Appendix B-3 Natural Environment Existing Conditions Technical Report

Bowmanville SS Expansion Feasibility and Class Environmental Assessment

Natural Environment Baseline Report

Hydro One Networks Inc.

60745030

March 2026

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2	03-11-2026	Jessica Ballie	Updated based on comments from Mississaugas of Scugog Island First Nation, Alderville First Nation and Curve Lake First Nation.

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1. Introduction

Hydro One Networks Inc. (Hydro One) has retained AECOM Canada ULC (AECOM) to support early feasibility/conceptual design and a Class Environmental Assessment (Class EA) for the proposed expansion of the Bowmanville Switching Station (SS) in Bowmanville, Ontario (the Project).

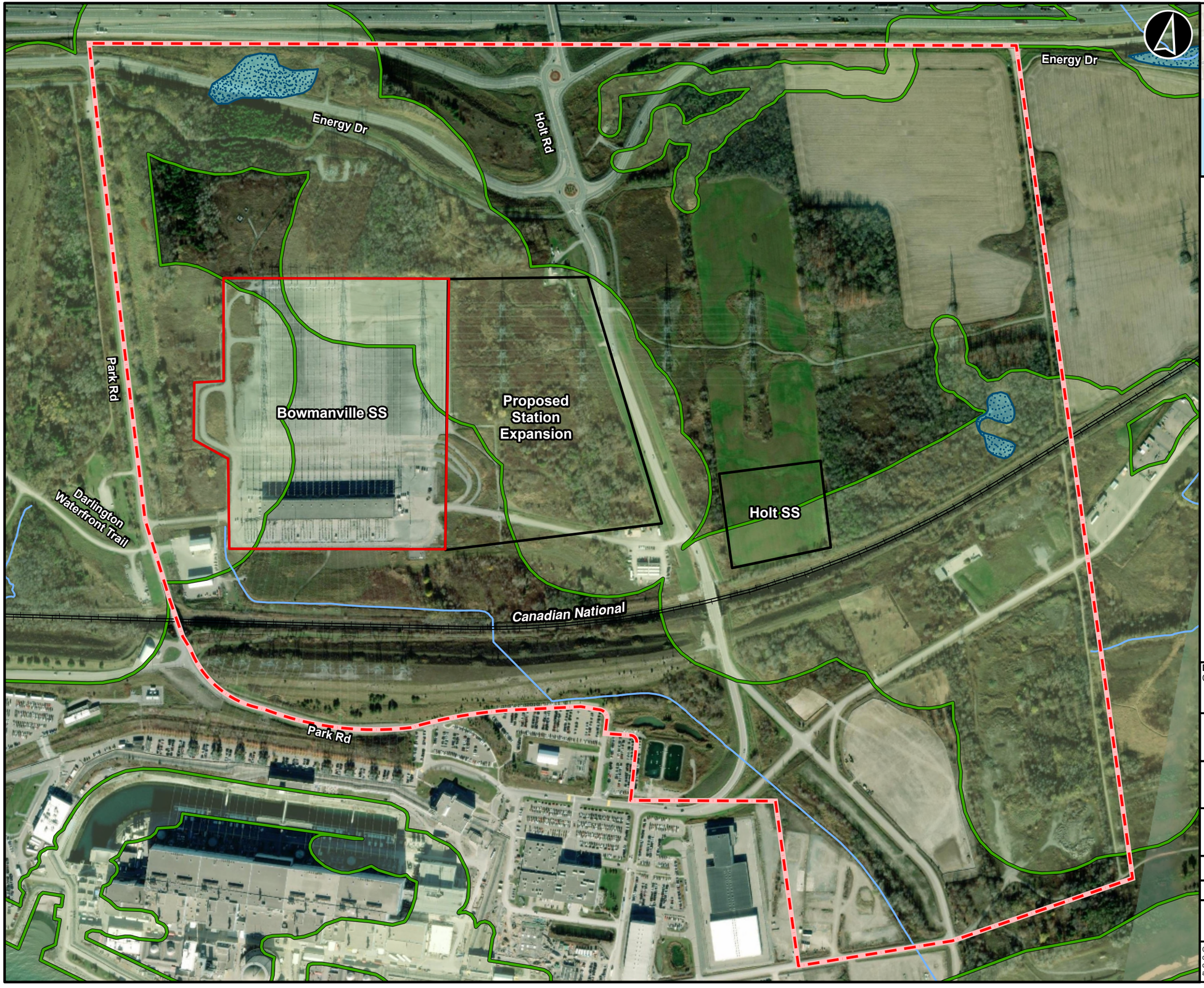
The Independent Electricity System Operator (IESO) identified the need for a temporary connection of Ontario's first Small Modular Reactor (SMR) by 2027, as outlined in their directive "Connection Approach for Ontario's First Small Modular Nuclear Reactors" (February 15, 2024). This initial recommendation, currently in progress with Hydro One at the Holt SS, includes:

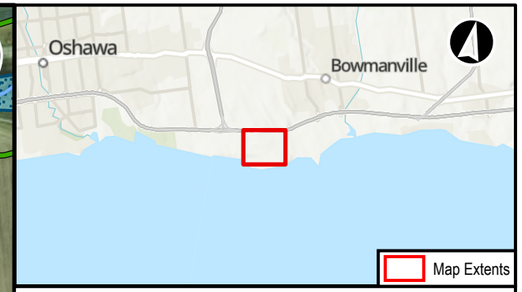
- Expanding the 500-kilovolt (kV) Bowmanville SS to facilitate the connection of a second SMR.
- Connecting the remaining planned SMR units to the expanded 500 kV Bowmanville SS by 2035.

To accommodate future generation and load growth in the region and to meet the recommendations in IESO's directive mentioned above, Hydro One has initiated a Class EA in accordance with its *Class Environmental Assessment for Transmission Facilities* (2024). The Project will include expanding the 500 kV Bowmanville SS to connect Ontario Power Generation's Darlington New Nuclear Project to Hydro One's transmission network to support a reliable supply of electricity to meet increased energy demand.

The early environmental work documented in this report supports characterization of the environment and Class EA and reflects feedback received by Hydro One on the importance of multi-seasoned data and early consultation with local Indigenous communities for scoping environmental programs. A Notice of Project Commencement was issued in August 2025.

The Study Area for this Natural Environment Baseline Report (**Figure 1**) mimics the Study Area for the Feasibility Study conducted for the Project, which is larger than the proposed station expansion area (i.e., area to be impacted by the Project). It takes into consideration the general features of the Project, such as technical and engineering constraints, existing transmission facilities and other infrastructure, the existing natural and socio-economic environments, and potential environmental effects. This report provides the results of the field program within the larger Study Area; however, the focus of the impact analysis in this report is on the proposed station expansion area shown in **Figure 1**.





LEGEND

- Study Area
- Expansion Areas
- Existing Bowmanville SS
- Central Lake Conservation Authority Regulated Area
- Unevaluated Wetland
- Watercourse
- ORWN Track

Data Sources:
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HONI Bowmanville SS Expansion

Study Area

0 50 100 200 300 400 500 M

NAD 1983 UTM Zone 17N

Oct, 2025	1:6,500
P: 60745030	Rev:00

Basemaps provided by: Esri, NASA, NGA, USGS, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, NRCan, Parks Canada, Maxar

Figure 1

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Project Location: C:\Users\Vaska\AECOM\EC GIS Services - GIS CAD PROJECT SUDS\AMERICAS\CANADA\HONI_2025\Honi Bowmanville\2025\10\6\Workspace\60410299_0047_Eco_HoniBowmanville.aprx Layout: F01- Study Area
Date Saved: 10/2/2025 11:13 AM User: VaskaA

2. Legislative and Policy Context

The Project triggers requirements under, and consideration for, legislation at municipal, provincial and federal jurisdictions. The requirements and considerations for each level of government are outlined in **Table 2-1**.

Table 2-1: Relevant Legislation and Policies

Level of Government	Legislation	Governing Authority	Relevant Information
Federal	*Fisheries Act, 1985* (amended 2019)	Fisheries and Oceans Canada (DFO)	DFO's Fish and Fish Habitat Protection Program oversees compliance with relevant provisions under the Fisheries Act and Species at Risk Act. If project proponents are unable to reduce the risk of harmful alteration, disruption, or destruction of fish habitat or death of fish through the implementation of DFO Measures to Protect Fish and Fish Habitat (ECCC, 2023a), including the use of applicable Standards and Codes of Practice (ECCC, 2022), or if a project does not fall under the exclusion criteria presented on the DFO Projects Near Water website (ECCC, 2023b), those projects may be subject to a Request for Review by DFO. If death of a fish, or harmful alteration, disruption, or destruction (HADD) of fish habitat is likely to result from a project, the proponent will be required to obtain an Authorization under the Fisheries Act. An Authorization includes terms and conditions the proponent must follow to avoid, mitigate, offset, and monitor the impacts to fish and fish habitat resulting from the Project.
Federal	*Migratory Birds Convention Act, 1994* (MBCA) *Migratory Bird Regulations, 2022*	Environment and Climate Change Canada (ECCC)	The MBCA provides protection for migratory birds, their eggs, and active nests. The Act applies to more than 700 species of migratory birds in Canada. Under the MBCA and associated Migratory Birds Regulations, 2022, it is prohibited to possess, harm, or destroy migratory birds or their nests while they contain a live bird or viable egg. In addition, 18 migratory bird species that exhibit site fidelity and reuse their nests annually are afforded year-round nest protection, regardless of whether eggs or live birds are present.
Federal	*Species At Risk Act, 2002* (SARA)	Environment and Climate Change Canada – Canadian Wildlife Services (ECCC – CWS), DFO	The SARA and its associated regulations afford protection to terrestrial species listed in Schedule 1 of the Act when they occur on federal land, land subject to federal approvals, or are also regulated under the MBCA. The federal government has the authority to regulate in relation to fisheries, shipping, and navigation, and jurisdiction over these subject areas applies to all parts of the oceans, lakes, rivers, and streams within the Canadian provinces and territories. As such, SARA regulates any activity that affects a SARA-protected aquatic species, such as fish, shellfish, crustaceans, marine animals, or marine plants. The SARA contains several prohibitions to species listed on Schedule 1 as Endangered or Threatened, including prohibitions on harming an individual Species at Risk (SAR), their residence, or the Critical Habitat of the listed aquatic species and MBCA-protected birds. These prohibitions apply to all SARA-listed aquatic species and to migratory bird species protected under the MBCA, regardless of land tenure. For the purposes of this report, aquatic species listed as Endangered or Threatened federally or provincially will be referred to as SAR. Migratory birds listed as Endangered or Threatened under Schedule 1 of the SARA that are not provincial SAR are considered Species of Conservation Concern (SOCC).
Provincial	*Endangered Species Act, 2007* (ESA) (amended 2025)	Ontario Ministry of the Environment, Conservation, and Parks (MECP)	On June 5, 2025, Bill 5 was passed which included amendments to the ESA that are now in force. The ESA is anticipated to be replaced by the new *Species Conservation Act, 2025* in 2026, which will enable streamlined permit applications and approvals and help projects proceed faster while continuing to provide important protections for species at risk and their habitats.

Level of Government	Legislation	Governing Authority	Relevant Information
			Under the amended ESA, species are still listed as Extirpated, Endangered, Threatened and Special Concern, and prohibitions related to the killing and harming of Endangered or Threatened species and the damage or destruction of their habitat MECP may grant a permit, or other authorization, for activities that would otherwise not be allowable under the ESA. For this Report, Extirpated, Endangered and Threatened Species that receive protection under the amended ESA are considered terrestrial SAR. Species listed as Special Concern are considered SOCC and are not afforded protection under the amended ESA; however, habitats for these species are considered Significant Wildlife Habitat.
Provincial	*Fish and Wildlife Conservation Act, 1997* (FWCA)	Ontario Ministry of Natural Resources (MNR)	The FWCA affords protection for some species of birds, amphibians, reptiles, and mammals in Ontario. Some bird species which are not afforded protection under the MBCA are afforded protection under the FWCA, such as raptors. Nests of these bird species can only be removed if a permit is obtained from the MNR. Includes protection for dens of furbearing mammals (excluding fox and skunk) and beaver dams. Dens and beaver dams may only be damaged or destroyed if a person holds a license to trap furbearing mammals. The FWCA also oversees permitting requirements for the handling and/or transporting of fish under Ontario Regulation (O. Reg.) 261/05.
Provincial	*Planning Act, 1990* and *Provincial Planning Statement, 2024* (PPS)	Ontario Ministry of Municipal Affairs and Housing (MMAH)	The PPS identifies seven types of natural heritage features to be protected: ○ Significant habitat of Endangered or Threatened species ○ Significant wetlands ○ Coastal wetlands ○ Significant woodlands in Ecoregions 6E and 7E ○ Significant valley lands in Ecoregions 6E and 7E ○ Significant Wildlife Habitat (SWH), including habitat of SOCC and, ○ Significant Areas of Natural and Scientific Interest (ANSI). Policies in the PPS are used to guide decision-making in land use planning. Under the PPS, development and site alteration are prohibited in significant wetlands in Ecoregion 6E and 7E. In addition, development and site alteration are not permitted in or within 120 m of the remaining natural heritage features unless it can be shown that there will be no negative impact or permits or approvals are obtained under other regulations and legislations as appropriate. Of note, development does not include activities that create or maintain infrastructure, such as transmission facilities, authorized under an environmental assessment process; therefore, transmission projects are permitted in natural heritage features and their adjacent land provided these are considered when planning for significant transmission projects.
Local	*Conservation Act, 1990*	Central Lake Ontario Conservation Authority (CLOCA)	O. Reg. 41/24: Prohibited Activities, Exemptions, and Permits came into effect on April 1, 2024, following amendments to the *Conservation Authorities Act, 1990*. The new O. Reg 41/24 establishes guidelines for the mapping of regulated areas within conservation authorities' jurisdictions where development could be subject to flooding, erosion, or dynamic beaches, or where interference with wetlands and alterations to shorelines and watercourses might have an adverse effect on those environmental features. This regulation identifies the processes to be followed to obtain exemptions and permits to allow for prohibited activities to occur within these regulated areas. The Study Area falls within CLOCA's regulation limit.

3. Methods

3.1 Background Information Review

A background information review was completed prior to field investigations to obtain information on known natural heritage features and species records, including rare species (i.e., Species at Risk [SAR] and Species of Conservation Concern [SOCC]) within the Study Area. Background information was obtained from the following sources:

- MNR's Natural Heritage Information Centre (NHIC): Make-a-Map Tool (2025a) and MNR's Land Information Ontario (LIO) GeoHub base (2025b) for:
    - Natural Heritage Features (e.g., Areas of Natural and Scientific Interest (ANSIs), wooded areas, Provincially Significant Wetlands (PSWs) / Locally Significant Wetlands (LSWs) / unevaluated wetlands, provincial parks)
    - Aquatic Resource Areas
    - Watershed mapping
    - Wildlife habitats
    - Aerial Photography
    - NHIC provincially tracked specie
- Wildlife Atlases and other online databases:
    - Ontario Breeding Bird Atlas (OBBA; Bird Studies Ontario., 2006)
    - Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2019)
    - Ontario Butterfly Atlas (OBA; Ontario Entomologists' Association [TEA], 2025)
    - Bat Conservation International (BCI) Range Maps and Species Profiles (BCI, 2025)
    - Fisheries and Oceans Canada (DFO) Aquatic SAR Map (DFO, 2025)
    - Important Bird Areas Ontario (Birds Ontario, 2025)
    - eBird Hotspots (eBird, 2025)
    - iNaturalist Research Grade Observations (iNaturalist, 2025)
    - Central Lake Ontario Conservation Authority (CLOCA) Open Data (2024)
- Planning Documents and Guidelines:
    - *Natural Heritage Reference Manual* (MNRF, 2010)
    - Species at Risk Public Registry (ECCC, 2025a)
    - Species at Risk in Ontario (SARO) List (Ministry of the Environment Conservation and Parks [MECP], 2018)
    - *Significant Wildlife Habitat Technical Guide* (MNR, 2000)
    - *Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E* (MNRF, 2015)
- Reports:
    - *Habitat Assessment for Endangered Bats, Darlington New Nuclear Project (*Beacon Environmental, 2021a)
    - *Acoustic Bat Monitoring Report Darlington New Nuclear Project* (Beacon Environmental, 2021b)
    - *Darlington Nuclear Site Biodiversity Monitoring Program Three Year Report* (Beacon Environmental, 2022)
    - *Darlington Nuclear Site Biodiversity Monitoring Program Three Year Report* 2023 – 2025 (Beacon Environmental, 2025)
    - *Connect New Darlington Class Environmental Assessment Natural Environment Existing Conditions Summary* (AtkinsRealis, 2024)

- *Ontario Power Generation Darlington Nuclear Site Wildlife Corridor* (Beacon Environmental, 2020)
- *Holt Switching Station 2024 Natural Environment Field Survey Results Memo* (Dillon Consulting, 2024a)
- *2024 Natural Environment Existing Conditions Technical Report Holt Switching Station Class Environmental Assessment* (Dillon Consulting, 2024b)

- Map files:
  - Ecological Land Classification mapping delineated by Beacon Environmental in 2018

3.2 Field Investigations

Field investigations were conducted to supplement available background information as described in **Section 3.1** above. Representative terrestrial and aquatic photographic logs are provided in **Appendix A** and **Appendix B**, respectively. The following sections document the detailed methods of these investigations.

3.2.1 Aquatic Habitat Assessment

Aquatic habitat assessments were completed on April 24 and June 3, 2025, to characterize the aquatic features and functions within the Study Area. Investigations were conducted for two aquatic features identified during the background review, and an additional feature that was identified while on site. Another feature identified during background review, a tributary to Darlington Creek located on the east side of the Study Area, was not assessed as it was deemed sufficiently outside the anticipated impacts of future development. Data collected during field investigations for these features included:

- Flow description (source of flow, permanency/seasonality, low flow conditions)
- Characterization of channel dimensions and stream morphology including:
  - Runs – typically found at the head of a pool with water velocity similar to a riffle but with greater depth and surface that is typically not agitated
  - Riffles – relatively shallow, fast turbulent flow where the water's surface is typically broken
  - Pools – deep areas with a relatively low flow velocity and a smooth unagitated surface
  - Flats – low flowing water with a smooth un-agitated surface that are not as deep as a pool
- Substrate composition (i.e., clay, silt, sand, gravel, cobble, rock, boulder, muck and detritus) and in-stream vegetation and other cover elements (i.e., woody debris, undercut banks, boulders)
- Characterization of riparian habitat and surrounding natural features and land uses (i.e., wetland, agriculture, etc.)
- Indicators of water quality – water clarity, water colour, presence and type of macrophytes and algal growth, evidence of runoff
- Incidental observations of fish community species composition and life-history habitat elements (i.e., spawning, rearing/nursery habitat)
- Basic field parameters such as pollution sources (i.e., tile drain discharges, other piped discharges and road runoff)
- Connectivity to Lake Ontario

Fish community sampling was not within the scope of this Project. All water features located within and immediately adjacent to the Study Area were assigned a unique identifying number to differentiate the area of investigation for each crossing (e.g., WC-1).

3.2.2 Confirmatory Ecological Land Classification

Vegetation Community Classification and Delineation

Vegetation communities were previously delineated in the Study Area by Beacon Environmental in 2018. AECOM ecologists confirmed and/or adjusted vegetation community classifications and mapping delineated by Beacon Environmental using *Ecological Land Classification for Southern Ontario: First Approximation and its Application* (Lee et al., 1998) and where appropriate, the updated *Southern Ontario Ecological Land Classification System Vegetation Type List* (Lee, 2008). A three-season botanical inventory was completed in April, July and October for each Ecological Land Classification (ELC) community. All plant species present in each respective ELC community at the time of field investigations were recorded. Three season surveys allow for the easier identification of plants that flower at different times of the year. Inclusive in the botanical inventory was the identification of plant SOCC and SAR and a delineation of their habitat.

Community Sensitivity

Vegetation community sensitivity was based on the calculation of the Mean Coefficient of Conservatism[1] (CC), the Floristic Quality Index[2] (FQI), and the Wetness index[3] (CW) for all vegetation communities present in the Study Area. These parameters are intended to be used together in order to assign an ecological community's sensitivity ranking based on plant species composition. The ranking is not intended to measure the overall value of a community but rather reflects the community's sensitivity to disturbance based on the grouping of plants present within the community.

3.2.2.1 Tree Species at Risk Search

A search for Butternut (*Juglans cinerea*) and Black Ash (*Fraxinus nigra*) was completed on April 25, July 3 and October 1, 2025, by AECOM ecologists and International Society of Arboriculture (ISA) certified arborist. The tree SAR search was completed within the 30 m of the SS Expansion Area in suitable treed habitat. If any tree SAR were found, AECOM arborists took photos and recorded the Diameter-at-Breast-Height (DBH), coordinates, tree health and tree structure.

3.2.3 Breeding Bird Surveys

Breeding bird surveys were completed between May 24 and July 10 following the Ontario Breeding Bird Atlas Guide for Participants (2001) and *Survey Methodology under the Endangered Species Act, 2007: Dolichonyx Oryzixorous (Bobolink)* (MNR, 2011) protocols. Breeding bird surveys were completed over three rounds on June 3, 6, 20 and July 3, 2025. A total of 12 breeding bird survey stations were established in the Study Area (shown on **Figure 2**). Grassland Breeding Bird Surveys were completed including confirmation of suitable habitat within the Study Area. In accordance with the protocols, the surveys consisted of recording weather conditions at the time of the survey, start and end times, and completion of a 10-minute point count during which breeding evidence and individual bird movement within a 100 m radius of the survey station were recorded. Species heard outside of the 100 m radius or observed outside of their breeding habitat within the 100 m radius (i.e., flyovers) were recorded separately.

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1. *Vegetation species and community sensitivity were assessed through the application of CC values, assigned to each native species in southern Ontario (Oldham et al. 1995). These values range from 0 (low) to 10 (high) and the occurrence of species with a CC of 9 or 10 can be good indicators of undisturbed conditions such as mature forests, fens or bogs.*
2. *The floristic quality of an area is reflected in the mean value of CC. For example, an old field or grazed woodlot would tend have a low mean CC; these habitats are dominated by opportunistic species that occur in a wide range of site conditions and are tolerant of disturbance. A bog, prairie or intact forest would have a higher value, reflecting the specific habitat requirements of many of the species and a generally undisturbed condition. A community with an FQI between 1-19 would be considered to be of low vegetative quality; communities with an FQI between 20-35 would be considered to have a high vegetative quality and communities with an FQI above 35 would be considered of "Natural Area" Quality.*

[3] *Plant species in southern Ontario have been classified into standardized wetland indicator categories. These categories—ranging from obligate wetland to upland—reflect the likelihood of a species naturally occurring in wetland environments and are numerically coded to support wetness index calculations.*

3.2.3.1 Pileated Woodpecker and Red-headed Woodpecker Surveys

Call-back Surveys

Red-headed Woodpeckers (*Melanerpes erythrocephalus*) and Pileated Woodpeckers (*Dryocopus pileatus*) call-back surveys were conducted in suitable forested vegetation communities (i.e., swamp, forest, woodland) where vegetation removal was anticipated in conjunction with breeding bird surveys described in **Section 3.2.3**. Call-back surveys were conducted following standards adapted from *Red-headed Woodpecker Species Guidance* (Wisconsin Department of Natural Resources, 2013); however, the call play-back sequence was modified to also include Pileated Woodpecker calls. The playback recording was comprised of audio sources from the free Cornell Laboratory of Ornithology “Merlin” application (2025).

Surveys were completed on June 3, June 6, June 19–20, July 3, and July 8, 2025. These dates generally correspond with the period during which Red-headed Woodpecker is considered reliably detectable during the breeding season (May 25 to June 30), as identified in the *Red-headed Woodpecker Species Guidance* (Wisconsin Department of Natural Resources, 2013). Survey timing also falls within the broader breeding season for the species in this region (May 11 to August 18), as outlined in the *Recovery Strategy for the Red-headed Woodpecker (Melanerpes erythrocephalus) in Ontario* (MECP, 2022).

Call-back surveys were also scheduled to align with the general nesting season for the Project location (ECCC, 2025) and with Ontario Breeding Bird Atlas (OBBA) guidance. The OBBA provides “safe dates,” which indicate when observations of a species in suitable habitat are likely to represent breeding individuals rather than migrants. According to the *Ontario Breeding Bird Atlas-3 Safe Dates/Breeding Dates by Ecoregion* (Birds Canada, 2021), the safe date window for Pileated Woodpecker in this region extends from April 20 to July 14.

The survey was structured as follows:

- Record start time and listen/observe quietly for birds for 5 minutes.
- Broadcast recorded Red-headed Woodpecker sequence calls and drums for exactly 30 seconds, followed by recorded Pileated Woodpecker calls for exactly 30 seconds.
- Listen quietly for any Red-headed Woodpecker or Pileated Woodpecker response for at least 2 minutes.
- Broadcast recorded sequence calls and drums for maximum of 30 seconds, followed by recorded Pileated Woodpecker calls for 30 seconds.
- Listen quietly for any Red-headed Woodpecker or Pileated Woodpecker response for 2 minutes, and record finish time.

Call-backs were broadcasted at previously identified breeding bird survey stations in suitable forested vegetation communities including BBS-01, BBS-03, BBS-04, BBS-05, BBS-06, BBS-08, BBS-09, BBS-10 and BBS-12 (refer to **Figure 2**). Call-back surveys were not played at stations that lacked suitable habitat for Red-headed Woodpecker and/or Pileated Woodpecker.

Nest Searches

Nest searches were completed in conjunction with the Leaf-off Bat Snag/Cavity Tree Searches (refer to **Section 3.2.4**). A search for nests belonging to Pileated Woodpecker were conducted within forested communities on site. Pileated Woodpecker nests are protected year-round under the *Migratory Birds Convention Act, 1994* (MBCA) and therefore identification of their nests is important to support effects assessment, mitigation identification and permitting requirements. The Pileated Woodpecker Cavity Identification Guide provided by ECCC (2023) was used to identify potential nest cavities.

Nest searches were also conducted for Red-headed Woodpecker in suitable forests edges and woodlands. According to the Ontario Ministry of the Environment, Conservation, and Parks (MECP) *Recovery Strategy for the*

Red-headed Woodpecker in Ontario (MECP, 2022c), this species is known to reuse old nest cavities, excavate new nest cavities and occasionally use old cavities excavated by other bird species.

Staff visually inspected cavity characteristics such as number of holes, cavity shape, approximate dimensions, edge texture, and tree decay to determine the type of cavity (i.e., foraging, nesting, roosting).

