

Appendix A1

Ontario Line Project

**East Harbour Early Works – Natural
Environment Early Works Report**

Metrolinx

Natural Environment Early Works Report

Ontario Line East Harbour Station Early Works

Prepared by:

AECOM Canada Ltd.
105 Commerce Valley Drive West, 7th Floor
Markham, ON L3T 7W3
Canada

T: 905.886.7022
F: 905.886.9494
www.aecom.com

Date: November 2021

Project Number: 60611173

Statement of Qualifications and Limitations

The attached Report (the “Report”) has been prepared by AECOM Canada Ltd. (“AECOM”) for the benefit of the Client (“Client”) in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the “Agreement”).

The information, data, recommendations and conclusions contained in the Report (collectively, the “Information”):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the “Limitations”);
- represents AECOM's professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to AECOM which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

AECOM shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. AECOM accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

AECOM agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but AECOM makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by AECOM represent AECOM's professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since AECOM has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, AECOM, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own risk.

Except (1) as agreed to in writing by AECOM and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

AECOM accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information (“improper use of the Report”), except to the extent those parties have obtained the prior written consent of AECOM to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

Authors

Report Prepared By:

A handwritten signature in black ink, appearing to read 'Olga Hropach'.

Olga Hropach, B.Sc. (Hons)
Terrestrial Ecologist

Report Reviewed By:

A handwritten signature in black ink, appearing to read 'Wendy Ott'.

Wendy Ott, B.Sc., Dipl. ET., C.E.T.
Senior Environmental Scientist

A handwritten signature in black ink, appearing to read 'Jarrod Radoslav'.

Jarrod Radoslav, MES
Environmental Planner

A handwritten signature in blue ink, appearing to read 'Sarah Schmied'.

Sarah Schmied, B.Sc., B.Ed.
Environmental Planner

Report Approved By:

A handwritten signature in black ink, appearing to read 'Nicole Cooke'.

Nicole Cooke, MES
Senior Environmental Planner

Executive Summary

ES.1 Ontario Line East Harbour Station Early Works

The Ontario Line Project (the Project) is being assessed in accordance with Ontario Regulation 341/20: Ontario Line Project under the Environmental Assessment Act. Ontario Regulation 341/20: Ontario Line Project outlines a Project-specific environmental assessment process that includes an Environmental Conditions Report, Environmental Impact Assessment Report, and an opportunity for Early Works Report(s) for assessment of works that are ready to proceed in advance of the Environmental Impact Assessment Report. The Environmental Conditions Report documents the local environmental conditions of the Ontario Line Study Area and provides a preliminary description of the potential environmental impacts from the Project. Information outlined in the Existing Conditions Report is used to inform the Early Works Reports(s) and Environmental Impact Assessment Report, which study environmental impacts in further detail and confirm and refine preliminary mitigation measures identified in the Existing Conditions Report.

Ontario Line early works are components of the Project that are proposed to proceed before the completion of the Ontario Line environmental impact assessment process. An overview of the Project is provided in **Section 1.2**. Early works are defined in Ontario Regulation 341/20: Ontario Line Project under the Environmental Assessment Act as follows:

“any components of the Ontario Line Project that Metrolinx proposes to proceed with before the completion of the Ontario Line assessment process, such as station construction, rail corridor expansion, utility relocation or bridge replacement or expansion.”

East Harbour Station early works are considered to be of strategic importance in enabling the timely implementation of the Project. These early works are being advanced in an area where the Project interfaces with GO Expansion. Advancing early works and supporting environmental and technical studies in this area provides planning and design efficiencies for the Project and GO Expansion and facilitates the timely implementation of both.

AECOM Canada Limited (AECOM) was retained by Metrolinx and Infrastructure Ontario to complete the Ontario Line East Harbour Station Early Works Report for the Project. This Final Natural Environment Early Works Report (this Report) supports the Ontario Line Final East Harbour Station Early Works Report and has been prepared for the Project to document the assessment of East Harbour Station early works (**Figure ES-1**).

The East Harbour Station early works will include:

- Reconfiguration of the existing Lakeshore East GO tracks to accommodate station facilities and future Ontario Line tracks;
- Construction of station facilities such as platforms and entrances;
- Replacement and expansion of the existing Eastern Avenue rail bridge to accommodate four Lakeshore East GO tracks and two future Ontario Line tracks; and
- Site preparation activities such as grading, demolition of existing structures where required, and utility relocation or protection.

The East Harbour Station early works components and construction activities are further described in **Section 1.3**. East Harbour Station was previously assessed through the SmartTrack program in 2018 and since the completion of that assessment, changes have been made to the project to accommodate the Ontario Line, documented within this report.

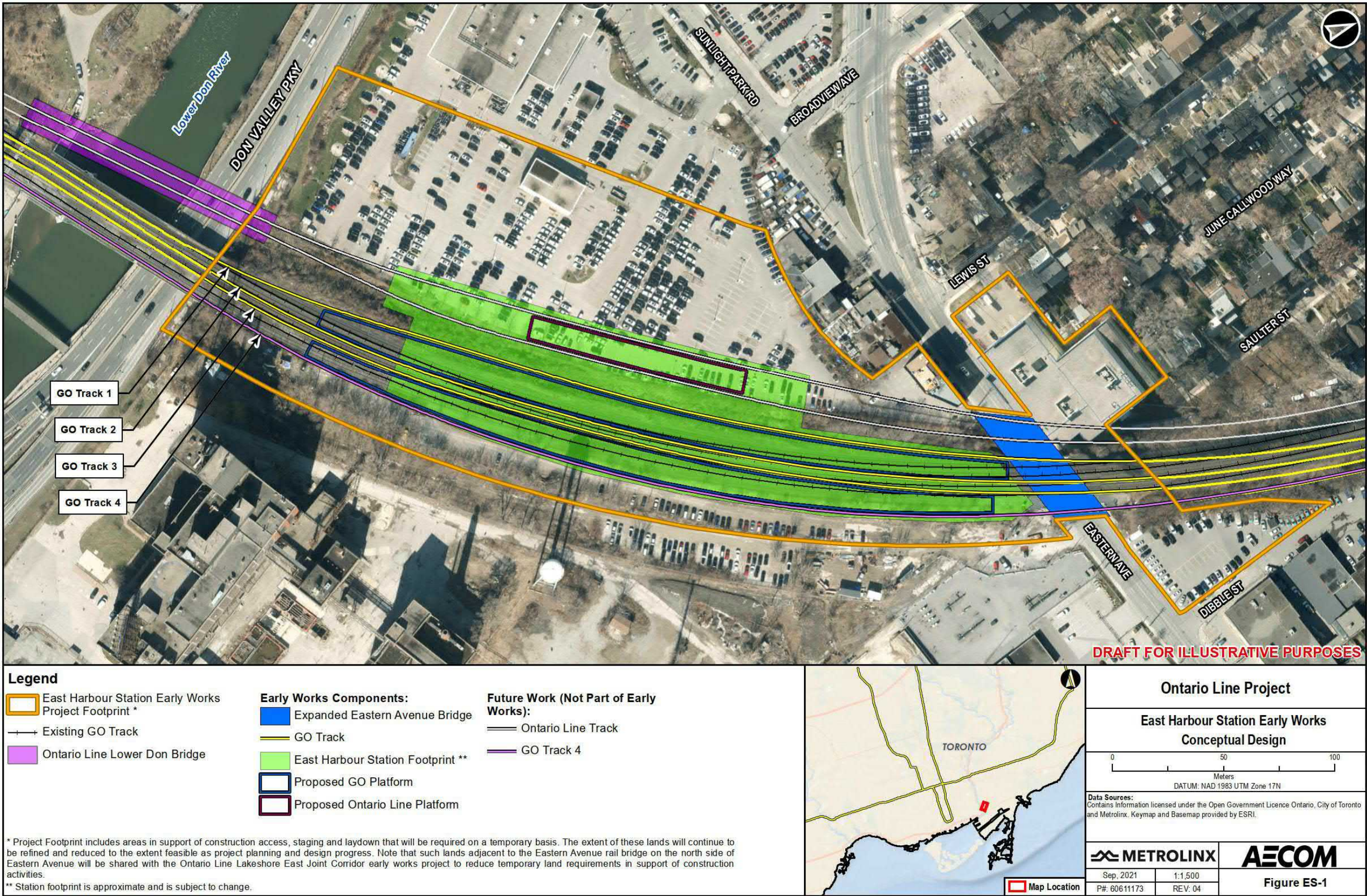
The purpose of this Report is to:

- Document the existing natural heritage features (aquatic and terrestrial resources) within the East Harbour Station Study Area;
- Conduct an impact assessment based on the identified natural heritage features, including criteria for assessment and evaluation of impacts;
- Develop applicable mitigation measures and monitoring requirements;
- Identify anticipated authorizations required for the Project; and
- Identify additional surveys to be completed in support of anticipated regulatory authorizations.

This Report supports the Ontario Line East Harbour Station Early Works Report prepared for East Harbour Station early works in accordance with Ontario Regulation 341/20: Ontario Line Project.

Refer to **Section 1** of this Report for more information related to the Project and a detailed early works description.

Figure ES-1: East Harbour Station Early Works Conceptual Design



ES.2 Methodology

This Report documents the assessment of East Harbour Station early works construction impacts. Impacts associated with Project operations will be addressed as part of the Environmental Impact Assessment Report under a separate cover. Detailed methodology is provided in **Section 2**.

Local Environmental Conditions

AECOM has completed a desktop background review of secondary source information to establish local natural environment conditions within the East Harbour Station Study Area.

Background review included information from a variety of sources such as the Ontario Ministry of Natural Resources and Forestry, Ontario GeoHub base mapping data (Ministry of Natural Resources and Forestry, 2020; Land Information Ontario, 2017; Ministry of Natural Resources and Forestry, 2017a; Ministry of Natural Resources and Forestry, 2017b) and the City of Toronto and Toronto and Region Conservation Authority Open Data Portals.

Field investigations were not completed for the East Harbour Station Study Area as lands within the East Harbour Station Early Works Study Area were recently investigated in 2016 to support other Metrolinx projects (i.e., Union Station Rail Corridor East Enhancements and Lakeshore East Rail Corridor Expansion [Don River to Scarborough GO Station]). The survey results were reviewed and summarized to supplement the established existing conditions within the East Harbour Station Study Area and were deemed to be sufficient to support the East Harbour Station early works natural environment impact assessment.

Field data such as general habitat conditions and habitat characteristics were collected from secondary sources to identify the presence of Significant Wildlife Habitat within the East Harbour Station Study Area based on the habitat criteria identified in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015). Confirmed Significant Wildlife Habitat was identified based on secondary sources. Candidate Significant Wildlife Habitat refer to potential habitats that meet the habitat criteria as defined in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015) but have not been confirmed as significant through additional detailed studies.

The potential for Species at Risk and Species of Conservation Concern to occur within the East Harbour Station Study Area was determined by comparing species habitat requirements to the habitat conditions present on-site and using the results of the

background information review and field investigations (described in **Section 4**) to apply the following rankings:

- **Low Probability:** neither species nor suitable habitat observed through field investigations but there is a known species record in the general area;
- **Medium Probability:** species not observed; however, potentially suitable habitat identified through field investigations and there is a known species record in the general area; and
- **High Probability:** good quality Species at Risk habitat identified (e.g., sufficiently large areas of suitable vegetation and presence of key features such as nesting sites), and known species record in the East Harbour Station Study Area (either through current or previous field investigations).

Impact Assessment

This early works impact assessment and development of mitigation measures and monitoring activities considered the following in accordance with Ontario Regulation 341/20: Ontario Line Project under the Environmental Assessment Act:

- East Harbour Station early works components as described in **Section 1.3.1**;
- The East Harbour Station Early Works Project Footprint and East Harbour Station Study Area as described in **Section 1.3.2**;
- East Harbour Station early works construction activities as described in **Section 1.3.3**; and
- Local environmental conditions within the East Harbour Station Study Area as described in **Section 4**.

For the purpose of this impact assessment, as a conservative approach, all vegetation communities and buildings overlapping with the East Harbour Station Early Works Project Footprint were assumed to be permanently removed during the construction phase.

ES.3 Local Environmental Conditions

The local natural environment conditions within the East Harbour Station Study Area are summarized below. Local environmental conditions are further described in **Section 4**.

Designated Natural Areas

According to the Ministry of Natural Resources and Forestry's GeoHub Mapping (2020), there are no Provincially Significant Wetlands, Locally Significant Wetlands, significant valleylands or provincially significant Areas of Natural and Scientific Interest within the

East Harbour Station Study Area. In addition, there are no woodlands or unevaluated wetlands within the East Harbour Station Study Area as mapped by Ontario Ministry of Natural Resources and Forestry.

Planning Policy Areas

According to the City of Toronto's Interactive Map (City of Toronto, 2020a), the East Harbour Station Early Works Project Footprint falls within the City of Toronto's Natural Heritage System (1.43 hectares), and Toronto and Region Conservation Authority's regulation limits (5.16 hectares). The Lower Don River is designated as an Urban River Valley under the Greenbelt Plan, of which 0.43 hectares overlaps the footprint. The East Harbour Station Early Works Project Footprint is not located within the City of Toronto Ravine and Natural Feature Protection By-law area. The Toronto and Region Conservation Authority Terrestrial Natural Heritage System and the City of Toronto Environmentally Significant Areas are located outside of the East Harbour Station Study Area.

Ecological Land Classification and Plant Inventory

All of the vegetation communities in the East Harbour Station Study Area are generally disturbed as a result of anthropogenic activities and are largely limited to narrow vegetation strips within the existing rail corridor and along the Lower Don River, which are surrounded by heavily developed commercial, industrial and residential areas. These vegetation communities contain large proportions of non-native and invasive plant species and none were identified as being provincially significant (AECOM, 2017; AECOM, 2018; 4Transit, 2018b).

Fish and Fish Habitat

The East Harbour Station Study Area contains the Lower Don River which flows under the Lakeshore East rail bridge.

Based on the background information review, it was found that the Lower Don River within the East Harbour Station Study Area provides direct fish habitat important for migration, feeding and refuge. However, conditions are generally non-limiting throughout with no specialized (critically limiting spawning) habitat identified (AECOM, 2017; 4Transit, 2018b). No barriers to fish use were identified. Migratory species (e.g., Chinook Salmon) use the Lower Don River as a seasonal migratory corridor to and from Lake Ontario (AECOM, 2017).

Thirty-three species of fish are known to occur within the Lower Don River (Toronto and Region Conservation Authority, 2020a; HDR, 2018; AECOM, 2017). The fish community is composed of mainly tolerant warmwater fish species (HDR, 2018).

Wildlife and Wildlife Habitat

Most of the bird species recorded in the East Harbour Station Study Area consisted of common species in Ontario that are tolerant to urban disturbances except for Barn Swallow (*Hirundo rustica*) and Chimney Swift (*Chaetura pelagica*), both Species at Risk birds protected under the Endangered Species Act, noted flying over the existing rail corridor (AECOM, 2017). It is important to note that isolated trees and shrubs, vegetation communities and anthropogenic structures (e.g., buildings, bridges) can provide nesting habitat for many migratory birds, which are protected under the Migratory Birds Convention Act. The general area likely supports a range of mammals often found in urban environments, including: Common Raccoon (*Procyon lotor*), Eastern Cottontail (*Sylvilagus floridanus*), Eastern Grey Squirrel (*Sciurus carolinensis*), Striped Skunk (*Mephitis mephitis*), and a number of small mammals that often go undetected (e.g., shrews, voles, mice) (Dobbyn, 1994).

Significant Wildlife Habitat

Based on review of the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015), the following Significant Wildlife Habitat types may occur within the East Harbour Station Study Area.

- **Habitats of Species of Conservation Concern:**
 - **Confirmed Habitat for Species of Conservation Concern:**
 - Northern Map Turtle (*Graptemys geographica*)
 - **Candidate Habitat for Species of Conservation Concern:**
 - Common Nighthawk (*Chordeiles minor*)
 - Eastern Wood-pewee (*Contopus virens*)
 - Monarch (*Danaus plexippus*)
 - Snapping Turtle (*Chelydra serpentina*)

There were no candidate or confirmed seasonal concentration areas, rare vegetation communities, specialized habitat for wildlife or animal movement corridors identified within the East Harbour Station Study Area. Although the Lower Don River within the East Harbour Station Study Area acts as a movement corridor for some urban wildlife, it does not qualify as a candidate animal movement (amphibian or deer) corridor based on the criteria described in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015) due to high levels of urbanization, fragmentation and barriers to animal movements (i.e., railways, roads, construction areas, fences).

Species at Risk Habitat Screening

The following Species at Risk have a high probability of occurring within the East Harbour Station Study Area:

- **Barn Swallow** – This species is listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. According to 4Transit (2018b), Barn Swallows were observed foraging in the vicinity of the rail bridge crossing the Lower Don River suggesting that active nests may be present under this bridge. The buildings within the East Harbour Station Study Area were deemed to have limited potential to support nesting Barn Swallows, however field surveys will be required to determine if Barn Swallow nests are present on the buildings or bridge.
- **Chimney Swift** – Based on review of available online secondary source information, there is one confirmed Chimney Swift site within the East Harbour Station Study Area. No chimneys or smokestacks are visibly present in the East Harbour Station Early Works Project Footprint based on background review sources.

The following Species at Risk have a medium probability of occurring within the East Harbour Station Study Area:

- Eastern Small-footed Myotis (*Myotis leibii*);
- Little Brown Myotis (*Myotis lucifugus*);
- Northern Long-eared Myotis (*Myotis septentrionalis*);
- Tri-colored Bat (*Perimyotis subflavus*); and
- Butternut (*Juglans cinerea*).

ES.4 Potential Impacts, Mitigation Measures and Monitoring Activities

Section 5 includes information related to potential impacts, mitigation measures, and monitoring activities for the East Harbour Station early works. Potential impacts may result from early works construction activities, including general vegetation and habitat loss, soil contamination, erosion and sedimentation, decrease of habitat connectivity for wildlife, and impacts to fish and fish habitat. Mitigation measures and monitoring activities are recommended to reduce the potential impacts during construction.

Refer to **Table ES-1** for a complete list of potential impacts, mitigation measures, and monitoring activities for the East Harbour Station early works.

Section 6 provides a list of potential future surveys to be completed prior to construction of the East Harbour Station early works.

Table ES-1: Potential Impacts, Mitigation Measures and Monitoring Activities for the East Harbour Station Early Works

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Designated Natural Areas	■ No potential impacts as there are no Designated Natural Areas within 120 metres of the East Harbour Station Early Works Project Footprint	■ None Required.	■ None Required.
Policy Area – City of Toronto Natural Heritage System	■ Vegetation removal within the City of Toronto Natural Heritage System	■ Refer below to mitigation measures described for Vegetation Communities. ■ Consultation with City of Toronto.	■ Refer below to monitoring described for Vegetation Communities.
Policy Area – City of Toronto Ravine and Natural Feature Protection	■ No potential impacts as the East Harbour Station Early Works Project Footprint is located outside of the City of Toronto Ravine and Natural Feature Protection By-Law Area	■ None Required.	■ None Required.
Policy Area – Toronto and Region Conservation Authority Regulation Areas	■ Vegetation removal within Toronto and Region Conservation Authority Regulated Areas	■ Refer below to mitigation measures described for Vegetation Communities, Wildlife and Wildlife Habitat, Migratory Breeding Birds and Nests, Significant Wildlife Habitat, Species at Risk and Aquatic Environment. ■ Further consideration to reduce potential impacts within the Toronto and Region Conservation Authority Regulated Areas to the extent feasible will be undertaken during detailed design.	■ Refer below to monitoring described for Vegetation Communities. ■ Recommendations for additional monitoring related to vegetation removal within regulated areas may be determined through consultation with Toronto and Region Conservation Authority.
Policy Area – Urban River Valley under the Greenbelt Plan	■ Vegetation removal within the Urban River Valley	■ Refer below to mitigation measures described for Vegetation Communities, Wildlife and Wildlife Habitat, Significant Wildlife Habitats, Migratory Breeding Birds and Nests, Species at Risk and Aquatic Environment. ■ Compensation for the removal of vegetation in accordance with Metrolinx’s Vegetation Guideline (2020) approach will consider maintaining or enhancing connectivity along the Lower Don River to the extent possible.	■ Refer below to monitoring described for Vegetation Communities, Wildlife and Wildlife Habitat and Aquatic Environment.
Vegetation Communities	■ Removal of vegetation communities ■ Damage to adjacent vegetation or Ecological Land Classification communities as a result of accidental intrusion	■ Vegetation removal will be reduced and limited to within the East Harbour Station early works construction areas. ■ Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the East Harbour Station early works construction areas and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities. ■ Compensation for the removal of vegetation will be provided in accordance with Metrolinx’s Vegetation Guideline (2020). ■ Temporarily disturbed areas will be re-vegetated using non-invasive, preferably native plantings and/or seed mix appropriate to the site conditions and adjacent vegetation communities. Seed mixes will be used in conjunction with an appropriate non-invasive cover crop as needed. ■ Vegetation removals will also consider and mitigate potential impacts to sensitive species (e.g., migratory birds) and features (e.g., Significant Wildlife Habitat). Refer to the wildlife and wildlife habitat and Species at Risk mitigation measures described below.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Monitoring will include inspection of construction fencing/silt fencing to confirm appropriate installation, maintenance and rehabilitation to prevent accidental damage to vegetation or Ecological Land Classification communities outside of the work construction area. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts. ■ If required, the approach to compensation monitoring will be developed in accordance with Metrolinx’s Vegetation Guideline (2020).

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Vegetation Communities	<ul style="list-style-type: none">■ City and private tree removal	<ul style="list-style-type: none">■ An Arborist Report by an International Society of Arboriculture Certified Arborist will be prepared in accordance with the Ontario Forestry Act R.S.O. 1990, and other regulations and best management practices as applicable.■ The Arborist Report will include, but not be limited to the individual identification of all trees within the East Harbour Station early works construction areas including those that require removal or preservation, or trees that may be injured. Trees to be identified may include those on Metrolinx property, trees on public and private lands, and boundary trees. City of Toronto by-laws dictate the minimum area buffers to be inventoried and Diameter at Breast Height which requires inventory.■ Prior to the undertaking of tree removals, a Tree Removal Strategy/Tree Preservation Plan will be developed during detailed design to document tree protection and mitigation measures that follow the City of Toronto Tree Protection Policy and Specifications for Construction Near Trees Guidelines (2016b) and adherence with best practices, standards and regulations on safety, environmental and wildlife protections.■ Compensation for tree removals will be undertaken in accordance with provisions outlined in the Metrolinx Vegetation Guideline (2020).■ Pruning of branches will be conducted through the implementation of proper arboricultural techniques by an International Society of Arborists certified Arborist.■ Tree Protection Zone fencing will be established to protect and prevent tree injuries. Tree Protection Zones will be clearly staked prior to construction using barriers in accordance with local by-law requirements.	<ul style="list-style-type: none">■ Regular inspection in areas of vegetation removal will be undertaken as required during construction to ensure that fencing is intact, only specified trees are removed and no damage is caused to the remaining trees and adjacent vegetation communities.■ 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 reduce impacts.■ If required, the approach to compensation monitoring will be developed in accordance with Metrolinx’s Vegetation Guideline (2020).
Vegetation Communities	<ul style="list-style-type: none">■ Potential for the spread of emerald ash borer, associated with removal, handling and transport of ash trees	<ul style="list-style-type: none">■ 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: Phytosanitary Requirements to Prevent the Introduction into and Spread within Canada of the emerald ash borer. 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.	<ul style="list-style-type: none">■ 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 reduce impacts.
Vegetation Communities	<ul style="list-style-type: none">■ Increased soil erosion and sedimentation	<ul style="list-style-type: none">■ Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the East Harbour Station early works construction areas and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities.■ An Erosion and Sediment Control Plan, in accordance with the Erosion and Sediment Control Guide for Urban Construction (Toronto and Region Conservation Authority, 2019), will be prepared prior to and implemented during construction to reduce the risk of sedimentation to the vegetation communities.	<ul style="list-style-type: none">■ 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 reduce impacts.■ All erosion and sediment control measures should be inspected weekly, after every rainfall and significant snow melt event, and daily during periods of extended rain or snow melt.■ All damaged erosion and sediment control measures will be repaired and/or replaced within 48 hours of the inspection.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Vegetation Communities	<ul style="list-style-type: none">■ Soil or water contamination as a result of spills (e.g., grease and/or fuel) from equipment use■ Introduction or spread of invasive species	<ul style="list-style-type: none">■ A Spill Prevention and Contingency Plan will be developed and adhered to. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan.■ Refuelling of equipment will occur at least 30 metres away from any watercourse.■ Refuelling shall be done within refuelling stations lined with appropriate material to prevent seepage and fuel discharge.■ All machinery, construction equipment and vehicles arriving on-site should be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the Clean Equipment Protocol for Industry (Halloran et al., 2013).	<ul style="list-style-type: none">■ 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 reduce impacts.
Wildlife and Wildlife Habitat – General	<ul style="list-style-type: none">■ Disturbance, displacement or mortality of wildlife	<ul style="list-style-type: none">■ Prior to construction, investigation of the East Harbour Station early works construction areas for wildlife and wildlife habitat that may have established following the completion of previous surveys will be undertaken, as appropriate.■ 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.	<ul style="list-style-type: none">■ Regular on-site inspection by on-site environmental workers or construction staff should occur within the construction area to ensure that no wildlife is trapped within the construction area.■ 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 reduce impacts.
Significant Wildlife Habitat - Eastern Wood-pewee	<ul style="list-style-type: none">■ Removal of up to 1.5 hectares of candidate habitat for Eastern Wood-pewee	<ul style="list-style-type: none">■ Refer below to mitigation measures described for Migratory Breeding Birds and Nests.	<ul style="list-style-type: none">■ Refer below for monitoring requirements described for Migratory Breeding Birds and Nests.
Significant Wildlife Habitat - Monarch	<ul style="list-style-type: none">■ Removal of up to 0.32 hectares of candidate habitat for Monarchs	<ul style="list-style-type: none">■ Identify opportunities to promote pollinator species and habitat in accordance with the Metrolinx Vegetation Guideline (2020). This may include planting or seeding native flowering plants in temporarily disturbed areas.	<ul style="list-style-type: none">■ Regular monitoring (site inspections) will be undertaken during construction to prevent unauthorized impacts to habitat used by Monarch.
Significant Wildlife Habitat - Common Nighthawk	<ul style="list-style-type: none">■ Removal of candidate nesting habitat for Common Nighthawk	<ul style="list-style-type: none">■ Refer below to mitigation measures described for Migratory Breeding Birds and Nests.■ Demolition of buildings should be scheduled outside of the breeding bird season of April 1 to August 31. If this is not possible and buildings must be demolished during this period, the following will be completed:■ The roofs will be checked for presence of gravel. If gravel is not present, then the building is unlikely to provide suitable nesting habitat for Common Nighthawk. If gravel is present, a search for eggs and nesting activity for Common Nighthawk on the roof will be conducted. If nests or nesting activity of Common Nighthawk are confirmed, the building cannot be demolished until it is confirmed by a Qualified Biologist that young have fully fledged and left the nest.	<ul style="list-style-type: none">■ Refer below for monitoring requirements described for Migratory Breeding Birds and Nests.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Migratory Breeding Birds and Nests	■ Disturbance or destruction of migratory bird nests	■ All works must comply with the Migratory Birds Convention Act, including timing windows for the nesting period (April 1 to August 31 in Ontario). ■ If activities (i.e. vegetation clearing and building demolition) are proposed to occur during the general nesting period, a breeding bird and nest survey will be undertaken prior to required activities. Nest searches by an experienced searcher are required and will be completed by a qualified Biologist no more than 48 hours prior to vegetation removal. ■ If a nest of a migratory bird is found outside of this nesting period (including a ground nest) it still receives protection.	■ Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.
Wildlife Habitat Connectivity	■ Decrease of habitat connectivity for wildlife	■ Refer to the mitigation measures described above for Urban River Valley under the Greenbelt Plan, Vegetation Communities, Wildlife and Wildlife Habitat, Significant Wildlife Habitats, Migratory Breeding Birds and Nests, Species at Risk and Aquatic Environment. ■ During detailed design, considerations for maintaining or enhancing connectivity opportunities will be explored to the extent feasible.	■ Refer to monitoring described for Vegetation Communities.
Species at Risk – General	■ Habitat loss, disturbance and/or mortality to Species at Risk	■ All requirements of the Endangered Species Act will be met. Species-specific mitigation measures will be implemented, as required, in consultation with Ministry of the Environment, Conservation and Parks.	■ 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 reduce impacts. ■ Species-specific monitoring activities will be developed in accordance with any registration and/or permitting requirements under the Endangered Species Act.
Species at Risk – Barn Swallow	■ Habitat loss, disturbance and/or mortality to Barn Swallow	■ Field surveys will be undertaken prior to construction to confirm presence of any Barn Swallow nests on buildings that will be demolished. ■ Where loss or disturbance cannot be avoided (e.g., building demolition), all requirements under the Endangered Species Act will be met, including any registration, compensation, replacement structures and/or permitting requirements. ■ If disturbance to structures confirmed to provide Barn Swallow habitat is scheduled during the nesting season for Barn Swallow (April 1 to August 31), a nest search will be undertaken to confirm that no Barn Swallow are nesting on structures that may be affected by construction activities on or near these areas. Exclusion measures will be implemented prior to nesting season to dissuade use of these areas for nesting.	■ 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 reduce impacts. Additional monitoring measures will be developed with the Ministry of the Environment, Conservation and Parks, if required.
Species at Risk – Bats	■ Habitat loss, disturbance and/or mortality to Species at Risk Bats	■ All requirements of the Endangered Species Act will be met. Additional monitoring, mitigation and compensation for removal of suitable treed or anthropogenic roosting habitat may be required based on the results of additional surveys and consultation with the Ministry of the Environment, Conservation and Parks.	■ If mitigation is required, 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 reduce impacts. Additional monitoring measures will be developed in consultation with Ministry of the Environment, Conservation and Parks, if required.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Aquatic Environment – ■ Wetlands and Waterbodies ■ Fish and Fish Habitat	■ The East Harbour Station Early Works Project Footprint is located 30 metres away from the Lower Don River and east of the Don Valley Parkway and no in-water works are proposed in the Lower Don River. Potential effects on fish and fish habitat are not anticipated, provided that best management practices are implemented.	■ Construction activities will maintain the buffers established during the design phase to reduce potential negative impacts to the Lower Don River. ■ An Erosion and Sediment Control Plan, in accordance with the Erosion and Sediment Control Guide for Urban Construction (Toronto and Region Conservation Authority, 2019), as amended from time to time, will be prepared prior to and implemented during construction to reduce the risk of sedimentation to the waterbody. ■ A Spill Prevention and Response Plan will be developed before work commences to ensure procedures and policies are in place during construction to reduce impacts to watercourses. ■ Any temporary mitigation measures will be installed prior to the commencement of any site clearing, grubbing, excavation, filling or grading works and will be inspected and maintained on a regular basis. ■ To the extent feasible, schedule work to avoid wet, windy and rainy periods that may result in high flow volumes and/or increase erosion and sedimentation. ■ Stockpiled materials or equipment will be stored within the East Harbour Station early works construction areas but shall be kept at least 30 metres away from any watercourse to the extent possible. ■ All equipment fuelling and maintenance will be done at a safe distance from the water (i.e., 30 metres or more) to ensure that no deleterious substances enter the waterway.	■ 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 reduce impacts and enhance mitigation measures. ■ All erosion and sediment control measures should be inspected weekly, after every rainfall and significant snow melt event, and daily during periods of extended rain or snow melt. ■ All damaged erosion and sediment control measures will be repaired and/or replaced within 48 hours of the inspection.

Notes: Regulations, standards and guidance documents referenced herein are current as of the time of writing and may be amended from time to time.
If clarification is required regarding regulatory requirements, the appropriate regulatory agencies will be consulted.

ES.5 Permits and Approvals

Section 7 includes a list of permits that may be required for the East Harbour Station early works construction activities. These potential permitting requirements are summarized below.

Federal

No federal permits are anticipated to be required for the East Harbour Station early works.

Provincial

Metrolinx will comply with the conditions of the Permit CR-D-002-19 issued on August 7, 2020 under Section 17(1) in accordance with clause 17(2)(d) of the Endangered Species Act, 2007 for Species at Risk that may be affected by the East Harbour Station early works including Barn Swallow and bat Species at Risk.

Conservation Authority

Metrolinx will consult with Toronto and Region Conservation Authority with respect to construction activities in regulated areas for the East Harbour Station early works in relation to Ontario Regulation 166/06: Toronto and Region Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

Municipal

A range of municipal permits and approvals (e.g., Permits to Injure or Remove Trees) may be required for the Project, particularly as pertaining to municipally owned lands and infrastructure. Metrolinx as a Crown Agency of the Province of Ontario is exempt from certain municipal processes and requirements. In these instances, Metrolinx will engage with the municipalities to incorporate municipal requirements as a best practice, where practical, and may obtain associated permits and approvals. Metrolinx shall continue to communicate and engage with the City of Toronto as planning progresses to address municipal concerns.

