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Appendix A1

Ontario Line Project

Corktown Station Early Works – Natural Environment Early Works Report

Metrolinx

Natural Environment Early Works Report

Ontario Line Corktown Station Early Works

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Date: July 2021
Project Number: 60611173

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AECOM: 2015-04-13

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Executive Summary

ES.1 Ontario Line Corktown 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 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."

Corktown Station early works are considered to be of strategic importance in enabling the timely implementation of the Project. The Corktown Station early works site has been identified as the launch site for the tunnel excavation equipment to complete tunnels and underground station spaces for the downtown and Don Yard segments and construction of the Corktown Station. The First Parliament site is located within the Corktown Station early works site and is a known archaeological site which requires additional archaeological studies ahead of any ground disturbance activities. The Corktown Station early works site will provide essential logistics support required for the Project's tunneling. To prepare this site, demolition of existing buildings and structures followed by completion of necessary archaeological studies is required. Completion of this preparatory work on an expedited basis is essential to allow for the timely delivery of the overall Project.

AECOM Canada Limited (AECOM) was retained by Metrolinx and Infrastructure Ontario to complete the Ontario Line Final Corktown Station Early Works Report for the Project. This Natural Environment Early Works Report (this Report) supports the Ontario Line Final Corktown Station Early Works Report and documents the natural environment impact assessment of Corktown Station early works (**Figure ES-1**).

The Corktown Station early works include demolition of existing buildings, removal of other structures and asphalt where required, decommissioning of utilities, and soil removal and/or remediation where required. These activities will enable the completion of environmental due diligence investigations, including archaeological assessments.

The Corktown Station early works components and construction activities are further described in **Section 1.3**.

The purpose of this Report is to:

- Document the existing natural heritage features (aquatic and terrestrial resources) within the Corktown 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.

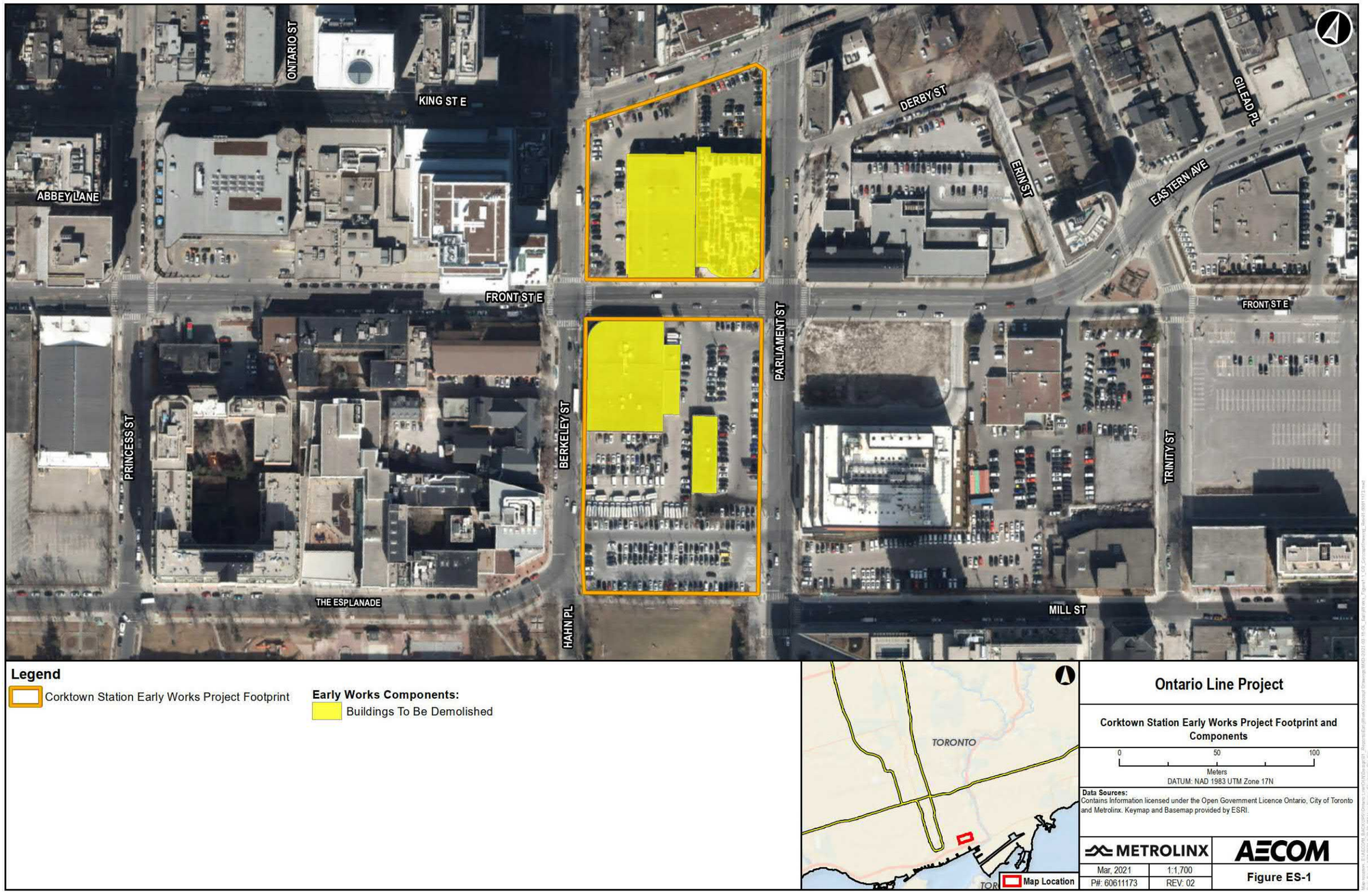
This Report supports the Ontario Line Final Corktown Station Early Works Report prepared for Corktown Station early works in accordance with Ontario Regulation 341/20: Ontario Line Project.

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

ES.2 Methodology

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

Figure ES-1: Corktown Station Early Works Project Footprint and Components



Local Environmental Conditions

AECOM has completed a desktop background review of secondary source information to establish local natural environment conditions within the Corktown 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; LIO, 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 of the Corktown Station Study Area were completed on February 26, 2021. The focus of the investigations was to confirm the vegetation information gathered through desktop exercises and to confirm that no major changes had occurred to the surrounding area since the completion of field work for the Ontario Line Final Environmental Conditions Report (AECOM, 2020)[1]. The buildings and structures within the Corktown Station Early Works Project Footprint were also investigated for the presence of Species at Risk habitat and Species of Conservation Concern habitat. The survey results were reviewed and summarized to supplement the established existing conditions within the Corktown Station Study Area and were subsequently used to conduct Corktown Station early works natural environment impact assessment.

Field data were used to identify the presence of Significant Wildlife Habitat within the Corktown 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).

The potential for Species at Risk and Species of Conservation Concern to occur within the Corktown 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;

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.

- **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 Corktown 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:

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

For the purpose of the impact assessment, as a conservative approach, all buildings and their foundations within the Corktown 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 Corktown 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 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 Corktown Station Study Area. In addition, there are no woodlands or unevaluated wetlands within the Corktown Station Study Area.

Planning Policy Areas

According to the City of Toronto Interactive Map (City of Toronto, 2020a), there are no Environmentally Significant Areas within the Corktown Station Study Area. The Corktown

Station Early Works Study Area does not overlap with the City's Natural Heritage System, Ravine and Natural Feature Protection By-law Area, or Toronto and Region Conservation Authority's Terrestrial Natural Heritage System and regulation limits.

Ecological Land Classification and Plant Inventory

The majority of the Corktown Station Study Area is urbanised, and the limited amount of vegetation that is present consists of streetscapes (e.g., street trees, treed fence lines, manicured lawns, parks) and planted hedgerows.

Fish and Fish Habitat

There were no watercourses identified within the Corktown Station Study Area; therefore, fish and fish habitat assessments were not required.

Wildlife and Wildlife Habitat

Incidental wildlife species encountered during site investigations on February 26, 2021 included: Rock Pigeon (*Columba livia*), European Starling (*Sturnus vulgaris*) and Eastern Gray Squirrel (*Sciurus carolinensis*). No other signs of mammal species were observed in the Corktown 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*), Striped Skunk (*Mephitis mephitis*), and a number of small mammals that often go undetected (e.g., shrews, voles, mice) (Dobbyn, 1994). Isolated trees and shrubs and anthropogenic structures (e.g., buildings) can provide nesting habitat for migratory birds, which are protected under the Migratory Birds Convention Act.

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 type may occur within the Corktown Station Study Area.

- **Habitats of Species of Conservation Concern:**
  - **Candidate Habitat for Species of Conservation Concern:**
    - Common Nighthawk (*Chordeiles minor*)

There were no candidate or confirmed seasonal concentration areas, rare vegetation communities, specialized habitat for wildlife or animal movement corridors identified within the Corktown Station Study Area. No suitable cavity trees were observed during the site investigation. In addition, there were no confirmed Species of Conservation Concern habitats identified within the Corktown Station Study Area.

Species at Risk Habitat Screening

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

- Chimney Swift (*Chaetura pelagica*);
- Eastern Small-footed Myotis (*Myotis leibii*);
- Little Brown Myotis (*Myotis lucifugus*);
- Northern Long-eared Myotis (*Myotis septentrionalis*); and,
- Tri-colored Bat (*Perimyotis subflavus*).

The buildings within the Corktown Station Early Works Project Footprint were deemed to be unsuitable roosting habitat for bat Species at Risk and Chimney Swift, as well as unlikely to support nesting Barn Swallows.