3.2.4 Bat Surveys

3.2.4.1 Identification of Suitable Bat Roost Habitat

A search for potential roost trees for bat SAR was conducted in accordance with MECP's *Bat Survey Standards* (2022a) and followed *Bat & Treed Habitats – Maternity Roost Surveys protocol* (MECP, 2022b) within forested and Cultural Woodland (CUW) communities that were delineated by Beacon Environmental (2018). Surveys were completed on April 24, 2025, by two AECOM ecologists between 7:30 am to 5:00 pm, for a total of 9.5 hours of survey effort. The polygons that were searched were mapped on ArcGIS Field Maps, which surveyors could access from their smart phones. Surveyors walked each polygon, with transect spacing of 5 to 20 m, depending on vegetation density and visibility, in accordance with MECP (2022b), to support full coverage of each polygon. Given the size of the Study Area and seasonal limitations, AECOM staff focused efforts on completing snag/cavity tree searches within and adjacent to the Bowmanville SS Expansion Area, where potential tree removal and associated habitat disturbance for bats would be most likely to occur. The survey included trees measuring at least 10 cm diameter at breast height (DBH) with cracks, crevices, hollows, cavities and/or loose or naturally exfoliating bark as well as leaf clusters of Oak (*Quercus sp.*) and Maple (*Acer sp.*) trees. Rock features (e.g., rock piles) were also searched for and assessed for potential Eastern Small-footed Myotis (*Myotis leibii*) roosting habitat.

The following information was recorded for each tree:

- Date
- Name of observer
- Tree species
- UTM co-ordinates
- DBH
- Height
- Decay class
- Description of cavities, including type (e.g., woodpecker cavities, cracks, knot holes, peeling bark, leaf clusters, etc.), number and height on tree
- Photos

3.2.4.2 Bat Acoustic Monitoring

AECOM completed bat acoustic monitoring following MECP's *Bat Survey Standards* (2022a) *and Bat & Treed Habitats – Maternity Roost Surveys Protocol* (MECP, 2022b). A total of 51 Autonomous Recording Units (ARUs) locations were established to adequately monitor the treed habitats delineated by Beacon Environmental (2018). These 51 ARU locations were serviced by ARUs that were programmed to solely target bats (hereafter "Bat-only ARUs"). In addition to the Bat-only ARUs, seven locations were serviced by ARUs with dual bat and amphibian programs (hereafter "Dual ARUs"). These Dual ARUs were programmed to record amphibians through one acoustic microphone and bats through a second ultrasonic microphone (discussed in **Section 3.2.5**). In total there were 58 locations set up for bat acoustic monitoring. Each station recorded for a minimum of 10 nights under suitable conditions.

The locations for the ARUs are shown in **Figure 2**. The majority of the ARUs were positioned within 500 m of the existing station, including the area anticipated to be impacted by the Bowmanville SS Expansion, as well as the treed communities northwest of the current Bowmanville SS that were not previously monitored by Beacon

Environmental (2018). These areas were prioritized for higher monitor densities per suitable habitat (i.e., forest, swamp, woodland communities) as they are most likely to be impacted by the Project and to follow, as closely as possible, the 2022 MECP protocols which recommend four ARUs per hectare. Additional monitors were installed across the remainder of the Study Area to get a general idea of bat composition across the broader Study Area. As mentioned, the 2022 MECP protocols recommend four ARUs per hectare; however, this was not feasible given the 25 ha of treed habitat within the Study Area. According to MECP's *Bat Survey Standards* (2022a), large Projects with treed habitat greater than 10 ha may apply some method of sampling/sub-sampling landscapes, where acoustic monitoring occurs in randomly selected or representative locations. The results from the sample were extrapolated to the entire Project footprint. In areas of low snag or suitable maple and oak tree concentrations mapped by Beacon Environmental (2018), the density was reduced.

Monitors were mounted on tree trunks at an average height of 1.6 m with ultrasonic microphones positioned to minimize vegetation interference and wind noise, following MECP guidance. Data were analyzed in Wildlife Acoustics Kaleidoscope Pro Analysis Software using the Bats of North America classifier. This software is designed to convert files, sort, and categorize bat data by species. It identifies bats to species by comparing the recorded ultrasonic patterns (also known as a pass) to those of known species-specific patterns. Species identifications were manually verified. "No ID" Files were reviewed to confirm absence of SAR calls.

3.2.5 Amphibian Acoustic Monitoring

Deployment and retrieval of seven Dual ARUs, which recorded both amphibians and bats (refer to **Section 3.2.4.2**), were completed within the Study Area (refer to **Figure 2**). This included a monitor at constructed ponds named "Dragonfly Pond", "Treefrog Pond" and "Polliwog Pond" by Beacon Environmental as documented in the *Darlington Nuclear Site Biodiversity Monitoring Program Three Year Report* (Beacon Environmental, 2022). The latter two of the ponds are part of an unevaluated wetland as shown in **Figure 2** where amphibian/ Dual ARU01 and 02 were set up. The Dragonfly Pond was monitored by Dual ARU-03. Dual ARU04-07 were placed in wetland communities delineated by Beacon Environmental (2018). The unevaluated wetland north of Energy Drive is not anticipated to be affected by proposed works, nor was it delineated as a wetland in previous studies; therefore, no monitoring was proposed therein. The Dual ARUs recorded amphibian calls from spring to summer to allow for monitors to detect species that breed during different timing windows. Acoustic data was analyzed following the *Marsh Monitoring Program Participant's Handbook for Surveying Amphibians* (Bird Studies Canada, 2009). A subset of data between April 15-30, May 15-30 and June 15-30 were chosen based on suitable weather conditions and was analyzed using Wildlife Acoustics Kaleidoscope Pro Analysis Software. Staff recorded amphibian species heard calling and, where possible, the number of individuals.

3.2.6 Trail Cameras

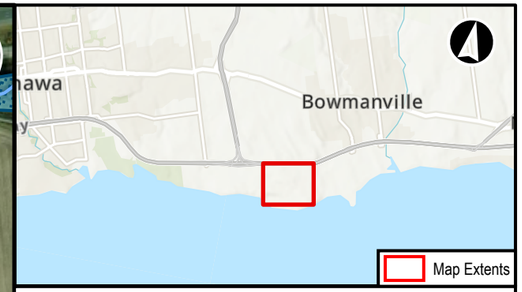
A total of two trail motion sensitive cameras were positioned along vegetation communities north of the railway (refer to **Figure 2**). The trail cameras were set up to monitor wildlife movement east-west along the Study Area. The trail cameras were set up on April 24, 2025, and collected on October 1, 2025.

Photographs of wildlife were processed through AddaxAI v.6.19 software and analyzed using Google open source SpeciesNet Artificial Intelligence (AI) with a 0.30 confidence threshold and spot verified by a qualified biologist to determine the species, number of individuals. Data analysis included comparing the number of photographs of individual wildlife taken by the camera at a given location. Multiple photographs taken of the same individual in succession were considered one observation, while those taken of the same species where the time lapse between photographs exceeded 10 minutes were considered separate observations.

3.2.7 Incidental Wildlife

Incidental wildlife observations as well as the identification of preferred wildlife habitat conditions were documented during the field investigations conducted by AECOM Ecologists. Incidental wildlife observations were recorded in conjunction with all other surveys. Incidental wildlife observations included locations and date of wildlife species sightings, tracks, scat, as well as any other wildlife activity.





LEGEND

- Study Area
- Expansion Areas
- Existing Bowmanville SS
- Snag/Cavity Tree Searches (locations determined from review of background data)
- Unevaluated Wetland
- Watercourse
- ORWN Track
- Breeding Bird Survey
- Amphibian Survey
- Bat Acoustic Monitoring
- Trail Camera

Data Sources:
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HONI Bowmanville SS Expansion

Terrestrial Survey Locations

0 50 100 200 300 400 500 M

NAD 1983 UTM Zone 17N

Oct, 2025	1:6,500
P: 60745030	Rev:00

Figure 2

Basemaps provided by: Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, NRCan, Parks Canada, Esri, NASA, NGA, USGS, Maxar

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Project Location: C:\Users\Vasta\AECOM\EC GIS Services - GIS DAD PROJECTS\DCS AMERICAS\CANADA\HONI_2025\Honi Bowmanville\2025\1016\Workspace\040\10299_6047_Eco_HoniBowmanville.aprx Layout: F02 - Terrestrial Survey Locations
Date Saved: 10/20/2025 11:13 AM User: vastaA

3.3 Significant Wildlife Habitat Screening

The *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNRF, 2015) contain information and criteria for identifying Significant Wildlife Habitat (SWH). SWH are defined as areas that have important ecological features and functions and that support sustainable populations of plants, wildlife and other organisms within this Ecoregion. The MNR generally categorizes SWH into the following five categories:

- Seasonal Concentration Areas
- Rare Vegetation Communities
- Specialized Habitats for Wildlife
- Habitats of SOCC
- Animal Movement Corridors

The presence of SWH was determined by comparing general habitat conditions and characteristics observed to the habitat criteria identified in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNRF, 2015).

For the purpose of this report, as defined in the *Natural Heritage Reference Manual* (MNR, 2010), SOCC are those species that are listed as Special Concern under the *Endangered Species Act, 2007* (ESA), assessed as Threatened or Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) that are not considered SAR under the ESA, or have a sub-national (S-Rank) of S1 to S3. Although SOCC do not receive legal protection under the ESA, they may be afforded protection under the *Provincial Planning Statement, 2024* (PPS), MBCA , *Fish and Wildlife Conservation Act, 1997* (FWCA), and other planning documents. A screening for SOCC was completed as outlined in **Section 3.4** below.

3.4 Species at Risk Habitat Screening

Special consideration was given to identifying any SOCC or SAR within the Study Area. SAR includes species that are listed as Extirpated, Endangered or Threatened on the SARO list and receive both individual and habitat protection under the ESA. Desktop SOCC and SAR habitat assessments within the Study Area were conducted using the sources listed in **Section 3.1**. SAR and SOCC with recent occurrence records or with ranges overlapping the Study Area were identified and then screened by comparing their habitat requirements to the habitat conditions present on-site as determined through the background information review (**Section 3.1**) and field investigations (**Section 3.2**). The potential for the species to occur within the Study Area was determined through a probability of occurrence whereby the following rankings were applied:

- **Low Probability**: no suitable habitat for the species and no occurrence of the species incidentally observed through field reconnaissance within the Study Area but there is a known species record in the general area.
- **Medium Probability**: potentially suitable SAR habitat identified within the Study Area, but no occurrence of the species incidentally observed through field reconnaissance although there is a known species record in the general area.
- **High Probability**: good quality SAR habitat identified within the Study Area and known species record in the Study Area (either through current field assessment or background information).

4. Existing Conditions

Existing natural environment conditions determined through a background review and field investigations are summarized below.

4.1 Natural Heritage Features and Planning Policy Areas

Natural features and areas identified for protection in the PPS and other legislation are collectively referred to as "Natural Heritage Features". Natural Heritage Features include Valleylands, Environmentally Significant Areas, PSWs, ANSIs, fish habitat, Significant Woodlands and SWH. Planning Policy Areas include land use planning designations from provincial plans and conservation authorities as described in **Section 2.**

According to the sources listed in **Section 3.1**, the following Natural Heritage Features and Planning Policy Areas were identified within the Study Area:

- Two small unevaluated wetlands; one in the northwestern portion of the Study Area, just south of Highway 401 and the other on the eastern portion of the Study Area (refer to **Figure 1**; MNR, 2025a)
- Potential fish habitat within three features (shown on **Figure 1**) both within and immediately adjacent to the Study Area (MNR 2025a; MNR 2025b)
- Habitat for SOCC and SAR (outlined in **Sections 4.4 and 4.5**, respectively)
- CLOCA Regulated Area (shown on **Figure 1**)

4.2 Fish Habitat

The Study Area is located within the jurisdiction of CLOCA (2024) and the Osborne Creek subwatershed (CLOCA, 2024) and North Lake Ontario tertiary watershed (MNR, 2025b).

The LIO GeoHub Aquatic Resource Area database was reviewed to obtain fish community and thermal regime information for aquatic features within and immediately adjacent to the Study Area. Fish community information was available for a tributary to Darlington Creek (a feature located beyond the limits of anticipated impacts of future development), while no such information was available for WC-1, WC-2, and WC-3. Information related to thermal regime was available for this extraneous feature and WC-1, where both were found to have a warmwater thermal regime (MNR, 2025b).

Under the ESA and the federal Species at Risk Act (SARA), 2002, automatic protection for individuals and their habitat applies only to species listed as Threatened or Endangered. For SARA, this protection is limited to species on Schedule 1, while those listed as Special Concern may be subject to management plans but do not receive automatic habitat protection. For the purposes of this report, aquatic species with any federal or provincial Endangered or Threatened status will be referred to as SAR. It is important to note that any SC species potentially present within the Study Area could be uplisted to Threatened or Endangered during the lifetime of the Project. If this occurs, relevant federal and provincial agencies must be consulted immediately to comply with ESA and/or SARA.

Based on DFO's online SAR mapping (2025) and NHIC (MNR, 2025a), no aquatic SAR were found during background review within the Study Area. Shortnose Cisco (*Coregonus reighardi*; Endangered [SARA]) and American Eel (*Anguilla rostrata*; Endangered [ESA]) were initially returned through background review. While potential habitat for both species may be present within Lake Ontario, the Study Area does not overlap with the Lake Ontario and no direct connection to the lake was found (see **Section 4.2.1**).

4.2.1 WC-1

WC-1 crossed through the entire Study Area, spanning elevation changes and crossing several culverts. The feature originated to the west of the existing Bowmanville SS, flowing south for a short distance before flowing east adjacent to the railway. The feature then entered a corrugated steel pipe (CSP) culvert to cross the railway, where it dropped approximately 15 m (MNR, 2025b). The feature exited through a CSP culvert within a large berm and continued to flow east adjacent to a parking lot and passing two ponds. It then entered another CSP culvert with a downward grade, crossing under Holt Road. The feature outletted and continued to flow southerly adjacent to the road. Access to the outlet of the feature was not possible, but drone footage provided by OPG showed the feature outletting into Lake Ontario through a large culvert within the bluffs.

Assessment of the feature began southwest of the existing Bowmanville SS where water was stagnant and pooled in a channel due to perched high-density polyethylene (HDPE) culvert. The channel was lined with Cattails (*Typha* spp.) and frogs were observed. The channel continued with water flowing easterly to the north of the railway. The wetted width was 0.5 m and the wetted depth was 0.04 m in this section of the feature. Cattails continued to line the channel with Red-osier Dogwood (*Cornus sericea*) interspersed throughout. The banks were not defined, and no substrate sorting was observed. Approximately 20 m upstream from the railway, the feature turned south with diffuse water flowing through a debris packed chain link fence. The feature then entered a concrete culvert within the railway right of way. This section of the feature appeared to be intermittent based on the lack of defined banks and substrate sorting, and Cattail growth throughout the feature.

The feature exited an 1100 mm CSP culvert at a 45-degree angle embedded in a steep embankment, south of the railway. Here, the feature flowed easterly, parallel to a parking lot and was comprised entirely of flats with slow flowing water. The wetted width was 1.35 m and the wetted depth was 0.25 m. Bankfull width was 1.95 m and bankfull depth was 0.35 m. Substrate in this section of the feature was comprised mostly of silt with some detritus and gravel. In-stream cover (20%) consisted primarily of organic debris with *Chara* sp. and globular algae. Woody riparian vegetation began approximately 15 m downstream of the outlet then transitioned into Cattails, Red-osier Dogwood, and Willow (*Salix* spp.) comprising approximately 90% riparian cover. The banks were slightly unstable and vulnerable with a gradual slope and herbaceous vegetation lining the channel. The channel began to narrow upstream of a pond feature, with gravel substrates observed. Riparian vegetation consisted of Cattails, Red-osier Dogwood, and European Common Reed (*Phragmites australis* subsp. *australis*) providing 100% shade cover to the feature.

Approximately 150 m downstream of the culvert outlet, two stormwater management ponds were observed south of WC-1 with a direct connection to the watercourse. The ponds were open in the middle and lined around the edges with European Common Reed and some Cattails. Substrate in the ponds consisted mostly of with organic matter, while the water was clear and no fish observed at the time of assessment. An outflow channel from the pond was observed approximately 30 m upstream from the Holt Road culvert inlet. The wetted width was 1.7 m and the wetted depth was 0.22 m. Bankfull width was 1.7 m and bankfull depth was 0.3 m. The channel was lined with European Common Reed. After the confluence of the stormwater management ponds, WC-1 continued to flow easterly for 30 m towards Holt Road where it entered an 800 mm CSP culvert that was reenforced with large boulders. Substrate in this reach consisted of silt and detritus, in order of dominance. The culvert had a downward grade, and no light was visible through the culvert. The feature appeared to be intermittent in this section due to the absence of prominent banks the length of the feature throughout the reach.

Based on aerial imagery, the feature was realigned between May 2023 and April 2024 (Google Earth, 2025) from its location indicated in **Figure 3** to the west, adjacent to the road. Much of the watercourse downstream of Holt Road was assessed visually due access limitations resulting from active construction. However, a grass swale was observed running south, adjacent to a service road. The feature was dry at the time of assessment and no outflow was observed. The feature flowed through twin CSP culverts with the inlet and outlet both lined with rip rap. Straw bales were in place across the channel for apparent sediment control. The feature was straightened with defined,

vertical banks, and an estimated wetted width of approximately 0.6 m, wetted depth of approximately 0.5 m, and bankfull width of 0.7 cm. The connection to Lake Ontario was not visible, but drone photos indicate steep topography of bluffs and an outlet structure to the lake. During above average high water levels on the lake, it is possible that water could backflow into the outlet structure. However, due to the change in elevation, it is unlikely that fish would gain access to the feature.

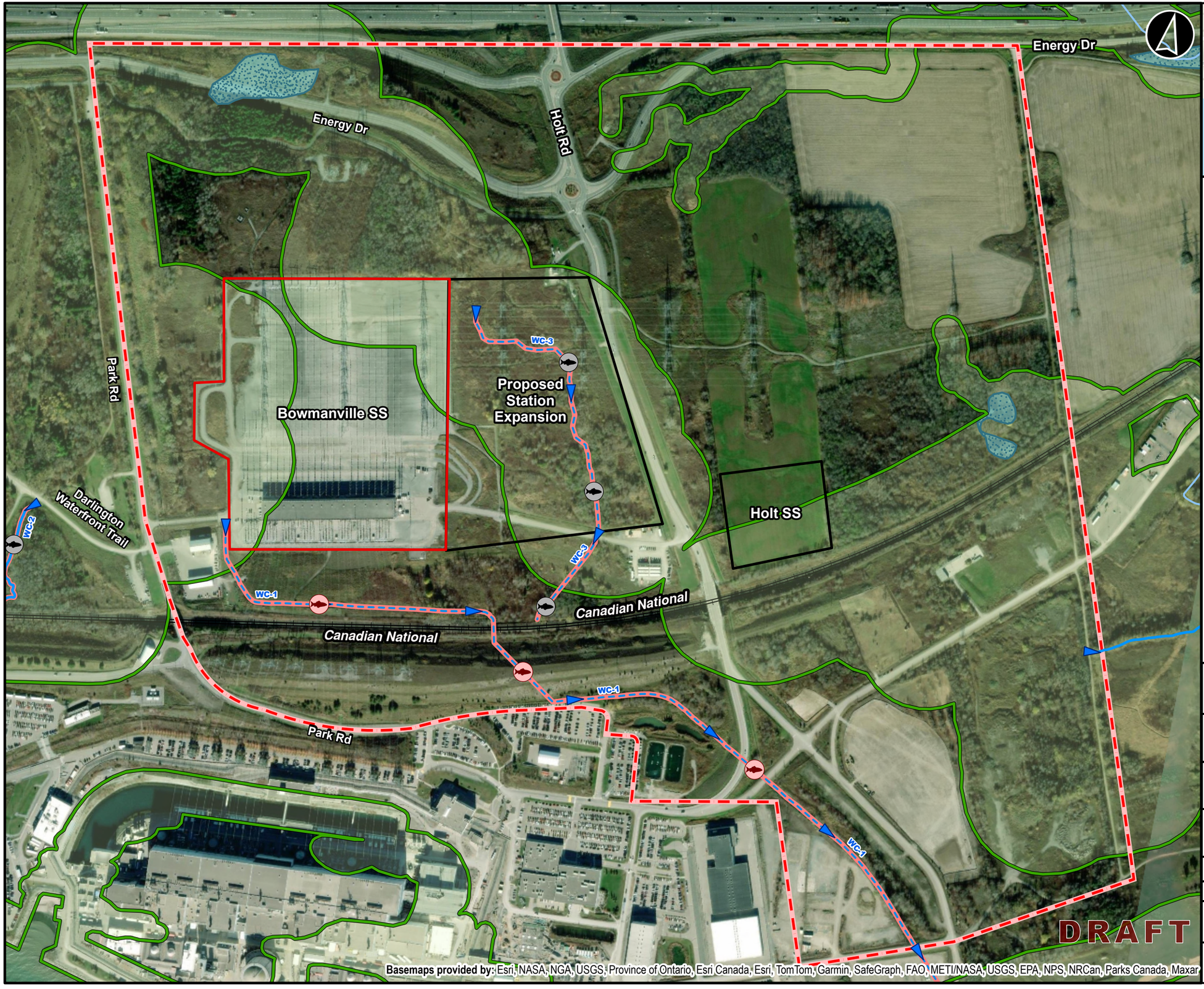
Upon assessment, WC-1 appeared to have intermittent flow and is likely not fish habitat due to no connection to a fish bearing waterbody and multiple impediments to fish movement (e.g., steep graded culverts, fences).

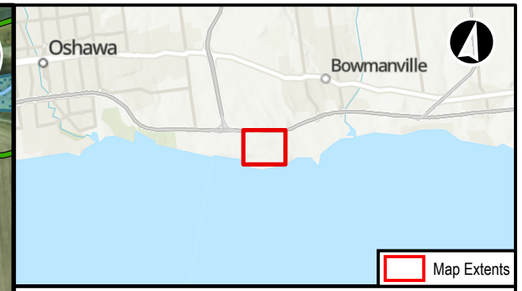
4.2.2 WC-2

WC-2 was located outside of the Study Area to the west of Bowmanville SS and Park Road within a public park. This feature was assessed to determine potential connectivity to WC-1 and potential for direct use by fish. Roadside drainage along Park Road was observed flowing towards the parklands of Darlington Waterfront Trail. On the east side of Park Road, drainage was observed from all directions, including inside Bowmanville SS. A small CSP culvert conveyed drainage from the east side of Park Road to the parkland. Between Park Road and Darlington Waterfront Trail, a 90 cm CSP culvert was observed along Darlington Waterfront Trail where WC-2 continued to flow west down a steep cascading gradient (approximately 1 m drop every 20 m) within a treed valley. At the junction of the Darlington Waterfront Trail and a service road within the parkland, WC-2 continued to the southeast where it was confined by the trail and the railway. However, an additional feature was observed that appeared to drain from up a large hill to the east into the pond. An attempt was made to detect the upstream reaches of the feature east of Park Road near Energy Drive, but no feature was observed. No connection between WC-2 and the pond was observed in the assessed area. However, aerial photography shows a culvert connection between WC-2 and the pond, as well as a culvert outlet from the pond, eventually connecting to Lake Ontario. Therefore, this feature has the potential to provide for direct fish habitat, however, no direct connection to WC-1 observed.

4.2.3 WC-3

WC-3 is an unmapped feature that was detected during terrestrial surveys. The feature seemed to originate from an upstream wetland in the northeast portion of the Study Area and flowed southeasterly to the wooded area of the proposed station expansion area, then southerly towards the railway. The channel was consistent throughout the assessed reach, with a wetted width of 0.35 m and a wetted depth of 0.4 m. Bankfull width was 1.2 m and bankfull depth of 20 cm. Substrate consisted primarily of muck with some gravel. Woody debris was found throughout the feature preventing water flow and potential movement of fish. A 0.45 m CSP culvert with a length of 10 m was found in the forested area. The feature likely connects to WC-1, north of the railway, crossing through the same culvert. Based on a lack of continuous prominent banks and substrate sorting, this feature was determined to have an intermittent flow regime with the potential to dry up in the summer. No connection to a fish bearing waterbody was observed indicating that WC-3 is likely not fish habitat.





LEGEND

- Study Area
- Expansion Areas
- Existing Bowmanville SS
- Central Lake Ontario Conservation Authority Regulated Area
- Direction of Flow

Fish Habitat

- Direct
- Not Fish Habitat

Flow Permanency

- Intermittent
- Permanent

Thermal Regime

- Cool
- Unknown
- Warm
- ORWN Track
- Watercourse
- Unevaluated Wetland

Data Sources:
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HONI Bowmanville SS Expansion

Aquatic Habitat Existing Conditions

0 50 100 200 300 400 500 M

NAD 1983 UTM Zone 17N

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Figure 3		AECOM

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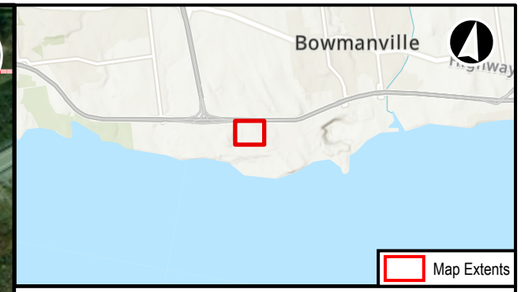
4.3 Vegetation Communities and Plants

Previous ELC classifications and mapping was carried out by both Beacon Environmental (2018) and AtkinsRealis (2024). In 2018, Beacon Environmental delineated vegetation communities to ecosite or vegetation type whereas in 2024, AtkinsRealis delineated communities to only community series level (higher level). For this reason, the 2018 ELC classification completed by Beacon Environmental was used as the baseline for the 2025 confirmation surveys.

AECOM ecologists confirmed and refined the ELC classifications and mapping carried out by Beacon Environmental in 2018. ELC assessed and updated by AECOM are shown in **Figure 4**. Where access was limited, ELC delineated by Beacon Environmental was used and is also shown in **Figure 4**. The Study Area was found to support a mix of cultural, wetland, and forest communities, reflecting a landscape with naturalized and anthropogenically disturbed elements. Cultural communities (including meadow, woodland, thicket, and plantation types) were represented throughout the site, which are typically associated with areas that were disturbed through previous clearing, land management or impacts from adjacent development and infrastructure. More naturalized swamp, forest and marsh communities were also delineated across the Study Area. Although the Study Area has been subject to anthropogenic disturbances, larger tracts of vegetation communities were still generally intact within the Study Area. There were two large areas located in the northeast and southeast portions of the Study Area that were noted to be undergoing active construction during 2025 field investigations. These areas were previously delineated as agricultural, meadow, forest, swamp and thicket communities by Beacon Environmental in 2018. The vegetation communities previously delineated in these areas were no longer present at the time of the 2025 field investigations and were reclassified as Anthropogenic (refer to **Figure 4**).

A total of 125 plant species were recorded, of which 74 (60%) were native and 51 (40%) were non-native. Of the non-native species, 27 (22%) were considered invasive. The majority of the plant species recorded had a low to moderate sensitivity to disturbance. All of the identified vegetation communities within the Study Area were generally low vegetation quality as evidenced by the Floristic Quality Index (FQI) being less than 16. There were no SAR, SOCC or locally rare plants observed. A summary table of the dominant vegetation for each community is presented in **Table 4-1**. A vascular plant list is provided in **Appendix C**.