Table of Contents

	page
1. Introduction.....	1
1.1 Purpose of the Ontario Line Early Works.....	1
1.1.1 Purpose of this Report	1
1.2 Ontario Line Project Overview	4
1.3 Early Works Description.....	4
1.3.1 Project Description	4
1.3.2 Early Works Project Footprint and Study Area	5
1.3.3 Construction Activities	5
2. Methodology	9
2.1 Local Environmental Conditions	9
2.1.1 Background Information Review	9
2.1.2 Field Investigations	12
2.1.3 Significant Wildlife Habitat Screening.....	13
2.1.4 Species at Risk Habitat Screening	15
2.2 Impact Assessment	16
3. Relevant Policies and Legislation	17
3.1 Federal.....	17
3.1.1 Species at Risk Act, 2002	17
3.1.2 Fisheries Act, R.S.C. 1985 (as amended).....	18
3.1.3 Migratory Birds Convention Act, 1994.....	19
3.2 Provincial	19
3.2.1 Endangered Species Act, 2007.....	19
3.2.2 Provincial Policy Statement, 2020.....	20
3.2.3 A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2019.....	21
3.2.4 Greenbelt Plan, 2017	22
3.2.5 Conservation Authorities Act, 1998	22
3.3 Municipal.....	23
4. Local Environmental Conditions	24
4.1 Designated Natural Areas.....	24
4.2 Planning Policy Areas.....	25
4.3 Ecological Land Classification and Plant Inventory.....	28
4.4 Fish and Fish Habitat.....	31
4.4.1 Watershed Description.....	31
4.4.2 Aquatic Species Composition	31
4.5 Wildlife and Wildlife Habitat	34
4.6 Significant Wildlife Habitat	36
4.7 Species at Risk Habitat Screening.....	38

5. Potential Impacts, Mitigation Measures and Monitoring Activities.....	43
6. Future Studies	49
7. Permits and Approvals.....	51
7.1 Federal.....	51
7.2 Provincial	51
7.2.1 Endangered Species Act, 2007.....	51
7.2.2 Conservation Authorities Act, 1998	51
7.3 Municipal.....	51
8. References	52

List of Figures

Figure 1-1: East Harbour Station Early Works Conceptual Design	3
Figure 1-2: East Harbour Station Early Works Project Footprint and East Harbour Station Study Area	8
Figure 4-1: Policy Areas Within the East Harbour Station Study Area	27
Figure 4-2: Ecological Land Classification Within the East Harbour Station Study Area	30
Figure 4-3: Aquatic Habitat Within the East Harbour Station Study Area.....	32
Figure 4-4: Potential Species at Risk Habitat Within the East Harbour Station Study Area	40

List of Tables

Table 1-1: Report Contents in Accordance With Ontario Regulation 341/20: Ontario Line Project	2
Table 1-2: Anticipated Construction Activities for Ontario Line East Harbour Station Early Works	6
Table 2-1: Summary of Previous Field Investigations Completed Within the East Harbour Station Study Area.....	13
Table 4-1: Ecological Land Classification Vegetation Communities Identified Within the East Harbour Station Study Area	29
Table 4-2: Fish Community Within the East Harbour Station Study Area	33
Table 5-1: Potential Impacts, Mitigation Measures and Monitoring Activities for the East Harbour Station Early Works	45

Appendices

Appendix A. Wildlife Records

Appendix B. Significant Wildlife Habitat Screening

Appendix C. Species of Conservation Concern Screening

Appendix D. Species at Risk Screening

1. Introduction

1.1 Purpose of the Ontario Line Early Works

The Ontario Line Project (the Project) is being assessed in accordance with Ontario Regulation 341/20: Ontario Line Project under the Environmental Assessment Act. Ontario Regulation 341/20: Ontario Line Project outlines a Project-specific environmental assessment process that includes an Environmental Conditions Report, Environmental Impact Assessment Report, and an opportunity for Early Works Report(s) for assessment of works that are ready to proceed in advance of the Environmental Impact Assessment Report. The Environmental Conditions Report documents the local environmental conditions of the Ontario Line Study Area and provides a preliminary description of the potential environmental impacts from the Project. Information outlined in the Environmental Conditions Report is used to inform the Early Works Report(s) and Environmental Impact Assessment Report, which study environmental impacts in further detail and confirm and refine preliminary mitigation measures identified in the Environmental Conditions Report.

Ontario Line early works are components of the Project that are proposed to proceed before the completion of the Ontario Line environmental impact assessment process. An overview of the Project is provided in **Section 1.2**. Early works are defined in Ontario Regulation 341/20: Ontario Line Project under the Environmental Assessment Act as follows:

“any components of the Ontario Line Project that Metrolinx proposes to proceed with before the completion of the Ontario Line assessment process, such as station construction, rail corridor expansion, utility relocation or bridge replacement or expansion.”

East Harbour Station early works are considered to be of strategic importance in enabling the timely implementation of the Project. The early works are being advanced where the Project interfaces with GO Expansion. Advancing early works and supporting environmental and technical studies in this area provides planning and design efficiencies for the Project and GO Expansion and facilitates the timely implementation of both. East Harbour Station early works are described in detail in **Section 1.3**.

1.1.1 Purpose of this Report

AECOM Canada Limited (AECOM) was retained by Metrolinx and Infrastructure Ontario to complete the Ontario Line East Harbour Station Early Works Report for the Project.

This Natural Environment Early Works Report (this Report) supports the Ontario Line Final East Harbour Station Early Works Report and has been prepared for the Project to document the assessment of East Harbour Station early works (**Figure 1-1**). The early works components and construction activities are described in **Section 1.3**.

The purpose of this Report is to:

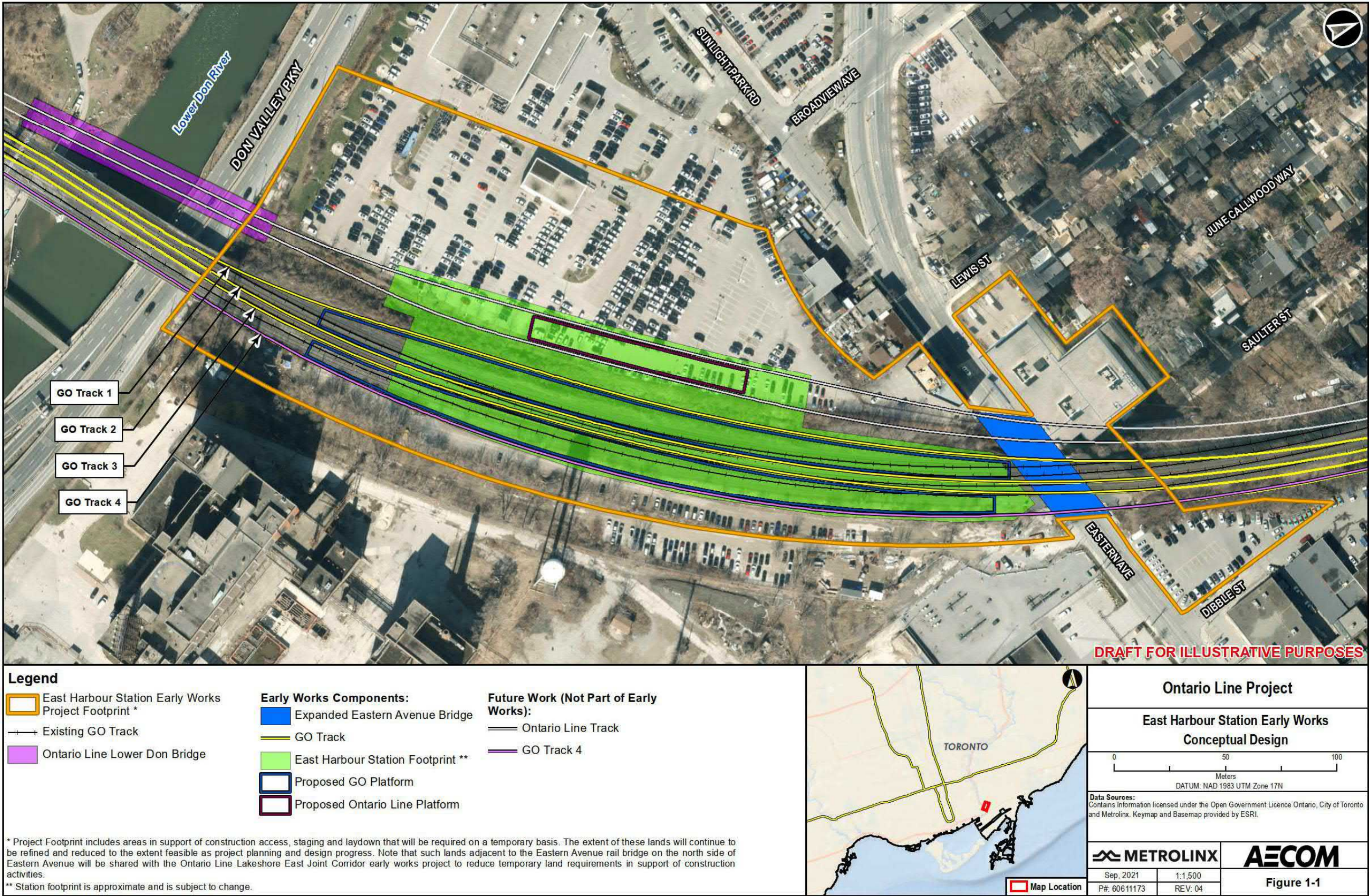
- Document the existing natural heritage features (aquatic and terrestrial resources) within the East Harbour Station Study Area;
- Conduct an impact assessment based on the identified natural heritage features, including criteria for assessment and evaluation of impacts;
- Develop applicable mitigation measures and monitoring requirements;
- Identify anticipated authorizations required for the Project; and
- Identify additional surveys to be completed in support of anticipated regulatory authorizations.

This Report has been prepared in accordance with Ontario Regulation 341/20: Ontario Line Project and contains the information outlined in **Table 1-1**.

Table 1-1: Report Contents in Accordance With Ontario Regulation 341/20: Ontario Line Project

Reg. Section	Requirement	Report Section
Section 8(2)(2)	The rationale for proceeding with the early works.	Section 1.1
Section 8(2)(4)	A description of the local environmental conditions at the site of the early works.	Section 4
Section 8(2)(6)	Metrolinx's assessment and evaluation of the impacts that the preferred method of carrying out the early works and other methods might have on the environment, and Metrolinx's criteria for assessment and evaluation of those impacts.	Section 5
Section 8(2)(7)	A description of any measures proposed by Metrolinx for mitigating any negative impacts that the preferred method of carrying out the early works might have on the environment.	Section 5
Section 8(2)(8)	A description of the means Metrolinx proposes to use to monitor or verify the effectiveness of mitigation measures proposed.	Section 5
Section 8(2)(9)	A description of any municipal, provincial, federal or other approvals or permits that may be required for the early works.	Section 7

Figure 1-1: East Harbour Station Early Works Conceptual Design



1.2 Ontario Line Project Overview

Metrolinx, an agency of the Province of Ontario, is proceeding with the planning and development of the Ontario Line, extending from Exhibition/Ontario Place to the Ontario Science Centre in the City of Toronto.

The Project is a new approximately 15.6-kilometre subway line with connections to Line 1 (Yonge-University) subway service at Osgoode and Queen Stations, Line 2 (Bloor-Danforth) subway service at Pape Station, and Line 5 (Eglinton Crosstown) light rail transit service at the future Science Centre Station. Fifteen stations are proposed, with additional connections to three GO Transit lines (Lakeshore East, Lakeshore West and Stouffville), and the Queen, King, Bathurst, Spadina, Harbourfront, and Gerrard/Carlton streetcar routes. The Project will reduce crowding on Line 1 and provide connections to new high-order rapid transit neighbourhoods. The Project will be constructed in a dedicated right-of-way with a combination of elevated (i.e., above existing rail corridor), tunnelled (i.e., underground), and at-grade (i.e., at grade with existing rail corridor) segments at various locations.

1.3 Early Works Description

1.3.1 Project Description

The East Harbour Station early works will include:

- Reconfiguration of the existing Lakeshore East GO tracks to accommodate station facilities and future Ontario Line tracks;
- Construction of station facilities such as platforms and entrances;
- Replacement and expansion of the existing Eastern Avenue rail bridge to accommodate four Lakeshore East GO tracks and two future Ontario Line tracks; and
- Site preparation activities such as grading, demolition of existing structures where required, and utility relocation or protection.

East Harbour Station rail corridor and third-party utility relocations and protection will be completed to facilitate the work described above as well as the future Ontario Line tunnel facilities. Utilities to be relocated include, but are not limited to, Bell 360 and existing Canadian National/GO signal underground fibre optic cables.

The East Harbour Station early works components are shown in **Figure 1-1**.

1.3.2 Early Works Project Footprint and Study Area

The East Harbour Station Early Works Project Footprint, shown in **Figure 1-2**, includes permanent infrastructure to be built as part of the East Harbour Station early works as well as lands anticipated to be temporarily impacted by early works construction staging/laydown and access; these lands are anticipated to be refined and reduced to the extent feasible as project planning progresses. Note that such lands adjacent to the Eastern Avenue rail bridge on the north side of Eastern Avenue will be shared with the Ontario Line Lakeshore East Joint Corridor early works project to reduce temporary land requirements in support of construction activities. Assessment of Project operations and construction of other project components will be documented in the Ontario Line Environmental Impact Assessment Report in accordance with Section 15 of Ontario Regulation 341/20: Ontario Line Project.

The East Harbour Station Early Works Project Footprint extends from east of the Don Valley Parkway, continues east along the Lakeshore East rail corridor, extending approximately 20 metres south of the Lakeshore East rail corridor, and approximately 100 metres north of the Lakeshore East rail corridor to approximately 60 metres north of Eastern Avenue.

For the purpose of this Report, the East Harbour Station Study Area, also shown in **Figure 1-2**, includes the East Harbour Station Early Works Project Footprint and a 120 metre buffer in accordance with the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement – Second Edition (Ministry of Natural Resources and Forestry, 2010). This buffer has been applied to evaluate the ecological function and potential impacts of proposed development on lands adjacent to natural heritage features protected under the Provincial Policy Statement (Provincial Policy Statement; Ontario Ministry of Municipal Affairs and Housing, 2020).

The East Harbour Station Study Area assessed in this Report is specific to the natural environment impact assessment. The study areas for other environmental disciplines are outlined in the Ontario Line Final East Harbour Station Early Works Report.

1.3.3 Construction Activities

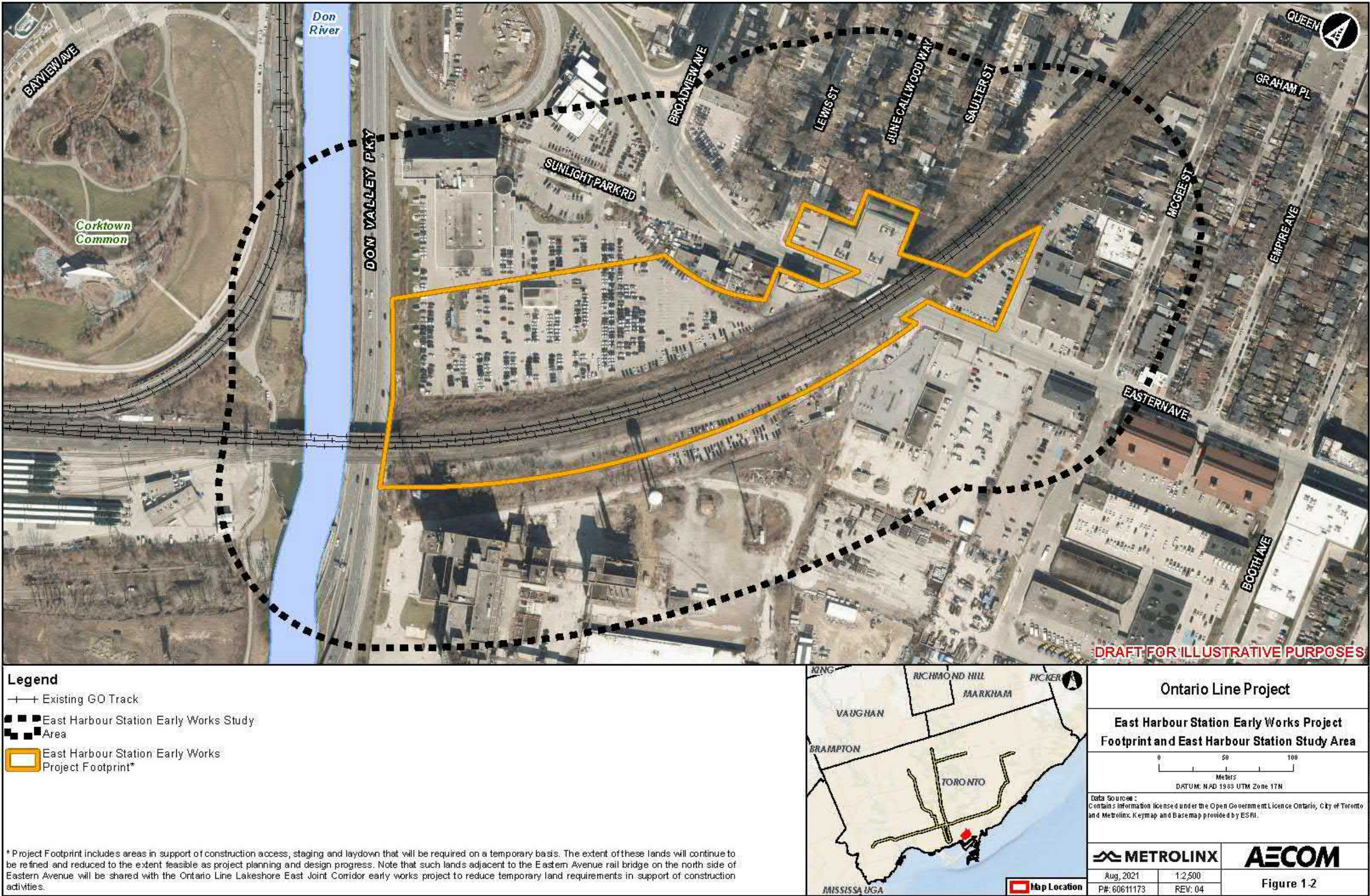
Table 1-2 provides a description of the anticipated construction activities for the East Harbour Station early works. These typical activities serve as the basis for the assessment of construction-related potential environmental impacts. These activities may be expanded, further refined, or found to be unnecessary as the Project progresses through detailed design and construction.

Table 1-2: Anticipated Construction Activities for Ontario Line East Harbour Station Early Works

Anticipated Construction Activity	Description	Associated Equipment
Site Preparation	<ul style="list-style-type: none"> ■ Mobilization of equipment and temporary facilities to the site. ■ Clearing and grubbing. ■ Erection of temporary and permanent fences. ■ Installation of environmental management features (e.g., erosion and sediment controls). 	<ul style="list-style-type: none"> ■ Site compaction equipment and grading equipment. ■ Vegetation removal equipment. ■ Excavation equipment. ■ Haulage/dump trucks.
Track Diversion/ Installation	<ul style="list-style-type: none"> ■ Grading. ■ Temporary drainage. ■ Relocation/Installation of track, ties, and fastenings. ■ Clear delineation and protection between active rail service and construction work zones. 	<ul style="list-style-type: none"> ■ Site compaction equipment and general grading equipment, dump trucks spoil removal equipment. ■ Thermal welding. ■ Tie placement (cranes, lifting equipment). ■ Ballast placement equipment. ■ Concrete pouring equipment. ■ Temporary concrete barriers. ■ Rail saw. ■ Stabilizers. ■ Tampers.
Temporary Road Closures	<ul style="list-style-type: none"> ■ Temporary road closures, as required. 	<ul style="list-style-type: none"> ■ Temporary traffic control devices such as signs, signals, barriers, traffic barrels.
Management of Stormwater	<ul style="list-style-type: none"> ■ All precipitation falling within the construction limits will be managed as stormwater within the existing system of collection, conveyance, and discharge features. Surface flows within the site will be managed within the site to ensure discharge to off-site receivers (e.g., municipal storm sewers) is appropriate in terms of water quantity and quality. 	<ul style="list-style-type: none"> ■ Site compaction equipment and general grading equipment. ■ Groundwater pumping equipment.
Site Servicing	<ul style="list-style-type: none"> ■ Construction, relocation and/or extension of services and utilities on the site; which may include both underground and aerial services and utilities (e.g., sewers, water, electrical, communications, gas). This may also involve installation of utilities within the site. 	<ul style="list-style-type: none"> ■ Excavation equipment including backhoe, dump trucks, spoil removal equipment, jackhammers. ■ Vacuum trucks.

Anticipated Construction Activity	Description	Associated Equipment
Excavation and Grading	<ul style="list-style-type: none"> ■ Excavation and grading activities may involve earth-moving activities and stockpiling, as applicable. Excavated material will be accommodated on-site on the degree practicable, however, where necessary, surplus material will be disposed of off-site to an approved facility. ■ Any off-site disposal shall be done in compliance with applicable law, including as it relates to contaminated material that may be encountered. ■ Any groundwater encountered will be managed and disposed of in accordance with applicable law. 	<ul style="list-style-type: none"> ■ Site compaction equipment and general grading equipment, dump trucks, soil removal equipment. ■ Groundwater pumping equipment. ■ Excavation equipment including backhoe, dump trucks, soil removal equipment, and jack hammers.
Construction of Buildings and Structures (including Eastern Avenue Bridge)	<ul style="list-style-type: none"> ■ Retaining walls. ■ All buildings and structures will be constructed using standard civil construction techniques. 	<ul style="list-style-type: none"> ■ Foundation placement equipment. ■ Augured piles or rammed aggregate piers. ■ Drill rigs. ■ Cranes and hoists. ■ Concrete trucks, pumps and vibrators. ■ Flatbed trucks, crane, excavators, and light equipment. ■ Hoe rams. ■ Backhoes.
Construction of Ancillary Facilities	<ul style="list-style-type: none"> ■ Ancillary facilities may include electrical transformer/supply equipment, parking areas, exterior yard facilities including lighting, electrification enabling facilities. 	<ul style="list-style-type: none"> ■ Flatbed trucks, cranes, concrete trucks. ■ Backhoe, pavement excavation equipment. ■ Mobile cranes and hoists. ■ Concrete trucks, pumps and vibrators.
Demolition of buildings and structures	<ul style="list-style-type: none"> ■ Removal of buildings and structures on properties acquired by Metrolinx for East Harbour Station or as required for construction of new infrastructure. 	<ul style="list-style-type: none"> ■ Demolition and excavation equipment including backhoe, dump trucks, soil removal equipment, and hoe rams.

Figure 1-2: East Harbour Station Early Works Project Footprint and East Harbour Station Study Area



2. Methodology

This Report documents the assessment of East Harbour Station early works construction impacts related to the natural environment. Impacts associated with Project operations will be addressed as part of the Environmental Impact Assessment Report under separate cover.

2.1 Local Environmental Conditions

2.1.1 Background Information Review

Background information and documentation relevant to the East Harbour Station Study Area is contained within the Ontario Line Final Environmental Conditions Report (AECOM, 2020)¹ prepared for the Project and was reviewed prior to commencing the natural environment investigation within this Report. For the purpose of this background information review, terrestrial and aquatic features and functions were identified within the boundaries of the East Harbour Station Study Area, as shown in **Figure 1-2**, through a desktop review of available secondary sources. The following sources were used to conduct the background information review as part of the Ontario Line Final Environmental Conditions Report (AECOM, 2020):

- Ontario Ministry of Natural Resources and Forestry Ontario GeoHub base mapping data, (Ministry of Natural Resources and Forestry, 2020; Land Information Ontario, 2017; Ministry of Natural Resources and Forestry, 2017a; Ministry of Natural Resources and Forestry, 2017b) for:
 - Designated natural areas (e.g., Areas of Natural and Scientific Interest, wooded; areas, Provincially Significant Wetlands/Locally Significant Wetland/unevaluated wetlands, provincial parks);
 - Aquatic Resource Areas;
 - Wildlife habitats; and
 - Natural Heritage Information Centre provincially tracked species.
- Wildlife atlases:
 - Ontario Butterfly Atlas Online (MacNaughton et al., 2019);
 - Ontario Breeding Bird Atlas Website (Bird Studies Canada et al., 2006);

1. The Ontario Line Final Environmental Conditions Report (AECOM, 2020) was published on November 30, 2020 in accordance with Ontario Regulation 341/20: Ontario Line Project.

- Ontario Reptile and Amphibian Atlas Online (Ontario Nature, 2020);
 - Atlas of the Mammals of Ontario (Dobbyn, 1994);
 - Bat Conservation International Species Profiles (2020); and
 - Fisheries and Oceans Canada Aquatic Species at Risk on-line mapping (2020).
- Planning documents and guidelines:
- Natural Heritage Information Request Guide (Ministry of Natural Resources and Forestry, 2018);
 - Significant Wildlife Habitat Technical Guide (Ministry of Natural Resources and Forestry, 2000);
 - Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015);
 - Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement – Second Edition (Ministry of Natural Resources and Forestry, 2010);
 - City of Toronto Interactive Mapping Version 2 (2020a);
 - Species at Risk Act Public Registry (Environment and Climate Change Canada, 2020);
 - Toronto Municipal Code Chapter 658, Ravine and Natural Feature Protection (City of Toronto, 2016a);
 - Tree Protection Policy and Specifications for Construction Near Trees (City of Toronto, 2016b); and
 - City of Toronto Official Plan (City of Toronto, 2019).
- Open Data Portals:
- City of Toronto Open Data Portal (2020b); and
 - Toronto and Region Conservation Authority Open Data Portal (2020a).
- Reports:
- Environmentally Significant Areas in the City of Toronto (North-South Environmental Inc. et al., 2012);
 - GO Transit Rail Network Electrification EA Natural Environment Baseline Conditions Report (Morrison-Hershfield, 2017);
 - Review of Provincially Significant Wetlands in the City of Toronto (North-South Environmental Inc. and Dougan & Associates, 2009); and
 - Ontario Line Final Environmental Conditions Report (AECOM, 2020).
- Aerial photography.

As of June 29, 2019, the Ontario Ministry of the Environment, Conservation and Parks assumed responsibility for the Endangered Species Act, 2007, which was formerly the responsibility of the Ministry of Natural Resources and Forestry. It is both the Ministry of the Environment, Conservation and Parks and Ministry of Natural Resources and Forestry's current direction for proponents to conduct a desktop screening for Species at Risk and natural heritage records, respectively, using online secondary sources. Therefore, information requests were not sent to the Ministry of the Environment, Conservation and Parks or Ministry of Natural Resources and Forestry in 2020 (given that Species at Risk records could be retrieved from online sources). AECOM requested additional natural heritage data within the East Harbour Station Study Area from Toronto and Region Conservation Authority on December 19, 2019 that were not available from their Open Data Portal, including regulation limits, watercourse thermal regimes and flora and fauna records. Toronto and Region Conservation Authority provided the requested natural heritage data on January 13, 2020, which have been incorporated into this Report. AECOM also requested herpetofauna records from Ontario Nature for the East Harbour Station Study Area on March 20, 2020 and received a response to the data request on May 19, 2020.

In addition to the secondary sources listed above, the following previously completed studies relevant to the East Harbour Station Study Area are contained in the Ontario Line Final Environmental Conditions Report (AECOM, 2020) and were reviewed in support of the background review:

- Union Station Rail Corridor East Enhancements Transit Project Assessment Process Natural Environment Report (AECOM, 2018);
- Natural Environment Existing Conditions – Relief Line South, Toronto, Ontario (Golder Associates, 2018);
- Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Project – Natural Environment Effects Assessment Report (AECOM, 2017); and
- East Harbour Station SmartTrack Station – Natural Environment Report (4Transit, 2018a).

Ecological Land Classification mapping from 2003 and 2017 was also downloaded from Toronto and Region Conservation Authority's open data portal and used to supplement data gaps. Ecological Land Classification is the provincially accepted standard for classifying vegetation communities in Ontario. This protocol uses a series of six nested levels (Site Region, System, Community Class, Community Series, Ecosite and Vegetation Type) to describe the ecological form and function of a vegetation community in a spatial context, from largest to smallest scale. Ecological Land

Classification was generally limited to natural or naturalized areas that are defined as naturally vegetated areas that are greater than 0.50 hectares in size and do not include mowed lawns, manicured municipal parks or streetscapes. Figures showing Ecological Land Classification data include a combination of data sources and differentiate between source materials and primary data collection, as applicable to the East Harbour Station Study Area, as follows:

- Ecological Land Classification vegetation communities received from Toronto and Region Conservation Authority;
- Ecological Land Classification vegetation communities delineated based on supporting background environmental reports; and
- Ecological Land Classification vegetation communities delineated based on aerial photography interpretation only.

Toronto and Region Conservation Authority's local ranks for flora were used to identify species that are regionally rare within Toronto and Region Conservation Authority jurisdiction based on ecological criteria collected by Toronto and Region Conservation Authority and other agencies (Toronto and Region Conservation Authority, 2020b). Species with local ranks of L1 to L3 are considered by Toronto and Region Conservation Authority to be Regional Species of Conservation Concern and are flagged as being at risk and highly sensitive to habitat loss due to changing landscapes within the entire Toronto and Region Conservation Authority jurisdiction over the long term even though some species may not be currently rare (Toronto and Region Conservation Authority, 2020b).

2.1.2 Field Investigations

Field investigations were not completed for the East Harbour Station early works, as lands within the East Harbour Station Study Area were recently investigated in 2016 to support other Metrolinx projects (e.g., Union Station Rail Corridor East Enhancements and Lakeshore East Rail Corridor Expansion [Don River to Scarborough GO Station]). The survey results were reviewed and summarized to supplement the established existing conditions within the East Harbour Station Study Area and were deemed to be sufficient to support an impact assessment. The field investigations previously completed within the East Harbour Station Study Area are summarized in **Table 2-1**.

Table 2-1: Summary of Previous Field Investigations Completed Within the East Harbour Station Study Area

Name of Relevant Environmental Document	Description of Field Investigations Previously Completed Within the East Harbour Station Study Area	Date of Field Investigations
Union Station Rail Corridor East Enhancements Transit Project Assessment Process Environmental Project Report (AECOM, 2018)	<ul style="list-style-type: none"> ■ Ecological Land Classification surveys following Lee et al. (1998). ■ One-season vascular plant inventory. ■ Aquatic habitat assessments of the Lower Don River. ■ Incidental wildlife observations. 	2016
East Harbour Station SmartTrack Station EPR (4Transit, 2018b)	<ul style="list-style-type: none"> ■ ELC surveys following Lee et al. (1998) ■ SAR and Species of Conservation Concern (SOCC) bird nest searches targeting Barn Swallows (<i>Hirundo rustica</i>), Chimney Swift (<i>Chaetura pelagica</i>), Common Nighthawk (<i>Chordeiles minor</i>) and Peregrine Falcon (<i>Falco peregrinus</i>) 	2017 / 2018
Natural Environment Existing Conditions – Relief Line South (Golder Associates, 2018)	<ul style="list-style-type: none"> ■ Ecological Land Classification surveys following Lee et al. (1998) ■ One-season vascular plant inventory ■ Incidental wildlife observations 	2017
Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Project Environmental Project Report (AECOM, 2017)	<ul style="list-style-type: none"> ■ Ecological Land Classification surveys following Lee et al. (1998). ■ One-season vascular plant inventory. ■ Breeding bird surveys following the Ontario Breeding Bird Atlas Guide for Participants (Bird Studies Canada, 2001). ■ Aquatic habitat assessments of the Lower Don River. ■ Incidental wildlife observations. 	2016

2.1.3 Significant Wildlife Habitat Screening

The East Harbour Station Study Area was assessed for the presence of candidate Significant Wildlife Habitat features (e.g., bat maternity roosting habitat in forested areas, Species of Conservation Concern) using the criteria described in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015) as part of the Significant Wildlife Habitat Technical Guide (Ministry of Natural Resources and Forestry, 2000) against the results from the field investigations completed to date within the East Harbour Station Study Area as described in **Section 2.1.2**.

The Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015) contain information and criteria for identifying Significant

Wildlife Habitat, which are defined as areas that have important ecological features and functions, and which support sustainable populations of plants, wildlife and other organisms within this Ecoregion. The Ministry of Natural Resources and Forestry generally categorizes Significant Wildlife Habitat into the following five categories:

- Seasonal Concentration Areas;
- Rare Vegetation Communities with a Provincial S-Rank² of S1-S3;
- Specialized Habitats for Wildlife;
- Habitats of Species of Conservation Concern; and
- Animal Movement Corridors.

Field data collected from relevant environmental reports (**Table 2-1**), such as general habitat conditions and habitat characteristics, were used to identify the presence of Significant Wildlife Habitat within the East Harbour Station Study Area based on the habitat criteria identified in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015). Confirmed Significant Wildlife Habitats were identified based on secondary sources. Candidate Significant Wildlife Habitat refers to potential habitats that meet the habitat criteria as defined in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015) but have not been confirmed as significant through additional detailed studies. According to the Natural Heritage Reference Manual (Ministry of Natural Resources and Forestry, 2010), which was developed to provide technical guidance for implementing the natural heritage policies of the Provincial Policy Statement, Significant Wildlife Habitat includes the habitat of Species of Conservation Concern, which is defined as the following:

- Species with Provincial S-rank assigned by the Natural Heritage Information Centre as S1 (critically imperiled), S2 (imperiled) or S3 (vulnerable);
- Species listed as Special Concern under the Endangered Species Act; and
- Species identified as nationally Endangered or Threatened by the Committee on the Status of Endangered Wildlife in Canada, which are not protected under the Endangered Species Act.

Although Species of Conservation Concern do not receive legal protection under the Endangered Species Act, 2007, their habitat is protected under the Provincial Policy

2. The Natural Heritage Information Centre and the NatureServe Network have developed standard methods to evaluate species and plant communities and assign conservation status ranks. S-rank is a sub-national conservation status assigned to a species or plant community within a particular province, territory or state (Ministry of Natural Resources and Forestry, 2019).

Statement and they may also be afforded protection under the Migratory Birds Convention Act, 1994 or Ontario Fish and Wildlife Conservation Act, 1997. A screening for Species of Conservation Concern was completed as per **Section 2.1.4** below.

2.1.4 Species at Risk Habitat Screening

Special consideration was given to identifying any Species at Risk and Species of Conservation Concern within the East Harbour Station Study Area. For the purpose of this Report, Species at Risk include species that are listed as Extirpated, Endangered or Threatened on the Species at Risk in Ontario list and receive both individual and habitat protection under the Endangered Species Act. Aquatic Species at Risk also include those that are identified as Extirpated, Endangered or Threatened and are afforded protection under both the provincial Endangered Species Act and the federal Species at Risk Act, 2002.