ES.4 Potential Impacts, Mitigation Measures and Monitoring Activities

Section 5 includes information related to potential impacts, mitigation measures, and monitoring activities for the Corktown Station early works. Potential impacts may result from early works construction activities, such as tree removal. Mitigation measures and monitoring activities are recommended to minimize potential impacts during construction.

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

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

ES.5 Permits and Approvals

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

Federal

No federal permits are anticipated to be required for the Corktown 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; however, Species at Risk are not anticipated to be affected by the Corktown Station early works.

Table ES-1: Potential Impacts, Mitigation Measures and Monitoring Activities for the Corktown 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 Corktown Station Early Works Project Footprint	■ None Required	■ None Required
Policy Areas – City of Toronto Natural Heritage System and Ravine and Natural Feature Protection By-law Area	■ No potential impacts as there are no City of Toronto policy areas within the Corktown Station Early Works Project Footprint	■ None Required	■ None Required
Policy Areas – Toronto and Region Conservation Authority Regulated Areas	■ No potential impacts as there are no Toronto and Region Conservation Authority regulated areas within the Corktown Station Early Works Project Footprint	■ None Required	■ None Required
Vegetation Communities	■ City and private tree removal	■ An Arborist Report by an International Society of Arboriculture (I.S.A.) Certified Arborist will be prepared, if required, 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 Corktown 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 (DBH) which requires inventory. ■ Prior to the undertaking of tree removals, a Tree Removal Strategy/Tree Preservation Plan will be developed 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. ■ 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.	■ 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 minimize impacts. ■ If required, the approach to compensation monitoring will be developed in accordance with Metrolinx's Vegetation Guideline (2020).
Vegetation Communities	■ Soil contamination as a result of spills (e.g., grease and/or fuel) from equipment use ■ Introduction or spread of invasive species	■ 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 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) prior to arriving and leaving the construction site in order to prevent the spread of invasive species to other locations.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. ■ Ensure precautions are being taken to minimize the spread of invasive species by implementing the Clean Equipment Protocol for Industry (Halloran et al., 2013) on equipment and machinery prior to moving sites.

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 Corktown 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 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 minimize impacts.
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 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 (field observations, on-site inspections) will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.
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 developed in accordance with any registration and/or permitting requirements under the Endangered Species Act, recommended surveys undertaken prior to construction, and consultation with Ministry of 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 minimize impacts. ■ Species-specific monitoring activities will be developed in accordance with any registration and/or permitting requirements under the Endangered Species Act.
Wetlands and Waterbodies	■ No potential impacts as there are no wetlands or waterbodies present	■ None Required	■ None Required
Fish and Fish Habitat	■ No potential impacts as there is no fish or fish habitat present	■ None Required	■ None Required

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.

Conservation Authority

Authorization under Ontario Regulation 166/06: Toronto and Region Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses is not required for the Corktown Station early works.

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 project planning progresses to address municipal concerns.

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Appendices

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."

Corktown Station early works are considered to be of strategic importance in enabling the timely implementation of the Project. The Corktown Station early works site has been identified as the launch site for the tunnel excavation equipment to complete tunnels and underground station spaces for the downtown and Don Yard segments and construction of the Corktown Station. The First Parliament site is located within the Corktown Station early works site and is a known archaeological site which requires additional archaeological studies ahead of any ground disturbance activities. The Corktown Station early works site will provide essential logistics support required for the Project's tunneling. To prepare this site, demolition of existing buildings and structures followed by completion of necessary archaeological studies is required. Completion of this preparatory work on an expedited basis is essential to allow for the timely delivery of the overall Project.

Corktown 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 Corktown Station Early Works Report for the Project. This Natural Environment Early Works Report (this Report) supports the Ontario Line Final Corktown Station Early Works Report and has been prepared for the Project to document the natural environment impact assessment of Corktown 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:

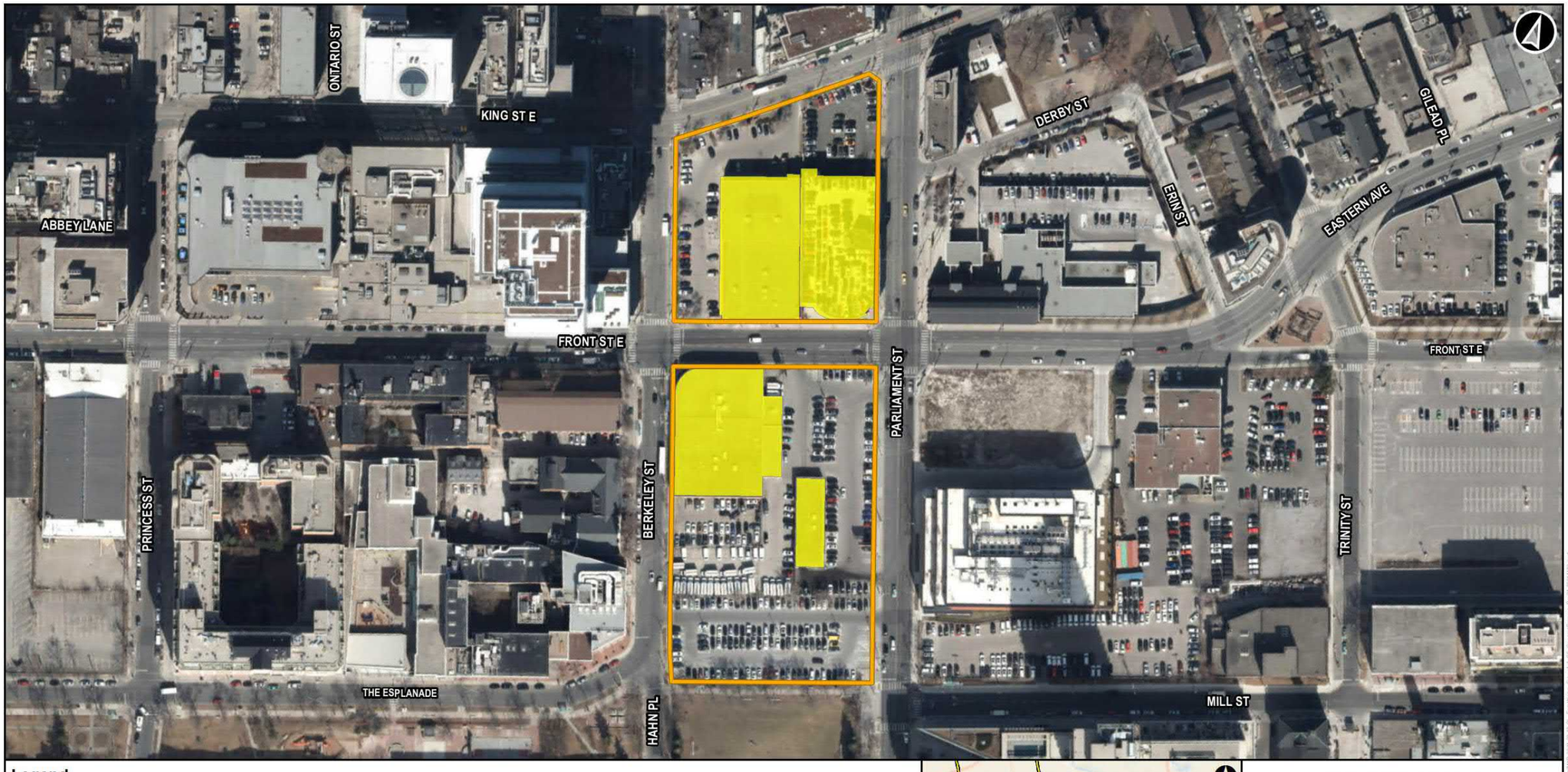
- Document the existing natural heritage features (aquatic and terrestrial resources) within the Corktown Station Study Area;
- Conduct an impact assessment based on the identified natural heritage features, including criteria for assessment and evaluation of impacts;
- Develop applicable mitigation 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: Corktown Station Early Works Project Footprint and Components



Legend

Corktown Station Early Works Project Footprint

Early Works Components:

Buildings To Be Demolished

Ontario Line Project

Corktown Station Early Works Project Footprint and Components

0 50 100
Meters
DATUM: NAD 1983 UTM Zone 17N

Data Sources:
Contains Information licensed under the Open Government Licence Ontario, City of Toronto and Metrolinx. Keymap and Basemap provided by ESRI.

METROLINX	AECOM
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Figure 1-1

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/roadway), 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 Corktown Station early works include demolition of existing buildings, removal of other structures and asphalt where required, decommissioning of utilities, and soil removal and/or remediation where required. These activities will enable the completion of environmental due diligence investigations, including archaeological assessments. These activities will occur on properties within the Corktown Station Early Works Project Footprint, as shown in **Figure 1-1**.

1.3.2 Early Works Project Footprint and Study Area

The Corktown Station Early Works Project Footprint, shown in **Figure 1-2**, is defined as the area of direct disturbance associated with the early works activities. The site is bound by King Street East to the north, Parliament Street to the East, Berkeley Street to the West and Parliament Square Park to the south.

For the purpose of this Report, the Corktown Station Study Area, also shown in **Figure 1-2**, includes the Corktown 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 Corktown 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 Corktown Station Early Works Report.

1.3.3 Construction Activities

Table 1-2 provides a description of the anticipated construction activities for the Corktown Station early works. These typical activities serve as the basis for the assessment of construction-related potential environmental effects. These activities may be expanded, further refined, or found to be unnecessary as early works planning progresses.