LEGEND

- Study Area
- Expansion Areas
- Existing Bowmanville SS
- Ecological Land Classification (Beacon Environmental Ltd. 2018)
- Ecological Land Classification - Field Verified by AECOM
- Snag/Cavity Tree Record
- Unevaluated Wetland

ELC Description

ANTHRO: Anthropogenic (Cleared Land)
CUM1-1: Dry - Moist Old Field Meadow
CUP3-2: White Pine Coniferous Plantation
CUT1: Mineral Cultural Thicket
CUW1: Mineral Cultural Woodland
FOD5-8: Dry - Fresh Sugar Maple - White Ash Deciduous Forest
FOD7-3: Fresh - Moist Willow Lowland Deciduous Forest
FOD8-1: Fresh - Moist Aspen Deciduous Forest
MAM2-10: Forb Mineral Meadow Marsh
MAM2-2: Reed-canary Grass Mineral Meadow Marsh
MAS2-1: Cattail Mineral Shallow Marsh
MAS2-7: Bur-reed Mineral Shallow Marsh
STWM: Storm Water Management
SWD2-2: Green Ash Mineral Deciduous Swamp
SWD3-4: Manitoba Maple Mineral Deciduous Swamp
SWD4-1: Willow Mineral Deciduous Swamp
SWD4-3: Poplar - White Birch - Poplar Mineral Deciduous Swamp
SWT2-2: Willow Mineral Thicket Swamp
SWT2-5: Red-osier Mineral Thicket Swamp
SWT2-10: Nannyberry Mineral Thicket Swamp
AGR: Agricultural
T: Turf

Data Sources:
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HONI Bowmanville SS Expansion

Ecological Land Classification and Potential Bat Roost Trees

0 50 100 200 M

NAD 1983 UTM Zone 17N

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Basemaps provided by: Maxar, Microsoft, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, NRCan, Parks Canada, Esri, NASA, NGA, USGS

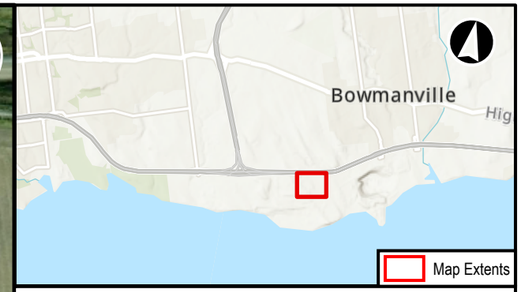
Figure 4A

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Date Saved: 10/6/2025 11:13 AM User: vastaA





LEGEND

- Study Area
- Expansion Areas
- Ecological Land Classification (Beacon Environmental Ltd. 2018)
- Ecological Land Classification - Field Verified by AECOM
- Snag/Cavity Tree Record
- Unevaluated Wetland
- ORWN Track

ELC Description

ANTHRO: Anthropogenic (Cleared Land)
CUM1-1: Dry - Moist Old Field Meadow
CUP3-2: White Pine Coniferous Plantation
CUT1: Mineral Cultural Thicket
CUW1: Mineral Cultural Woodland
FOD5-8: Dry - Fresh Sugar Maple - White Ash Deciduous Forest
FOD7-3: Fresh - Moist Willow Lowland Deciduous Forest
FOD8-1: Fresh - Moist Aspen Deciduous Forest
MAM2-10: Forb Mineral Meadow Marsh
MAM2-2: Reed-canary Grass Mineral Meadow Marsh
MAS2-1: Cattail Mineral Shallow Marsh
MAS2-7: Bur-reed Mineral Shallow Marsh
STWM: Storm Water Management
SWD2-2: Green Ash Mineral Deciduous Swamp
SWD3-4: Manitoba Maple Mineral Deciduous Swamp
SWD4-1: Willow Mineral Deciduous Swamp
SWD4-3: Poplar - White Birch - Poplar Mineral Deciduous Swamp
SWT2-2: Willow Mineral Thicket Swamp
SWT2-5: Red-osier Mineral Thicket Swamp
SWT2-10: Nannyberry Mineral Thicket Swamp
AGR: Agricultural
T: Turf

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HONI Bowmanville SS Expansion

Ecological Land Classification and Potential Bat Roost Trees

0 50 100 200 M

NAD 1983 UTM Zone 17N

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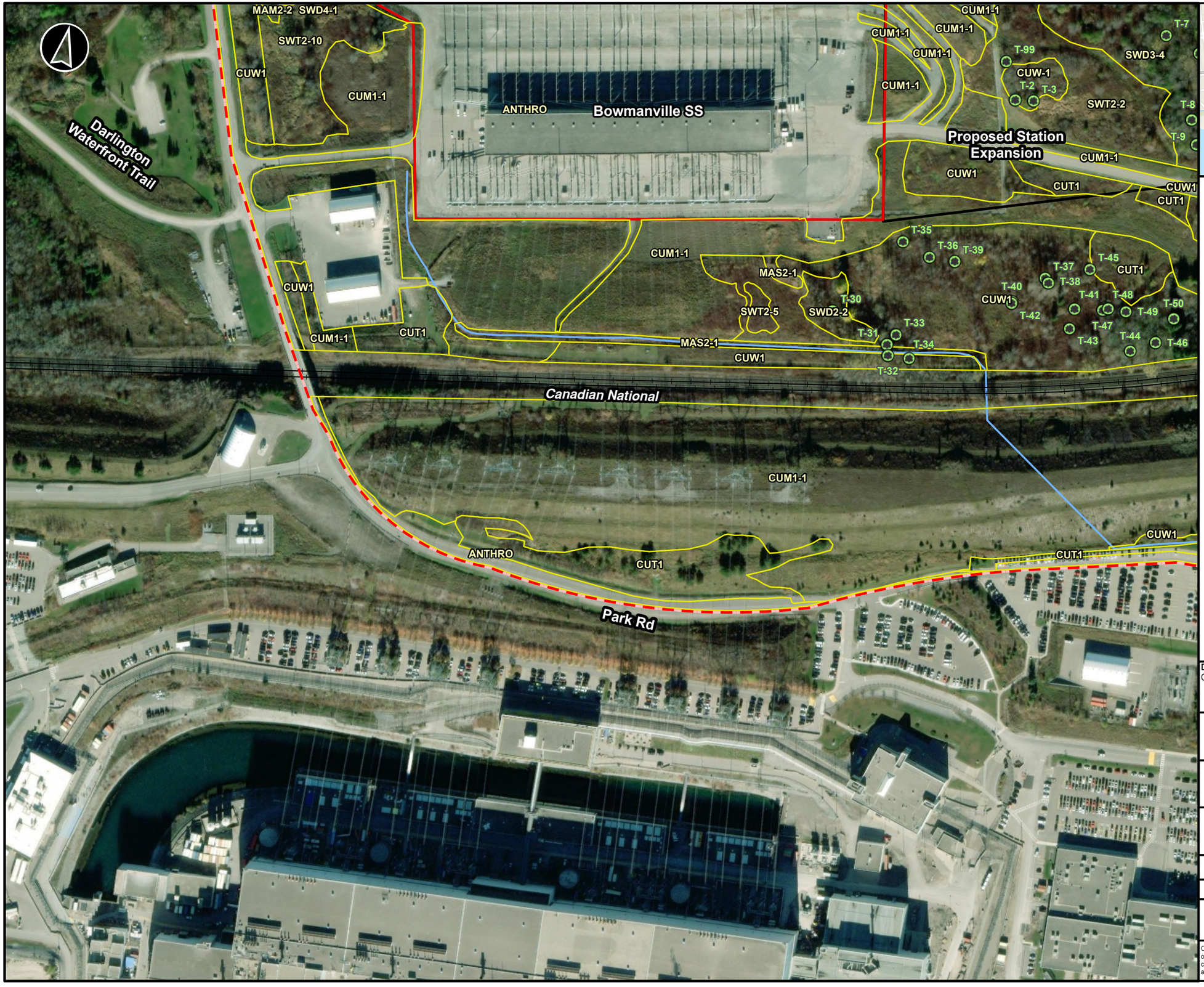
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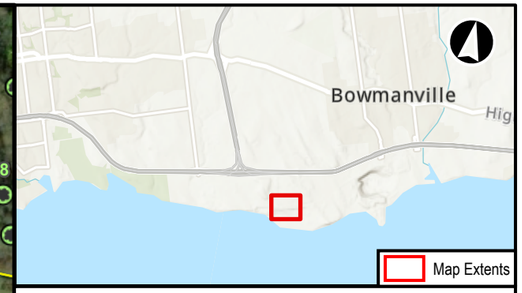
Figure 4B

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LEGEND

- Study Area
- Expansion Areas
- Existing Bowmanville SS
- Ecological Land Classification - Field Verified by AECOM
- Snag/Cavity Tree Record
- Watercourse
- ORWN Track

ELC Description

ANTHRO: Anthropogenic (Cleared Land)
CUM1-1: Dry - Moist Old Field Meadow
CUP3-2: White Pine Coniferous Plantation
CUT1: Mineral Cultural Thicket
CUW1: Mineral Cultural Woodland
FOD5-8: Dry - Fresh Sugar Maple - White Ash Deciduous Forest
FOD7-3: Fresh - Moist Willow Lowland Deciduous Forest
FOD8-1: Fresh - Moist Aspen Deciduous Forest
MAM2-10: Forb Mineral Meadow Marsh
MAM2-2: Reed-canary Grass Mineral Meadow Marsh
MAS2-1: Cattail Mineral Shallow Marsh
MAS2-7: Bur-reed Mineral Shallow Marsh
STWM: Storm Water Management
SWD2-2: Green Ash Mineral Deciduous Swamp
SWD3-4: Manitoba Maple Mineral Deciduous Swamp
SWD4-1: Willow Mineral Deciduous Swamp
SWD4-3: Poplar - White Birch - Poplar Mineral Deciduous Swamp
SWT2-2: Willow Mineral Thicket Swamp
SWT2-5: Red-osier Mineral Thicket Swamp
SWT2-10: Nannyberry Mineral Thicket Swamp
AGR: Agricultural
T: Turf

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HONI Bowmanville SS Expansion

Ecological Land Classification and Potential Bat Roost Trees

0 50 100 200 M

NAD 1983 UTM Zone 17N

Oct, 2025	1:3,000
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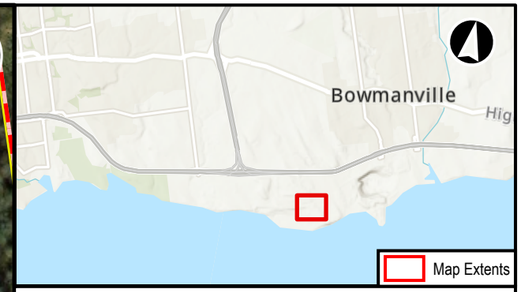
Figure 4C

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LEGEND

- Study Area
- Expansion Areas
- Ecological Land Classification (Beacon Environmental Ltd. 2018)
- Ecological Land Classification - Field Verified by AECOM
- Snag/Cavity Tree Record
- Unevaluated Wetland
- Watercourse
- ORWN Track

ELC Description

ANTHRO: Anthropogenic (Cleared Land)
CUM1-1: Dry - Moist Old Field Meadow
CUP3-2: White Pine Coniferous Plantation
CUT1: Mineral Cultural Thicket
CUW1: Mineral Cultural Woodland
FOD5-8: Dry - Fresh Sugar Maple - White Ash Deciduous Forest
FOD7-3: Fresh - Moist Willow Lowland Deciduous Forest
FOD8-1: Fresh - Moist Aspen Deciduous Forest
MAM2-10: Forb Mineral Meadow Marsh
MAM2-2: Reed-canary Grass Mineral Meadow Marsh
MAS2-1: Cattail Mineral Shallow Marsh
MAS2-7: Bur-reed Mineral Shallow Marsh
STWM: Storm Water Management
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SWD3-4: Manitoba Maple Mineral Deciduous Swamp
SWD4-1: Willow Mineral Deciduous Swamp
SWD4-3: Poplar - White Birch - Poplar Mineral Deciduous Swamp
SWT2-2: Willow Mineral Thicket Swamp
SWT2-5: Red-osier Mineral Thicket Swamp
SWT2-10: Nannyberry Mineral Thicket Swamp
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HONI Bowmanville SS Expansion

Ecological Land Classification and Potential Bat Roost Trees

0 50 100 200 M

NAD 1983 UTM Zone 17N

Oct, 2025	1:3,000
P: 60745030	Rev:00

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Figure 4D

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Table 4-1: Vegetation Communities within Study Area

ELC Code	Vegetation or Ecosite Name	Inclusion	Dominant Species			
			Tree Canopy	Shrub Layer	Ground Layer	Floristic Assessments
Forest Communities						
FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest	None	The tree canopy was dominated by Sugar Maple (*Acer saccharum*), White Ash (*Fraxinus americana*), Black Cherry (*Prunus serotina*), and American Hophornbeam (*Ostrya virginiana*).	The shrub layer primarily consisted of White Ash, European Buckthorn (*Rhamnus cathartica*), and Sugar Maple.	The ground layer included Sugar Maple, Mayapple (*Podophyllum peltatum*), Virginia Waterleaf (*Hydrophyllum virginiana*), White Ash, and European Buckthorn.	Average CC: 3.88 Average CW: 1.55 Non-native species (%): 20 FQI: 15.5 No SAR or SOCC plants observed.
FOD7-3	Fresh - Moist Willow Lowland Deciduous Forest	None	The canopy was dominated by Crack Willow (*Salix x fragilis*), Manitoba Maple (*Acer negundo*), Green Ash *(Fraxinus pennsylvanica),* and American Elm *(Ulmus americana).*	The shrub layer primarily consisted of European Buckthorn, Manitoba Maple, Staghorn Sumac (*Rhus typhina*), and Trembling Aspen *(Populus tremuloides)*.	The ground layer included Reed Canarygrass *(Phalaris arundinacea)*, Tall Goldenrod (*Solidago altissima*), and Common Bedstraw (*Galium aparine*).	Average CC: 2.738 Average CW: 0.78 Non-native species (%): 11 FQI: 10.93 No SAR or SOCC plants observed.
FOD8-1	Fresh - Moist Poplar Deciduous Forest Type	None	The canopy was dominated by Trembling Aspen, White Ash, and Apple species *(Malus sp).*	The shrub layer primarily consisted of Trembling Aspen and Russian Olive *(Elaeagnus angustifolia).*	The ground layer included European Buckthorn, Currant species *(Ribes sp.),* Reed Canarygrass, and various mosses *(Bryophyta).*	Average CC: 2.47 Average CW: 1.32 Non-native species (%): 32 FQI: 9.55

ELC Code	Vegetation or Ecosite Name	Inclusion	Dominant Species			
			Tree Canopy	Shrub Layer	Ground Layer	Floristic Assessments
						No SAR or SOCC plants observed.
Cultural Communities						
CUM1-1	Dry – Moist Old Field Meadow Type	MAM2-2 - Reed-canary Grass Mineral Meadow Marsh	These communities lacked a defined canopy and subcanopy but occasionally included species such as Trembling Aspen and Freeman's Maple *(Acer x freemanii)*.	The shrub layers in these communities included Red-osier Dogwood *(Cornus sericea)*, Russian Olive, Riverbank Grape *(Vitis riparia)*, Trembling Aspen, Red Oak *(Quercus rubra)*, Maple species *(Acer sp.)*, Sea Buckthorn *(Hippophae rhamnoides)*, Eastern White Cedar *(Thuja occidentalis)*, Staghorn Sumac, and European Buckthorn.	The ground layers within these communities included Canada Goldenrod *(Solidago canadensis)*, Avens species *(Geum sp.)*, Aster species *(Symphyotrichum sp.)*, Orchard Grass *(Dactylis glomerata)*, Kentucky Bluegrass *(Poa pratensis)*, Smooth Brome *(Bromus inermis)*, Common Bedstraw, Bird's-foot Trefoil *(Lotus corniculatus)*, Poison Ivy *(Toxicodendron radicans)*, Crown Vetch *(Securigera varia)*, Reed Canarygrass, Wild Carrot *(Daucus carota)*, European Reed *(Phragmites australis)*, Tufted Vetch (*Vicia cracca*), and Oxeye Daisy *(Leucanthemum vulgare)*.	Average CC: 2.53 Average CW: 1.95 Non-native species (%): 41 FQI: 14.95 No SAR or SOCC plants observed.
CUP3-2	White Pine Coniferous Plantation	CUP3-8 – White Spruce – European Larch Coniferous Plantation	The canopy of these communities were dominated by Eastern White Pine *(Pinus strobus)* and White Spruce *(Picea glauca)*.	The shrub layers of these communities primarily consisted of Red-osier Dogwood and European Buckthorn.	The ground layers of these communities included Tall Goldenrod and Wild Carrot.	Average CC: 2.67 Average CW: 0.42 Non-native species (%): 0.25 FQI: 8.00 No SAR or SOCC plants observed.

ELC Code	Vegetation or Ecosite Name	Inclusion	Dominant Species			
			Tree Canopy	Shrub Layer	Ground Layer	Floristic Assessments
CUT1	Mineral Cultural Thicket	CUW1 – Mineral Cultural Woodland	These communities lacked a defined canopy and subcanopy layer.	The shrub layers of these communities primarily consisted of Red-osier Dogwood, Staghorn Sumac, European Buckthorn, Willow species *(Salix sp.),* Hawthorn species *(Crataegus sp.),* Riverbank Grape, Red Raspberry *(Rubus idaeus),* and Green Ash.	The ground layers of these communities Reed Canarygrass, Crown Vetch, Canada Goldenrod, Tall Goldenrod, Smooth Brome, Wild Carrot, Common Bedstraw, Tufted Vetch, Green Ash, and Canada Mayapple.	Average CC: 2.45 Average CW: 2.59 Non-native species (%): 51 FQI: 10.68 No SAR or SOCC plants observed.
CUW1	Mineral Cultural Woodland	None	The canopies of these communities were dominated by Green Ash, Manitoba Maple, Freeman's Maple, Crack Willow, Trembling Aspen, Eastern Whitecedar, Norway Spruce *(Picea abies),* Scots Pine *(Pinus sylvestris),* Sugar Maple, Common Lilac *(Syringa vulgaris),* and Blue Spruce *(Picea pungens).*	The shrub layers of these communities consisted of Green Ash, European Buckthorn, Willow species, Trembling Aspen, Pussy Willow *(Salix discolor),* Red-osier Dogwood, Eastern Whitecedar, Common Lilac, and Staghorn Sumac.	The ground layers of these communities included Tall Goldenrod, Reed Canarygrass, Wild Carrot, Spotted Jewelweed *(Impatiens capensis),* Common Bedstraw, Creeping Bellflower *(Campanula rapunculoides),* Common Dandelion *(Taraxacum officinale),* Smooth Brome, Canada Goldenrod, and Yellow Avens *(Geum aleppicum).*	Average CC: 2.50 Average CW: 1.06 Non-native species (%): 47 FQI: 10.31 No SAR or SOCC plants observed.
Marsh Communities						
MAM2-10	Forb Mineral Shallow Meadow Marsh	None	No canopy or subcanopy layer was present at this community.	The shrub layer consisted of Broad-leaved Cattail *(Typha latifolia),* Reed Canarygrass, and Red-osier Dogwood.	The ground layer included Goldenrod species, Aster species, and Horsetail species *(Equisetum sp.).*	Average CC: 2.63 Average CW: -1 Non-native species (%): 27 FQI: 7.43 No SAR or SOCC plants observed.

ELC Code	Vegetation or Ecosite Name	Inclusion	Dominant Species			
			Tree Canopy	Shrub Layer	Ground Layer	Floristic Assessments
MAM2-2	Reed-canary Grass Mineral Meadow Marsh	None	No canopy was present within these communities.	The shrub layers within these communities were sparse but consisted of Red-osier Dogwood, Willow species, Green Ash, and American Elm.	The ground layers of these communities included Reed Canarygrass, Narrow-leaved Cattail *(Typha angustifolia),* and European Reed.	Average CC: 2.33 Average CW: 0.42 Non-native species (%): 42 FQI: 6.17 No SAR or SOCC plants observed.
MAS2-1	Cattail Mineral Shallow Marsh	None	No canopy was present within these communities.	The sparse shrub layer occurred on the periphery of the community and contained Trembling Aspen and Red-osier Dogwood.	The ground layer was dominated by Narrow-leaved Cattail followed by Reed Canarygrass.	Average CC: 3.00 Average CW: -3.64 Non-native species (%): 25 FQI: 9.000 No SAR or SOCC plants observed.
Swamp Communities						
SWD2-2	Green Ash Mineral Deciduous Swamp	None	The canopy and subcanopy layers of these communities were dominated by Green Ash, Trembling Aspen, European Buckthorn, and European Larch *(Larix decidua).*	The shrub layers of these communities consisted of European Buckthorn, Chokecherry *(Prunus virginiana)*, Autumn Olive *(Elaeagnus umbellata),* and Red-osier Dogwood.	The ground layer of these communities included European Buckthorn, Reed Canarygrass, Aster species, and various mosses.	Average CC: 3.00 Average CW: 0.50 Non-native species (%):13 FQI: 11.22 No SAR or SOCC plants observed.
SWD3-4	Manitoba Maple Mineral Deciduous Swamp	None	The canopy and subcanopy contained Manitoba Maple, Freeman's Maple and Crack Willow.	The understory was mostly comprised of European Buckthorn.	The ground layer contained Spotted Jewelweed, Common Bedstraw and Creeping Bellflower.	Average CC: 2.88 Average CW: 0.65 Non-native species (%): 53 FQI: 8.13 No SAR or SOCC plants observed.

ELC Code	Vegetation or Ecosite Name	Inclusion	Dominant Species			
			Tree Canopy	Shrub Layer	Ground Layer	Floristic Assessments
SWD4-1	Willow Mineral Deciduous Swamp	None	The canopies and subcanopies of these communities were dominated by Crack Willow, Trembling Aspen, and Green Ash.	The shrub layers of these communities consisted of Trembling Aspen and Red-osier Dogwood.	The ground layers of these communities included Sensitive Fern *(Onoclea sensibilis),* Spotted Jewelweed, Smooth Brome, and various mosses.	Average CC: 2.1 Average CW: -0.94 Non-native species (%): 31 FQI: 6.97 No SAR or SOCC plants observed.
SWD4-3	Poplar - White Birch - Poplar Mineral Deciduous Swamp	None	The canopy and subcanopy of this community were dominated by Trembling Aspen, Crack Willow, and Freeman's Maple.	The shrub layer of this community consisted of Trembling Aspen, Red-osier Dogwood, and Willow species.	The ground layer contained Reed Canarygrass, Spotted Jewelweed and Smooth Brome.	Average CC: 2.83 Average CW: -0.71 Non-native species (%): 41 FQI: 8.96 No SAR or SOCC plants observed.
SWT2-2	Willow Mineral Thicket Swamp	MAS2-1 – Cattail Mineral Shallow Marsh	No canopy or subcanopy layer was present at this community.	The shrub layer consisted of Willow species, Red-osier Dogwood, and Green Ash.	The ground layer of this community included Reed Canarygrass, Narrow-leaved Cattail, Common Bedstraw, and various mosses.	Average CC: 2.00 Average CW: -0.33 Non-native species (%): 47 FQI: 5.66 No SAR or SOCC plants observed.
SWT2-5	Red-osier Mineral Thicket Swamp	None	No canopy or subcanopy layer was present at this community.	The shrub layer consisted of Red-osier Dogwood, Willow species, and European Buckthorn.	The ground layer of this community was sparse and included Reed Canarygrass.	Average CC: 1.67 Average CW: -2.25 Non-native species (%): 25 FQI: 2.89 No SAR or SOCC plants observed.

ELC Code	Vegetation or Ecosite Name	Inclusion	Dominant Species			
			Tree Canopy	Shrub Layer	Ground Layer	Floristic Assessments
SWT2-10	Nannyberry Mineral Thicket Swamp	None	No canopy or subcanopy layer was present at this community.	The shrub layer of this community consisted of Nannyberry *(Viburnum lentago),* Red-osier Dogwood, and Green Ash.	The ground layer of this community included Field Horsetail *(Equisetum arvense),* Reed Canarygrass, and Common Bedstraw.	Average CC: 1.44 Average CW: -0.27 Non-native species (%): 18 FQI: 4.33 No SAR or SOCC plants observed.
Aquatic Communities						
SAS1-3	Stonewort Submerged Shallow Aquatic	None	No canopy or subcanopy layer was present at this community.	The understorey was sparse but consisted of European Reed and Narrow-leaved Cattail.	The ground layer primarily included Stoneworts (*Charophyceae*) and open water.	Average CC: 0.00 Average CW: -4 Non-native species (%): 100 FQI: 0 No SAR or SOCC plants observed.

4.3.1 Tree Species at Risk Search

Beacon Environmental (2022) identified no Black Ash in the Study Area and two Butternut trees in the southeast portion, however vegetation removal in this area has occurred as identified in **Section 4.3.** AtkinsRealis (2024) recognized Butternut as present in the area with no individuals in the Study Area and identified Black Ash as present through their studies. However, the Study Area evaluated by AtkinsRealis in 2024 included larger tracks of land in the greater landscape that are outside the current Study Area and the report did not identify the location of the individual trees. No Butternut or Black Ash were recorded by AECOM in 2025 within suitable habitat located within 30 m of the Bowmanville SS Expansion Area.

4.3.2 Terrestrial Wildlife

As mentioned in **Section 4.3**, the Study Area contained a variety of vegetation communities that were relatively contiguous across the Study Area. Previous studies (refer to **Section 3.1**) have documented a variety of taxa within the Study Area. The below sections detail the results of terrestrial surveys completed by AECOM in 2025. Observations of SOCC and SAR are further discussed in **Section 4.4** and **Section 4.5** respectively.

4.3.3 Breeding Bird Surveys

A total of 59 bird species were recorded during field investigations. The complete detailed breeding bird list with highest breeding evidence is included in **Appendix D.** The majority of the species recorded during field investigations were considered common and widespread in Ontario and adaptable to early successional, forest edge or human-altered habitats. All of these species were observed during the breeding bird window. The majority of the species observed receive protection under the MBCA.

Chimney Swift (*Chaetura pelagica*) and Bank Swallow (*Riparia riparia*) were the only SAR observed within the Study Area. On April 24, 2025, two Chimney Swifts were incidentally observed as flyovers near Holt Road and the driveway to the existing Bowmanville SS. This observation occurred during spring migration when Chimney Swifts are beginning to arrive to their breeding grounds (MECP, 2024). No suitable anthropogenic structures (i.e., chimneys) that may provide roost or nest habitat were observed in the Study Area. While leaf-off snag/cavity tree surveys could not be completed for the whole Study Area (refer to **Section 3.2.4.1**), no potential natural nest habitat (i.e., large, hollow trees) was identified in the Bowmanville SS Expansion area. Chimney Swifts historically nested in large, hollow trees; however, this species is now primarily associated with anthropogenic structures, specifically chimneys which provide suitable habitat for roosting and nesting (MECP, 2024). No other observations of Chimney Swifts were made either incidentally or during breeding bird surveys. It is therefore likely that Chimney Swifts nest outside of the Study Area where suitable nesting habitat may be present in residential areas.

