>Contopus virens</i>	SC, Schedule 1	SC	SC	G5	S4B		x				x
Henslow's Sparrow*	<i>Ammodramus henslowii</i>	END, Schedule 1	END	END	G4	SHB						x
Peregrine Falcon	<i>Falco peregrinus</i>	SC, Schedule 1	SC	NAR	G4	S3B		x				
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	THR, Schedule 1	SC	END	G5	S4B		x				
Wood Thrush	<i>Hylocichla mustelina</i>	THR, Schedule 1	SC	THR	G4	S4B		x				
<b>INVERTEBRATES</b>												
American Burying Beetle*	<i>Nicrophorus americanus</i>	EXP, Schedule 1	EXP	EXP	G2G3	SH						x
Monarch	<i>Danaus plexippus</i>	SC, Schedule 1	SC	END	G4	S2N,S4B					x	
<b>FISH</b>												
Atlantic Salmon*	<i>Salmo salar pop. 2</i>	-	EXT	EXT	G5TX	SX				x		
Redside Dace*	<i>Clinostomus elongatus</i>	END, Schedule 1	END	END	G3G4	S2				x		x
<b>PLANTS</b>												
Butternut*	<i>Juglans cinerea</i>	END, Schedule 1	END	END	G4	S2						x

\*Historical Record (>30 years)

<sup>1</sup> Previously confirmed by agencies to be absent

## Appendix A

### Definitions, Acronyms and Symbols

#### Global G-rank

G1: Critically Imperiled (at very high risk of extinction)  
G2: Imperiled (at high risk of extinction)  
G3: Vulnerable (at moderate risk of extinction)  
G4: Apparently Secure (Uncommon but not rare)  
G5: Secure (common, widespread and abundant)  
G#G#: Range Rank (range of uncertainty about the status of a taxon or ecosystem type)  
GU: Unrankable (currently unrankable due to lack of information)  
GNR: Unranked (global rank not yet assessed)  
GNA: Not Applicable (species is not a suitable target for conservation activities)  
T: Denotes that the rank applies to a subspecies or variety  
B: Breeding  
N: Non-breeding

#### COSEWIC: Committee on the Status of Endangered Wildlife in Canada

ESA: Endangered Species Act  
SARA: Species at Risk Act  
SARO: Species at Risk in Ontario

#### SARA or ESA designation

END - Endangered  
THR - Threatened  
SC - Special Concern  
NAR - Not at Risk

#### Provincial S-rank

S1: Critically Imperiled (i.e. fewer than 5 occurrences in the nation and/or province)  
S2: Imperiled (i.e. fewer than 20 occurrences in the nation and/or province)  
S3: Vulnerable (i.e. 20-80 occurrences in the nation and/or province)  
S4: Apparently Secure (uncommon, but not rare in the nation and/or province)  
S5: Secure (common, widespread and abundant in the nation and/or province)  
SNA: Not Applicable (species is not a suitable target for conservation activities)  
SHB: Breeding is not confirmed in Ontario  
S#S#: Range Rank (range of uncertainty about the status of the species or community)  
S#?: Rank is Uncertain  
S?: Not Ranked Yet  
B: Breeding migrants/vagrants  
N: Non-breeding migrants/vagrants

#### Databases

AMO: Atlas of the Mammals of Ontario  
LIO: Land Information Ontario  
NHIC: Natural Heritage Information Centre  
OBA: Ontario Butterfly Atlas  
OBBA: Ontario Breeding Bird Atlas  
ORAA: Ontario Reptile and Amphibian Atlas



## Welch, Natasha

---

**From:** Welch, Natasha  
**Sent:** Monday, January 13, 2020 11:46 AM  
**To:** Strong, Steven (MNRF)  
**Cc:** Jawaid, Maria (MNRF); ESA.Aurora@ontario.ca; Merlin Yuen; Nolan, Nicole; MacVeigh, Brydon; Martine Esraelian (martine.esraelian@parsons.com)  
**Subject:** RE: Natural Heritage Information Request – Metrolinx Subways Program  
**Attachments:** MX\_MNRF Aurora\_info req.pdf

Sensitive

Good morning Steven,

On behalf of Metrolinx, I am following up on the status of our information request sent on November 18, 2019 (see email below). Please find attached our updated request letter for your review. If you require additional information to process our request, please let me know.

Regards,

**Natasha Welch, B.Sc.**

Fisheries Biologist

625 Cochrane Drive, Suite 500

Markham, Ontario L3R 9R9

[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com) Mobile +1 416 276 7266

---

**From:** Kowalyk, Bohdan (MNRF) <bohdan.kowalyk@ontario.ca>  
**Sent:** Monday, November 18, 2019 3:15 PM  
**To:** Strong, Steven (MNRF) <steven.strong@ontario.ca>; Jawaid, Maria (MNRF) <Maria.Jawaid@ontario.ca>  
**Cc:** Welch, Natasha <Natasha.Welch@parsons.com>  
**Subject:** [EXTERNAL] FW: Natural Heritage Information Request – Metrolinx Subways Program

Hello,

Forwarding to current planners in the MNRF Aurora District.

Regards,

Bohdan Kowalyk, R.P.F.

Senior Planner



232 Guelph Street

Georgetown, ON L7G 4B1

Tel: 905-877-7524; Email: [Bohdan.Kowalyk@Ontario.ca](mailto:Bohdan.Kowalyk@Ontario.ca)

Website: [www.escarpment.org](http://www.escarpment.org) [[escarpment.org](http://escarpment.org)]

---

**From:** Welch, Natasha <[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com)>

**Sent:** November 18, 2019 3:02 PM

**To:** ESA Aurora (MNRF) <[ESA.Aurora@ontario.ca](mailto:ESA.Aurora@ontario.ca)>

**Cc:** Kowalyk, Bohdan (MNRF) <[bohdan.kowalyk@ontario.ca](mailto:bohdan.kowalyk@ontario.ca)>; Malindzak, Edward <[Edward.Malindzak@parsons.com](mailto:Edward.Malindzak@parsons.com)>;  
MacVeigh, Brydon <[Brydon.MacVeigh@parsons.com](mailto:Brydon.MacVeigh@parsons.com)>

**Subject:** Natural Heritage Information Request – Metrolinx Subways Program

**CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.**

Sensitive

Good afternoon,

Metrolinx, as part of their Subways Program, are completing existing condition surveys for select locations in the City of Toronto. 4Transit, a joint venture of WSP, Hatch and Parsons, has been retained by Metrolinx to complete these surveys. Please find attached our formal information request for your review.

Please let me know if you have any questions or concerns,

**Natasha Welch, B.Sc.**

Fisheries Biologist

625 Cochrane Drive, Suite 500

Markham, Ontario L3R 9R9

[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com) Mobile +1 416 276 7266

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[[can01.safelinks.protection.outlook.com](mailto:can01.safelinks.protection.outlook.com)]



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January 10, 2020

Steven Strong, Senior District Planner  
Ontario Ministry of Natural Resources and Forestry  
Aurora – District Office  
50 Bloomington Road  
Aurora, Ontario L4G 0L8  
Phone: 905-713-7387  
Email: [steven.strong@ontario.ca](mailto:steven.strong@ontario.ca)

Dear Steven Strong:

**Subject: Natural Heritage Information Request – Metrolinx Subways Program**

Metrolinx, as part of their Subways Program, are completing existing condition surveys for select locations in the City of Toronto. 4Transit, a joint venture of WSP, Hatch and Parsons, has been retained by Metrolinx to complete these surveys. We are requesting information for the lands that extend along, and within 1km from, Eglinton Avenue West between the following locations, herein referred to as the study area (Figure 1):

- **Western limit of study area** (NAD83 CSRS MTM 10 X: 297109.664, Y: 4836902.975) - The west end of the study area is located in the City of Mississauga, north of Commerce/Renforth Station, extending southwest along Renforth Drive, before crossing the 401 and continuing southeast along Commerce Boulevard to Eglinton Avenue West, before turning east. The study area continues east along Eglinton Avenue West, to the eastern limit of the study area.
- **Eastern limit of study area** (NAD83 CSRS MTM 10 X: 305728.472, Y: 4838608.544) – The east end of the study area is located in the City of Toronto, east of the Eglinton Avenue West and Weston Road intersection.

We are requesting the following data for the study area, if available:

- Updated digital boundary information for designated natural features that may not yet be available in Lands Information Ontario (LIO)/Natural Resources Value Information System (NRVIS) [i.e. recent updated wetland boundaries, Ecological Land Classification (ELC) communities, and Environmentally Sensitive Areas (ESAs)].
- Fish sampling locations (i.e. fish dot mapping) along with sample dates and species occurrence records for Lake Ontario and watercourses in proximity to the study area, which includes confirmed/potential sensitive habitat locations.
- Aquatic species/community information and special habitat features, including thermal regimes, aquatic sensitivities rankings, and in-water timing windows for watercourses at Eglinton Avenue within the study area, including Mimico Creek, Silver Creek, and the Humber River.
- Available information related to Areas of Natural and Scientific Interest (ANSI), Provincially Significant Wetland (PSW), and Significant Wildlife Habitat (SWH).

- Known nesting sites for any birds and/or reptiles.

Please let me know if you require any additional information to process this request or if you have questions or concerns.





Regards,



Natasha Welch, B.Sc.,  
Fisheries Biologist  
4Transit  
Phone – 416-276-7266  
Natasha.welch@parsons.com



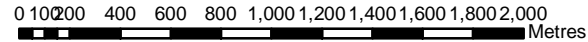



- Legend**
-  Study Area
  -  Municipal Boundary
  -  Permanent Watercourse
  -  LIO\_RoadNetwork\_MTM10\_11...

**DATA SOURCES:**

Ontario Open Data Catalogue - Roads and Railways  
Land Information Ontario - Watercourses, Waterbodies, Municipal Boundaries  
ESRI - Basemap

Datum: NAD83 CSRS  
Projection: MTM 10



Project:		Subways Program	
Figure 1:		Natural Sciences Study Area	
Prepared By:		 PARSONS HATCH WSP	
Date:		January 09 2020	
Version:	1-1	Review:	
Figure:	1	Page:	of




## Welch, Natasha

---

**From:** Victoria Trinidad <Victoria.Trinidad@trca.ca>  
**Sent:** Monday, December 16, 2019 1:15 PM  
**To:** Welch, Natasha  
**Cc:** Elizabeth Ignatius  
**Subject:** [EXTERNAL] Re: Data request

Hi Natasha,

You can find your data in this link  [Natural Heritage Information \[torontoregion-my.sharepoint.com\]](https://torontoregion-my.sharepoint.com). Let me know if you have any questions.

Thanks,

**Victoria Trinidad**  
GIS Technician  
Information Technology Management | Corporate Services

T: [\(416\) 661-6600](tel:4166616600)

E: [victoria.trinidad@trca.ca](mailto:victoria.trinidad@trca.ca)

A: [101 Exchange Avenue, Vaughan, ON, L4K 5R6 \[google.com\]](#) | [trca.ca](#) [[trca.ca](#)]



---

**From:** Welch, Natasha <Natasha.Welch@parsons.com>  
**Sent:** December 16, 2019 11:03 AM  
**To:** Victoria Trinidad <Victoria.Trinidad@trca.ca>  
**Cc:** Elizabeth Ignatius <Elizabeth.Ignatius@trca.ca>; MacVeigh, Brydon <Brydon.MacVeigh@parsons.com>; Malindzak, Edward <Edward.Malindzak@parsons.com>; Nolan, Nicole <Nicole.Nolan@parsons.com>  
**Subject:** RE: Data request

Sensitive

Hi Victoria,

Thank you for completing our data request. Please find attached our signed data sharing agreement.

Regards,

Natasha

---

**From:** Victoria Trinidad <Victoria.Trinidad@trca.ca>  
**Sent:** Friday, December 13, 2019 1:17 PM  
**To:** Welch, Natasha <Natasha.Welch@parsons.com>

**Cc:** Elizabeth Ignatius <Elizabeth.Ignatius@trca.ca>

**Subject:** [EXTERNAL] Data request

[Geomatics Service Requests - Natural Heritage information](#)

Hi Natasha,

Your data request is finished. Please sign the attached data sharing agreement and I can provide you with your data. Just to note that we cannot provide wetland boundaries or species at risk (have to go to MNF) and ESA data can be found in the TRCA open data catalogue as 'Target Natural Heritage System'.

Thanks,

**Victoria Trinidad**

GIS Technician

Information Technology Management | Corporate Services

T: [\(416\) 661-6600](tel:416-661-6600)

E: [victoria.trinidad@trca.ca](mailto:victoria.trinidad@trca.ca)

A: [101 Exchange Avenue, Vaughan, ON, L4K 5R6 \[google.com\]](#) | [trca.ca](#) [[trca.ca](#)]



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**From:** [Welch, Natasha](#)  
**To:** [Margie Akins](#)  
**Cc:** [EglintonCrosstownWest@metrolinx.com](#); [MacVeigh, Brydon](#); [Malindzak, Edward](#); [Nolan, Nicole](#)  
**Bcc:** [Alden, Marianne](#); [Orantes, Luis](#)  
**Subject:** RE: Natural Heritage Information Request – Metrolinx Subways Program  
**Date:** Monday, November 25, 2019 1:11:00 PM  
**Attachments:** [EWLRT\\_200mStudy.zip](#)  
[image002.png](#)

---

Sensitive

Hi Margie,

As requested, please find attached the GIS boundary file of our study area.

Please let me know if you have any questions.

Thank you,

**Natasha Welch, B.Sc.**

Fisheries Biologist

625 Cochrane Drive, Suite 500

Markham, Ontario L3R 9R9

[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com) Mobile +1 416 276 7266

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---

**From:** Margie Akins <Margie.Akins@trca.ca>  
**Sent:** Thursday, November 21, 2019 2:28 PM  
**To:** Welch, Natasha <Natasha.Welch@parsons.com>  
**Subject:** [EXTERNAL] RE: Natural Heritage Information Request – Metrolinx Subways Program

Hi Natasha,

Do you have a GIS boundary file you could provide so we have the exact study area/location?

Thanks,

**Margie Akins, B.URPI**

Planner

Infrastructure Planning and Permits | Development and Engineering Services Division

T: [\(416\) 661-6600](tel:(416)661-6600) ext. 5925

E: [margie.akers@trca.ca](mailto:margie.akers@trca.ca)

A: [101 Exchange Avenue, Vaughan, ON, L4K 5R6 \[google.com\]](#) | [trca.ca \[trca.ca\]](#)



---

**From:** Welch, Natasha <[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com)>

**Sent:** Monday, November 18, 2019 3:01 PM

**To:** Planning&Permits <[planning&permits@trca.ca](mailto:planning&permits@trca.ca)>

**Cc:** Zack Carlan <[Zack.Carlan@trca.ca](mailto:Zack.Carlan@trca.ca)>; Malindzak, Edward <[Edward.Malindzak@parsons.com](mailto:Edward.Malindzak@parsons.com)>;  
MacVeigh, Brydon <[Brydon.MacVeigh@parsons.com](mailto:Brydon.MacVeigh@parsons.com)>

**Subject:** Natural Heritage Information Request – Metrolinx Subways Program

Sensitive

Good afternoon,

Metrolinx, as part of their Subways Program, are completing existing condition surveys for select locations in the City of Toronto. 4Transit, a joint venture of WSP, Hatch and Parsons, has been retained by Metrolinx to complete these surveys. Please find attached our formal information request for your review.

Please let me know if you have any questions or concerns,

**Natasha Welch, B.Sc.**

Fisheries Biologist

625 Cochrane Drive, Suite 500

Markham, Ontario L3R 9R9

[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com) Mobile +1 416 276 7266

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November 18, 2019

Zack Carlan  
Planner I Environmental Assessment Planning | Planning and Development  
Toronto and Region Conservation Authority  
101 Exchange Avenue,  
Vaughan ON L4K 5R6  
Phone: 416.661.6600 ext. 5310  
Email: zack.carlan@trca.on.ca

Dear Zack Carlan:

**Subject: Natural Heritage Information Request – Metrolinx Subways Program**

Metrolinx, as part of their Subways Program, are completing existing condition surveys for select locations in the City of Toronto. 4Transit, a joint venture of WSP, Hatch and Parsons, has been retained by Metrolinx to complete these surveys. We are requesting information for the lands that extend along, and within 1km from, Eglinton Avenue West between the following locations (herein referred to as the study area):

- **Western limit of study area** (NAD83 CSRS MTM 10 X: 297243.920, Y: 4836029.432) - The west end of the study area is located in the City of Toronto, northwest of Commerce/Renforth Station, extending southeast along Commerce Boulevard to Eglinton Avenue West, before turning east. The study area continues east along Eglinton Avenue West, to the eastern limit of the study area.
- **Eastern limit of study area** (NAD83 CSRS MTM 10 X: 305728.472, Y: 4838608.544) - The east end of the study area is located in the City of Toronto, east of the Eglinton Avenue West and Weston Road intersection.

We are requesting the following data for the study area, if available:

- Wildlife and vegetation species observation records including sensitive wildlife habitat locations, locally rare species lists or known species records.
- Updated digital boundary information for designated natural features that may not yet be available in LIO/NRVIS (e.g., recent updated wetland boundaries, ELC communities, Environmentally Sensitive Areas (ESA's), etc.).
- Locations, observation dates, and any other relevant information about Species at Risk.
- Fish sampling locations (e.g., fish dot mapping) along with sample dates and species occurrence records for existing waterbodies in the vicinity of the study area; including confirmed / potential sensitive habitat locations.