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

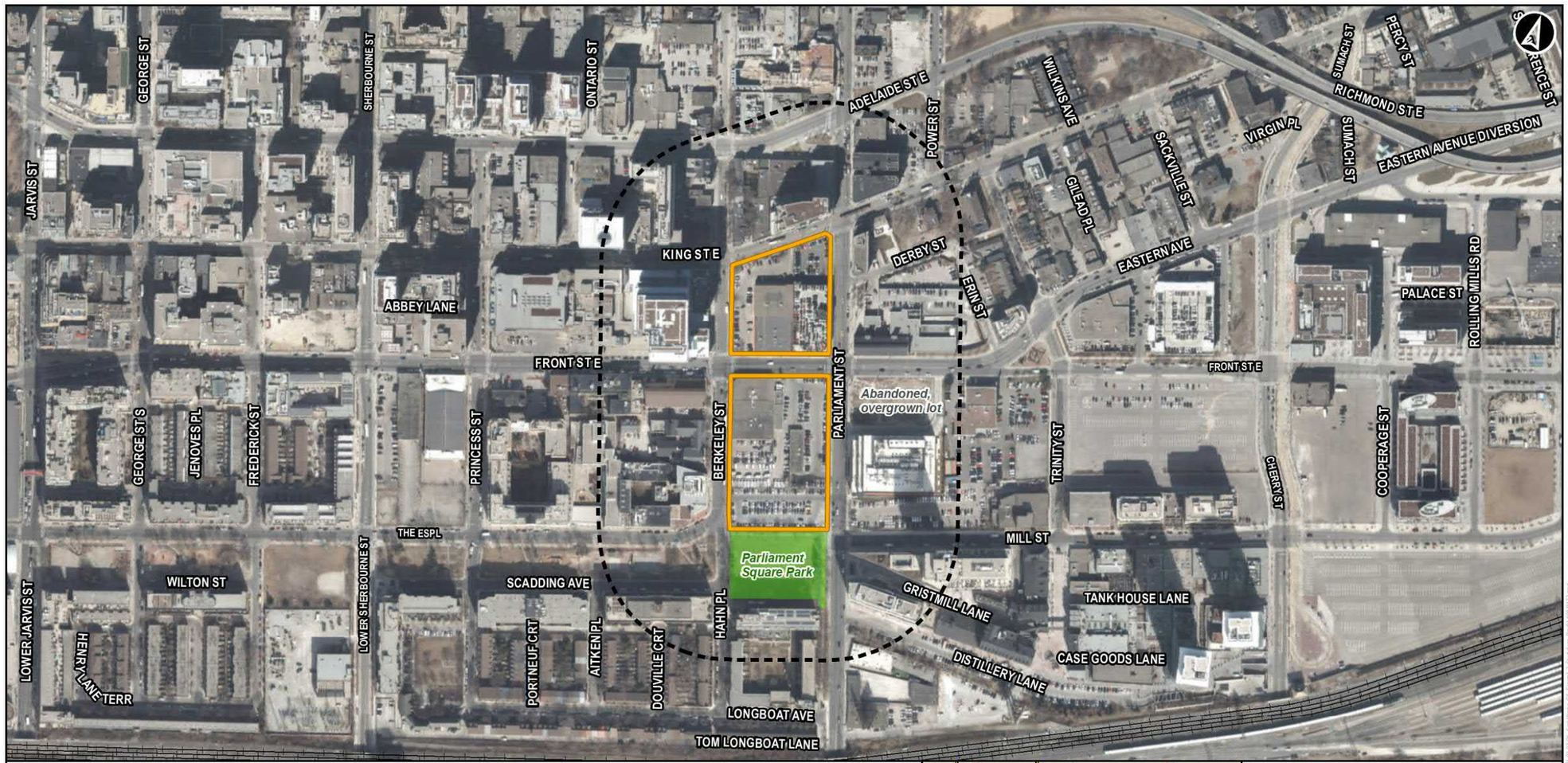

Table 1-2: Anticipated Construction Activities for the Ontario Line Corktown Station Early Works

Anticipated Construction Activity	Description	Associated Equipment
Site Preparation	■ Mobilization of equipment and temporary facilities to the site. ■ Clearing and grubbing of vegetation, tree removal and protection. ■ Erection of temporary fences. ■ Installation of environmental management features (e.g., erosion and sediment controls). ■ Dewatering works. ■ Demobilization. ■ Temporary signs. ■ Locates and surveys. ■ Notices. ■ Site specific documents (safety, approvals, permit etc.).	■ Site compaction equipment and grading equipment. ■ Vegetation removal equipment. ■ Excavation equipment. ■ Haulage/dump trucks. ■ Dewatering equipment (pumps etc.). ■ Hand tools. ■ Surveying equipment. ■ Flatbed truck. ■ Forklift.
Site Servicing/ Removals/ Demolition	■ Decommissioning, 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. ■ Removal of paved driveways, parking areas, and sub-surface foundations and footings. ■ Demolition and removal of buildings. ■ Removal/remediation of contaminated soil.	■ Excavation/demolition equipment including backhoe, dump trucks, spoils removal equipment, jackhammers. ■ Hand tools. ■ Mobile crane. ■ Flatbed trucks. ■ Boom truck.
Excavating and Grading	■ 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.	■ 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.

Anticipated Construction Activity	Description	Associated Equipment
	■ Any off-site disposal shall be done in compliance with applicable regulations, including as it relates to contaminated material that may be encountered. ■ Any groundwater encountered will be managed and disposed of in accordance with applicable regulations.	
Temporary Road Closures	■ All road closures will follow standard traffic control management guidelines.	■ Temporary traffic control devices such as signs, signals, barriers, traffic barrels, plate tampers.
Management of Stormwater	■ All precipitation falling within the site will be managed as stormwater within a designed system of collection, conveyance, retention and discharge features, as required. The system will be designed and operated in compliance with applicable standards and regulatory requirements. Surface flows within the site will be managed within the site to ensure discharge to off-site receivers (i.e., municipal storm sewers) is appropriate in terms of water quantity and quality.	■ Site compaction equipment and general grading equipment. ■ Groundwater pumping.

2. Methodology

This Report documents the assessment of Corktown 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 a separate cover.

2.1 Local Environmental Conditions

2.1.1 Background Information Review

Background information and documentation relevant to the Corktown Station Study Area is contained within the Ontario Line Final Environmental Conditions Report (AECOM, 2020)[2] prepared for the Project and was reviewed prior to commencing the natural environment investigation documented within this Report. For the purpose of the background information review, terrestrial and aquatic features and functions were identified within the boundaries of the Corktown 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 Wetlands/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 (BSC et al., 2006);

2. 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 Environmental Assessment 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 Natural Environment Environmental Conditions Report (AECOM, 2020).
- Aerial photography.

As of June 29, 2019, the Ontario Ministry of Environment, Conservation and Parks assumed responsibility for the Endangered Species Act, which was formerly the responsibility of Ministry of Natural Resources and Forestry. It is both Ministry of 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 Ministry of 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 Ontario Line Study Area from Toronto and Region Conservation Authority on December 19, 2019 that were not available from their Open Data Portal, including regulation limits 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 Ontario Line Study Area on March 20, 2020 and received a response to the data request on May 19, 2020.

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 within the Ontario Line Study Area. 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. It should be noted that Toronto and Region Conservation Authority's Ecological Land Classification mapping was not available for the Corktown Station Study Area given that Ecological Land Classification is generally applied to natural or naturalized areas that are defined as naturally vegetated areas that are greater than 0.5 ha in size and do not include mowed lawns, manicured municipal parks or streetscapes.

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 now (Toronto and Region Conservation Authority, 2020b).

2.1.2 Field Investigations

Field investigations of the Corktown Station Study Area were completed on February 26, 2021. The focus of the investigations was to confirm the vegetation information gathered through desktop exercises and to confirm that no major changes had been made to the surrounding area. Ecological Land Classification surveys following Lee *et al.* (1998) were not conducted as there were no natural or naturalized areas within the Corktown Station Study Area greater than 0.5 hectares in size to be considered for vegetation studies. The buildings and structures within the Corktown Station Early Works Project Footprint were also investigated for the presence of potential Species at Risk and Species of Conservation Concern habitat (refer to **Section 2.1.3** and **Section 2.1.4** below).

2.1.3 Significant Wildlife Habitat Screening

The Corktown Station Study Area was assessed for the presence of candidate Significant Wildlife Habitat features (e.g., 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 within the Corktown 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) contains 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. 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-Rank[3] of S1-S3;
- Specialized Habitats for Wildlife;
- Habitats of Species of Conservation Concern; and,
- Animal Movement Corridors.

3. 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).

Field data collected from the field investigations completed on February 26, 2021 were used to identify the presence of Significant Wildlife Habitat within the Corktown 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 were 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. 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, their habitat is protected under the Provincial Policy Statement and they may also be afforded protection under the Migratory Bird 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 Corktown 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. Species at Risk and Species of Conservation Concern with ranges overlapping with, or recent occurrence records within the Corktown 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 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 Corktown 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 (**Section 2.1.1**) and results from 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 Corktown Station Study Area (either through current or previous field investigations).

2.2 Impact Assessment

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

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

For the purpose of the impact assessment, as a conservative approach, all buildings and their foundations within the Corktown 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 Corktown 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. 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. 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 Bird 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 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’ (Harmful Alteration, Disruption or Destruction); 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 Nighthawks [*Chaetura pelagica*], 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 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 Ministry of Environment, Conservation and Parks. Ministry of 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 minimize 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 Corktown Station Early Works Project Footprint (i.e., the Corktown 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 destination 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, minimized 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.