Bank Swallows were observed foraging near Holt Road and the railway. The Bank Swallows were likely nesting outside of the Study Area, along the bluffs along Lake Ontario where suitable exposed banks occur. Studies done by Beacon Environmental (2022; 2025) confirmed Bank Swallows were nesting along the lakeshore, south of the Study Area. Access to the southeast portion of the Study Area was restricted due to construction. From a safe distance, a sediment pile located southeast of Holt Road and the railway was observed with binoculars; however, visibility was obstructed, and it could not be confirmed whether this feature provided suitable nesting habitat for Bank Swallow. Given the disturbance from construction and availability of suitable, higher-quality habitat along the Lake Ontario shoreline, it is likely that that Bank Swallows were nesting outside the Study Area. No potentially suitable Bank Swallow nesting habitat occurred in the remaining Study Area, including the Bowmanville SS Expansion Area.

A total of three SOCC, Eastern Wood-pewee (*Contopus virens*), Canada Warbler (*Cardellina canadensis)* and Barn Swallow (*Hirundo rustica*) were observed incidentally or during breeding bird surveys. Eastern Wood-pewee was recorded singing at BBS-01, BBS-04, BBS-08 and BBS-10. Individuals recorded at these stations were recorded calling in the following vegetation communities:

- BBS-01 - in the Dry-Fresh Sugar Maple-White Ash Deciduous Forest (FOD5-8)
- BBS-04 - in the Mineral Cultural Woodland (CUW1)
- BBS-08 - in the Fresh - Moist Willow Lowland Deciduous Forest (FOD7-3)
- BBS-10 - in the Willow Mineral Deciduous Swamp (SWD4-1)

Additionally, an Eastern Wood-pewee was incidentally recorded at the Manitoba Maple Mineral Deciduous Swamp (SWD3-4) near BBS-06. It's likely that Eastern Wood-pewee was using those communities for breeding habitat. Barn Swallow was observed foraging over the agricultural field at BBS-03 as well as the Mineral Cultural Meadow (CUM1) communities at BBS-04 and BBS-012. No suitable nest habitat for Barn Swallow was observed in the Study Area. Studies done by Beacon Environmental (2022; 2025) confirmed Barn Swallow nesting on a building in the Darlington Nuclear Generating Station, located south of the Study Area. It is likely Barn Swallows observed during the 2025 field investigations were nesting outside of the Study Area where potentially suitable nest structures occur.

Canada Warbler was only observed once incidentally on June 6, 2025. This species was not recorded during any of the breeding bird surveys. The species was observed in the Manitoba Maple Mineral Deciduous Swamp (SWD3-4). This community was disturbed as evidenced by the canopy and shrub layer being mostly comprised of invasives, particularly Manitoba Maple (*Acer negundo*) and European Buckthorn (*Rhamnus cathartica*). Given this species was not observed during subsequent visits, it's unlikely that it was using the Study Area as breeding habitat.

4.3.3.1 Red-headed Woodpecker and Pileated Woodpecker

No Pileated Woodpeckers or Red-headed Woodpeckers were observed during call-back surveys. Old Pileated Woodpecker foraging cavities were recorded in the Manitoba Maple Mineral Deciduous Swamp (SWD3-4) and Mineral Cultural Woodland (CUW1) located east of the existing Bowmanville SS. No potential nest cavities for Pileated Woodpecker or Red-headed Woodpecker were observed during leaf-off snag/cavity tree surveys within or adjacent to the Bowmanville SS Expansion area.

A study completed by Beacon Environmental (2025) documented an adult Red-headed Woodpecker observed outside of the Proposed SS Expansion Area in 2025. The individual briefly perched before continuing in flight and was not detected again despite targeted follow-up surveys. No breeding behaviour, repeated presence, nest cavities, or territorial activity were documented by consultants at Beacon Environmental (2025). The observation was therefore interpreted as either a late migrant or a wandering individual searching for a mate and the species was considered only a "possible" breeder for 2025.

4.3.4 Bat Surveys

4.3.4.1 Identification of Suitable Bat Roost Habitat

A total of 99 snag/cavity trees were identified within surveyed communities. Due to timing limitations, it was not possible to survey all of the treed communities within the Study Area. Surveyors focused their efforts on treed communities within the Proposed SS Expansion area then surveyed other treed communities in the larger Study Area. Surveyed communities are shown on **Figure 2**. The locations of the snags/cavity trees are shown on **Figure 4. Table 4-2** provides snag density calculations for each surveyed community and location within the Study Area. Surveyed communities within the proposed station expansion area include a Mineral Cultural Woodland (CUW1), Manitoba Maple Mineral Deciduous Swamp (SWD3-4) and Willow Mineral Deciduous Swamp (SWD4-1). The average snag density for all suitable communities within the Study Area that were surveyed is 10.93 snags/ha.

According to MECP guidance (2022a), 10 snags/ha or greater indicates high quality habitat. Of the 99 snag/cavity trees identified, 43 of the trees were recorded having one or more leaf clusters and 11 of the snag/cavity trees containing leaf clusters were located within the Proposed SS Expansion area. No rock piles or open rock outcrops were identified within surveyed communities during the field investigations.

Table 4-2: Snag Density

ELC Description	ELC Code	Located in Proposed Station Expansion Area (Yes/No)	Location Description	Area (ha) of Surveyed ELC Community	# of Snag/cavity Trees	Snag Density (Snags/ha)
CUW1	Mineral Cultural Woodland	No	Located in the east end of the Study Area, just north of the railway.	0.78	5	6.43
CUW1	Mineral Cultural Woodland	No	Located northwest of the railway and Holt Road.	3.16	18	5.70
CUW1	Mineral Cultural Woodland	No	Located in the west end of the Study Area, just north of the railway.	0.51	2	3.91
FOD5-8	Dry - Fresh Sugar Maple - White Ash Deciduous Forest	No	Located in the east end of the Study Area, north of the railway and CUW1.	1.54	43	27.85
SWD2-2	Green Ash Mineral Deciduous Swamp	No	Located in the west end of the Study Area, just north of the railway.	0.19	1	5.17
CUW-1	Mineral Cultural Woodland	Yes	Within southwest corner of proposed station expansion area.	0.16	3	19.14
SWD3-4	Manitoba Maple Mineral Deciduous Swamp	Yes	Located in central and east portions of the proposed station expansion area.	2.26	26	11.49
SWD4-1	Willow Mineral Deciduous Swamp	Yes	Located in central portion of the proposed station expansion area.	0.33	1	3.08

4.3.4.2 Acoustic Monitoring Surveys

A total of 12,517 identified bat passes were recorded by Bat-only ARUs, including calls from seven Ontario bat species. This included six SAR: Eastern Red Bat (*Lasiurus borealis*), Hoary Bat (*Lasiurus cinereus*), Silver-haired Bat (*Lasionycteris noctivagans*), Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tricoloured Bat (*Perimoytis subflavus*). In addition to the Bat-only monitors, a total of 225 passes were recorded from Dual ARUs. This included calls from Big Brown Bat and three bat SAR including Eastern Red Bat, Hoary Bat and Silver-haired Bat. Collectively, the total number of passes across the Bat-only ARUs and Dual ARUs was 12,742 identified bat passes.

Within the Proposed Expansion Area, Eastern Red Bat, Hoary Bat, Silver-haired Bat, Northern Myotis and Tricoloured Bat were recorded using the Mineral Cultural Woodland (CUW1), Manitoba Maple Mineral Deciduous Swamp (SWD3-4) and Willow Mineral Deciduous Swamp (SWD4-1).

Of the Bat-only ARUs deployed, ARU 03, 09, 16, 18, and 49 recorded no bat activity. Additionally, no bat passes were recorded at Dual ARU-04. This may be attributed to either loud background noise, or potential equipment malfunction. However, these units were located in close proximity (i.e., within at least 80 m) to other functioning ARUs surveying the same habitat types. Given the spatial overlap and consistent habitat conditions, it is reasonable to assume that similar SAR bat species activity would have been recorded at these locations. All ARU's in **Table 4-3** recorded at least one SAR bat. All treed communities in the Study Area including Cultural Woodland (CUW), Cultural Plantation (CUP), Forest (FO) and Swamp (SW) communities are therefore confirmed bat SAR habitat.

A detailed summary of the bat species records by each monitoring station is provided below in **Table 4-3**.

Table 4-3: Acoustic Monitoring Results

Common Name:	Big Brown Bat	Eastern Red Bat	Hoary Bat	Silver-haired Bat	Little Brown Myotis	Northern Myotis	Tricoloured Bat	Grand Total per Station ID
Scientific Name:	*Eptesicus fuscus*	*Lasiurus borealis*	*Lasiurus cinereus*	*Lasionycteris noctivagans*	*Myotis lucifugus*	*Myotis septentrionalis*	*Perimyotis subflavus*	
ESA Status:	-	END	END	END	END	END	END	
Station ID								
Bat-only ARU01	40	-	163	7	-	-	-	210
Bat-only ARU02	28	1	36	84	-	-	-	149
Bat-only ARU04	102	1	73	136	-	-	-	312
Bat-only ARU05	44	-	22	72	-	-	-	138
Bat-only ARU06	163	-	6	32	-	-	-	201
Bat-only ARU07	272	37	65	112	2	-	2	490
Bat-only ARU08	7	-	12	40	-	-	-	59
Bat-only ARU10	2157	78	14	90	-	-	7	2346
Bat-only ARU11	820	7	264	155	15	-	-	1261
Bat-only ARU12	64	9	16	25	-	-	-	114
Bat-only ARU13	87	8	15	41	1	-	1	153
Bat-only ARU14	63	68	13	31	-	-	-	175
Bat-only ARU15	217	37	60	70	124	31		539
Bat-only ARU17	222	335	51	35	8	-	7	658
Bat-only ARU19	23	-	19	19	-	-	-	61
Bat-only ARU20	591	30	105	136	1	-	-	863
Bat-only ARU21	6	-	12	23	-	-	-	41
Bat-only ARU23	23	23	7	35	-	-	-	88
Bat-only ARU24	130	30	-	8	-	2	-	170

Common Name:	Big Brown Bat	Eastern Red Bat	Hoary Bat	Silver-haired Bat	Little Brown Myotis	Northern Myotis	Tricoloured Bat	Grand Total per Station ID
Scientific Name:	*Eptesicus fuscus*	*Lasiurus borealis*	*Lasiurus cinereus*	*Lasionycteris noctivagans*	*Myotis lucifugus*	*Myotis septentrionalis*	*Perimyotis subflavus*	
ESA Status:	-	END	END	END	END	END	END	
Station ID								
Bat-only ARU25	38	-	8	39	-	-	-	85
Bat-only ARU29	100	13	21	53	-	-	3	190
Bat-only ARU30	194	23	31	73	-	-	1	322
Bat-only ARU31	96	13	17	32	-	-	1	159
Bat-only ARU32	210	10	10	30	-	-	-	260
Bat-only ARU33	598	5	-	144	-	-	-	747
Bat-only ARU34	200	-	3	25	-	2	-	230
Bat-only ARU35	336	15	39	37	-	-	-	427
Bat-only ARU36	16	8	13	10	-	-	-	47
Bat-only ARU37	130	11	33	40	-	-	1	215
Bat-only ARU38	77	2	12	12	-	-	-	103
Bat-only ARU39	18	3	3	8	-	-	-	32
Bat-only ARU40	69	10	18	26	1	-	-	124
Bat-only ARU41	38	9	8	22	-	-	-	77
Bat-only ARU42	105	5	19	30	1	-	1	161
Bat-only ARU43	23	1	-	11	-	-	-	35
Bat-only ARU44	27	6	4	21	-	-	-	58
Bat-only ARU45	9	-	1	10	-	-	1	21
Bat-only ARU46	91	-	5	37	-	3	-	136
Bat-only ARU47	635	2	-	46	-	-	-	683
Bat-only ARU48	13	-	7	8	-	-	-	28
Bat-only ARU51	200	3	39	104	-	-	3	349
Dual ARU-01	17	-	49	15	-	-	-	81
Dual ARU-02	7	4	4	16	-	-	-	31
Dual ARU-03	8	-	18	9	-	-	-	35
Dual ARU-05	1	1	3	-	-	-	-	5
Dual ARU-06	36	2	5	20	-	-	-	63
Dual ARU-07	-	-	1	9	-	-	-	10
Grand Total	8351	810	1324	2038	153	38	28	12742

4.3.5 Amphibian Acoustic Monitoring

Weather data including minimum temperature, average temperature and precipitation was retrieved from the Environment and Climate Change Canada (ECCC) daily climate data for the nearest station to the Study Area, Cobourg STP (ECCC, 2025b). Between April and July, three dates that were within the acceptable amphibian survey timing windows that also had suitable weather conditions were selected (Round 1: April 28, Round 2: May 29, and Round 3: June 18, 2025). No precipitation was recorded on any of the three selected dates and windspeed data was not available though the ECCC historical climate data (ECCC, 2025b). Only one recording of two Green Frogs (*Lithobates clamitans*) was recorded at ARU-02 during the Round 3 survey date. No other amphibian calls were recorded at any of the seven Dual ARU stations on the selected survey dates.

The results for the amphibian acoustic monitoring surveys are outlined in **Table 4-4** below.

Table 4-4: 2025 Amphibian Acoustic Monitor Survey Results

ARU Station #	Round # and Date	Survey Start – End Time	Temperature (°C)	Results
01	Round 1 April 28, 2025	20:44- 20:47	11.5	No frogs heard calling
	Round 2 May 29, 2025	21:17- 21:20	13	No frogs heard calling
	Round 3 June 18, 2025	21:30- 21:33	21.5	No frogs heard calling
02	Round 1 April 28, 2025	20:44- 20:47	11.5	No frogs heard calling
	Round 2 May 29, 2025	21:17- 21:20	13	No frogs heard calling
	Round 3 June 18, 2025	21:30- 21:33	21.5	Two Green Frogs calling
03	Round 1 April 28, 2025	20:44- 20:47	11.5	No frogs heard calling
	Round 2 May 29, 2025	21:17- 21:20	13	No frogs heard calling
	Round 3 June 18, 2025	21:30- 21:33	21.5	No frogs heard calling
04	Round 1 April 28, 2025	20:44- 20:47	11.5	No frogs heard calling
	Round 2 May 29, 2025	21:17- 21:20	13	No frogs heard calling
	Round 3 June 18, 2025	21:30- 21:33	21.5	No frogs heard calling
05	Round 1 April 28, 2025	20:44- 20:47	11.5	No frogs heard calling
	Round 2 May 29, 2025	21:17- 21:20	13	No frogs heard calling
	Round 3 June 18, 2025	21:30- 21:33	21.5	No frogs heard calling
06	Round 1 April 28, 2025	20:44- 20:47	11.5	No frogs heard calling

ARU Station #	Round # and Date	Survey Start – End Time	Temperature (°C)	Results
	Round 2 May 29, 2025	21:17- 21:20	13	No frogs heard calling
	Round 3 June 18, 2025	21:30- 21:33	21.5	No frogs heard calling
07	Round 1 April 28, 2025	20:44- 20:47	11.5	No frogs heard calling
	Round 2 May 29, 2025	21:17- 21:20	13	No frogs heard calling
	Round 3 June 17, 2025	21:30- 21:33	15	No frogs heard calling

4.3.6 Trail Cameras

Between April 24 and October 1, 2025, Trail camera 01 captured 595 wildlife-triggered photos, while trail camera 02 captured 6610. Across both cameras (ID 01 and 02), a total of 680 images contained identifiable animal presence, and 6525 were empty captures-likely triggered by humans, vehicles, vegetation movement, wind, or other environmental factors. In total, ten commonly observed species were recorded across both cameras with three species identified on Trail camera 01 and 10 species identified on Trail camera 02. The species most commonly identified within the possible wildlife corridor from Trail Camera 02 was White-tailed Deer (*Odocoileus virginianus*), Coyote (*Canis latrans*) and Red Fox (*Vulpes vulpes*). No SAR or SOCC, were identified in the trail camera photos. The results for the trail cameras and associated dates are outlined in **Table 4-5** below.

The presence of these species in **Table 4-5** suggests vegetation communities located east and west of Holt Road, along the railway, may provide a potential wildlife corridor. Connectivity between these different vegetation community types (i.e., forest, meadow, swamp, marsh) provides wildlife with access to habitat for key life processes including foraging, dispersal, breeding and sheltering. While vegetation communities were anthropogenically disturbed (refer to **Section 4.1**) and trail camera observations were limited to more urban mammals and birds that are generally tolerant of urban environments, the potential corridor facilitates movement across an otherwise fragmented landscape. As discussed in this report, additional wildlife was detected during other surveys or incidentally. The east end of the Study Area also contained two marshes that were undergoing restoration activities as documented in the *Darlington Nuclear Site Biodiversity Monitoring Program Three Year Report* (Beacon Environmental, 2022). These marshes were surrounded by forest and woodland habitat that occur on the east end of where the potential wildlife corridor was identified. As these areas undergo restoration efforts, the quality of habitat for a variety of taxa may increase. This may result in an increase of species richness (i.e., the number of different species) and abundance (i.e., the number of individuals per species) in the area if wildlife movement is not impeded. Furthermore, given proximity to Lake Ontario, the potential corridor has potential to provide stopover habitat for migratory birds by providing habitat for cover/shelter and foraging.

Table 4-5: 2025 Trail Camera Results

Trail Camera	Common Name	Scientific Name	S-Rank	COSEWIC	ESA Status	Date(s) Observed
01	White-tailed Deer	*Odocoileus virginianus*	S5	-	-	May: 1, 3 August: 19, 20, 25
01	Northern Raccoon	*Procyon lotor*	S5	-	-	April: 28

Trail Camera	Common Name	Scientific Name	S-Rank	COSEWIC	ESA Status	Date(s) Observed
01	Ruby-crowned Kinglet	*Corthylio calendula*	S5B,S3N	-	-	May: 26
02	White-tailed Deer	*Odocoileus virginianus*	S5	-	-	April: 30 May: 3, 8, 9, 11, 12, 21, 24, 26, 30, 31 June: 3, 5, 14 July: 10, 13, 14, 15, 19, 23, 26, 27 August: 3, 8, 11, 22, 23, 28, 29 September: 3, 4, 8, 23
02	Coyote	*Canis latrans*	S5	-	-	May: 17 July: 21 August: 6, 12, 15, 16 September: 3, 4, 7, 12, 15, 16
02	Red Fox	*Vulpes vulpes*	S5	-	-	August: 31 September: 14, 19
02	Eastern Cottontail	*Sylvilagus floridanus*	S5	-	-	May: 12 July: 18 August: 3, 9, 28, 29, 30 September: 6, 13
02	Northern Raccoon	*Procyon lotor*	S5	-	-	July: 12, 16, 19, 20, 30 August: 5, 6, 13, 18, 27 September: 2, 8, 13, 20, 24
02	Virginia Opossum	*Didelphis virginiana*	S4	-	-	July: 14, 26, 30 August: 5, 8, 18, 25
02	Baltimore Oriole	*Icterus galbula*	S4B	-	-	June: 6
02	Red-winged Blackbird	*Agelaius phoeniceus*	S5	-	-	June: 20
02	Ruby-crowned Kinglet	*Corthylio calendula*	S5B,S3N	-	-	June: 17, 21, 29
02	Song Sparrow	*Melospiza melodia*	S5	-	-	June: 24
02	Wild Turkey	*Meleagris gallopavo*	S5	-	-	September: 15, 30

4.3.7 Incidental Wildlife

The majority of species observations were considered common and tolerant of urban disturbances, and many bird species observed are protected under the MBCA. SOCC and SAR observed incidentally are discussed in **Section 4.4** and **4.5.** Although the Study Area has been anthropogenically disturbed and fragmented, the vegetation communities present still provided potential nesting opportunities for migratory birds. Isolated trees, shrubs, vegetation communities and anthropogenic structures (e.g., buildings and transmission towers) can also provide nesting habitat for migratory birds.

All incidental wildlife observations are outlined in **Table 4-6** below.

Table 4-6: Incidental Wildlife Observations

Taxon	Common Name	Scientific Name	S-Rank	COSEWIC Status	ESA Status	Protected under MBCA (Yes/No)
Birds	Alder Flycatcher	*Empidonax alnorum*	S5B	-	-	Yes
Birds	American Crow	*Corvus brachyrhynchos*	S5	-	-	No
Birds	American Goldfinch	*Spinus tristis*	S5	-	-	Yes
Birds	American Herring Gull	*Larus smithsonianus*	S4B,S5N	-	-	Yes
Birds	American Kestrel	*Falco sparverius*	S4	-	-	No
Birds	American Redstart	*Setophaga ruticilla*	S5B	-	-	Yes
Birds	American Robin	*Turdus migratorius*	S5	-	-	Yes
Birds	Bank Swallow	*Riparia riparia*	S4B	THR	THR	Yes
Birds	Barn Swallow	*Hirundo rustica*	S4B	SC	SC	Yes
Birds	Black-capped Chickadee	*Poecile atricapillus*	S5	-	-	Yes
Birds	Baltimore Oriole	*Icterus galbula*	S4B	-	-	Yes
Birds	Blue Jay	*Cyanocitta cristata*	S5	-	-	No
Birds	Brown-headed Cowbird	*Molothrus ater*	S5	-	-	No
Birds	Canada Goose	*Branta canadensis*	S5	-	-	Yes
Birds	Canada Warbler	*Cardellina canadensis*	S5B	SC	SC	Yes
Birds	Carolina Wren	*Thryothorus ludovicianus*	S4	-	-	Yes
Birds	Cedar Waxwing	*Bombycilla cedrorum*	S5	-	-	Yes
Birds	Cliff Swallow	*Petrochelidon pyrrhonota*	S4S5B	-	-	Yes
Birds	Common Yellowthroat	*Geothlypis trichas*	S5B, S3N	-	-	Yes
Birds	Eastern Kingbird	*Tyrannus tyrannus*	S4B	-	-	Yes
Birds	Eastern Wood-pewee	*Contopus virens*	S4B	SC	SC	Yes
Birds	European Starling	*Sturnus vulgaris*	SNA	-	-	No
Birds	Golden-crowned Kinglet	*Regulus satrapa*	S5	-	-	Yes
Birds	Gray Catbird	*Dumetella carolinensis*	S5B, S3N	-	-	Yes
Birds	Great Crested Flycatcher	*Myiarchus crinitus*	S5B	-	-	Yes
Birds	House Wren	*Troglodytes aedon*	S5B	-	-	Yes
Birds	Indigo Bunting	*Passerina cyanea*	S5B	-	-	Yes
Birds	Killdeer	*Charadrius vociferus*	S4B	-	-	Yes
Birds	Mallard	*Anas platyrhynchos*	S5	-	-	Yes
Birds	Northern Cardinal	*Cardinalis cardinalis*	S5	-	-	Yes
Birds	Northern Flicker	*Colaptes auratus*	S5	-	-	Yes

Taxon	Common Name	Scientific Name	S-Rank	COSEWIC Status	ESA Status	Protected under MBCA (Yes/No)
Birds	Pine Warbler	*Setophaga pinus*	S5B, S3N	-	-	Yes
Birds	Red-breasted Nuthatch	*Sitta canadensis*	S5	-	-	Yes
Birds	Red-eyed Vireo	*Vireo olivaceus*	S5B	-	-	Yes
Birds	Red-tailed Hawk	*Buteo jamaicensis*	S5	NAR	NAR	No
Birds	Red-winged Blackbird	*Agelaius phoeniceus*	S5	-	-	Yes
Birds	Ring-billed Gull	*Larus delawarensis*	S5	-	-	Yes
Birds	Ruby-crowned Kinglet	*Corthylio calendula*	S5B, S3N	-	-	Yes
Birds	Song Sparrow	*Melospiza melodia*	S5	-	-	Yes
Birds	Tree Swallow	*Tachycineta bicolor*	S4S5B	-	-	Yes
Birds	Turkey Vulture	*Cathartes aura*	S5B, S3N	-	-	No
Birds	Warbling Vireo	*Vireo gilvus*	S5B	-	-	Yes
Birds	Wild Turkey	*Meleagris gallopavo*	S5	-	-	No
Birds	Yellow Warbler	*Setophaga petechia*	S5B	-	-	Yes
Amphibians	Green Frog	*Lithobates clamitans*	S5	-	-	No
Amphibians	Northern Leopard Frog	*Lithobates pipiens*	S5	NAR	NAR	No
Reptiles	DeKay's Brownsnake	*Storeria dekayi*	S5	NAR	NAR	No
Mammals	*Coyote	*Canis latrans*	S5	-	-	No
Mammals	Eastern Chipmunk	*Tamias striatus*	S5	-	-	No
Mammals	Eastern Cottontail	*Sylvilagus floridanus*	S5	-	-	No
Mammals	*Northern Raccoon	*Procyon lotor*	S5	-	-	No
Mammals	*White-tailed Deer	*Odocoileus virginianus*	S5	-	-	No
Insects	Cabbage White	*Pieris rapae*	SNA	-	-	No
Insects	Clouded Sulphur	*Colias philodice*	S5	-	-	No
Insects	European Fire Ant	*Myrmica rubra*	SNA	-	-	No
Insects	Monarch	*Danaus plexippus*	S4B, S2N	END	SC	No
Insects	Mourning Cloak	*Nymphalis antiopa*	S5	-	-	No
Arachnids	Black-legged Tick	*Ixodes scapularis*	S5	-	-	No

* While an individual was not observed during field investigations, signs indicating the presence of were observed at multiple locations and occurrences through the Study Area. Signs indicating the presence of Coyote included scat, fur, and animal bones (including bones of a White-tailed Deer). Tracks of White-tailed Deer and Northern Raccoon were also observed throughout the Study Area.

4.4 Significant Wildlife Habitat

The detailed assessment has been provided in **Appendix E.** The following candidate and confirmed SWH were identified to overlap with the Study Area:

Confirmed:

- Seasonal concentration areas:
  - Bat Maternity Colonies - Suitable roost trees were identified in forest and swamp communities within the Study Area. Additionally, the presence of Big Brown Bats and Silver-haired bats were confirmed. While acoustic monitoring does not provide abundance data, many passes of Big Brown Bat and Silver-haired Bat were recorded during the monitoring period. This indicates Big Brown Bats and Silver-haired Bats were using forest and swamp communities as roost habitat. All forest and swamp communities were therefore confirmed as Bat Maternity Colonies SWH. Treed cultural communities are not considered SWH as per the *Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E* (MNRF, 2015).
  - Habitat for Special Concern and Rare Wildlife Species:
    - Eastern Wood-pewee within forest, woodland and swamp communities where BBS-01, 04, 08, 06 and 10 were located.
    - Monarch (*Danaus plexippus*) within multiple Dry – Moist Old Field Meadow Type (CUM1-1) communities located north of the railway across the Study Area.