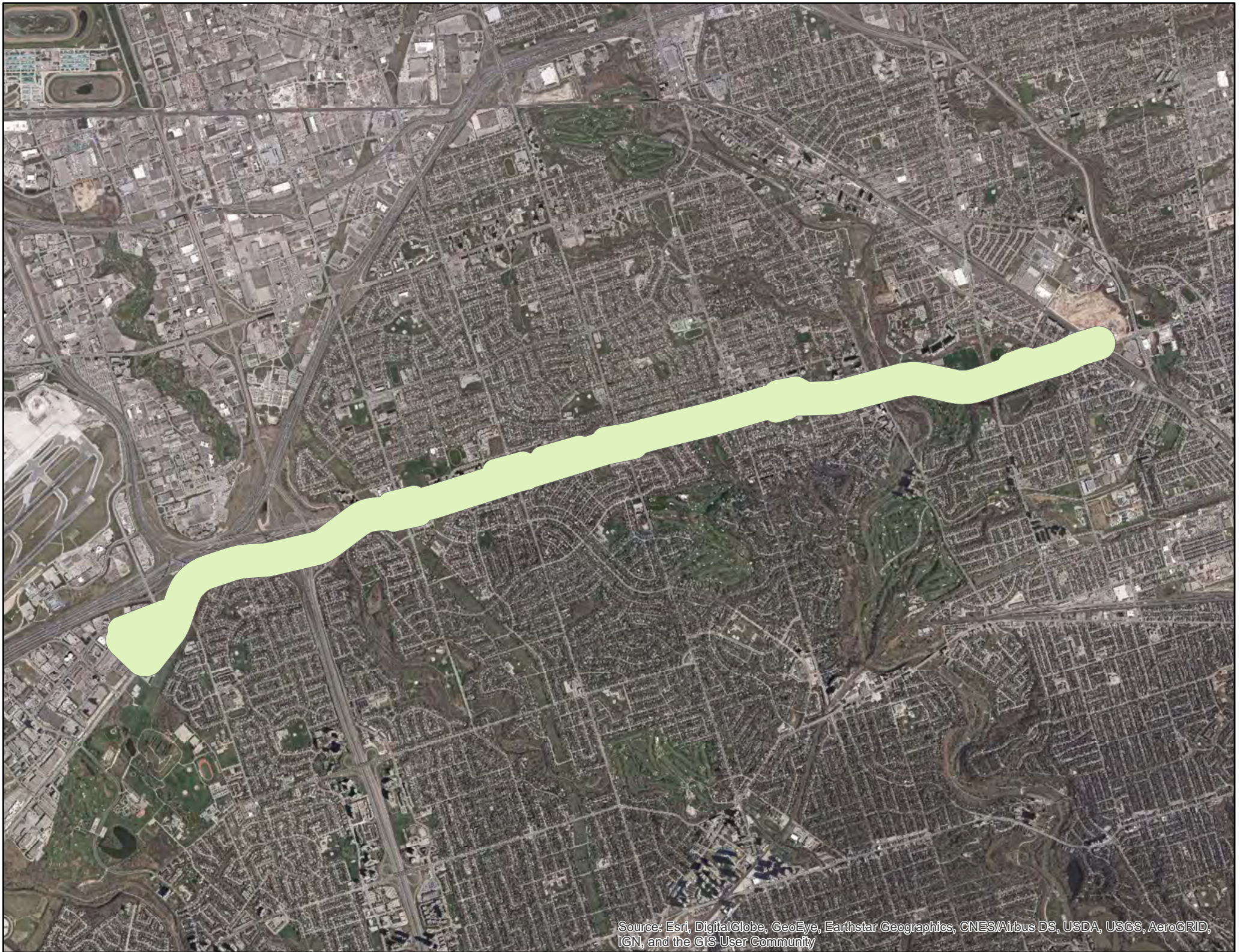
Please let me know if you require any additional information to process this request or if you have questions or concerns.

Regards,

A handwritten signature in black ink, appearing to read "Natasha Welch".

Natasha Welch, B.Sc.,  
Fisheries Biologist  
4Transit  
Phone – 905-917-3285  
Mobile – 416-276-7266  
Natasha.welch@parsons.com







## Welch, Natasha

---

**From:** Matthew Gordon <Matthew.Gordon@mississauga.ca>  
**Sent:** Wednesday, January 29, 2020 12:45 PM  
**To:** Welch, Natasha  
**Cc:** Esraelian, Martine; MacVeigh, Brydon; Nolan, Nicole; Andrew Puchalski  
**Subject:** [EXTERNAL] RE: RE: Natural Heritage Information Request – Metrolinx Subways Program

Hi Natasha, to further out phone conversation the excel sheet lists all of the city owned/managed assets in the study location. The trees listed as “under warranty” are under a 2 year warranty with the planting contractor. Once the warranty period is complete the trees will become City assets.

As for the location information I have copied Andrew Puchalski on this email. If whomever you had review the data would like to contact Andrew he would be able to provide assistance with locating the assets.

Matt

---

**From:** Welch, Natasha [mailto:Natasha.Welch@parsons.com]  
**Sent:** Wednesday, January 29, 2020 11:39 AM  
**To:** Matthew Gordon  
**Cc:** Esraelian, Martine; MacVeigh, Brydon; Nolan, Nicole  
**Subject:** FW: RE: Natural Heritage Information Request – Metrolinx Subways Program

Sensitive

Good morning Matthew,

Irena provided the attached tree inventory and directed me to contact you should I have any concerns. We noticed that the spreadsheet data does not match with the trees on the provided map. Would you be able to provide spatial data (GIS) to accompany the pdf and spreadsheet? We would also like some clarification regarding tree maintenance. The spreadsheet mentions that some of the trees are being maintained by operations or under tree warranty. We would like to know if there are other trees owned by the City in this area that are not being maintained, or if this is a complete list of City-owned trees in this area.

Thank you,

**Natasha Welch, B.Sc.**  
Fisheries Biologist

625 Cochrane Drive, Suite 500  
Markham, Ontario L3R 9R9  
[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com) Mobile +1 416 276 7266

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---

**From:** Irena Rostkowska <Irena.Rostkowska@mississauga.ca>

**Sent:** Friday, January 24, 2020 12:25 PM

**To:** Welch, Natasha <Natasha.Welch@parsons.com>

**Cc:** Matthew Gordon <Matthew.Gordon@mississauga.ca>; Sarah Piett <Sarah.Piett@mississauga.ca>; Brent Reid <Brent.Reid@mississauga.ca>

**Subject:** [EXTERNAL] FW: RE: Natural Heritage Information Request – Metrolinx Subways Program

Hi Natasha,

As per your request from January 13<sup>th</sup> please see attached tree inventory prepared by Forestry team.

Please contact Matthew directly if you have any questions regarding attached documents.

Thank you.

Irena



**Irena Rostkowska**

Researcher, Information Planning

T 905-615-3200 ext.5547

[irena.rostkowska@mississauga.ca](mailto:irena.rostkowska@mississauga.ca) | [twitter@mississaugadata](https://twitter.com/mississaugadata) [[twitter.com](https://twitter.com)]

[City of Mississauga \[mississauga.ca\]](http://City of Mississauga [mississauga.ca]) | Planning and Building Department,  
City Planning Strategies

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**From:** Matthew Gordon

**Sent:** 2020/01/24 12:14 PM

**To:** Irena Rostkowska; Sarah Piett

**Cc:** Brent Reid

**Subject:** RE: RE: Natural Heritage Information Request – Metrolinx Subways Program

Please find attached a map and list of city assets in the study area.

Please feel free to forward this on.

Matt

---

**From:** Irena Rostkowska

**Sent:** Tuesday, January 21, 2020 2:06 PM

**To:** Sarah Piett

**Cc:** Matthew Gordon; Brent Reid

**Subject:** RE: RE: Natural Heritage Information Request – Metrolinx Subways Program

Hi Sarah,

I sent to **Natasha Welch**, who is working on that project the contact information to your team.

Thanks  
Irena



**Irena Rostkowska**  
Researcher, Information Planning  
T 905-615-3200 ext.5547  
[irena.rostkowska@mississauga.ca](mailto:irena.rostkowska@mississauga.ca) | [twitter@mississaugadata](https://twitter.com/mississaugadata) [\[twitter.com\]](https://twitter.com)

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---

**From:** Sarah Piett  
**Sent:** 2020/01/21 1:27 PM  
**To:** Irena Rostkowska  
**Cc:** Matthew Gordon; Brent Reid  
**Subject:** RE: RE: Natural Heritage Information Request – Metrolinx Subways Program

Hi Irena,

Matt Gordon will be in touch with tree inventory data for the street trees that are located within the study area.

Best regards,

Sarah



**Sarah Piett, M.E.S.**  
Supervisor, Woodlands & Natural Areas | Forestry  
ISA Certified Arborist ON-1812A  
City of Mississauga [\[mississauga.ca\]](https://www.mississauga.ca) | Community Services Department  
905-615-3200 ext.3379 | [sarah.piett@mississauga.ca](mailto:sarah.piett@mississauga.ca)

---

**From:** Irena Rostkowska  
**Sent:** Thursday, January 16, 2020 8:55 AM  
**To:** Sarah Piett  
**Subject:** RE: Natural Heritage Information Request – Metrolinx Subways Program

Good morning Sarah,

I got an external request regarding NAS and tree inventory/ mapping in the west part of your study program located in the east part of City of Mississauga around Eglinton Ave E and Renforth Dr.

Who should they contact in your division regarding the tree inventory.

Thanks  
Irena



**Irena Rostkowska**

Researcher, Information Planning  
T 905-615-3200 ext.5547

[irena.rostkowska@mississauga.ca](mailto:irena.rostkowska@mississauga.ca) | [twitter@mississaugadata](https://twitter.com/mississaugadata) [\[twitter.com\]](https://twitter.com)

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## Welch, Natasha

---

**From:** Welch, Natasha  
**Sent:** Thursday, January 16, 2020 10:36 AM  
**To:** Brent.Reid@mississauga.ca  
**Cc:** Merlin Yuen; Nolan, Nicole; MacVeigh, Brydon; Martine Esraelian (martine.esraelian@parsons.com)  
**Subject:** FW: Natural Heritage Information Request – Metrolinx Subways Program  
**Attachments:** MX\_Mississauga\_Info req.pdf

Sensitive

Good morning Brent,

Metrolinx, as part of their Subways Program, are completing existing condition surveys for select locations in the City of Mississauga. 4Transit, a joint venture of WSP, Hatch and Parsons, has been retained by Metrolinx to complete these surveys. I had originally reach out to Irena, who advised us to contact you regarding our tree inventory request. Please find attached our information request for your review.

Please let me know if you have any questions or concerns,

**Natasha Welch, B.Sc.**

Fisheries Biologist

625 Cochrane Drive, Suite 500

Markham, Ontario L3R 9R9

[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com) Mobile +1 416 276 7266

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**From:** Irena Rostkowska <Irena.Rostkowska@mississauga.ca>

**Sent:** Thursday, January 16, 2020 9:23 AM

**To:** Welch, Natasha <Natasha.Welch@parsons.com>

**Subject:** [EXTERNAL] RE: Natural Heritage Information Request – Metrolinx Subways Program

Hi Natasha,

Thank you for contacting me regarding Natural Areas located in the west part of your study in the City of Mississauga.

In that particular area around Eglinton Ave East and Renforth Dr. there is no presence of the Natural Areas.

Below is the map of the location of the Mississauga's Natural Area sites.

<http://mississauga.maps.arcgis.com/apps/View/index.html?appid=6a7d0e83a2f84d8eb487d9be83537725>

Regarding the tree inventory please contact the manager of Forestry Division Brent Reid [Brent.Reid@mississauga.ca](mailto:Brent.Reid@mississauga.ca)

Thank you

Irena



**Irena Rostkowska**

Researcher, Information Planning

T 905-615-3200 ext.5547

[irena.rostkowska@mississauga.ca](mailto:irena.rostkowska@mississauga.ca) | [twitter@mississaugadata](https://twitter.com/mississaugadata) [\[twitter.com\]](https://twitter.com)

[City of Mississauga \[mississauga.ca\]](https://www.mississauga.ca) | Planning and Building Department,  
City Planning Strategies

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**From:** Welch, Natasha [<mailto:Natasha.Welch@parsons.com>]

**Sent:** 2020/01/13 11:52 AM

**To:** Irena Rostkowska

**Cc:** Merlin Yuen; Nolan, Nicole; Esraelian, Martine; MacVeigh, Brydon

**Subject:** Natural Heritage Information Request – Metrolinx Subways Program

Sensitive

Good morning Irena,

Metrolinx, as part of their Subways Program, are completing existing condition surveys for select locations in the City of Mississauga. 4Transit, a joint venture of WSP, Hatch and Parsons, has been retained by Metrolinx to complete these surveys. Please find attached our formal information request for your review.

Please let me know if you have any questions or concerns,

**Natasha Welch, B.Sc.**

Fisheries Biologist

625 Cochrane Drive, Suite 500

Markham, Ontario L3R 9R9

[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com) Mobile +1 416 276 7266

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January 10, 2020

Irena Rostkowska  
Researcher, Information Planning  
City of Mississauga, City Hall  
300 City Centre Drive  
Mississauga ON L5B 3C1  
Phone: 905-615-3200 ext. 5547  
Email: irena.rostkowska@mississauga.ca

Dear Irena Rostkowska:

**Subject: Natural Heritage Information Request – Metrolinx Subways Program**

Metrolinx, as part of their Subways Program, are completing existing condition surveys for select locations in the City of Toronto. 4Transit, a joint venture of WSP, Hatch and Parsons, has been retained by Metrolinx to complete these surveys. We are requesting information for the lands that extend along, and within 1km from, Eglinton Avenue West between the following locations, herein referred to as the study area (Figure 1):

- **Western limit of study area** (NAD83 CSRS MTM 10 X: 297109.664, Y: 4836902.975) - The west end of the study area is located in the City of Mississauga, north of Commerce/Renforth Station, extending southwest along Renforth Drive, before crossing the 401 and continuing southeast along Commerce Boulevard to Eglinton Avenue West, before turning east. The study area continues east along Eglinton Avenue West, to the eastern limit of the study area.
- **Eastern limit of study area** (NAD83 CSRS MTM 10 X: 305728.472, Y: 4838608.544) – The east end of the study area is located in the City of Toronto, east of the Eglinton Avenue West and Weston Road intersection.

We are requesting the following data for the study area, if available:

- Natural Areas Inventory (NAI) information and mapping, including Environmentally Sensitive Areas (ESAs).
- Previously completed studies related to the natural environment in the study area.
- Tree inventory information and mapping for the study area.

Please let me know if you require any additional information to process this request or if you have questions or concerns.





Regards,



Natasha Welch, B.Sc.,  
Fisheries Biologist  
4Transit  
Phone – 416-276-7266  
Natasha.welch@parsons.com



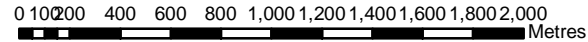



- Legend**
-  Study Area
  -  Municipal Boundary
  -  Permanent Watercourse
  -  LIO\_RoadNetwork\_MTM10\_11...

**DATA SOURCES:**

Ontario Open Data Catalogue - Roads and Railways  
Land Information Ontario - Watercourses, Waterbodies, Municipal Boundaries  
ESRI - Basemap

Datum: NAD83 CSRS  
Projection: MTM 10



Project:		Subways Program	
Figure 1:		Natural Sciences Study Area	
Prepared By:		 PARSONS HATCH WSP	Date: January 09 2020
Version:	1-1		Figure: 1
Review:			Page: of



## Welch, Natasha

---

**From:** Welch, Natasha  
**Sent:** Monday, January 13, 2020 11:52 AM  
**To:** steven.thomas@gtaa.com  
**Cc:** Merlin Yuen; Nolan, Nicole; Martine Esraelian (martine.esraelian@parsons.com); MacVeigh, Brydon  
**Subject:** Natural Heritage Information Request – Metrolinx Subways Program  
**Attachments:** MX\_AirportAuthority\_info req.pdf

Sensitive

Good morning Steven,

Metrolinx, as part of their Subways Program, are completing existing condition surveys for select locations in the City of Mississauga. 4Transit, a joint venture of WSP, Hatch and Parsons, has been retained by Metrolinx to complete these surveys. Please find attached our formal information request for your review.

Please let me know if you have any questions or concerns,

**Natasha Welch, B.Sc.**  
Fisheries Biologist

625 Cochrane Drive, Suite 500  
Markham, Ontario L3R 9R9  
[Natasha.Welch@parsons.com](mailto:Natasha.Welch@parsons.com) Mobile +1 416 276 7266

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January 10, 2020

Steven Thomas  
Manager of Environmental Services  
Greater Toronto Airports Authority  
3111 Convair Drive  
Mississauga ON L5P 1B2  
Phone: 416-247-7678  
Email: [steven.thomas@gtaa.com](mailto:steven.thomas@gtaa.com)

Dear Steven Thomas:

**Subject: Natural Heritage Information Request – Metrolinx Subways Program**

Metrolinx, as part of their Subways Program, are completing existing condition surveys for select locations in the City of Toronto. 4Transit, a joint venture of WSP, Hatch and Parsons, has been retained by Metrolinx to complete these surveys. We are requesting information for the lands that extend along, and within 1km from, Eglinton Avenue West between the following locations, herein referred to as the study area (Figure 1):

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- **Eastern limit of study area** (NAD83 CSRS MTM 10 X: 305728.472, Y: 4838608.544) - The east end of the study area is located in the City of Toronto, east of the Eglinton Avenue West and Weston Road intersection.

We are requesting the following data for the study area, if available:

- Wildlife and vegetation species observation records including sensitive wildlife habitat locations, locally rare species lists or known species records.
- Updated digital boundary information for designated natural features that may not yet be available in LIO/NRVIS (e.g., recent updated wetland boundaries, ELC communities, Environmentally Sensitive Areas (ESA's), etc.).
- Locations, observation dates, and any other relevant information about Species at Risk.

Please let me know if you require any additional information to process this request or if you have questions or concerns.





Regards,

A handwritten signature in black ink, appearing to read 'Natasha Welch', written in a cursive style.

Natasha Welch, B.Sc.,  
Fisheries Biologist  
4Transit  
Phone – 416-276-7266  
Natasha.welch@parsons.com






- Legend**
-  Study Area
  -  Municipal Boundary
  -  Permanent Watercourse
  -  LIO\_RoadNetwork\_MTM10\_11...