Species at Risk and Species of Conservation Concern with recent occurrence records, or ranges overlapping the East Harbour Station Study Area were identified using the sources listed in **Section 2.1.1**. Species with records greater than 20 years old were considered historical in accordance with the standard Conservation Status Assessment (NatureServe, 2019), which the Natural Heritage Information Centre uses to evaluate a species' S-rank. Species with historical records were deemed unlikely to persist in the general area given the vast urbanization within the City of Toronto and, for this reason, were not included in the Species at Risk and Species of Conservation Concern screenings. The potential for Species at Risk and Species of Conservation Concern to occur within the East Harbour Station Study Area was determined by comparing species habitat requirements to the habitat conditions present on-site using the results of the background information review (**Section 2.1.1**) and field investigations described in **Section 2.1.2** to apply the following rankings:

- **Low Probability:** neither species nor suitable habitat observed through field investigations but there is a known species record in the general area;
- **Medium Probability:** species not observed; however, potentially suitable habitat identified through field investigations and there is a known species record in the general area; and
- **High Probability:** good quality Species at Risk habitat identified (e.g., sufficiently large areas of suitable vegetation and presence of key features such as nesting sites), and known species record in the East Harbour Station Study Area (either through current or previous field investigations).

2.2 Impact Assessment

This early works impact assessment and the development of mitigation measures and monitoring activities considered the following:

- East Harbour Station early works components as described in **Section 1.3.1**;
- The East Harbour Station Early Works Project Footprint and East Harbour Station Study Area as described in **Section 1.3.2**;
- East Harbour Station construction activities as described in **Section 1.3.3**; and
- Local environmental conditions within the East Harbour Station Study Area as described in **Section 4**.

For the purpose of the impact assessment, as a conservative approach, all vegetation communities and buildings overlapping with the East Harbour Station Early Works Project Footprint were assumed to be permanently removed during the construction phase.

Mitigation measures and monitoring activities have been recommended to mitigate the identified potential negative impacts within the East Harbour Station Study Area. The results of the impact assessment are provided in **Section 5**.

3. Relevant Policies and Legislation

3.1 Federal

3.1.1 Species at Risk Act, 2002

The federal Species at Risk Act protects and provides recovery strategies for Species at Risk listed as Extirpated, Endangered or Threatened species under Schedule 1 of the Act. With respect to terrestrial Species at Risk, this legislation applies to federal lands, federally regulated projects or species with critical habitat on non-federal lands in specific circumstances unless they are aquatic species or migratory birds listed on Schedule 1. Critical habitat is identified in recovery strategies or action plans for species listed as Endangered and Threatened under the Species at Risk Act and is defined as habitat that is vital to the survival or recovery of a species. The majority of species listed under Schedule 1 of Species at Risk Act receive habitat protection on non-federal lands under the Endangered Species Act (refer to **Section 3.2.1**). Species that do not receive protection under the Endangered Species Act and do not have critical habitat identified may be afforded protection under other legislation such as the Migratory Birds Convention Act (refer to **Section 3.1.3**). In the case of aquatic Species at Risk, Species at Risk Act provides protection for aquatic species and habitat on both federal and non-federal lands.

Species that are listed as Special Concern under Schedule 1 of Species at Risk Act receive management initiatives under Species at Risk Act to prevent them from becoming Endangered and Threatened, but do not receive individual or habitat protection.

Permits are required by those persons/organizations conducting activities that may affect species listed on Schedule 1 of Species at Risk Act, as Extirpated, Endangered, or Threatened and which contravene the Act's general or critical habitat prohibitions. The Act also contains a prohibition against the damage or destruction of their residences (e.g., nest or den). Under Section 73 of the Species at Risk Act, a permit may be issued to engage in an activity affecting a listed wildlife species or any part of its critical habitat or its residences.

3.1.2 Fisheries Act, R.S.C. 1985 (as amended)

On August 28, 2019, the Fish and Fish Habitat Protection Provisions of the Amended Fisheries Act came into force. Changes to the Act include a return to the policies that were enforced prior to the 2012 amendments, focusing on the following key concepts:

- Protecting all fish and fish habitat (i.e., the focus is no longer on only protecting Commercial, Recreational and Aboriginal fisheries);
- Restoring the previous prohibition against ‘harmful alteration, disruption or destruction of fish habitat’; and
- Restoring a prohibition against causing ‘the death of a fish by any other means than fishing’.

One of the Fish and Fish Habitat Protections includes the creation of Standards and Codes of Practice that will specify procedures, practices or standards in relation to works, undertakings and activities during any phase of their construction, operation, modification, etc. The Standards and Codes of Practice are anticipated to replace the Operational Statements that were in use, prior to the 2012 Fisheries Act amendments. Operational Statements included common works, undertakings and activities around water like Bridge Maintenance, Culvert Maintenance, Maintenance of Riparian Vegetation in Existing Right-of-Way, High-Pressure Directional Drilling, Isolated or Dry Open-Cut Stream Crossing, Punch and Bore Crossings etc. At the time of this Report, Fisheries and Oceans Canada has published two new Standards and Codes of Practice. These include the interim code of practice: end-of-pipe fish protection screens for small water intakes in freshwater and the interim code of practice: routine maintenance dredging. These have been referenced herein as applicable.

The Fish and Fish Habitat Protection Program ensures compliance with relevant provisions under the Fisheries Act and Species at Risk Act. The program reviews proposed works, undertakings and activities that may impact fish and fish habitat. If a project is taking place in or near water, the proponent is responsible for understanding project related impacts on fish and fish habitat and applying measures to avoid and/or mitigate impacts (i.e., Harmful Alteration, Disruption or Destruction) to fish and fish habitat. In cases where Harmful Alteration, Disruption or Destruction of fish and fish habitat cannot be avoided and/or mitigated, activities take place in a waterbody where Fisheries and Oceans Canada review is not required, or the scope of work cannot be covered under a Standard or Code of Practice, proponents are asked to submit a Request for Review to Fisheries and Oceans Canada.

3.1.3 Migratory Birds Convention Act, 1994

The federal Migratory Birds Convention Act is intended to protect migratory birds, their eggs and their active nests. The Migratory Birds Convention Act prohibits the possession, destruction and harm of migratory birds and/or their active nests and prohibits the release of harmful substances in areas frequented by migratory birds. Environment and Climate Change Canada administers the Act, but numerous other agencies are responsible for consideration of migratory birds under the Migratory Birds Convention Act. Under the Migratory Birds Convention Act, the nesting period for most migratory birds for Nesting Zone C1 that encompasses the Project is from April 1 to August 31, during which vegetation removal is strongly discouraged to avoid contravention of the Migratory Birds Convention Act. However, if vegetation clearing must occur during this timing window, active nest searches may be conducted in simple habitats defined by Environment and Climate Change Canada (2020) as “often man-made settings with only a few likely nesting spots or small community of migratory birds”. Examples of simple habitats include:

- an urban park consisting mostly of lawns with a few isolated trees;
- a vacant lot with few possible nest sites;
- a previously cleared area where there is a lag between clearing and construction activities (and where ground nesters may have been attracted to nest in cleared areas or in stockpiles of soil, for instance); or
- a structure such as a bridge, a beacon, a tower or a building (often chosen as a nesting spot by robins, swallows, phoebes, Common Nighthawk, Chimney Swift, gulls and others).

Complex habitat includes woodlands and scrublands, where there are many potential nesting areas such that detection of nests, especially nests of cryptic songbirds, would be difficult and not effective (Environment and Climate Change Canada, 2020).

3.2 Provincial

3.2.1 Endangered Species Act, 2007

The provincial Endangered Species Act protects those species listed on the Species at Risk in Ontario List as Extirpated, Endangered or Threatened on provincial crown or private lands. Sections 9 and 10 of the Endangered Species Act prohibit the killing, harassment, capture or taking of living individuals of Species at Risk or damaging or destroying their habitat. Therefore, where a proposed activity will impact protected species or habitat, changes to timing, location and methods of the proposed activity

should be considered, wherever feasible, to avoid impacts to Species at Risk. Where impacts cannot be avoided or mitigated, a permit process can be initiated.

The Act was formerly administered by the Ministry of Natural Resources and Forestry but as of June 29, 2019, the provincial government officially transitioned all duties regarding administration of the Endangered Species Act to the Ministry of the Environment, Conservation and Parks. The Ministry of the Environment, Conservation and Parks may grant a permit, or other authorization, for activities that would otherwise not be allowable under the Act. Several permit types are available, depending on the nature of the proposed work and may include conditions for the activity to meet with aid in protection or recovery of the targeted Species at Risk. Although listed as Species at Risk under the Endangered Species Act, Special Concern species are not afforded species or habitat protection under the Act but receive protection under other acts such as the Migratory Birds Convention Act and Fish and Wildlife Conservation Act, and as Significant Wildlife Habitat (refer to **Section 3.2.2**) under the Provincial Policy Statement, and other planning documents (e.g., municipal official plans).

3.2.2 Provincial Policy Statement, 2020

The Provincial Policy Statement sets the policy framework for regulating development and use of land and is issued under the authority of the Planning Act, 1990. According to Section 2.0 of the Provincial Policy Statement, development and site alteration is not permitted in significant wetlands or coastal wetlands. However, development and site alteration may occur adjacent to significant wetlands and significant coastal wetlands, and in or adjacent to significant woodlands, significant valleylands, Significant Wildlife Habitat, and Areas of Natural and Scientific Interest provided that it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. Section 1.6.8.6 of the Provincial Policy Statement notes that “when planning for corridors and rights-of-way for significant transportation infrastructure facilities, consideration will be given to the significant resources in Section 2.0: Wise Use and Management of Resources”. If development of significant transportation infrastructure facilities occurs in or adjacent (50 metres or 120 metres) to natural heritage features (e.g., Significant Wildlife Habitat, Areas of Natural and Scientific Interest, Provincially Significant Wetlands, significant woodlands, significant valleylands, fish habitat), Metrolinx must provide consideration to reduce effects, if any, on these features to the extent possible. This Report has been prepared to identify the natural heritage features present, if any, within 120 metres of the East Harbour Station Early Works Project Footprint (i.e., the East Harbour Station Study Area) through background information review and field investigations completed to date, identify the potential impacts (effects), and recommend mitigation measures to minimize effects on any affected natural heritage features.

3.2.3 A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2019

A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2019 (Growth Plan) is a long-term plan for Ontario designed to promote economic growth, increase housing supply, create jobs, and build communities that make life easier, healthier, and more affordable for people of all ages. As one of the most dynamic and fast-growing regions in North America, the Greater Golden Horseshoe is a designation for many people and businesses from other parts of Canada and around the world. To accommodate such growth, an integral part of the Plan's vision is focused on investing in transit infrastructure to support the regional transit network.

The Project is consistent with the relevant policies of the Growth Plan by extending the higher-order transit network into existing residential and employment areas, which optimizes the efficiency and viability of existing and planned transit and help develop more vibrant and complete communities.

The Growth Plan identifies Downtown Toronto as an “urban growth centre” and the GO Transit rail lines and subway lines within Downtown Toronto as “priority transit corridors” (Ministry of Municipal Affairs and Housing, 2019). The Growth Plan notes that urban growth centres will be planned:

- a) as focal areas for investment in regional public service facilities, as well as commercial, recreational, cultural, and entertainment uses;
- b) to accommodate and support the transit network at the regional scale and provide connection points for inter- and intra-regional transit;
- c) to serve as high-density major employment centres that will attract provincially, nationally, or internationally significant employment uses; and
- d) to accommodate significant population and employment growth.

Each “urban growth centre” is given a minimum density target to achieve by 2031. The minimum density target for Downtown Toronto is 400 residents and jobs combined per hectare. To support these growth and density targets, “priority transit corridors” are identified with policies for infrastructure development, such as requiring municipalities to recognize these areas in their official plans to implement the policies of the Growth Plan.

According to Section 3.2.5 (d), any impacts on key natural heritage features in the Natural Heritage System for the Growth Plan, key hydrological features and key hydrologic areas should be avoided or, if not possible, reduced and mitigated to the

extent possible as demonstrated through an environmental assessment completed by the Province when planning for the development, optimization or expansion of existing or planned infrastructure corridors. The Natural Heritage System for the Growth Plan is not mapped for Downtown Toronto; however, the Natural Heritage System for the City of Toronto is mapped in the City of Toronto's Official Plan (City of Toronto, 2019).

The Project promotes the Growth Plan's policies by providing Downtown Toronto with improved regional connections that will accommodate the increased population and employment to be achieved by the density targets while minimizing effects on natural heritage and hydrological features.

3.2.4 Greenbelt Plan, 2017

The Greenbelt Plan builds on the Provincial Policy Statement and provides a land use planning framework related to urban structure and future growth in Ontario's Greater Golden Horseshoe while providing protection to the agricultural lands, ecological and hydrological features in the Greenbelt Area (Ministry of Municipal Affairs and Housing, 2020). Within the East Harbour Station Study Area, the Lower Don River is designated as an Urban River Valley under the Greenbelt Plan. The Urban River Valley designation provides connectivity between the Greenbelt and Lake Ontario and directs land use planning in those areas where the Greenbelt occupies river valleys in an urban context (Ministry of Municipal Affairs and Housing, 2020). The lands are governed by municipal official plans, such as the City of Toronto Official Plan (City of Toronto, 2019). All publicly owned lands (i.e., by the Province, municipality or conservation authority) are subject to the policies of the Urban River Valley designation and all existing, expanded or new infrastructure subject to and approved under the Environmental Assessment Act (or similar approval) are permitted within the Urban River Valley Designations provided that the goals of the Growth Plan for the Greater Golden Horseshoe and Greenbelt Plan are supported (Ministry of Municipal Affairs and Housing, 2020).

3.2.5 Conservation Authorities Act, 1998

The East Harbour Station Study Area fall under the jurisdiction of the Toronto and Region Conservation Authority. Ontario Regulation (O. Reg.) 166/06 under Section 28 of the Conservation Authorities Act (1998), establishes regulated areas within Toronto and Region Conservation Authority's jurisdiction where development could be subject to flooding, erosion or dynamic beaches, or where interference with wetlands and alterations to shorelines and watercourses might have an adverse effect on those environmental features. The East Harbour Station Study Area falls within Toronto and Region Conservation Authority's regulated area.

Metrolinx will consult with Toronto and Region Conservation Authority with respect to construction activities in regulated areas for the East Harbour Station early works in relation to Ontario Regulation 166/06: Toronto and Region Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

3.3 Municipal

The City of Toronto Official Plan (City of Toronto, 2019) promotes strong communities and a competitive economy while protecting, restoring or enhancing the natural environment and urban forests. A range of municipal permits and approvals may be required for the Project, particularly as pertaining to municipally owned lands and infrastructure. Metrolinx will obtain all required permits and approvals. However, Metrolinx as a Crown Agency of the Province of Ontario is exempt from certain municipal processes and requirements. In these instances, Metrolinx will engage with the municipalities to incorporate municipal requirements as a best practice, where practical, and may obtain associated permits and approvals.

4. Local Environmental Conditions

4.1 Designated Natural Areas

Designated natural areas include valleylands, Provincially Significant Wetlands, Areas of Natural and Scientific Interest, significant woodlands and significant wildlife habitat. According to Section 1.6.8.5 of the 2020 Provincial Policy Statement, consideration is to be given to designated natural areas when planning for corridors and rights-of-way for significant transportation and infrastructure facilities. Brief descriptions of the different types of designated natural areas are as follows:

- Valleylands refer to a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year (Ministry of Natural Resources and Forestry, 2010). Significance is determined based on a variety of criteria including, but not limited to, hydrological, geomorphological and ecological function (Ministry of Natural Resources and Forestry, 2010).
- Provincially Significant Wetlands and Locally Significant Wetlands are wetlands that are seasonally or permanently flooded by shallow water, or areas where the water table is close to the surface, enabling the development of hydric soil, which supports primarily hydrophytic or water tolerant plants (Ministry of Natural Resources and Forestry, 2014). Ministry of Natural Resources and Forestry evaluates the significance of wetlands through the Ontario Wetland Evaluation System. Based on the resulting score of an evaluation, an evaluated wetland can fall into one of two classes: Provincially Significant Wetlands or Locally Significant Wetland (Ministry of Natural Resources and Forestry, 2014). Until such a time, that an Ontario Wetland Evaluation System evaluation is completed and evaluated by Ministry of Natural Resources and Forestry, unevaluated wetlands should be considered as significant for the purpose of assessing impacts.
- Areas of Natural and Scientific Interest include land and/or water containing natural landscapes or features that have been scientifically identified by Ministry of Natural Resources and Forestry as having life science or earth science values related to protection, scientific study or education (Ministry of Natural Resources and Forestry, 2010). Areas of Natural and Scientific Interest are designated as earth science (geological) or life science (biological) depending on the features present (Ministry of Natural Resources and Forestry, 2010). “Candidate Areas of Natural and Scientific Interest” are those provincial-level Areas of Natural and Scientific Interest that Ministry of

Natural Resources and Forestry has identified and recommended for protection but that have not been formally confirmed through a confirmation procedure (Ministry of Natural Resources and Forestry, 2010). For the purpose of the Provincial Policy Statement, an Areas of Natural and Scientific Interest is not considered provincially significant until it has been confirmed.

- Significant woodlands are woodlots that are identified as significant in a municipal official plan or woodlots that have been investigated and meet the criteria of significance as identified in the Natural Heritage Reference Manual (Ministry of Natural Resources and Forestry, 2010).
- Significant wildlife habitats are areas that have important ecological features and functions which support sustainable populations of plants, wildlife and other organisms. Significant wildlife habitats are further described in **Section 4.6**.

According to the Ministry of Natural Resources and Forestry's GeoHub Mapping (2020), there are no Provincially Significant Wetlands, Locally Significant Wetlands, significant valleylands or provincially significant Areas of Natural and Scientific Interest within the East Harbour Station Study Area. In addition, there are no woodlands or unevaluated wetlands within the East Harbour Station Study Area. Refer to **Section 4.6** for discussion on Significant Wildlife Habitat in the East Harbour Station Study Area.

4.2 Planning Policy Areas

Planning Policy Areas include land use planning designations from provincial plans, upper and lower tier municipal official plans, and conservation authorities as described in **Section 3** and below. Planning Policy Areas related to the protection of the natural environment that are applicable to the early works are described below:

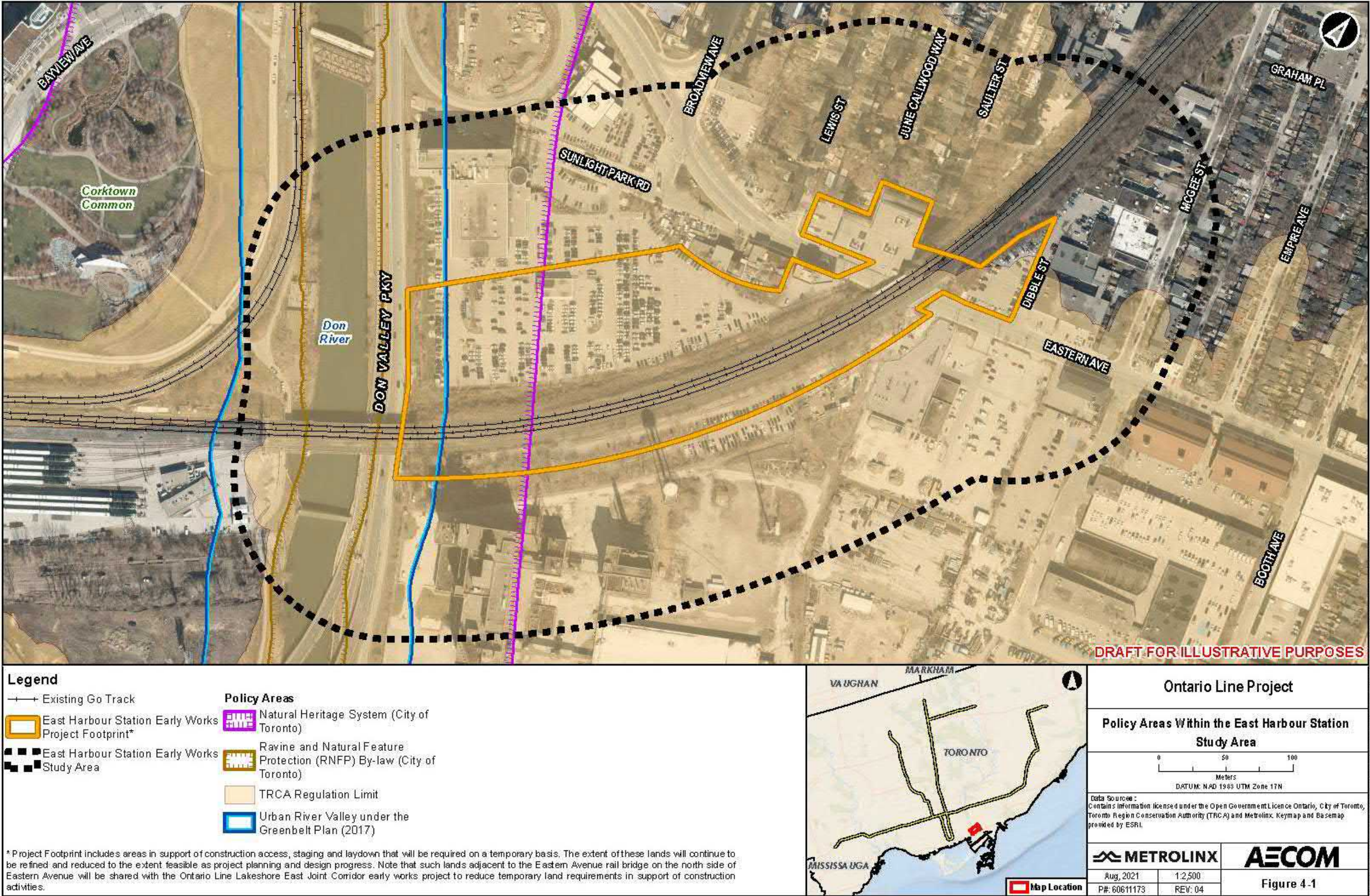
- **City of Toronto Natural Heritage System** – As described in Section 3.4 of the City of Toronto's Official Plan (City of Toronto, 2019), the Natural Heritage System is comprised of the following features:
 - Significant landforms and physical features;
 - Watercourses and hydrological features;
 - Valley slopes, riparian zones;
 - Terrestrial natural habitat types;
 - Significant aquatic features; and
 - Species of concern and significant biological features that are subject to the Provincial Policy Statement.
- **City of Toronto Ravine and Natural Feature Protection By-law** – This By-law is enforced by the City of Toronto and protects natural features that are vulnerable to degradation due to the removal of trees, changes in grade, or

lack of management (City of Toronto, 2017). Typically, a permit would be required to conduct any work in a Ravine or Natural Feature area including removing a tree, placing fill, or altering the grade of the land (City of Toronto, 2017). Metrolinx as a Crown Agency of the Province of Ontario is exempt from certain municipal processes and requirements. In these instances, Metrolinx will engage with the municipalities to incorporate municipal requirements as a best practice, where practical, and may obtain associated permits and approvals.

- **Environmentally Significant Areas** – Environmentally Significant Areas are designated by the City of Toronto and form portions of the City’s Natural Heritage System and include natural heritage areas that support high species diversity, habitats for wildlife, including rare species, rare landforms and important ecological function, which require additional protection to conserve their important ecological qualities and functions (North-South Environmental Inc. et al., 2012).
- **Toronto and Region Conservation Authority Terrestrial Natural Heritage System** – The Toronto and Region Conservation Authority has developed the Terrestrial Natural Heritage System to identify natural features and areas that need to be protected and expanded within their jurisdiction in order to protect ecological functions and biodiversity. Valley and stream corridors, wetlands, woodlands and meadows are key components of this target system. The Toronto and Region Conservation Authority also sets targets for improving the quality, integrity, quantity and connectivity of terrestrial natural features within the system.
- **Urban River Valley Designation** – This designation is provided under the Greenbelt Plan as described in **Section 3.2.4** and applies to the Lower Don River Valley.

According to the City of Toronto’s Interactive Map (City of Toronto, 2020a), there are no Environmentally Significant Areas within the East Harbour Station Study Area. In addition, the Toronto and Region Conservation Authority Terrestrial Natural Heritage System is located outside of the East Harbour Station Study Area. The East Harbour Station Early Works Project Footprint falls within the City of Toronto’s Natural Heritage System (1.43 hectares) and Toronto and Region Conservation Authority’s regulation limits (5.16 hectares) as shown in **Figure 4-1**. The Urban River Valley designation under the Greenbelt Plan occurs along the Lower Don River to its mouth at Lake Ontario and partially within the footprint (0.43 hectares). Although the City of Toronto Ravine and Natural Feature Protection By-Law falls within the East Harbour Station Study Area, it is located outside of the East Harbour Station Early Works Project Footprint.

Figure 4-1: Policy Areas Within the East Harbour Station Study Area



4.3 Ecological Land Classification and Plant Inventory

All of the vegetation communities in the East Harbour Station Study Area are generally disturbed as a result of anthropogenic activities and are largely limited to narrow vegetation strips within the existing rail corridor and along the Lower Don River, which are surrounded by heavily developed commercial, industrial and residential areas. These vegetation communities contained large proportions of non-native and invasive plant species and none were identified as being provincially significant (AECOM, 2017; AECOM, 2018; 4Transit, 2018b). Descriptions of vegetation communities and their structural compositions within the East Harbour Station Study Area are summarized in **Table 4-1** and mapped in **Figure 4-2**.

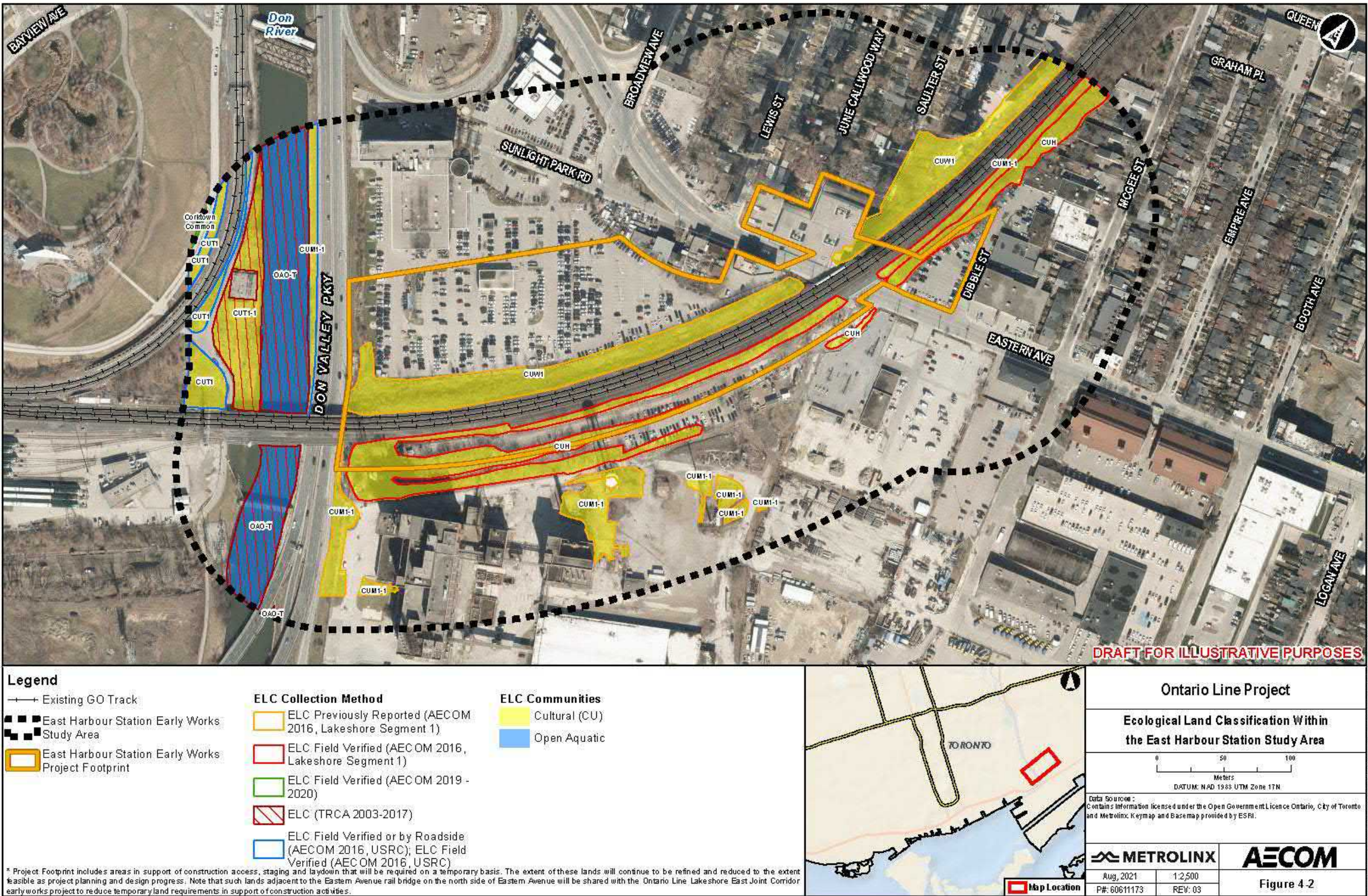
There were no butternuts (*Juglans cinerea*) or any other plant Species at Risk, provincially significant or Regional Species of Conservation Concern plants identified in the East Harbour Station Study Area (AECOM, 2018).

Table 4-1: Ecological Land Classification Vegetation Communities Identified Within the East Harbour Station Study Area

Ecological Land Classification Code – Cultural Communities	Ecological Land Classification Name	Tree Canopy	Shrub Layer	Ground Layer	General Location	Source
Cultural Meadow (CUM) CUM1-1	■ Dry-moist Old Field Cultural Meadow	■ No tree canopy layer identified in this community.	■ No shrub layer identified in this community.	■ Herbaceous and graminoid species covered 60% or more of the cultural meadow communities which were dominated by invasive species such as dog strangling vine (<i>Cynanchum rossicum</i>), garlic mustard (<i>Alliaria petiolata</i>), and white sweet clover (<i>Melilotus alba</i>).	■ East of the Lower Don River	■ Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017)
Cultural Thicket (CUT) CUT1	■ Mineral Cultural Thicket	■ Less than 25% tree cover dominated by tree species such as Manitoba maple (<i>Acer negundo</i>), Norway maple (<i>Acer platanoides</i>) and tree-of-heaven (<i>Ailanthus altissima</i>). Less common trees noted in the canopy included green ash (<i>Fraxinus pennsylvanica</i>), white mulberry (<i>Morus alba</i>), Carolina poplar (<i>Populus X canadensis</i>) and wych elm (<i>Ulmus glabra</i>).	■ Between 25 and 60% shrub cover dominated by staghorn sumac (<i>Rhus typhina</i>), common buckthorn (<i>Rhamnus cathartica</i>), gray dogwood (<i>Cornus racemosa</i>), Russian olive and Oriental bittersweet (<i>Celastrus orbiculatus</i>).	■ Ground species made up more than 60% of this community, including tall goldenrod (<i>Solidago altissima</i>), dog strangling vine and mugwort (<i>Artemisia vulgaris</i>).	■ West of the Lower Don River	■ Union Station Rail Corridor East Enhancements Transit Project Assessment Process Environmental Project Report (AECOM, 2018)
Cultural Thicket (CUT) CUT1-1	■ Sumac Deciduous Thicket	■ Less than 10% tree cover consisting of tree-of-heaven, Russian olive, Manitoba maple and eastern cottonwood (<i>Populus deltoides</i>).	■ Greater than 60% shrub cover dominated by staghorn sumac with lesser of white mulberry, choke cherry (<i>Prunus virginiana</i>), red-osier dogwood (<i>Cornus sericea</i>), common buckthorn and narrow-leaf willow (<i>Salix exigua</i>)	■ Greater than 60% ground cover dominated by grasses, stinging nettle (<i>Urtica dioica</i>), common milkweed, Canada thistle and bouncing bet (<i>Saponaria offinaliz</i>)	■ West of the Lower Don River	■ Toronto and Region Conservation Authority (2003-2017)
Cultural Woodland (CUW) CUW1	■ Mineral Cultural Woodland	■ Less than 60% tree canopy was dominated by Manitoba maple, Siberian elm (<i>Ulmus pumila</i>) or black walnut (<i>Juglans nigra</i>). Less dominant trees included tree-of-heaven, Norway maple, green ash and black locust (<i>Robinia pseudoacacia</i>). Red oak (<i>Quercus rubra</i>) was sometimes noted on the edge of city parks but was generally outside of the existing rail corridor.	■ The shrub cover generally consisted of choke cherry, Manitoba maple, honeysuckles, staghorn sumac and common buckthorn.	■ Ground species were largely either dominated by dog strangling vine or garlic mustard, both highly invasive species. Other ground species consisted of thicket creeper, wild carrot, riverbank grape, field horsetail (<i>Equisetum arvense</i>), goldenrods, bracken fern (<i>Pteridium aquilinum</i>), common St. John's wort (<i>Hypericum perforatum</i>) and sometimes to a lesser extent, false Solomon's seal (<i>Maianthemum racemosum</i>).	■ East of the Lower Don River	■ Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017)
Cultural Hedgerows (CUH) ³	■ Cultural Hedgerows	■ The tree canopy was dominated by Siberian elm, Manitoba maple, tree-of-heaven or black walnut depending on the location. Other less dominant tree species noted included poplar (<i>Populus</i> sp.), Norway maple and black locust.	■ The shrub layer was dominated by thicket creeper. Japanese knotweed was also noted at certain locations.	■ Ground cover consisted of the same herbaceous and grass species described above for cultural meadows.	■ East of the Lower Don River Bridge	■ Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Environmental Project Report (AECOM, 2017)

3. For the purpose of this investigation, cultural hedgerows were defined as narrow strips or rows of trees, either planted or natural growing as remnants of old vegetation communities that were removed in the past, with minimal vegetative cover underneath

Figure 4-2: Ecological Land Classification Within the East Harbour Station Study Area



4.4 Fish and Fish Habitat

A portion of the Lower Don River is located within the East Harbour Station Study Area.