Candidate:

- Seasonal Concentration Areas of Animals:
  - Turtle Wintering Areas within the Cattail Mineral Shallow Marsh (MAS2-1) located north of the railway in the east end of the Study Area as sufficient depth and substrate were observed.
- Habitats of Species of Conservation Concern considered SWH:
  - Habitat for Special Concern and Rare Wildlife Species:
    - Snapping Turtle (*Chelydra serpentina*) within the Cattail Mineral Shallow Marsh (MAS2-1) in the east end of the Study Area, north of the railway.

Of these SWHs, confirmed Bat Maternity Colonies and confirmed habitat for Eastern Wood-pewee and Monarch occurred in the proposed station expansion area. While the criteria for Animal Movement Corridors SWH was not met, vegetation communities that occur east-west in the Study Area may still facilitate movement across an otherwise fragmented landscape. Potential wildlife movement corridors are discussed further in **Section 4.3.6**.

4.5 Species at Risk Habitat Screening

The SAR habitat assessment is presented in **Appendix F**. Of the 23 SAR records identified through the background review, six were confirmed present in the Study Area. The remaining SAR outlined in **Appendix F** were determined to have a low potential to occur within the Study Area due to absence during targeted surveys and/or a lack of suitable habitat.

The following SAR were determined to have been confirmed within the vegetation communities found in the Study Area:

- **Bat SAR including Eastern Red Bat, Hoary Bat, Silver-haired Bat, Little Brown Myotis, Northern Myotis and Tri-coloured Bat:** As outlined in **Section 4.3.4**, all ARU's recorded bat SAR. Eastern Red Bat, Hoary Bat and Silver-haired Bat were widely detected across many ARUs, with ARU17 showing the highest Eastern Red Bat passes and ARU11 recording the most Hoary Bat passes. Silver-haired Bat was present at all ARU's. SAR Myotis species were less frequently detected. The Little Brown Myotis was most active at ARU15, while Northern Myotis was only recorded at a few stations, notably ARU15 and ARU46 had more passes. Tricoloured Bat was also not detected as often; it was detected at 11 stations and with relatively fewer passes.

  Multiple forest, swamp and woodland communities across the Study Area were confirmed as roost habitat for these SAR. The presence of suitable snag/cavity trees were also recorded for communities within and adjacent to the proposed station expansion area and the large woodland and forest in the east end of the Study Area, north of the railway. Within the Proposed Expansion Area, confirmed habitat for Eastern Red Bat, Hoary Bat, Silver-haired Bat, Northern Myotis and Tricoloured Bat occurs in the Mineral Cultural Woodland (CUW1), Manitoba Maple Mineral Deciduous Swamp (SWD3-4) and Willow Mineral Deciduous Swamp (SWD4-1) communities.

5. Potential Environmental Effects and Proposed Mitigation

Potential impacts on the natural environment were identified based on the proposed station expansion area as shown on **Figures 1-3**. At this stage of the Project, the location of construction activities and design are unknown. The potential impacts outlined below are commonly encountered with construction. Impacts should be updated if the proposed work extends past the proposed station expansion area. **Table 5-1** outlines the potential effects from the Project and associated mitigation.

Table 5-1: Potential Effects and Mitigation Measures

Environmental Concern	Project Phase and Potential Effects	Mitigation Measures
Vegetation Communities	**Construction:** ■ Approximately 12.641 ha of vegetation communities occur in the proposed station expansion area and may be removed. The following communities may be impacted: – CUM1-1: Dry - Moist Old Field Meadow (1.789 ha) – CUT1: Mineral Cultural Thicket (2.409 ha) – CUW1: Mineral Cultural Woodland (0.545 ha) – MAM2-2: Reed-canary Grass Mineral Meadow Marsh (0.135 ha) – SWD3-4: Manitoba Maple Mineral Deciduous Swamp (2.263 ha) – SWD4-1: Willow Mineral Deciduous Swamp (0.593 ha) – SWT2-2: Willow Mineral Thicket Swamp (4.423 ha) – SWT2-5: Red-osier Mineral Thicket Swamp (0.484 ha) ■ Damage to adjacent vegetation or Ecological Land Classification communities as a result of accidental intrusion.	■ The extent of clearing and vegetation removal required will be limited to the extent possible. ■ Temporary construction laydown areas, access roads and storage should be limited to within existing cleared areas within the Study Area to the extent possible. ■ Vegetation that does not interfere with construction activities or transmission line clearances will be retained, where practical. ■ Construction fencing and / or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation or ELC communities. ■ Temporarily disturbed areas will be re-vegetated using non-invasive, preferably native plantings and / or seed mix appropriate to the site conditions and adjacent vegetation communities. Seed mixes will be used in conjunction with an appropriate non-invasive cover crop as needed. ■ Tree protection zones will be established to delineate and safeguard trees that do not require removal for construction or operation of the switching station. ■ Non-salvageable limbs will be chipped or removed to designated disposal areas. ■ Trees removed adjacent to watercourses will be cut in a manner that retains root systems to maintain soil stability. Compatible bank and riparian vegetation will be preserved to the extent practical. ■ Isolated trees (i.e., not part of a woodland) identified by a qualified professional as having potential bat habitat will be removed outside of the bat active season (**April 1 to November 30**). ■ Vegetation removals will also consider and mitigate potential impacts to sensitive species (e.g., migratory birds and SAR) and features (e.g., SWH). Refer to the Wildlife, Significant Wildlife Habitat and Species at Risk mitigation measures described below. ■ See mitigation for Spills and Erosion and Sediment Control.
Wildlife and Wildlife Habitat	**Construction & Operation:** Potential disturbance or loss of wildlife habitat, including habitat fragmentation.	■ Vegetation removal should occur outside of the bird nesting period (**April 1 to August 31**) and bat active season (**April 1 to November 30**). ■ Speed limits should be enforced to reduce wildlife mortalities.

Environmental Concern	Project Phase and Potential Effects	Mitigation Measures
		■ If activities are proposed to occur during the general nesting period, a breeding bird and nest survey may be undertaken prior to required activities in simple habitat as identified by a qualified Biologist. Nest searches in simple habitats by an experienced searcher are required and will be completed by a qualified Biologist no more than 48 hours prior to vegetation removal. ■ Boundaries of important wildlife habitats will be identified, and the construction boundaries will be flagged prior to vegetation clearing. ■ Trees containing active nests and areas with active animal dens or burrows will remain undisturbed until confirmed unoccupied by a qualified professional. ■ Where vegetation clearing is required, some cleared material may be repurposed to create brush or habitat piles where appropriate. ■ Construction personnel will be educated on the potential presence of wildlife in the general work areas. ■ If wildlife collection, salvage, or relocation is necessary due to construction activities, Hydro One will consult with MNRF to determine permitting requirements. ■ Soil stockpiles will be managed in ways that are not conducive to Bank Swallow nesting (e.g. slopes maintained to 70° or less, and/or covered or bare soil seeded during the breeding season). ■ The potential wildlife corridor that may facilitate east-west movement across the Study Area was identified within vegetated communities along the railway corridor located east and west of Holt Road. Vegetation removal within the Proposed Expansion Area should be minimized to the extent possible and should not encroach into vegetation communities located along the railway where the potential wildlife corridor was identified. Construction fencing and/or silt fencing, where appropriate, will be installed and maintained to clearly define the construction footprint and prevent accidental damage or intrusion to adjacent vegetation that may be apart of the wildlife corridor.
Significant Wildlife Habitat	**Construction**: Removal of habitat for the following SWH: ■ **Confirmed Habitat for Eastern Wood-pewee:** – CUW1: Mineral Cultural Woodland (0.545 ha) – SWD3-4: Manitoba Maple Mineral Deciduous Swamp (2.263 ha) – SWD4-1: Willow Mineral Deciduous Swamp (0.593 ha) ■ **Confirmed Habitat for Monarch:** – CUM1-1: Dry - Moist Old Field Meadow (1.789 ha) ■ **Confirmed Bat Maternity Colonies** – SWD3-4: Manitoba Maple Mineral Deciduous Swamp (2.263 ha) – SWD4-1: Willow Mineral Deciduous Swamp (0.593 ha)	■ Limit vegetation removal in the CUW1, SWD4-1, SWD3-4 and CUM1-1 to the extent possible. ■ Avoid vegetation removal within the CUM1-1 during the Monarch breeding season (June 1- September 30). Vegetation removal should also avoid any patches of Milkweed (*Asclepias sp.)* plants where possible. ■ Meadow creation and/or restoration using Milkweed seed mixes to enhance habitat for Monarch will be implemented in natural areas, where applicable within the confines of the Project. ■ Avoid vegetation removal during the breeding bird season (**April 1 to August 31**). ■ Enhancement measures such as invasive species removal will be implemented within the station expansion area, where applicable within the confines of the Project. ■ Limit tree removal within swamp and forest communities to the extent possible. ■ Tree removal should be completed outside of the roosting season (**April 1 – September 30).** ■ Construction activities should be limited to the hours of 7am to 7pm to limit disturbance to bats. ■ Measures to offset the loss of roosting habitat such as bat boxes or other alternatives such as artificial bark in certain areas will be implemented to offset the loss of roosting habitat.

Environmental Concern	Project Phase and Potential Effects	Mitigation Measures
Species at Risk - Bats	**Construction & Maintenance:** Construction & Maintenance: Potential disturbance or loss of SAR and/or SAR habitat. The proposed station expansion area may result in the loss of 3.401 ha of confirmed bat SAR habitat identified in the Mineral Cultural Woodland (CUW1), Manitoba Maple Mineral Deciduous Swamp (SWD3-4) and Willow Mineral Deciduous Swamp (SWD4-1). A total of 30 snag/cavity trees may be removed within the CUW1, SWD3-4 and SWD4-1.	■ Where impacts to SAR or their habitats cannot be avoided, the MECP will be consulted during detailed design regarding permitting and approval requirements under the ESA. ■ Boundaries of SAR habitats will be identified and flagged prior to construction. ■ Snags/cavity trees that may provide SAR habitat will be retained where practical. ■ Tree removal should be avoided or minimized to the extent possible, particularly within the SWD3-4 where there was a higher concentration of snag/cavity trees. Efforts to retain bat SAR habitat and snag/cavity trees may help avoid the need for MECP consultation, permitting or registration under the ESA. ■ Construction personnel will be trained to recognize SAR that may occur within the work area. ■ If SAR are encountered during construction, work will be halted until it is confirmed that no harm will occur. The activity will be reviewed to determine if schedule modifications or mitigation measures can be implemented to avoid impacts. ■ If a SAR is harmed or killed during construction, MECP will be notified immediately. Work in the affected area will cease until the species is removed by authorized personnel. ■ Any SAR observations during construction will be reported to MECP as required. ■ Indigenous communities will be consulted regarding mitigation measures to address SAR and their habitats. ■ Educate contractors about bat species in Ontario that are protected under species and habitat legislation. ■ Remove all trees with a diameter at breast height (DBH) of 10 cm or greater **between October 1 and March 31** (outside the bat active season, which runs from **April 1 to November 30**). ○ If removal during this window is not possible, conduct exit surveys paired with acoustic monitoring for man-made structures, and/or acoustic surveys for wooded areas during June, prior to removing potential roost habitat. ○ If SAR bats are detected entering or exiting habitat features, consult with the MECP prior to construction to determine appropriate mitigation measures and assess the need for permits or approvals. ■ Construction of bat nesting boxes may be considered in certain areas to offset the loss of roosting habitat.
Invasive Species	**Construction**: Potential for inadvertent spread of invasive species propagules through the movement of soil, debris and/or plant material via construction vehicles and equipment.	■ Construction crews will be educated on the importance of preventing the inadvertent spread of invasive species and trained to identify species known or likely to occur within work areas. ■ Additional surveys are recommended to identify the locations of invasive species prior to vegetation removal and construction. ■ Areas identified as containing invasive species will be considered during access and construction planning. Stands of invasive plants will be avoided to the extent practical. ■ Equipment and vehicle inspection in accordance with the *Clean Equipment Protocol for Industry* (Halloran et al., 2013) will be implemented during construction to minimize the risk of transporting invasive species propagules. ■ Crews will be informed about invasive species known or with potential to occur in the work areas. ■ Special treatment areas (e.g., large, established populations of invasive species) will be tracked for consideration during future maintenance planning.

Environmental Concern	Project Phase and Potential Effects	Mitigation Measures
Spills	**Construction and Maintenance:** Potential inadvertent release of deleterious substances including oil, gasoline, or other liquids.	■ 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 stations should be located within a centralized location on-site, and be at least 30 m away from wetlands, watercourses, waterbodies or other site drainage features. ■ Re-fueling stations should be constructed in a manner to prevent soil and/or surface and groundwater contamination from any leaks or spills and be lined with appropriate material to prevent seepage and fuel discharge. ■ An emergency response kit should be made available at each re-fueling station in case of a spill. ■ All on-site crew members operating construction vehicles should be appropriately trained in handling a potential spill and have Workplace Hazardous Materials Information System (WHMIS) training. ■ All chemical transfer/maintenance should be conducted within the refueling station areas. ■ Implement Erosion and Sediment Control measures prior to construction. ■ The MECP Spills Action Centre will be notified of all reportable spills.
Erosion and Sedimentation	**Construction:** Potential release of sediments during site preparation and construction.	■ Develop a detailed Erosion and Sediment Control (ESC) Plan prior to construction to reduce potential and minimized sediment transfer downstream. ■ Minimize vegetation removal to the extent possible and limit to within the construction footprint. ■ Install and maintain erosion and sediment controls such as silt fence barriers, rock flow check dams, compost filter socks or approved alternative along the edge of the construction footprint area if in or within 30 m of a watercourse to delineate work area and avoid impacting water quality. ■ Store any stockpiled material greater than 30 m from a wetland or waterbody. ■ Re-vegetate cleared areas as soon as reasonably possible. If there is insufficient time in the growing season to effectively re-vegetate the disturbed area, overwintering treatments such as erosion control blankets or fibre matting should be installed to contain the site over the winter months.
Construction work within Central Lake Ontario Conservation Authority (CLOCA) regulated area	**Construction and Maintenance:** Infrastructure to be located within Conservation Authority regulated lands. **Operation:** Potential for increased runoff.	■ CLOCA will be consulted during detailed design and construction planning. ■ If necessary, a *Prohibited Activities, Exemptions, and Permits* will be obtained through CLOCA prior to construction. ■ Construction work within regulated areas will be conducted during stable (frozen/dry) ground conditions, to the extent practical or isolated with appropriate ESC measures and other environmental mitigation measures. ■ Implementation of stormwater management or low impact design measures to maintain equivalent drainage quantity and quality control.

6. Anticipated Permitting & Legislative Requirements

Section 2 outlines the legislative and policy context for the Project. Based on the field investigations and assessment of potential impacts, the anticipated permits and conformance with legislation for the Project have been identified. **Table 6-1** below provides a summary of the anticipated permits and approvals for the proposed work. Applicable permits and approvals shall be completed and submitted to the appropriate regulatory agencies prior to construction.

Table 6-1: Anticipated Permits and Approvals

Level of Government	Legislation	Governing Authority	Applicability to the Project
Federal	*Species at Risk Act, 2002 (SARA)*	Fisheries and Oceans Canada (DFO)	■ Not required – no federally listed aquatic SAR were detected within the Study Area through background review.
Federal	*Migratory Birds Convention Act, 1994 (MBCA)*	ECCC	■ Contravention of the MBCA is not anticipated provided vegetation removal occurs outside of the breeding bird season (**April 1 to August 31**) and that the slope of stockpiled substrates be maintained at 70 degrees or less during the breeding bird season (**April 1 to August 31**). ■ Although unlikely, nests of species listed under Schedule 1 of the MBCA (i.e., Pileated Woodpecker) may appear from year to year within the proposed station expansion area and could require removal. Unoccupied nests of these migratory birds, whose nests are commonly re-used from one year to the next, cannot be removed without a permit unless reported though the Abandoned Nest Registry and nest remains unoccupied for the corresponding period of time (i.e., 36 months for Pileated Woodpecker). Nest searches for Pileated Woodpecker should be completed in the future, prior to construction to confirm no nests have been made.
Federal	*Fisheries Act, 1985*	DFO	■ Not Required – a DFO Request for Review is not required as the work is not occurring within fish habitat.
Provincial	*Fish and Wildlife Conservation Act, 1997*	Ontario Ministry of Natural Resources (MNR)	■ A Wildlife Scientific Collector's Authorization (WSCA) may be required for relocating wildlife that may use or enter the proposed station expansion area.
Provincial	*Endangered Species Act, 2007* (ESA) (amended 2025)	Ontario Ministry of the Environment, Conservation and Parks (MECP)	■ May be required – Consultation with MECP may be required (via submission of an Information Gathering Form) during the early phases of Detailed Design to determine the need for authorizations and permits for bat SAR. However, if tree removal, particularly of snag/cavity trees, can be avoided or minimized within bat SAR habitat during Detailed Design, the need for authorization or permits may not be necessary. ■ Permitting implications will need to be re-evaluated once the ESA is replaced by the *Species Conservation Act, 2025* (anticipated to come into force in 2026) as the new legislation will be more proponent-driven and allow for faster, online registration of eligible activities impacting protected species.
Local	*Conservation Act,* 1990 *Ontario Regulation (O. Reg.) 41/24: Prohibited Activities, Exemptions, and Permits*	Central Lake Ontario Conservation Authority (CLOCA)	■ Required – the Study Area falls within CLOCA's Regulated Areas.

7. Summary

This Report conforms with relevant Provincial and Federal environmental legislation, policies and guidelines as documented above. The existing natural heritage features identified within the Study Area and proposed station expansion area through the natural heritage background review and field program include the following:

- Unevaluated wetlands
- CLOCA Regulated Area
- The following SWH were identified within the Study Area:
  - Candidate Turtle Wintering Areas
  - Confirmed Bat Maternity Colonies
  - Candidate habitat for SOCC including Snapping Turtle
  - Confirmed habitat for SOCC including Eastern Wood-pewee and Monarch
  - Of the SWH, confirmed Bat Maternity Colonies and confirmed habitat for Eastern Wood-pewee and Monarch occurred in the proposed station expansion area
- Habitat for the following bat SAR was confirmed in the Study Area and proposed station expansion area: Little Brown Myotis, Northern Myotis, Eastern Red Bat, Hoary Bat, Silver-haired Bat and Tri-coloured Bat

Potential impacts from the proposed works include loss, damage and disturbance to vegetation communities, terrestrial wildlife, SAR and SAR habitat, SWH as well as increased sedimentation and erosion potential. Avoidance measures, such as the clear delineation of the limits of construction and compliance with restriction of activities to outside of sensitive periods for local or significant wildlife species, in addition to incorporation of mitigation measures such as installation of tree protection fencing, wildlife exclusion measures, erosion and sediment control measures, machinery and equipment practices, and invasive species control strategies can aid in addressing these potential impacts. Anticipated permits and approvals under the ESA, FWCA and O. Reg.41/24 are anticipated for the Project prior to the commencement of construction activities. Additional surveys for Pileated Woodpecker nests should be completed in the future prior to construction to confirm no nests have been made.

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Appendix A

Terrestrial Photolog

AECOM

Photographic Log

Client Name:	Report Name	Project No.
Hydro One Networks Inc. (HONI)	Bowmanville SS Expansion Class Environmental Assessment – Natural Environment Baseline Report	60745030

Photo No.	Date
1	7/3/2025

Direction Photo Taken: West

Description: One of numerous Dry – Moist Old Field Meadow Type (CUM1-1) communities identified in the Study Area. Community is located west of Holt Road and east of the Bowmanville SS Facility.



Photo No.	Date
2	4/25/2025

Direction Photo Taken: West

Description: A White Pine Coniferous Plantation Type (CUP3-2) community located south of Energy Drive.



AECOM

Photographic Log

Client Name:	Report Name	Project No.
Hydro One Networks Inc. (HONI)	Bowmanville SS Expansion Class Environmental Assessment – Natural Environment Baseline Report	60745030

Photo No.	Date
3	7/3/2025

Direction Photo Taken: South

Description: One of the numerous Mineral Cultural Thicket Ecosite (CUT1) communities identified in the Study Area. Community located east of Holt Road.



Photo No.	Date
4	7/7/2025

Direction Photo Taken: North

Description: Ground cover of one of the numerous Mineral Cultural Woodland Ecosite (CUW1) located west of Holt Road north of the CN railway tracks.



AECOM

Photographic Log

Client Name:	Report Name	Project No.
Hydro One Networks Inc. (HONI)	Bowmanville SS Expansion Class Environmental Assessment – Natural Environment Baseline Report	60745030

Photo No.	Date
5	7/3/2025

Direction Photo Taken

West

Description

Understory of one of the Mineral Cultural Woodland Ecosite (CUW1) communities identified in the Study Area.



Photo No.	Date
6	4/25/2025

Direction Photo Taken

South

Description

The Fresh – Moist Willow Lowland Deciduous Forest Type (FOD7-3) community located east of Park Street.



AECOM

Photographic Log

Client Name:	Report Name	Project No.
Hydro One Networks Inc. (HONI)	Bowmanville SS Expansion Class Environmental Assessment – Natural Environment Baseline Report	60745030

Photo No.	Date
7	7/3/2025

Direction Photo Taken

South

Description

The Fresh – Moist Poplar Deciduous Forest Type (FOD8-1) community located east of Park Road.



Photo No.	Date
8	7/3/2025

Direction Photo Taken

South

Description

The Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type (FOD5-8) located east of Holt Road.



AECOM

Photographic Log

Client Name:	Report Name	Project No.
Hydro One Networks Inc. (HONI)	Bowmanville SS Expansion Class Environmental Assessment – Natural Environment Baseline Report	60745030

Photo No.	Date
9	7/3/2025

Direction Photo Taken: East

Description: The Forb Mineral Meadow Marsh (MAM2-10) community located east of Park Road.



Photo No.	Date
10	7/3/2025

Direction Photo Taken: South

Description: MAM2-2 Reed-canary Grass Mineral Meadow Marsh located on the western edge of the Study Area along Park Road.



AECOM

Photographic Log

Client Name:	Report Name	Project No.
Hydro One Networks Inc. (HONI)	Bowmanville SS Expansion Class Environmental Assessment – Natural Environment Baseline Report	60745030

Photo No.	Date
11	4/4/2025

Direction Photo Taken: West

Description: The Mineral Meadow Marsh Ecosite (MAM2) located north of the CN railway tracks. Community is dominated by European Common Reed (*Phragmites australis subsp. australis*).



Photo No.	Date
12	4/4/2025

Direction Photo Taken: Northeast

Description: The Bur-reed Mineral Shallow Marsh Type (MAS2-7) community located east of Holt Road.



AECOM

Photographic Log

Client Name:	Report Name	Project No.
Hydro One Networks Inc. (HONI)	Bowmanville SS Expansion Class Environmental Assessment – Natural Environment Baseline Report	60745030

Photo No.	Date
13	4/4/2025

Direction Photo Taken: West

Description: One of the Cattail Mineral Shallow Marsh Type (MAS2-1) communities identified in the Study Area. Community is located east of Holt Road.



Photo No.	Date
14	7/3/2025

Direction Photo Taken: East

Description: The Stonewort Submerged Shallow Aquatic Type (SAS1-3) located south of the CN railway tracks and west of Holt Road.



AECOM

Photographic Log

Client Name:	Report Name	Project No.
Hydro One Networks Inc. (HONI)	Bowmanville SS Expansion Class Environmental Assessment – Natural Environment Baseline Report	60745030

Photo No.	Date
15	4/25/2025

Direction Photo Taken: Southwest

Description: The Green Ash Mineral Deciduous Swamp Type (SWD2-2) located north of the CN railway tracks and west of Holt Road.



Photo No.	Date
16	4/25/2025

Direction Photo Taken: West

Description: The Willow Mineral Deciduous Swamp Type (SWD4-1) community located south of Energy Drive.



AECOM

Photographic Log

Client Name:	Report Name	Project No.
Hydro One Networks Inc. (HONI)	Bowmanville SS Expansion Class Environmental Assessment – Natural Environment Baseline Report	60745030

Photo No.	Date
17	4/25/2025

Direction Photo Taken: East

Description: Understory of the SWD4-1 community located south of Energy Drive.



Photo No.	Date
18	4/25/2025

Direction Photo Taken: Northeast

Description: The Manitoba Maple Mineral Deciduous Swamp Type (SWD3-4) community located within the proposed station expansion area.



AECOM

Photographic Log

Client Name:	Report Name	Project No.
Hydro One Networks Inc. (HONI)	Bowmanville SS Expansion Class Environmental Assessment – Natural Environment Baseline Report	60745030

Photo No.	Date
19	4/25/2025

Direction Photo Taken

South

Description

The Poplar – White Birch – Poplar Mineral Deciduous Swamp (SWD4-3) identified in the Study Area.



Photo No.	Date
20	7/3/2025

Direction Photo Taken

West

Description

One of the Willow Mineral Thicket Swamp (SWT2-2) communities identified in the Study Area. Community is located west of Holt Road.



AECOM

Photographic Log

Client Name:	Report Name	Project No.
Hydro One Networks Inc. (HONI)	Bowmanville SS Expansion Class Environmental Assessment – Natural Environment Baseline Report	60745030

Photo No.	Date
21	4/25/2025

Direction Photo Taken: Northwest

Description: The Red-osier Mineral Thicket Swamp (SWT2-5) located west of Holt Road.



Photo No.	Date
22	7/3/2025

Direction Photo Taken: West

Description: SWT2-10 Nannyberry Mineral Thicket Swamp located on the western edge of the Study Area, adjacent to the Bowmanville SS facility.



Photo No.	Date
23	7/3/2025

Direction Photo Taken: South

Description: One of the Agricultural fields identified in the Study Area. Community is located east of Holt Road.



Photo No.	Date
24	4/25/2025

Direction Photo Taken: South

Description: Acoustic Monitor (ARU-05) on installation date. The acoustic monitor is secured to a tree using a bungee cord and bicycle lock. Microphone is pointing west.