**DATA SOURCES:**

Ontario Open Data Catalogue - Roads and Railways  
Land Information Ontario - Watercourses, Waterbodies, Municipal Boundaries  
ESRI - Basemap

Datum: NAD83 CSRS  
Projection: MTM 10

0 100 200 400 600 800 1,000 1,200 1,400 1,600 1,800 2,000 Metres

Project:		Subways Program	
Figure 1:		Natural Sciences Study Area	
Prepared By:		 PARSONS HATCH WSP	
Date:		January 09 2020	
Version:	1-1	Review:	
Figure:	1	Page:	of



# **Appendix C**

## **Site Photographs**

## MIMICO CREEK



*Photo 1 (left): Looking under the Eglinton Avenue West Bridge at Upstream (north) Reach*  
*Photo 2 (right): From below the Eglinton Avenue West Bridge, looking Upstream*



*Photo 3 (left): Looking at Storm sewer outfall on the east bank upstream of the Eglinton Avenue West Bridge*

*Photo 4 (right): Looking at Storm sewer outfall on the east bank upstream of the Eglinton Avenue West Bridge*



*Photo 5 (left): Looking upstream under the Highway 427 off Ramp*

*Photo 6 (right): Upstream of the Eglinton Avenue West Bridge looking south*



Eglinton Crosstown West Extension  
Natural Environment Summary Report



*Photo 7 (left): Downstream looking upstream towards the Eglinton Avenue West Bridge (north), from the pedestrian foot Bridge*

*Photo 8 (right): Downstream of the Eglinton Avenue Bridge looking at the east Bank*



*Photo 9 (left): Downstream of the Eglinton Avenue West Bridge looking downstream (south) towards the pedestrian foot Bridge*

*Photo 10 (right): From Pedestrian foot Bridge, downstream of Eglinton Road, looking downstream (south)*



*Photo 11 (left): Looking at Storm sewer outfall on the east bank downstream of the Eglinton Avenue West Bridge*

*Photo 12 (right): Downstream of the Eglinton Avenue West Bridge with erosion along the east bank in view*



*Photo 13 (left): Looking at culvert outlet on east bank downstream of the Eglinton Avenue West Bridge*



*Photo 14 (right): Concrete Channel Transitioning to a naturalized channel, approximately 130 m downstream of the Eglinton Avenue West Bridge*



*Photo 15 (left): View of Naturalized Channel approximately 130 m downstream of the Eglinton Avenue West Bridge*



## SILVER CREEK



*Photo 16 (left): From Eglinton Avenue West looking north towards buried Upstream Channel*

*Photo 17 (right): North of Eglinton Avenue West looking north towards Residential Backyards*



*Photo 18 (left): North of Eglinton Avenue West looking west at Roadside Swale*

*Photo 19 (right): North of Eglinton Avenue West looking east at Roadside Swale*



*Photo 20 (left): South of Eglinton Avenue West looking downstream (south) at Silver Creek through chain link fence*

*Photo 21 (right): South of Eglinton Avenue West looking downstream (south) at Silver Creek over chain link fence*



*Photo 22 (left): South of Eglinton Avenue West looking downstream (south) at Silver Creek over chain link fence*



## LOWER MAIN BRANCH OF THE HUMBER RIVER



*Photo 23 (left): From Eglinton Avenue West looking upstream (north)*

*Photo 24 (right): From Eglinton Avenue West looking upstream (north)*



*Photo 25 (left): From the West Bank looking upstream, north of Eglinton Avenue West, with the west bank in view*

*Photo 26 (right): From the West Bank looking downstream (south) towards the Eglinton Avenue West Bridge, with the west bank in view*



*Photo 27 (left): Upstream of Eglinton Avenue West looking at the east bank*

*Photo 28 (right): Upstream of Eglinton Avenue West looking at the east bank*





*Photo 29 (left): From upstream looking downstream (south) under the Eglinton Avenue West Bridge*  
*Photo 30 (right): Below the Eglinton Avenue West Bridge, looking at east bank*



*Photo 31 (left): Below the Eglinton Avenue West Bridge, looking at west bank*  
*Photo 32 (right): Below the Eglinton Avenue West Bridge, looking at minor bank erosion due to surface water runoff*



*Photo 33 (left): From the west bank looking downstream, south of Eglinton Avenue West, with the west bank in view.*  
*Photo 34 (right): Looking downstream (south), south of Eglinton Avenue West*





*Photo 35 (left): From the west bank looking upstream (north) towards the Eglinton Avenue West Bridge, with the west bank in view - where the storm sewer outfall discharges to the channel*

*Photo 36 (right): From downstream looking upstream (north) under the Eglinton Avenue West Bridge*



*Photo 37 (left): Downstream of Eglinton Avenue West looking at the east bank*

*Photo 38 (right): Downstream of Eglinton Avenue West looking at the storm sewer outfall on the west bank*



*Photo 39 (left): Downstream of Eglinton Avenue West looking at the storm sewer outfall on the west bank*

# **Appendix D**

## **Species Lists**



Table D-1: Background Review Species List

Species		SAR Status		Conservation Rank and Rarity Status						Sources								
Common Name	Scientific Name	National (SARA)	Provincial (ESA, 2007)	National (COSEWIC)	Global (G-rank)	Provincial (S-rank)	Conservation Priorities <sup>1</sup>	Regional Rarity Rank <sup>2</sup>	Local Rarity Rank <sup>3</sup>	NHIC <sup>4</sup>	iNaturalist <sup>5</sup>	E-bird <sup>6</sup>	ARA <sup>7</sup>	Fish-On-Line <sup>8</sup>	ORAA <sup>9</sup>	OBBA <sup>10</sup>	AMO <sup>11</sup>	LGL (2010) <sup>12</sup>
AMPHIBIANS																		
American Bullfrog	<i>Lithobates catesbeianus</i>				G5	S4			L2						X			
American Toad	<i>Bufo americanus</i>				G5	S5			L4						X			X
Eastern Red-backed Salamander	<i>Plethodon cinereus</i>				G5	S5			L3						X			X
Four-toed Salamander	<i>Hemidactylium scutatum</i>				G5	S4			LX						X			
Gray Treefrog	<i>Hyla versicolor</i>				G5	S5			L2						X			
Green Frog	<i>Rana clamitans</i>				G5	S5			L4						X			X
Jefferson/Blue-spotted Salamander Complex	<i>Ambystoma jeffersonianum x laterale</i>														X			
Mudpuppy	<i>Necturus maculosus</i>				G5	S4			L2						X			
Northern Leopard Frog	<i>Rana pipiens</i>				G5	S5			L3						X			X
Pickereel Frog	<i>Lithobates palustris</i>			NAR	G5	S5			L2						X			
Red-spotted Newt	<i>Notophthalmus viridescens</i>				G5T5	S5			L2						X			
Spotted Salamander	<i>Ambystoma maculatum</i>				G5	S4			L1						X			
Spring Peeper	<i>Pseudacris crucifer</i>				G5	S5			L2						X			
Western Chorus Frog (Carolinian population)	<i>Pseudacris triseriata</i>				G5TNR	S4			L2						X			
Wood Frog	<i>Rana sylvatica</i>				G5	S5			L2						X			
REPTILES																		
Blanding's Turtle	<i>Emydoidea blandingii</i>		THR	END	G4	S3			L1						X			
Dekay's Brownsnake	<i>Storeria dekayi</i>			NAR	G5	S5			L4		X				X			X
Eastern Gartersnake	<i>Thamnophis sirtalis</i>				G5T5	S5			L4		X				X			X
Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>	THR, Schedule 1	THR	THR	G5	S3									X			
Eastern Milksnake	<i>Lampropeltis triangulum</i>	SC, Schedule 1		SC	G5	S4			L3						X			X
Eastern Musk Turtle	<i>Sternotherus odoratus</i>		SC	SC	G5	S3			LX						X			
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>		SC	SC	G5	S4			LX	X					X			
Midland Painted Turtle	<i>Chrysemys picta marginata</i>			SC	G5T5	S4			L3						X			X
Northern Watersnake	<i>Nerodia sipedon sipedon</i>				G5T5	S5			LX						X			
Northern Map Turtle	<i>Graptemys geographica</i>	SC, Schedule 1	SC	SC	G5	S3			L2						X			X
Queensnake	<i>Regina septemvittata</i>	END,	END	END	G5	S2				X								

Species		SAR Status		Conservation Rank and Rarity Status						Sources								
Common Name	Scientific Name	National (SARA)	Provincial (ESA, 2007)	National (COSEWIC)	Global (G-rank)	Provincial (S-rank)	Conservation Priorities <sup>1</sup>	Regional Rarity Rank <sup>2</sup>	Local Rarity Rank <sup>3</sup>	NHIC <sup>4</sup>	iNaturalist <sup>5</sup>	E-bird <sup>6</sup>	ARA <sup>7</sup>	Fish-On-Line <sup>8</sup>	ORAA <sup>9</sup>	OBBA <sup>10</sup>	AMO <sup>11</sup>	LGL (2010) <sup>12</sup>
		Schedule 1																
Red-eared Slider	<i>Trachemys scripta elegans</i>				GG	SNA			L+						X			
Red-bellied Snake	<i>Storeria occipitomaculata</i>				G5	S5			L3						X			X
Ring-necked Snake	<i>Diadophis punctatus</i>				G5	S4			LX						X			
Snapping Turtle	<i>Chelydra serpentina</i>	SC, Schedule 1	SC	SC	G5	S3			L3	X					X			X
Smooth Greensnake	<i>Opheodrys vernalis</i>				G5	S4			L2						X			X
MAMMALS																		
Eastern Small-footed Myotis	<i>Myotis leibii</i>		END		G4	S2S3											X	
Ermine	<i>Mustela erminea</i>				G5	S5			L3								X	X
Little Brown Myotis	<i>Myotis lucifugus</i>	END, Schedule 1	END	END	G3	S4			L4								X	
Northern Short-tailed Shrew	<i>Blarina brevicauda</i>				G5	S5			L3								X	X
Northern Myotis	<i>Myotis septentrionalis</i>	END, Schedule 1	END	END	G1G2	S3											X	
Tricolored Bat	<i>Perimyotis subflavus</i>	END, Schedule 1	END	END	G2G3	S3?											X	
BIRDS																		
Acadian Flycatcher	<i>Empidonax virescens</i>	END, Schedule 1	END	END	G5	S2S3B	Recovery Objective		L3							X		
Alder Flycatcher	<i>Empidonax alnorum</i>				G5	S5B			L4							X		
American Bittern	<i>Botaurus lentiginosus</i>				G5	S4B	Assess/Maintain		L3							X		
American Black Duck	<i>Anas rubripes</i>				G5	S4	Maintain Current		L3							X		
American Coot	<i>Fulica americana</i>				G5	S4B	Increase		L2							X		
American Crow	<i>Corvus brachyrhynchos</i>				G5	S5B			L5							X		X
American Goldfinch	<i>Carduelis tristis</i>				G5	S5B			L5							X		X
American Kestrel	<i>Falco sparverius</i>				G5	S4	Maintain Current		L4							X		
American Redstart	<i>Setophaga ruticilla</i>				G5	S5B			L4							X		
American Robin	<i>Turdus migratorius</i>				G5	S5B			L5							X		X
American Wigeon	<i>Anas americana</i>				G5	S4										X		
American Woodcock	<i>Scolopax minor</i>				G5	S4B	Increase		L3									
Baltimore Oriole	<i>Icterus galbula</i>				G5	S4B	Maintain Current		L5							X		X
Bank Swallow	<i>Riparia riparia</i>	THR, Schedule 1	THR	THR	G5	S4B	Increase		L3	X		X				X		
Barn Owl	<i>Tyto alba</i>	END, Schedule 1	END	END	G5	S1	Recovery Objective									X		

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Barn Swallow	<i>Hirundo rustica</i>	THR, Schedule 1	THR	THR	G5	S4B	Recovery Objective		L4	X		X				X		X
Belted Kingfisher	<i>Ceryle alcyon</i>				G5	S4B	Increase		L4							X		X
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>				G5	S5B	Increase		L3							X		
Black-capped Chickadee	<i>Poecile atricapilla</i>				G5	S5			L5							X		X
Blue Jay	<i>Cyanocitta cristata</i>				G5	S5			L5							X		X
Blue-gray Gnatcatcher	<i>Poliopitila caerulea</i>				G5	S4B			L4							X		X
Blue-winged Teal	<i>Anas discors</i>				G5	S4	Increase		L3							X		
Bobolink	<i>Dolichonyx oryzivorus</i>	THR, Schedule 1	THR	THR	G5	S4B	Recovery Objective		L2							X		
Brown Creeper	<i>Certhia americana</i>				G5	S5B			L3							X		
Brown Thrasher	<i>Toxostoma rufum</i>				G5	S4B	Increase		L3							X		
Brown-headed Cowbird	<i>Molothrus ater</i>				G5	S4B			L5							X		X
Canada Goose	<i>Branta canadensis</i>				G5	S5	Decrease		L5		X					X		X
Canvasback	<i>Aythya valisineria</i>				G5	S1B,S4N	Maintain Current		L2							X		
Carolina Wren	<i>Thryothorus ludovicianus</i>				G5	S4			L4							X		
Cedar Waxwing	<i>Bombycilla cedrorum</i>				G5	S5B			L5							X		X
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>				G5	S5B			L3							X		
Chimney Swift	<i>Chaetura pelagica</i>	THR, Schedule 1	THR	THR	G4G5	S4B, S4N	Recovery Objective		L4			X				X		X
Chipping Sparrow	<i>Spizella passerina</i>				G5	S5B			L5							X		X
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>				G5	S4B			L5							X		
Common Grackle	<i>Quiscalus quiscula</i>				G5	S5B			L5							X		X
Common Nighthawk	<i>Chordeiles minor</i>	THR, Schedule 1	SC	SC	G5	S4B	Recovery Objective		L3			X				X		
Common Tern	<i>Sterna hirundo</i>				G5	S4B	Increase		L3							X		
Common Yellowthroat	<i>Geothlypis trichas</i>				G5	S5B			L4							X		
Cooper's Hawk	<i>Accipiter cooperii</i>				G5	S4			L4							X		
Double-crested Cormorant	<i>Phalacrocorax auritus</i>				G5	S5B			L3							X		
Downy Woodpecker	<i>Picoides pubescens</i>				G5	S5			L5							X		X
Eastern Kingbird	<i>Tyrannus tyrannus</i>				G5	S4B	Increase		L4							X		X
Eastern Meadowlark	<i>Sturnella magna</i>	THR, Schedule 1	THR	THR	G5	S4B	Recovery Objective		L3							X		X
Eastern Phoebe	<i>Sayornis phoebe</i>				G5	S5B			L5							X		
Eastern Screech-Owl	<i>Megascops asio</i>				G5	S4			L3							X		
Eastern Towhee	<i>Pipilo erythrophthalmus</i>				G5	S4B	Increase		L3							X		
Eastern Wood-Pewee	<i>Contopus virens</i>	SC, Schedule 1	SC	SC	G5	S4B	Increase		L4	X						X		



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European Starling	<i>Sturnus vulgaris</i>				G5	SNA			L+							X		X
Field Sparrow	<i>Spizella pusilla</i>				G5	S4B	Increase		L3							X		
Gadwall	<i>Meruca strepera</i>				G5	S4			L4							X		
Gray Catbird	<i>Dumetella carolinensis</i>				G5	S4B			L4							X		X
Great Crested Flycatcher	<i>Myiarchus crinitus</i>				G5	S4B			L4							X		
Great Egret	<i>Ardea herodias</i>				G5	S2B	Maintain Current		L3							X		X
Great Horned Owl	<i>Bubo virginianus</i>				G5	S4			L4							X		
Green Heron	<i>Butorides virescens</i>				G5	S4B	Increase		L4							X		
Hairy Woodpecker	<i>Picoides villosus</i>				G5	S5			L4		X					X		X
Henslow's Sparrow	<i>Ammodramus henslowii</i>	END, Schedule 1	END	END	G4	SHB	Recovery Objective		LX	X						X		
Hooded Merganser	<i>Lophodytes cucullatus</i>				G5	S5B,S5N			L3							X		
Horned Lark	<i>Eremophila alpestris</i>				G5	S5B			L3							X		
House Finch	<i>Carpodacus mexicanus</i>				G5	SNA			L+							X		X
House Sparrow	<i>Passer domesticus</i>				G5	SNA			L+							X		X
House Wren	<i>Troglodytes aedon</i>				G5	S5B			L5							X		
Indigo Bunting	<i>Passerina cyanea</i>				G5	S4B			L4							X		
Killdeer	<i>Charadrius vociferus</i>				G5	S5B, S5N	Increase		L4							X		X
Least Flycatcher	<i>Empidonax minimus</i>				G5	S4B			L4							X		
Magnolia Warbler	<i>Setophaga magnolia</i>				G5	S5B			L3							X		
Mallard	<i>Anas platyrhynchos</i>				G5	S5	Maintain Current		L5							X		X
Mourning Dove	<i>Zenaida macroura</i>				G5	S5			L5							X		X
Mourning Warbler	<i>Geothlypis philadelphia</i>				G5	S4B			L3							X		
Mute Swan	<i>Cygnus olor</i>				G5	SNA	Decrease		L+							X		
Nashville Warbler	<i>Oreothlypis ruficapilla</i>				G5	S5B			L3							X		
Northern Cardinal	<i>Cardinalis cardinalis</i>				G5	S5			L5							X		X
Northern Flicker	<i>Colaptes auratus</i>				G5	S4B	Increase		L4							X		X
Northern Harrier	<i>Circus cyaneus</i>	NAR	NAR		G5	S4B	Maintain Current		L2							X		
Northern Mockingbird	<i>Mimus polyglottos</i>				G5	S4			L4							X		X
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>				G5	S4B	Increase		L4							X		X
Northern Shoveler	<i>Spatula clypeata</i>				G5	S4			L3							X		
Northern Waterthrush	<i>Parkesia noveboracensis</i>				G5	S5B			L2							X		
Orchard Oriole	<i>Icterus spurius</i>				G5	S4B			L5							X		
Ovenbird	<i>Seiurus aurocapilla</i>				G5	S4B			L2							X		
Peregrine Falcon	<i>Falco peregrinus</i>		SC		G4	S3B			L4							X		
Pied-billed Grebe	<i>Podilymbus podiceps</i>				G5	S4B,S4N	Maintain Current		L3							X		
Pileated Woodpecker	<i>Dryocopus pileatus</i>				G5	S5			L3							X		