4.4.1 Watershed Description

The East Harbour Station Study Area contains the Lower Don River, which is situated within the Don River Watershed and drains into the Lake Ontario waterfront (**Figure 4-3**). The Don River watershed is approximately 80% urbanized with almost half of the watershed dedicated to residential development (AECOM, 2017). As one of the most disturbed watersheds in Toronto and Region Conservation Authority's jurisdiction, the natural cover that remains is mostly along the larger valleys and in the headwaters, which serve as wildlife refuges and a recreational magnet for the 1.2 million residents that live within its boundaries (AECOM, 2017). The Don River Watershed has suffered extensive degradation as a result of the removal of natural cover and the alteration of the hydrologic system through the spread of agriculture and subsequent urbanization of the watershed. Lack of effective stormwater control has resulted in flooding, erosion, poor water quality and degraded terrestrial and aquatic ecosystems. Rising population density has led to further development and expanded areas of impervious ground cover as well as heavy use of public greenspaces and natural areas (AECOM, 2017).

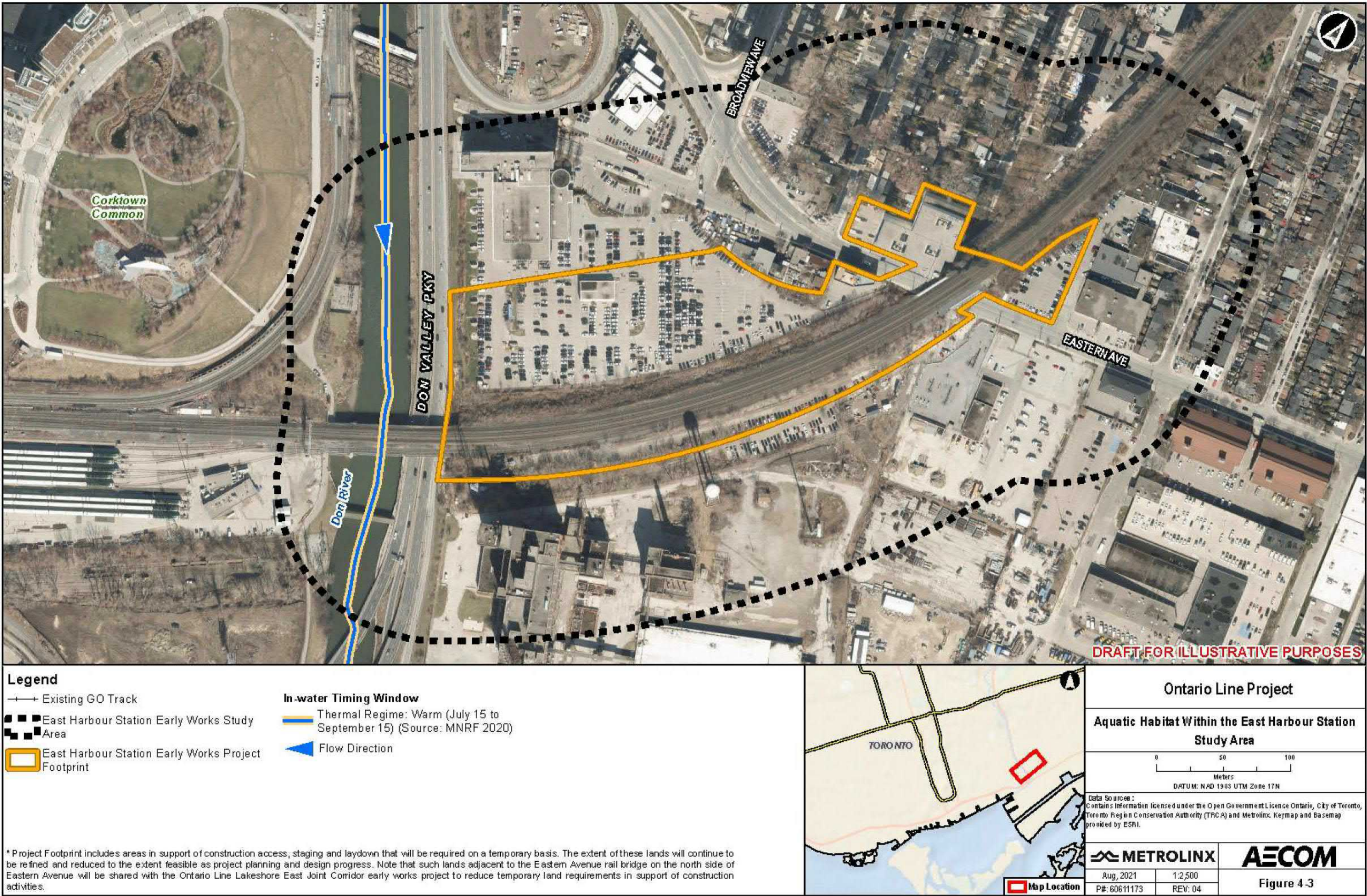
Previous assessments of the Lower Don River within the East Harbour Station Study Area showed evidence of prior re-alignment to accommodate urban transportation corridor development. The Lower Don River segment within the East Harbour Station Study Area is hardened, with little natural features present (AECOM, 2017) and slow flowing, turbid water (HDR, 2018). Banks were found to have narrow strips of riparian vegetation and steel support walls (HDR, 2018). Bankfull width and depth was approximately 40 metres and 2 metres, respectively, with wetted width approximately 36 metres (HDR, 2018).

It was found that the portion of the Lower Don River within the East Harbour Station Study Area provides direct fish habitat important for migration, feeding and refuge. However, conditions are generally non-limiting throughout with no specialized (critically limiting spawning) habitat identified (AECOM, 2017; 4Transit, 2018b). Migratory species (e.g., Chinook Salmon) use the Lower Don River as a seasonal migratory corridor to and from Lake Ontario as no barriers to fish use were identified (AECOM, 2017).

4.4.2 Aquatic Species Composition

There are 33 species of fish known to occur within the Lower Don River (Toronto and Region Conservation Authority, 2020a; HDR, 2018; AECOM, 2017). The fish community is composed of mainly tolerant warmwater fish species (HDR, 2018). Pollution tolerant generalists are the most common species sampled in the watershed.

Figure 4-3: Aquatic Habitat Within the East Harbour Station Study Area



The section of the Lower Don River through the East Harbour Station Study Area is classified as estuarine in the City of Toronto Natural Heritage Study (HDR, 2018) and has been identified as being of poor stream quality for fish habitat (HDR, 2018). The aquatic species composition represents a mix of generally common forage fish and sport fish that are intermittently tolerant to tolerant of environmental perturbation with few exceptions (AECOM, 2018). Coldwater species that are generally intolerant such as salmon and trout were identified, but are not anticipated to be resident fish, rather a result of sport fish restocking initiatives and/or seasonal migration to and from Lake Ontario (AECOM, 2018).

Fish records within the East Harbour Station Study Area were collected from Toronto and Region Conservation Authority (AECOM, 2017; Toronto and Region Conservation Authority, 2020a). **Table 4-2** provides a summary of records including the number of fish species thermal regime and anticipated timing window for in-water works.

Table 4-2: Fish Community Within the East Harbour Station Study Area

Official Name Label	Number of Fish Species	Thermal Regime ¹	Toronto and Region Conservation Authority Fish Community Records ² 2011-2019
Don River	33	Warm ³	<p>Mixed Assemblage of Cold, Cool and Species⁴ including:</p> <p>Cold:</p> <ul style="list-style-type: none"> – Alewife (<i>Alosa pseudoharengus</i>)* – Atlantic Salmon (<i>Salmo salar</i>)* – Brown Trout (<i>Salmo trutta</i>)* – Chinook Salmon (<i>Oncorhynchus tshawytscha</i>)⁵ – Rainbow Trout (<i>Oncorhynchus mykiss</i>)* <p>Cool:</p> <ul style="list-style-type: none"> – Blacknose Dace (<i>Rhinichthys atratulus</i>) – Common Shiner (<i>Luxilus cornutus</i>) – Creek Chub (<i>Semotilus atromaculatus</i>) – Emerald Shiner (<i>Notropis atherinoides</i>) – Gizzard Shad (<i>Dorosoma cepedianum</i>) – Northern Pike (<i>Esox Lucius</i>) – Rock Bass (<i>Ambloplites rupestris</i>) – Round Goby (<i>Neogobius melanostomus</i>) – Sea Lamprey (<i>Petromyzon marinus</i>) – Smallmouth Bass (<i>Micropterus dolomieu</i>) – Spottail Shiner (<i>Notropis hudsonius</i>) – Walleye (<i>Sander vitreus</i>) – White Sucker (<i>Catostomus commersonii</i>) – Yellow Perch (<i>Perca flavescens</i>) – Quillback (<i>Sebastes maliger</i>)

Official Name Label	Number of Fish Species	Thermal Regime ¹	Toronto and Region Conservation Authority Fish Community Records ² 2011-2019
			Warm: <ul style="list-style-type: none"> – Bigmouth Buffalo (<i>Ictiobus cyprinellus</i>) – Bluntnose Minnow (<i>Pimephales notatus</i>) – Brown Bullhead (<i>Ameiurus nebulosus</i>) – Common Carp (<i>Cyprinus carpio</i>)* – Fathead Minnow (<i>Pimephales promelas</i>) – Freshwater Drum (<i>Aplodinotus grunniens</i>) – Goldfish (<i>Carassius auratus</i>)* – Goldfish x Common Carp hybrid* – Koi (<i>Cyprinus rubrofasciatus</i>)* – Longnose Gar (<i>Lepisosteus oculatus</i>) – Pumpkinseed (<i>Lepomis gibbosus</i>) – Spotfin Shiner (<i>Notropis hudsonius</i>) – White Bass (<i>Morone chrysops</i>)

- Notes: 1. Thermal regime provided by Toronto and Region Conservation Authority (2020a).
2. Source: Toronto and Region Conservation Authority, 2020a
3. Coldwater species such as salmon and trout were identified; however, are not anticipated to be resident fish, rather a result of sport fish restocking initiatives and/or seasonal migration to and from Lake Ontario (AECOM, 2018). As such, thermal regime is based on resident fish community structure and has been confirmed through Toronto and Region Conservation Authority correspondence as a warmwater regime.
4. Thermal Regime by species (Source: The Ontario Freshwater Fishes Life History Database, Eakins, 2020).
5. Denotes non-native species (Source: Fish Communities of the Toronto Waterfront, Toronto and Region Conservation Authority, 2008).
* denotes non-native species (Source: Fish Communities of the Toronto Waterfront, TRCA, 2008).

4.5 Wildlife and Wildlife Habitat

Based on a review of wildlife atlases, the majority of the wildlife within the East Harbour Station Study Area are common in the City of Toronto and tolerant to anthropogenic disturbances, while a small proportion is comprised of sensitive or rare species (refer to **Section 4.6** and **Section 4.7** for discussion on Species of Conservation Concern and Species at Risk).

Refer to **Appendix A** for comprehensive species lists.

Forested ravines, City parks and open spaces that make up the City of Toronto's Natural Heritage System provide important habitats for wildlife in an urban setting (City of Toronto, 2012). The forested ravines of the Lower Don River act as important wildlife corridors and allow for the movement of mammals, herpetofauna, birds and insects including butterflies between different areas to seek food, shelter and mates within the

City of Toronto's Natural Heritage System (City of Toronto, 2012). The Lower Don River also provides connectivity from Lake Ontario and the Greenbelt. In addition, the forested river valleys and ravines associated with the Lower Don River Valley support the movement of migratory breeding birds and provide shelter and food for migrant water-dependent birds such as Black-crowned Night-Herons (*Nycticorax nycticorax*), Spotted Sandpipers (*Actitis macularius*) and Belted Kingfishers (*Megaceryle alcyon*) among other bird species (Dougan & Associates and North-South Environmental Inc., 2009). In addition, City parks and open spaces, utility corridors and existing rail corridors may act as stepping stones that provide connectivity to major natural systems (e.g., forested ravines of the Lower Don River) and support wildlife movement (City of Toronto, 2018).

There is limited natural cover providing wildlife habitat within the East Harbour Station Study Area in the form of narrow strips of riparian vegetation along the Lower Don River and within the existing rail corridor (HDR, 2018; Golder Associates, 2018). The remaining area consists of an existing parking lot.

Areas that could potentially support herpetofauna tolerant of urban conditions, for example American Toad (*Anaxyrus americanus*), Dekay's Brownsnake (*Storeria dekayi*), and Eastern Gartersnake (*Thamnophis sirtalis*) were also identified close to the Lower Don River (4Transit, 2018a); however, small pockets of low-quality vegetation west of the Lower Don River supporting urban wildlife were documented but generally lacked in amphibian breeding habitat (AECOM, 2018). There is limited wildlife habitat within the existing rail corridor as vegetation communities are largely disturbed, containing a high proportion of non-native and invasive plant species, and highly fragmented with low connectivity to other significant natural features (AECOM, 2017). Although the Lower Don River may function as a movement corridor for small to medium sized urban wildlife, there is low connectivity to other significant natural features with many barriers to animal movement (i.e., railways, roads, construction areas and fences). The existing rail corridor provides a low-quality movement corridor for some small mammals, birds and insects.

Most of the bird species recorded in the East Harbour Station Study Area consist of common species in Ontario that are tolerant to urban disturbances except for Barn Swallow and Chimney Swift, both Species at Risk birds protected under the Endangered Species Act, noted flying over the existing rail corridor (AECOM, 2017). Other bird species recorded included Turkey Vulture (*Cathartes aura*), Rock Pigeon (*Columba livia*), Golden-crowned Kinglet (*Regulus satrapa*), House Sparrow (*Passer domesticus*), and European Starling (*Sturnus vulgaris*) (4Transit, 2018a). It is important to note that isolated trees and shrubs, vegetation communities and anthropogenic structures (e.g., buildings, bridges) can provide nesting habitat for many migratory birds, which are protected under the Migratory Birds Convention Act.

No observations or signs of any mammal species were recorded in the East Harbour Station Study Area during the site investigations; however, the general area likely supports a range of mammals often found in urban environments, including: Common Raccoon (*Procyon lotor*), Eastern Cottontail (*Sylvilagus floridanus*), Eastern Grey Squirrel (*Sciurus carolinensis*), Striped Skunk (*Mephitis mephitis*), and a number of small mammals that often go undetected (e.g., shrews, voles, mice) (Dobbyn, 1994).

4.6 Significant Wildlife Habitat

This section identifies candidate and confirmed Significant Wildlife Habitat within the East Harbour Station Study Area. Significant Wildlife Habitat, including habitats for Species of Conservation Concern, receive protection under the Provincial Policy Statement and should thus be considered when corridors and rights-of-way for significant transportation are being planned according to Section 1.6.8.6 of the Provincial Policy Statement. Species of Conservation Concern may also be afforded protection under the Migratory Birds Convention Act or Ontario Fish and Wildlife Conservation Act, 1997.

Significant Wildlife Habitat screening and habitat screening for Species of Conservation Concern were completed for the East Harbour Station Study Area following the methods described in **Section 2.1.3**. Species with historical records were deemed unlikely to persist in the general area given the vast urbanization within the City of Toronto and for this reason were not included in the Species of Conservation Concern screening. Refer to **Appendix B** for the complete Significant Wildlife Habitat screening and **Appendix C** for the complete Species of Conservation Concern habitat screening.

Based on review of the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015), the following Significant Wildlife Habitat types may occur within the East Harbour Station Study Area.

■ **Habitats of Species of Conservation Concern:**

- **Confirmed Habitat for Species of Conservation Concern** (refer to **Appendix C** for the complete Species of Conservation Concern habitat screening):
 - Northern Map Turtle (*Graptemys geographica*) – The Lower Don River may serve as a movement corridor for this species due to its moderate flow and less than 1 metre depth. A single record of this species within the East Harbour Station Study Area was reported by Ontario Nature in 2016; however, this species is considered unlikely to be nesting or moving within or in vicinity of the East Harbour Station Early Works Project

Footprint due to the lack of suitable habitat present and barriers to movement (e.g., Don Valley Parkway) from the Lower Don River. The species may instead use the Lower Don River as a movement corridor.

– **Candidate Habitat for Species of Conservation Concern** (refer to **Appendix C** for the complete Species of Conservation Concern habitat screening):

- Common Nighthawk – This species may nest on the flat, gravel rooftops of buildings in urban areas (Brigham et al., 2011). There are flat roofed buildings within the East Harbour Station Early Works Project Footprint, and others within the East Harbour Station Study Area. This species is protected by Migratory Birds Convention Act.
- Eastern Wood-pewee (*Contopus virens*) – Treed areas (e.g., cultural woodlands) may provide suitable nesting habitat for this species. This species is protected by Migratory Birds Convention Act.
- Monarch (*Danaus plexippus*) – Cultural meadows may provide suitable foraging and rearing habitat for this species.
- Snapping Turtle (*Chelydra serpentina*) – The Lower Don River may serve as a movement corridor for this species due to its moderate flow and less than 1 metre depth but is unlikely to provide suitable hibernation habitat within the East Harbour Station Early Works Project Footprint. This species is not anticipated to be nesting or moving through the rail corridor within the East Harbour Station Early Works Project Footprint due to lack of suitable habitat and barriers to movement (e.g., Don Valley Parkway) from the Lower Don River.

There were no candidate or confirmed seasonal concentration areas, rare vegetation communities, specialized habitat for wildlife or animal movement corridors identified within the East Harbour Station Study Area (refer to **Appendix B** for the complete Significant Wildlife Habitat screening). Although the Lower Don River within the East Harbour Station Study Area acts as a movement corridor for some urban wildlife, it does not qualify as a candidate animal movement (amphibian or deer) corridor based on the criteria described in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (Ministry of Natural Resources and Forestry, 2015) due to high levels of urbanization, fragmentation and barriers to animal movements (i.e., railways, roads, construction areas, fences).

4.7 Species at Risk Habitat Screening

This section provides a brief discussion on the likelihood of Species at Risk occurring within the East Harbour Station Study Area. A habitat screening for Species at Risk was completed following the methods described in **Section 2.1.4** and is provided in **Appendix D**. Of note, species with historical records were deemed unlikely to persist in the general area given the vast urbanization within the City of Toronto and for this reason were not included in the Species at Risk screenings.

The following Species at Risk have a high probability of occurring within the East Harbour Station Study Area:

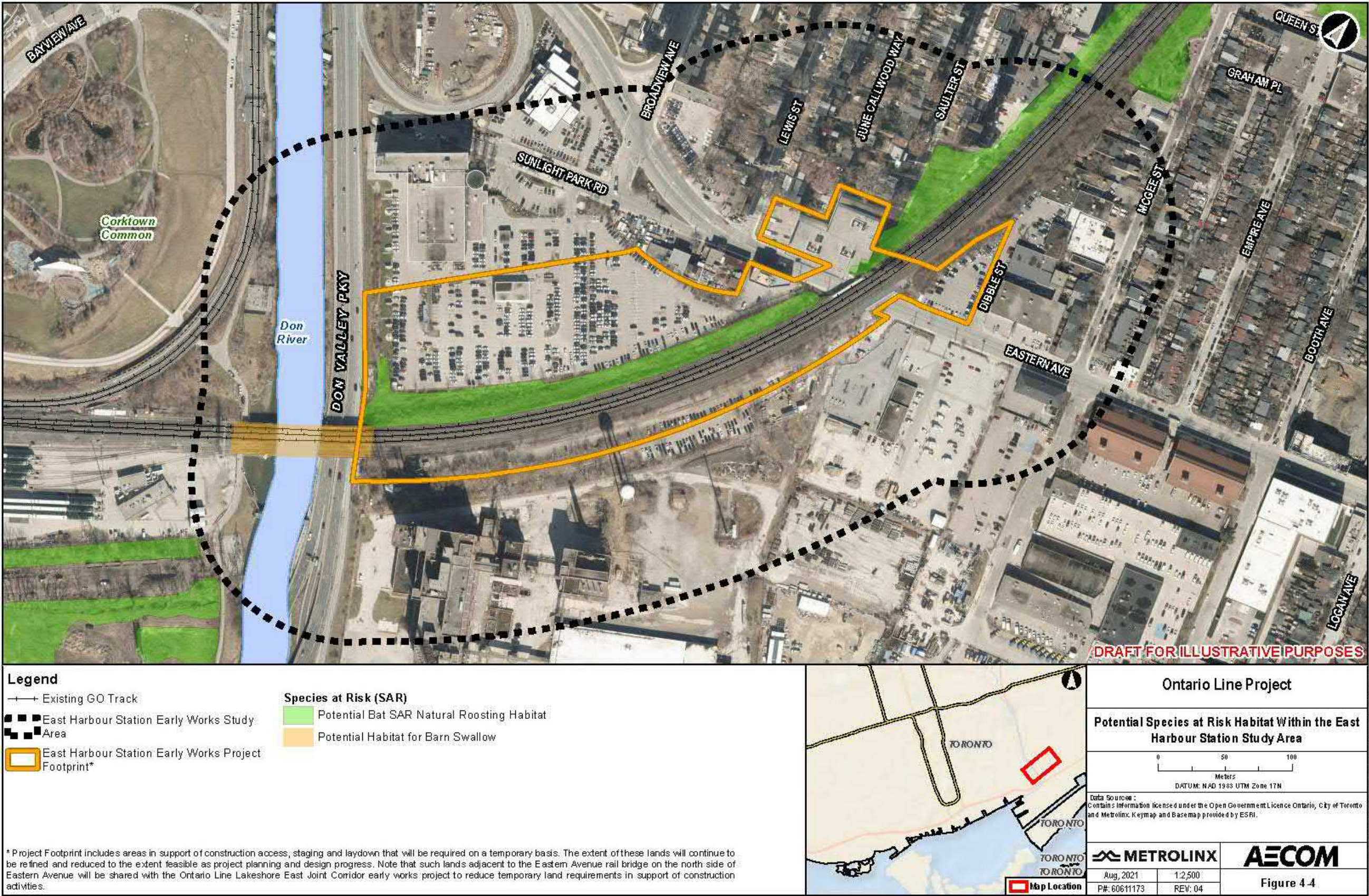
- **Barn Swallow** – This species is listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. Barn Swallows are aerial insectivores and commonly forage over open areas such as waterbodies, pastures with livestock and woodlands edges (Ministry of Natural Resources and Forestry, 2013a), and often live in close association with humans, building their cup-shaped mud nests, which are often reused from year to year, almost exclusively on human-made structures such as open barns, buildings, under bridges and in culverts (Ministry of the Environment, Conservation and Parks, 2019a). Nesting Barn Swallows require proximity to suitable open habitat for foraging and generally also require access to mud for nest building (Heagy et al., 2014). According to 4Transit (2018b), Barn Swallows were observed foraging in the vicinity of the rail bridge crossing the Lower Don River suggesting that active nests may be present under this bridge (**Figure 4-4**). The buildings within the East Harbour Station Study Area were deemed to have limited potential to support nesting Barn Swallows; however, field surveys will be required to determine if Barn Swallow nests are present on any buildings that may be removed or on the existing rail bridge.
- **Chimney Swift** – This species is listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. Chimney Swifts are aerial insectivores and are typically concentrated in urban settlements where there are suitable chimneys for nesting and roosting (Steeves et al., 2014; Committee on the Status of Endangered Wildlife in Canada, 2018). Buildings with suitable chimneys or standalone smokestacks may provide nesting or roosting habitat for Chimney Swifts within the East Harbour Station Study Area. Suitable chimneys have the following characteristics (Bird Studies

Canada, 2009; Committee on the Status of Endangered Wildlife in Canada, 2018):

- Chimneys with a wide diameter of at least 2.5 standard bricks (20 centimetres x 9 centimetres x 6 centimetres) in width or that have a minimum interior diameter of 25 to 30 centimetres (or 1 foot);
- Chimneys built of brick, stucco, stone or concrete;
- Chimneys lacking caps, spark protectors and animal guards that would otherwise prevent entry;
- Chimneys lacking aluminum flues or metal linings that may prevent Chimney Swifts from clinging to the interior of the chimney;
- Internal chimney temperatures between 13 degrees Celsius and 43 degrees Celsius; and
- Chimney height extends beyond the roofline with a preferred height of 2.68 metres.

Based on review of available online secondary source information, there is one confirmed Chimney Swift site within the East Harbour Station Study Area. According to 4Transit (2018b), Chimney Swift nests were confirmed in 2017 inside the chimney located at 21 Don Roadway, which is situated on the east bank of the Lower Don River, south of the existing rail corridor, within 120 metres of the East Harbour Station Study Area, but outside of the East Harbour Station Early Works Project Footprint. No chimneys or smokestacks are visibly present in the East Harbour Station Early Works Project Footprint based on background sources review. Chimney Swifts have strong site fidelity (i.e., will return and use sites year after year) as long as the conditions of the nest and roost sites remain stable (Ministry of Natural Resources and Forestry, 2013b).

Figure 4-4: Potential Species at Risk Habitat Within the East Harbour Station Study Area



The following Species at Risk have a medium probability of occurring within the East Harbour Station Study Area:

- **Bat Species at Risk, including Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*), Northern Long-eared Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*)** – Bat Species at Risk are listed as Endangered and receive protection under the Endangered Species Act. Little Brown Myotis and Northern Myotis may roost in trees that are hollow, have cavities or loose bark. Tri-coloured bats are known to roost in dead leaf clusters while Eastern Small-footed Myotis are known to roost in rocky outcrops and talus slopes. All bat Species at Risk are known to roost in anthropogenic structures such as buildings in crevice-like spaces; under sidings, eaves, roof tiles or shingles or behind shutters or sliding doors, between building wings, cracks and crevices in walls, wall coatings, hollow mortice joints, rain gutters and chimneys; and/or in attics (Bat Conservation Trust, 2012; Ministry of Natural Resources and Forestry, 1984; Humphrey, 2017; Humphrey and Fotherby, 2019). There were no hibernacula identified within the East Harbour Station Study Area; however, maternity roosting habitats may be present. Treed areas shown in **Figure 4-4**, including cultural woodlands within the existing rail corridor may provide suitable maternity roosting habitats for these species. Buildings with potential entry/exit points within the East Harbour Station Study Area may also be used by bat Species at Risk for roosting (Humphrey, 2017; Humphrey and Fotherby, 2019; Ministry of Natural Resources and Forestry, 1984); however, the buildings within the East Harbour Station Early Works Project Footprint are unlikely to provide suitable roosting habitat for bat Species at Risk as the building is maintained and occupied, based on desktop review. The rail bridge over the Lower Don River is not considered to be roosting habitat for bat Species at Risk as these species are not known to use bridges or rail overpasses as day roost habitats at northern latitudes (Keeley and Tuttle, 1999; Bennet et al., 2008; Bektas et al., 2018; Civjan et al., No Date; Adam and Hays, 2000). There are no documented cases of bats utilizing bridges as roosting habitat in Ontario or Michigan where studies have been completed, as bridges at these northern latitudes are not warm enough to meet bats' microclimatic conditions.
- **Butternut** – This species is listed as Endangered and receives protection under the provincial Endangered Species Act. This species may occur within the cultural hedgerows within the existing rail corridor.

The remaining Species at Risk had low probability of occurrence due to lack of habitat identified within the East Harbour Station Study Area (refer to **Appendix D** for full Species at Risk habitat screening).

- **Bank Swallow (*Riparia riparia*)** – This species is listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. There were no eroding river banks present in the East Harbour Station Study Area (Cornell Laboratory of Ornithology, 2019).
- **Bobolink (*Dolichonyx oryzivorus*)** – This species is listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. There were no large hayfields, pastures or tallgrass meadows within the East Harbour Station Study Area (Ministry of the Environment, Conservation and Parks, 2019b).
- **Eastern Meadowlark (*Sturnella magna*)** – This species is listed as Threatened and receives protection under the provincial Endangered Species Act, as well as the federal Migratory Birds Convention Act. There were no large hayfields, pastures or tallgrass meadows within the East Harbour Station Study Area (Ministry of the Environment, Conservation and Parks, 2019c).
- **Blanding's Turtle (*Emydoidea blandingii*)** - There are no suitable nesting, basking or wetland habitats present within the East Harbour Station Study Area. There are reinforced retaining walls on either side of the Lower Don River at the Lower Don Bridge which do not provide suitable nesting habitat. Lake Ontario acts as a natural barrier to movement for Blanding's Turtle (Ministry of the Environment, Conservation and Parks, 2019d).

No aquatic Species at Risk are present within the East Harbour Station Study Area.

5. Potential Impacts, Mitigation Measures and Monitoring Activities

In accordance with Sections 8(2)6, 8(2)7 and 8(2)8 of Ontario Regulation 341/20: Ontario Line Project, this section describes the potential impacts, mitigation measures, and monitoring activities to verify the effectiveness of mitigation measures associated with the East Harbour Station early works.

Potential impacts to the natural environment as a result of disturbances associated with the East Harbour Station Study Area have been assessed and are presented in **Table 5-1** in addition to mitigation measures and monitoring activities. Additional recommended pre-construction surveys are also identified in **Section 6** and will be implemented as required.

As a conservative approach, all vegetation communities and buildings overlapping with the East Harbour Station Early Works Project Footprint were assumed to be permanently removed during the construction phase.

Minimal vegetation removal is anticipated within vegetation communities, including up to 1.25 hectares of cultural woodland (CUW1), up to 1.07 hectares of cultural hedgerow (CUH) and up to 0.32 hectares of cultural meadow (CUM1-1). Wildlife habitat within the East Harbour Station Early Works Project Footprint is limited to fragmented and disturbed vegetation communities within the existing rail corridor; however, urban wildlife may still enter the construction work area and become susceptible to accidental injury or mortality associated with construction machinery and equipment if not mitigated. Increased noise emissions from construction activities are not anticipated to affect urban wildlife that are already tolerant of existing anthropogenic sources of noise (i.e., trains and adjacent roads).

Disturbance/displacement of Migratory Birds Convention Act-protected migratory birds and/or damage or destruction of their nests and eggs may occur as a result of vegetation clearing (including removal of street trees, shrubs and ground cover) or disturbance to/demolition of buildings/structures if construction activities are conducted during the breeding bird season (April 1 to August 31).

Northern Map and Snapping Turtle may use the Lower Don River as a movement corridor but are unlikely to be directly affected by the East Harbour Station early works as movement within the Lower Don River is not anticipated to be impeded as a result of the East Harbour Station early works. As the East Harbour Station Early Works Project Footprint is located approximately 30 metres from the Lower Don River, east of the Don

Valley Parkway (a significant barrier to movement) and within a heavily developed area; it is highly unlikely that these turtle species will be encountered in the construction work area for the East Harbour Station early works. In addition, no in-water works are proposed as part of the construction activities. Therefore it is anticipated that both the Snapping Turtle and Northern Map Turtle will not be affected by the East Harbour Station early works construction activities.

Generally, there is a low probability for Common Nighthawk habitat to exist on the flat roof tops of buildings within the East Harbour Station Early Works Project Footprint that may be demolished. However, surveys are required prior to demolition if demolition is scheduled to occur during the breeding bird season. Eastern Wood-pewee may occur within treed areas (e.g., cultural woodlands) identified within the existing rail corridor, of which up to 1.25 hectares may be removed. Monarchs may forage within cultural meadows identified within 120 metres of the East Harbour Station Early Works Project Footprint, of which up to 0.32 hectares may be removed.

If required, the demolition of potential anthropogenic habitats for Species at Risk are not anticipated to affect Chimney Swift, as no chimneys or smokestacks are visibly present within the East Harbour Station Early Works Project Footprint based on background review sources. There is limited potential for the buildings that may be demolished to support nesting Barn Swallows. This should be confirmed through a nest check prior to demolition, if demolition is required. Furthermore, the Lakeshore East rail bridge is not anticipated to be affected by the East Harbour Station early works. Removal of suitable bat maternity roosting trees occupied by bat Species at Risk in cultural woodlands during their active season may cause bat Species at Risk to be killed, harmed or harassed. Surveys to further examine potential Species at Risk bat roosting habitat will be conducted in suitable Ecological Land Classification communities. The buildings within the East Harbour Station Early Works Project Footprint are unlikely to provide suitable bat Species at Risk habitat as they appear to be occupied and intact (i.e., no potential entry/exit points).

There are no in-water works proposed within the Lower Don River; however, the East Harbour Station Early Works Project Footprint is located approximately 30 metres from the Lower Don River bank, on the east side of the Don Valley Parkway. Potential effects on fish and fish habitat in the Lower Don River are not anticipated provided that best management practices are implemented. No aquatic Species at Risk are present within the Lower Don River and therefore no effects to aquatic Species at Risk are anticipated.

Generally, the potential effects on the natural environment as a result of construction activities within the East Harbour Station Study Area are considered to be minimal, provided that the mitigation measures and monitoring requirements described in **Table 5-1** are implemented.