3.3 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 Wetland or Locally Significant Wetlands (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 Significant 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 Corktown Station Study Area. In addition, there are no woodlands or unevaluated wetlands within the Corktown Station Study Area. Refer to **Section 4.6** for discussion on Significant Wildlife Habitat in the Corktown 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.

According to the City of Toronto Interactive Map (City of Toronto, 2020a), there are no Environmentally Significant Areas within the Corktown Station Study Area, nor does the Corktown Station Study Area overlap with the City's Natural Heritage System or Ravine and Natural Feature Protection By-law Area or Toronto and Region Conservation Authority's Terrestrial Natural Heritage System and regulation limits.

4.3 Ecological Land Classification and Plant Inventory

The majority of the Corktown Station Study Area is urbanised with many commercial businesses, and the limited amount of vegetation that is present consists of streetscapes (e.g., street trees, treed fence lines, manicured lawns, parks) and planted hedgerows. The Corktown Station Early Works Project Footprint consists of car dealerships, an office supply business, a car wash and parking lots with some street trees. A vacant lot situated outside the Corktown Station Project Footprint but within the Corktown Station Study Area on the south east corner of Front Street and Parliament Street was observed to be under development with numerous monitoring wells installed, piles of gravel and equipment stored on the lot. The lot was beginning to show signs of vegetation re-growth and succession, with the presence of grass species (*Poa spp*.), goldenrod species (*Solidago spp*.), bull thistle (*Cirsium vulgare*) and wild carrot (*Daucus carota*) as well as a few red maple (*Acer rubra*). However, the lot, which was less than 0.5 ha in size, was marginal in quality due to the heavily disturbed nature of the land and its location adjacent to two busy city streets. Adjacent and to the south of the Corktown Station Early Works Project Footprint is Parliament Square Park, which contained a mowed soccer field with a walking path and a row of planted trees around the perimeter. Most of the trees observed appeared to be cultivated varieties or non-native species of ash (*Fraxinus spp*.), poplar (*Populus spp*.), Siberian elm (*Ulmus pumila*), Norway maple (*Acer platanoides*) and white spruce (*Picea glauca*).

No natural or naturalized communities of 0.5 ha or greater in size were present within the Corktown Station Study Area; therefore, no Ecological Land Classification and associated mapping was conducted.

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 Corktown Station Study Area.

4.4 Fish and Fish Habitat

There were no waterbodies identified within the Corktown Station Study Area; therefore, fish and fish habitat assessments were not required.

4.5 Wildlife and Wildlife Habitat

Based on a review of wildlife atlases, the majority of the wildlife within the Corktown 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.

The Corktown Station Study Area, including the Corktown Station Early Works Project Footprint, is heavily urbanized with very limited, low-quality habitat for urban wildlife due to lack of naturalized areas, connectivity to significant natural areas, presence of non-native and invasive plants, and noise and vibration from surrounding vehicle and pedestrian traffic. However, it is important to note that isolated trees and shrubs and anthropogenic structures (e.g., buildings) can provide nesting habitat for many migratory birds, which are protected under the Migratory Birds Convention Act. Although there is limited potential for migratory birds to nest on the buildings within the Corktown Station Early Works Project Footprint due to the lack of suitable ledges and overhangs, an awning with a broken grate may provide suitable nesting habitat for opportunistic migratory or non-migratory birds. There are no suitable movement corridors nor significant natural areas for wildlife within the Corktown Station Study Area.

Incidental wildlife species encountered during site investigations on February 26, 2021 included: Rock Pigeon (*Columba livia*), European Starling (*Sturnus vulgaris*) and Eastern Gray Squirrel (*Sciurus carolinensis*). No other signs of mammal species were observed in the Corktown 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*), 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 Significant Wildlife Habitat within the Corktown 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 Corktown 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 type may occur within the Corktown Station Study Area.

- **Habitats of Species of Conservation Concern:**
  - **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 four flat roofed buildings located within the Corktown Station Early Works Project Footprint and many others within the Corktown Station Study Area, including a building with a green roof at 318-326 King Street East that may provide suitable nesting habitat. This species is protected by the Migratory Birds Convention Act.

There were no candidate or confirmed seasonal concentration areas, rare vegetation communities, specialized habitat for wildlife or animal movement corridors identified within the Corktown Station Study Area (refer to **Appendix B** for the complete Significant Wildlife Habitat screening). In addition, there were no confirmed Species of Conservation Concern habitats identified within the Corktown Station Study Area.

4.7 Species at Risk Habitat Screening

This section provides a brief discussion on the likelihood of Species at Risk occurring within the Corktown Station Study Area. A habitat screening for Species at Risk was completed following the methods described in **Section 2.1.4** and 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.

There are no Species at Risk identified with high probability of occurring within the Corktown Station Study area. The following Species at Risk have a medium probability of occurring within the Corktown Station Study Area:

- **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). None of the buildings proposed to be demolished within the Corktown Station Early Works Project Footprint contained any suitable, uncapped chimneys and therefore these buildings do not provide suitable habitat for Chimney Swifts. However, Chimney Swifts were observed in the City of Toronto downtown core within the Ontario Line Study Area (AECOM, 2020) and therefore, may occur within the Corktown Station Study Area. A potentially uncapped chimney is present within the Corktown Station Study Area along the north side of King Street East which may provide suitable nesting and roosting habitat for Chimney Swift but is not proposed for demolition as part of the early works. Therefore, the probability of Chimney Swift habitat occurring within the Corktown Station Study Area is medium, but there are no suitable chimneys (i.e., habitat) for this species on the buildings proposed to be demolished within the Corktown Station Early Works Project Footprint.

- **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 Corktown Station Study Area, and there is a distinct lack of treed areas that could serve as possible maternity roosting habitat within 120 metres of the Corktown Station Early Works Project Footprint. Buildings with potential entry/exit points may be used by bat Species at Risk for roosting within the Corktown Station Study Area, however the buildings and structures within the Corktown Station Early Works Project Footprint were deemed to have low probability to support habitat for roosting bat Species at Risk as the buildings appeared to be intact and unsuitable for roosting (i.e., well maintained and in good form) based on field observations.

The remaining Species at Risk identified had low probability of occurrence within the Corktown Station Study Area (refer to **Appendix D** for the 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 Corktown Station Study Area (Cornell Laboratory of Ornithology, 2019).
- **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. No Barn Swallow nests, or signs of nesting, were observed during site investigations at the Corktown Station Early Works Project Footprint. Buildings and structures within the Corktown Station Early Works Project Footprint were made of glass, metal and aluminum siding which do not provide suitable nesting attachment sites as Barn Swallows require rough surfaces such as brick walls, nor were there any windowsills or awnings made of appropriate surface material for nesting Barn Swallows (Ministry of Natural Resources and Forestry, 2017c); therefore, Barn Swallow is considered to have low probability of occurrence.
- **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 Corktown Station Study Area that were greater than 5 hectares in size (Ministry of Environment, Conservation and Parks, 2019a).
- **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 Corktown Station Study Area that were greater than 5 hectares in size (Ministry of Environment, Conservation and Parks, 2019b).
- **Butternut** – This species is listed as Endangered and receives protection under the provincial Endangered Species Act. There were no butternuts identified during the site investigation within the Corktown Station Study Area.

In addition, there are no aquatic Species at Risk present and no potential for Blanding's Turtles to occur given that there are no water features identified within the Corktown 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 Corktown Station early works.

Potential impacts to the natural environment as a result of disturbances associated with the Corktown Station early works 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.

Vegetation removal within the Corktown Station Early Works Project Footprint will be limited to manicured streetscapes (e.g., street trees, manicured lawns). There was a lack of natural areas present within the Corktown Station Early Works Project Footprint, which consisted mainly of paved parking lots with some street trees. Although the potential negative effects to wildlife and wildlife habitat are minimal, it is important to note that isolated trees, shrubs and buildings may provide nesting habitat for Migratory Birds Convention Act-protected migratory birds. Disturbance/displacement of migratory birds and/or damage or destruction of their nests and eggs may occur as a result of vegetation clearing or disturbance to buildings/structures if these activities are conducted during the breeding bird season (April 1 to August 31).

While it is anticipated that birds and bats will be able to avoid collisions with construction equipment and machinery, smaller urban wildlife such as insects and small mammals may accidentally enter construction work areas and become susceptible to potential mortality or injury resulting from collisions with moving equipment and machinery.

In addition, wildlife within the surrounding area, although likely already adapted to and tolerant of existing anthropogenic sources of noise (i.e., trains and adjacent roads), may be temporarily disturbed or displaced initially by increased noise emissions from construction activities, including use of heavy equipment; however, wildlife can become habituated to temporarily increased noise levels. The buildings that are planned for removal within the Corktown Station Early Works Project Footprint may require mitigation for nesting birds, including Common Nighthawk, to be applied.

There is low likelihood of impact to Species at Risk habitat as a result of the building demolition. There is a low probability that habitat for bat Species at Risk exists as the buildings appear to be intact (i.e., well maintained and in good form) and do not support habitat for Species at Risk based on field observations. The buildings proposed for demolition do not provide suitable habitat for Chimney Swift and are unlikely to support nesting Barn Swallows.

There are no waterbodies within the Corktown Station Study Area and therefore no impacts to fish and fish habitat are anticipated.