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Pine Siskin	<i>Spinus pinus</i>				G5	S4B			L4							X		
Pine Warbler	<i>Setophaga pinus</i>				G5	S5B			L4							X		
Purple Martin	<i>Progne subis</i>				G5	S4B	Increase		L4							X		
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>				G5	S4			L5							X		
Red-breasted Nuthatch	<i>Sitta canadensis</i>				G5	S5			L4							X		
Red-eyed Vireo	<i>Vireo olivaceus</i>				G5	S5B			L4							X		X
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	THR, Schedule 1	SC	END	G5	S4B	Recovery Objective		LX			X				X		
Red-necked Grebe	<i>Podiceps grisegena</i>				G5	S3B,S4N	Assess/Maintain		L3							X		
Red-tailed Hawk	<i>Buteo jamaicensis</i>	NAR	NAR		G5	S5			L5							X		X
Red-winged Blackbird	<i>Agelaius phoeniceus</i>				G5	S4			L5		X					X		X
Ring-billed Gull	<i>Larus delawarensis</i>				G5	S5B,S4N			L4							X		
Ring-necked Pheasant	<i>Phasianus colchicus</i>				G5	SNA			L+							X		
Rock Pigeon	<i>Columba livia</i>				G5	SNA			L+							X		X
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>				G5	S4B	Maintain Current		L4							X		
Ruby-throated Hummingbird	<i>Archilochus colubris</i>				G5	S5B			L4							X		
Savannah Sparrow	<i>Passerculus sandwichensis</i>				G5	S4B	Increase		L4							X		
Scarlet Tanager	<i>Piranga olivacea</i>				G5	S4B			L3							X		
Sharp-shinned Hawk	<i>Accipiter striatus</i>				G5	S5			L3							X		
Song Sparrow	<i>Melospiza melodia</i>				G5	S5B			L5							X		X
Sora	<i>Porzana carolina</i>				G5	S4B	Assess/Maintain		L3							X		
Spotted Sandpiper	<i>Actitis macularia</i>				G5	S5	Increase		L4							X		X
Swamp Sparrow	<i>Melospiza georgiana</i>				G5	S5B			L4							X		
Tree Swallow	<i>Tachycineta bicolor</i>				G5	S4B			L4							X		
Turkey Vulture	<i>Cathartes aura</i>				G5	S5B			L5							X		
Upland Sandpiper	<i>Bartramia longicauda</i>				G5	S4B	Increase		LX							X		
Veery	<i>Catharus fuscescens</i>				G5	S4B			L2							X		
Vesper Sparrow	<i>Poocetes gramineus</i>				G5	S4B	Increase		L3							X		
Virginia Rail	<i>Rallus limicola</i>				G5	S5B	Maintain Current		L3							X		
Warbling Vireo	<i>Vireo gilvus</i>				G5	S5B			L5							X		X
White-breasted Nuthatch	<i>Sitta carolinensis</i>				G5	S5			L4							X		
White-throated Sparrow	<i>Zonotrichia albicollis</i>				G5	S5B			L3							X		
Willow Flycatcher	<i>Empidonax traillii</i>				G5	S5B	Maintain Current		L4							X		
Winter Wren	<i>Troglodytes hiemalis</i>				G5	S5B			L3							X		
Wood Duck	<i>Aix sponsa</i>				G5	S5	Increase		L4							X		
Wood Thrush	<i>Hylocichla mustelina</i>	THR, Schedule 1	SC	THR	G4	S4B	Maintain Current		L3			X				X		

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Yellow Warbler	<i>Dendroica petechia</i>				G5	S5B			L5							X		X
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>				G5	S5B			L3							X		
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>				G5	S4B			L3							X		
Yellow-throated Vireo	<i>Vireo flavifrons</i>				G5	S4B			L3							X		
INVERTEBRATES																		
American Burying Beetle*	<i>Nicrophorus americanus</i>	EXP, Schedule 1	EXP	EXP	G2G3	SH				X								
Giant Lacewing	<i>Polystoechotes punctata</i>				GNR	SH				X								
Monarch	<i>Danaus plexippus</i>	SC, Schedule 1	SC	END	G4	S2N, S4B												
FISH																		
American Brook Lamprey	<i>Lethenteron appendix</i>				G4	S3							x					
Atlantic Salmon	<i>Salmo salar pop. 2</i>		EXP	EXP	G5TX	SX							x					
Blackchin Shiner	<i>Notropis heterodon</i>		NAR	NAR	G5	S4							x					
Black Crappie	<i>Pomoxis nigromaculatus</i>				G5	S4								x				
Blacknose Dace	<i>Rhinichthys atratulus</i>				G5	S5							x					
Bluegill	<i>Lepomis macrochirus</i>				G5	S5							x	x				
Bluntnose Minnow	<i>Pimephales notatus</i>		NAR	NAR	G5	S5							x					
Brook Stickleback	<i>Culaea inconstans</i>				G5	S5							x					
Brown Bullhead	<i>Ameiurus nebulosus</i>				G5	S5							x	x				
Brown Trout	<i>Salmo trutta</i>				G5	SNA								x				
Carps and Minnows													x					
Central Stoneroller	<i>Campostoma anomalum</i>		NAR	NAR	G5	S4							x					
Common Carp	<i>Cyprinus carpio</i>				G5	SNA							x	x				
Common Shiner	<i>Luxilus cornutus</i>				G5	S5							x					
Creek Chub	<i>Semotilus atromaculatus</i>				G5	S5							x					
Emerald Shiner	<i>Notropis atherinoides</i>				G5	S5							x					
Etheostoma sp.													x					
Fantail Darter	<i>Etheostoma flabellare</i>				G5	S4							x					
Fathead Minnow	<i>Pimephales promelas</i>				G5	S5							x					
Freshwater Drum	<i>Aplodinotus grunniens</i>				G5	S5								x				
Goldfish	<i>Carassius auratus</i>				G5	SNA							x					
Hornyhead Chub	<i>Nocomis biguttatus</i>		NAR	NAR	G5	S4							x					
Ichthyomyzon sp.													x					
Iowa Darter	<i>Etheostoma exile</i>				G5	S5							x					
Johnny Darter	<i>Etheostoma nigrum</i>				G5	S5							x					



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Johnny Darter/Tessellated Darter	<i>Etheostoma nigrum/Etheostoma olmstedii</i>		/NAR	/NAR	G5/G5	S5/S4							x					
Lake Trout	<i>Salvelinus namaycush</i>				G5	S5								x				
Largemouth Bass	<i>Micropterus salmoides</i>				G5	S5							x	x				
Longnose Dace	<i>Rhinichthys cataractae</i>				G5	S5							x					
Mottled Sculpin	<i>Cottus bairdii</i>				G5	S5							x					
Northern Hog Sucker	<i>Hypentelium nigricans</i>				G5	S4							x					
Pumpkinseed	<i>Lepomis gibbosus</i>				G5	S5							x	x				
Rainbow Darter	<i>Etheostoma caeruleum</i>				G5	S4							x					
Rainbow Smelt	<i>Osmerus mordax</i>				G5	S5								x				
Rainbow Trout	<i>Oncorhynchus mykiss</i>				G5	SNA							x	x				
Redside Dace	<i>Clinostomus elongatus</i>		END	END	G3G4	S2				X			x					
River Chub	<i>Nocomis micropogon</i>		NAR	NAR	G5	S4							x					
Rock Bass	<i>Ambloplites rupestris</i>				G5	S5							x	x				
Rosyface Shiner	<i>Notropis rubellus</i>		NAR	NAR	G5	S4							x					
Sand Shiner	<i>Notropis stramineus</i>				G5	S4							x					
Sea Lamprey	<i>Petromyzon marinus</i>				G5	SNA							x					
Smallmouth Bass	<i>Micropterus dolomieu</i>				G5	S5							x	x				
Stonecat	<i>Noturus flavus</i>				G5	S4							x					
White Bass	<i>Morone chrysops</i>				G5	S4								x				
White Perch	<i>Morone americana</i>				G5	SNA								x				
White Sucker	<i>Catostomus commersonii</i>				G5	S5							x	x				
Yellow Bullhead	<i>Ameiurus natalis</i>				G5	S4							x					
Yellow Perch	<i>Perca flavescens</i>				G5	S5							x	x				
PLANTS																		
Balsam Fir	<i>Abies balsamea</i>				G5	S5		R	L3									X
Black Snakeroot	<i>Actaea racemosa</i>				G4	S2		H	LX	X								
Blue Cohosh	<i>Caulophyllum thalictroides</i>				G5	S5		U	L3									X
Broad-leaved Sedge	<i>Carex platyphylla</i>				G5	S4S5		U	L3									X
Butternut	<i>Juglans cinerea</i>	END, Schedule 1	END	END	G4	S2?		U	L3	X								
Canada Buffalo-berry	<i>Shepherdia canadensis</i>				G5	S5		R	L2									X
Clammy Ground-cherry	<i>Physalis heterophylla</i>				G5	S4		R	L5									X
Cockspur Hawthorn	<i>Crataegus crus-galli</i>				G5	S4		R	L2									X
Common Juniper	<i>Juniperus communis</i>				G5	S5		R	L3									X
Early Goldenrod	<i>Solidago juncea</i>				G5	S5		R	L5									X
Eastern Ninebark	<i>Physocarpus opulifolius</i>				G5	S5		R	L3									X
Honey-locust	<i>Gleditsia triacanthos</i>				G5	S2?		IR	L+									X

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Old-field Cinquefoil	<i>Potentilla simplex</i>				G5	S5		R	L3									X
Old-field Toadflax	<i>Nuttallanthus canadensis</i>				G5	S1		H	L2	X								
Marsh Rose	<i>Rosa palustris</i>				G5	S5		R	L2									X
Montane Blue-eyed Grass	<i>Sisyrinchium montanum</i>				G5	S5		R	L4									X
Moonseed	<i>Menispermum canadense</i>				G5	S4		U	L3									X
Prickly Rose	<i>Rosa acicularis</i>				G5	S5		R										X
Red Pine	<i>Pinus resinosa</i>				G5	S5		R	L1									X
Round-leaved Hawthorn	<i>Crataegus chrysocarpa</i>				G5	S5		R	L3									X
Running Strawberry-bush	<i>Euonymus obovatus</i>				G5	S4		C	L3									X
Tamarack	<i>Larix laricina</i>				G5	S5		R	L3									X
Virginia Bluebells	<i>Mertensia virginica</i>				G5	S3		R	L+?									X
Virginia Creeper	<i>Parthenocissus quinquefolia</i>				G5	S4?		R	L5									X
Virginia Spring Beauty	<i>Claytonia virginica</i>				G5	S5		C	L3									X
White Oak	<i>Quercus alba</i>				G5	S5		C	L2									X
White Rattlesnake-root	<i>Nabalus alba</i>				G5	S5		U	L3									X
White Spruce	<i>Picea glauca</i>				G5	S5		U	L3									X
Witch-hazel	<i>Hamamelis virginiana</i>				G5	S4S5		C	L3									X

Definitions, Acronyms and Symbols

Species of Conservation Concern (SoCC)
Species at Risk (SAR)

ORAA and OBBA 10km<sup>2</sup> Map Squares:  
17PJ13, 17PJ23  
NHIC 1km<sup>2</sup> Map Squares: 17PJ1335, 1336, 1436, 1536, 1636, 1637, 1737, 1837, 1937, 2037, 2137, 2138, 2238

Global G-rank

**G1:** Critically Imperiled (at very high risk of extinction)  
**G2:** Imperiled (at high risk of extinction)  
**G3:** Vulnerable (at moderate risk of extinction)  
**G4:** Apparently Secure (Uncommon but not rare)  
**G5:** Secure (common, widespread and abundant)  
**G#G#:** Range Rank (range of uncertainty about the status of a taxon or ecosystem type)  
**GU:** Unrankable (currently unrankable due to lack of information)  
**GNR:** Unranked (global rank not yet assessed)  
**GNA:** Not Applicable (species is not a suitable target for conservation activities)  
**T:** Denotes that the rank applies to a subspecies or variety  
**B:** Breeding  
**N:** Non-breeding

**COSEWIC:** Committee on the Status of Endangered Wildlife in Canada

**ESA:** Endangered Species Act

**SARA:** Species at Risk Act

**SARO:** Species at Risk in Ontario

SARA or ESA designagtion

**EXT** - Extinct  
**END** - Endangered  
**THR** - Threatened  
**SC** - Special Concern  
**NAR** - Not at Risk

Provincial S-rank

**S1:** Critically Imperiled (i.e. fewer than 5 occurrences in the nation and/or province)  
**S2:** Imperiled (i.e. fewer than 20 occurrences in the nation and/or province)  
**S3:** Vulnerable (i.e. 20-80 occurrences in the nation and/or province)  
**S4:** Apparently Secure (uncommon, but not rare in the nation and/or province)  
**S5:** Secure (common, widespread and abundant in the nation and/or province)  
**SNA:** Not Applicable (species is not a suitable target for conservation activities)  
**SHB:** Breeding is not confirmed in Ontario  
**S#S#:** Range Rank (range of uncertainty about the status of the species or community)

**S#?:** Rank is Uncertain  
**S?:** Not Ranked Yet  
**B:** Breeding migrants/vagrants  
**N:** Non-breeding migrants/vagrants

Conservation Priorities<sup>1</sup>  
**Recovery Objective** - Species at Risk  
**Increase** - Population in decline  
**Maintain Current** - Appears to be stable or increasing

Regional Rarity (Carolinian Canada)<sup>2</sup>

**R** - Rare

Local Rarity (TRCA)<sup>3</sup>

**L1:** Species of Regional Conservation Concern (regionally scarce due to either accidental occurrence or extreme sensitivity to human impacts)  
**L2:** Species of Regional Conservation Concern (somewhat more abundant and generally slightly less sensitive than L1 species)  
**L3:** Species of Regional Conservation Concern (generally less sensitive and more abundant than L1 and L2 ranked species)  
**L4:** Species of Urban Concern (occur throughout the region but could show declines if urban impacts are not mitiagted effectively)

**L5:** Species that are considered secure throughout the region

**L+:** Introduced species (not native to the Toronto region)  
**LX:** Extirpated species (species not recorded in the region in the past 10 years)

**LS:** Sporadic breeder (species not recorded in the region in the past 10 years)

**L+?:** Species is probably introduced

References / Sources

<sup>1</sup> Bird Conservation Strategy for Bird Conservation Region (BCR) 13 in Ontario Region: Lower Great Lakes/St. Lawrence Plain (Environment Canada 2014)  
<sup>2</sup> List of the Vascular Plants of Ontario's Carolinian Zone (Ecoregion 7E) (Oldham, 2017).  
<sup>3</sup> Flora Species for the TRCA Jurisdiction (TRCA, 2019) & Fauna Ranks and Scores for the TRCA Jurisdiction (TRCA, 2019).  
<sup>4</sup> NHIC - Natural Heritage Information Centre (NHIC) Make-a-map Tool (Ministry of Natural Resources and Forestry, 2019)  
<sup>5</sup> iNaturalist website available online at <https://www.inaturalist.org/> (all projects searched, including NHIC Rare Species of Ontario and Herps of Ontario Projects).  
<sup>6</sup> e-Bird website available online at <https://ebird.org/map/>  
<sup>7</sup> Land Information Ontario (LIO) Database. Aquatic Resource Area Data (LIO, 2019)  
<sup>8</sup> Fish ON-Line (Ministry of Natural Resources and Forestry, 2019)  
<sup>9</sup> ORAA - Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019)  
<sup>10</sup> OBBA - Ontario Breeding Bird Atlas (Bird Studies Canada, 2005)  
<sup>11</sup> Atlas of the Mammals of Ontario (Dobbyn, 1994)  
<sup>12</sup> Natural Heritage Assessment Report: Eglinton Crosstown LRT Transit Project Assessment Study (LGL, 2010)



Table D-2: Wildlife Documented During the 2019 Field Investigations

Common Name	Scientific Name	Taxa	Native/Introduced	S Rank	COSEWIC	SARA	SARO		Count
Northern Cardinal	<i>Cardinalis cardinalis</i>	Bird	Native	S5				Birds	6
Rock Pigeon	<i>Columba livia</i>	Bird	Introduced	SNA				Mammals	3
Dark-eyed Junco	<i>Junco hyemalis</i>	Bird	Native	S5B					
Downy Woodpecker	<i>Picoides pubescens</i>	Bird	Native	S5					
Common Grackle	<i>Quiscalus quiscula</i>	Bird	Native	S5B					
American Robin	<i>Turdus migratorius</i>	Bird	Native	S5B					
Canine*	<i>Canidae sp</i>	Mammal	n/a	n/a	n/a	n/a	n/a		
Raccoon*	<i>Procyon lotor</i>	Mammal	Native	S5					
Eastern Grey Squirrel	<i>Sciurus carolinensis</i>	Mammal	Native	S5					

\*Tracks

Table D-3: Vegetation Documented During the 2019 Field Investigations

Common Name	Scientific Name	Type	Native/Introduced	S Rank	COSEWIC	SARA	SARO		Count	%
Burdock	<i>Arctium lappa</i>	Vegetative	Introduced	SNA				Native	22	51
Shepherd's Purse	<i>Capsella bursa-pastoris</i>	Vegetative	Introduced	SNA				Introduced	21	49
Pigweed	<i>Chenopodium album</i>	Vegetative	Introduced	SNA				Total	43	
Queen Annes Lace	<i>Daucus carota</i>	Vegetative	Native	SNA						
Grass-leaved goldenrod	<i>Euthamia graminifolia</i>	Vegetative	Native	S5						
Prickly Lettuce	<i>Lactuca serriola</i>	Vegetative	Introduced	SNA						
Birds foot Trefoil	<i>Lotus corniculatus</i>	Vegetative	Introduced	SNA						
Sweet White-clover	<i>Melilotus albus</i>	Vegetative	Introduced	SNA						
Common Plantain	<i>Plantago major</i>	Vegetative	Introduced	SNA						
Yellow Dock	<i>Rumex crispus</i>	Vegetative	Introduced	SNA						
Canada Goldenrod	<i>Solidago canadensis</i>	Vegetative	Native	S5						
Early Goldenrod	<i>Solidago juncea</i>	Vegetative	Native	S5						
Chickweed	<i>Stellaria media</i>	Vegetative	Introduced	SNA						
Calico Aster	<i>Symphotrichum lateriflorum</i>	Vegetative	Native	S5						
Common Dandelion	<i>Taraxacum officinale</i>	Vegetative	Introduced	SNA						
Red Clover	<i>Trifolium pratense</i>	Vegetative	Introduced	SNA						
White Clover	<i>Trifolium repens</i>	Vegetative	Introduced	SNA						
Coltsfoot	<i>Tussilago farfara</i>	Vegetative	Introduced	SNA						
Manitoba Maple	<i>Acer negundo</i>	Woody	Native	S5						
Norway Maple	<i>Acer platanoides</i>	Woody	Introduced	SNA						
Sugar Maple	<i>Acer saccharum</i>	Woody	Native	S5						
Freeman's Maple	<i>Acer x freemanii</i>	Woody	Introduced	SNA						
Hackberry	<i>Celtis occidentalis</i>	Woody	Native	S4						
White Ash	<i>Fraxinus americana</i>	Woody	Native	S4						
Green Ash	<i>Fraxinus pennsylvanica</i>	Woody	Native	S4						
Honey Locust	<i>Gleditsia triacanthos</i>	Woody	Native	S2?						
Kentucky Coffeetree	<i>Gymnocladus dioicus</i>	Woody	Native	S2	THR		THR			
Crabapple species	<i>Malus sp</i>	Woody	Introduced	SNA						
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	Woody	Native	S4?						
White Spruce	<i>Picea glauca</i>	Woody	Native	S5						
Colorado Blue Spruce	<i>Picea pungens</i>	Woody	Introduced	SNA						