Table 5-1: Potential Impacts, Mitigation Measures and Monitoring Activities for the East Harbour Station Early Works

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Designated Natural Areas	<ul style="list-style-type: none">No potential impacts as there are no Designated Natural Areas within 120 metres of the East Harbour Station Early Works Project Footprint	<ul style="list-style-type: none">None Required	<ul style="list-style-type: none">None Required
Policy Area – City of Toronto Natural Heritage System	<ul style="list-style-type: none">Vegetation removal within the City of Toronto Natural Heritage System	<ul style="list-style-type: none">Refer below to mitigation measures described for Vegetation Communities.Consultation with City of Toronto.	<ul style="list-style-type: none">Refer below to monitoring described for Vegetation Communities.
Policy Area – City of Toronto Ravine and Natural Feature Protection	<ul style="list-style-type: none">No potential impacts as the East Harbour Station Early Works Project Footprint is located outside of the City of Toronto Ravine and Natural Feature Protection By-Law Area.	<ul style="list-style-type: none">None Required.	<ul style="list-style-type: none">None Required.
Policy Area – Toronto and Region Conservation Authority Regulation Areas	<ul style="list-style-type: none">Vegetation removal within Toronto and Region Conservation Authority Regulated Areas	<ul style="list-style-type: none">Refer below to mitigation measures described for Vegetation Communities, Wildlife and Wildlife Habitat, Migratory Breeding Birds and Nests, Significant Wildlife Habitat, Species at Risk and Aquatic Environment.Further consideration to reduce potential impacts within the Toronto and Region Conservation Authority Regulated Areas to the extent feasible will be undertaken during detailed design.	<ul style="list-style-type: none">Refer below to monitoring described for Vegetation Communities.Recommendations for additional monitoring related to vegetation removal within regulated areas may be determined through consultation with Toronto and Region Conservation Authority.
Policy Area – Urban River Valley under the Greenbelt Plan	<ul style="list-style-type: none">Vegetation removal within the Urban River Valley	<ul style="list-style-type: none">Refer below to mitigation measures described for Vegetation Communities, Wildlife and Wildlife Habitat, Significant Wildlife Habitats, Migratory Breeding Birds and Nests, Species at Risk and Aquatic Environment.Compensation for the removal of vegetation in accordance with Metrolinx’s Vegetation Guideline (2020) approach will consider maintaining or enhancing connectivity along the Lower Don River to the extent feasible.	<ul style="list-style-type: none">Refer below to monitoring described for Vegetation Communities, Wildlife and Wildlife Habitat and Aquatic Environment.
Vegetation Communities	<ul style="list-style-type: none">Removal of vegetation communitiesDamage to adjacent vegetation or Ecological Land Classification communities as a result of accidental intrusion	<ul style="list-style-type: none">Vegetation removal will be reduced and limited to within the East Harbour Station early works construction areas.Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the East Harbour Station early works construction areas and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities.Compensation for the removal of vegetation will be provided in accordance with Metrolinx’s Vegetation Guideline (2020).Temporarily disturbed areas will be re-vegetated using non-invasive, preferably native plantings and/or seed mix appropriate to the site conditions and adjacent vegetation communities. Seed mixes will be used in conjunction with an appropriate non-invasive cover crop as needed.Vegetation removals will also consider and mitigate potential impacts to sensitive species (e.g., migratory birds) and features (e.g., Significant Wildlife Habitat). Refer to the wildlife and wildlife habitat and Species at Risk mitigation measures described below.	<ul style="list-style-type: none">On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Monitoring will include inspection of construction fencing/silt fencing to confirm appropriate installation, maintenance and rehabilitation to prevent accidental damage to vegetation or Ecological Land Classification communities outside of the work construction area. Corrective actions may include additional site maintenance and alteration of activities to reduce impacts.If required, the approach to compensation monitoring will be developed in accordance with Metrolinx’s Vegetation Guideline (2020).

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Vegetation Communities	<ul style="list-style-type: none"> City and private tree removal 	<ul style="list-style-type: none"> An Arborist Report by an International Society of Arboriculture Certified Arborist will be prepared in accordance with the Ontario Forestry Act R.S.O. 1990, and other regulations and best management practices as applicable. The Arborist Report will include, but not be limited to the individual identification of all trees within the East Harbour Station early works construction areas including those that require removal or preservation, or trees that may be injured. Trees to be identified may include those on Metrolinx property, trees on public and private lands, and boundary trees. City of Toronto by-laws dictate the minimum area buffers to be inventoried and Diameter at Breast Height which requires inventory. Prior to the undertaking of tree removals, a Tree Removal Strategy/Tree Preservation Plan will be developed during detailed design to document tree protection and mitigation measures that follow the City of Toronto Tree Protection Policy and Specifications for Construction Near Trees Guidelines (2016b) and adherence with best practices, standards and regulations on safety, environmental and wildlife protections. Compensation for tree removals will be undertaken in accordance with provisions outlined in the Metrolinx Vegetation Guideline (2020). Pruning of branches will be conducted through the implementation of proper arboricultural techniques by an International Society of Arborists certified Arborist. Tree Protection Zone fencing will be established to protect and prevent tree injuries. Tree Protection Zones will be clearly staked prior to construction using barriers in accordance with local by-law requirements. 	<ul style="list-style-type: none"> Regular inspection in areas of vegetation removal will be undertaken as required during construction to ensure that fencing is intact, only specified trees are removed and no damage is caused to the remaining trees and adjacent vegetation communities. 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 reduce impacts. If required, the approach to compensation monitoring will be developed in accordance with Metrolinx's Vegetation Guideline (2020).
Vegetation Communities	<ul style="list-style-type: none"> Potential for the spread of emerald ash borer, associated with removal, handling and transport of ash trees 	<ul style="list-style-type: none"> 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: Phytosanitary Requirements to Prevent the Introduction into and Spread within Canada of the emerald ash borer. 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. 	<ul style="list-style-type: none"> 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 reduce impacts.
Vegetation Communities	<ul style="list-style-type: none"> Increased soil erosion and sedimentation 	<ul style="list-style-type: none"> Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the East Harbour Station early works construction areas and prevent accidental damage or intrusion to adjacent vegetation or Ecological Land Classification communities. An Erosion and Sediment Control Plan, in accordance with the Erosion and Sediment Control Guide for Urban Construction (Toronto and Region Conservation Authority, 2019), will be prepared prior to and implemented during construction to reduce the risk of sedimentation to the vegetation communities. 	<ul style="list-style-type: none"> 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 reduce impacts. All erosion and sediment control measures should be inspected weekly, after every rainfall and significant snow melt event, and daily during periods of extended rain or snow melt. All damaged erosion and sediment control measures will be repaired and/or replaced within 48 hours of the inspection.
Vegetation Communities	<ul style="list-style-type: none"> Soil or water contamination as a result of spills (e.g., grease and/or fuel) from equipment use Introduction or spread of invasive species 	<ul style="list-style-type: none"> A Spill Prevention and Contingency Plan will be developed and adhered to. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. Refuelling of equipment will occur at least 30 metres away from any watercourse. Refuelling shall be done within refuelling stations lined with appropriate material to prevent seepage and fuel discharge. All machinery, construction equipment and vehicles arriving on-site should be in clean condition (e.g., free of fluid leaks, soils containing seeds of plant material from invasive species) and be inspected and washed in accordance with the Clean Equipment Protocol for Industry (Halloran et al., 2013). 	<ul style="list-style-type: none"> 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 reduce impacts.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Wildlife and Wildlife Habitat – General	■ Disturbance, displacement or mortality of wildlife	■ Prior to construction, investigation of the East Harbour Station early works construction areas for wildlife and wildlife habitat that may have established following the completion of previous surveys will be undertaken, as appropriate. ■ 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.	■ Regular on-site inspection by on-site environmental workers or construction staff should occur within the construction area to ensure that no wildlife is trapped within the construction area. ■ 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 reduce impacts.
Significant Wildlife Habitat - Eastern Wood-pewee	■ Removal of up to 1.5 hectares of candidate habitat for Eastern Wood-pewee	■ Refer below to mitigation measures described for Migratory Breeding Birds and Nests.	■ Refer below for monitoring requirements described for Migratory Breeding Birds and Nests.
Significant Wildlife Habitat - Monarch	■ Removal of up to 0.32 hectares of candidate habitat for Monarchs	■ Identify opportunities to promote pollinator species and habitat in accordance with the Metrolinx Vegetation Guideline (2020). This may include planting or seeding native flowering plants in temporarily disturbed areas.	■ Regular monitoring (site inspections) will be undertaken during construction to prevent unauthorized impacts to habitat used by Monarch.
Significant Wildlife Habitat - Common Nighthawk	■ Removal of candidate nesting habitat for Common Nighthawk	■ Refer below to mitigation measures described for Migratory Breeding Birds and Nests. ■ Demolition of buildings should be scheduled outside of the breeding bird season of April 1 to August 31. If this is not possible and buildings must be demolished during this period, the following will be completed: ■ The roofs will be checked for presence of gravel. If gravel is not present, then the building is unlikely to provide suitable nesting habitat for Common Nighthawk. If gravel is present, a search for eggs and nesting activity for Common Nighthawk on the roof will be conducted. If nests or nesting activity of Common Nighthawk are confirmed, the building cannot be demolished until it is confirmed by a Qualified Biologist that young have fully fledged and left the nest.	■ Refer below for monitoring requirements described for Migratory Breeding Birds and Nests.
Migratory Breeding Birds and Nests	■ Disturbance or destruction of migratory bird nests	■ All works must comply with the Migratory Birds Convention Act, including timing windows for the nesting period (April 1 to August 31 in Ontario). ■ If activities (i.e. vegetation clearing and building demolition) are proposed to occur during the general nesting period, a breeding bird and nest survey will be undertaken prior to required activities. Nest searches by an experienced searcher are required and will be completed by a qualified Biologist no more than 48 hours prior to vegetation removal. ■ If a nest of a migratory bird is found outside of this nesting period (including a ground nest) it still receives protection.	■ Regular monitoring will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.
Wildlife Habitat Connectivity	■ Decrease of habitat connectivity for wildlife	■ Refer to the mitigation measures described above for Urban River Valley under the Greenbelt Plan, Vegetation Communities, Wildlife and Wildlife Habitat, Significant Wildlife Habitats, Migratory Breeding Birds and Nests, Species at Risk and Aquatic Environment. ■ During detailed design, considerations for maintaining or enhancing connectivity opportunities will be explored to the extent feasible.	■ Refer to monitoring described for Vegetation Communities.
Species at Risk – General	■ Habitat loss, disturbance and/or mortality to Species at Risk	■ All requirements of the Endangered Species Act will be met. Species-specific mitigation measures will be implemented, as required, in consultation with Ministry of the Environment, Conservation and Parks.	■ 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 reduce impacts. ■ Species-specific monitoring activities will be developed in accordance with any registration and/or permitting requirements under the Endangered Species Act.

Environmental Component	Potential Impacts	Mitigation Measure(s)	Monitoring Activities
Species at Risk – Barn Swallow	■ Habitat loss, disturbance and/or mortality to Barn Swallow	<ul style="list-style-type: none">■ Field surveys will be undertaken prior to construction to confirm presence of any Barn Swallow nests on buildings that will be demolished■ Where loss or disturbance cannot be avoided (e.g., building demolition), all requirements under the Endangered Species Act will be met, including any registration, compensation, replacement structures and/or permitting requirements.■ If disturbance to structures confirmed to provide Barn Swallow habitat is scheduled during the nesting season for Barn Swallow (April 1 to August 31), a nest search will be undertaken to confirm that no Barn Swallow are nesting on structures that may be affected by construction activities on or near these areas. Exclusion measures will be implemented prior to nesting season to dissuade use of these areas for nesting.	■ 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 reduce impacts. Additional monitoring measures will be developed with the Ministry of the Environment, Conservation and Parks, if required.
Species at Risk – Bats	■ Habitat loss, disturbance and/or mortality to Species at Risk Bats	■ All requirements of the Endangered Species Act will be met. Additional monitoring, mitigation and compensation for removal of suitable treed or anthropogenic roosting habitat may be required based on the results of additional surveys and consultation with the Ministry of the Environment, Conservation and Parks.	■ If mitigation is required, 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 reduce impacts. Additional monitoring measures will be developed in consultation with Ministry of the Environment, Conservation and Parks, if required.
Aquatic Environment – <ul style="list-style-type: none">• Wetlands and Waterbodies• Fish and Fish Habitat	■ The East Harbour Station Early Works Project Footprint is located 30 metres from the Lower Don River and east of the Don Valley Parkway and no in-water works are proposed in the Lower Don River. Potential effects on fish and fish habitat are not anticipated provided that best management practices are implemented.	<ul style="list-style-type: none">■ Construction activities will maintain the buffers established during the design phase to reduce potential negative impacts to the Lower Don River.■ An Erosion and Sediment Control Plan, in accordance with the Erosion and Sediment Control Guide for Urban Construction (Toronto and Region Conservation Authority, 2019), as amended from time to time, will be prepared prior to and implemented during construction to reduce the risk of sedimentation to the waterbody.■ A Spill Prevention and Response Plan will be developed before work commences to ensure procedures and policies are in place during construction to reduce impacts to watercourses.■ Any temporary mitigation measures will be installed prior to the commencement of any site clearing, grubbing, excavation, filling or grading works and will be inspected and maintained on a regular basis.■ To the extent feasible, schedule work to avoid wet, windy and rainy periods that may result in high flow volumes and/or increase erosion and sedimentation.■ Stockpiled materials or equipment will be stored within the East Harbour Station early works construction areas but shall be kept at least 30 metres away from any watercourse to the extent possible.■ All equipment fuelling and maintenance will be done at a safe distance from the water (i.e., 30 metres or more) to ensure that no deleterious substances enter the waterway.	<ul style="list-style-type: none">■ 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 reduce impacts and enhance mitigation measures.■ All erosion and sediment control measures should be inspected weekly, after every rainfall and significant snow melt event, and daily during periods of extended rain or snow melt.■ All damaged erosion and sediment control measures will be repaired and/or replaced within 48 hours of the inspection.

Notes: Regulations, standards and guidance documents referenced herein are current as of the time of writing and may be amended from time to time.
If clarification is required regarding regulatory requirements, the appropriate regulatory agencies will be consulted.

6. Future Studies

The following surveys may be undertaken prior to construction of the East Harbour Station early works, as required.

■ **Migratory Breeding Birds and Pre-Construction Nest Surveys:**

- All structures that are anticipated to be demolished, modified or replaced to facilitate the construction of the early works shall be inspected for nests or nesting activity of Migratory Birds Convention Act protected birds. These surveys can occur at any time of year but must be completed prior to the onset of construction activities.

■ **Tree Inventory:**

- A tree inventory shall be completed during detailed design for all City- or private-owned trees within 6 metres of the East Harbour Station Early Works Project Footprint. Tree inventories within Metrolinx-owned lands should be completed in accordance with the Metrolinx Vegetation Guideline (2020). An Arborist Report will be completed to identify permitting requirements if removal and/or damage of woody vegetation is required on adjacent lands. Tree inventories are required to determine appropriate compensation and mitigation measures.

■ **Bat Species at Risk Surveys:**

- Species-specific surveys (i.e., acoustic monitoring) for bat Species at Risk following the Survey Protocol for Species at Risk Bats within Treed Habitats: Little Brown Myotis, Northern Myotis and Tri-coloured Bat (Ministry of Natural Resources and Forestry, 2017c) or a newer protocol if it becomes available from Ministry of the Environment, Conservation and Parks, will be required for tree removals proposed within potential bat Species at Risk habitat to confirm potential impacts and necessary level of compensation under the Endangered Species Act. Total tree removal areas (including both temporary and permanent removals) in suitable bat Species at Risk habitat are recommended to be calculated based on at least 60% detailed design to inform compensation requirements.
- Although the buildings in the East Harbour Station Early Works Project Footprint are unlikely to provide suitable bat Species at Risk roosting

habitat, if demolition of potentially suitable buildings is required as planning progress, detailed searches for potential entry points from all sides of the building and exit surveys following Ministry of the Environment, Conservation and Parks protocols should be completed. Surveys should be completed prior to scheduled construction to confirm habitat use by bat Species at Risk and to identify potential for disturbance of the species during construction in order to confirm authorization requirements under the Endangered Species Act.

■ **Barn Swallow Nest Surveys:**

- All structures (i.e., buildings) identified as potential nesting habitat for Barn Swallow that are anticipated to be modified, replaced or disturbed shall be assessed for nesting Barn Swallow during detailed design in conjunction with the nest searches for Migratory Birds Convention Act protected birds.

■ **Butternut Search:**

- No butternuts were identified during tree inventories completed by 4Transit (2020) or AECOM (2018). If the East Harbour Station Early Works Project Footprint is extended beyond that considered in the tree inventories, it is recommended that a search for butternuts be completed within at least 25 metres of the extended East Harbour Station Early Works Project Footprint to confirm presence of any butternuts. If any butternuts are found within the East Harbour Station Study Area, additional species-specific surveys (e.g., Butternut Health Assessment and DNA testing) should be undertaken prior to construction commencement for those butternuts where excavation or grading is required for temporary or permanent infrastructure within 25 metres of the identified specimens. A Butternut Health Assessment must be completed during the leaf-on season (May 15 to August 31) by a certified Butternut Health Assessor to determine the health of the butternut(s) and a DNA test is also recommended to confirm whether the specimen is a pure butternut or a hybrid.

7. Permits and Approvals

The following sections outline the permits and approvals that may be required for the East Harbour Station early works. Permit and approval requirements will be confirmed during early works detailed design.

7.1 Federal

No federal permits are anticipated to be required for the East Harbour Station early works.

7.2 Provincial

7.2.1 Endangered Species Act, 2007

Metrolinx will comply with the conditions of the Permit CR-D-002-19 issued on August 7, 2020 under Section 17(1) in accordance with clause 17(2)(d) of the Endangered Species Act, 2007 for Species at Risk that may be affected by the East Harbour Station early works including Barn Swallow and bat Species at Risk.

7.2.2 Conservation Authorities Act, 1998

Metrolinx will consult with Toronto and Region Conservation Authority with respect to construction activities in regulated areas for the East Harbour Station early works in relation to Ontario Regulation 166/06: Toronto and Region Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

7.3 Municipal

A range of municipal permits and approvals (e.g., Permit to Injure or Remove Trees) may be required for the Project, particularly as pertaining to municipally owned lands and infrastructure. Metrolinx will obtain all required permits and approvals. However, Metrolinx as a Crown Agency of the Province of Ontario is exempt from certain municipal processes and requirements. In these instances, Metrolinx will engage with the City of Toronto to incorporate municipal requirements as a best practice, where practical, and may obtain associated permits and approvals.

Metrolinx shall continue to communicate and engage with the City of Toronto as planning progresses to address municipal concerns.

8. References

4Transit, 2018a:

East Harbour Station SmartTrack Station – Natural Environment Report.

4Transit, 2018b:

East Harbour Station SmartTrack Station Environmental Project Report.
Accessed January 2020 from: <http://smarttrack.to/wp-content/uploads/2018/07/4T-P2-EH-018-SE-RPT-0001-New-SmartTrack-Stations-EPR-Volume-V-East-Harbour-SmartTrack-Station-0.pdf>

Adam, M.D. and J.P. Hays, 2000:

Use of Bridges as Night Roosts by Bats in the Oregon Coast Range. *Journal of Mammalogy*, Volume 81, Issue 2, 1 May 2000, Pages 402–407. Accessed in May 2020 from: <https://academic.oup.com/jmammal/article/81/2/402/2372853>

AECOM, 2017:

Lakeshore East Rail Corridor Expansion (Don River to Scarborough GO Station) Project Natural Environment Effects Assessment Report.

AECOM, 2018:

Union Station Rail Corridor East Enhancements Transit Project Assessment Process (TPAP) – Natural Environment Report. April 2018.

AECOM, 2020:

Ontario Line Final Environmental Conditions Report. Prepared for Metrolinx.

Bat Conservation International, 2020:

Species Profiles. Accessed February 2020 from:
<http://www.batcon.org/resources/media-education/species-profiles>

Bat Conservation Trust, 2012:

Bats and Buildings: Bats and the Built Environment Series. Accessed in February 2020 from: http://www.bats.org.uk/data/files/BatsandBuildings_2012.pdf

Bektas, B., A. Hans, S.B. Phares, E. Nketah, J. Carey, M.K. Solberg and K. McPeck, 2018:

Most Likely Bridges as Roosting Habitat for Bats: Study for Iowa. *Transportation Research Record*. Accessed in May 2020
from: <https://journals.sagepub.com/doi/10.1177/0361198118758649>

- Bennet, F.M., S. C. Loeb, M.S. Bunch and W.W. Bowerman, 2008:
Use and Selection of Bridges as Day Roosts by Rafinesque's Big-Eared Bats.
The American Midland Naturalist Vol. 160, No. 2 (Oct. 2008), pp. 386-399.
Abstract available:
https://www.jstor.org/stable/20491398?seq=1#page_scan_tab_contents
- Bird Studies Canada (BSC), 2001:
Ontario Breeding Bird Atlas Guide for Participants. Accessed in June 2019
from: https://www.birdsontario.org/download/atlas_feb03.pdf
- Bird Studies Canada (BSC), 2009:
Chimney Swift (*Chaetura pelagica*) Monitoring Protocol. Port Rowan, 24 pp.
- Bird Studies Canada (BSC), Environment Canada – Canadian Wildlife Service, Ontario
Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources
and Forestry, 2006:
Ontario Breeding Bird Atlas website. Accessed February 2018 from:
<http://www.birdsontario.org/atlas/index.jsp>
- Brigham, R.M., J. Ng, R.G. Poulin and S.D. Grindal, 2011:
Common Nighthawk (*Chordeiles minor*), version 2.0. In The Birds of North
America (A. F. Poole, Editor). Cornell Laboratory of Ornithology, Ithaca, NY,
USA. <https://doi.org/10.2173/bna.213>
- City of Toronto, 2012:
Mammals of Toronto – A Guide to Their Remarkable Word. City of Toronto
Biodiversity Series.
- City of Toronto, 2016a:
Toronto Municipal Code Chapter 658, Ravine and Natural Feature Protection.
Accessed in June 2020 from:
https://www.toronto.ca/legdocs/municode/1184_658.pdf
- City of Toronto, 2016b:
Tree Protection Policy and Specifications for Construction Near Trees.
Accessed in November 2019 from:
<https://www.toronto.ca/data/parks/pdf/trees/tree-protection-specs.pdf>.
- City of Toronto, 2017:
Ravine and Natural Feature Protection By-Law. Accessed in February 2020
from: <https://www.toronto.ca/wp-content/uploads/2017/08/96f6-Ravine-and-Natural-Feature-Protection-By-Law-Brocure-Division-Planning-And-Development.pdf>

City of Toronto, 2019:

Toronto Official Plan – Office Consolidation February 2019. Accessed in January 2020 from: https://www.toronto.ca/wp-content/uploads/2019/06/8f06-OfficialPlanAODA_Compiled-3.0.pdf

City of Toronto, 2020a:

Toronto Maps V2. Accessed in February 2020 from: http://map.toronto.ca/maps/map.jsp?app=TorontoMaps_v2.

City of Toronto, 2020b:

Open Data Portal. Accessed in January 2020 from: <https://open.toronto.ca/>

Committee on the Status of Endangered Wildlife in Canada (COSEWIC), 2018:

COSEWIC assessment and status report on the Chimney Swift *Chaetura pelagica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 63 pp.

Cornell Laboratory of Ornithology, 2019:

All About Birds – Bank Swallow. Cornell Laboratory of Ornithology, Ithaca, New York. Accessed in February 2020 from: https://www.allaboutbirds.org/guide/Bank_Swallow/lifehistory.

Dobbyn, 1994:

Atlas of the Mammals of Ontario. Ontario: Federation of Ontario Naturalists.

Dougan & Associates and North-South Environmental Inc., 2009:

Migratory Birds in the City of Toronto – A Literature Review and Data Assessment Final Report. Prepared for the City of Toronto Planning.

Eakins, R.J., 2021:

Ontario Freshwater Fishes Life History Database. Version 5.08. Online database. (<https://www.ontariofishes.ca>), Accessed January 2020

Environment and Climate Change Canada (ECCC), 2020:

Species at Risk Public Registry. Accessed January 2020 from <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>.

Fisheries and Oceans Canada, 2020:

Toronto and Region Conservation Authority Aquatic Species at Risk Mapping. Accessed in January 2020 from: <http://www.dfo-mpo.gc.ca/species-especes/fpp-ppp/index-eng.htm>

Golder Associates, 2018:

Natural Environment Existing Conditions – Relief Line South, Toronto, Ontario.

Halloran, J., H. Anderson and D. Tassie, 2013:

Clean Equipment Protocol for Industry. Prepared for the Peterborough Stewardship Council and Ontario Invasive Plant Council. Peterborough, ON. Printed April 2013. Updated May 2016.

HDR, 2018:

Relief Line South Environmental Project Report. Prepared for Metrolinx, City of Toronto and Toronto Transit Commission.

Heagy, A., D. Badzinski, D. Bradley, M. Falconer, J. McCracken, R.A. Reid and K. Richardson. 2014:

Recovery Strategy for the Barn Swallow (*Hirundo rustica*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 64 pp.

Humphrey, C. and H. Fotherby. 2019:

Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. vii + 35 pp. + Appendix. Adoption of the Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*), and the Tri-colored Bat (*Perimyotis subflavus*) in Canada (Environment and Climate Change Canada 2018).

Keeley, B.W. and M.D. Tuttle, 1999:

Bats in American Bridges. Bat Conservation International. Resource Publication No. 4.

Land Information Ontario, 2017:

Metadata Tool. Accessed in February 2018 from:
<https://www.ontario.ca/page/land-information-ontario>

Lee, H.T., W.D. Bakowksy, J. Riley, J. Bowles and M. Puddister, et al., 1998:

Ecological Land Classification for Southern Ontario: First Approximation and Its Application. Ontario Ministry of Natural Resources, Southern Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

MacNaughton, A., R. Layberry, C. Jones and B. Edwards, 2019:

Ontario Butterfly Atlas Online (OBA). Accessed in December 2019 from:
http://www.ontarioinsects.org/atlas_online.htm.

Morrison-Hershfield, 2017:

GO Transit Rail Network Electrification EA Natural Environment Baseline Conditions Report Rev. No. 3.0. Accessed July 2020 from <http://www.metrolinx.com/en/electrification/appendix/A1%20-%20Natural%20Environmental%20Baseline%20Conditions%20Report.pdf>

NatureServe, 2019:

National and Subnational Conservation Status Definitions. Accessed January 2020 from: <http://explorer.natureserve.org/nsranks.htm>.

North-South Environmental Inc. & Dougan & Associates, 2009:

Review of Provincially Significant Wetlands in the City of Toronto. Prepared for City of Toronto and City Planning.

North-South Environmental Inc., Dougan & Associates and Beacon Environmental Ltd., 2012:

Environmentally Significant Areas in the City of Toronto. Prepared for Toronto City Planning.

Ontario Ministry of the Environment, Conservation and Parks (MECP), 2019a:

Barn Swallow. Accessed in January 2020 from: <https://www.ontario.ca/page/barn-swallow>.

Ontario Ministry of the Environment, Conservation and Parks (MECP), 2019b:

Bobolink. Accessed in September 2020 from: <https://www.ontario.ca/page/bobolink#:~:text=The%20Bobolink%20is%20a%20medium%20sized%20songbird%20found%20in%20grasslands%20and%20hayfields.&text=Bobolinks%20spend%20much%20of%20their,singing%20a%20bubbling%20musical%20song>.

Ontario Ministry of the Environment, Conservation and Parks (MECP), 2019c:

Eastern Meadowlark. Accessed in September 2020 from: [https://www.ontario.ca/page/eastern-meadowlark#:~:text=In%20Ontario%2C%20the%20Eastern%20Meadowlark,version%20of%20this%20map%20\(%20PDF%20\)](https://www.ontario.ca/page/eastern-meadowlark#:~:text=In%20Ontario%2C%20the%20Eastern%20Meadowlark,version%20of%20this%20map%20(%20PDF%20))

Ontario Ministry of the Environment, Conservation and Parks (MECP), 2019d:

Recovery Strategy for the Blanding's Turtle (*Emydoidea blandingii*) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. iv + 6 pp. + Appendix. Adoption of the Recovery Strategy for Blanding's Turtle (*Emydoidea blandingii*), Great Lakes/St. Lawrence population, in Canada (Environment and Climate Change Canada 2018).

Ontario Ministry of Municipal Affairs and Housing, 2019:

A Place to Grow. Growth Plan for the Greater Golden Horseshoe. Queen's Printer for Ontario, 2019

Ontario Ministry of Municipal Affairs and Housing, 2020:

Provincial Policy

Statement. Accessed in February 2020 from: <https://www.ontario.ca/page/provincial-policy-statement-2020>

Ontario Ministry of Natural Resources and Forestry (MNRF), 1984:

Habitat Management Guidelines for Bats of Ontario. Accessed in February 2020 from: <https://dr6j45jk9xcmk.cloudfront.net/documents/2790/guide-bats.pdf>

Ontario Ministry of Natural Resources and Forestry (MNRF), 2000:

Significant Wildlife Habitat Technical Guide. Queen's Printer for Ontario.

Ontario Ministry of Natural Resources and Forestry (MNRF), 2010:

Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp.

Ontario Ministry of Natural Resources and Forestry (MNRF), 2013a:

Barn Swallow General Habitat Description. Accessed in January 2020 from: <https://www.ontario.ca/page/barn-swallow-general-habitat-description>

Ontario Ministry of Natural Resources and Forestry (MNRF), 2013b:

Chimney Swift General Habitat Description. Accessed in January 2020 from: <https://www.ontario.ca/page/chimney-swift-general-habitat-description>

Ontario Ministry of Natural Resources and Forestry (MNRF), 2014:

Ontario Wetland Evaluation System, Southern Manual, 3rd Edition, Version 3.3. © Queen's Printer for Ontario.

Ontario Ministry of Natural Resources and Forestry (MNRF), 2015:

Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E. January 2015. Peterborough: Queen's Printer for Ontario. 39 pp.

Ontario Ministry of Natural Resources and Forestry (MNRF), 2017a:

Make-a-Map: Natural Heritage Areas. Accessed in February 2018 from: http://www.giscoeapp.lrc.gov.on.ca/Mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US

- Ontario Ministry of Natural Resources and Forestry (MNRF), 2017b:
Natural Heritage Information Centre Rare Species Database. Accessed in February 2018 from:
http://www.giscoeapp.lrc.gov.on.ca/Mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US
- Ontario Ministry of Natural Resources and Forestry (MNRF), 2017c:
Survey Protocol for Species at Risk bats within Treed Habitats: Little Brown Myotis, Northern Myotis and Tri-coloured Bat. MNRF Guelph District. 13 pp.
- Ontario Ministry of Natural Resources and Forestry (MNRF), 2018:
Natural Heritage Information Request Guide. Prepared by the Regional Operations Division Ministry of Natural Results & Forestry. December 2018.
- Ontario Ministry of Natural Resources and Forestry (MNRF), 2020:
Ontario GeoHub. Accessed in January 2020 from: <https://geohub.lio.gov.on.ca/>.
Powered by Land Information Ontario. Accessed January 2020.
- Ontario Nature, 2020:
Ontario Reptile and Amphibian Atlas Program. Accessed in January 2020 from:
<https://www.ontarioinsects.org/herp/index.html>
- Steeves, T.K., S.B. Kearney-McGee, M.A. Rubega, C.L. Cink and C.T. Collins, 2014:
Chimney Swift (*Chaetura pelagica*), version 2.0. In *The Birds of North America* (A. F. Poole, Editor). Cornell Laboratory of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bna.646>
- Toronto Region Conservation Authority (TRCA) 2019:
Erosion and Sediment Control Guideline for Urban Construction. Accessed in May 2021 from: https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2020/01/30145157/ESC-Guide-for-Urban-Construction_FINAL.pdf.
- Toronto and Region Conservation Authority (TRCA), 2008:
The Fish Communities of the Toronto Waterfront: Summary and Assessment 1989-2005. Accessed January 2020 from <http://trca.on.ca/dotAsset/210438.pdf>.
- Toronto and Region Conservation Authority (TRCA), 2020a:
TRCA Open Data & Information. Accessed in January 2020 from: <https://data.trca.ca/>

Toronto and Region Conservation Authority (TRCA), 2020b:

Species Spotlight: How TRCA Ranks Flora and Fauna. Accessed in July 2020
from: <https://trca.ca/news/species-spotlight-how-trca-ranks-flora-and-fauna/>

Toronto and Region Conservation Authority (TRCA), 2020c:

Flora Species for Entire TRCA Jurisdiction. Accessed in June 2020
from: https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2020/07/14074757/FloraRanksandScores2020_Final.pdf

Waterfront Toronto, 2020:

Corktown Common. Accessed in May 2020
from: <https://waterfronttoronto.ca/nbe/portal/waterfront/Home/waterfronthome/projects/corktown+common>

Appendix A

Species Records from Wildlife Atlases

Appendix A. Species Records from Wildlife Atlases

Table 1: Mammal Records Within the East Harbour Study Area

Taxon	Common Name	Scientific Name	S-Rank ¹	ESA Status ²	SARA Status ³	COSEWIC ⁴
Bat	Little Brown Myotis	<i>Myotis lucifugus</i>	S4	END	END	END
Bat	Hoary Bat	<i>Lasiurus cinereus</i>	S4	-		
Bat	Silver-haired Bat	<i>Lasionycteris noctivagans</i>	S4	-		
Bat	Eastern Red Bat	<i>Lasiurus borealis</i>	S4	-		
Bat	Eastern Small-footed Myotis	<i>Myotis leibii</i>	S2S3	END	-	-
Bat	Northern Long-eared Myotis	<i>Myotis septentrionalis</i>	S3	END	END	END
Bat	Big Brown Bat	<i>Eptesicus fuscus</i>	S5	-		
Bat	Tri-coloured Bat	<i>Perimyotis subflavus</i>	S3?	END	END	END
Carnivore	American Mink	<i>Mustela vison</i>	S4	-		
Carnivore	Common Raccoon	<i>Procyon lotor</i>	S5	-		
Carnivore	Coyote	<i>Canis latrans</i>	S5	-		
Carnivore	Striped Skunk	<i>Mephitis</i>	S5	-		
Carnivore	Red Fox	<i>Vulpes</i>	S5	-		
Hare	European Hare	<i>Lepus europaeus</i>	SNA	-		
Mole	Star-nosed Mole	<i>Condylura cristata</i>	S5	-		
Opossum	Virginia Opossum	<i>Didelphis virginiana</i>	S4	-		
Rabbit	Eastern Cottontail	<i>Sylvilagus floridanus</i>	S5	-		
Rodent	Beaver	<i>Castor canadensis</i>	S5	-		
Rodent	Deer Mouse	<i>Peromyscus maniculatus</i>	S5	-		
Rodent	Eastern Gray Squirrel	<i>Sciurus carolinensis</i>	S5	-		
Rodent	Eastern Chipmunk	<i>Tamias striatus</i>	S5	-		
Rodent	Groundhog	<i>Marmota monax</i>	S5	-		
Rodent	House Mouse	<i>Mus musculus</i>	SNA	-		
Rodent	Meadow Vole	<i>Microtus pennsylvanicus</i>	S5	-		
Rodent	Porcupine	<i>Erethizon dorsatum</i>	S4	-		
Rodent	Norway Rat	<i>Rattus norvegicus</i>	SNA	-		
Rodent	Muskrat	<i>Ondatra zibethicus</i>	S5	-		
Rodent	White-footed Mouse	<i>Peromyscus leucopus</i>	S5	-		

Table Legend

¹ **S-rank:** The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF NHIC to set protection priorities for rare species and natural communities. The following status definitions were taken from NatureServe Explorer's (2015) National and Subnational Conservation Status Definitions available at <http://explorer.natureserve.org/nsranks.htm>:

SX - Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

Appendix A. Species Records from Wildlife Atlases

SH- Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.