Generally, the potential impacts on the natural environment as a result of the construction of the Corktown Station early works are considered to be minimal, provided that the mitigation measures and monitoring activities described in **Table 5-1** are implemented.

Table 5-1: Potential Impacts, Mitigation Measures and Monitoring Activities for the Corktown 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 Corktown Station Early Works Project Footprint	■ None Required	■ None Required
Policy Area – City of Toronto Natural Heritage System and Ravine and Natural Feature Protection By-law Area	■ No potential impacts as there are no City of Toronto policy areas within the Corktown Station Early Works Project Footprint	■ None Required	■ None Required
Policy Area – Toronto and Region Conservation Authority Regulated Areas	■ No potential impacts as there are no Toronto and Region Conservation Authority regulated areas within the Corktown Station Early Works Project Footprint	■ None Required	■ None Required
Vegetation Communities	■ City and private tree removal	■ An Arborist Report by an International Society of Arboriculture Certified Arborist will be prepared, if required, 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 Corktown 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 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. ■ 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.	■ 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 minimize impacts. ■ If required, the approach to compensation monitoring will be developed in accordance with Metrolinx's Vegetation Guideline (2020).
Vegetation Communities	■ Soil contamination as a result of spills (e.g., grease and/or fuel) from equipment use ■ Introduction or spread of invasive species	■ 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 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) prior to arriving and leaving the construction site in order to prevent the spread of invasive species to other locations.	■ On-site inspection will be undertaken to confirm the implementation of the mitigation measures and identify corrective actions if required. Corrective actions may include additional site maintenance and alteration of activities to minimize impacts. ■ Ensure precautions are being taken to minimize the spread of invasive species by implementing the Clean Equipment Protocol for Industry (Halloran et al., 2013) on equipment and machinery prior to moving sites.

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 Corktown 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 minimize impacts.
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 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 (field observations, on-site inspections) will be undertaken to confirm that activities do not encroach into nesting areas or disturb active nesting sites.
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 developed in accordance with any registration and/or permitting requirements under the Endangered Species Act, recommended surveys undertaken prior to construction, and consultation with Ministry of 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 minimize impacts. ■ Species-specific monitoring activities will be developed in accordance with any registration and/or permitting requirements under the Endangered Species Act.
Wetlands and Waterbodies	■ No potential impacts as there are no wetlands or waterbodies present	■ None Required	■ None Required
Fish and Fish Habitat	■ No potential impacts as there is no fish or fish habitat present	■ None Required	■ None Required

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 Corktown Station early works, as required.

- **Migratory Breeding Birds and Pre-Construction Nest Surveys:**
  - All structures (e.g., buildings) 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 may be completed prior to construction for all City- or private-owned trees within 6 metres of the Corktown Station Early Works Project Footprint. 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 within Metrolinx-owned lands should be completed in accordance with the Metrolinx Vegetation Guideline (2020). Tree inventories are required to determine appropriate compensation and mitigation measures.
- **Barn Swallow Nest Surveys:**
  - Although there is a low probability of occurrence of Barn Swallows nesting in the Corktown Station Early Works Project Footprint, a due diligence check for Barn Swallow nests on buildings planned for demolition should be completed prior to construction in conjunction with the nest searches for Migratory Birds Convention Act protected birds.

7. Permits and Approvals

The following sections outline the permits and approvals that may be required for the Corktown Station early works. Permit and approval requirements will be confirmed prior to construction.

7.1 Federal

No federal permits are anticipated to be required for the Corktown 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; however, Species at Risk are not anticipated to be affected by the Corktown Station early works.

7.2.2 Conservation Authorities Act, 1998

Authorization under Ontario Regulation 166/06: Toronto and Region Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses is not required for the Corktown Station early works.

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 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 project planning progresses to address municipal concerns.

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Appendix A

Wildlife Records

Appendix A. Species Records from Wildlife Atlases

Table 1: Mammal Records Within the Corktown Station Early Works Study Area

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

[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

Table 2: Ontario Reptile and Amphibian Atlas Records within the Corktown Station Early Works 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	*Lithobates catesbeianus*	S4	-	-	-	No	2016
American Toad	*Anaxyrus americanus*	S5	-	-	-	No	2018
Blanding's Turtle	*Emydoidea blandingii*	S3	THR	THR	END	No	2019
Dekay's Brownsnake	*Storeria dekayi*	S5	NAR	-	NAR	No	2019
Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	S5	-	-	-	No	2019
Eastern Red-backed Salamander	*Plethodon cinereus*	S5	-	-	-	No	2019
Eastern Ribbonsnake	*Thamnophis sauritus*	S4	SC	SC	SC	Yes	1913
Gray Treefrog	*Hyla versicolor*	S5	-	-	-	No	2016
Green Frog	*Lithobates clamitans*	S5	-	-	-	No	2018
Midland Painted Turtle	*Chrysemys picta marginata*	S4	-	No status	SC	No	2019
Eastern Milksnake	*Lampropeltis triangulum*	S4	NAR	SC	SC	No	2019
Mudpuppy	*Necturus maculosus*	S4	NAR	-	NAR	No	1913
Northern Leopard Frog	*Lithobates pipiens*	S5	NAR	-	NAR	No	2017
Northern Map Turtle	*Graptemys geographica*	S3	SC	SC	SC	No	2018
Queensnake	*Regina septemvittata*	S2	END	EN	END	Yes	1858
Red-bellied Snake	*Storeria occipitomaculata*	S5	-	-	-	No	2018
Red-eared Slider	*Trachemys scripta elegans*	SE	-	-	-	No	2017
Red-spotted Newt	*Notophthalmus viridescens viridescens*	S5	-	-	-	Yes	1913
Smooth Greensnake	*Opheodrys vernalis*	S4	-	-	-	No	2016
Snapping Turtle	*Chelydra serpentina*	S4	SC	SC	SC	No	2019
Spotted Salamander	*Ambystoma maculatum*	S4	-	-	-	Yes	1929
Spring Peeper	*Pseudacris crucifer*	S5	-	-	-	No	2002
Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield populati	*Pseudacris maculata pop. 1*	S3	NAR	-	THR	No	1989
Wood Frog	*Lithobates sylvaticus*	S5	-	-	-	No	2011

Table Legend

Appendix A. Species Records from Wildlife Atlases

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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.
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Other Qualifiers
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Appendix A. Species Records from Wildlife Atlases