Common Name	Scientific Name	Type	Native/Introduced	S Rank	COSEWIC	SARA	SARO
White Pine	<i>Pinus strobus</i>	Woody	Native	S5			
Trembling Aspen	<i>Populus tremuloides</i>	Woody	Native	S5			
Fastigate English Oak	<i>Quercus robur</i> 'Fastigiata'	Woody	Introduced	SNA			
Red Oak	<i>Quercus rubra</i>	Woody	Native	S5			
European Buckthorn	<i>Rhamnus cathartica</i>	Woody	Introduced	SNA			
Staghorn Sumac	<i>Rhus typhina</i>	Woody	Native	S5			
Crack Willow	<i>Salix X fragilis</i>	Woody	Introduced	SNA			
Eastern White-cedar	<i>Thuja occidentalis</i>	Woody	Native	S5			
Basswood	<i>Tilia americana</i>	Woody	Native	S5			
American Elm	<i>Ulmus americana</i>	Woody	Native	S5			
Guelder-rose	<i>Viburnum opulus</i>	Woody	Introduced	S5			
Wild Grape	<i>Vitis riparia</i>	Woody	Native	S5			



# **Appendix E**

## **SWH Assessment**

Table E-1: Significant Wildlife Habitat Assessment

HABITAT TYPE	INDICATOR SPECIES	ELC ECOSITE CODES	HABITAT CRITERIA	ASSESSMENT DETAILS
Seasonal Concentration Areas of Animals				
Waterfowl Stopover and Staging Areas (Terrestrial)	American Black Duck, Northern Pintail, Gadwall, Blue-winged Teal, Green-winged Teal, American Wigeon, Northern Shoveler, Tundra Swan	<u>Cultural Meadow</u> - CUM1 <u>Cultural Thicket</u> - CUT1 or THD  Plus, evidence of annual spring flooding from meltwater or run-off within these Ecosites.	Candidate SWH Criteria <ul style="list-style-type: none"><li>Fields with sheet water during Spring (mid-March to May);</li><li>Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl; and</li><li>Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have Spring sheet water.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”;</li><li>Any mixed species aggregations of 100 or more individuals required;</li><li>The area of the flooded field ecosite habitat plus a 100-300 m radius buffer dependent on local site conditions and adjacent land use is the significant wildlife habitat; and</li><li>Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates).</li></ul>	ABSENT - None of the indicator species were observed during the field investigations and no fields containing sheet water during in spring were identified.
Waterfowl Stopover and Staging Areas (Aquatic)	Canada Goose, Cackling Goose, Snow Goose, American Black Duck, Northern Pintail, Northern Shoveler, American Wigeon, Gadwall, Green-winged Teal, Blue-winged Teal, Hooded Merganser, Common Merganser, Lesser Scaup Greater Scaup, Long-tailed Duck, Surf Scoter, White-winged Scoter, Black Scoter, Ring-necked Duck, Common Goldeneye, Bufflehead, Redhead Ruddy Duck, Red-breasted Merganser, Brant, Canvasback, Ruddy Duck	<u>Shallow Marsh</u> - MAS1, MAS2, MAS3  <u>Shallow Water</u> - SAS1, SAM1, SAF1  <u>Swamp</u> - SWD1, SWD2, SWD3, SWD4, SWD5, SWD6, SWD7	Candidate SWH Criteria <ul style="list-style-type: none"><li>Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify; and</li><li>These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water).</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>Aggregations of 100 or more individuals of listed species for 7 days, results in &gt;700 waterfowl use days;</li><li>Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH;</li><li>The combined area of the ELC ecosites and a 100-m radius area is the SWH;</li><li>Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat;</li><li>Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”; and</li><li>Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded).</li></ul>	ABSENT - Aggregations of waterfowl were not observed during field investigations. Marsh communities present within the study area are small and fragmented, not associated with suitable waterbodies and therefore are not considered suitable as a significant staging area.
Shorebird Migratory Stopover Area	Greater Yellowlegs, Lesser Yellowlegs, Marbled Godwit, Hudsonian Godwit, Black-bellied Plover, American Golden- Plover, Semipalmated Plover, Solitary Sandpiper, Spotted Sandpiper, Pectoral Sandpiper, White-rumped Sandpiper, Baird’s Sandpiper, Least Sandpiper, Purple Sandpiper, Stilt Sandpiper, Short-billed Dowitcher, Red-necked Phalarope, Whimbrel, Ruddy, Turnstone, Sanderling, Dunlin	<u>Beach/Bar</u> - BB01, BB02, BBS1, BBS2, BBT1, BBT2 <u>Sand Dune</u> - SD01, SDS2, SDT1 <u>Meadow Marsh</u> - MAM1, MAM2, MAM3, MAM4, MAM5	Candidate SWH Criteria <ul style="list-style-type: none"><li>Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats;</li><li>Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October; and</li><li>Stormwater retention ponds and sewage lagoons are not considered SWH.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>Presence of 3 or more of listed species and &gt;1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period);</li><li>Whimbrel stop briefly (&lt;24 hrs.) during spring migration, any site with &gt;100 Whimbrel used for 3 years or more is significant;</li><li>The area of significant shorebird habitat includes the mapped ELC ecosites plus a 100 m radius area; and</li><li>Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.</li></ul>	ABSENT - None of the indicator species were observed during the field investigations. This habitat type is considered absent within the Study area. The Arva Moraine PSW (portion within the Study area) is not considered suitable as a significant stopover area.
Raptor Wintering Area	Rough-legged Hawk, Red-tailed Hawk, Northern Harrier, American	<u>Hawks/Owls</u> : Combination of ELC Community	Candidate SWH Criteria <ul style="list-style-type: none"><li>The habitat provides a combination of fields and woodlands that provide roosting, foraging and</li></ul>	<b>CANDIDATE</b> - The areas associated with Mimico Creek and the Humber River have the potential

HABITAT TYPE	INDICATOR SPECIES	ELC ECOSITE CODES	HABITAT CRITERIA	ASSESSMENT DETAILS
	Kestrel, Snowy Owl  <u>Special Concern:</u> Short-eared Owl, Bald Eagle	Series; need to have present one Community Series from each land class; <u>Forest</u> - FOD, FOM, FOC <u>Upland (Cultural)</u> - CUM, CUT, THD, CUS, CUW. <u>Bald Eagle:</u> Forest/Swamp series on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area). <u>Forest</u> - FOD, FOM, FOC <u>Swamp</u> - SWD, SWM or SWC	resting habitats for wintering raptors; <ul style="list-style-type: none"><li>Raptor wintering sites need to be &gt;20 ha with a combination of forest and upland;</li><li>Least disturbed sites, idle/fallow or lightly grazed field/meadow with adjacent woodlands;</li><li>Field area of the habitat is to be wind swept with limited snow depth or accumulation; and</li><li>Eagle Sites have open water and large trees ad snags available for roosting.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>One or more Short-eared Owls; One or more Bald Eagles or; at least 10 individuals and two spp. of the listed hawk/owl spp;</li><li>To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds;</li><li>The habitat for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area; and</li><li>Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.</li></ul>	support wintering habitat for raptors. It is noted that the study area alone would unlikely be considered SWH and is being considered in the context of the contiguous, naturalized areas that extend well beyond the study area.
Bat Hibernacula	Big Brown Bat, Tri-coloured Bat	<u>Crevice and Cave</u> - CCR1, CCR2, CCA1, CCA2  <u>Note:</u> buildings are not considered to be SWH.	Candidate SWH Criteria <ul style="list-style-type: none"><li>Hibernacula may be found in abandoned caves, horizontal mine shafts (adits), abandoned underground foundations and areas of limestone bedrock with solution channels known as Karsts;</li><li>Active mine sites should not be considered as SWH; and</li><li>The locations and site characteristics of bat hibernacula are relatively poorly known.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>All sites with confirmed hibernating bats are SWH;</li><li>The area includes 200 m radius around the entrance of the hibernaculum for most developments and 1000 m for wind farms; and</li><li>Studies are to be conducted during the peak swarming period (Aug. - Sept.). Surveys should be conducted following methods outlined in the “Guideline for Wind Power Projects Potential Impacts to Bats and Bat Habitats”.</li></ul>	ABSENT - No caves, mine shafts, underground foundations or other suitable structures are present in the Study area.
Bat Maternity Colonies	Big Brown Bat, Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites.  All ELC ecosites in ELC community Series: <u>Forest</u> - FOD, FOM <u>Swamp</u> - SWD, SWM	Candidate SWH Criteria <ul style="list-style-type: none"><li>Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH);</li><li>Maternity roosts are not found in caves and mines in Ontario;</li><li>Maternity colonies located in Mature deciduous or mixed forest stands with &gt;10/ha large diameter (&gt;25 cm dbh) wildlife trees;</li><li>Female Bats prefer wildlife trees (snags) in early stages of decay class 1 -3 or classes 1 or 2.</li><li>Northern Myotis prefer contiguous tracts of older forest cover for foraging and roosting in snags and trees; and</li><li>Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>Maternity colonies with confirmed use by:<ul style="list-style-type: none"><li>&gt;10 Big Brown Bats;</li><li>&gt;5 Adult female Silver-haired Bats;</li><li>The area of the habitat includes the entire woodland or the forest stand ELC Ecosite containing the maternity colonies; and</li><li>Evaluation methods for maternity colonies should be conducted following methods outlined in the “Guideline for Wind Power Projects Potential Impacts to Bats and Bat Habitats”.</li></ul></li></ul>	<b>CANDIDATE</b> - All treed areas with snags and cavities have the potential to support bat maternity colonies. As a result, all woodlands in the study area are considered to support this habitat type.
Turtle Wintering Areas	Midland Painted Turtle <u>Special Concern:</u> Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles <u>Swamp</u> - SW <u>Marsh</u> - MA <u>Open Water</u> - OA <u>Shallow Water</u> - SA	Candidate SWH Criteria <ul style="list-style-type: none"><li>For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates;</li><li>Over-wintering sites are permanent waterbodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen; and</li><li>Man-made storage ponds such as sewage lagoons or storm water ponds should not be considered SWH.</li></ul>	<b>CANDIDATE</b> - The study area is considered to provide limited habitat for turtle winter areas, although potential habitat may be present in the swamp and marsh communities associated with or near the Humber River. If present, deep-water pools within the Humber River, Mimico Creek and Silver Creek may also provide overwintering habitat.



HABITAT TYPE	INDICATOR SPECIES	ELC ECOSITE CODES	HABITAT CRITERIA	ASSESSMENT DETAILS
		<u>Open Fen</u> - FEO <u>Open Bog</u> - BOO Northern Map Turtle; Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>• Presence of 5 or more over-wintering Midland Painted Turtles is significant;</li><li>• One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant;</li><li>• The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH; and</li><li>• Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sep. - Oct) or spring (Mar. - April). Congregation of turtles is more common where wintering areas are limited and therefore significant.</li></ul>	
Reptile Hibernaculum	Eastern Gartersnake, Northern Watersnake, Northern Red-bellied Snake, Northern Brownsnake, Smooth Green Snake, Northern Ring-necked Snake <u>Special Concern:</u> Milksnake, Eastern Ribbonsnake	Habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator.	Candidate SWH Criteria <ul style="list-style-type: none"><li>• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations;</li><li>• The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH;</li><li>• Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line; and</li><li>• Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>• Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp;</li><li>• Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (e.g. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct);</li><li>• Note: If there are Special Concern species present then the site is SWH; and</li><li>• Note: Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population. Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. As such, the feature in which the hibernacula is located plus a 30 m radius is the SWH.</li></ul>	<b>CANDIDATE</b> - Suitable rock piles, fissures or burrows may be found in any ecosite where there is access to subterranean sites below the frost line. Targeted snake surveys were not completed; however, it is noted that even with surveys it is difficult to confirm this habitat type. In the absence of any surveys, all areas associated with the City's NHS boundary will be considered candidate SWH for reptile hibernaculum.
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	Cliff Swallow, Northern Rough - winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies).	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: <u>Cultural Meadow</u> - CUM1 <u>Cultural Thicket</u> - CUT1, THD <u>Cultural Savannah</u> - CUS1 <u>Bluff</u> - BLO1, BLS1, BLT1 <u>Cliff</u> - CLO1, CLS1, CLT1	Candidate SWH Criteria <ul style="list-style-type: none"><li>• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area;</li><li>• Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, and soil or aggregate stockpiles; and</li><li>• Does not include a licensed/permitted Mineral Aggregate Operation.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>• Presence of 1 or more nesting sites with 8 or more cliff swallow pairs or 50 bank swallow pairs and rough-winged swallow pairs during the breeding season;</li><li>• A colony identified as SWH will include a 50 m radius habitat area from the peripheral nests; and</li><li>• Field surveys to observe and count swallow nests are to be completed during the breeding season (May-July). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".</li></ul>	ABSENT - No suitable banks or cliffs are present in the Study area.
Colonially - Nesting Bird Breeding Habitat (Trees/Shrubs)	Great Blue Heron, Black-crowned Night- Heron, Great Egret, Green Heron	<u>Swamp</u> - SWM2, SWM3, SWM5, SWM6, SWD1, SWD2, SWD3, SWD4, SWD5, SWD6, SWD7 <u>Fen</u> - FET1	Candidate SWH Criteria <ul style="list-style-type: none"><li>• Nests in live or dead standing trees in wetlands, lakes, islands and peninsulas. Shrubs and occasionally emergent vegetation may also be used; and</li><li>• Most nests in trees are 11 to 15 m from ground, near the top of the tree.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>• Presence of 5 or more active nests of Great Blue Heron;</li><li>• The edge of the colony and a minimum 300 m area of habitat or extent of the Forest Ecosite</li></ul>	ABSENT - There were no heronries documented within the study area.

HABITAT TYPE	INDICATOR SPECIES	ELC ECOSITE CODES	HABITAT CRITERIA	ASSESSMENT DETAILS
			<p>containing the colony or any island &lt;15.0 ha with a colony is the SWH; and</p> <ul style="list-style-type: none"> <li>Confirmation of active heronries must be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells.</li> </ul>	
Colonially - Nesting Bird Breeding Habitat (Ground)	Herring Gull, Great Black-backed Gull, Little Gull, Ring-billed Gull, Common Tern, Caspian Tern, Brewer's Blackbird	<p>Any rocky island or peninsula (natural or artificial) within a lake or large river.</p> <p>Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird).</p> <p><u>Meadow Marsh</u> - MAM1-6</p> <p><u>Shallow Marsh</u> - MAS1-3</p> <p><u>Cultural Meadow</u> - CUM</p> <p><u>Cultural Thicket</u> - CUT, THD</p> <p><u>Cultural Savannah</u> - CUS</p>	<p>Candidate SWH Criteria</p> <ul style="list-style-type: none"> <li>Nesting colonies of gulls and terns are on islands or peninsulas (natural or artificial) associated with open water or in marshy areas, lakes or large rivers (two-lined on a 1: 50,000 NTS map); and</li> <li>Brewers Blackbird colonies are found loosely on the ground or in low bushes in close proximity to streams and irrigation ditches within farmlands.</li> </ul> <p>Confirmed SWH Criteria (Field Studies confirm):</p> <ul style="list-style-type: none"> <li>Presence of &gt;25 active nests for Herring Gulls or Ring-billed Gulls, &gt;5 active nests for Common Tern or &gt;2 active nests for Caspian Tern;</li> <li>Presence of 5 or more pairs for Brewer's Blackbird;</li> <li>Any active nesting colony of one or more Little Gull and Great Black-backed Gull is significant;</li> <li>The edge of the colony and a minimum 150 m area of habitat, or the extent of the ELC ecosites containing the colony or any island &lt;3.0 ha with a colony is the SWH; and</li> <li>Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects".</li> </ul>	ABSENT - The study is too urbanized and disturbed to be considered suitable for colonially nesting bird species.
Migratory Butterfly Stopover Areas	Painted Lady, Red Admiral <u>Special Concern:</u> Monarch	<p>Combination of ELC Community Series; need to have present one Community Series from each landclass: Field and Forest</p> <p><u>Cultural Meadow</u> - CUM</p> <p><u>Cultural Thicket</u> - CUT, THD</p> <p><u>Cultural Savannah</u> - CUS</p> <p><u>Forest</u>: FOC, FOD, FOM</p> <p><u>Cultural Plantation</u> - CUP</p> <p>Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.</p>	<p>Candidate SWH Criteria</p> <ul style="list-style-type: none"> <li>A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present and will be located within 5 km of Lake Ontario;</li> <li>The habitat is typically a combination of field and forest and provides the butterflies with a location to rest prior to their long migration south;</li> <li>The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat; and</li> <li>Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes.</li> </ul> <p>Confirmed SWH Criteria (Field Studies confirm):</p> <ul style="list-style-type: none"> <li>The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur; and</li> <li>MUD of &gt;5000 or &gt;3000 with the presence of Painted Ladies or White Admiral's is to be considered significant.</li> </ul>	ABSENT - The study area is not located within 5 km of Lake Ontario and is therefore not eligible to be significant migratory butterfly stopover habitat.
Landbird Migratory Stopover Areas	<p>All migratory songbirds.</p> <p>Canadian Wildlife Service Ontario website: <a href="http://www.ec.gc.ca/nature/default.asp?lang=En&amp;n=421B7A9D-1">http://www.ec.gc.ca/nature/default.asp?lang=En&amp;n=421B7A9D-1</a></p> <p>All migrant raptors species: Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors).</p>	<p>All Ecosites associated with these ELC Community Series;</p> <p><u>Forest</u> - FOC, FOM, FOD</p> <p><u>Swamp</u> - SWC, SWM, SWD</p>	<p>Candidate SWH Criteria</p> <ul style="list-style-type: none"> <li>Woodlots need to be &gt;5 ha in size and within 5 km of Lake Erie and Lake Ontario. If woodlands are rare in an area of shoreline, woodland fragments 2-5 ha can be considered for this habitat;</li> <li>If multiple are located along the shoreline those woodlands &lt;2 km from Lake Ontario are more significant;</li> <li>Sites have a variety of habitats; forest, grassland and wetland complexes;</li> <li>The largest sites are more significant; and</li> <li>Woodlots and forest fragments are important habitats to migrating birds, these features located along the bank and located within 5 km of Lake Erie and Ontario are Candidate SWH.</li> </ul> <p>Confirmed SWH Criteria (Field Studies confirm):</p> <ul style="list-style-type: none"> <li>Use of the woodlot by &gt;200 birds/day and with &gt;35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant; and</li> <li>Studies should be completed during spring (Apr./May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects.</li> </ul>	ABSENT - The study area is not located within 5 km of Lake Ontario and is therefore not eligible to be significant landbird migratory stopover habitat.