S1 - Critically Imperiled — Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.

S2-Imperiled—Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.

S3 - Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 - Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 - Secure—Common, widespread, and abundant in the nation or state/province.

SNR - Unranked—Province conservation status not yet assessed.

SU - Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

SNA - Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

Breeding Status Qualifiers

B - Breeding—Conservation status refers to the breeding population of the species in the province.

N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.

M - Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").

Other Qualifiers

? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

²ESA Status: *The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:*

END (Endangered) – A species facing imminent extinction or extirpation in Ontario.

THR (Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.

SC (Special Concern) – A species that may become threatened or endangered due to a combination of biological characteristics and identified threats.

NAR (Not at Risk) – A species that has been evaluated and found to be not at risk.

³SARA Status: *The Species at Risk Act (SARA) protects Species at Risk designated as Endangered, Threatened and Extirpated listed under Schedule 1, including their habitats on federal land. Schedule 1 of SARA is the official list of wildlife species at risk in Canada and includes species listed as Extirpated, Endangered, Threatened and of Special Concern. Once a species is listed on Schedule 1, they receive protection and recovery measures that are required to be developed and implemented under SARA. Species that were designated at risk by COSEWIC before SARA need to be reassessed based on the new criteria of the Act before*

Appendix A. Species Records from Wildlife Atlases

they can be listed under Schedule 1. These species that are waiting to be listed under Schedule 1 do not receive official protection under SARA. Once the species on other schedules (2 and 3) have been reassessed, the other schedules are eliminated and the species is either listed under Schedule 1 or is not listed under the Act. The following are definitions of the SARA status rankings assigned to each species in the table above:

END (Schedule 1) – These species are listed as Endangered under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.

THR (Schedule 1) – These species are listed as Threatened under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.

SC (Schedule 1) – These species are listed as Special Concern under Schedule 1 of SARA and receive management initiatives under SARA to prevent them from becoming endangered and threatened.

No Status (No Schedule) – These species are evaluated and designated by COSEWIC but are not listed under Schedule 1 and therefore do not receive protection under SARA.

NAR (Not at Risk) – These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.

Not Applicable (N / A) – These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.

Source: Government of Canada, 2009: Frequently Asked Questions: What are the SARA schedules? Accessed on January 2017. Available: <http://www.dfo-mpo.gc.ca/species-especes/faq/faq-eng.htm>

⁴**COSEWIC Status:** COSEWIC (Committee on the Status of Endangered Wildlife in Canada) assigns a federal status ranking for all species that it assesses. Rankings include:

END (Endangered) - A species facing imminent extirpation or extinction throughout its range.

THR (Threatened) - A species likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction

SC (Special Concern) - A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events, but does not include an extirpated, endangered or threatened species.

NAR (Not at Risk) - A species that has been evaluated and found to be not at risk.

DD (Data Deficient) - A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.

Appendix A. Species Records from Wildlife Atlases

Table 2: Ontario Reptile and Amphibian Atlas Records within the East Harbour Study Area

Common Name	Scientific Name	S-Rank ¹	ESA Status ²	SARA Status ³	COSEWIC ⁴	Historical Record (> 20 years old)	17PJ33
American Bullfrog	<i>Lithobates catesbeianus</i>	S4	-	-	-	No	2016
American Toad	<i>Anaxyrus americanus</i>	S5	-	-	-	No	2018
Blanding's Turtle	<i>Emydoidea blandingii</i>	S3	THR	THR	END	No	2019
Dekay's Brownsnake	<i>Storeria dekayi</i>	S5	NAR	-	NAR	No	2019
Eastern Gartersnake	<i>Thamnophis sirtalis sirtalis</i>	S5	-	-	-	No	2019
Eastern Red-backed Salamander	<i>Plethodon cinereus</i>	S5	-	-	-	No	2019
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>	S4	SC	SC	SC	Yes	1913
Gray Treefrog	<i>Hyla versicolor</i>	S5	-	-	-	No	2016
Green Frog	<i>Lithobates clamitans</i>	S5	-	-	-	No	2018
Midland Painted Turtle	<i>Chrysemys picta marginata</i>	S4	-	No status	SC	No	2019
Eastern Milksnake	<i>Lampropeltis triangulum</i>	S4	NAR	SC	SC	No	2019
Mudpuppy	<i>Necturus maculosus</i>	S4	NAR	-	NAR	No	1913
Northern Leopard Frog	<i>Lithobates pipiens</i>	S5	NAR	-	NAR	No	2017
Northern Map Turtle	<i>Graptemys geographica</i>	S3	SC	SC	SC	No	2018
Queensnake	<i>Regina septemvittata</i>	S2	END	END	END	Yes	1858
Red-bellied Snake	<i>Storeria occipitomaculata</i>	S5	-	-	-	No	2018
Red-eared Slider	<i>Trachemys scripta elegans</i>	SE	-	-	-	No	2017
Red-spotted Newt	<i>Notophthalmus viridescens viridescens</i>	S5	-	-	-	Yes	1913
Smooth Greensnake	<i>Opheodrys vernalis</i>	S4	-	-	-	No	2016
Snapping Turtle	<i>Chelydra serpentina</i>	S4	SC	SC	SC	No	2019
Spotted Salamander	<i>Ambystoma maculatum</i>	S4	-	-	-	Yes	1929
Spring Peeper	<i>Pseudacris crucifer</i>	S5	-	-	-	No	2002
Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield populati	<i>Pseudacris maculata</i> pop. 1	S3	NAR	-	THR	No	1989
Wood Frog	<i>Lithobates sylvaticus</i>	S5	-	-	-	No	2011

Appendix A. Species Records from Wildlife Atlases

Table Legend

¹ **S-rank:** *The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF NHIC to set protection priorities for rare species and natural communities. The following status definitions were taken from NatureServe Explorer's (2015) National and Subnational Conservation Status Definitions available at <http://explorer.natureserve.org/nsranks.htm>:*

SX - Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

SH- Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.

S1 - Critically Imperiled — Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.

S2-Imperiled—Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.

S3 - Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 - Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 - Secure—Common, widespread, and abundant in the nation or state/province.

SNR - Unranked—Province conservation status not yet assessed.

SU - Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

SNA - Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

Breeding Status Qualifiers

B - Breeding—Conservation status refers to the breeding population of the species in the province.

N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.

M - Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").

Other Qualifiers

? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

²**ESA Status:** *The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:*

END (Endangered) – A species facing imminent extinction or extirpation in Ontario.

THR (Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.

Appendix A. Species Records from Wildlife Atlases

SC (Special Concern) – A species that may become threatened or endangered due to a combination of biological characteristics and identified threats.

NAR (Not at Risk) – A species that has been evaluated and found to be not at risk.

³**SARA Status:** The Species at Risk Act (SARA) protects Species at Risk designated as Endangered, Threatened and Extirpated listed under Schedule 1, including their habitats on federal land. Schedule 1 of SARA is the official list of wildlife species at risk in Canada and includes species listed as Extirpated, Endangered, Threatened and of Special Concern. Once a species is listed on Schedule 1, they receive protection and recovery measures that are required to be developed and implemented under SARA. Species that were designated at risk by COSEWIC before SARA need to be reassessed based on the new criteria of the Act before they can be listed under Schedule 1. These species that are waiting to be listed under Schedule 1 do not receive official protection under SARA. Once the species on other schedules (2 and 3) have been reassessed, the other schedules are eliminated and the species is either listed under Schedule 1 or is not listed under the Act. The following are definitions of the SARA status rankings assigned to each species in the table above:

END (Schedule 1) – These species are listed as Endangered under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.

THR (Schedule 1) – These species are listed as Threatened under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.

SC (Schedule 1) – These species are listed as Special Concern under Schedule 1 of SARA and receive management initiatives under SARA to prevent them from becoming endangered and threatened.

No Status (No Schedule) – These species are evaluated and designated by COSEWIC but are not listed under Schedule 1 and therefore do not receive protection under SARA.

NAR (Not at Risk) – These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.

Not Applicable (N / A) – These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.

Source: Government of Canada, 2009: Frequently Asked Questions: What are the SARA schedules? Accessed on January 2017. Available: <http://www.dfo-mpo.gc.ca/species-especes/faq/faq-eng.htm>

⁴**COSEWIC Status:** COSEWIC (Committee on the Status of Endangered Wildlife in Canada) assigns a federal status ranking for all species that it assesses. Rankings include:

END (Endangered) - A species facing imminent extirpation or extinction throughout its range.

THR (Threatened) - A species likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction

SC (Special Concern) - A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events, but does not include an extirpated, endangered or threatened species.

NAR (Not at Risk) - A species that has been evaluated and found to be not at risk.

DD (Data Deficient) - A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.

Appendix A. Species Records from Wildlife Atlases

Table 3: 2001-2005 Ontario Breeding Bird Atlas Records within the East Harbour Study Area

Common Name	Scientific Name	S-Rank ¹	ESA Status ²	SARA Status ³	COSEWIC ⁴	Year Last Recorded	MBCA Protected ⁵	17PJ33
American Black Duck	<i>Anas rubripes</i>	S4	-	-	-	2001-2005	Yes	√
American Crow	<i>Corvus brachyrhynchos</i>	S5B	-	-	-	2001-2005	No	√
American Goldfinch	<i>Spinus tristis</i>	S5B	-	-	-	2001-2005	Yes	√
American Kestrel	<i>Falco sparverius</i>	S4	-	-	-	2001-2005	No	√
American Redstart	<i>Setophaga ruticilla</i>	S5B	-	-	-	2001-2005	Yes	√
American Robin	<i>Turdus migratorius</i>	S5B	-	-	-	2001-2005	Yes	√
American Woodcock	<i>Scolopax minor</i>	S4B	-	-	-	2001-2005	Yes	√
Baltimore Oriole	<i>Icterus galbula</i>	S4B	-	-	-	2001-2005	Yes	√
Bank Swallow	<i>Riparia riparia</i>	S4B	THR	THR	THR	2001-2005	Yes	√
Barn Swallow	<i>Hirundo rustica</i>	S4B	THR	SC	THR	2001-2005	Yes	√
Belted Kingfisher	<i>Megasceryle alcyon</i>	S4B	-	-	-	2001-2005	No	√
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	S5B	-	-	-	2001-2005	Yes	√
Black-capped Chickadee	<i>Poecile atricapillus</i>	S5	-	-	-	2001-2005	Yes	√
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	S3B,S3N	-	-	-	2001-2005	Yes	√
Blue Jay	<i>Cyanocitta cristata</i>	S5	-	-	-	2001-2005	No	√
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	S4B	-	-	-	2001-2005	Yes	√
Blue-winged Teal	<i>Anas discors</i>	S4	-	-	-	2001-2005	Yes	√
Bobolink	<i>Dolichonyx oryzivorus</i>	S4B	THR	THR	THR	2001-2005	Yes	√
Brown Creeper	<i>Certhia americana</i>	S5B	-	-	-	2001-2005	Yes	√
Brown Thrasher	<i>Toxostoma rufum</i>	S4B	-	-	-	2001-2005	Yes	√
Brown-headed Cowbird	<i>Molothrus ater</i>	S4B	-	-	-	2001-2005	No	√
Canada Goose	<i>Branta canadensis</i>	S5	-	-	-	2001-2005	Yes	√
Canvasback	<i>Aythya valisineria</i>	S1B,S4N	-	-	-	2001-2005	Yes	√
Carolina Wren	<i>Thryothorus ludovicianus</i>	S4	-	-	-	2001-2005	Yes	√
Caspian Tern	<i>Hydroprogne caspia</i>	S3B	NAR	-	NAR	2001-2005	Yes	√
Cedar Waxwing	<i>Bombycilla cedrorum</i>	S5B	-	-	-	2001-2005	Yes	√
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>	S5B	-	-	-	2001-2005	Yes	√
Chimney Swift	<i>Chaetura pelagica</i>	S4B,S4N	THR	THR	THR	2001-2005	Yes	√
Chipping Sparrow	<i>Spizella passerina</i>	S5B	-	-	-	2001-2005	Yes	√
Clay-colored Sparrow	<i>Spizella pallida</i>	S4B	-	-	-	2001-2005	Yes	√
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	S4B	-	-	-	2001-2005	Yes	√
Common Grackle	<i>Quiscalus quiscula</i>	S5B	-	-	-	2001-2005	Yes	√
Common Nighthawk	<i>Chordeiles minor</i>	S4B	SC	THR	SC	2001-2005	Yes	√
Common Tern	<i>Sterna hirundo</i>	S4B	NAR	-	NAR	2001-2005	Yes	√

Appendix A. Species Records from Wildlife Atlases

Common Name	Scientific Name	S-Rank ¹	ESA Status ²	SARA Status ³	COSEWIC ⁴	Year Last Recorded	MBCA Protected ⁵	17PJ33
Common Yellowthroat	<i>Geothlypis trichas</i>	S5B	-	-	-	2001-2005	Yes	√
Cooper's Hawk	<i>Accipiter cooperii</i>	S4	NAR	-	NAR	2001-2005	No	√
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	S5B	NAR	-	NAR	2001-2005	No	√
Downy Woodpecker	<i>Picoides pubescens</i>	S5	-	-	-	2001-2005	Yes	√
Eastern Kingbird	<i>Tyrannus tyrannus</i>	S4B	-	-	-	2001-2005	Yes	√
Eastern Meadowlark	<i>Sturnella magna</i>	S4B	THR	THR	THR	2001-2005	Yes	√
Eastern Phoebe	<i>Sayornis phoebe</i>	S5B	-	-	-	2001-2005	Yes	√
Eastern Screech-Owl	<i>Megascops asio</i>	S4	NAR	-	NAR	2001-2005	No	√
Eastern Wood-Pewee	<i>Contopus virens</i>	S4B	SC	SC	SC	2001-2005	Yes	√
European Starling	<i>Sturnus vulgaris</i>	SNA	-	-	-	2001-2005	No	√
Field Sparrow	<i>Spizella pusilla</i>	S4B	-	-	-	2001-2005	No	√
Gadwall	<i>Anas strepera</i>	S4	-	-	-	2001-2005	Yes	√
Gray Catbird	<i>Dumetella carolinensis</i>	S4B	-	-	-	2001-2005	Yes	√
Great Black-backed Gull	<i>Larus marinus</i>	S2B	-	-	-	2001-2005	Yes	√
Great Blue Heron	<i>Ardea herodias</i>	S4	-	-	-	2001-2005	Yes	√
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	S4B	-	-	-	2001-2005	Yes	√
Great Egret	<i>Ardea alba</i>	S2B	-	-	-	2001-2005	Yes	√
Great Horned Owl	<i>Bubo virginianus</i>	S4	-	-	-	2001-2005	No	√
Green Heron	<i>Butorides virescens</i>	S4B	-	-	-	2001-2005	Yes	√
Green-winged Teal	<i>Anas crecca</i>	S4	-	-	-	2001-2005	Yes	√
Hairy Woodpecker	<i>Picoides villosus</i>	S5	-	-	-	2001-2005	Yes	√
Herring Gull	<i>Larus argentatus</i>	S5B, S5N	-	-	-	2001-2005	Yes	√
Hooded Merganser	<i>Lophodytes cucullatus</i>	S5B, S5N	-	-	-	2001-2005	Yes	√
Horned Lark	<i>Eremophila alpestris</i>	S5B	-	-	-	2001-2005	Yes	√
House Finch	<i>Haemorhous mexicanus</i>	SNA	-	-	-	2001-2005	Yes	√
House Sparrow	<i>Passer domesticus</i>	SNA	-	-	-	2001-2005	No	√
House Wren	<i>Troglodytes aedon</i>	S5B	-	-	-	2001-2005	Yes	√
Indigo Bunting	<i>Passerina cyanea</i>	S4B	-	-	-	2001-2005	Yes	√
Killdeer	<i>Charadrius vociferus</i>	S5B, S5N	-	-	-	2001-2005	Yes	√
Least Flycatcher	<i>Empidonax minimus</i>	S4B	-	-	-	2001-2005	Yes	√
Mallard	<i>Anas platyrhynchos</i>	S5	-	-	-	2001-2005	Yes	√
Marsh Wren	<i>Cistothorus palustris</i>	S4B	-	-	-	2001-2005	Yes	√
Mourning Dove	<i>Zenaida macroura</i>	S5	-	-	-	2001-2005	Yes	√
Mourning Warbler	<i>Geothlypis philadelphia</i>	S4B	-	-	-	2001-2005	Yes	√
Mute Swan	<i>Cygnus olor</i>	SNA	-	-	-	2001-2005	Yes	√
Northern Cardinal	<i>Cardinalis cardinalis</i>	S5	-	-	-	2001-2005	Yes	√
Northern Flicker	<i>Colaptes auratus</i>	S4B	-	-	-	2001-2005	Yes	√

Appendix A. Species Records from Wildlife Atlases

Common Name	Scientific Name	S-Rank ¹	ESA Status ²	SARA Status ³	COSEWIC ⁴	Year Last Recorded	MBCA Protected ⁵	17PJ33
Northern Harrier	<i>Circus hudsonius</i>	S4B	NAR	-	NAR	2001-2005	No	√
Northern Mockingbird	<i>Mimus polyglottos</i>	S4	-	-	-	2001-2005	Yes	√
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	S4B	-	-	-	2001-2005	Yes	√
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	S4	-	-	-	2001-2005	No	√
Orchard Oriole	<i>Icterus spurius</i>	S4B	-	-	-	2001-2005	Yes	√
Ovenbird	<i>Seiurus aurocapilla</i>	S4B	-	-	-	2001-2005	Yes	√
Peregrine Falcon	<i>Falco peregrinus</i>	S3B	SC	-	NAR	2001-2005	No	√
Pileated Woodpecker	<i>Dryocopus pileatus</i>	S5	-	-	-	2001-2005	Yes	√
Purple Martin	<i>Progne subis</i>	S3S4B	-	-	-	2001-2005	Yes	√
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	S4	-	-	-	2001-2005	Yes	√
Red-breasted Nuthatch	<i>Sitta canadensis</i>	S5	-	-	-	2001-2005	Yes	√
Red-eyed Vireo	<i>Vireo olivaceus</i>	S5B	-	-	-	2001-2005	Yes	√
Redhead	<i>Aythya americana</i>	S2B,S4N	-	-	-	2001-2005	Yes	√
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	S4B	SC	THR	END	2001-2005	Yes	√
Red-tailed Hawk	<i>Buteo jamaicensis</i>	S5	NAR	-	NAR	2001-2005	No	√
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	S4	-	-	-	2001-2005	Yes	√
Ring-billed Gull	<i>Larus delawarensis</i>	S5B,S4N	-	-	-	2001-2005	Yes	√
Rock Pigeon	<i>Columba livia</i>	SNA	-	-	-	2001-2005	Yes	√
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	S4B	-	-	-	2001-2005	Yes	√
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	S5B	-	-	-	2001-2005	Yes	√
Savannah Sparrow	<i>Passerculus sandwichensis</i>	S4B	-	-	-	2001-2005	Yes	√
Scarlet Tanager	<i>Piranga olivacea</i>	S4B	-	-	-	2001-2005	Yes	√
Sharp-shinned Hawk	<i>Accipiter striatus</i>	S5	NAR	-	NAR	2001-2005	No	√
Song Sparrow	<i>Melospiza melodia</i>	S5B	-	-	-	2001-2005	Yes	√
Sora	<i>Porzana carolina</i>	S4B	-	-	-	2001-2005	Yes	√
Spotted Sandpiper	<i>Actitis macularius</i>	S5	-	-	-	2001-2005	Yes	√
Tree Swallow	<i>Tachycineta bicolor</i>	S4B	-	-	-	2001-2005	Yes	√
Virginia Rail	<i>Rallus limicola</i>	S5B	-	-	-	2001-2005	Yes	√
Warbling Vireo	<i>Vireo gilvus</i>	S5B	-	-	-	2001-2005	Yes	√
White-breasted Nuthatch	<i>Sitta carolinensis</i>	S5	-	-	-	2001-2005	Yes	√
Willow Flycatcher	<i>Empidonax traillii</i>	S5B	-	-	-	2001-2005	Yes	√
Wood Duck	<i>Aix sponsa</i>	S5	-	-	-	2001-2005	Yes	√
Wood Thrush	<i>Hylocichla mustelina</i>	S4B	SC	THR	THR	2001-2005	Yes	√
Yellow Warbler	<i>Setophaga petechia</i>	S5B	-	-	-	2001-2005	Yes	√

Appendix A. Species Records from Wildlife Atlases

Common Name	Scientific Name	S-Rank ¹	ESA Status ²	SARA Status ³	COSEWIC ⁴	Year Last Recorded	MBCA Protected ⁵	17PJ33
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	S4B	-	-	-	2001-2005	Yes	√

Table Legend

¹ **S-rank:** The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF NHIC to set protection priorities for rare species and natural communities. The following status definitions were taken from NatureServe Explorer's (2015) National and Subnational Conservation Status Definitions available at <http://explorer.natureserve.org/nsranks.htm>:

SX - Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

SH - Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.

S1 - Critically Imperiled — Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.

S2 - Imperiled—Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.

S3 - Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 - Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 - Secure—Common, widespread, and abundant in the nation or state/province.

SNR - Unranked—Province conservation status not yet assessed.

SU - Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

SNA - Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

Breeding Status Qualifiers

B - Breeding—Conservation status refers to the breeding population of the species in the province.

N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.

M - Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").

Other Qualifiers

? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

Appendix A. Species Records from Wildlife Atlases

²**ESA Status:** The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:

END (Endangered) – A species facing imminent extinction or extirpation in Ontario.

THR (Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.

SC (Special Concern) – A species that may become threatened or endangered due to a combination of biological characteristics and identified threats.

NAR (Not at Risk) – A species that has been evaluated and found to be not at risk.

³**SARA Status:** The Species at Risk Act (SARA) protects Species at Risk designated as Endangered, Threatened and Extirpated listed under Schedule 1, including their habitats on federal land. Schedule 1 of SARA is the official list of wildlife species at risk in Canada and includes species listed as Extirpated, Endangered, Threatened and of Special Concern. Once a species is listed on Schedule 1, they receive protection and recovery measures that are required to be developed and implemented under SARA. Species that were designated at risk by COSEWIC before SARA need to be reassessed based on the new criteria of the Act before they can be listed under Schedule 1. These species that are waiting to be listed under Schedule 1 do not receive official protection under SARA. Once the species on other schedules (2 and 3) have been reassessed, the other schedules are eliminated and the species is either listed under Schedule 1 or is not listed under the Act. The following are definitions of the SARA status rankings assigned to each species in the table above:

END (Schedule 1) – These species are listed as Endangered under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.

THR (Schedule 1) – These species are listed as Threatened under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.

SC (Schedule 1) – These species are listed as Special Concern under Schedule 1 of SARA and receive management initiatives under SARA to prevent them from becoming endangered and threatened.

No Status (No Schedule) – These species are evaluated and designated by COSEWIC but are not listed under Schedule 1 and therefore do not receive protection under SARA.

NAR (Not at Risk) – These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.

Not Applicable (N / A) – These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.

Source: Government of Canada, 2009: Frequently Asked Questions: What are the SARA schedules? Accessed on January 2017. Available: <http://www.dfo-mpo.gc.ca/species-especes/faq/faq-eng.htm>

⁴**COSEWIC Status:** COSEWIC (Committee on the Status of Endangered Wildlife in Canada) assigns a federal status ranking for all species that it assesses. Rankings include:

END (Endangered) - A species facing imminent extirpation or extinction throughout its range.

THR (Threatened) - A species likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction

SC (Special Concern) - A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events, but does not include an extirpated, endangered or threatened species.

NAR (Not at Risk) - A species that has been evaluated and found to be not at risk.

DD (Data Deficient) - A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.

Appendix A. Species Records from Wildlife Atlases

⁵**MBCA:** The federal Migratory Bird Convention Act, 1994 (MBCA) protects most migratory birds and their nests in Canada. Bird families not protect under the act include grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, falcons, cormorants, pelicans, crows, jays, kingfishers, and some species of blackbirds; however, these bird families have some level of protection under the Fish and Wildlife Conservation Act, 1997(FWCA)

Appendix A. Species Records from Wildlife Atlases

Table 4: Ontario Butterfly Atlas Records within the East Harbour Study Area

Common Name	Scientific Name	S-Rank ¹	ESA Status ²	SARA Status ³	COSEWIC ⁴	Historical Record (> 20 years old)	17PJ33
Acadian Hairstreak	<i>Satyrus acadica</i>	S4	-	-	-	No	2016
American Copper	<i>Lycaena phlaeas</i>	S5	-	-	-	No	1993
American Lady	<i>Vanessa virginiensis</i>	S5	-	-	-	No	2019
American Snout	<i>Libytheana carinenta</i>	SNA	-	-	-	No	2019
Aphrodite Fritillary	<i>Speyeria aphrodite</i>	S5	-	-	-	No	1959
Appalachian Brown	<i>Lethe appalachia</i>	S4	-	-	-	Yes	1984
Azure sp.	<i>Celastrina sp.</i>		-	-	-	No	2019
Baltimore Checkerspot	<i>Euphydryas phaeton</i>	S4	-	-	-	No	2019
Banded Hairstreak	<i>Satyrus calanus</i>	S4	-	-	-	No	2019
Black Dash	<i>Euphyes conspicua</i>	S3	-	-	-	No	2016
Black Swallowtail	<i>Papilio polyxenes</i>	S5	-	-	-	No	2019
Broad-winged Skipper	<i>Poanes viator</i>	S4	-	-	-	No	(year not recorded)
Bronze Copper	<i>Lycaena hyllus</i>	S5	-	-	-	No	2006
Cabbage White	<i>Pieris rapae</i>	SNA	-	-	-	No	2019
Canadian Tiger Swallowtail	<i>Papilio canadensis</i>	S5	-	-	-	No	2016
Checkered White	<i>Pontia protodice</i>	SNA	-	-	-	No	2007
Clouded Sulphur	<i>Colias philodice</i>	S5	-	-	-	No	2019
Cloudless Sulphur	<i>Phoebis sennae</i>	SNA	-	-	-	No	2012
Columbine Duskywing	<i>Erynnis lucilius</i>	S4	-	-	-	Yes	1904
Common Buckeye	<i>Junonia coenia</i>	SNA	-	-	-	No	2019
Common Ringlet	<i>Coenonympha tullia</i>	S5	-	-	-	No	2019
Common Sootywing	<i>Pholisora catullus</i>	S4	-	-	-	Yes	1991
Common Wood-Nymph	<i>Cercyonis pegala</i>	S5	-	-	-	No	2019
Compton Tortoiseshell	<i>Nymphalis l-album</i>	S5	-	-	-	No	2015
Coral Hairstreak	<i>Satyrus titus</i>	S5	-	-	-	No	2000
Crossline Skipper	<i>Polites origenes</i>	S4	-	-	-	No	2014
Delaware Skipper	<i>Anatrytone logan</i>	S4	-	-	-	No	2016
Dun Skipper	<i>Euphyes vestris</i>	S5	-	-	-	No	2018
Eastern Comma	<i>Polygonia comma</i>	S5	-	-	-	No	2019
Eastern Giant Swallowtail	<i>Papilio cresphontes</i>		-	-	-	No	2019
Eastern Tailed Blue	<i>Cupido comyntas</i>	S5	-	-	-	No	2019
Eastern Tiger Swallowtail	<i>Papilio glaucus</i>	S5	-	-	-	No	2019
Edwards' Hairstreak	<i>Satyrus edwardsii</i>	S4	-	-	-	No	1981

Appendix A. Species Records from Wildlife Atlases

Common Name	Scientific Name	S-Rank ¹	ESA Status ²	SARA Status ³	COSEWIC ⁴	Historical Record (> 20 years old)	17PJ33
European Skipper	<i>Thymelicus lineola</i>	SNA	-	-	-	No	2019
Eyed Brown	<i>Lethe eurydice</i>	S5	-	-	-	No	2019
Fiery Skipper	<i>Hylephila phyleus</i>	SNA	-	-	-	No	2019
Funereal Duskywing	<i>Erynnis funeralis</i>	SNA	-	-	-	No	2019
Gray Comma	<i>Polygonia progne</i>	S5	-	-	-	No	2003
Gray Hairstreak	<i>Strymon melinus</i>	S4	-	-	-	No	2012
Great Spangled Fritillary	<i>Speyeria cybele</i>	S5	-	-	-	No	2018
Green Comma	<i>Polygonia faunus</i>	S4	-	-	-	No	2006
Harvester	<i>Feniseca tarquinius</i>	S4	-	-	-	No	2018
Hickory Hairstreak	<i>Satyrium caryaevorus</i>	S4	-	-	-	No	2014
Hobomok Skipper	<i>Poanes hobomok</i>	S5	-	-	-	No	2019
Horace's Duskywing	<i>Erynnis horatius</i>	SNA	-	-	-	No	2019
Least Skipper	<i>Ancyloxypha numitor</i>	S5	-	-	-	No	2019
Leonard's Skipper	<i>Hesperia leonardus</i>	S4	-	-	-	Yes	(year not recorded)
Little Glassywing	<i>Pompeius verna</i>	S4	-	-	-	No	2014
Little Wood-Satyr	<i>Megisto cymela</i>	S5	-	-	-	No	2019
Little Yellow	<i>Pyrissitia lisa</i>	SNA	-	-	-	No	2015
Long Dash Skipper	<i>Polites mystic</i>	S5	-	-	-	No	2015
Meadow Fritillary	<i>Boloria bellona</i>	S5	-	-	-	No	1986
Midsummer Tiger Swallowtail	<i>Papilio canadensis X glaucus</i>		-	-	-	No	2019
Milbert's Tortoiseshell	<i>Aglaia milberti</i>	S5	-	-	-	No	2019
Monarch	<i>Danaus plexippus</i>	S2N,S4 B	SC	Special Concern	END	No	2019
Mourning Cloak	<i>Nymphalis antiopa</i>	S5	-	-	-	No	2019
Northern Azure	<i>Celastrina lucia</i>		-	-	-	No	2019
Northern Broken-Dash	<i>Wallengrenia egeremet</i>	S5	-	-	-	No	2019
Northern Cloudywing	<i>Thorybes pylades</i>	S5	-	-	-	No	2005
Northern Crescent	<i>Phyciodes cocyta</i>	S5	-	-	-	No	2019
Northern Pearly-Eye	<i>Lethe anthedon</i>	S5	-	-	-	No	1987
Orange Sulphur	<i>Colias eurytheme</i>	S5	-	-	-	No	2019
Orange-barred Sulphur	<i>Phoebis philea</i>	SNA	-	-	-	No	1987
Painted Lady	<i>Vanessa cardui</i>	S5	-	-	-	No	2019
Pearl Crescent	<i>Phyciodes tharos</i>	S4	-	-	-	No	2019
Peck's Skipper	<i>Polites peckius</i>	S5	-	-	-	No	2019
Pipevine Swallowtail	<i>Battus philenor</i>	SNA	-	-	-	No	2017

Appendix A. Species Records from Wildlife Atlases

Common Name	Scientific Name	S-Rank ¹	ESA Status ²	SARA Status ³	COSEWIC ⁴	Historical Record (> 20 years old)	17PJ33
Purplish Copper	<i>Lycaena helloides</i>	S3	-	-	-	No	1953
Question Mark	<i>Polygonia interrogationis</i>	S5	-	-	-	No	2019
Red Admiral	<i>Vanessa atalanta</i>	S5	-	-	-	No	2019
Red-spotted Purple	<i>Limenitis arthemis astyanax</i>	S5	-	-	-	No	2019
Sachem	<i>Atalopedes campestris</i>	SNA	-	-	-	No	2012
Silver-bordered Fritillary	<i>Boloria selene</i>	S5	-	-	-	Yes	1960
Silver-spotted Skipper	<i>Epargyreus clarus</i>	S4	-	-	-	No	2019
Silvery Blue	<i>Glaucopsyche lygdamus</i>	S5	-	-	-	No	2019
Silvery Checkerspot	<i>Chlosyne nycteis</i>	S5	-	-	-	No	1988
Spicebush Swallowtail	<i>Papilio troilus</i>	S4	-	-	-	No	2017
Striped Hairstreak	<i>Satyrus liparops</i>	S5	-	-	-	No	2012
Summer Azure	<i>Celastrina neglecta</i>	S5	-	-	-	No	2016
Tawny Emperor	<i>Asterocampa clyton</i>	S3	-	-	-	No	2015
Tawny-edged Skipper	<i>Polites themistocles</i>	S5	-	-	-	No	2017
Variegated Fritillary	<i>Euptoieta claudia</i>	SNA	-	-	-	No	2012
Viceroy	<i>Limenitis archippus</i>	S5	-	-	-	No	2019
White Admiral	<i>Limenitis arthemis arthemis</i>	S5	-	-	-	No	2018
White M-Hairstreak	<i>Parrhasius m-album</i>		-	-	-	Yes	1999
Wild Indigo Duskywing	<i>Erynnis baptisiae</i>	S4	-	-	-	No	2018

Table Legend

¹ **S-rank:** The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF NHIC to set protection priorities for rare species and natural communities. The following status definitions were taken from NatureServe Explorer's (2015) National and Subnational Conservation Status Definitions available at <http://explorer.natureserve.org/nsranks.htm>:

SX - Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

SH- Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.

S1 - Critically Imperiled — Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.

S2-Imperiled—Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.