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

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Common Name	Scientific Name	S-Rank[1]	ESA Status[2]	SARA Status[3]	COSEWIC[4]	Year Last Recorded	MBCA Protected[5]	17PJ33
Common Yellowthroat	*Geothlypis trichas*	S5B	-	-	-	2001-2005	Yes	√
Cooper's Hawk	*Accipiter cooperii*	S4	NAR	-	NAR	2001-2005	No	√
Double-crested Cormorant	*Phalacrocorax auritus*	S5B	NAR	-	NAR	2001-2005	No	√
Downy Woodpecker	*Picoides pubescens*	S5	-	-	-	2001-2005	Yes	√
Eastern Kingbird	*Tyrannus tyrannus*	S4B	-	-	-	2001-2005	Yes	√
Eastern Meadowlark	*Sturnella magna*	S4B	THR	THR	THR	2001-2005	Yes	√
Eastern Phoebe	*Sayornis phoebe*	S5B	-	-	-	2001-2005	Yes	√
Eastern Screech-Owl	*Megascops asio*	S4	NAR	-	NAR	2001-2005	No	√
Eastern Wood-Pewee	*Contopus virens*	S4B	SC	SC	SC	2001-2005	Yes	√
European Starling	*Sturnus vulgaris*	SNA	-	-	-	2001-2005	No	√
Field Sparrow	*Spizella pusilla*	S4B	-	-	-	2001-2005	No	√
Gadwall	*Anas strepera*	S4	-	-	-	2001-2005	Yes	√
Gray Catbird	*Dumetella carolinensis*	S4B	-	-	-	2001-2005	Yes	√
Great Black-backed Gull	*Larus marinus*	S2B	-	-	-	2001-2005	Yes	√
Great Blue Heron	*Ardea herodias*	S4	-	-	-	2001-2005	Yes	√
Great Crested Flycatcher	*Myiarchus crinitus*	S4B	-	-	-	2001-2005	Yes	√
Great Egret	*Ardea alba*	S2B	-	-	-	2001-2005	Yes	√
Great Horned Owl	*Bubo virginianus*	S4	-	-	-	2001-2005	No	√
Green Heron	*Butorides virescens*	S4B	-	-	-	2001-2005	Yes	√
Green-winged Teal	*Anas crecca*	S4	-	-	-	2001-2005	Yes	√
Hairy Woodpecker	*Picoides villosus*	S5	-	-	-	2001-2005	Yes	√
Herring Gull	*Larus argentatus*	S5B,S5N	-	-	-	2001-2005	Yes	√
Hooded Merganser	*Lophodytes cucullatus*	S5B,S5N	-	-	-	2001-2005	Yes	√
Horned Lark	*Eremophila alpestris*	S5B	-	-	-	2001-2005	Yes	√
House Finch	*Haemorhous mexicanus*	SNA	-	-	-	2001-2005	Yes	√
House Sparrow	*Passer domesticus*	SNA	-	-	-	2001-2005	No	√
House Wren	*Troglodytes aedon*	S5B	-	-	-	2001-2005	Yes	√
Indigo Bunting	*Passerina cyanea*	S4B	-	-	-	2001-2005	Yes	√
Killdeer	*Charadrius vociferus*	S5B,S5N	-	-	-	2001-2005	Yes	√
Least Flycatcher	*Empidonax minimus*	S4B	-	-	-	2001-2005	Yes	√
Mallard	*Anas platyrhynchos*	S5	-	-	-	2001-2005	Yes	√
Marsh Wren	*Cistothorus palustris*	S4B	-	-	-	2001-2005	Yes	√
Mourning Dove	*Zenaida macroura*	S5	-	-	-	2001-2005	Yes	√
Mourning Warbler	*Geothlypis philadelphia*	S4B	-	-	-	2001-2005	Yes	√
Mute Swan	*Cygnus olor*	SNA	-	-	-	2001-2005	Yes	√
Northern Cardinal	*Cardinalis cardinalis*	S5	-	-	-	2001-2005	Yes	√
Northern Flicker	*Colaptes auratus*	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	*Circus hudsonius*	S4B	NAR	-	NAR	2001-2005	No	√
Northern Mockingbird	*Mimus polyglottos*	S4	-	-	-	2001-2005	Yes	√
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	S4B	-	-	-	2001-2005	Yes	√
Northern Saw-whet Owl	*Aegolius acadicus*	S4	-	-	-	2001-2005	No	√
Orchard Oriole	*Icterus spurius*	S4B	-	-	-	2001-2005	Yes	√
Ovenbird	*Seiurus aurocapilla*	S4B	-	-	-	2001-2005	Yes	√
Peregrine Falcon	*Falco peregrinus*	S3B	SC	-	NAR	2001-2005	No	√
Pileated Woodpecker	*Dryocopus pileatus*	S5	-	-	-	2001-2005	Yes	√
Purple Martin	*Progne subis*	S3S4B	-	-	-	2001-2005	Yes	√
Red-bellied Woodpecker	*Melanerpes carolinus*	S4	-	-	-	2001-2005	Yes	√
Red-breasted Nuthatch	*Sitta canadensis*	S5	-	-	-	2001-2005	Yes	√
Red-eyed Vireo	*Vireo olivaceus*	S5B	-	-	-	2001-2005	Yes	√
Redhead	*Aythya americana*	S2B,S4N	-	-	-	2001-2005	Yes	√
Red-headed Woodpecker	*Melanerpes erythrocephalus*	S4B	SC	THR	END	2001-2005	Yes	√
Red-tailed Hawk	*Buteo jamaicensis*	S5	NAR	-	NAR	2001-2005	No	√
Red-winged Blackbird	*Agelaius phoeniceus*	S4	-	-	-	2001-2005	Yes	√
Ring-billed Gull	*Larus delawarensis*	S5B,S4N	-	-	-	2001-2005	Yes	√
Rock Pigeon	*Columba livia*	SNA	-	-	-	2001-2005	Yes	√
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	S4B	-	-	-	2001-2005	Yes	√
Ruby-throated Hummingbird	*Archilochus colubris*	S5B	-	-	-	2001-2005	Yes	√
Savannah Sparrow	*Passerculus sandwichensis*	S4B	-	-	-	2001-2005	Yes	√
Scarlet Tanager	*Piranga olivacea*	S4B	-	-	-	2001-2005	Yes	√
Sharp-shinned Hawk	*Accipiter striatus*	S5	NAR	-	NAR	2001-2005	No	√
Song Sparrow	*Melospiza melodia*	S5B	-	-	-	2001-2005	Yes	√
Sora	*Porzana carolina*	S4B	-	-	-	2001-2005	Yes	√
Spotted Sandpiper	*Actitis macularius*	S5	-	-	-	2001-2005	Yes	√
Tree Swallow	*Tachycineta bicolor*	S4B	-	-	-	2001-2005	Yes	√
Virginia Rail	*Rallus limicola*	S5B	-	-	-	2001-2005	Yes	√
Warbling Vireo	*Vireo gilvus*	S5B	-	-	-	2001-2005	Yes	√
White-breasted Nuthatch	*Sitta carolinensis*	S5	-	-	-	2001-2005	Yes	√
Willow Flycatcher	*Empidonax traillii*	S5B	-	-	-	2001-2005	Yes	√
Wood Duck	*Aix sponsa*	S5	-	-	-	2001-2005	Yes	√
Wood Thrush	*Hylocichla mustelina*	S4B	SC	THR	THR	2001-2005	Yes	√
Yellow Warbler	*Setophaga petechia*	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	*Coccyzus americanus*	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.
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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 Corktown Station Early Works 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	*Satyrium acadica*	S4	-	-	-	No	2016
American Copper	*Lycaena phlaeas*	S5	-	-	-	No	1993
American Lady	*Vanessa virginiensis*	S5	-	-	-	No	2019
American Snout	*Libytheana carinenta*	SNA	-	-	-	No	2019
Aphrodite Fritillary	*Speyeria aphrodite*	S5	-	-	-	No	1959
Appalachian Brown	*Lethe appalachia*	S4	-	-	-	Yes	1984
Azure sp.	*Celastrina sp.*		-	-	-	No	2019
Baltimore Checkerspot	*Euphydryas phaeton*	S4	-	-	-	No	2019
Banded Hairstreak	*Satyrium calanus*	S4	-	-	-	No	2019
Black Dash	*Euphyes conspicua*	S3	-	-	-	No	2016
Black Swallowtail	*Papilio polyxenes*	S5	-	-	-	No	2019
Broad-winged Skipper	*Poanes viator*	S4	-	-	-	No	(year not recorded)
Bronze Copper	*Lycaena hyllus*	S5	-	-	-	No	2006
Cabbage White	*Pieris rapae*	SNA	-	-	-	No	2019
Canadian Tiger Swallowtail	*Papilio canadensis*	S5	-	-	-	No	2016
Checkered White	*Pontia protodice*	SNA	-	-	-	No	2007
Clouded Sulphur	*Colias philodice*	S5	-	-	-	No	2019
Cloudless Sulphur	*Phoebis sennae*	SNA	-	-	-	No	2012
Columbine Duskywing	*Erynnis lucilius*	S4	-	-	-	Yes	1904
Common Buckeye	*Junonia coenia*	SNA	-	-	-	No	2019
Common Ringlet	*Coenonympha tullia*	S5	-	-	-	No	2019
Common Sootywing	*Pholisora catullus*	S4	-	-	-	Yes	1991
Common Wood-Nymph	*Cercyonis pegala*	S5	-	-	-	No	2019
Compton Tortoiseshell	*Nymphalis l-album*	S5	-	-	-	No	2015
Coral Hairstreak	*Satyrium titus*	S5	-	-	-	No	2000
Crossline Skipper	*Polites origenes*	S4	-	-	-	No	2014
Delaware Skipper	*Anatrytone logan*	S4	-	-	-	No	2016
Dun Skipper	*Euphyes vestris*	S5	-	-	-	No	2018
Eastern Comma	*Polygonia comma*	S5	-	-	-	No	2019
Eastern Giant Swallowtail	*Papilio cresphontes*		-	-	-	No	2019
Eastern Tailed Blue	*Cupido comyntas*	S5	-	-	-	No	2019
Eastern Tiger Swallowtail	*Papilio glaucus*	S5	-	-	-	No	2019
Edwards' Hairstreak	*Satyrium edwardsii*	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	*Thymelicus lineola*	SNA	-	-	-	No	2019
Eyed Brown	*Lethe eurydice*	S5	-	-	-	No	2019
Fiery Skipper	*Hylephila phyleus*	SNA	-	-	-	No	2019
Funereal Duskywing	*Erynnis funeralis*	SNA	-	-	-	No	2019
Gray Comma	*Polygonia progne*	S5	-	-	-	No	2003
Gray Hairstreak	*Strymon melinus*	S4	-	-	-	No	2012
Great Spangled Fritillary	*Speyeria cybele*	S5	-	-	-	No	2018
Green Comma	*Polygonia faunus*	S4	-	-	-	No	2006
Harvester	*Feniseca tarquinius*	S4	-	-	-	No	2018
Hickory Hairstreak	*Satyrium caryaevorus*	S4	-	-	-	No	2014
Hobomok Skipper	*Poanes hobomok*	S5	-	-	-	No	2019
Horace's Duskywing	*Erynnis horatius*	SNA	-	-	-	No	2019
Least Skipper	*Ancyloxypha numitor*	S5	-	-	-	No	2019
Leonard's Skipper	*Hesperia leonardus*	S4	-	-	-	Yes	(year not recorded)
Little Glassywing	*Pompeius verna*	S4	-	-	-	No	2014
Little Wood-Satyr	*Megisto cymela*	S5	-	-	-	No	2019
Little Yellow	*Pyrisitia lisa*	SNA	-	-	-	No	2015
Long Dash Skipper	*Polites mystic*	S5	-	-	-	No	2015
Meadow Fritillary	*Boloria bellona*	S5	-	-	-	No	1986
Midsummer Tiger Swallowtail	*Papilio canadensis X glaucus*		-	-	-	No	2019
Milbert's Tortoiseshell	*Aglais milberti*	S5	-	-	-	No	2019
Monarch	*Danaus plexippus*	S2N,S4B	SC	Special Concern	END	No	2019
Mourning Cloak	*Nymphalis antiopa*	S5	-	-	-	No	2019
Northern Azure	*Celastrina lucia*		-	-	-	No	2019
Northern Broken-Dash	*Wallengrenia egeremet*	S5	-	-	-	No	2019
Northern Cloudywing	*Thorybes pylades*	S5	-	-	-	No	2005
Northern Crescent	*Phyciodes cocyta*	S5	-	-	-	No	2019
Northern Pearly-Eye	*Lethe anthedon*	S5	-	-	-	No	1987
Orange Sulphur	*Colias eurytheme*	S5	-	-	-	No	2019
Orange-barred Sulphur	*Phoebis philea*	SNA	-	-	-	No	1987
Painted Lady	*Vanessa cardui*	S5	-	-	-	No	2019
Pearl Crescent	*Phyciodes tharos*	S4	-	-	-	No	2019
Peck's Skipper	*Polites peckius*	S5	-	-	-	No	2019
Pipevine Swallowtail	*Battus philenor*	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	*Lycaena helloides*	S3	-	-	-	No	1953
Question Mark	*Polygonia interrogationis*	S5	-	-	-	No	2019
Red Admiral	*Vanessa atalanta*	S5	-	-	-	No	2019
Red-spotted Purple	*Limenitis arthemis astyanax*	S5	-	-	-	No	2019
Sachem	*Atalopedes campestris*	SNA	-	-	-	No	2012
Silver-bordered Fritillary	*Boloria selene*	S5	-	-	-	Yes	1960
Silver-spotted Skipper	*Epargyreus clarus*	S4	-	-	-	No	2019
Silvery Blue	*Glaucopsyche lygdamus*	S5	-	-	-	No	2019
Silvery Checkerspot	*Chlosyne nycteis*	S5	-	-	-	No	1988
Spicebush Swallowtail	*Papilio troilus*	S4	-	-	-	No	2017
Striped Hairstreak	*Satyrium liparops*	S5	-	-	-	No	2012
Summer Azure	*Celastrina neglecta*	S5	-	-	-	No	2016
Tawny Emperor	*Asterocampa clyton*	S3	-	-	-	No	2015
Tawny-edged Skipper	*Polites themistocles*	S5	-	-	-	No	2017
Variegated Fritillary	*Euptoieta claudia*	SNA	-	-	-	No	2012
Viceroy	*Limenitis archippus*	S5	-	-	-	No	2019
White Admiral	*Limenitis arthemis arthemis*	S5	-	-	-	No	2018
White M-Hairstreak	*Parrhasius m-album*		-	-	-	Yes	1999
Wild Indigo Duskywing	*Erynnis baptisiae*	S4	-	-	-	No	2018