HABITAT TYPE	INDICATOR SPECIES	ELC ECOSITE CODES	HABITAT CRITERIA	ASSESSMENT DETAILS
Deer Winter Congregation Areas	White-tailed Deer	All Forested Ecosites with these ELC Community Series; <u>Forest</u> - FOC, FOM, FOD <u>Swamp</u> - SWC, SWM, SWD Conifer plantations much smaller than 50 ha may also be used.	Candidate SWH Criteria <ul style="list-style-type: none"> <li>Woodlots need to be &gt;100 ha in size. Or if woodlots are rare in a planning area woodlots &gt; 50 ha;</li> <li>Deer movement during winter in the southern areas of Eco-region 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands;</li> <li>Large woodlots &gt;100 ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha; and</li> <li>Woodlots with high densities of deer due to artificial feeding are not significant.</li> </ul> Confirmed SWH Criteria <ul style="list-style-type: none"> <li>Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF;</li> <li>Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF; and</li> <li>Studies should be completed during winter (Jan/Feb) when &gt;20 cm of snow is on the ground using aerial survey techniques, ground or road surveys or a pellet count deer density survey.</li> </ul>	ABSENT - MNRF did not indicate that any deer winter congregation areas are present in the study area. This habitat type is considered absent.
<b>Rare Vegetation Communities</b>				
Cliffs and Talus Slopes	N/A	Any ELC Ecosite within Community Series: <u>Talus</u> - TAO, TAS, TAT <u>Cliff</u> - CLO, CLS, CLT	Candidate SWH Criteria <ul style="list-style-type: none"> <li>A Cliff is vertical to near vertical bedrock &gt;3 m in height;</li> <li>A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris; and</li> <li>Most cliff and talus slopes occur along the Niagara Escarpment.</li> </ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"> <li>Confirm any ELC Vegetation Type for Cliffs or Talus Slopes.</li> </ul>	ABSENT - None of the listed ecosites are present in the study area.
Sand Barren	N/A	<u>Sand Barren</u> - SBO1, SBS1, SBT1	Candidate SWH Criteria <ul style="list-style-type: none"> <li>Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.</li> </ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"> <li>A sand barren area greater than &gt; 0.5 ha in size;</li> <li>Sand Barrens containing any characteristic plant species should be considered significant;</li> <li>ELC Ecosite Area for the sand barren is the SWH; and</li> <li>Site must not be dominated by exotic or introduced species (&lt;50% vegetative cover exotics).</li> </ul>	ABSENT - None of the listed ecosites are present in the study area.
Alvar	Carex crawei Panicum philadelphicum Eleocharis compressa Scutellaria parvula Trichostema brachiatum	<u>Alvar</u> - ALO1, ALS1, ALT1 <u>Coniferous Forest</u> - FOC1, FOC2 <u>Cultural Meadow</u> - CUM2 <u>Cultural Savannah</u> - CUS2 <u>Cultural Thicket</u> - CUT2-1 <u>Cultural Woodland</u> - CUW2	Candidate SWH Criteria <ul style="list-style-type: none"> <li>An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars may be complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant. Undisturbed alvars can be Phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from patchy to barren with a less than 60% tree cover.</li> </ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"> <li>An Alvar site &gt; 0.5 ha in size;</li> <li>Field studies identify one or more of the 6E Plant Indicator species; and</li> <li>Site must not be dominated by exotic or introduced species (&lt;50%). The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.</li> </ul>	ABSENT - None of the listed ecosites are present in the study area.
Old Growth Forest	N/A	<u>Forest</u> - FOD, FOC, FOM <u>Swamp</u> - SWD, SWC, SWM	Candidate SWH Criteria <ul style="list-style-type: none"> <li>Old Growth forests are characterized by exhibiting the greatest number of old-growth characteristics, such as mature forest with large trees that has been undisturbed. Heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.</li> </ul>	ABSENT - While FOD and FOM communities are present, they are located in an area with a history of disturbance and do not meet minimum interior forest size requirements.



HABITAT TYPE	INDICATOR SPECIES	ELC ECOSITE CODES	HABITAT CRITERIA	ASSESSMENT DETAILS
			Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>Stands 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest;</li><li>Field Studies will determine:<ul style="list-style-type: none"><li>If dominant trees species of the ecosite are &gt;140 years old, then stand is Significant Wildlife Habitat;</li><li>The stand will have experienced no recognizable forestry activities; and</li><li>The area of Forest Ecosites combined to make up the stand is the SWH.</li></ul></li></ul>	
Savannah	N/A	<u>Tallgrass Savannah</u> - TPS1, TPS2 <u>Tallgrass Woodland</u> - TPW1, TPW2 <u>Cultural Savannah</u> - CUS2	Candidate SWH Criteria <ul style="list-style-type: none"><li>A Savannah is related to tallgrass prairie, but includes trees, which vary from 25 - 60% canopy cover. The open areas between the trees are dominated by prairie species, while forest species are found beneath the tree canopy; and</li><li>In ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario).</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>No minimum size to site though remnant sites such as railway right of ways are not considered to be SWH;</li><li>Site must be restored or a natural site;</li><li>Field studies confirm one or more of the Savannah indicator species listed in SWHTG Appendix N should be present;</li><li>Note: Savannah plant spp. list from Ecoregion 7E should be used;</li><li>Area of the ELC Ecosite is the SWH; and</li><li>Site must not be dominated by exotic or introduced species.</li></ul>	ABSENT - None of the listed ecosites are present in the study area.
Tallgrass Prairie	N/A	<u>Open Tallgrass Prairie</u> - TPO1, TPO2	Candidate SWH Criteria <ul style="list-style-type: none"><li>Tallgrass Prairie is an open vegetation with less than &lt;25% tree cover, and dominated by prairie species, including grasses; and</li><li>In ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario).</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>No minimum size to site;</li><li>Site must be restored or a natural site. Remnant sites such as railway ROWs are not considered to be SWH;</li><li>Field studies confirm one or more of the Tallgrass Prairie Indicator Species listed (used Eco-Region 7E in Appendix N) is a SWH;</li><li>Area of the ELC Ecosite is the SWH; and</li><li>Site must not be dominated (e.g. &lt;50%) by exotic or introduced species.</li></ul>	ABSENT - None of the listed ecosites are present in the study area.
Other Rare Vegetation Communities	N/A	<u>S1 - Extremely rare</u> - usually 5 or fewer occurrences in the province, or very few remaining hectares. <u>S2 - Very rare</u> - usually between 5 and 20 occurrences in the province, or few remaining hectares. <u>S3 - Rare to uncommon</u> - usually between 20 and 100 occurrences in the province; may have fewer occurrences, but with some extensive examples remaining.	<ul style="list-style-type: none"><li>ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M;</li><li>The OMNRF/NHIC will have up to date listing for rare vegetation communities;</li><li>Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of the SWHTG; and</li><li>Area of the ELC vegetation type polygon is the SWH.</li></ul>	ABSENT - None of the listed ecosites are present in the study area.
<b>Specialized Habitat for Wildlife</b>				
Waterfowl Nesting Area	American Black Duck, Northern Pintail Northern Shoveler Gadwall,	All upland habitats located adjacent to these wetland ELC Ecosites are	Candidate SWH Criteria	<b>CANDIDATE</b> - The swamp communities located east of the Humber River have the potential to support

HABITAT TYPE	INDICATOR SPECIES	ELC ECOSITE CODES	HABITAT CRITERIA	ASSESSMENT DETAILS
	Blue-winged Teal, Green-winged Teal Wood Duck, Hooded Merganser, Mallard	Candidate SWH.  <u>Shallow Marsh</u> - MAS1, MAS2, MAS3 <u>Shallow Water</u> - SAS1, SAM1, SAF1 <u>Meadow Marsh</u> - MAM1, MAM2, MAM3, MAM4, MAM5, MAM6 <u>Swamp</u> - SWT1, SWT2, SWD1, SWD2, SWD3, SWD4  <b>Note:</b> includes adjacency to Provincially Significant Wetlands.	<ul style="list-style-type: none"><li>• A waterfowl nesting area extends 120 m from a wetland (&gt;0.5 ha)) or a wetland (&gt;0.5ha) and any small wetlands (0.5ha) within 120 m or a cluster of 3 or more small (&lt;0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur;</li><li>• Upland areas should be at least 120 m wide so that predators such as raccoons, skunks, and foxes have difficulty finding nests; and</li><li>• Wood Ducks, and Hooded Mergansers utilize large diameter trees (&gt;40 cm dbh) in woodlands for cavity nest sites.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>• Presence of 3 or more nesting pairs for listed species excluding Mallards, or;</li><li>• Presence of 10 or more nesting pairs for listed species including Mallards;</li><li>• Any active nesting site of an American Black Duck is considered significant;</li><li>• Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”; and</li><li>• A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest.</li></ul>	waterfowl nesting habitat.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Osprey <u>Special Concern Species</u> Bald Eagle	<u>Forest</u> - FOD, FOM, FOC <u>Swamp</u> - SWD, SWM, SWC (directly adjacent to riparian areas - rivers, lakes, ponds and wetlands).	Candidate SWH Criteria <ul style="list-style-type: none"><li>• Nests are associated with lakes, ponds, rivers or wetlands along treed shorelines, islands, or on structures over water;</li><li>• Osprey nests are usually at the top of a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree’s canopy; and</li><li>• Nests located on man-made objects such as telephone or hydro poles will not normally be considered as SWH, however the MNRF District retains discretion regarding significance of constructed nesting platforms.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>• One or more active Osprey or Bald Eagle nests in an area;</li><li>• Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH;</li><li>• For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining large undisturbed shorelines with large trees within this area is important;</li><li>• For Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat 400-800 m is dependent on the site lines from the nest to the development and inclusion of perching and foraging habitat;</li><li>• To be significant the site must be used annually. When found inactive the site must be known to be inactive for &gt;= 3 years or suspected of not being used for &gt; 5 years before being considered not significant;</li><li>• Observational studies to determine nest site use. Perching sites and foraging areas need to be done from early March to mid-August; and</li><li>• Evaluation methods to follow “Bird and Bird Habitats: Guidelines or Wind Power Projects”.</li></ul>	ABSENT - There were no stick nests documented within the study area.
Woodland Raptor Nesting Habitat	Northern Goshawk Cooper’s Hawk Sharp-shinned Hawk, Red-shouldered Hawk, Barred Owl, Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in:  <u>Swamp</u> - SWD, SWC (directly adjacent to riparian areas - rivers, lakes, ponds and wetlands) SWM <u>Coniferous Plantations</u> - CUP3	Candidate SWH Criteria <ul style="list-style-type: none"><li>• All natural or conifer plantation woodland/forest stands &gt;30 ha with 4 ha of interior habitat;</li><li>• Stick nests found in a variety of intermediate-aged to mature. conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers Hawk nest along forest edges sometimes on peninsulas or small off-shore islands; and</li><li>• In disturbed sites, nests may be used again, or a new nest may be in close proximity to old nest.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>• Presence of 1 or more occupied nests from species list is considered significant;</li><li>• Red-shouldered Hawk and Northern Goshawk - A 400 m radius around the nest or 28 ha of suitable habitat is the SWH;</li><li>• Barred Owl - A 200 m radius around the nest is the SWH;</li><li>• Broad-winged Hawk, Coopers Hawk, Great Horned Owl, Red-tailed Hawk - A 100 m radius</li></ul>	ABSENT - None of the requisite ELC communities within the Study area meet the size requirement to support woodland raptor nesting habitat. As such, this habitat type is considered absent and not discussed further.

HABITAT TYPE	INDICATOR SPECIES	ELC ECOSITE CODES	HABITAT CRITERIA	ASSESSMENT DETAILS
			<p>around the nest is the SWH;</p> <ul style="list-style-type: none"><li>• Sharp-Shinned Hawk - A 50 m radius around the nest is the SWH; and</li><li>• Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area.</li></ul>	
Turtle Nesting Areas	Midland Painted Turtle <u>Special Concern Species:</u> Northern Map Turtle Snapping Turtle	<p>Exposed mineral soil (sand or gravel) areas adjacent (&lt;100 m) or within the following ecosites:</p> <p><u>Shallow Marsh</u> - MAS1, MAS2, MAS3 <u>Shallow Water</u> - SAS1, SAM1, SAF1 <u>Open Bog</u> - BOO1 <u>Open Fen</u> - FEO1</p>	<p>Candidate SWH Criteria</p> <ul style="list-style-type: none"><li>• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals;</li><li>• For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH; and</li><li>• Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.</li></ul> <p>Confirmed SWH Criteria (Field Studies confirm):</p> <ul style="list-style-type: none"><li>• Presence of 5 or more nesting Midland Painted Turtles is a SWH;</li><li>• The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100 m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH;</li><li>• Travel routes from wetland to nesting area are to be considered within the SWH. As part of the 30-100 m habitat;</li><li>• One or more Northern Map Turtle or Snapping Turtle nesting is a SWH; and</li><li>• Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is the recommended method.</li></ul>	<p><b>CANDIDATE</b> - Although the requisite ecosites do not appear to be present in the study area, potential habitat may exist along the Humber River, Mimico Creek and Silver Creek if sand and gravel areas are present. In the absence of this information, candidate SWH is considered for those three watercourse areas.</p>
Seeps and Springs	Wild Turkey, Ruffed Grouse, Spruce Grouse, White-tailed Deer, Salamander spp.	<p>Seeps/Springs are areas where groundwater comes to the surface. Often, they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.</p>	<p>Candidate SWH Criteria</p> <ul style="list-style-type: none"><li>• Any forested area (with &lt;25% meadow/field/pasture) within the headwaters of a stream or river system; and</li><li>• Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species.</li></ul> <p>Confirmed SWH Criteria (Field Studies confirm):</p> <ul style="list-style-type: none"><li>• Presence of a site with 2 or more seeps/springs should be considered SWH; and</li><li>• The area of ELC forest ecosite containing the seeps/springs is the SWH. The protection of the function of the feature considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat.</li></ul>	<p><b>ABSENT</b> - No seeps or springs have been confirmed in the study area.</p>
Amphibian Breeding Habitat (Woodland)	Eastern Newt, Blue-spotted Salamander, Spotted Salamander, Gray Treefrog, Spring Peeper, Western Chorus Frog, Wood Frog	<p><u>Forest</u> - FOC, FOM FOD <u>Swamp</u> - SWC SWM SWD</p>	<p>Candidate SWH Criteria</p> <ul style="list-style-type: none"><li>• Presence of a wetland, lake or pond of area &gt;500 m<sup>2</sup> (about 25 m diameter) within or adjacent (within 120 m) to a woodland (no minimum size). The wetland, lake or pond and surrounding forest, would be the Candidate SWH. Some small wetlands may not be mapped and may be important breeding pools for amphibians; and</li><li>• Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.</li></ul> <p>Confirmed SWH Criteria (Field Studies confirm):</p> <ul style="list-style-type: none"><li>• Presence of breeding population of 1 or more of the listed newt/salamander or 2 or more with listed frog species with at least 20 individuals (adults, juveniles, eggs/larval masses) or 2 or more of the listed frog species with call codes of 3;</li><li>• A combination of observational study and call count surveys will be required during the Spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetland; and</li><li>• The habitat is the wetland area plus a 230 m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat.</li></ul>	<p><b>CANDIDATE</b> - All woodlands and swamp communities in the study area have the potential to provide habitat for amphibians. Field studies would be required to confirm presence/absence and significance.</p>
Amphibian Breeding Habitat (Wetlands)	Eastern Newt, American Toad Spotted, Salamander, Four-toed	<p>Typically, these wetland ecosites will be isolated (&gt;120 m) from woodland</p>	<p>Candidate SWH Criteria</p> <ul style="list-style-type: none"><li>• Wetlands &gt; 500 m<sup>2</sup> (about 25 m diameter), supporting high species diversity are significant;</li></ul>	<p><b>ABSENT</b> - There are limited wetlands within the study area and where present, are located within 120 m of</p>



HABITAT TYPE	INDICATOR SPECIES	ELC ECOSITE CODES	HABITAT CRITERIA	ASSESSMENT DETAILS
	Salamander, Blue-spotted Salamander, Gray Treefrog, Western Chorus Frog, Northern Leopard Frog, Pickerel Frog, Green Frog, Mink Frog, Bullfrog	ecosites, however, larger wetlands containing predominantly aquatic species (e.g., Bull Frog) may be adjacent to woodlands.  Swamp - SW Marsh - MA Fen - FE Bog - BO Open Water - OA Shallow Water - SA	some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats; <ul style="list-style-type: none"><li>• Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators; and</li><li>• Bullfrogs require permanent water bodies with abundant emergent vegetation.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>• Presence of breeding population of 1 or more of the listed salamander species or 3 or more of the listed frog or toad species with at least 20 breeding individuals (adults, juveniles, eggs/larval masses) or Wetland with confirmed breeding Bullfrogs is significant;</li><li>• The ELC ecosite area and the shoreline are the SWH;</li><li>• A combination of observational study and call count surveys will be required during the Spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands; and</li><li>• If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Amphibian Movement Corridors are to be considered (see Table 3.10, Animal Movement Corridors).</li></ul>	a woodland and are considered under Amphibian Breeding Habitat (Woodland). As a result, this habitat type is not considered present.
Woodland Area- Sensitive Bird Breeding Habitat	Yellow-bellied Sapsucker, Red-breasted Nuthatch, Veery Blue-headed Vireo, Northern Parula, Black-throated Green Warbler, Blackburnian Warbler, Black-throated Blue Warbler	All Ecosites associated with these ELC Community Series:  Forest - FOC, FOM FOD Swamp - SWC SWM SWD	Candidate SWH Criteria <ul style="list-style-type: none"><li>• Habitats where interior forest breeding birds are breeding, typically large mature (&gt;60 yrs. old) forest stands or woodlots &gt;30 ha; and</li><li>• Interior forest habitat is at least 100 m from forest edge habitat.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>• Presence of nesting or breeding pairs of 3 or more of the listed wildlife species;</li><li>• Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH</li><li>• Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories; and</li><li>• Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.</li></ul>	ABSENT - Interior forest habitat is not present in the study area.
Habitat for Species of Conservation Concern (SoCC)				
Marsh Breeding Bird Habitat	American Bittern, Virginia Rail Sora, Common Moorhen, American Coot Pied-billed Grebe, Marsh Wren, Sedge Wren, Common Loon, Green Heron, Trumpeter Swan  Special Concern: Black Tern Yellow Rail	Marsh - MAM1-6 Shallow Water - SAS1, SAM1, SAF1 Fen - FEO1 Bog - BOO1  For Green Heron: All SW, MA and CUM1 sites.	Candidate SWH Criteria <ul style="list-style-type: none"><li>• Nesting occurs in wetlands;</li><li>• All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present; and</li><li>• For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>• Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species;</li><li>• Note: any wetland with breeding of 1 or more Trumpeter Swans, Black Terns, Green Heron or Yellow Rail is SWH;</li><li>• Area of the ELC ecosite is the SWH;</li><li>• Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats; and</li><li>• Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.</li></ul>	ABSENT - The requisite ecosites are not present in the study area. This habitat type is not considered present.
Open Country Bird Breeding Habitat	Upland Sandpiper, Grasshopper, Sparrow, Vesper Sparrow, Northern Harrier, Savannah Sparrow  Special Concern: Short-eared Owl	Cultural Meadow - CUM1, CUM2	Candidate SWH Criteria <ul style="list-style-type: none"><li>• Large grasslands areas (includes natural and cultural fields and meadows) &gt;30 ha. Field/meadow not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years);</li><li>• Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older; and</li><li>• The indicator bird species are area sensitive requiring larger field/meadow areas than the common Field/meadow species.</li></ul> Confirmed SWH Criteria (Field Studies confirm):	ABSENT - Large grasslands >30 ha are not present within the study area.