S3 - Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 - Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

Appendix A. Species Records from Wildlife Atlases

S5 - Secure—Common, widespread, and abundant in the nation or state/province.

SNR - Unranked—Province conservation status not yet assessed.

SU - Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

SNA - Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

Breeding Status Qualifiers

B - Breeding—Conservation status refers to the breeding population of the species in the province.

N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.

M - Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").

Other Qualifiers

? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

²ESA Status: *The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:*

END (Endangered) – A species facing imminent extinction or extirpation in Ontario.

THR (Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.

SC (Special Concern) – A species that may become threatened or endangered due to a combination of biological characteristics and identified threats.

NAR (Not at Risk) – A species that has been evaluated and found to be not at risk.

³SARA Status: *The Species at Risk Act (SARA) protects Species at Risk designated as Endangered, Threatened and Extirpated listed under Schedule 1, including their habitats on federal land. Schedule 1 of SARA is the official list of wildlife species at risk in Canada and includes species listed as Extirpated, Endangered, Threatened and of Special Concern. Once a species is listed on Schedule 1, they receive protection and recovery measures that are required to be developed and implemented under SARA. Species that were designated at risk by COSEWIC before SARA need to be reassessed based on the new criteria of the Act before they can be listed under Schedule 1. These species that are waiting to be listed under Schedule 1 do not receive official protection under SARA. Once the species on other schedules (2 and 3) have been reassessed, the other schedules are eliminated and the species is either listed under Schedule 1 or is not listed under the Act. The following are definitions of the SARA status rankings assigned to each species in the table above:*

END (Schedule 1) – These species are listed as Endangered under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.

THR (Schedule 1) – These species are listed as Threatened under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.

SC (Schedule 1) – These species are listed as Special Concern under Schedule 1 of SARA and receive management initiatives under SARA to prevent them from becoming endangered and threatened.

Appendix A. Species Records from Wildlife Atlases

No Status (No Schedule) – These species are evaluated and designated by COSEWIC but are not listed under Schedule 1 and therefore do not receive protection under SARA.

NAR (Not at Risk)– These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.

Not Applicable (N / A) – These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.

Source: Government of Canada, 2009: Frequently Asked Questions: What are the SARA schedules? Accessed on January 2017. Available: <http://www.dfo-mpo.gc.ca/species-especes/faq/faq-eng.htm>

⁴COSEWIC Status: COSEWIC (Committee on the Status of Endangered Wildlife in Canada) assigns a federal status ranking for all species that it assesses. Rankings include:

END (Endangered) - A species facing imminent extirpation or extinction throughout its range.

THR (Threatened) - A species likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction

SC (Special Concern) - A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events, but does not include an extirpated, endangered or threatened species.

NAR (Not at Risk) - A species that has been evaluated and found to be not at risk.

DD (Data Deficient) - A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.

Appendix B

Significant Wildlife Habitat Screening

SWH Ecoregion 7E Criterion Schedule

Table 1.1 Seasonal Concentration Areas of Animals

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	East Harbour Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
<p>Waterfowl Stopover and Staging Areas (Terrestrial)</p> <p><u>Rationale:</u> Habitat important to migrating waterfowl.</p>	<p>American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan</p>	<p>CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these Ecosites. - Fields with waste grain in the Long Point, Rondeau, Lk. St. Clair, Grand Bend and Pt. Pelee areas may be important to Tundra Swans.</p>	<p>Fields with sheet water during Spring (mid- March to May).</p> <ul style="list-style-type: none">Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl.Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available. <p><u>Information Sources</u></p> <ul style="list-style-type: none">Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence.Reports and other information available from Conservation Authorities (CAs)Sites documented through waterfowl planning processes (eg. EHJV implementation plan)Field Naturalist ClubsDucks Unlimited CanadaNatural Heritage Information Centre (NHIC) Waterfowl Concentration Area	<p>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”</p> <ul style="list-style-type: none">Any mixed species aggregations of 100 or more individuals required.The area of the flooded field ecosite habitat plus a 100-300m radius buffer dependant on local site conditions and adjacent land use is the significant wildlife habitat.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).	<p>None Present</p>
<p>Waterfowl Stopover and Staging Areas (Aquatic)</p> <p><u>Rationale:</u> Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.</p>	<p>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</p>	<p>MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7</p>	<p><u>Information Sources</u></p> <ul style="list-style-type: none">Environment CanadaNaturalist clubs often are aware of staging/stopover areas.OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging.Sites documented through waterfowl planning processes (eg. EHJV implementation plan)Ducks Unlimited projectsElement occurrence specification by Nature Serve: http://www.natureserve.orgNatural Heritage Information Centre (NHIC) Waterfowl Concentration Area	<p>Studies carried out and verified presence of:</p> <ul style="list-style-type: none">Aggregations of 100 or more of listed species for 7 days, results in > 700 waterfowl use days.Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWHThe combined area of the ELC ecosites and a 100m radius area is the SWHWetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat.Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”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).	<p>None Present</p>

	Red-breasted Merganser Brant Canvasback Ruddy Duck				
Shorebird Migratory Stopover Area Rationale: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated 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	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH, <u>Information Sources</u> <ul style="list-style-type: none"> Western hemisphere shorebird reserve network. Canadian Wildlife Service (CWS) Ontario Shorebird Survey. Bird Studies Canada Ontario Nature Local birders and naturalist clubs NHIC Shorebird Migratory Concentration Area 	Studies confirming: <ul style="list-style-type: none"> Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” 	None Present
Raptor Wintering Area Rationale: Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Special Concern: Short-eared Owl Bald Eagle	Hawks/Owls Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. Bald Eagle: Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or lakes with open water (hunting areas).	The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Raptor wintering(hawk/owl) sites need to be > 20 ha with a combination of forest and upland.. Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands Field area of the habitat is to be wind swept with limited snow depth or accumulation. Eagle sites have open water and large trees and snags available for roosting. <u>Information Sources:</u> <ul style="list-style-type: none"> OMNR Ecologist or Biologist Naturalist club Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area Data from Bird Studies Canada, most notably for Short-eared Owls. Results of Christmas Bird Counts. Reports and other information available from Conservation Authorities. 	Studies confirm the use of these habitats by: <ul style="list-style-type: none"> One or more Short-eared Owls or; One of more Bald Eagles or; At least 10 individuals and two of listed hawk/owl species. To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” 	None Present

<p>Bat Hibernacula</p> <p><u>Rationale:</u> Bat hibernacula are rare habitats in all Ontario landscapes.</p>	Big Brown Bat Tri-colored Bat	<p>Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)</p>	<p>Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. Active mine sites should not be considered as SWH. The locations of bat hibernacula are relatively poorly known.</p> <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • OMNR for possible locations and contact for local experts • Natural Heritage Information Center (NHIC) Bat Hibernaculum • Ministry of Northern Development and Mines for location of mine shafts. • Clubs that explore caves (eg. Sierra Club) • University Biology Departments with bat experts. 	<ul style="list-style-type: none"> • All sites with confirmed hibernating bats are SWH. • The area includes 200m radius around the entrance of the hibernaculum for most development types and 1000m for wind farms. • 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”. 	None Present
<p>Bat Maternity Colonies</p> <p><u>Rationale:</u> Known locations of forested bat maternity colonies is extremely rare in all Ontario landscapes.</p>	Big Brown Bat Silver-haired Bat	<p>Maternity colonies considered SWH are found in forested Ecosites.</p> <p>All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM</p>	<p>Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). Maternity roosts are not found in caves and mines in Ontario.</p> <ul style="list-style-type: none"> • Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • OMNR for possible locations and contact for local experts • University Biology Departments with bat experts. 	<ul style="list-style-type: none"> • Maternity Colonies with confirmed use by; <ul style="list-style-type: none"> – >10 Big Brown Bats – >5 Adult Female Silver-haired Bats • The area of the habitat includes the entire woodland or the forest stand ELC Ecosite containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”. 	None Present
<p>Turtle Wintering Areas</p> <p><u>Rationale:</u> Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.</p>	Midland Painted Turtle <u>Special Concern:</u> Northern Map Turtle Snapping Turtle	<p>Snapping and Midland Painted turtles; ELC Community Classes; SW, MA, OA and SA. ELC Community Series; FEO and BOO</p> <p>Northern Map Turtle - Open Water areas such as deeper rivers or</p>	<p>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.</p> <ul style="list-style-type: none"> • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> • EIS studies carried out by Conservation Authorities. • Field Naturalist Clubs • OMNRF Ecologist or Biologist 	<ul style="list-style-type: none"> • Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May). Congregation of turtles is more common where wintering areas are limited and therefore 	None Present

		streams and lakes with current can also be used as over-wintering habitat.	<ul style="list-style-type: none"> Natural Heritage Information Center (NHIC) 	significant.	
Reptile Hibernaculum Rationale: Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Snakes: Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Special Concern: Milksnake Eastern Ribbonsnake	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats. Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator.	For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. 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. <u>Information Sources</u> <ul style="list-style-type: none"> In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). Reports and other information available from Conservation Authorities. Field Naturalist Clubs University herpetologists. Natural Heritage Information Center (NHIC) 	Studies confirming: <ul style="list-style-type: none"> Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). Note: If there are Special Concern Species present, then site is SWH 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 [i.e. strong hibernation site fidelity.]. Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m buffer is the SWH 	None Present
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff) Rationale: Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	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 (Cliff Swallows). Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	<ul style="list-style-type: none"> Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. Does not include a licensed/permitted Mineral Aggregate Operation. <u>Information Sources</u> <ul style="list-style-type: none"> Reports and other information available from Conservation Authorities Ontario Breeding Bird Atlas. Bird Studies Canada; <i>NatureCounts</i> http://www.birdscanada.org/birdmon/ Field Naturalist Clubs. 	Studies confirming: <ul style="list-style-type: none"> Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. A colony identified as SWH will include a 50m radius habitat area from the peripheral nests Field surveys to observe and count swallow nests are to be completed during the breeding season (May-June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” 	None Present
Colonially - Nesting Bird	Great Blue Heron Black-crowned Night-	SWM2 SWM3 SWM5 SWM6	<ul style="list-style-type: none"> Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and 	Studies confirming: <ul style="list-style-type: none"> Presence of 2 or more active nests of Great Blue 	None Present

<p>Breeding Habitat (Tree/Shrubs)</p> <p>Rationale: Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.</p>	<p>Heron Great Egret Green Heron</p>	<p>SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1</p>	<p>occasionally emergent vegetation may also be used.</p> <ul style="list-style-type: none"> Most nests in trees are 11 to 15 m from ground, near the top of the tree. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Ontario Breeding Bird Atlas , colonial nest records. Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). <ul style="list-style-type: none"> Natural Heritage Information Center (NHIC) Mixed Wader Nesting Colony Aerial photographs can help identify large heronries. Reports and other information available from Conservation Authorities MNRF District Offices. Local naturalist clubs. 	<p>Heron or other listed species..</p> <ul style="list-style-type: none"> The habitat extends from the edge of the colony and a minimum 300 m radius or extend of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH . Confirmation of active heronries are to 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 	
<p>Colonially - Nesting Bird Breeding Habitat (Ground)</p> <p>Rationale: Colonies are important to local bird population, typically sites are only known colony in area and are used annually.</p>	<p>Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer’s Blackbird</p>	<p>Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map).</p> <p>Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer’s Blackbird)</p> <p>MAM1 – 6; MAS1 – 3; CUM CUT CUS</p>	<ul style="list-style-type: none"> Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Ontario Breeding Bird Atlas , rare/colonial species records. Canadian Wildlife Service Reports and other information available from Conservation Authorities Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area MNRF District Offices. Field Naturalist Clubs. 	<p>Studies confirming:</p> <ul style="list-style-type: none"> Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. Presence of 5 or more pairs for Brewer’s Blackbird Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH . Studies would be done during May/June when actively nesting. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” 	<p>None Present</p>
<p>Migratory Butterfly Stopover Areas</p> <p>Rationale: Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.</p>	<p>Painted Lady Red Admiral</p> <p><u>Special Concern</u> Monarch</p>	<p>Combination of ELC Community Series; need to have present one Community Series from each landclass:</p> <p><u>Field:</u> CUM CUT CUS</p> <p><u>Forest:</u> FOC FOD FOM CUP</p>	<p>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 Erie and Ontario.</p> <ul style="list-style-type: none"> The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south. The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat . Stopover areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes <p><u>Information Sources</u></p>	<p>Studies confirm:</p> <ul style="list-style-type: none"> 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. Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral’s is to be considered significant. 	<p>None Present</p>

		Anecdotal, a candidate sight for butterfly stopover will have a history of butterflies being observed.	<ul style="list-style-type: none"> • MNRF district Offices • Natural Heritage Information Center (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities 		
Landbird Migratory Stopover Areas Rationale: Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds. Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&nav=421B7A9D-1 All migrant raptors species: Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	Woodlots need to be >5 ha in size and within 5 km of Lake Ontario and Erie. If woodlands are rare in an area of shoreline, woodland fragments 2-5ha can be considered for this habitat. <ul style="list-style-type: none"> • • If multiple woodlands are located along the shoreline those Woodlands <2km from Lake Erie and Lake Ontario are more significant • Sites have a variety of habitats; forest, grassland and wetland complexes. • The largest sites are more significant • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Erie and Lake Ontario are Candidate SWH. <u>Information Sources</u> <ul style="list-style-type: none"> • Bird Studies Canada • Ontario Nature • Local birders and naturalist club • Ontario Important Bird Areas (IBA) Program 	Studies confirm: <ul style="list-style-type: none"> • Use of the woodlot by >200 birds/day and with >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. • Studies should be completed during spring (March to May) and fall (Aug to Oct) migration using standardized assessment techniques. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” 	None present. There are no field or forest combinations of sufficient size (> 10 ha). However, Monarch butterflies may still be present and use the habitat in the Lower Don River Crossing Study Area for foraging and egg-laying but not at significant numbers to qualify as a candidate Migratory Butterfly Stopover Area.
Deer Winter Congregation Areas Rationale: Deer movement during winter in the southern areas of Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	<ul style="list-style-type: none"> • Woodlots >100 ha in size or if large woodlots are rare in a planning area woodlots>50ha. • Deer movement during winter in the southern areas Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands. • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant. <u>Information Sources</u> <ul style="list-style-type: none"> • MNRF District Offices. • LIO/NRVIS 	Studies confirm: <ul style="list-style-type: none"> • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF. • 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 • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques , ground or road surveys, or a pellet count deer density survey 	None Present

Table 1.2.1 Rare Vegetation Communities

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	East Harbour Study Area
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Cliffs and Talus Slopes Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO CLO TAS CLS TAT CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris	Most cliff and talus slopes occur along the Niagara Escarpment. <u>Information Sources</u> <ul style="list-style-type: none">The Niagara Escarpment Commission has detailed information on location of these habitats.OMNRF DistrictsNatural Heritage Information Center (NHIC) has location information available their websiteField Naturalist ClubsConservation Authorities	<ul style="list-style-type: none">Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	None Present
Sand Barren Rationale: Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.	A sand barren area >0.5ha in size. <u>Information Sources</u> <ul style="list-style-type: none">OMNRF Districts.Natural Heritage Information Center (NHIC) has location information available on their websiteField Naturalist ClubsConservation Authorities	<ul style="list-style-type: none">Confirm any ELC Vegetation Type for Sand Barrens iiiSite must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	None Present
Alvar Rationale: Alvars are extremely rare habitats in Ecoregion 7E.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 Five Alvar Indicator Species: 1) <i>Carex crawei</i> 2) <i>Panicum philadelphicum</i> 3) <i>Elocharis compressa</i>	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from	An Alvar site > 0.5 ha in size. Alvar is particularly rare in Ecoregion 7E where the only known sites are found in the western islands of Lake Erie.cxcix <u>Information Sources</u> <ul style="list-style-type: none">Alvars of Ontario (2000), Federation of Ontario Naturalists.Ontario Nature – Conserving Great Lakes Alvars.Natural Heritage Information Center (NHIC) has location information available on their websiteOMNRF Staff.Field Naturalist Clubs.Conservation Authorities.	Field studies identify four of the five Alvar Indicator Species at a Candidate Alvar site is Significant. <ul style="list-style-type: none">Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.	None Present

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	East Harbour Study Area
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
	4) <i>Scutellaria parvula</i> 5) <i>Trichostema brachiatum</i> These indicator species are very specific to Alvars within Ecoregion 7E.	patchy to barren with a less than 60% tree cover ⁱⁱⁱ .			
Old Growth Forest <u>Rationale:</u> Due to historic logging practices and land clearance for agriculture, old growth forest is rare in Ecoregion 7E.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old-growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in mosaic of gaps that encourage development of multi-layered canopy and an abundance of snags and downed woody debris.	<ul style="list-style-type: none">Woodland area is >0.5 ha. <u>Information Sources</u> <ul style="list-style-type: none">OMNRF Forest Resource Inventory mappingOMNRF Districts.Field Naturalist ClubsConservation AuthoritiesSustainable Forestry Licence (SFL) companies will possibly know locations through field operations.Municipal forestry departments	Field Studies will determine: <ul style="list-style-type: none">If dominant trees species of the ecosite are >140 years old, then area containing these trees is Significant Wildlife Habitat.The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut steps will not be present)The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH.Determine ELC vegetation types for the forest area containing the old growth characteristics.	None Present
Savannah <u>Rationale:</u> Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. In ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario).	No minimum size to site Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <u>Information Sources</u> <ul style="list-style-type: none">Natural Heritage Information Center (NHIC) has location data available on their website.OMNRF Districts.Field Naturalists Clubs.Conservation Authorities.	Field studies confirm one or more of the Savannah indicator species listed in Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 7E should be used <ul style="list-style-type: none">Area of the ELC Ecosite is the SWH.Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	None Present
Tallgrass Prairie <u>Rationale:</u> Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover. In ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario).	No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <u>Information Sources</u> <ul style="list-style-type: none">OMNRF Districts.Natural Heritage Information Center (NHIC) has location data available on their website.Field Naturalists Clubs.Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 7E should be used <ul style="list-style-type: none">Area of the ELC Ecosite is the SWHSite must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	None Present

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	East Harbour Study Area
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Other Rare Vegetation Communities <u>Rationale:</u> Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M The OMNRF/NHIC will have up to date listing for rare vegetation communities. <u>Information Sources</u> <ul style="list-style-type: none">• OMNRF Districts.• Natural Heritage Information Center (NHIC) has location data available on their website.• Field Naturalists Clubs.• Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. <ul style="list-style-type: none">• Area of the ELC Vegetation Type polygon is the SWH.	None Present

Table 1.2.2 Specialized Habitats of Wildlife considered SWH.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	East Harbour Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Nesting Area <u>Rationale:</u> Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 Note: includes adjacency to Provincially Significant Wetlands	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5 ha) with small wetlands (<0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur: <ul style="list-style-type: none">Upland areas should be at least 120m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests.Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. <u>Information Sources</u> <ul style="list-style-type: none">Ducks Unlimited staff may know the locations of particularly productive nesting sites.OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat.Reports and other information available from Conservation Authorities	Studies confirmed: <ul style="list-style-type: none">Presence of 3 or more nesting pairs for listed species excluding Mallards , or;Presence of 10 or more nesting pairs for listed species including MallardsAny active nesting site of an American Black Duck is considered significant.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”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.	None Present
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat <u>Rationale:</u> Nest sites are fairly uncommon in Ecoregion 7E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey Special Concern Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. <ul style="list-style-type: none">Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree’s canopy.Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms). <u>Information Sources</u> <ul style="list-style-type: none">Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario.MNRF values information (LIO/NRVIS) will list known nesting locations, Note: data from NRVIS is provided as a point and does not represent all the habitat.Nature Counts, Ontario Nest Records Scheme data.OMNRF Districts.Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documentedReports and other information available from Conservation AuthoritiesField naturalist Clubs	Studies confirm the use of these nests by: <ul style="list-style-type: none">One or more active Osprey or Bald Eagle nests in an area.Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH.For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH , maintaining undisturbed shorelines with large trees within this area is important.For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependant on site lines from the nest to the development and inclusion of perching and foraging habitatTo be significant a site must be used annually. When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant.Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August.Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”	None Present

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	East Harbour Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Woodland Raptor Nesting Habitat Rationale: Nests sites for these species are rarely identified; these area sensitive habitats are often used annually by these species.	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 SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands combined >30ha or with >4 ha of interior habitat ⁱ . Interior habitat determined with a 200m buffer <ul style="list-style-type: none"> 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. In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. <u>Information Sources</u> <ul style="list-style-type: none"> OMNRF Districts. Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented. Check data from Bird Studies Canada. Reports and other information available from Conservation Authorities 	Studies confirm: <ul style="list-style-type: none"> Presence of 1 or more active nests from species list is considered significant. Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). Barred Owl – A 200m radius around the nest is the SWH. Broad-winged Hawk and Coopers Hawk,– A 100m radius around the nest is the SWH. Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. 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. 	None Present
Turtle Nesting Areas Rationale: These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle <u>Special Concern Species</u> Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	<ul style="list-style-type: none"> Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <u>Information Sources</u> <ul style="list-style-type: none"> Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). Check the Ontario Herpetofaunal Atlas records (or other similar atlases) for uncommon turtles; location information may help to find potential nesting habitat for them. Natural Heritage Information Center (NHIC) Field Naturalist Clubs 	Studies confirm: <ul style="list-style-type: none"> Presence of 5 or more nesting Midland Painted Turtles One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH. Travel routes from wetland to nesting area are to be considered within the SWH as a part of the 30-100m area of habitat. Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. 	None Present
Seeps and Springs Rationale: Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. <ul style="list-style-type: none"> Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species <u>Information Sources</u>	Field Studies confirm: <ul style="list-style-type: none"> Presence of a site with 2 or more seeps/springs should be considered SWH. The area of a ELC forest ecosite or ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition 	None Present

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	East Harbour Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
		habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	<ul style="list-style-type: none"> Topographical Map. Thermography. Hydrological surveys conducted by Conservation Authorities and MOE. Field Naturalists Clubs and landowners. Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped. 	need to be considered in delineation the habitat.	
Amphibian Breeding Habitat (Woodland). Rationale: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians	<ul style="list-style-type: none"> Presence of a wetland, pond or woodland pool(including vernal pools) >500m² within or adjacent (within 120m) to a woodland (no minimum size).- Some small wetlands may not be mapped and may be important breeding pools for amphibians. Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. OMNRF Districts and wetland evaluations Field Naturalist Clubs Canadian Wildlife Service Amphibian Road Call Survey Ontario Vernal Pool Association: http://www.ontariovernalpools.org 	Studies confirm; <ul style="list-style-type: none"> Presence of breeding population of 1 or more of the listed salamander species or 2 or more of the listed frog species with at least 20 individuals (adults, juveniles, eggs/larval masses) or 2 or more of the listed frog species with Call Level Codes of 3. A combination of observation study and call count survey will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. The habitat is the wetland area plus a 230m radius of 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. 	None Present
Amphibian Breeding Habitat (Wetlands) Rationale: Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	<ul style="list-style-type: none"> Wetlands>500m² (about 25m diameter)) ,supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNR mapping and could be important amphibian breeding habitats . Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. Bullfrogs require permanent water bodies with abundant emergent vegetation. <p><u>Information Sources</u></p> <ul style="list-style-type: none"> Ontario Herpetofaunal Summary Atlas (or other similar atlases) Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. 	Studies confirm: <ul style="list-style-type: none"> •Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3. or; Wetland with confirmed breeding Bullfrogs are significant. 	None Present

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	East Harbour Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
			<ul style="list-style-type: none">•OMNRF Districts and wetland evaluations.•Reports and other information available from Conservation Authorities.	<ul style="list-style-type: none">• The ELC ecosite wetland area and the shoreline are the SWH.• A combination of observational study and call count surveys i will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands.• If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule.	

Table 1.3. Habitats of Species of Conservation Concern considered SWH.

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	East Harbour Study Area
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
Woodland Area-Sensitive Bird Breeding Habitat Rationale: Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Pileated Woodpecker <u>Special Concern:</u> Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD	<ul style="list-style-type: none">Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha.Interior forest habitat is at least 200 m from forest edge habitat. <u>Information Sources</u> <ul style="list-style-type: none">Local birder clubs.Canadian Wildlife Service (CWS) for the location of forest bird monitoring.Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior speciesReports and other information available from Conservation Authorities	Studies confirm: <ul style="list-style-type: none">Presence of nesting or breeding pairs of 3 or more of the listed wildlife species.<u>Note:</u> any site with breeding Cerulean Warblers or Canada Warbler is to be considered SWH.Conduct field investigations in spring and early summer when birds are singing and defending their territories.Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”	None Present
Marsh Breeding Bird Habitat Rationale: Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	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	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	<ul style="list-style-type: none">Nesting occurs in wetlands.All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present cxxiv.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. <u>Information Sources</u> <ul style="list-style-type: none">OMNRF District and wetland evaluations.Field Naturalist clubsNatural Heritage Information Centre (NHIC) Records.Reports and other information available from Conservation Authorities.Ontario Breeding Bird Atlas.	Studies confirm: <ul style="list-style-type: none">Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species.Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH.Area of the ELC ecosite is the SWH.Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats.Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”	None Present
Open Country Bird Breeding Habitat Rationale: This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Special Concern Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha <ul style="list-style-type: none">Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years).Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older.	Field Studies confirm: <ul style="list-style-type: none">Presence of nesting or breeding of 2 or more of the listed species.A field with 1 or more breeding Short-eared Owls is to be considered SWH.The area of SWH is the contiguous ELC ecosite field areas.Conduct field investigations of the most likely areas in spring and early summer when birds are singing and	None Present

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	East Harbour Study Area
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
significantly the past 40 years based on CWS (2004) trend records.			<ul style="list-style-type: none"> The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species. Information Sources Agricultural land classification maps, Ministry of Agriculture. Local bird clubs. Ontario Breeding Bird Atlas EIS Reports and other information available from Conservation Authorities. 	defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”	
Shrub/Early Suessional Bird Breeding Habitat Rationale: This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	<u>Indicator Spp:</u> Brown Thrasher Clay-coloured Sparrow <u>Common Spp.</u> Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher Special Concern: Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	Large field areas succeeding to shrub and thicket habitats >10ha in size. <ul style="list-style-type: none"> Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years). Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species cli. Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. Information Sources Agricultural land classification maps, Ministry of Agriculture. Local bird clubs. Ontario Breeding Bird Atlas Reports and other information available from Conservation Authorities.	Field Studies confirm: <ul style="list-style-type: none"> Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. The area of the SWH is the contiguous ELC ecosite field/thicket area. Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” 	None Present
Terrestrial Crayfish; Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish; (<i>Fallicambarus fodiens</i>) Devil Crawfish or Meadow Crayfish; (<i>Cambarus Diogenes</i>)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. <ul style="list-style-type: none"> Constructs burrows in marshes, mudflats, meadows, the ground can't found far from water. Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. <u>Information Sources</u> <ul style="list-style-type: none"> Information sources from “Conservation Status of Freshwater Crayfishes” by Dr. Premek Hamr for the WWF and CNF March 1998 	Studies Confirm: <ul style="list-style-type: none"> • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites • Area of ELC ecosite or an Habitat ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult 	None Present
Special Concern and Rare Wildlife Species	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal	All plant and animal element occurrences	<ul style="list-style-type: none"> 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 	Studies Confirm: <ul style="list-style-type: none"> • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the 	A comprehensive screening for each SOCC record

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	East Harbour Study Area
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
<u>Rationale:</u> These species are quite rare or have experienced significant population declines in Ontario.	species. Lists of these species are tracked by the Natural Heritage Information Centre (NHIC).	(EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy	needs to be completed to ELC Ecosites <ul style="list-style-type: none">Information SourcesNatural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data.NHIC Website “Get Information” : http://nhic.mnr.gov.on.caOntario Breeding Bird Atlas•Expert advice should be sought as many of the rare spp. have little information available about their requirements.	time of year when the species is present or easily identifiable. <ul style="list-style-type: none">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.	identified within the East Harbour Study Area is provided in Appendix C.

Table 1.4 Animal Movement Corridors

Habitat	SPECIES	CANDIDATE SWH		CONFIRMED SWH	East Harbour Study Area
		ELC Eco-sites	Habitat Criteria and Information Sources	Defining Criteria	
Amphibian Movement Corridors <u>Rationale:</u> Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. <ul style="list-style-type: none">Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	Movement corridors between breeding habitat and summer habitat Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat –Wetland) of this Schedule. Information Sources <ul style="list-style-type: none">•MNRF District Office.•Natural Heritage Information Centre (NHIC).•Reports and other information available from Conservation Authorities.•Field Naturalist Clubs.	<ul style="list-style-type: none">• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites.• Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant• Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m.• Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat.	None Present

Table 1.5 Significant Wildlife Habitat Exceptions for Ecodistricts within Eco-Region 7E

Habitat	SPECIES	CANDIDATE SWH		CONFIRMED SWH	East Harbour Study Area
		ELC Eco-sites	Habitat Criteria and Information Sources	Defining Criteria	
7E-2	Bat Migratory Stopover Area Rationale: Stopover areas for long distance migrant bats are important during fall migration. Hoary Bat Eastern Red Bat Silver-haired Bat	No specific ELC types.	<ul style="list-style-type: none">• Long distance migratory bats typically migrate during late summer and early fall from summer breeding habitats throughout Ontario to southern wintering areas. Their annual fall migration may concentrate these species of bats at stopover areas.• This is the only known bat migratory stopover habitats based on current information. <u>Information Sources</u> <ul style="list-style-type: none">• OMNRF for possible locations and contact for local experts• University of Waterloo, Biology Department	<ul style="list-style-type: none">• Long Point (42°35’N, 80°30’E, to 42°33’N, 80°03’E) has been identified as a significant stop-over habitat for fall migrating Silver-haired Bats, due to significant increases in abundance, activity and feeding that was documented during fall migration.• The confirmation criteria and habitat areas for this SWH are still being determined.	Not Applicable

Appendix C

Species of Conservation Concern Habitat Screening for the Early Works Study Area

Appendix C. Species of Conservation Concern Habitat Screening for the Early Works Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source (See Note 6)	Probability of Occurrence Based on Presence of Suitable Habitat within the East Harbour Study Area
Amphibian	Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield population	<i>Pseudacris maculata pop. 1</i>	2016	S3	NAR	THR	THR	The Western Chorus Frog is primarily a lowland terrestrial species. In marshes or wooded wetland areas, it is found on the ground or in low shrubs and grass. It is a poor climber. Like all other frogs, the Western Chorus Frog requires both terrestrial and aquatic habitats in close proximity. For breeding and tadpole development, it requires seasonally dry temporary ponds devoid of predators, particularly fish. The Western Chorus Frog is very rarely found in permanent ponds. Although it uses aquatic habitat during the breeding season, the Western Chorus Frog is a poor swimmer. The species hibernates in its terrestrial habitat, under rocks, dead trees, or leaves, or in loose soil or animal burrows, even though these sites are sometimes flooded.	MAS, SW	ORAA	Low - no suitable habitat is present.
Birds	Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	2001-2005	S3B,S3N	-	-	-	This species can be found in deciduous woodland swamps, cattail marshes, islands, wooded rivers and lake banks, coastal wetlands, bottomland hardwood forests and thickets, rocky cliffs, various habitats except in dense vegetation. This species roosts in tall live or dead trees with tree limbs greater than 18 inches in diameter.	SWD, MAS, FOD, SW, CL	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - no suitable habitat is present.
Birds	Canvasback	<i>Aythya valisineria</i>	2001-2005	S1B,S4N	-	-	-	This species can be found in large marshes for nesting and prefers deep, permanent waterbodies for feeding and courtship.	MA, OAO	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - no suitable habitat is present. This species likely occurs within Lake Ontario which is located outside of the study area.
Birds	Caspian Tern	<i>Hydroprogne caspia</i>	2001-2005	S3B	-	-	-	This species can be found in open habitat near large lakes or rivers, beaches, shorelines, rocky or sandy beaches and offshore islands.	OAO, BB	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.
Birds	Common Nighthawk	<i>Chordeiles minor</i>	2016	S4B	SC	THR Sched ule 1	SC	Traditional Common Nighthawk habitat consists of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. Although the species also nests in cultivated fields, orchards, urban parks, mine tailings, and along gravel roads and railways, they tend to occupy natural sites. The Common Nighthawk nests in a wide range of open, vegetation-free habitats, including dunes, beaches, recently harvested forests, rocky outcrops, grasslands, pastures, marshes, river banks and flat buildings with gravel rooftops in urban centres. This species also inhabits mixed and coniferous forests. The Common Nighthawk probably benefited from the newly-opened habitats created by the massive deforestation associated with the arrival of European settlers in eastern Canada and United States. In urban areas, Common Nighthawk prefers to nest on flat, gravel rooftops of buildings (Brigham et al., 2011).	SD, BB, RB, CUM, BO, FOM, FOC and FOD with openings with little vegetation.	TRCA, OBBA (17PJ23, 17PJ33, 17PJ34)	Medium - buildings with flat, gravel filled rooftops may provide suitable nesting habitat for this species as well as the riverbanks of the Lower Don River.
Birds	Eastern Wood-pewee	<i>Contopus virens</i>	2016	S4B	SC	SC Sched ule 1	SC	The Eastern Wood-pewee lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age mature forest stands with little understory vegetation. During migration, a variety of habitats are used, including forest edges and early successional clearings.	FOC, FOM, FOD, SWD, SWM and CUW.	TRCA; OBBA (17PJ23, 17PJ33); NHIC	Medium - treed areas (e.g., cultural woodlands) may provide suitable nesting habitat.
Birds	Great Black-backed Gull	<i>Larus marinus</i>	2001-2005	S2B	-	-	-	This species can be found in flat rocky, coastal islands, moorlands, rocky beaches and cliffs.	OAO, BB, CL	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.
Birds	Great Egret	<i>Ardea alba</i>	2001-2005	S2B	-	-	-	This species can be found in open swamp woods or willow thickets, offshore islands and mudflats for feeding. This species nests in standings trees in open water, thickets and sometimes in low vegetation on islands or in rookeries with other herons.	SWD, SWC, SWM, SWT	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - suitable habitat is not present.
Birds	Peregrine Falcon	<i>Falco peregrinus</i>	2008	S3B	SC	No Status	Not At Risk	Peregrine Falcons usually nest on tall, steep cliff ledges close to large bodies of water. Although most people associate Peregrine Falcons with rugged wilderness, some of these birds have adapted well to city life. Urban peregrines raise their young on ledges of tall buildings, even in busy downtown areas.	CLO	NHIC, OBBA (17PJ23, 17PJ33,	Low – there are no high-rise buildings present.