Table Legend

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

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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	Corktown Station Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
Waterfowl Stopover and Staging Areas (Terrestrial) **<u>Rationale;</u>** Habitat important to migrating waterfowl.	American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan	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.	Fields with sheet water during Spring (mid- March to May). • 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. <u>Information Sources</u> • 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 Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	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” • 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).	None Present
Waterfowl Stopover and Staging Areas (Aquatic) **<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	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	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	<u>Information Sources</u> • Environment Canada • Naturalist 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 projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of: • 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 SWH • The combined area of the ELC ecosites and a 100m radius area is the SWH • Wetland 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).	None Present

eco-district.	Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck				
Shorebird Migratory Stopover Area **<u>Rationale;</u>** 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> • 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: • 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 **<u>Rationale;</u>** 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 **<u>Special Concern:</u>** Short-eared Owl Bald Eagle	**<u>Hawks/Owls</u>** 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. **<u>Bald Eagle:</u>** Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or lakes with	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>: • 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: • 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

		open water (hunting areas).			
Bat Hibernacula **<u>Rationale;</u>** Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat Tri-colored Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	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. <u>Information Sources</u> • 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.	• 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
Bat Maternity Colonies **<u>Rationale;</u>** Known locations of forested bat maternity colonies is extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	Maternity colonies can be found in tree cavities, vegetation and often in buildlings (buildings are not considered to be SWH). Maternity roosts are not found in caves and mines in Ontario. • 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 <u>Information Sources</u> • OMNR for possible locations and contact for local experts • University Biology Departments with bat experts.	• Maternity Colonies with confirmed use by; – >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
Turtle Wintering Areas **<u>Rationale;</u>** Generally sites are the only known sites in the area. Sites with	Midland Painted Turtle **<u>Special Concern:</u>** Northern Map Turtle Snapping Turtle	Snapping and Midland Painted turtles; ELC Community Classes; SW, MA, OA and SA. ELC Community Series; FEO and BOO	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. • 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	• 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	None Present

the highest number of individuals are most significant.		Northern Map Turtle - Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	SWH. <u>Information Sources</u> • EIS studies carried out by Conservation Authorities. • Field Naturalist Clubs • OMNRF Ecologist or Biologist • Natural Heritage Information Center (NHIC)	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 significant.	
Reptile Hibernaculum **<u>Rationale;</u>** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	**<u>Snakes:</u>** Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake **<u>Special Concern:</u>** 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> • 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: • 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) **<u>Rationale;</u>** 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	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	• 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> • Reports and other information available from Conservation Authorities • Ontario Breeding Bird Atlas. • Bird Studies Canada; *NatureCounts* http://www.birdscanada.org/birdmon/	Studies confirming: • Presence of 1 or more nesting sites with 8or 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

population are declining in Ontario.			• Field Naturalist Clubs.		
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs) **<u>Rationale;</u>** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree. <u>Information Sources</u> • Ontario Breeding Bird Atlas , colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). • 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.	Studies confirming: • Presence of 2 or more active nests of Great Blue Heron or other listed species.. • 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	None Present
Colonially - Nesting Bird Breeding Habitat (Ground) **<u>Rationale;</u>** Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM CUT CUS	• 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. <u>Information Sources</u> • 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.	Studies confirming: • 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"	None Present
Migratory Butterfly Stopover Areas **<u>Rationale:</u>** Butterfly stopover	Painted Lady Red Admiral <u>Special Concern</u> Monarch	Combination of ELC Community Series; need to have present one Community Series from each	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. • The habitat is typically a combination of field and forest, and provides the butterflies with a	Studies confirm: • 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	None Present

areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.		landclass: <u>Field</u>: CUM CUT CUS <u>Forest</u>: FOC FOD FOM CUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed.	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 <u>Information Sources</u> • 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	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.	
Landbird Migratory Stopover Areas **<u>Rationale:</u>** 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&n=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. • • 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> • Bird Studies Canada • Ontario Nature • Local birders and naturalist club • Ontario Important Bird Areas (IBA) Program	Studies confirm: • 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
Deer Winter Congregation Areas **<u>Rationale:</u>** Deer movement during winter in the southern areas of	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM	• 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	Studies confirm: • 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)	None Present

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.		SWD Conifer plantations much smaller than 50 ha may also be used.	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> • MNRF District Offices. • LIO/NRVIS	when >20cm of snow is on the ground using aerial survey techniques , ground or road surveys, or a pellet count deer density survey	

Table 1.2.1 Rare Vegetation Communities.

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	Corktown Station Study Area
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
Cliffs and Talus Slopes **<u>Rationale;</u>** 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> • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF Districts • Natural Heritage Information Center (NHIC) has location information available their website • Field Naturalist Clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	None Present
Sand Barren **<u>Rationale;</u>** 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 <u>≤</u> 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> • OMNRF Districts. • Natural Heritage Information Center (NHIC) has location information available on their website • Field Naturalist Clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens [iii] • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	None Present
Alvar **<u>Rationale;</u>** Alvars are extremely rare habitats in Ecoregion 7E.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar**	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	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> • 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	Field studies identify four of the five **Alvar Indicator Species** at a Candidate Alvar site is Significant. • 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	Corktown Station Study Area
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
	Indicator Species: 1)*Carex crawei* 2)*Panicum philadelphicum* 3)*Elocharis compressa* 4)*Scutellaria parvula* 5)*Trichostema brachiatum* These indicator species are very specific to Alvars within Ecoregion 7E.	periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from patchy to barren with a less than 60% tree cover [iii].	website • OMNRF Staff. • Field Naturalist Clubs. • Conservation Authorities.		
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.	• Woodland area is >0.5 ha. <u>Information Sources</u> • OMNRF Forest Resource Inventory mapping • OMNRF Districts. • Field Naturalist Clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • 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	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> • 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 • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	None Present

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	Corktown Station Study Area
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria	
		Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario).			
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> • 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 • Area of the ELC Ecosite is the SWH • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	None Present
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> • 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. • 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	Corktown Station 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. • 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> • 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: • Presence of 3 or more nesting pairs for listed species excluding Mallards , or; • Presence of 10 or more nesting pairs for listed species including Mallards • Any 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. • 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> • 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.	Studies confirm the use of these nests by: • 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 habitat • To 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.	None Present

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Corktown Station Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
			• Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented • Reports and other information available from Conservation Authorities • Field naturalist Clubs	• Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"	
Woodland Raptor Nesting Habitat **<u>Rationale:</u>** 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 • 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> • 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: • 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 **<u>Rationale;</u>** 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	• 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> • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels).	Studies confirm: • 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

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Corktown Station Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
			• 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		
Seeps and Springs **<u>Rationale;</u>** 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 habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system. • 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> • 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.	Field Studies confirm: • 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 need to be considered in delineation the habitat.	None Present
Amphibian Breeding Habitat (Woodland). **<u>Rationale:</u>** 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	• Presence of a wetland, pond or woodland pool(including vernal pools) >500m^2 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 <u>Information Sources</u> • 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:	Studies confirm; • 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

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Corktown Station Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	
			http://www.ontariovernalpools.org		
Amphibian Breeding Habitat (Wetlands) **<u>Rationale;</u>** 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.	• Wetlands>500m2 (about 25m diameter)) ,supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF 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. <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) •Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. •OMNRF Districts and wetland evaluations. •Reports and other information available from Conservation Authorities.	Studies confirm: •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. • 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.	None Present