HABITAT TYPE	INDICATOR SPECIES	ELC ECOSITE CODES	HABITAT CRITERIA	ASSESSMENT DETAILS
			<ul style="list-style-type: none"><li>• Presence of nesting or breeding of 2 or more of the listed species;</li><li>• A field with 1 or more breeding Short-eared Owls is to be considered SWH;</li><li>• The area of SWH is the contiguous ELC ecosite field areas;</li><li>• Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories; and</li><li>• Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.</li></ul>	
Shrub/Early Successional Bird Breeding Habitat	Indicator Spp: Brown Thrasher, Clay-coloured Sparrow,  Common Spp. Field Sparrow, Black-billed Cuckoo, Eastern Towhee, Willow Flycatcher  <u>Special Concern:</u> Yellow- breasted Chat Golden-winged Warbler	<u>Cultural Thicket</u> - CUT1, CUT2, THD <u>Cultural Savannah</u> - CUS1, CUS2 <u>Cultural Woodland</u> - CUW1, CUW2  Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	Candidate SWH Criteria <ul style="list-style-type: none"><li>• Large field areas succeeding to shrub and thicket habitats &gt;10 ha in size. Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years);</li><li>• Shrub thicket habitats (&gt;10 ha) are most likely to support and sustain a diversity of these species; and</li><li>• Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>• Presence of nesting or breeding of 1 indicator species and at least 2 of the common species;</li><li>• A field with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as SWH;</li><li>• The area of the SWH is the contiguous ELC ecosite area;</li><li>• Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories; and</li><li>• Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”.</li></ul>	ABSENT - Large successional habitat >10 ha is not present within the study area.
Terrestrial Crayfish	Chimney or Digger Crayfish; ( <i>Fallicambarus fodiens</i> )  Devil Crayfish or Meadow Crayfish; ( <i>Cambarus Diogenes</i> )	<u>Meadow Marsh</u> - MAM1-6 <u>Shallow Marsh</u> - MAS1-3 <u>Swamp</u> - SWD, SWT, SWM  CUM1 with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish.	Candidate SWH Criteria <ul style="list-style-type: none"><li>• Wet Meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish;</li><li>• Constructs burrows in marsh, mudflats, meadow, the ground can't be too moist. Can often be found far from water; and</li><li>• Both species are semi-terrestrial burrower, which spends most of its life within burrows consisting of a network of burrows, usually the soil is not too moist so the tunnel is well formed.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>• Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable marsh meadow or terrestrial sites;</li><li>• The area of the ELC polygon is the SWH; and</li><li>• Surveys should be done in adult breeding season (April to late June) and in late summer-early August in nearby temporary or permanent water for juveniles.</li></ul>	<b>CANDIDATE</b> - Habitat for this species may be found in the swamp communities east of the Humber River which may support Chimney Crayfish. Field studies were not completed to verify if burrows were present.
Special Concern and Rare Wildlife Species  All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre (NHIC).	All Special Concern and Provincially Rare (S1, S2, S3, SH) plant and animal species. Lists of these species are tracked by the NHIC	All plant and animal Element Occurrences (EOs) within a 1 km or 10 km grid.  Older EOs were recorded prior to GPS being available, therefore location information may lack accuracy.	Candidate SWH Criteria <ul style="list-style-type: none"><li>• When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites.</li></ul> Confirmed SWH Criteria (Field Studies confirm): <ul style="list-style-type: none"><li>• Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable; and</li><li>• The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g., specific nesting habitat or foraging habitat.</li></ul>	<b>CANDIDATE</b> - There are several SoCC that may be present in the study area, primarily in the areas associated with Mimico Creek, Silver Creek and the Humber River. Species that have the potential to occur are identified in Table E-2.
<b>Animal Movement Corridors</b>				
Amphibian Movement Corridors	Eastern Newt, American Toad, Spotted Salamander, Four-toed Salamander, Blue-spotted Salamander, Gray Treefrog,	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant	Candidate SWH Criteria <ul style="list-style-type: none"><li>• Movement corridors between breeding habitat and summer habitat; and</li><li>• Movement corridors must be determined when Amphibian Breeding Habitat (Wetland) is</li></ul>	<b>CANDIDATE</b> - Candidate SWH for amphibian breeding habitat (woodland) may be present in the swamp communities east of the Humber River. The areas surrounding the swamps include woodlands

HABITAT TYPE	INDICATOR SPECIES	ELC ECOSITE CODES	HABITAT CRITERIA	ASSESSMENT DETAILS
	Western Chorus Frog, Northern Leopard Frog, Pickerel Frog, Green Frog, Mink Frog, Bullfrog	breeding habitat for these species in Table 1.1.	<div>confirmed as SWH.</div> <div>Confirmed SWH Criteria</div> <ul style="list-style-type: none"><li>Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites;</li><li>Corridors should consist of native vegetation, roadless area, no gaps such as fields, waterways or bodies, and undeveloped areas are most significant;</li><li>Corridors should be at least 200 m wide with gaps &lt;20 m and if following riparian area with at least 15 m of vegetation on both sides of waterway;</li><li>Shorter corridors are more significant than longer corridors; however, amphibians must be able to get to and from their summer and breeding habitat; and</li><li>Corridors should have several layers of vegetation and should be unbroken by roads, waterways or bodies and undeveloped areas are most significant.</li></ul>	and the Humber River which may function as an amphibian movement corridor. As a result, candidate SWH for amphibian movement corridors is considered present in the area surrounding the swamp communities and extending to the Humber River.

Definitions

Ecosite - Vegetation community type determined using the Ecological Land Classification (ELC) System for Southern Ontario (Lee et al., 1998).

SWH - Significant Wildlife Habitat

Candidate SWH - Habitat that has the potential to occur and that require field studies to confirm whether they meet the criteria for significance.

Confirmed SWH - Habitat that meets the criteria of significance based on field studies or as identified through the background review from government agencies or other studies.



Table E-2: SoCC Screening

Species		SAR Status		Conservation Rank and Rarity Status						Source	Assessment
Common Name	Scientific Name	National (SARA)	Provincial (ESA, 2007)	National (COSEWIC)	Global (G-rank)	Provincial (S-rank)	Conservation Priorities <sup>1</sup>	Regional Rarity Rank <sup>2</sup>	Local Rarity Rank <sup>3</sup>		
AMPHIBIANS											
American Bullfrog	<i>Lithobates catesbeianus</i>				G5	S4			L2	ORAA	<b>Potential</b> - Suitable habitat may be found in the swamp communities east of the Humber River and surrounding woodlands.
Eastern Red-backed Salamander	<i>Plethodon cinereus</i>				G5	S5			L3	LGL; ORAA	
Gray Treefrog	<i>Hyla versicolor</i>				G5	S5			L2	ORAA	
Mudpuppy	<i>Necturus maculosus</i>				G5	S4			L2	ORAA	
Northern Leopard Frog	<i>Rana pipiens</i>				G5	S5			L3	LGL; ORAA	
Pickerel Frog	<i>Lithobates palustris</i>			NAR	G5	S5			L2	ORAA	
Red-spotted Newt	<i>Notophthalmus viridescens</i>				G5T5	S5			L2	ORAA	
Spotted Salamander	<i>Ambystoma maculatum</i>				G5	S4			L1	ORAA	
Spring Peeper	<i>Pseudacris crucifer</i>				G5	S5			L2	ORAA	
Western Chorus Frog (Carolinian population)	<i>Pseudacris triseriata</i>				G5TNR	S4			L2	ORAA	
Wood Frog	<i>Rana sylvatica</i>				G5	S5			L2	ORAA	
REPTILES											
Eastern Milksnake	<i>Lampropeltis triangulum</i>	SC, Schedule 1		SC	G5	S4			L3	LGL; ORAA	<b>Potential</b> - Habitat for turtles may be found along Mimico Creek, Silver Creek and the Humber River. These areas may also provide habitat for snakes, along with woodlands and meadow communities in the study area.
Eastern Musk Turtle	<i>Sternotherus odoratus</i>		SC	SC	G5	S3			LX		
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>		SC	SC	G5	S4			LX	NHIC; ORAA	
Midland Painted Turtle	<i>Chrysemys picta marginata</i>			SC	G5T5	S4			L3	LGL; ORAA	
Northern Map Turtle	<i>Graptemys geographica</i>	SC, Schedule 1	SC	SC	G5	S3			L2	LGL; ORAA	
Red-bellied Snake	<i>Storeria occipitomaculata</i>				G5	S5			L3	LGL; ORAA	
Snapping Turtle	<i>Chelydra serpentina</i>	SC, Schedule 1	SC	SC	G5	S3			L3	LGL; NHIC; ORAA	
Smooth Greensnake	<i>Opheodrys vernalis</i>				G5	S4			L2	LGL; ORAA	
MAMMALS											
Ermine	<i>Mustela erminea</i>				G5	S5			L3	LGL; AMO	<b>Potential</b> - Habitat for these species may be present in the woodlands in the study area.
Northern Short-tailed Shrew	<i>Blarina brevicauda</i>				G5	S5			L3	LGL; AMO	
BIRDS											
<b>Urban Habitat</b>											
Killdeer	<i>Charadrius vociferus</i>				G5	S5B, S5N	Increase		L4	LGL; OBBA	<b>Potential</b> - This species has the potential to occur in urban areas, particularly meadow communities or parks that are near Mimico Creek, Silver Creek and the Humber River. This species is may also be found in disturbed areas, including construction sites where exposed soils and gravels are present.
<b>Shrub/Successional Habitat</b>											
Brown Thrasher	<i>Toxostoma rufum</i>				G5	S4B	Increase		L3	OBBA	<b>Unlikely</b> - There is limited to no shrub/successional habitat within the study area that would support these species. Breeding bird surveys would be required to confirm presence/absence.
Eastern Towhee	<i>Pipilo erythrophthalmus</i>				G5	S4B	Increase		L3	OBBA	
Field Sparrow	<i>Spizella pusilla</i>				G5	S4B	Increase		L3	OBBA	

Species		SAR Status		Conservation Rank and Rarity Status						Source	Assessment
Common Name	Scientific Name	National (SARA)	Provincial (ESA, 2007)	National (COSEWIC)	Global (G-rank)	Provincial (S-rank)	Conservation Priorities <sup>1</sup>	Regional Rarity Rank <sup>2</sup>	Local Rarity Rank <sup>3</sup>		
Grassland Habitat											
Eastern Kingbird	Tyrannus				G5	S4B	Increase		L4	LGL; OBBA	Unlikely - There is limited grassland habitat within the study area that would support these species. Breeding bird surveys would be required to confirm presence/absence.
Horned Lark	Eremophila alpestris				G5	S5B			L3	OBBA	
Northern Harrier	Circus cyaneus	NAR	NAR		G5	S4B	Maintain Current		L2	OBBA	
Savannah Sparrow	Passerculus sandwichensis				G5	S4B	Increase		L4	OBBA	
Vesper Sparrow	Pooecetes gramineus				G5	S4B	Increase		L3	OBBA	
Woodland Habitat											
American Woodcock	Scolopax minor				G5	S4B	Increase		L3	OBBA	Potential - The woodlands in these study area have the potential to support some of these species. Breeding bird surveys would be required to confirm presence/absence.
Black-billed Cuckoo	Coccyzus erythrophthalmus				G5	S5B	Increase		L3	OBBA	
Brown Creeper	Certhia americana				G5	S5B			L3	OBBA	
Chestnut-sided Warbler	Setophaga pensylvanica				G5	S5B			L3	OBBA	
Eastern Screech-Owl	Megascops asio				G5	S4			L3	OBBA	
Eastern Wood-Pewee	Contopus virens	SC, Schedule 1	SC	SC	G5	S4B	Increase		L4	NHIC; OBBA	
Magnolia Warbler	Setophaga magnolia				G5	S5B			L3	OBBA	
Mourning Warbler	Geothlypis philadelphia				G5	S4B			L3	OBBA	
Nashville Warbler	Oreothlypis ruficapilla				G5	S5B			L3	OBBA	
Northern Flicker	Colaptes auratus				G5	S4B	Increase		L4	LGL; OBBA	
Northern Waterthrush	Parkesia noveboracensis				G5	S5B			L2	OBBA	
Ovenbird	Seiurus aurocapilla				G5	S4B			L2	OBBA	
Pileated Woodpecker	Dryocopus pileatus				G5	S5			L3	OBBA	
Scarlet Tanager	Piranga olivacea				G5	S4B			L3	OBBA	
Sharp-shinned Hawk	Accipiter striatus				G5	S5			L3	OBBA	
Veery	Catharus fuscescens				G5	S4B			L2	OBBA	
White-throated Sparrow	Zonotrichia albicollis				G5	S5B			L3	OBBA	
Winter Wren	Troglodytes hiemalis				G5	S5B			L3	OBBA	
Yellow-bellied Sapsucker	Sphyrapicus varius				G5	S5B			L3	OBBA	
Yellow-billed Cuckoo	Coccyzus americanus				G5	S4B			L3	OBBA	
Yellow-throated Vireo	Vireo flavifrons				G5	S4B			L3	OBBA	
Wetland/Riparian Habitat											
American Bittern	Botaurus lentiginosus				G5	S4B	Assess/Maintain		L3	OBBA	Unlikely - These species may be encountered along Mimico Creek, Silver Creek and/or the Humber River, but likely only as they pass through to more suitable habitat. These species are not expected to be nesting within the study area.
American Black Duck	Anas rubripes				G5	S4	Maintain Current		L3	OBBA	
American Coot	Fulica americana				G5	S4B	Increase		L2	OBBA	
Belted Kingfisher	Ceryle alcyon				G5	S4B	Increase		L4	LGL; OBBA	
Blue-winged Teal	Anas discors				G5	S4	Increase		L3	OBBA	
Canvasback	Aythya valisineria				G5	S1B,S4N	Maintain Current		L2	OBBA	
Common Tern	Sterna hirundo				G5	S4B	Increase		L3	OBBA	
Double-crested Cormorant	Phalacrocorax auritus				G5	S5B			L3	OBBA	
Great Egret	Ardea herodias				G5	S2B	Maintain Current		L3	LGL; OBBA	
Green Heron	Butorides virescens				G5	S4B	Increase		L4	OBBA	
Hooded Merganser	Lophodytes cucullatus				G5	S5B,S5N			L3	OBBA	
Northern Rough-winged Swallow	Stelgidopteryx serripennis				G5	S4B	Increase		L4	LGL; OBBA	