AECOM

Photographic Log

Client Name:	Report Name	Project No.
Hydro One Networks Inc. (HONI)	Bowmanville SS Expansion Class Environmental Assessment – Natural Environment Baseline Report	60745030

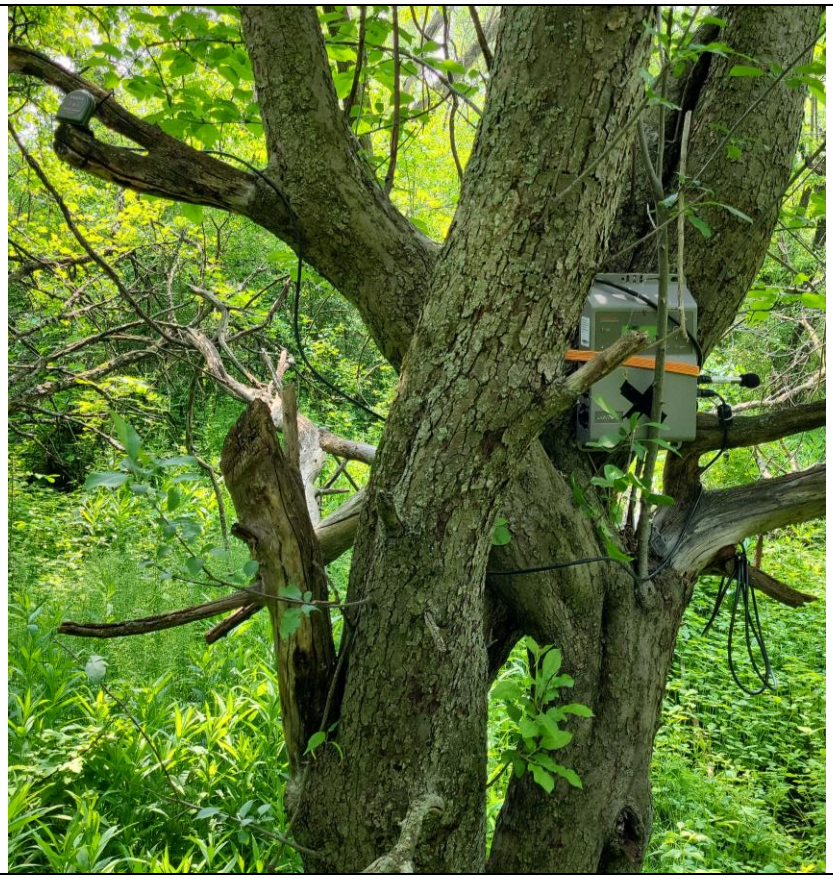
Photo No.	Date
25	6/6/2025

Direction Photo Taken

South

Description

Acoustic Monitor (ARU-05) on one of the days that the recorders batteries and memory cards were checked. Photo displays the additional microphone that is secured to a tree branch using zip ties.



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Appendix B

Aquatics Photolog

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Photographic Log

Client Name:	Report Name	Project No.
Hydro One Networks Inc. (HONI)	Bowmanville SS Expansion Class Environmental Assessment – Natural Environment Baseline Report	60745030

April 24, 2025.



Photograph 1. ↑
Pooled, stagnant water at beginning of mapped water feature WC-1, west of the existing Bowmanville Switching Station (SS).



Photograph 2. ↑
WC-1 facing downstream, with Cattails (*Typha* sp.), west of the existing Bowmanville SS.



Photograph 3. ↑
Facing downstream, a perched high-density polyethylene (HDPE) culvert along WC-1 causing pooling upstream and drier conditions downstream.



Photograph 4. ↑
WC-1 facing upstream, with Cattails growing throughout the channel and Red-osier Dogwood (*Cornus sericea*) on the banks.



Photograph 5. ↑
Water and Cattails present within the channel of WC-1 as it flows east, parallel to the railway.



Photograph 6. ↑
Overview of WC-1, facing upstream with the railway on the left and Bowmanville SS on the right.



Photograph 7. ↑
Debris laden chain link fence marking the railway right of way causing diffuse water flow.



Photograph 8. ↑
Concrete culvert inlet conveying drainage under the railway.



Photograph 9. ↑
WC-1 exiting a 1100 mm corrugated steel pipe (CSP) culvert downstream of the railway right of way and large berm.



Photograph 10. ↑
WC-1 flowing easterly parallel to a parking lot. Substrates consisted mostly of silt, with some gravel and detritus.



Photograph 11. ↑
View of WC-1 facing upstream (northwest), approximately 30 m upstream of Holt Road.



Photograph 12. ↑
View of WC-1 facing downstream (south), approximately 30 m upstream of Holt Road.



Photograph 13. ↑
View of one of the stormwater ponds located south of WC-1. The pond was lined mostly with European Common Reed (*Phragmites australis* subsp. *australis*) and water was clear.



Photograph 14. ↑
Outflow structure from the stormwater management pond into WC-1.



Photograph 15. ↑
View of WC-1 facing upstream of the stormwater pond confluence, where the feature was narrower and gravel substrate was present.



Photograph 16. ↑
View of WC-1 downstream of the stormwater pond confluence and approaching the culvert inlet where the feature widened.



Photograph 17. ↑
View of WC-1 at the culvert inlet at Holt Road.



Photograph 18. ↑
View of WC-1 from Holt Road, facing upstream.



Photograph 19. ↑
Approximate location of WC-1 as mapped through background review.



Photograph 20. ↑
View of WC-1 after crossing Holt Road and a service road.



Photograph 21. ↑
WC-1 entering twin CSP culverts, facing upstream (north).



Photograph 22. ↑
WC-1 culvert outlet conveying flows downstream towards Lake Ontario (south).



Photograph 23. ↑
WC-1 facing upstream (north) with stagnant water and Cattails growing throughout the channel. Straw bales in place for sediment control.



Photograph 24. ↑
WC-1 culvert inlet at the most southern location of property.



Photograph 25. ↑
View of Lake Ontario from the most southern location of WC-1 on the property.



Photograph 26. ↑
Aerial photo of WC-1 culvert exiting the bluffs of Lake Ontario (Google Earth, 2025).



Photograph 27. ↑
Roadside drainage along Park Road, west of the existing Bowmanville SS, facing north.



Photograph 28. ↑
Roadside drainage along Park Road, west of the existing Bowmanville SS, facing southeast.



Photograph 29. ↑
Drainage along Park Road, potentially from within Bowmanville SS, facing east.



Photograph 30. ↑
Stagnant roadside drainage along Park Road, west of the existing Bowmanville SS, facing southeast.



Photograph 31. ↑
Buried CSP culvert along a gravel path at the entrance to the Bowmanville SS.



Photograph 32. ↑
Buried HDPE culvert along a gravel path at the entrance to the Bowmanville SS.



Photograph 33.
Drainage ditch on east side of Park Road facing an equipment facility (facing southeast).



Photograph 34.
Drainage ditch on east side of Park Road facing an equipment facility outside Bowmanville SS (facing southeast).



Photograph 35.
Drainage ditch on east side of Park Road.



Photograph 36.
WC-2 drainage conveyance to the west side of Park Road.



Photograph 37. ↑
WC-2 culvert inlet at the Darlington Waterfront Trail, facing upstream (east).



Photograph 38. ↑
WC-2 culvert outlet at the Darlington Waterfront Trail, facing downstream (south).



Photograph 39. ↑
WC-2 as it approaches a service road, west of Darlington Waterfront Trail.



Photograph 40. ↑
WC-2 culvert outlet at the southeast junction of Darlington Waterfront Trail and a service road, east of Coot's Pond

June 3, 2025 – WC-3



Photograph 41. ↑
WC-3 as it enters the woodlot in the proposed station expansion location.



Photograph 42. ↑
WC-3 within the proposed Bowmanville SS expansion location.



Photograph 43. ↑
Woody debris fallen into WC-3 preventing some water flow downstream.



Photograph 44. ↑
WC-3 entering an abandoned 450 mm CSP culvert, facing downstream (southeast).



Photograph 45.
Dry section of WC-3 with little substrate sorting and vegetation roots growing within the channel.



Photograph 46.
WC-3, facing upstream (north), exiting the woodlot and continuing southerly.



Photograph 47.
WC-3 culvert crossing the road to the east side of the Bowmanville SS



Photograph 48.
WC-3, facing downstream, along the southern portion of the proposed station expansion area, flowing south towards the railway.

Appendix C

Plant List

Appendix C: Vascular Plant List

AECOM

Botanical Name			Plant Species Information																	ELC ID#:																						
Common Name	Scientific Name	Family	CC (2023)	CW (2023)	Native Status	Invasive (Y/N)	Tall-grass Species (Y/N)	Invasive Species Act	Ontario Weed Control Act	Ontario Invasive Species Council	SRANK	NRANK	GRank	COSEWIC	SARO	Local Status: CLOCA/ DU	Plant Form Type	Flowering Season	Climate Change Vulnerability Index (CCVI)	ELC Code:	CUM1-1	CUT1	SWT2-5	SWT2-2	SWD4-1	CUW1	SWD3-4	SWD4-3	MAM2-2	SWD2-2	CUP3-2	FOD8-1	FOD7-3	MAS2-1	FOD5-8	SAS1-3	MAM2-10	SWT2-10
Autumn Olive	*Elaeagnus umbellata*	Elaeagnaceae		3	I	Y				Cat 1	SE3	NNA	GNR			U	SH				X										X								
(Acer rubrum X Acer saccharinum)	*Acer x freemanii*	Aceraceae	6	-5	N	N					SNA	NNA	GNA				TR				X					X	X	X					X					
Common Yarrow	*Achillea millefolium*	Asteraceae		3	I	N	Y			0	SE5?	NNR	G5			C	FO	Sum				X																
Goutweed	*Aegopodium podagraria*	Apiaceae		0	I	Y				Cat 1	SE5	NNA	GNR			U	FO										X											
Bitternut Hickory	*Carya cordiformis*	Juglandaceae	6	0	N	N					S5	N5	G5			U	TR													X		X					
Black Cherry	*Prunus serotina*	Rosaceae	3	3	N	N					S5	N5	G5			C	TR													X		X			X		
Hemp Dogbane	*Apocynum cannabinum var. cannabinum*	Apocynaceae	3	0	N	N	Y			0	S5	N5	G5T5				FO												X								
Black Medick	*Medicago lupulina*	Fabaceae		3	I	N				Cat 4	SE5	NNA	GNR			C	FO	Sum-Aut			X																
Jack-in-the-pulpit	*Arisaema triphyllum*	Araceae	5	-3	N	N				0	S5	N5	G5			C	FO	Spr																	X		
Black Walnut	*Juglans nigra*	Juglandaceae	5	3	N	N					S4?	N4?	G5			U	TR																X				
Blue Spruce	*Picea pungens*	Pinaceae		3	I	N					SE1	NNA	G5			R	TR									X											
Yellow Birch	*Betula alleghaniensis*	Betulaceae	6	0	N	N				0	S5	N5	G5			C	TR													X							
Blue Vervain	*Verbena hastata*	Verbenaceae	4	-3	N	N	Y				S5	N5	G5			C	FO	Sum						X													
Broad-leaved Cattail	*Typha latifolia*	Typhaceae	1	-5	N	N					S5	N5	G5			C	FO	Sum																		X	X
Creeping Bellflower	*Campanula rapunculoides*	Campanulaceae		5	I	N				Cat 4	SE5	NNA	GNR			C	FO	Sum									X	X		X		X					
Broad-leaved Enchanter's Nightshade	*Circaea canadensis*	Onagraceae	2	3	N	N					S5	N5	G5			C	FO	Sum			X							X							X		
Calico Aster	*Symphyotrichum lateriflorum*	Asteraceae	3	0	N	N					S5	N5	G5				FO	Sum-Aut										X									
Canada Goldenrod	*Solidago canadensis*	Asteraceae	1	3	N	N					S5	N5	G5			U	FO	Sum-Aut			X	X		X		X											
Canada Thistle	*Cirsium arvense*	Asteraceae		3	I	Y			Yes	Cat 1	SE5	NNA	G5			+	FO	Sum			X								X						X	
Chokecherry	*Prunus virginiana var. virginiana*	Rosaceae	2	3	N	N					S5	N5	G5T5				SH	Spr			X									X		X	X		X		
Coltsfoot	*Tussilago farfara*	Asteraceae		3	I	Y			Yes	Cat 4	SE5	NNA	GNR			C	FO	Spr			X					X		X	X							
Marsh Cinquefoil	*Comarum palustre*	Rosaceae	7	-5	N	N				0	S5	N5	G5			U	FO																			X	
European Lily-of-the-valley	*Convallaria majalis*	Liliaceae		5	I	Y				Cat 3	SE5	NNA	G5			U	FO									X										
Common Apple	*Malus pumila*	Rosaceae		5	I	N					SE4	NNA	G5			C	SH				X	X					X					X				
English Hawthorn	*Crataegus monogyna*	Rosaceae		3	I	Y				Cat 3	SE4	NNA	G5				SH				X															
Dotted Hawthorn	*Crataegus punctata*	Rosaceae	4	5	N	N				0	S5	N5	G5			C	SH					X														
Orchard Grass	*Dactylis glomerata*	Poaceae		3	I	N				Cat 3	SE5	NNA	GNR				GR				X						X									
Common Dandelion	*Taraxacum officinale*	Asteraceae		3	I	N					SE5	N5	G5			C	FO	Spr-Aut			X	X		X		X	X		X				X				
Flat-top White Aster	*Doellingeria umbellata*	Asteraceae	6	-3	N	N				0	S5	N5	G5				FO	Sum-Aut			X																
Common Lilac	*Syringa vulgaris*	Oleaceae		5	I	Y				Cat 2	SE5	NNA	GNR			C	SH	Spr									X	X								
Wild Cucumber	*Echinocystis lobata*	Cucurbitaceae	3	-3	N	N				0	S5	N5	G5			C	VI	Sum					X									X				
Common Milkweed	*Asclepias syriaca*	Apocynaceae	0	5	N	N					S5	N5	G5			C	FO	Sum			X	X		X										X		X	
Russian Olive	*Elaeagnus angustifolia*	Elaeagnaceae		3	I	Y				Cat 3	SE3	NNA	GNR			C	SH				X	X														
Annual Fleabane	*Erigeron annuus*	Asteraceae	0	3	N	N				0	S5	N5	G5			C	FO				X																
Canada Horseweed	*Erigeron canadensis*	Asteraceae	0	3	N	N	Y			0	S5	N5	G5			C	FO				X																
Common Ragweed	*Ambrosia artemisiifolia*	Asteraceae	0	3	N	N			Yes		S5	N5	G5				FO	Aut			X																
Common Reed	*Phragmites australis*	Poaceae	0	-3	I	Y	Restricted Invasive			Cat 1*	S4?	N5	G5			C	GR	Sum			X	X					X		X								
Common Timothy	*Phleum pratense*	Poaceae		3	I	N					SE5	NNA	GNR			C	GR				X																
Common Viper's Bugloss	*Echium vulgare*	Boraginaceae		5	I	N					SE5	NNA	GNR			C	FO	Sum				X															
Cottony Willow	*Salix eriocephala*	Salicaceae	4	-3	N	N					S5	N5	G5			C	SH																	X			
Crack Willow	*Salix euxina*	Salicaceae		0	I	N					SE	NNA	GNR				TR								X	X	X	X			X					
Cranberry Viburnum	*Viburnum opulus*	Caprifoliaceae	5	-3	N	N					S5	N5	G5			C	SH											X								
Cranberry Viburnum	*Viburnum opulus*	Caprifoliaceae	5	-3	I	Y					SE3?	NNA	G5TNR				SH											X								
Curled Dock	*Rumex crispus*	Polygonaceae		0	I	N					SE5	NNA	GNR			C	FO							X												
Common Bedstraw	*Galium aparine*	Rubiaceae	4	3	N	N				0	S5	N5	G5			U	FO	Spr			X	X		X		X			X			X		X		
Common Marsh Bedstraw	*Galium palustre*	Rubiaceae	5	-5	N	N				0	S5	N5	G5			C	FO				X			X											X	
Yellow Bedstraw	*Galium verum*	Rubiaceae		5	I	Y				Cat 3	SE4	NNA	GNR			C	FO	Sum			X															
Virginia Stickseed	*Hackelia virginiana*	Boraginaceae	5	3	N	N				0	S5	N5	G5			R	FO	Sum															X			
Sea Buckthorn	*Hippophae rhamnoides*	Elaeagnaceae		3	I	N				0	SE1	NNA	G5				SH					X		X				X								
Virginia Waterleaf	*Hydrophyllum virginianum*	Hydrophyllaceae	6	0	N	N				0	S5	N5	G5			C	FO	Spr																	X	
Common St. John's-wort	*Hypericum perforatum*	Clusiaceae		5	I	Y	Y			Cat 4	SE5	NNA	GNR			C	FO					X														
Eastern Hop-hornbeam	*Ostrya virginiana*	Betulaceae	4	3	N	N					S5	N5	G5			C	TR													X					X	
Eastern Poison Ivy	*Toxicodendron radicans var. radicans*	Anacardiaceae	2	0	N	N			Yes		S5	N4	G5T5				VW	Spr			X							X							X	
Eastern White Cedar	*Thuja occidentalis*	Cupressaceae	4	-3	N	N					S5	N5	G5			C	TR				X						X				X					
Eastern White Pine	*Pinus strobus*	Pinaceae	4	3	N	N					S5	N5	G5			C	TR		LV												X	X				
European Buckthorn	*Rhamnus cathartica*	Rhamnaceae		0	I	Y			Yes	Cat 1	SE5	NNA	GNR			C	SH	Sum			X	X	X	X	X	X	X			X		X		X		X	
European Larch	*Larix decidua*	Pinaceae		5	I	N					SE2	NNA	G5			C	TR													X		X				
Field Horsetail	*Equisetum arvense*	Equisetaceae	0	0	N	N					S5	N5	G5			C	FE	Spr							X												X
Butter-and-eggs	*Linaria vulgaris*	Scrophulariaceae		5	I	N				Cat 4	SE5	NNA	GNR			C	FO	Sum				X														
Garden Bird's-foot Trefoil	*Lotus corniculatus*	Fabaceae		3	I	Y				Cat 2	SE5	NNA	GNR			C	FO	Sum			X	X					X										X
Garlic Mustard	*Alliaria petiolata*	Brassicaceae		0	I	Y				Cat 1	SE5	NNA	GNR			C	FO	Spr-Aut										X						X		
Grass-leaved Goldenrod	*Euthamia graminifolia*	Asteraceae	2	0	N	N					S5	N5	G5			C	FO	Sum-Aut										X								
Watercress	*Nasturtium officinale*	Brassicaceae		-5	I	Y				0	SE	NNA	GNR				FO											X								
Common Evening-primrose	*Oenothera biennis*	Onagraceae	0	3	N	N				0	S5	N5	G5			C	FO	Sum			X															
Heart-leaved Aster	*Symphyotrichum cordifolium*	Asteraceae	5	5	N	N					S5	N5	G5			R	FO	Sum-Aut			X						X									
Spotted Lady's-thumb	*Persicaria maculosa*	Polygonaceae		-3	I	N				0	SE5	NNA	G3G5			C	FO				X															
Kentucky Bluegrass	*Poa pratensis*	Poaceae	0	3	N	N				Cat 2	S5	N5	G5			C	GR				X															
Large False Solomon's Seal	*Maianthemum racemosum*	Liliaceae	4	3	N	N					S5	N5	G5			C	FO	Spr-Sum													X					
Meadow Hawkweed	*Pilosella caespitosa*	Asteraceae		5	I	N				Cat 3	SE5	NNA	GNR			+	FO																	X		
Manitoba Maple	*Acer negundo*	Aceraceae	0	0	N	Y				Cat 1*	S5	N5	G5			C	TR				X	X					X	X				X	X				X
Maple-leaved Viburnum	*Viburnum acerifolium*	Caprifoliaceae	6	5	N	N					S5	N5	G5			C	SH				X															
Morrow's Honeysuckle	*Lonicera morrowii*	Caprifoliaceae		3	I	Y				Cat 1	SE3	NNA	GNR				SH					X														
Nannyberry	*Viburnum lentago*	Caprifoliaceae	4	0	N	N					S5	N5	G5			C	SH	Spr				X						X		X			X			X
Narrow-leaved Cattail	*Typha angustifolia*	Typhaceae		-5	I	Y					SE5	N5	G5			C	FO	Sum					X	X	X									X		X	
May-apple	*Podophyllum peltatum*	Berberidaceae	5	3	N	N				0	S5	N5	G5			C	FO	Spr			X	X													X	
New England Aster	*Symphyotrichum novae-angliae*	Asteraceae	2	-3	N	N	Y				S5	N5	G5				FO	Sum-Aut				X			X												
Nodding Beggarticks	*Bidens cernua*	Asteraceae	2	-5	N	N					S5	N5	G5			C	FO	Aut																	X		

Appendix C: Vascular Plant List

AECOM

Common Name	Scientific Name	Family	CC (2023)	CW (2023)	Native Status	Invasive (Y/N)	Tall-grass Species (Y/N)	Invasive Species Act	Ontario Weed Control Act	Ontario Invasive Species Council	SRANK	NRANK	GRank	COSEWIC	SARO	Local Status: CLOCA/ DU	Plant Form Type	Flowering Season	Climate Change Vulnerability Index (CCVI)	ELC Code:	CUM1-1	CUT1	SWT2-5	SWT2-2	SWD4-1	CUW1	SWD3-4	SWD4-3	MAM2-2	SWD2-2	CUP3-2	FOD8-1	FOD7-3	MAS2-1	FOD5-8	SAS1-3	MAM2-10	SWT2-10
Northern Red Oak	*Quercus rubra*	Fagaceae	6	3	N	N					S5	N5	G5			C	TR				X																	
Northern Water-horehound	*Lycopus uniflorus*	Lamiaceae	5	-5	N	N					S5	N5	G5			C	FO	Aut																X				
Common Self-heal	*Prunella vulgaris*	Lamiaceae	0	0	N	N				0	S5	N5	G5			C	FO				X																
Norway Spruce	*Picea abies*	Pinaceae		5	I	N					SE3	NNA	G5			C	TR									X					X						
Oxeye Daisy	*Leucanthemum vulgare*	Asteraceae		5	I	N					SE5	NNA	GNR			+	FO	Sum-Aut			X	X															
Panicled Aster	*Symphyotrichum lanceolatum*	Asteraceae	3	-3	N	N					S5	N5	G5				FO	Sum-Aut			X								X								
Paper Birch	*Betula papyrifera*	Betulaceae	2	3	N	N					S5	N5	G5			C	TR															X	X				
Pennsylvania Sedge	*Carex pensylvanica*	Cyperaceae	5	5	N	N					S5	N5	G5			C	SE																		X		
Purple Loosestrife	*Lythrum salicaria*	Lythraceae		-5	I	Y				Cat 1	SE5	NNA	G5			C	FO	Sum						X						X				X			
Kidney-leaved Buttercup	*Ranunculus abortivus*	Ranunculaceae	2	0	N	N				0	S5	N5	G5			C	FO	Spr																		X	
Common Buttercup	*Ranunculus acris*	Ranunculaceae		0	I	N				0	SE5	NNA	G5			C	FO																		X		
Quackgrass	*Elymus repens*	Poaceae		3	I	N				Cat 3	SE5	NNA	GNR			C	GR				X																
Red Ash	*Fraxinus pennsylvanica*	Oleaceae	3	-3	N	N					S4	N5	G5			C	TR				X	X			X	X		X		X		X	X		X			X
Red Clover	*Trifolium pratense*	Fabaceae		3	I	N				Cat 4	SE5	NNA	GNR			C	FO				X																
Red Raspberry	*Rubus idaeus*	Rosaceae	2	3	N	N					S5	N5	G5			C	SH																		X		
Red-osier Dogwood	*Cornus sericea*	Cornaceae	2	-3	N	N					S5	N5	G5			C	SH	Spr			X	X	X	X	X	X			X	X	X	X	X	X			X	X
Reed Canarygrass	*Phalaris arundinacea*	Poaceae	0	-3	N	Y					S5	N5	G5			C	GR				X	X	X	X	X	X		X	X	X	X	X	X			X	X
Pussy Willow	*Salix discolor*	Salicaceae	3	-3	N	N				0	S5	N5	G5			C	SH									X					X		X			
Riverbank Grape	*Vitis riparia*	Vitaceae	0	0	N	N					S5	N5	G5			C	VW				X	X		X		X				X	X	X	X			
Corkscrew Willow	*Salix matsudana*	Salicaceae			I	N				0	SE1	NNA	GNR				TR																X			
Sandbar Willow	*Salix interior*	Salicaceae	1	-3	N	N					S5	N5	G5			C	SH																X			
Scots Pine	*Pinus sylvestris*	Pinaceae		3	I	Y				Cat 2	SE5	NNA	GNR			C	TR									X					X	X				
Purple Crown-vetch	*Securigera varia*	Fabaceae		5	I	Y				Cat 1	SE5	NNA	GNR			C	FO				X	X															X
Sensitive Fern	*Onoclea sensibilis*	Dryopteridaceae	4	-3	N	N					S5	N5	G5				FE								X										X		
Bittersweet Nightshade	*Solanum dulcamara*	Solanaceae		0	I	Y				Cat 3	SE5	NNA	GNR			C	VW							X												
Grey-stemmed Goldenrod	*Solidago nemoralis*	Asteraceae	2	5	N	N	Y			0	S5	N5	G5			C	FO	Sum-Aut			X																
Small Duckweed	*Lemna minor*	Lemnaceae	5	-5	N	N					S5?	N5	G5			C	FO																	X			
Smooth Brome	*Bromus inermis*	Poaceae		5	I	Y				Cat 4	SE5	NNA	G5			C	GR				X	X				X				X							
Spotted Jewelweed	*Impatiens capensis*	Balsaminaceae	4	-3	N	N					S5	N5	G5			C	FO	Sum			X				X	X	X			X					X		X	
Staghorn Sumac	*Rhus typhina*	Anacardiaceae	1	3	N	N					S5	N5	G5			C	SH				X	X															X
Sugar Maple	*Acer saccharum*	Aceraceae	4	3	N	N					S5	N5	G5			C	TR		LV							X									X		
Sulphur Cinquefoil	*Potentilla recta*	Rosaceae		5	I	N					SE5	NNA	GNR			+	FO																X				
Tall Goldenrod	*Solidago altissima*	Asteraceae	1	3	N	N					S5	N5	G5			C	FO	Sum-Aut				X			X	X		X				X					
Thicket Creeper	*Parthenocissus vitacea*	Vitaceae	4	3	N	N					S5	N5	G5			C	VW				X																
Trembling Aspen	*Populus tremuloides*	Salicaceae	2	0	N	N					S5	N5	G5			C	TR				X				X	X		X	X	X		X	X	X			X
Tufted Vetch	*Vicia cracca*	Fabaceae		5	I	Y				Cat 2	SE5	NNA	GNR			C	VI				X	X		X	X									X		
Virginia Creeper	*Parthenocissus quinquefolia*	Vitaceae	6	3	N	N					S4?	N4?	G5				VW	Sum			X	X													X		
White Ash	*Fraxinus americana*	Oleaceae	4	3	N	N					S4	N5	G5			C	TR				X	X				X									X		
White Elm	*Ulmus americana*	Ulmaceae	3	-3	N	N					S5	N5	G4			C	TR								X			X	X			X	X				
White Heath Aster	*Symphyotrichum ericoides*	Asteraceae	4	3	N	N	Y				S5	N5	G5				FO	Sum-Aut			X	X					X						X				
Stinging Nettle	*Urtica dioica*	Urticaceae		0	N	N				0	S5	N5	G5			C	FO	Sum							X					X			X				
Common Valerian	*Valeriana officinalis*	Valerianaceae		3	I	N				0	SE3	NNA	GNR			U	FO					X															
White Spruce	*Picea glauca*	Pinaceae	6	3	N	N					S5	N5	G5			C	TR		LV			X										X	X				
Wild Carrot	*Daucus carota*	Apiaceae		5	I	N					SE5	NNA	GNR			C	FO	Sum-Aut			X	X							X				X				
Wild Chicory	*Cichorium intybus*	Asteraceae		5	I	N					SE5	NNA	GNR			+	FO	Sum			X	X															
Wild Strawberry	*Fragaria virginiana*	Rosaceae	2	3	N	N	Y				S5	N5	G5			C	FO	Spr			X	X									X						
Yellow Avens	*Geum aleppicum*	Rosaceae	2	0	N	N					S5	N5	G5			C	FO	Sum								X											
European Swallowwort	*Vincetoxicum rossicum*	Apocynaceae		5	I	Y			Yes	Cat 1	SE5	NNA	GNR			C	VI	Sum			X	X				X						X				