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

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	Corktown Station Study Area
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
Woodland Area-Sensitive Bird Breeding Habitat **<u>Rationale:</u>** 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	• 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> • 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 species • Reports and other information available from Conservation Authorities	Studies confirm: • 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 **<u>Rationale:</u>** 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.	• 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> • OMNRF District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Centre (NHIC) Records. • Reports and other information available from Conservation Authorities. • Ontario Breeding Bird Atlas.	Studies confirm: • 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 **<u>Rationale;</u>** This wildlife habitat is declining	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha	Field Studies confirm:	None Present

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	Corktown Station Study Area
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Sparrow **Special Concern** Short-eared Owl		• 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. • 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.	•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 defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”	
Shrub/Early Suessional Bird Breeding Habitat **<u>Rationale;</u>** 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 sueeding to shrub and thicket habitats >10ha in size. • Shrub land or early suessional 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.	Field Studies confirm: • 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

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	Corktown Station Study Area
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria	
			Ontario Breeding Bird Atlas Reports and other information available from Conservation Authorities.		
Terrestrial Crayfish; **<u>Rationale:</u>** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish; (*<u>Fallicambarus fodiens</u>*) Devil Crawfish or Meadow Crayfish; (*<u>Cambarus Diogenes</u>*)	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. • 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> • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998	Studies Confirm: •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 **<u>Rationale:</u>** These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre (NHIC).	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack auracy	• When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites • Information Sources • Natural 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.ca • Ontario Breeding Bird Atlas• • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: • Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • 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.	A comprehensive screening for each SOCC record identified within the Corktown Station Study Area is provided in Appendix C.

Table 1.4 Animal Movement Corridors

Habitat	SPECIES	CANDIDATE SWH		CONFIRMED SWH	Corktown Station 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. • 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 •MNRF District Office. •Natural Heritage Information Centre (NHIC). •Reports and other information available from Conservation Authorities. •Field Naturalist Clubs.	• 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	Corktown Station 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.	• 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> • OMNRF for possible	• 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	N/A

Habitat	SPECIES	CANDIDATE SWH		CONFIRMED SWH	Corktown Station Study Area
		ELC Eco-sites	Habitat Criteria and Information Sources	Defining Criteria	
			locations and contact for local experts • University of Waterloo, Biology Department	was documented during fall migration. • The confirmation criteria and habitat areas for this SWH are still being determined.	

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Appendix C

Species of Conservation Concern Screening

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 Corktown Station Study Area
Amphibian	Western Chorus Frog - Great Lakes - St. Lawrence - Canadian Shield population	*Pseudacris maculata pop. 1*	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	*Nycticorax nycticorax*	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	*Aythya valisineria*	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	*Hydroprogne caspia*	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	*Chordeiles minor*	2016	S4B	SC	THR Schedule 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.
Birds	Eastern Wood-pewee	*Contopus virens*	2016	S4B	SC	SC Schedule 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	Low - no treed areas (e.g., cultural woodlands) to provide suitable nesting habitat are present.
Birds	Great Black-backed Gull	*Larus marinus*	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	*Ardea alba*	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	*Falco peregrinus*	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 Corktown Station Study Area
								Cities offer peregrines a good year-round supply of pigeons and starlings to feed on. 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.		17PJ34), TRCA	
Birds	Purple Martin	*Progne subis*	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	*Aythya americana*	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	*Melanerpes erythrocephalus*	2001-2005	S4B	SC	THR Schedule 1	END	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. 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.	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 - treed areas (e.g., cultural woodlands) not present.
Birds	Red-necked Grebe	*Podiceps grisegena*	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	*Hylocichla mustelina*	2016	S4B	SC	THR Schedule 1	THR	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. 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.	FOD and FOM that are greater than 1 ha in size.	TRCA, OBBA (17PJ23, 17PJ33)	Low - no suitable habitat is present.
Insect	Monarch	*Danaus plexippus*	2019	S2N,S4B	SC	SC Schedule 1	END	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. Milkweeds (numerous species) are the sole food plant for Monarch caterpillars. These plants grow predominantly in open and periodically disturbed habitats	AI, TP, and CUM where milkweed plants are present.	OBA	Low - suitable habitat is not 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 Corktown Station 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	*Euphyes conspicua*	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	*Asterocampa celtis*	2017	S3	-	-	-	This species can be found along wooded streams and deciduous forests with the host plant, Hackberry (*Celtis*).	FOD4-3	OBA	Low - suitable habitat is not present.
Insect	Tawny Emperor	*Asterocampa clyton*	2015	S3	-	-	-	This species can be found along wooded streams and deciduous forests with the host plant, Hackberry (*Celtis*).	FOD4-3	OBA	Low - suitable habitat is not present.
Reptiles	Northern Map Turtle	*Graptemys geographica*	2018	S3	SC	SC Schedule 1	SC	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. 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.	OAO, SA with emergent rocks and fallen trees suitable habitat for prey.	ORAA	Low - suitable habitat is not present.
Reptiles	Snapping Turtle	*Chelydra serpentina*	2019	S4	SC	SC Schedule 1	SC	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. 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.	OAO, SA near gravelly or sandy areas.	ORAA; TRCA; NHIC	Low - suitable habitat is not present.
Plants	Old -field Toadflax	*Nuttallanthus canadensis*	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: **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.
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;

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- 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. McMurrary, 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.

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Appendix D

Species at Risk Screening

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 Corktown Station Study Area
Birds	Bank Swallow	*Riparia riparia*	2017	S4B	THR	THR Schedule 1	THR	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. 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.	N/A	NHIC; OBBA (17PJ33, 17PJ34)	Low - suitable breeding habitats in the form of river banks or sand and gravel pits were not present.
Birds	Barn Swallow	*Hirundo rustica*	2001-2005	S4B	THR	THR Schedule 1	THR	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. 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.	TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1; containing or adjacent structures that are suitable for nesting.	OBBA (17PJ33, 17PJ34)	Low - buildings, bridges and other structures with suitable nesting attachment sites not present.
Birds	Bobolink	*Dolichonyx oryzivorus*	2001-2005	S4B	THR	THR Schedule 1	THR	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. 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.	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	*Chaetura pelagica*	2016	S4B,S4N	THR	THR Schedule 1	THR	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. 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.	TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1 containing or adjacent structures with suitable nesting habitat (i.e. chimneys).	OBBA (17PJ33, 17PJ34)	Medium – a potentially uncapped chimney that may provide suitable habitat is present within the Corktown Station Study Area; however, this chimney is located outside of the Project Footprint. There were no suitable or uncapped chimneys or smokestacks on the buildings proposed for demolition within 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 Corktown Station Study Area
Birds	Eastern Meadowlark	*Sturnella magna*	2001-2005	S4B	THR	THR Schedule 1	THR	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. Eastern Meadowlarks prefer grassland habitats, including native prairies and savannahs, as well as non-native pastures, hayfields, weedy meadows, herbaceous fencerows, and airfields.	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	*Myotis leibii*	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 - buildings with potential entry and exit points may occur within the Corktown Station Study Area; however, the buildings proposed for demolition within the Project Footprint do not provide bat SAR habitat as they were in tact (i.e., no entry/exit points), occupied and therefore unsuitable for bat SAR roosting.
Mammals	Little Brown Myotis	*Myotis lucifugus*	N/A	S3	END	END Schedule 1	END	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. 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.	FOC, FOM, FOD, SWC, SWM, and SWD where suitable roosting (i.e. cavity trees and trees with loose bark) habitat is available.	BCI	Medium - buildings with potential entry and exit points may occur within the Corktown Station Study Area; however, the buildings proposed for demolition within the Project Footprint do not provide bat SAR habitat as they were in tact (i.e., no entry/exit points), occupied and therefore unsuitable for bat SAR roosting.
Mammals	Northern Long-eared Myotis	*Myotis septentrionalis*	N/A	S3	END	END Schedule 1	END	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. 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.	FOC, FOM, FOD, SWC, SWM, and SWD where suitable roosting (i.e. cavity trees and trees with loose bark) habitat is available.	BCI	Medium - buildings with potential entry and exit points may occur within the Corktown Station Study Area; however, the buildings proposed for demolition within the Project Footprint do not provide bat SAR habitat as they were in tact (i.e., no entry/exit points), occupied and therefore unsuitable for bat SAR roosting.
Mammals	Tri-coloured Bat	*Perimyotis subflavus*	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 - buildings with potential entry and exit points may occur within the Corktown Station Study Area; however, the buildings proposed for demolition

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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 Corktown Station Study Area
								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. 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.	roosting (i.e. cavity trees and trees with loose bark) habitat is available.		within the Project Footprint do not provide bat SAR habitat as they were in tact (i.e., no entry/exit points), occupied and therefore unsuitable for bat SAR roosting.
Plant	Butternut	*Juglans cinerea*	2004	S2?	END	END Schedule 1	END	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. 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.	FOD and mature hedgerows; Soil: dry rocky or moist (4, 5, 6) to fresh (2, 3).	NHIC	Low - suitable habitat is not present.
Reptiles	Blanding's Turtle	*Emydoidea blandingii*	2017	S3	THR	THR Schedule 1	END	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. 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.	SWT2, SWT3, SWD, SWM, MAS2, SAS1, SAM1, where open water is present.	ORAA	Low - suitable habitat is not present.

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.

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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;

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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

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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. McMurrary, 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.