Species		SAR Status		Conservation Rank and Rarity Status						Source	Assessment
Common Name	Scientific Name	National (SARA)	Provincial (ESA, 2007)	National (COSEWIC)	Global (G-rank)	Provincial (S-rank)	Conservation Priorities <sup>1</sup>	Regional Rarity Rank <sup>2</sup>	Local Rarity Rank <sup>3</sup>		
Northern Shoveler	<i>Spatula clypeata</i>				G5	S4			L3	OBBA	
Peregrine Falcon	<i>Falco peregrinus</i>		SC		G4	S3B			L4	OBBA	
Pied-billed Grebe	<i>Podilymbus podiceps</i>				G5	S4B,S4N	Maintain Current		L3	OBBA	
Purple Martin	<i>Progne subis</i>				G5	S4B	Increase		L4	OBBA	
Red-necked Grebe	<i>Podiceps grisegena</i>				G5	S3B,S4N	Assess/Maintain		L3	OBBA	
Sora	<i>Porzana carolina</i>				G5	S4B	Assess/Maintain		L3	OBBA	
Spotted Sandpiper	<i>Actitis macularia</i>				G5	S5	Increase		L4	LGL; OBBA	
Upland Sandpiper	<i>Bartramia longicauda</i>				G5	S4B	Increase		LX	OBBA	
Virginia Rail	<i>Rallus limicola</i>				G5	S5B	Maintain Current		L3	OBBA	
Wood Duck	<i>Aix sponsa</i>				G5	S5	Increase		L4	OBBA	
INVERTEBRATES											
Monarch	<i>Danaus plexippus</i>	SC, Schedule 1	SC	END	G4	S2N, S4B					Potential
Chimney Crayfish	<i>Creaserinus fodiens</i>				G5	S3					Potential
PLANTS											
Balsam Fir	<i>Abies balsamea</i>				G5	S5		R	L3	LGL	Potential
Black Snakeroot	<i>Actaea racemosa</i>				G4	S2		H	LX	NHIC	Unlikely
Blue Cohosh	<i>Caulophyllum thalictroides</i>				G5	S5		U	L3	LGL	Potential
Broad-leaved Sedge	<i>Carex platyphylla</i>				G5	S4S5		U	L3	LGL	Potential
Canada Buffalo-berry	<i>Shepherdia canadensis</i>				G5	S5		R	L2	LGL	Potential
Clammy Ground-cherry	<i>Physalis heterophylla</i>				G5	S4		R	L5	LGL	Potential
Cockspur Hawthorn	<i>Crataegus crus-galli</i>				G5	S4		R	L2	LGL	Potential
Common Juniper	<i>Juniperus communis</i>				G5	S5		R	L3	LGL	Potential
Early Goldenrod	<i>Solidago juncea</i>				G5	S5		R	L5	LGL	Potential
Eastern Ninebark	<i>Physocarpus opulifolius</i>				G5	S5		R	L3	LGL	Potential
Honey-locust	<i>Gleditsia triacanthos</i>				G5	S2?		IR	L+	LGL	Potential
Old-field Cinquefoil	<i>Potentilla simplex</i>				G5	S5		R	L3	LGL	Potential
Old-field Toadflax	<i>Nuttallanthus canadensis</i>				G5	S1		H	L2	NHIC	Unlikely
Marsh Rose	<i>Rosa palustris</i>				G5	S5		R	L2	LGL	Potential
Montane Blue-eyed Grass	<i>Sisyrinchium montanum</i>				G5	S5		R	L4	LGL	Potential
Moonseed	<i>Menispermum canadense</i>				G5	S4		U	L3	LGL	Potential
Prickly Rose	<i>Rosa acicularis</i>				G5	S5		R		LGL	Potential
Red Pine	<i>Pinus resinosa</i>				G5	S5		R	L1	LGL	Potential
Round-leaved Hawthorn	<i>Crataegus chrysocarpa</i>				G5	S5		R	L3	LGL	Potential
Running Strawberry-bush	<i>Euonymus obovatus</i>				G5	S4		C	L3	LGL	Potential
Tamarack	<i>Larix laricina</i>				G5	S5		R	L3	LGL	Potential
Virginia Bluebells	<i>Mertensia virginica</i>				G5	S3		R	L+?	LGL	Potential
Virginia Creeper	<i>Parthenocissus quinquefolia</i>				G5	S4?		R	L5	LGL	Potential
Virginia Spring Beauty	<i>Claytonia virginica</i>				G5	S5		C	L3	LGL	Potential
White Oak	<i>Quercus alba</i>				G5	S5		C	L2	LGL	Potential
White Rattlesnake-root	<i>Nabalus alba</i>				G5	S5		U	L3	LGL	Potential
White Spruce	<i>Picea glauca</i>				G5	S5		U	L3	LGL	Potential
Witch-hazel	<i>Hamamelis virginiana</i>				G5	S4S5		C	L3	LGL	Potential



Definitions, Acronyms and Symbols

<u>Global G-rank</u>
<b>G1:</b> Critically Imperiled (at very high risk of extinction)
<b>G2:</b> Imperiled (at high risk of extinction)
<b>G3:</b> Vulnerable (at moderate risk of extinction)
<b>G4:</b> Apparently Secure (Uncommon but not rare)
<b>G5:</b> Secure (common, widespread and abundant)
<b>G#G#:</b> Range Rank (range of uncertainty about the status of a taxon or ecosystem type)
<b>GU:</b> Unrankable (currently unrankable due to lack of information)
<b>GNR:</b> Unranked (global rank not yet assessed)
<b>GNA:</b> Not Applicable (species is not a suitable target for conservation activities)
<b>T:</b> Denotes that the rank applies to a subspecies or variety
<b>B:</b> Breeding
<b>N:</b> Non-breeding
<b>COSEWIC:</b> Committee on the Status of Endangered Wildlife in Canada
<b>ESA:</b> Endangered Species Act
<b>SARA:</b> Species at Risk Act
<b>SARO:</b> Species at Risk in Ontario
<u>SARA or ESA designation</u>
<b>END</b> - Endangered
<b>THR</b> - Threatened
<b>SC</b> - Special Concern
<b>NAR</b> - Not at Risk

References / Sources

<sup>1</sup> Bird Conservation Strategy for Bird Conservation Region (BCR) 13 in Ontario Region: Lower Great Lakes/St. Lawrence Plain (Environment Canada 2014)

<sup>2</sup> List of the Vascular Plants of Ontario's Carolinian Zone (Ecoregion 7E) (Oldham, 2017).

<sup>3</sup> Flora Species for the TRCA Jurisdiction (TRCA, 2019) & Fauna Ranks and Scores for the TRCA Jurisdiction (TRCA, 2019).

<sup>4</sup>NHIC - Natural Heritage Information Centre (NHIC) Make-a-map Tool (Ministry of Natural Resources and Forestry, 2019)

<sup>5</sup>iNaturalist website available online at https://www.inaturalist.org/ (all projects searched, including NHIC Rare Species of Ontario and Herps of Ontario Projects).

<sup>6</sup>e-Bird website available online at https://ebird.org/map/

<sup>7</sup>Land Information Ontario (LIO) Database. Aquatic Resource Area Data (LIO, 2019)

<sup>8</sup>Fish ON-Line (Ministry of Natural Resources and Forestry, 2019)

<sup>9</sup>ORAA - Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019)

<sup>10</sup>OBBA - Ontario Breeding Bird Atlas (Bird Studies Canada, 2005)

<sup>11</sup>Atlas of the Mammals of Ontario (Dobbyn, 1994)

<sup>12</sup>Natural Heritage Assessment Report: Eglinton Crosstown LRT Transit Project Assessment Study (LGL, 2010)

<u>Provincial S-rank</u>
<b>S1:</b> Critically Imperiled (i.e. fewer than 5 occurrences in the nation and/or province)
<b>S2:</b> Imperiled (i.e. fewer than 20 occurrences in the nation and/or province)
<b>S3:</b> Vulnerable (i.e. 20-80 occurrences in the nation and/or province)
<b>S4:</b> Apparently Secure (uncommon, but not rare in the nation and/or province)
<b>S5:</b> Secure (common, widespread and abundant in the nation and/or province)
<b>SNA:</b> Not Applicable (species is not a suitable target for conservation activities)
<b>SHB:</b> Breeding is not confirmed in Ontario
<b>S#S#:</b> Range Rank (range of uncertainty about the status of the species or community)
<b>S#?:</b> Rank is Uncertain
<b>S?:</b> Not Ranked Yet
<b>B:</b> Breeding migrants/vagrants
<b>N:</b> Non-breeding migrants/vagrants
<u>Local Rarity (TRCA)<sup>3</sup></u>
<b>L1:</b> Species of Regional Conservation Concern (regionally scarce due to either accidental occurrence or extreme sensitivity to human impacts)
<b>L2:</b> Species of Regional Conservation Concern (somewhat more abundant and generally slightly less sensitive than L1 species)
<b>L3:</b> Species of Regional Conservation Concern (generally less sensitive and more abundant than L1 and L2 ranked species)
<b>L4:</b> Species of Urban Concern (occur throughout the region but could show declines if urban impacts are not mitigated effectively)
<b>L5:</b> Species that are considered secure throughout the region
<b>L+:</b> Introduced species (not native to the Toronto region)
<b>LX:</b> Extirpated species (species not recorded in the region in the past 10 years)
<b>LS:</b> Sporadic breeder (species not recorded in the region in the past 10 years)
<b>L+?:</b> Species is probably introduced

<u>Conservation Priorities<sup>1</sup></u>
<b>Recovery Objective</b> - Species at Risk
<b>Increase</b> - Population in decline
<b>Maintain Current</b> - Appears to be stable or increasing
<u>Regional Rarity (Carolinian Canada)<sup>2</sup></u>
<b>R</b> - Rare

# **Appendix F**

## **SAR Screening**

Table F1: SAR Assessment

Species		SAR Status		Source	Habitat	Assessment
Common Name	Scientific Name	National (SARA)	Provincial (ESA, 2007)			
REPTILES						
Blanding's Turtle	<i>Emydoidea blandingii</i>	THR (Great Lakes/St. Lawrence population)	THR	ORAA	Inhabit a variety of wetlands, including marshes, swamps, ponds, bogs, slow-flowing streams, shallow bays of lakes or rivers, graminoid shallow marsh and slough forests adjacent to larger wetland complexes. Overwintering habitat includes permanent bogs, fens, marshes, ponds and other open water habitats that don't freeze over in the winter.	<b>Potential</b> - ORAA has recent records of this species from 2017 within the 10 km <sup>2</sup> map squares (17PJ13, 17PJ23) that overlap the study area. Potential habitat for this species may be present in the areas surrounding Mimico Creek, Silver Creek and the Humber River.  Additional studies may be needed to confirm presence/absence and habitat potential, particularly if encroachment of these areas will occur.
Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>	THR, Schedule 1	THR	ORAA	The Eastern Hog-nosed Snake specializes in hunting and eating toads, and usually only occurs where toads can be found. Eastern Hog-nosed Snakes prefer sandy, well-drained habitats such as beaches and dry forests where they can lay their eggs and hibernate. They use their up-turned snout to dig burrows below the frost line in the sand where eggs are deposited. (Ontario, 2016).	<b>Unlikely</b> - ORAA has historical records of this species from 1916 within the 10 km <sup>2</sup> map square (17PJ23) that extends from Scarlett Road east to Mount Pleasant Road. Habitat for this species is limited to the naturalized areas associated with Silver Creek, Mimico Creek and the Humber River. This species is likely extirpated from the area as it has not been recorded in over 100 years.
Queensnake	<i>Regina septemvittata</i>	END, Schedule 1	END	NHIC	Inhabits waterbodies such as streams, rivers and lakes where crayfish are abundant. Prefers clear water, rocky or gravel bottoms and areas with abundant cover.	<b>Unlikely</b> - NHIC has historical records of this species from 1858 within the 1 km <sup>2</sup> map square (17PJ2238) near the eastern limit of the study area, beyond the project footprint. While there is potential habitat associated with the Humber River, this species is likely extirpated from this area as it has not been recorded in over 160 years.
MAMMALS						
Eastern Small-footed Myotis	<i>Myotis leibii</i>		END	AMO	Roosts in caves, mine shafts, crevices or buildings that are in or near woodland; hibernates in cold dry caves or mines; maternity colonies in caves or buildings; hunts in forests (MNRF, 2000).	<b>Potential</b> - All woodlands within the study area have the potential to provide habitat for bats.  Additional studies may be needed to confirm presence/absence and whether habitat extends within the project footprint or if it's limited to the study area.
Little Brown Myotis	<i>Myotis lucifugus</i>	END, Schedule 1	END	AMO	Uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges (MNRF, 2000). Roosts in crevices and cavities in dead or dying trees, or sometimes beneath naturally loose bark on species like Shagbark Hickory (MNRF, 2017).	
Northern Myotis	<i>Myotis septentrionalis</i>	END, Schedule 1	END	AMO	Hibernates during winter in mines or caves; during summer males roost alone and females form maternity colonies of up to 60 adults; roosts in houses, manmade structures but prefers hollow trees or under loose bark; hunts within forests, below canopy (MNRF, 2000).	
Tricolored Bat	<i>Perimyotis subflavus</i>	END, Schedule 1	END	AMO	Open woods near water; roosts in trees, cliff crevices, buildings or caves; hibernates in damp, draft-free, warm caves, mines, or rock crevices (MNRF, 2000). Prefers roosts in foliage within or below the canopy, mostly in oak species but also sometimes in maples. Clusters of dead or dying leaves on live branches are preferred (MNRF, 2017).	
BIRDS						
Acadian Flycatcher	<i>Empidonax virescens</i>	END, Schedule 1	END	OBBA	Inhabits mature forests and maple-beech dominated swamps.	<b>Unlikely</b> - There is limited to no habitat potential within the study area. There are no recent records of this species based on the background review, including e-bird.



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Species		SAR Status		Source	Habitat	Assessment
Common Name	Scientific Name	National (SARA)	Provincial (ESA, 2007)			
Bank Swallow	<i>Riparia riparia</i>	THR, Schedule 1	THR	E-bird; NHIC	Nest in natural and human-made setting where there are vertical faces in silt and sand deposits, often on banks of rivers or lakes.	<b>Potential</b> - NHIC has recent records of this species from 2017 within the 1 km <sup>2</sup> map squares (17PJ1837, 17PJ1937, 17PJ2037) near Silver Creek eastward to Jane Street. E-bird did not have any recent records of this species in the study area, although there were 2017 records near the western limit in August within a residential community, confirming that Bank Swallows are in the area. Habitat potential may be present in the areas surrounding Mimico Creek, Silver Creek and the Humber River. Additional studies may be needed to confirm presence/absence and whether habitat extends within the project footprint or if it's limited to the study area.
Barn Owl	<i>Tyto alba</i>	END, Schedule 1	END	OBBA	Inhabits grasslands, farmlands, fallow fields and meadows.	<b>Unlikely</b> - There are no recent records of this species within the study area (e.g., e-bird). Habitat for this species is not considered present. The meadow communities present within the study would not be suitable for this species.
Barn Swallow	<i>Hirundo rustica</i>	THR, Schedule 1	THR	LGL; E-bird; NHIC; OBBA	Barn Swallows often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. They prefer unpainted, rough-cut wood as mud does not adhere as well to smooth surfaces.	<b>Potential</b> - There are recent records from NHIC (2017) and e-bird (2019) of this species throughout the study area. This species was also documented by LGL in 2008 and/or 2009 where active nests were observed at the Dixon Road Bridge and Black Creek Bridge. All bridge and concrete culvert structures may provide suitable nesting habitat within the study area.  Additional studies may be needed to confirm presence/absence and whether habitat extends within the project footprint or if it's limited to the study area.
Bobolink	<i>Dolichonyx oryzivorus</i>	THR, Schedule 1	THR	OBBA	Tall grasslands, such as pastures and hayfields or shrubby overgrown fields or other open areas.	<b>Unlikely</b> - There are no recent records of this species within the study area (e.g., e-bird). Habitat for this species is not considered present. The meadow communities present within the study would not be suitable for this species.
Chimney Swift	<i>Chaetura pelagica</i>	THR, Schedule 1	THR	LGL; E-bird; OBBA	Urban settlements in chimneys or other manmade structures.	<b>Potential</b> - There are recent records from e-bird from 2019 of this species throughout the study area. This species nests in manmade structures, which may include bridges. LGL noted this species in 2008 and/or 2009 near the Black Creek bridge. Additional studies may be needed to confirm presence/absence and whether nesting habitat is present within the project footprint or if habitat is limited to foraging.
Eastern Meadowlark	<i>Sturnella magna</i>	THR, Schedule 1	THR	OBBA	Tall grasslands, such as pastures and hayfields or shrubby overgrown fields or other open areas.	<b>Unlikely</b> - There is no suitable habitat for this species within the study area. LGL documented this species near the Airport in 2009. It is unknown if this species was migrating, foraging or nesting; however, based on current conditions in the area, suitable habitat does not appear present. Furthermore, there are no recent records of this species based on the background review (e.g., e-bird, NHIC).
Henslow's Sparrow	<i>Ammodramus henslowii</i>	END, Schedule 1	END	NHIC; OBBA	Inhabits open fields with tall grasses, flowering plants, and a few scattered shrubs.	<b>Unlikely</b> - NHIC has historical records of this species from 1932 within the 1 km <sup>2</sup> map squares (17PJ1336, 17PJ1335) near the airport. Suitable habitat for this species is not present and there have been no recent records of this species in over 60 years.
<b>INVERTEBRATES</b>						
American Burying Beetle*	<i>Nicrophorus americanus</i>	EXP, Schedule 1	EXP	NHIC	Undisturbed deciduous forests, although it has been found in other habitat types where soil and carrion availability is present.	<b>Unlikely</b> - NHIC has historical records of this species from 1896 within the 1 km <sup>2</sup> map square (17PJ2238) near the eastern limit of the study area, beyond the project footprint. The surrounding area is very developed with limited woodlands. This species is considered extirpated and is unlikely to be present within the study area.

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Species		SAR Status		Source	Habitat	Assessment
Common Name	Scientific Name	National (SARA)	Provincial (ESA, 2007)			
FISH						
Redside Dace	<i>Clinostomus elongatus</i>		END	NHIC; ARA	Pools and slow-moving coolwater clear streams composed of rock, gravel or sand substrate, where shrubs and trees provide overhead cover.	<b>Unlikely</b> - NHIC (1949) and ARA (1972) have records of this species within Mimico Creek and the Humber River, representatively. MECP has confirmed these records are historical and that this species is absent from the study area.
PLANTS						
Butternut	<i>Juglans cinerea</i>	END, Schedule 1	END	NHIC	Found in a variety of habitats and conditions, including deciduous and mixed upland and lowland forests as well as streambanks with well-drained soils. (Poisson and Ursic, 2013).	<b>Potential</b> - NHIC has a record of this species from 2002 within the 1 km² map square (17PJ2137) east of Jane and south of Eglinton Ave. W., beyond the project footprint. Although there are no confirmed records of this species based on the 2019 tree inventory and past studies, suitable habitat is present in the areas surrounding Mimico Creek, Silver Creek and Humber River.  Additional surveys may be required in those areas to confirm presence/absence.
Kentucky Coffeetree	<i>Gymnocladus dioicus</i>	THR, Schedule 1	THR	Parsons	Found in a variety of habitats, but grows best on moist, rich soil. Consequently, it is often found in floodplains, though it will tolerate shallow rocky or sandy soils. This species is shade-intolerant, and therefore grows along the edges of woodlots or relies on canopy openings in forests and woodlots.	<b>Confirmed/Planted</b> - This species was documented by Parsons during the 2019 tree inventory. As this species was planted and not as part of any compensation requirement, this species is exempt from the provisions under the ESA.

**Definitions, Acronyms and Symbols**

COSEWIC: Committee on the Status of Endangered Wildlife in Canada  
ESA: Endangered Species Act  
SARA: Species at Risk Act  
SARO: Species at Risk in Ontario

**SARA or ESA Designation**

END - Endangered  
THR - Threatened  
SC - Special Concern

**Sources**

1. LGL - 2010 Natural Heritage Assessment Report. Appendix G to the Environmental Project Report;
2. NHIC - Natural Heritage Information Centre (NHIC) Make-a-map Tool (Ministry of Natural Resources and Forestry, 2019);
3. ORAA - Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019);
4. OBBA - Ontario Breeding Bird Atlas (Bird Studies Canada, 2005);
5. e-Bird website available online: <https://ebird.org/map/>;
6. AMO - Atlas of the Mammals of Ontario (Dobbyn, J.S. 1994); and
7. ARA - Aquatic Resource Areas Land Information Ontario (LIO) GIS dataset.