Appendix C: Vascular Plant List

AECOM

Floristic Summary and Analysis for Entire Study Area			
Summary			
Total Species:	125		
Native Species:	74	0.592	
Introduced Species:	51	0.408	
Invasive Species:	27	0.216	
ESA Status			
END	0	0	
THR	0	0	
SC	0	0	
COSEWIC Status			
END	0	0	
THR	0	0	
SC	0	0	
Provincially Rare (S-rank of S1-S3)			
S1	0	0	
S1?	0	0	
S1S2	0	0	
S1S3	0	0	
S2	0	0	
S2?	0	0	
S2S3	0	0	
S2S4	0	0	
S3	0	0	
S3?	0	0	
S3S4	0	0	
Total S1-S3:	0	0	
Local Rank			
Co-efficient of Conservatism and Floral Quality Index			
Co-efficient of Conservatism (CC) (average):	3.106666667		
CC 0 to 3	lowest sensitivity	39	53%
CC 4 to 6	moderate sensitivity	35	47%
CC 7 to 8	high sensitivity	1	1%
CC 9 to 10	highest sensitivity	0	0%
Floral Quality Index (FQI)			
FQI:	26.72455716		
Presence of Wetland Species			
Wetness Value (CW) (average):	1.233870968		
upland	5	25	20%
facultative upland	2 to 4	46	37%
facultative	1 to -1	23	18%
facultative wetland	-2 to -4	20	16%
obligate wetland	-5	10	8%

Floristic Summary and Analysis Per ELC	CUM1-1	CUT1	SWT2-5	SWT2-2	SWD4-1	CUW1	SWD3-4	SWD4-3	MAM2-2	SWD2-2	CUP3-2	FOD8-1	FOD7-3	MAS2-1	FOD5-8	SAS1-3	MAM2-10	SWT2-10
Summary																		
Total Species:	59	39	4	15	16	32	17	17	12	16	12	22	18	12	20	2	11	11
Native Species:	35	19	3	8	11	17	8	10	7	14	9	15	16	9	16	0	8	9
Introduced Species:	24	20	1	7	5	15	9	7	5	2	3	7	2	3	4	2	3	2
Invasive Species:	15	12	2	6	4	12	6	4	5	2	3	5	2	2	2	2	4	4
ESA Status																		
END	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
THR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COSEWIC Status																		
END	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
THR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Provincially Rare (S-rank of S1-S3)																		
S1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S1?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S1S2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S1S3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S2?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S2S3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S2S4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S3?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S3S4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total S1-S3:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Rank																		
Co-efficient of Conservatism and Floral Quality Index																		
Co-efficient of Conservatism (CC) (average):	2.528	2.45	1.667	2	2.1	2.5	2.875	2.833	2.333	3	2.667	2.467	2.733	3	3.875	0	2.625	1.444
CC 0 to 3	22	12	3	5	8	11	5	8	5	8	6	12	8	6	5	1	5	8
CC 4 to 6	14	8	0	3	2	7	3	4	1	6	3	3	7	3	11	0	2	1
CC 7 to 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
CC 9 to 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Floral Quality Index (FQI)																		
FQI:	14.95	10.68	2.887	5.657	6.965	10.31	8.132	8.96	6.173	11.22	8	9.553	10.93	9	15.5	0	7.425	4.333
Presence of Wetland Species																		
Wetness Value (CW) (av	1.949	2.59	-2.25	-0.33	-0.94	1.063	0.647	-0.71	0.417	0.5	0.417	1.318	0.778	-3.64	1.55	-4	-1	-0.27
upland	13	13	0	2	1	7	3	1	2	1	1	4	2	0	2	0	2	1
facultative upland	29	17	0	3	2	10	3	4	3	5	5	8	6	0	10	0	1	2
facultative	6	4	1	4	5	6	8	3	3	6	1	5	6	1	5	0	2	4
facultative wetland	9	5	3	3	7	7	1	8	3	4	5	5	3	5	3	1	3	3
obligate wetland	2	0	0	3	1	2	2	1	1	0	0	0	1	5	0	1	3	1

Vascular Plant List Glossary

Floristic Quality Index (FQI):

The floristic quality of an area is reflected in the mean value of Co-efficient of Conservatism. For example, an old field or grazed woodlot would tend have a low mean Co-efficient of Conservatism; these habitats are dominated by opportunistic species that occur in a wide range of site conditions and are tolerant of disturbance. A bog, prairie or intact forest would have a higher value, reflecting many species' specific habitat requirements and a generally undisturbed condition. A community with a Floristic Quality Index between 1 to 19 will be considered to be of low vegetative quality; communities with a Floristic Quality Index between 20 to 35 will be considered to have a high vegetative quality and communities with a Floristic Quality Index above 35 will be considered of “Natural Area” Quality.

Co-efficient of Conservatism (CC):

These values range from 0 (low) to 10 (high) and are based on species tolerance of disturbance and fidelity to a specific habitat. General habitat values associated with the Co-efficient of Conservatism values are:

- **0 to 3:** species found in a wide variety of communities, including disturbed sites
- **4 to 6:** species associated with a specific community, but tolerate moderate disturbance
- **7 to 8:** species associated with a community in an advanced successional stage, tolerant of minor disturbances
- **9 to 10:** species with a high degree of fidelity to a narrow range of synecological parameters

It is important to note that CC and FQI values do not incorporate Indigenous knowledge or Indigenous perspectives and is not reflective of cultural value or significance to Indigenous communities.

Co-efficient of Wetness (CW):

The coefficient of wetness value indicates the plant’s soil moisture tolerance. Negative wetness coefficients indicate a stronger affinity for wetlands, while positive wetness coefficients indicate an affinity for uplands.

Coefficient of Wetness				
CW Value	**Abbrv.**	**Indicator Status**	**% Occur. in Wetlands**	**Definition**
-5	**OBL**	Obligate Wetland	99	Almost always occur in wetlands. With few exceptions, these plants (herbaceous or woody are found in standing water or seasonally saturated soils (14 or more consecutive days) near the surface.
-4	**FACW+**			
-3	**FACW**	Facultative Wetland	67-99	Usually occur in wetlands, but may occur in non-wetlands. These plants predominately occur with hydric soils, often in geomorphic settings where water saturates the soils or floods the soil surface at lease seasonally.
-2	**FACW-**			
-1	**FAC+**			
0	**FAC**	Facultative	34-66	Occur in wetlands and nonwetlands. These plants can grow in hydric, mesic, or xeric habitats. The occurrence of these plants in different habitats represents responses to a variety of environmental variables other than just hydrology, such as shade tolerance, soil pH, and elevation, and they have a wide tolerance of soil moisture conditions.
1	**FAC-**			
2	**FACU+**			
3	**FACU**	Facultative Upland	1-33	Usually occur in non-wetlands, but may occur in wetlands. These plants predominately occur on drier or more mesic sites in geomorphic settings where water rarely saturates the soils or floods the soil surface seasonally.
4	**FACU-**			
5	**UPL**	Obligate Upland	1	Almost never occur in wetlands. These plants occupy mesic to xeric non-wetland habitats. They almost never occur in standing water or saturated soils. Typical growth forms include herbaceous, shrubs, woody vines, and trees.

Notes: "+" or "-" signs have been attached to the three Facultative categories to express exaggerated tendencies for those species. The "+" sign denotes that the species generally has a greater estimated probability of occurring in wetlands than species having the general indicator category, but a lesser estimated probability of occurring in wetlands than those having the next higher general indicator. The"-" sign denotes that the species generally has a lesser estimated probability of occurring in wetlands than those having the general indicator status, but a greater estimated probability of occurring in wetlands than those having the next lowest general indicator.

Endangered Species Act (ESA) Status	
Rank	**Definition**
EXP	**Extirpated** -A species that no longer exists in the wild in Ontario but still occurs elsewhere.
END	**Endangered -** A species facing imminent extinction or extirpation in Ontario.
THR	**Threatened -** A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
SC	**Special Concern** - A species with characteristics that make it sensitive to human activities or natural events.

COSEWIC Status	
Rank	**Definition**
EXP	**Extirpated -** A wildlife species that no longer exists in the wild in Canada, but exists elsewhere.
END	**Endangered -** A wildlife species facing imminent extirpation or extinction.
THR	**Threatened -** A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC	**Special Concern** - A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

National (N) and Subnational (S) Conservation Status Ranks	
Rank	**Definition**
NX **SX**	**Presumed Extirpated** - Species or ecosystem is believed to be extirpated from the jurisdiction (i.e., nation, or state/province). Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered. [equivalent to "Regionally Extinct" in IUCN Red List terminology]
NH **SH**	**Possibly Extirpated** - Known from only historical records but still some hope of rediscovery. There is evidence that the species or ecosystem may no longer be present in the jurisdiction, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.
N1 **S1**	**Critically Imperiled** - At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.
N2 **S2**	**Imperiled** - At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
N3 **S3**	**Vulnerable**— At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
N4 **S4**	**Apparently Secure** - At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
N5 **S5**	**Secure -** At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

Variant National and Subnational Conservation Status Ranks	
Rank	**Definition**
N# **S#**	**Range Rank** - A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4).
NU **SU**	**Unrankable** - Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
NNR **SNR**	**Unranked** - National or subnational conservation status not yet assessed.
NNA **SNA**	**Not Applicable** - A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., long distance aerial and aquatic migrants, hybrids without conservation value, and non-native species or ecosystems (see Master et al. 2012, Appendix A, pg 70 for further details).
Not Provided	Species or ecosystem is known to occur in this nation or state/province. Contact the appropriate NatureServe network program for assignment of conservation status.

Rank Qualifier	
Rank	**Definition**
N#? **S#?**	**Inexact Numeric Rank** - Denotes inexact numeric rank; this should not be used with any of the Variant National or Subnational Conservation Status Ranks, or NX, SX, NH, or SH.

Carolinian Status	
CZ	**CZ Status (See Below)**
Rank	**Definition**
H	**Historic.** Native in all Carolinian Zone areas and no known records for at least 30 years in all areas where native and ranked (i.e. not X). Occasionally used for a native species known to be extirpated from its only known Carolinian Zone location(s).
R	**Rare.** Native to the Carolinian Zone and (a) rare (as defined in source lists; sometimes including "very uncommon") or historic (no records in ≥30 years) in more than half of the Carolinian Zone areas (≥6) in which it is native and ranked (i.e. not X); or (b) if rare or historic in <6 areas it must be uncommon or common in no more than one area.
U	**Uncommon.** Native in the Carolinian Zone and (a) listed as common in no more than one Carolinian Zone area; and (b) not rare or historic in more than half of the Carolinian Zone areas (≥6) in which it is native and ranked (i.e. not X).
C	**Common.** Native in the Carolinian Zone and (a) common in at least two Carolinian Zone areas; and (b) not rare or historic in more than half of the Carolinian Zone areas (≥6) in which it is native and ranked (i.e. not X).
X	**No status.** Present and native in the Carolinian Zone but no status assigned because of lack of information, often due to confusion with similar species.
note	In a few cases, based on professional opinion, Carolinian Zone status ranks departed from the above criteria, particularly if the species is not ranked (i.e. X) in at least four Carolinian Zone areas.

Invasive Species Act, 2015	
Description	**Description**
Prohibited	It is illegal to import, possess, deposit, release, transport, breed, buy, sell, lease or trade prohibited invasive species in Ontario.
Restricted	In Ontario, it is illegal to import, breed, buy, sell, lease, or trade restricted invasive species in Ontario. Additional restrictions apply for these species in provincial parks and conservation reserves. It is illegal to bring them into, transport them, deposit or release them in these protected areas.

Ontario Invasive Plant Council (OIPC) Category Definitions	
Description	**Description**
Category 1	Aggressive invasive exotic species that can dominate a site to exclude all other species and remain dominant on the site indefinitely. These are a threat to natural areas wherever they occur because they can reproduce by means that allow them to move long distances. Many of these are dispersed by birds, wind, water or vegetative reproduction. These are the top priority for control, but control may be difficult. Eradication may be the only option for long-term success.
Category 2	Exotic species that are highly invasive but tend to only dominate certain niches or do not spread rapidly from major concentrations. Many of these spreads vegetatively, or by seeds that drop close to the parent plant. They may have been deliberately planted and persist in dense populations for long periods. Control where necessary and limit their spread to other areas.
Category 3	Exotic species that are moderately invasive but can become locally dominant when the proper conditions exist. Control where necessary and limit their spread to other areas.
Category 4	Exotic species that do not pose a serious threat to natural areas unless they are competing directly with more desirable vegetation. These can often be tolerated in restoration projects if they are already present. They may eventually be replaced through natural succession or management. Control where necessary and limit their spread to other areas.

Plant Form or Type Codes		
Code	**Form**	**Description**
FE	Fern	non-flowering, vascular plant, reproducing by spores - Pteridophytes. Including the fern allies such as horsetail, club-moss and quillwort.
FO	Forb	herbaceous broad-leaved plant
GR	Grass	graminoid plants in the Poaceae
RU	Rush	graminoid plants in the Juncaceae
SE	Sedge	graminoid plants in the Cyperaceae
SH	Shrub	plants with erect, reclining or prostrate woody stems (usually with more than one stem)
TR	Tree	woody perennial plant having a single (1-3) stem, usually with an elongate main stem (trunk)
VI	Vine	herbaceous plant that trail, cling, or twine, and requires support to grow vertically

Appendix D

Bird List

Appendix D. Breeding Bird Survey Results

Family	Common Name	Scientific Name	S-Rank	COSEWIC Status	SARA Status	ESA Status	BBS-01	BBS-02	BBS-03	BBS-04	BBS-05	BBS-06	BBS-07	BBS-08	BBS-09	BBS-10	BBS-11	BBS-12	Incidental	Grand Total
Picidae	Northern Flicker	*Colaptes auratus*	S5	-	-	-												1		1
	Hairy Woodpecker	*Leuconotopicus villosus*	S5	-	-	-	1													1
Vireonidae	Red-eyed Vireo	*Vireo olivaceus*	S5B	-	-	-	4	3			2			2		1				12
	Warbling Vireo	*Vireo gilvus*	S5B	-	-	-				1										1
Troglodytidae	House Wren	*Troglodytes aedon*	S5B	-	-	-	1	2		2	3	1			1	1				11
	Carolina Wren	*Thryothorus ludovicianus*	S4	-	-	-	1													1
	Marsh Wren	*Cistothorus palustris*	S4B,S3	-	-	-			1											1
Parulidae	Yellow Warbler	*Setophaga petechia*	S5B	-	-	-	6	6	7	3			9	2	4	2	1	2		42
	American Redstart	*Setophaga ruticilla*	S5B	-	-	-	3			2	1			1	1	4				12
	Common Yellowthroat	*Geothlypis trichas*	S5B,S3	-	-	-		1	2		2		1		1	1	2			10
	Yellow-rumped Warbler	*Setophaga coronata*	S5B,S4	-	-	-				1										1
Hirundinidae	Barn Swallow	*Hirundo rustica*	S4B	SC	THR	SC			3	5								1		9
	Bank Swallow	*Riparia riparia*	S4B	THR	THR	THR													1	
Passerellidae	Song Sparrow	*Melospiza melodia*	S5	-	-	-	6	10	9	5	2	3	5		6	4	7	4		61
	Chipping Sparrow	*Spizella passerina*	S5B,S3	-	-	-					1									1
	Swamp Sparrow	*Melospiza georgiana*	S5B,S4	-	-	-							1							1
	Field Sparrow	*Spizella pusilla*	S4B,S3	-	-	-				2					2		1	2		7
	White-throated Sparrow	*Zonotrichia albicollis*	S5	-	-	-		1												1
	Savannah Sparrow	*Passerculus sandwichensi*	S5B,S3	-	-	-			1						2			1		4
Tyrannidae	Great Crested Flycatcher	*Myiarchus crinitus*	S5B	-	-	-	1								1					2
	Eastern Wood-pewee	*Contopus virens*	S4B	SC	SC	SC	1			1				1		1				4
	Willow Flycatcher	*Empidonax traillii*	S4B	-	-	-		1	3	3		1	4		2		2	2		18
	Eastern Kingbird	*Tyrannus tyrannus*	S4B	-	-	-				1				1	1					3
	Gray Flycatcher	*Empidonax wrightii*	SNA	-	-	-					1					1				2
Mimidae	Gray Catbird	*Dumetella carolinensis*	S5B,S3	-	-	-	3		3	1				1	1	2	2	1		14
	Northern Mockingbird	*Mimus polyglottos*	S4	-	-	-				1							1	1		3
	Brown Thrasher	*Toxostoma rufum*	S4B	-	-	-												1		1
Icteridae	Baltimore Oriole	*Icterus galbula*	S4B	-	-	-		1					1	1	2	1				6
	Red-winged Blackbird	*Agelaius phoeniceus*	S5	-	-	-	4		5	7	8	2	9	2	3	4	9	7		60
	Common Grackle	*Quiscalus quiscula*	S5	-	-	-	1				2			1		1	1	6		12
	Brown-headed Cowbird	*Molothrus ater*	S5	-	-	-			2	1	1				2			2		8
	Orchard Oriole	*Icterus spurius*	S4B	-	-	-				1										1
Corvidae	Blue Jay	*Cyanocitta cristata*	S5	-	-	-	4	5				1	1							11
	American Crow	*Corvus brachyrhynchos*	S5	-	-	-						1	2		1	1		1		6
	Common Raven	*Corvus corax*	S5	-	-	-				1								1		2
Anatidae	Mallard	*Anas platyrhynchos*	S5	-	-	-			1											1
Bombycillidae	Cedar Waxwing	*Bombycilla cedrorum*	S5	-	-	-	1	1		8	2			5		2		1		20
Phalacrocoracidae	Double-crested Cormorant	*Phalacrocorax auritus*	S5B,S4	NAR	-	NAR					1							1		2
Cardinalidae	Northern Cardinal	*Cardinalis cardinalis*	S5	-	-	-	1			2	2		1		5	1		1		13
	Indigo Bunting	*Passerina cyanea*	S5B	-	-	-	1	2		1		1		2	1		1			9
	Scarlet Tanager	*Piranga olivacea*	S5B	-	-	-	1													1
Laridae	Ring-billed Gull	*Larus delawarensis*	S5	-	-	-			1					1			1	4		7
	Herring Gull	*Larus argentatus*	S4B,S5	-	-	-				1							1	1		3

Family	Common Name	Scientific Name	S-Rank	COSEWIC Status	SARA Status	ESA Status	BBS-01	BBS-02	BBS-03	BBS-04	BBS-05	BBS-06	BBS-07	BBS-08	BBS-09	BBS-10	BBS-11	BBS-12	Incidental	Grand Total
Fringillidae	American Goldfinch	*Spinus tristis*	S5	-	-	-	2		4	2	4	1	1	5	1	1	2	5		28
Charadriidae	Killdeer	*Charadrius vociferus*	S4B	-	-	-	1	2	3						5	1	1	2		15
Turdidae	American Robin	*Turdus migratorius*	S5	-	-	-	3	3	5	3	5	3	3	5	9	3		2		44
	Hermit Thrush	*Catharus guttatus*	S5B,S4	-	-	-							1							1
Sittidae	Red-breasted Nuthatch	*Sitta canadensis*	S5	-	-	-													1	
Sturnidae	European Starling	*Sturnus vulgaris*	SNA	-	-	-			1	1					4		10	3		19
Paridae	Black-capped Chickadee	*Poecile atricapillus*	S5	-	-	-	1			1		1		2						5
Passeridae	House Sparrow	*Passer domesticus*	SNA	-	-	-					1									1
Columbidae	Mourning Dove	*Zenaida macroura*	S5	-	-	-												5		5
Accipitridae	Red-tailed Hawk	*Buteo jamaicensis*	S5	NAR	-	NAR	2	3							1					6
Scolopacidae	Spotted Sandpiper	*Actitis macularius*	S5B	-	-	-			1											1
Polioptilidae	Blue-gray Gnatcatcher	*Polioptila caerulea*	S4B	-	-	-	1													1
Regulidae	Golden-crowned Kinglet	*Regulus satrapa*	S5	-	-	-				1								1		2
Phasianidae	Wild Turkey	*Meleagris gallopavo*	S5	-	-	-													1	
Falconidae	American Kestrel	*Falco sparverius*	S4	-	-	-													1	
Apodidae	Chimney Swift	*Chaetura pelagica*	S3B	THR	THR	THR													1	
Grand Total							50	41	52	58	38	15	39	32	56	32	42	59		514

Breeding Bird Survey Glossary

S-rank (Provincial) - is the conservation status of a species or plant community within a particular province, territory or state. Natural Heritage Information Centre (NHIC) assigns subnational ranks (SRanks) for species and plant communities in Ontario using the best available information and considering factors such as abundance, distribution, population trends and threats. Conservation status ranks do not have any legal standing in Ontario. They are independent of status designated under Canada's *Species at Risk Act* and *Ontario's Endangered Species Act*.

Source: https://explorer.natureserve.org/AboutTheData/DataTypes/ConservationStatusCategories

RANK	DEFINITION
SX	**Presumed Extirpated**—Species or ecosystem is believed to be extirpated from the jurisdiction (i.e., nation, or state/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** – Known from only historical records but still some hope of rediscovery. There is evidence that the species or ecosystem may no longer be present in the jurisdiction, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years in human-dominated landscapes despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.
S1	**Critically Imperiled**— At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.
S2	**Imperiled**— At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3	**Vulnerable**— At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4	**Apparently Secure**— At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5	**Secure**— At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.
S#	**Range Rank** —A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4).
SU	**Unrankable**—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNR	**Unranked**—National or subnational conservation status not yet assessed.
SNA	**Not Applicable** —A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., long distance aerial and aquatic migrants, hybrids without conservation value, and non-native species or ecosystems; see Master et al. 2012, Appendix A, pg 49 for further details).
Not Provided	Species or ecosystem is known to occur in this nation or state/province. Contact the appropriate NatureServe network program for assignment of conservation status.
S#B	**Breeding**—Conservation status refers to the breeding population of the species in the nation or state/province.
S#N	**Non-breeding**—Conservation status refers to the non-breeding population of the species in the nation or state/province.
S#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 nation or state/province.

ESA Status: The Endangered Species Act 2007 (ESA) protects the individuals and habitats of 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.

Source: https://www.ontario.ca/page/how-species-risk-are-protected#section-2

The following are the categories of at risk:

- Extirpated (EXT): lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario
- Endangered (END): lives in the wild in Ontario but is facing imminent extinction or extirpation
- Threatened (THR): lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it
- Special Concern (SC): lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats
- Not at Risk (NAR)– A species that has been evaluated and found to be not at risk.

COSEWIC: Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is an independent advisory panel to the Minister of Environment and Climate Change Canada that meets twice a year to assess the status of wildlife species at risk of extinction. Under SARA, the government of Canada will take COSEWIC designations into consideration when establishing the official list of wildlife species at risk. See the SARA status rankings defined below.

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 and waterbodies . 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.

MBCA Protected Birds - The Migratory Birds Convention Act, 1994 (MBCA) is intended to protect migratory birds, their eggs, and their active nests. The Act includes protections for more than 700 species of birds. The following birds are protected under the MBCA:

1. Birds referred to in Article I of the Migratory Birds Convention as amended under the 1995 Protocol, either directly by species name, directly by the listing of their family, or indirectly by interpretation of the original Convention.
2. Species that are native or naturally occurring in Canada: A native migratory bird is one that is present entirely as a result of natural biological or ecological processes.
3. Species known to have regularly occurred in Canada. Although species that occur infrequently (i.e., “accidentals”) and that meet criteria 1 and 2 are not included on this list, they continue to be considered as having protection under the MBCA any time they occur in Canadian territory.

   In general, birds not falling under federal jurisdiction within Canada include grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, falcons, cormorants, pelicans, crows, jays, kingfishers, and some species of blackbirds.

Source: https://www.canada.ca/en/environment-climate-change/services/migratory-birds-legal-protection/convention-act.html

Area Sensitive Birds – bird species that require large areas of habitat (e.g. forests, meadows, grasslands) to breed successfully. List has been taken from Appendix C. A list of area sensitive species and key references from the Significant Wildlife Habitat Technical Guide (MNR, 2000).