Appendix C. Species of Conservation Concern Habitat Screening for the Early Works Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source (See Note 6)	Probability of Occurrence Based on Presence of Suitable Habitat within the East Harbour Study Area
								<p>Cities offer peregrines a good year-round supply of pigeons and starlings to feed on.</p> <p>The Peregrine Falcon is found in various types of habitats, from Arctic tundra to coastal areas and from prairies to urban centres. It usually nests alone on cliff ledges or crevices, preferably 50 to 200 m in height, but sometimes on the ledges of tall buildings or bridges, always near good foraging areas. Suitable nesting sites are usually dispersed, but can be common locally in some areas. The natural nesting habitat has not changed significantly since the population crash and is still largely available. In addition, structures built by humans in both rural and urban areas provide the Peregrine Falcon with other potential nesting sites. And though urbanization and other land uses have had a significant impact on some areas where they feed, Peregrine Falcons can usually modify their diet based on the prey species present in a given area.</p>		17PJ34), TRCA	
Birds	Purple Martin	<i>Progne subis</i>	2001-2005	S3S4B	-	-	-	This species can be found in open and treed areas such as farmlands, parks, yards, marshes usually near large bodies of water. This species most commonly nests in artificial nest boxes and request open space for foraging.	CUM, CUT, MA	OBBA (17PJ23, 17PJ33)	Low - no suitable habitat (i.e., nest boxes) is present.
Birds	Redhead	<i>Aythya americana</i>	2001-2005	S2B,S4N	-	-	-	This species can be found in shallow cattail / bulrush marshes, lakes and ponds and fens, preferred nesting usually close to shallow water.	MAS, OAO, FE	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.
Birds	Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	2001-2005	S4B	SC	THR Schedule 1	END	<p>The Red-headed Woodpecker lives in open woodland and woodland edges, and is often found in parks, golf courses, and cemeteries. These areas typically have many dead trees, which the bird uses for nesting and perching. A few of these birds will stay the winter in woodlands in southern Ontario if there are adequate supplies of nuts.</p> <p>The Red-headed Woodpecker is found in a variety of habitats, including oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, beaver ponds, and burns.</p>	TPS, TPW, CUW, FOD1, FOD2, FOD4-1, FOD6, FOD7, and FOD9 that are open and have an abundance of dead trees.	OBBA (17PJ23, 17PJ33, 17PJ34)	Low – although small deciduous woodlands occur these are likely too small in size and do not have high density of dead trees to provide suitable habitat for this species.
Birds	Red-necked Grebe	<i>Podiceps grisegena</i>	2001-2005	S3B,S4N	-	-	-	This species can be found in permanent freshwater lakes with a fringe of aquatic emergent vegetation, marshes, impoundments or sewage lagoons with greater than 4 ha of open water.	OAO, MA	OBBA (17PJ23, 17PJ33)	Low - no suitable habitat is present. This species likely occurs within Lake Ontario and its shorelines which are located outside of the study area.
Birds	Wood Thrush	<i>Hylocichla mustelina</i>	2016	S4B	SC	THR Schedule 1	THR	<p>The Wood Thrush lives in mature deciduous and mixed (conifer-deciduous) forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing perches. These birds prefer large forests, but will also use smaller stands of trees. They build their nests in living saplings, trees, or shrubs, usually in Sugar Maple or American Beech.</p> <p>In Canada, the Wood Thrush nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. This species prefers large forest mosaics, but may also nest in small forest fragments.</p>	FOD and FOM that are greater than 1 ha in size.	TRCA, OBBA (17PJ23, 17PJ33)	Low - no suitable habitat is present.
Insect	Monarch	<i>Danaus plexippus</i>	2019	S2N,S4B	SC	SC Schedule 1	END	<p>Throughout their life cycle, Monarchs use three different types of habitat. Only the caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers.</p> <p>Milkweeds (numerous species) are the sole food plant for Monarch caterpillars. These plants grow predominantly in open and periodically disturbed habitats</p>	AI, TP, and CUM where milkweed plants are present.	OBA	Medium - cultural meadows may provide suitable foraging and rearing habitat.

Appendix C. Species of Conservation Concern Habitat Screening for the Early Works Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source (See Note 6)	Probability of Occurrence Based on Presence of Suitable Habitat within the East Harbour Study Area
								such as roadsides, fields, wetlands, prairies, and open forests. Milkweeds are often planted outside their native range, and sometimes wayward Monarchs are observed at these patches. Monarchs require staging areas which are used to rest, feed, and avoid inclement weather during migration. In Canada, they are found along the north shores of the Great Lakes where Monarchs roost in trees before crossing large areas of open water.			
Insect	Black Dash	<i>Euphyes conspicua</i>	2016	S3	-	-	-	This species can be found in boggy marshes, wet meadows, and marshy stream banks.	MA, BO	OBA	Low - suitable habitat is not present.
Insect	Hackberry Emperor	<i>Asterocampa celtis</i>	2017	S3	-	-	-	This species can be found along wooded streams and deciduous forests with the host plant, Hackberry (<i>Celtis</i>).	FOD4-3	OBA	Low - suitable habitat is not present.
Insect	Tawny Emperor	<i>Asterocampa clyton</i>	2015	S3	-	-	-	This species can be found along wooded streams and deciduous forests with the host plant, Hackberry (<i>Celtis</i>).	FOD4-3	OBA	Low - suitable habitat is not present.
Reptiles	Northern Map Turtle	<i>Graptemys geographica</i>	2018	S3	SC	SC Sched ule 1	SC	<p>The Northern Map Turtle inhabits rivers and lakeshores where it basks on emergent rocks and fallen trees throughout the spring and summer. In winter, the turtles hibernate on the bottom of deep, slow-moving sections of river. They require high-quality water that supports the female's mollusc prey. Their habitat must contain suitable basking sites, such as rocks and deadheads, with an unobstructed view from which a turtle can drop immediately into the water if startled.</p> <p>The Northern Map Turtle inhabits both lakes and rivers, showing a preference for slow moving currents, muddy bottoms, and abundant aquatic vegetation. These turtles need suitable basking sites (such as rocks and logs) and exposure to the sun for at least part of the day.</p>	OAO, SA with emergent rocks and fallen trees suitable habitat for prey.	ORAA	High - the Lower Don River is a moderately flowing river with depths ranging from 0.1 to 1.0 m. One record of this species supplied by Ontario Nature indicates its presence within the Study Area and that the Lower Don River may serve as movement corridor for this species to Lake Ontario. However, there are no suitable nesting, or basking habitats present. There are reinforced retaining walls on either side of the Lower Don River at the Lower Don Bridge which do not provide suitable nesting habitat.
Reptiles	Snapping Turtle	<i>Chelydra serpentina</i>	2019	S4	SC	SC Sched ule 1	SC	<p>Snapping Turtles spend most of their lives in water. They prefer shallow waters so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. During the nesting season, from early to mid summer, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams, and aggregate pits.</p> <p>Although Snapping Turtles have been observed in shallow water in almost every kind of freshwater habitat, the preferred habitat of the species is characterized by slow-moving water with a soft mud bottom and dense aquatic vegetation. Established populations are most often located in ponds, sloughs, shallow bays or river edges, and slow streams, or areas combining several of these wetland habitats. Individual turtles will persist in urbanized water bodies, such as golf course ponds and irrigation canals, but it is unlikely that a population could become established in such habitats. The Snapping Turtle can occur in highly polluted waterways, but environmental contamination is known to reduce the already low reproductive output of this species. Basking on offshore logs and protruding rocks can be common in Snapping Turtles, depending on environmental temperature. Females generally nest on sand or gravel banks along waterways. Upon emergence from the nest in early fall, hatchling Snapping Turtles usually move to water, after which they bury themselves under leaf litter or debris. Snapping Turtles overwinter underwater, buried beneath logs, sticks or overhanging banks in small streams that flow continuously throughout the winter. They can also hibernate buried in deep mud in marshy areas or beneath floating mats of vegetation. Snapping Turtle habitat is diminishing in both quantity and quality in Canada, with losses primarily due to conversion of wetlands to agriculture and urban development.</p>	OAO, SA near gravelly or sandy areas.	ORAA; TRCA; NHIC	Medium- the Lower Don River is a moderately flowing river with depths ranging from 0.1 to 1.0 m and may serve as movement corridor for this species to Lake Ontario. However, there are no suitable nesting, or basking habitats present. There are reinforced retaining walls on either side of the Lower Don River at the Lower Don Bridge which do not provide suitable nesting habitat.
Plants	Old -field Toadflax	<i>Nuttallanthus canadensis</i>	n/a	S2				Dry, open, sandy or rocky, barren ground; oak and sassafras savanna and jack pine plains; beds of dried lakes (Michigan Flora, 2011)	TPW, RBO, RBS	NHIC	Low - suitable habitat is not present.

Appendix C. Species of Conservation Concern Habitat Screening for the Early Works Study Area

Glossary and Notes

1 S-rank:	<p>The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF NHIC to set protection priorities for rare species and natural communities. The following status definitions were taken from NatureServe Explorer’s (2015) National and Subnational Conservation Status Definitions available at http://explorer.natureserve.org/nsranks.htm:</p> <p>SX - Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.</p> <p>SH- Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.</p> <p>S1 - Critically Imperiled — Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.</p> <p>S2-Imperiled—Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.</p> <p>S3 - Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.</p> <p>S4 - Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.</p> <p>S5 - Secure—Common, widespread, and abundant in the nation or state/province.</p> <p>SNR - Unranked—Province conservation status not yet assessed.</p> <p>SU - Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.</p> <p>SNA - Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.</p> <p>S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).</p> <p>Breeding Status Qualifiers</p> <p>B - Breeding—Conservation status refers to the breeding population of the species in the province.</p> <p>N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.</p> <p>M - Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.</p> <p>Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").</p> <p>Other Qualifiers</p> <p>? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)</p>
2 ESA Status:	<p>The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:</p> <p>END (Endangered) – A species facing imminent extinction or extirpation in Ontario.</p> <p>THR (Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.</p> <p>SC (Special Concern) – A species that may become threatened or endangered due to a combination of biological characteristics and identified threats.</p> <p>NAR (Not at Risk) – A species that has been evaluated and found to be not at risk.</p>
3 SARA Status:	<p>The Species at Risk Act (SARA) protects Species at Risk designated as Endangered, Threatened and Extirpated listed under Schedule 1, including their habitats on federal land. Schedule 1 of SARA is the official list of wildlife species at risk in Canada and includes species listed as Extirpated, Endangered, Threatened and of Special Concern. Once a species is listed on Schedule 1, they receive protection and recovery measures that are required to be developed and implemented under SARA. Species that were designated at risk by COSEWIC before SARA need to be reassessed based on the new criteria of the Act before they can be listed under Schedule 1. These species that are waiting to be listed under Schedule 1 do not receive official protection under SARA. Once the species on other schedules (2 and 3) have been reassessed, the other schedules are eliminated and the species is either listed under Schedule 1 or is not listed under the Act. The following are definitions of the SARA status rankings assigned to each species in the table above:</p> <p>END (Schedule 1) – These species are listed as Endangered under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.</p> <p>THR (Schedule 1) – These species are listed as Threatened under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.</p> <p>SC (Schedule 1) – These species are listed as Special Concern under Schedule 1 of SARA and receive management initiatives under SARA to prevent them from becoming endangered and threatened.</p> <p>No Status (No Schedule) – These species are evaluated and designated by COSEWIC but are not listed under Schedule 1 and therefore do not receive protection under SARA.</p> <p>NAR (Not at Risk)– These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.</p> <p>Not Applicable (N / A) – These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.</p> <p>Schedule 2 - Species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.</p> <p>Schedule 3 - Species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.</p> <p>Source: Government of Canada, 2009: Frequently Asked Questions: What are the SARA schedules? Accessed on January 2017. Available: http://www.dfo-mpo.gc.ca/species-especes/faq/faq-eng.htm</p>
4 COSEWIC:	<p>Committee on the Status of Endangered Wildlife in Canada - a committee of experts that assesses and designates which wild species are in some danger of disappearing from Canada.</p>
5 Preferred Habitat / Known Species Range:	<p>The following references were used to describe preferred habitat and/or known species ranges:</p> <p>- Species at Risk . Ontario Ministry of Natural Resources. http://www.mnr.gov.on.ca/en/Business/Species/index.html. © Queens Printer For Ontario, 2013.</p> <p>- Species at Risk Status Reports. Committed on the Status of Endangered Wildlife in Canada. Ottawa. http://www.sararegistry.gc.ca/search/advSearchResults_e.cfm?stype=doc&docID=18.</p> <p>- Evans, Melissa, Elizabeth Gow, R. R. Roth, M. S. Johnson and T. J. Underwood. 2011. Wood Thrush (Hylocichla mustelina), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology;</p> <p>doi:10.2173/bna.246</p> <p>Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/246</p>

Appendix C. Species of Conservation Concern Habitat Screening for the Early Works Study Area

- McCarty, John P. 1996. Eastern Wood-Pewee (*Contopus virens*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/245>
doi:10.2173/bna.245

6 Sources Identifying Species Record: Records of species were identified from the following secondary sources unless otherwise stated:

BCI -Bat Conservation International (BCI), 2019: Species Profiles. Accessed from:<http://www.batcon.org/resources/media-education/species-profiles>
OBBA -Bird Studies Canada (BSC), Environment Canada – Canadian Wildlife Service (EC-CWS), Ontario Nature, Ontario Field Ornithologists (OFO) and Ontario Ministry of Natural Resources and Forestry (MNRF), 2006: Ontario Breeding Bird Atlas (OBBA) website. Accessed 2019 from: <http://www.birdsontario.org/atlas/index.jsp>
NHIC - Ontario Ministry of Natural Resources and Forestry (MNRF), 2019: Natural Heritage Information Centre (NHIC) Rare Species Database. Accessed 2019 from: http://www.giscoeapp.lrc.gov.on.ca/Mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US
ORAA - Ontario Nature, 2017: Ontario Reptile and Amphibian Atlas Program. Accessed 2017 from: http://www.ontarionature.org/protect/species/herpetofaunal_atlas.php
OBA - Macnaughton, A., Layberry, R., Jones, C. and B. Edwards, 2020: Ontario Butterfly Atlas Online. Accessed 2020 from: http://www.ontarioinsects.org/atlas_online.htm
DFO - Fisheries and Oceans Canada (DFO). 2020: Aquatic Species at Risk Mapping. Accessed 2020 from: <http://www.dfo-mpo.gc.ca/species-especes/fpp-ppp/index-eng.htm>
TRCA - flora and fauna records received from TRCA on February 27, 2018
MNRF - records from MNRF based on email correspondence on January 30 2018

Other References Used:

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray, 1998: Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.
MICHIGAN FLORA ONLINE. A. A. Reznicek, E. G. Voss, & B. S. Walters. February 2011. University of Michigan. Web. January 14, 2020. <https://michiganflora.net/species.aspx?id=1950>.

Appendix D

**Species at Risk Habitat Screening for
the Early Works Study Area**

Appendix D. Species at Risk Habitat Screening for the Early Works Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source (See Note 6)	Probability of Occurrence Based on Presence of Suitable Habitat within the East Harbour Study Area
Birds	Bank Swallow	<i>Riparia riparia</i>	2017	S4B	THR	THR Schedule 1	THR	<p>Bank Swallows nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. Many nests are on banks of rivers and lakes, but they are also found in active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs.</p> <p>The Bank Swallow breeds in a wide variety of natural and artificial sites with vertical banks, including riverbanks, lake and ocean bluffs, aggregate pits, road cuts, and stockpiles of soil. Sand-silt substrates are preferred for excavating nest burrows. Breeding sites tend to be somewhat ephemeral due to the dynamic nature of bank erosion. Breeding sites are often situated near open terrestrial habitat used for aerial foraging (e.g., grasslands, meadows, pastures, and agricultural cropland). Large wetlands are used as communal nocturnal roost sites during post-breeding, migration, and wintering periods.</p>	N/A	NHIC; OBBA (17PJ33, 17PJ34)	Low - there is no suitable habitat present. The banks of the Lower Don River include a hardened bank, impervious surfaces and lack of sandy vertical banks.
Birds	Barn Swallow	<i>Hirundo rustica</i>	2001-2005	S4B	THR	THR Schedule 1	THR	<p>Barn Swallows often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges, and in culverts. The species is attracted to open structures that include ledges where they can build their nests, which are often re-used from year to year. They prefer unpainted, rough-cut wood, since the mud does not adhere as well to smooth surfaces.</p> <p>Before European colonization, Barn Swallows nested mostly in caves, holes, crevices, and ledges in cliff faces. Following European settlement, they shifted largely to nesting in and on artificial structures, including barns and other outbuildings, garages, houses, bridges, and road culverts. Barn Swallows prefer various types of open habitats for foraging, including grassy fields, pastures, various kinds of agricultural crops, lake and river shorelines, cleared rights-of-way, cottage areas and farmyards, islands, wetlands, and subarctic tundra.</p>	TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1; containing or adjacent structures that are suitable for nesting.	OBBA (17PJ33, 17PJ34)	High - According to 4Transit (2018), Barn Swallows were observed foraging in the vicinity of the rail corridor bridge crossing the Lower Don River, suggesting that nests may be present under the bridge. Buildings within the East Harbour Study Area may provide limited nesting habitat.
Birds	Bobolink	<i>Dolichonyx oryzivorus</i>	2001-2005	S4B	THR	THR Schedule 1	THR	<p>Historically, Bobolinks lived in North American tallgrass prairie and other open meadows. With the clearing of native prairies, Bobolinks moved to living in hayfields. Bobolinks often build their small nests on the ground in dense grasses. Both parents usually tend to their young, sometimes with a third Bobolink helping.</p> <p>Most of this prairie was converted to agricultural land over a century ago, and at the same time the forests of eastern North America were cleared to hayfields and meadows that provided habitat for the birds. Since the conversion of the prairie to cropland and the clearing of the eastern forests, the Bobolink has nested in forage crops (e.g., hayfields and pastures dominated by a variety of species, such as clover, Timothy, Kentucky Bluegrass, and broadleaved plants). The Bobolink also occurs in various grassland habitats including wet prairie, graminoid peatlands, and abandoned fields dominated by tall grasses, remnants of uncultivated virgin prairie (tall-grass prairie), no-till cropland, small-grain fields, restored surface mining sites, and irrigated fields in arid regions. It is generally not abundant in short-grass prairie, Alfalfa fields, or in row crop monocultures (e.g., corn, soybean, wheat), although its use of Alfalfa may vary with region.</p>	TPO, TPS, CUM1 and MAM2.	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - suitable breeding habitats in the form of hayfields or tall grass meadows of sufficient size were not present.
Birds	Chimney Swift	<i>Chaetura pelagica</i>	2016	S4B,S4N	THR	THR Schedule 1	THR	<p>Before European settlement, Chimney Swifts mainly nested on cave walls and in hollow trees or tree cavities in old growth forests. However, due to the land clearing associated with colonization, hollow trees became increasingly rare, which led Chimney Swifts to move into house chimneys. Today, they are more likely to be found in and around urban settlements where they nest and roost (rest or sleep) in chimneys and other manmade structures. It is likely that a small portion of the population continues to use hollow trees. They also tend to stay close to water as this is where the flying insects they eat congregate.</p> <p>The Chimney Swift spends the major part of the day in flight feeding on insects. In the northern part of the breeding range, the Chimney Swift favours sites where the ambient temperature is relatively stable.</p>	TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1 containing or adjacent structures with suitable nesting habitat (i.e. chimneys).	OBBA (17PJ33, 17PJ34)	High - buildings with suitable chimneys may provide nesting and roosting habitat. According to 4Transit (2018), Chimney Swift nests were confirmed at a chimney located at 21 Don Roadway which is within the Study Area but outside of the Project Footprint.

Appendix D. Species at Risk Habitat Screening for the Early Works Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source (See Note 6)	Probability of Occurrence Based on Presence of Suitable Habitat within the East Harbour Study Area
Birds	Eastern Meadowlark	<i>Sturnella magna</i>	2001-2005	S4B	THR	THR Schedule 1	THR	<p>Eastern Meadowlarks breed primarily in moderately tall grasslands, such as pastures and hayfields, but are also found in alfalfa fields, weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Small trees, shrubs, or fence posts are used as elevated song perches.</p> <p>Eastern Meadowlarks prefer grassland habitats, including native prairies and savannahs, as well as non-native pastures, hayfields, weedy meadows, herbaceous fencerows, and airfields.</p>	TPO, TPS, CUM1, CUS, and MAM2 with elevated song perches.	OBBA (17PJ23, 17PJ33, 17PJ34)	Low - suitable breeding habitats in the form of hayfields or tall grass meadows of sufficient size were not present.
Mammals	Eastern Small-footed Myotis	<i>Myotis leibii</i>	N/A	S2S3	END	N/A	N/A	In the spring and summer, Eastern Small-footed Bats will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. These bats often change their roosting locations every day. At night, they hunt for insects to eat, including beetles, mosquitos, moths, and flies. In the winter, these bats hibernate, most often in caves and abandoned mines. They seem to choose colder and drier sites than similar bats and will return to the same spot each year.	FOC, FOM, FOD, SWC, SWM, and SWD where suitable roosting (i.e. cavity trees and trees with loose bark) habitat is available.	BCI	Medium - treed areas including cultural woodlands may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide anthropogenic roosting habitat for this species.
Mammals	Little Brown Myotis	<i>Myotis lucifugus</i>	N/A	S3	END	END Schedule 1	END	<p>Bats are nocturnal. During the day they roost in trees and buildings. They often select attics, abandoned buildings, and barns for summer colonies where they can raise their young. Bats can squeeze through very tiny spaces (as small as six millimetres across) and this is how they access many roosting areas. Little Brown Bats hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing.</p> <p>Their specific physiological requirements limit the number of suitable sites for overwintering. In the east, large numbers (i.e., >3000 bats) of several species typically overwinter in relatively few hibernacula. In the west, there are fewer known hibernacula, and numbers appear lower per site. Females establish summer maternity colonies, often in buildings or large-diameter trees. Foraging occurs over water, along waterways, and forest edges. Large open fields or clearcuts generally are avoided. In autumn, bats return to hibernacula, which may be hundreds of kilometres from their summering areas, swarm near the entrance, mate, and then enter that hibernaculum, or travel to different hibernacula to overwinter.</p>	FOC, FOM, FOD, SWC, SWM, and SWD where suitable roosting (i.e. cavity trees and trees with loose bark) habitat is available.	BCI	Medium - treed areas including cultural woodlands may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide anthropogenic roosting habitat for this species.
Mammals	Northern Long-eared Myotis	<i>Myotis septentrionalis</i>	N/A	S3	END	END Schedule 1	END	<p>Northern Long-eared Bats are associated with boreal forests, choosing to roost under loose bark and in the cavities of trees. These bats hibernate from October or November to March or April.</p> <p>The Northern Long-eared Bat overwinters in cold and humid hibernacula (caves / mines). Their specific physiological requirements limit the number of suitable sites for overwintering. In the east, large numbers (i.e., >3000 bats) of several species typically overwinter in relatively few hibernacula. In the west, there are fewer known hibernacula, and numbers appear lower per site. Females establish summer maternity colonies in buildings or large-diameter trees. Foraging occurs along waterways, forest edges, and in gaps in the forest. Large open fields or clearcuts generally are avoided. In autumn, bats return to hibernacula, which may be hundreds of kilometres from their summering areas, swarm near the entrance, mate, and then enter that hibernaculum, or travel to different hibernacula to overwinter.</p>	FOC, FOM, FOD, SWC, SWM, and SWD where suitable roosting (i.e. cavity trees and trees with loose bark) habitat is available.	BCI	Medium - treed areas including cultural woodlands may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also provide anthropogenic roosting habitat for this species.
Mammals	Tri-coloured Bat	<i>Perimyotis subflavus</i>	N/A	S3?	END	END Schedule 1	END	During the summer, the Tri-colored Bat is found in a variety of forested habitats. It forms day roosts and maternity colonies in older forest and occasionally in barns or other structures. They forage over water and along streams in the forest. Tri-colored Bats eat flying insects and spiders gleaned from webs. At the end of the summer they travel to a location where they swarm; it is generally	FOC, FOM, FOD, SWC, SWM, and SWD where suitable	BCI	Medium - treed areas including cultural woodlands may provide suitable roosting habitat. In addition, buildings with potential entry and exit holes may also

Appendix D. Species at Risk Habitat Screening for the Early Works Study Area

Taxon	Common Name	Scientific Name	Year Last Observed	S-Rank (See Note 1)	ESA Status (See Note 2)	SARA Status (See Note 3)	COSEWIC Status (See Note 4)	Preferred Habitat (See Note 5)	Associated ELC Communities (based on Lee et. al., 1998)	Source (See Note 6)	Probability of Occurrence Based on Presence of Suitable Habitat within the East Harbour Study Area
								<p>near the cave or underground location where they will overwinter. They overwinter in caves where they typically roost by themselves rather than part of a group.</p> <p>The Tri-colored Bat overwinters in cold and humid hibernacula (caves / mines). Their specific physiological requirements limit the number of suitable sites for overwintering. In the east, large numbers (i.e., >3000 bats) of several species typically overwinter in relatively few hibernacula. In the west, there are fewer known hibernacula, and numbers appear lower per site. Females establish summer maternity colonies in buildings or large-diameter trees. Foraging occurs over water, along waterways, and forest edges. Large open fields or clearcuts generally are avoided. In autumn, bats return to hibernacula, which may be hundreds of kilometres from their summering areas, swarm near the entrance, mate, and then enter that hibernaculum, or travel to different hibernacula to overwinter.</p>	roosting (i.e. cavity trees and trees with loose bark) habitat is available.		provide anthropogenic roosting habitat for this species.
Plant	Butternut	<i>Juglans cinerea</i>	2004	S2?	END	END Schedule 1	END	<p>In Ontario, Butternut usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found along streams. It is also found on well-drained gravel sites and rarely on dry, rocky soil. This species does not do well in the shade, and often grows in sunny openings and near forest edges.</p> <p>Butternut occurs primarily in neutral to calcareous soils of pH 5.5 to 8, often in regions with underlying limestone, and is generally absent from acidic regions. It tends to reach greatest abundance in rich well-drained mesic loams in floodplains, streambanks, terraces, and ravine slopes, but can occur in a wide range of other situations. In closed-canopy stands, it must be in the overstory to thrive. Seedling establishment, growth, and survival to maturity are most frequent in stand openings, riparian zones, and forest edges.</p>	FOD and mature hedgerows; Soil: dry rocky or moist (4, 5, 6) to fresh (2, 3).	NHIC	Medium - Butternuts may occur within the hedgerows within the Metrolinx rail corridor. However a tree inventory conducted in 2016 did not document any occurrences of the species.
Reptiles	Blanding's Turtle	<i>Emydoidea blandingii</i>	2017	S3	THR	THR Schedule 1	END	<p>Blanding's Turtles live in shallow water, usually in large wetlands and shallow lakes with lots of water plants. They can also be occur in slow flowing rivers and creek and artificial channels (MECP, 2019). It is not unusual, though, to find them hundreds of metres from the nearest water body, especially while they are searching for a mate or traveling to a nesting site. Blanding's Turtles hibernate in the mud at the bottom of permanent water bodies from late October until the end of April.</p> <p>In the Great Lakes / St. Lawrence population, Blanding's Turtles are often observed using clear water, eutrophic wetlands. Blanding's Turtles have strong site fidelity but may use several connected water bodies throughout the active season. Females nest in a variety of substrates including sand, organic soil, gravel, cobblestone, and soil-filled crevices of rock outcrops. Adults and juveniles overwinter in a variety of water bodies that maintain pools averaging about 1 m in depth; however, hatchling turtles have been observed hibernating terrestrially during their first winter. Reported mean home ranges generally fall between 10-60 ha (maximum 382 ha) or 1000-2500 m (maximum 7000 m); however, most studies likely underestimate Blanding's Turtle home range size because few have utilized GPS loggers to track daily movements throughout one or more entire active seasons.</p>	SWT2, SWT3, SWD, SWM, MAS2, SAS1, SAM1, where open water is present.	ORAA	Low - suitable habitat is not present. Study Area is largely urbanized and this species is not likely present in moderately flowing waters of the Lower Don River.

Glossary and Notes

1 S-rank: The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF NHIC to set protection priorities for rare species and natural communities. The following status definitions were taken from NatureServe Explorer’s (2015) National and Subnational Conservation Status Definitions available at <http://explorer.natureserve.org/nsranks.htm>:

SX - Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

Appendix D. Species at Risk Habitat Screening for the Early Works Study Area

SH- Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.

S1 - Critically Imperiled — Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.

S2-Imperiled—Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.

S3 - Vulnerable—Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 - Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 - Secure—Common, widespread, and abundant in the nation or state/province.

SNR - Unranked—Province conservation status not yet assessed.

SU - Unrankable—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

SNA - Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

Breeding Status Qualifiers

B - Breeding—Conservation status refers to the breeding population of the species in the province.

N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.

M - Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").

Other Qualifiers

? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

2 ESA Status: **The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:**

END (Endangered) – A species facing imminent extinction or extirpation in Ontario.

THR (Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.

SC (Special Concern) – A species that may become threatened or endangered due to a combination of biological characteristics and identified threats.

NAR (Not at Risk) – A species that has been evaluated and found to be not at risk.

3 SARA Status: **The Species at Risk Act (SARA) protects Species at Risk designated as Endangered, Threatened and Extirpated listed under Schedule 1, including their habitats on federal land. Schedule 1 of SARA is the official list of wildlife species at risk in Canada and includes species listed as Extirpated, Endangered, Threatened and of Special Concern. Once a species is listed on Schedule 1, they receive protection and recovery measures that are required to be developed and implemented under SARA. Species that were designated at risk by COSEWIC before SARA need to be reassessed based on the new criteria of the Act before they can be listed under Schedule 1. These species that are waiting to be listed under Schedule 1 do not receive official protection under SARA. Once the species on other schedules (2 and 3) have been reassessed, the other schedules are eliminated and the species is either listed under Schedule 1 or is not listed under the Act. The following are definitions of the SARA status rankings assigned to each species in the table above:**

END (Schedule 1) – These species are listed as Endangered under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.

THR (Schedule 1) – These species are listed as Threatened under Schedule 1 of SARA and receive species and habitat protection under SARA, as well as recovery strategies and action plans.

SC (Schedule 1) – These species are listed as Special Concern under Schedule 1 of SARA and receive management initiatives under SARA to prevent them from becoming endangered and threatened.

No Status (No Schedule) – These species are evaluated and designated by COSEWIC but are not listed under Schedule 1 and therefore do not receive protection under SARA.

NAR (Not at Risk)– These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.

Not Applicable (N / A) – These species have either been assessed by COSEWIC as Not at Risk or there is not enough data to assess the status ranking of the species and therefore these are not listed on Schedule 1 nor do they receive protection under SARA.

Schedule 2 - Species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

Schedule 3 - Species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

Source: Government of Canada, 2009: Frequently Asked Questions: What are the SARA schedules? Accessed on January 2017. Available: <http://www.dfo-mpo.gc.ca/species-especes/faq/faq-eng.htm>

4 COSEWIC: **Committee on the Status of Endangered Wildlife in Canada - a committee of experts that assesses and designates which wild species are in some danger of disappearing from Canada.**

5 Preferred Habitat / Known Species Range: **The following references were used to describe preferred habitat and/or known species ranges:**

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

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

- Evans, Melissa, Elizabeth Gow, R. R. Roth, M. S. Johnson and T. J. Underwood. 2011. Wood Thrush (Hylocichla mustelina), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology;

doi:10.2173/bna.246

Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/246>

- McCarty, John P. 1996. Eastern Wood-Pewee (Contopus virens), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/245>

doi:10.2173/bna.245

6 Sources Identifying Species Record: **Records of species were identified from the following secondary sources unless otherwise stated:**

BCI -Bat Conservation International (BCI), 2019: Species Profiles. Accessed from:<http://www.batcon.org/resources/media-education/species-profiles>

Appendix D. Species at Risk Habitat Screening for the Early Works Study Area

OBBA -Bird Studies Canada (BSC), Environment Canada – Canadian Wildlife Service (EC-CWS), Ontario Nature, Ontario Field Ornithologists (OFO) and Ontario Ministry of Natural Resources and Forestry (MNRF), 2006: Ontario Breeding Bird Atlas (OBBA) website. Accessed 2019 from: <http://www.birdsontario.org/atlas/index.jsp>

NHIC - Ontario Ministry of Natural Resources and Forestry (MNRF), 2019: Natural Heritage Information Centre (NHIC) Rare Species Database. Accessed 2019 from: http://www.giscoeapp.lrc.gov.on.ca/Mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US

ORAA - Ontario Nature, 2017: Ontario Reptile and Amphibian Atlas Program. Accessed 2017 from: http://www.ontarionature.org/protect/species/herpetofaunal_atlas.php

OBA - Macnaughton, A., Layberry, R., Jones, C. and B. Edwards, 2020: Ontario Butterfly Atlas Online. Accessed 2020 from: http://www.ontarioinsects.org/atlas_online.htm

DFO - Fisheries and Oceans Canada (DFO). 2020: Aquatic Species at Risk Mapping. Accessed 2020 from: <http://www.dfo-mpo.gc.ca/species-especes/fpp-ppp/index-eng.htm>

TRCA - flora and fauna records received from TRCA on February 27, 2018

MNRF - records from MNRF based on email correspondence on January 30 2018

Other References Used:

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray, 1998: Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

MICHIGAN FLORA ONLINE. A. A. Reznicek, E. G. Voss, & B. S. Walters. February 2011. University of Michigan. Web. January 14, 2020. <https://michiganflora.net/species.aspx?id=1950>.