Ontario Breeding Bird Atlas - Breeding Evidence Codes

Source: https://www.birdsontario.org/breeding-codes/

Evidence Code	Description	Level of Breeding Evidence	
Flyover	Flyover. Not breeding.	Flyover	Lowest
X	Species observed during its breeding season, but NOT in suitable nesting habitat (no breeding evidence found). Note that this code is rarely used as birds tend to occupy nesting habitat during the breeding season. Do not use for species known to be migrants.	Observed	
H	Species observed in suitable nesting Habitat during its breeding season.	Possible	
S	Singing male or adult producing other sounds associated with breeding (e.g., calls or drumming) in suitable nesting habitat during the species' breeding season.	Possible	
M	Multiple singing/calling/drumming individuals (7 or more) heard during one visit to a single square and in suitable nesting habitat during the species' breeding season. Use with caution to avoid counting migrants.	Probable	
P	Pair observed in suitable nesting habitat during the species' breeding season.	Probable	
T	Presumed Territory based on the presence of an adult bird (usually singing, but not necessarily so), in the same suitable nesting habitat patch on at least two visits, one week or more apart, during the species' breeding season. Use discretion when using this code. "T" is not to be used for colonial birds, or species that might forage or loaf a long distance from their nesting site (e.g. Turkey Vulture, and male waterfowl).	Probable	
D	Courtship or Displays involving a male and female (e.g., courtship feeding, copulation) or antagonistic behavior between two or more individuals (e.g., territorial disputes or chases), in suitable nesting habitat during the species' breeding season.	Probable	
V	Bird Visiting a probable nest site in suitable nesting habitat during the species' breeding season.	Probable	
A	Agitated behavior or alarm calls of an adult in suitable nesting habitat during the species' breeding season.	Probable	
B	Brood patch or cloacal protuberance on an adult in suitable nesting habitat during the species' breeding season.	Probable	
N	Nest-building by wrens or nest hole excavation by woodpeckers (both may build dummy or roosting nests so nest-building alone is not enough to confirm breeding).	Probable	
NB	Nest building, including the carrying of nesting material, by all species except wrens and woodpeckers.	Confirmed	
DD	Distraction Display, injury-feigning, or other displays attempting to draw attention away from a nest or young.	Confirmed	
NU	Empty Nest Used or identifiable eggshells from earlier in the same nesting season.	Confirmed	
FY	Recently Fledged Young (nidicolous species – whose young are raised in a nest) or downy young (nidifugous species – whose young leave the nest soon after hatching) incapable of sustained flight.	Confirmed	
AE	Adult Entering, occupying, or leaving a nest site (visible or not) or whose behavior suggests the presence of an occupied nest.	Confirmed	
FS	Adult carrying a Faecal Sac.	Confirmed	
CF	Adult Carrying Food for young.	Confirmed	
NE	Nest containing eggs	Confirmed	
NY	Nest with Young (seen or heard)	Confirmed	Highest

Appendix E

Significant Wildlife Habitat Screening

SWH Ecoregion 6E Criterion Schedule – January 2015

Table 1.1 Seasonal Concentration Areas of Animals.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area	Conclusions/ Recommendations
		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 Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	• 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 cxlviii. <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 • Sites documented through waterfowl planning processes (e.g. 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”ccxi • Any mixed species aggregations of 100Ⓔ or more individuals required. • The flooded field ecosite habitat plus a 100-300m radius area, 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). • SWHMiST Index #7 provides development effects and mitigation measures.	**No;** Cultural meadow, cultural thicket and large agricultural fields are present within the Study Area. However, no known waterfowl stopover staging areas were identified during desktop background review.	**No;** Candidate habitat was not identified. Additionally, no significant concentrations of waterfowl were found within the Study Area during field investigations.	There are no further considerations or requirements for this wildlife habitat.
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	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water) <u>Information Sources</u> • Environment Canada.	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 cxlix • The combined area of the ELC ecosites and a 100m radius area is the SWH cxlviii • Wetland area and shorelines associated with sites identified within the SWHTG cxlviii	**No;** The Study Area did not contain wetlands of sufficient size to support large numbers of waterfowl species.	**No;** Candidate habitat was not identified. Additionally, large aggregations of waterfowl inthe Study Area were not observed during field investigations.	There are no further considerations or requirements for this wildlife habitat.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			
usually only one of a few in the eco-district.	Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck		• 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 (e.g. EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Appendix K cxlix are significant wildlife habitat. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"ccxi • 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). • SWHMiSTcxlix Index #7 provides development effects and mitigation measures.			
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 • Natural Heritage Information Center (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 cxlviii • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"ccxi • SWHMiSTcxlix Index #8 provides development effects and mitigation measures.	**No;** Suitable shoreline habitat was not present within the Study Area.	**No;** Candidate habitat was not identified.	There are no further considerations or requirements for this wildlife habitat.
Raptor Wintering Area **<u>Rationale:</u>** Sites used by multiple species, a high number of individuals and	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **<u>Special Concern:</u>** Short-eared Owl	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class;	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species Ⓔ.	**No;** Forest and upland vegetation communities present in the Study Area but do not meet minimum size	**No;** Candidate habitat was not identified.	There are no further considerations or requirements for this wildlife habitat.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			
used annually are most significant	Bald Eagle	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 adjacent to lakes with open water (hunting area).	• Raptor wintering sites (hawk/owl) need to be > 20 ha cxlviii, cxlix with a combination of forest and upland. xvi, xvii, xviii, xix, xx, xxi. • 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, large trees and snags available for roosting cxlix <u>Information Sources:</u> • OMNRF Ecologist or Biologist • Field Naturalist Clubs • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Results of Christmas Bird Counts • Reports and other information available from Conservation Authorities.	• To be significant a site must be used regularly (3 in 5 years) cxlix 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” • SWHMiST Index #10 and #11 provides development effects and mitigation measures.	criteria to be considered SWH.		
Bat Hibernacula **<u>Rationale;</u>** Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat Tri-coloured 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> • OMNRF 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 (e.g. Sierra Club) • University Biology Departments with bat experts.	• All sites with confirmed hibernating bats are SWH Ⓔ. • The habitat area includes a 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 “Bats and Bat Habitats: Guidelines for Wind Power Projects”. • SWHMiST Index #1 provides development effects and mitigation measures.	**No;** There were no caves, mine shafts or underground foundations and karsts present within the Study Area.	**No;** Candidate habitat was not identified.	There are no further considerations or requirements for this wildlife habitat.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			

Bat Maternity Colonies
 	
<u>Rationale:</u>
Known locations of forested bat maternity colonies are 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 buildings xxii, xxv, xxvi, xxvii, xxxi (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>
			• OMNRF 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 a forest stand ELC Ecosite or an Ecoelement 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”.
				• SWHMiSTIndex #12 provides development effects and mitigation measures.
					Yes;
					
					Forest and swamp communities were present within the Study Area.
						Confirmed;
						
						Suitable roost trees were identified in forest and swamp communities within the Study Area. Additionally, The presence of Big Brown Bats and Silver-haired bats were confirmed. While acoustic monitoring does not provide abundance data, many passes of Big Brown Bat and Silver-haired Bat were recorded during the monitoring period. This indicates Big Brown Bats and Silver-haired Bats were using forest and swamp communities as roost habitat.
							Confirmed SWH within the Manitoba Maple Mineral Deciduous Swamp (SWD3-4) and Willow Mineral Deciduous Swamp (SWD4-1) occur in the Proposed Expansion Area.
							
							If impacts are anticipated, the following mitigation measures should be followed:
							- Limit tree removal within swamp and forest communities to the extent possible
							- Tree removal should be completed outside of the roosting season (April 1 – September 30)
							- Construction activities should be limited to the hours of 7am to 7pm to limit disturbance to bats.
							- Construction of bat nesting boxes in certain areas should be considered to offset the loss of roosting habitat.

Turtle Wintering Areas **<u>Rationale:</u>** Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle **<u>Special Concern:</u>** Northern Map Turtle Snapping Turtle	Midland Painted Turtles; ELC Community Classes; SW, MA, OA and SA, ELC Community Series; FEO and BOO Northern Map Turtle; Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	• 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 cix, cx, cxi, cxii • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. <u>Information Sources:</u> • EIS studies carried out by Conservation Authorities. • Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • OMNRF Ecologist or Biologist • Field Naturalist clubs	• Presence of 5 over-wintering Midland Painted Turtles is significantⒺ. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significantⒺ. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) cvii. • Congregation of turtles is more common where wintering areas are limited and therefore significant cix, cx, cxi, cxii.	**Candidate;** Marsh communities may provide suitable habitat.	**Candidate;** The Cattail Mineral Shallow Marsh (MAS2-1) located in the east end of the Study Area, just north of the railway had sufficient depth and substrate to provide potential SWH. No candidate or confirmed SWH was identified in the Proposed Expansion Area.	Given candidate habitat does not overlap with the Proposed Expansion Area, there are no further considerations or requirements for this wildlife habitat.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			
			• Natural Heritage Information Center (NHIC)	• SWHMiSTcxlix Index #28 provides development effects and mitigation measures for turtle wintering habitat.			
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 **<u>Lizard:</u>** **<u>Special Concern</u>** (Southern Shield population)**:** Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	• 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 xliv, l, li, lii, cxii. • 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. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures . <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 Naturalists clubs • University herpetologists • Natural Heritage Information Center (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks	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 (e.g. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct)Ⓔ • <u>Note:</u> If there are Special Concern Species present, then site is SWH • <u>Note:</u> 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 radius area is the SWHⒺ • SWHMiSTcxlix Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • SWHMiSTcxlix Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	**Yes;** Hibernacula may be present in any vegetation community that contains suitable hibernation sites for snakes below frost lines such as burrows, rock crevices, rock piles, etc. Suitable habitat may be present within forested communities within the Study Area.	**No;** No features that may go below the frost line was identified in the Study Area.	There are no further considerations or requirements for this wildlife habitat.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			
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 population are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns. 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/ • Field Naturalist Clubs.	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. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • SWHMiSTIndex #4 provides development effects and mitigation measures	**No;** Although habitat may be present in the Study Area, features are man made and/or disturbed or recently disturbed and therefore Do not qualify as SWH. Additionally, higher quality suitable habitat likely occurs along Lake Ontario located outside of the Study Area.	**No;** One observation of a Cliff Swallow flyover was recorded during the 2025 field investigations (on June 3 2025). The stockpiles present in the Study Area were man-made and recently disturbed, therefore, stockpiles do not meet SWH criteria. The Study Area did not contain any naturally occurring steep slopes with suitable nesting locations for Cliff Swallow or Northern Rough-winged Swallow.	There are no further considerations or requirements for this wildlife habitat.
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 CAs. • MNRF District Offices. • Local naturalist clubs.	Studies confirming: • Presence of 5Ⓔ or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH cc, ccvii • 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 • SWHMiSTcxlix Index #5 provides development effects and mitigation measures.	**Candidate;** Swamp communities may provide suitable habitat.	**No;** No nests belonging to listed species were identified within the swamps in the Study Area.	There are no further considerations or requirements for this wildlife habitat.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			
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 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 CAs. • 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"ccxi • SWHMiSTcxlix Index #6 provides development effects and mitigation measures.	**No;** No rocky islands or peninsulas associated with a large lake or river were present within the Study Area.	**No;** Candidate habitat was not present within the Study Area.	There are no further considerations or requirements for this wildlife habitat.
Migratory Butterfly Stopover Areas **<u>Rationale:</u>** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral <u>Special Concern</u> Monarch	Combination of ELC Community Series; need to have present one Community Series from each land class: <u>Field:</u> CUM CUT CUS <u>Forest:</u> FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario cxlix. • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south xxxii, xxxiii, xxxiv, xxxv, xxxvi. • 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 cxlviii, cxlix. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes xxxvii, xxxviii, xxxix, xl, xli.	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 variation can occur between years and multiple years of sampling should occur xl, xlii. • 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.Ⓔ • SWHMiST Index #16 provides development effects and mitigation measures.	**Yes;** Study Area is within 5km of Lake Ontario and contains both field and forest communities.	**No;** While both field and forest communities are present in the Study Area do not meet the minimum size criteria to be considered SWH.	There are no further considerations or requirements for this wildlife habitat.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			
			Information Sources • OMNRF (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities				
Landbird Migratory Stopover Areas **Rationale:** Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds. Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&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 >10 ha Ⓔ in size and within 5 km iv, v, vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv of Lake Ontario. • If multiple woodlands are located along the shoreline those Woodlands <2km from 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 Ontario are Candidate SWH. Information Sources • Bird Studies Canada • Ontario Nature • Local birders and naturalist club • Ontario Important Bird Areas (IBA) Program	Studies confirm: • Use of the habitat 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 (Apr/May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • SWHMiST Index #9 provides development effects and mitigation measures.	**Yes**; Study Area is within 5km of Lake Ontario and contains suitable vegetation communities.	**No;** Listed vegetation communities within the Study Area do not meet minimum size criteria.	There are no further considerations or requirements for this wildlife habitat.
Deer Yarding Areas **Rationale:** Winter habitat for deer is considered to be the main limiting factor for northern deer populations. In winter, deer congregate in “yards” to survive severe winter conditions. Deer yards typically have a long	White-tailed Deer	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3	• Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. lvi, lvii, lviii, lix, lx, Ⓔ • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local	**No;** No deer yarding areas have been confirmed present by MNR within the Study Area.	**No;** Candidate habitat was not present within the Study Area.	There are no further considerations or requirements for this wildlife habitat.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			
history of annual use by deer; yards typically represent 10-15% of an areas summer range.		FOD3 CUT	winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%cxciv. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual" cxcv • Woodlots with high densities of deer due to artificial feeding are not significantⒺ.	MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. cxcv • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiSTcxlix Index #2 provides development effects and mitigation measures.			
Deer Winter Congregation Areas **<u>Rationale:</u>** Deer movement during winter in the southern areas of Ecoregion 6E 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 cxlviii.	White-tailed Deer	All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	• Woodlots will typically be >100 ha in sizeⒺ. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands. • If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significantⒺ. <u>Information Sources</u> • MNRF District Offices. • LIO/NRVIS	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) when >20cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule.	**No;** No deer winter congregation areas have been confirmed present by MNR within the Study Area. The Study Area contains suitable vegetation communities however woodlots greater than 10 ha are not available in the Study Area.	**No** Candidate habitat was not present within the Study Area.	There are no further considerations or requirements for this wildlife habitat.

Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Found Within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			
				• SWHMiST Index #2 provides development effects and mitigation measures.			

Table 1.2.1 Rare Vegetation Communities.

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/Recommendations
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria			
Cliffs and Talus Slopes **Rationale:** Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO TAS TAT CLO CLS 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 District • Natural Heritage Information Center (NHIC) has location information available on their website • Field Naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes • SWHMiSTIndex #21 provides development effects and mitigation measures.	**No;** No cliff or talus communities were identified within the Study Area.	**No;** No cliff or talus communities were identified within the Study Area.	There are no further considerations or requirements for this wildlife habitat.
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 < 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 • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.)Ⓔ. • SWHMiSTIndex #20 provides development effects and mitigation measures.	**No;** No sand barren communities were identified within the Study Area.	**No;** No sand barren communities were identified within the Study Area.	There are no further considerations or requirements for this wildlife habitat.
Alvar **Rationale:** Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregions 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar Indicator Species:** 1) *Carex crawei*	An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover	An Alvar site > 0.5 ha in size lxxv. <u>Information Sources</u> • Alvars of Ontario (2000), Federation of Ontario Naturalists. • Ontario Nature – Conserving Great Lakes Alvars. • Natural Heritage Information Center (NHIC)	• Field studies that 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 are exotic sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses lxxv	**No;** No alvar communities were identified within the Study Area	**No;** No alvar communities were identified within the Study Area	There are no further considerations or requirements for this wildlife habitat.

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/Recommendations
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria			
	2) *Panicum philadelphicum* 3) *Eleocharis compressa* 4) *Scutellaria parvula* 5) *Trichostema brachiatum* These indicator species are very specific to Alvars within Ecoregion 6EⒺcxlix	varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover lxxviii.	has location information available on their website • OMNRF Districts • Feld Naturalist clubs. • Conservation Authorities.	• SWHMiSTcxlix Index #17 provides development effects and mitigation measures.			
Old Growth Forest **Rationale:** Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.	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 a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest Ⓔ. <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 are >140 years old, then the area containing these trees is Significant Wildlife Habitat • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present) • The area of forest ecosites combined or an eco-element within an ecosite that contains the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics lxxviii • SWHMiSTcxlix Index #23 provides development effects and mitigation measures.	**No;** No savannah communities were identified within the Study Area.	**No;** No savannah communities were identified within the Study Area.	There are no further considerations or requirements for this wildlife habitat.
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%.lxxix, lxxx, lxxxi, lxxxii, lxxxiii	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>	Field studies confirm one or more of the Savannah indicator species listed in cxlix Appendix N should be present Ⓔ. Note: Savannah plant spp. list from Ecoregion 6E should be used cxlviii. • Area of the ELC Ecosite is the SWH.	**No;** No tall grass prairie communities were identified within the Study Area.	**No;** No tall grass prairie communities were identified within the Study Area.	There are no further considerations or requirements for this wildlife habitat.

Rare Vegetation Community	CANDIDATE SWH			CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/Recommendations
	ELC Ecosite Code	Habitat Description	Detailed Information and Sources	Defining Criteria			
			• Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Feld Naturalist clubs. • Conservation Authorities.	• Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiSTIndex #18 provides development effects and mitigation measures.			
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. lxxix, lxxx, lxxxi, lxxxii, lxxxiii	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 information available on their website • OMNRF Districts • Feld Naturalist clubs. • Conservation Authorities.	Field studies confirm one or more of the Prairie indicator species listed in cxlix Appendix N should be present Ⓔ. Note: Prairie plant spp. list from Ecoregion 6E should be used cxlviii • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • SWHMiSTcxlix Index #19 provides development effects and mitigation measures.	**No;** No tall grass prairie communities were identified within the Study Area.	**No;** No tall grass prairie communities were identified within the Study Area.	There are no further considerations or requirements for this wildlife habitat.
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 cxlviii. 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 cxlviii The OMNRF/NHIC will have up to date listing for rare vegetation communities. <u>Information Sources</u> • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Feld Naturalist 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 cxlviii. • Area of the ELC Vegetation Type polygon is the SWH. • SWHMiST Index #37 provides development effects and mitigation measures.	**No;** The Study Area does not contain any rare vegetation communities	**No;** ELC surveys did not identify any rare vegetation communities within the Study Area.	There are no further considerations or requirements for this wildlife habitat.

Table 1.2.2 Specialized Habitats of Wildlife considered SWH.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/ Recommendations
		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 cxlix from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any 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 cxlix. • Upland areas should be at least 120 m 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 cxlviii from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiSTcxlix Index #25 provides development effects and mitigation measures.	**Yes;** Wetland communities adjacent to upland habitat were identified within the Study Area.	**No;** The number of required nesting indicator species was not met at any of the vegetation communities within the Study Area during field investigations and breeding bird surveys.	There are no further considerations or requirements for this wildlife habitat.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat **<u>Rationale:</u>** Nest sites are fairly uncommon in Eco-region 6E and are used annually by these species. Many suitable	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>	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	**Yes;** Study Area is within 5km of Lake Ontario and contains forest communities in proximity of riparian areas (ponds and wetlands) are present.	**No;** An Osprey was observed as a flyover, however no nests were recorded during the 2025 field investigations.	There are no further considerations or requirements for this wildlife habitat.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			
nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.			• Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF Districts. • Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented • Reports and other information available from Conservation Authorities. • Field Naturalists clubs	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 dependent on site lines from the nest to the development and inclusion of perching and foraging habitat cvi • 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. ccvii • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid-March to mid-August. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”ccxi • SWHMiSTcxlix Index #26 provides development effects and mitigation measures			
Woodland Raptor Nesting Habitat **<u>Rationale:</u>** Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by	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 >30ha with >10ha of interior habitat lxxxviiii, lxxxix, xc, xci, xciii, xciv, xcv,xcvi, cxxxiii. Interior habitat determined with a 200m buffer cxlviii • Stick nests found in a variety of intermediate-aged to mature coniferous, 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.	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 area of habitat is the SWH. (the 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 ccvii. • Broad-winged Hawk and Coopers Hawk – A 100m	**No;** Forest communities identified within the Study Area do not meet the size requirement for Significance.	**No**; Several forest and swamp communities found in the Study Area, including Mixed and Deciduous Swamp and Coniferous Plantation ecosites, however the communities do not meet the size criteria for significance.	There are no further considerations or requirements for this wildlife habitat.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			
			Information Sources • 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.	radius around the nest is the SWH ccvii. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH ccvii. • 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. • SWHMiST cxlix Index #27 provides development effects and mitigation measures.			
Turtle Nesting Areas **Rationale:** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle Special Concern Species Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) cxlviii or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1	• 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. Information Sources • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • Field Naturalist clubs	Studies confirm: • 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 cxlviii • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. cxlix • 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. • SWHMiST cxlix Index #28 provides development effects and mitigation measures for turtle nesting habitat.	**Candidate;** Exposed mineral soil adjacent to wetland communities may be present in the Study Area.	**No**; Suitable conditions for turtle nesting were not observed within the Study Area during field investigations.	There are no further considerations or requirements for this wildlife habitat.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			
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 cxvii, cxlix. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species cxix, cxx, cxxi, cxxii, cxiii, cxiv . <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 an ELC forest ecosite or an 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. • SWHMiST Index #30 provides development effects and mitigation measures	**Yes;** Forested ecosites were present within the Study Area.	**No;** Seepage areas nor springs were not observed during 2025 field investigations within the Study Area.	There are no further considerations or requirements for this wildlife habitat.
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) >500m2 (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). clxxxii, lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx 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 District. • OMNRF wetland evaluations • Field Naturalist clubs • Canadian Wildlife Service Amphibian Road Call Survey	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3Ⓔ. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230m radius of woodland area lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx, lxxi. 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.	**Yes;** Wetland communities and woodland pools identified as present in the Study Area	**No;** Acoustic monitoring completed within the Study Area did not identify sufficient number of species	There are no further considerations or requirements for this wildlife habitat.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			
			• Ontario Vernal Pool Association: http://www.ontariovernalpools.org	• SWHMiST Index #14 provides development effects and mitigation measures.			
Amphibian Breeding Habitat (Wetlands) Rationale; Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	• Wetlands>500m2 (about 25m diameter) ccvii), 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 clxxxii. • 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 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. • SWHMiST Index #15 provides development effects and mitigation measures.	**Yes**; Forested and swamp ecosites (some ephemeral habitats) are present within the Study Area.	**No;** An insufficient number of individuals of two or more frog species identified in the Study Area, therefore not considered SWH.	There are no further considerations or requirements for this wildlife habitat.
Woodland Area-Sensitive Bird Breeding Habitat **<u>Rationale:</u>** Large, natural blocks of mature woodland habitat within	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler	All Ecosites associated with these ELC Community Series; 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. cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxxv, cxxxvi, cxxxvii, cxxxviii, cxxxix, cxl, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cl, cli, clii, cliii, cliv, clv, clvi, clvii, clviii, clix,	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Ⓔ • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH.Ⓔ • Conduct field investigations in spring and early summer	**No;** Suitable vegetation communities were present however, no mature forest/swamp ecosites within the Study Area were large enough to provide interior forest habitat.	**No**; The Study Area did not contain suitable interior forest habitat. Additionally, breeding pair criteria of the listed species were not met. .	There are no further considerations or requirements for this wildlife habitat.

Specialized Wildlife Habitat	Wildlife Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/ Recommendations
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria			
the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Ovenbird Scarlet Tanager Winter Wren **Special Concern:** Cerulean Warbler Canada Warbler		• Interior forest habitat is at least 200 m from forest edge habitat. clxiv <u>Information Sources</u> • Local bird 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.	when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” • SWHMiST Index #34 provides development effects and mitigation measures.			

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

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/ Recommendations
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria			
Marsh Breeding Bird Habitat **Rationale:** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane 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. • 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. Information Sources • OMNRF District and wetland evaluations. • Field Naturalist clubs • Natural Heritage Information Center (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 1 pair of Sandhill Cranes; **or** breeding by any combination of 5 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” • SWHMiST Index #35 provides development effects and mitigation measures	**Yes;** Meadow marsh and cultural meadow ecosites were present within the Study Area.	**No**; Breeding bird surveys completed in the Study Area did not record any indicator or special concern species associated with SWH.	There are no further considerations or requirements for this wildlife habitat.
Open Country Bird Breeding Habitat **Rationale:** This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern** Short-eared Owl	CUM1 CUM2	• Large grassland areas (includes natural and cultural fields and meadows) >30 ha clxiv, clxv, clxvi, clxvii, clxviii, clxix. • 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.	Field Studies confirm: • 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” • SWHMiST Index #32 provides development effects and mitigation measures	**No;** Meadow habitats present within the Study Area did not meet the size requirement for significance.	**No;** Large meadows were not present within the Study Area.	There are no further considerations or requirements for this wildlife habitat.

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/ Recommendations
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria			
			• Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information available from C0nservation Authorities.				
Shrub/Early Successional 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 cxcix.	<u>Indicator Spp:</u> Brown Thrasher Clay-coloured Sparrow <u>Common Spp.</u> Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher **Special Concern:** Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	Large field areas succeeding to shrub and thicket habitats>10haclxiv in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years) Ⓔ. • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species clxxiii. • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. <u>Information Sources</u> • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs. • Ontario Breeding Bird Atlas • Reports and other information available from Conservation Authorities.	Field Studies confirm: • 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” • SWHMiST Index #33 provides development effects and mitigation measures.	**Yes;** Cultural thicket and cultural woodland habitat were present in the Study Area.	**No;** Woodland and thicket communities within Study Area were not larger than 10 ha.	There are no further considerations or requirements for this wildlife habitat.
Terrestrial Crayfish **<u>Rationale:</u>** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare. ccii	Chimney or Digger Crayfish; (*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish; (*Cambarus diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh or swamp ecosites	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 be too moist. Can often be 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>	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 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 cci	**Yes**; Suitable meadows and marshes were within Study Area.	**No**; No individuals or their burrows were identified in the Study Area during field investigations.	There are no further considerations or requirements for this wildlife habitat.

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/ Recommendations
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria			
		can be used by terrestrial crayfish.	• Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998	• SWHMiST cxlix Index #36 provides development effects and mitigation measures.			
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.	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 accuracy	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 lxxviii <u>Information Sources</u> • 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. • SWHMiST Index #37 provides development effects and mitigation measures.	**Yes;** There are records of Special Concern and Rare species within or in the vicinity of the Study Area	**Confirmed;** A total of four Special Concern and Rare Wildlife Species were observed in the Study Area for the following species: - Barn Swallow, - Canada Warbler, - Eastern Wood-pewee, - And, - Monarch. **Candiate;** - Snapping Turtle Of these, Eastern Wood-pewee and Monarch had confirmed habitat within the Proposed Station Expansion Area. A habitat assessment for Species of Conservation Concern is provided in **Appendix F**.	Confirmed habitat for Eastern Wood-pewee and Monarch occur in the Manitoba Maple Mineral Deciduous Swamp (SWD3-4) and Dry - Moist Old Field Meadow (CUM1-1) within the Proposed Expansion Area. Confirmed habitat of Barn Swallow was also identified however, no suitable nesting habitat was identified in the Proposed Expansion Area. Canada Warbler was recorded calling on one occasion during field investigations on June 6, 2025, but it is unlikely the individual was breeding as the species was not recorded during breeding bird surveys. If impacts are anticipated, the following mitigation measures should be followed: - Limit vegetation removal in the SWD3-4 and CUM1-1 to the extent possible. - Avoid vegetation removal within the CUM1-1 during the Monarch breeding season (June 1-September 30). Vegetation removal should also avoid any patches of Milkweed (*Asclepias sp.)* plants where possible.

Wildlife	Species	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/ Recommendations
		ELC Ecosite	Habitat Criteria and Information Sources	Defining Criteria			
							- Consider meadow creation and/or restoration using Milkweed species to enhance habitat for Monarch - Avoid vegetation removal during the breeding bird season (April 1 to August 31). - Consider enhancement measures such as Invasive Species removal and control.

Table 1.4 Animal Movement Corridors

Habitat	SPECIES	CANDIDATE SWH		CONFIRMED SWH	Candidate Habitat Present Within the Study Area	Confirmed Habitat Present within the Study Area	Conclusions/ Recommendations
		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 clxxiv, clxxv, clxxvi, clxxvii, clxxviii, clxxix, clxxx, clxxxi. 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 Ⓔ. <u>Information Sources</u> • MNRF District Office. • Natural Heritage Information Center (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 cxlix • Corridors should have at least 15m of vegetation on both sides of waterway cxlix or be up to 200m wide cxlix of woodland habitat and with gaps <20mcxlix . • Shorter corridors are more significant than longer corridors; however amphibians must be able to get to and from their summer and breeding habitat cxlix. • SWHMiST cxlix Index #40 provides development effects and mitigation measures	**Yes;** Amphibian Breeding Habitat may be present in the Study Area.	**No;** Acoustic monitoring did not confirm Amphibian Breeding Habitat (Wetland) within the Study Area.	There are no further considerations or requirements for this wildlife habitat.
Deer Movement Corridors **<u>Rationale:</u>** Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when **Deer Wintering Habitat** is confirmed as SWH from Table 1.1 of this schedule. Ⓔ • A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). <u>Information Sources</u> • MNRF District Office. • Natural Heritage Information Center (NHIC). • Reports and other information available from Conservation Authorities. • Field Naturalist Clubs.	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. • Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. • Corridors should be at least 200m wide with gaps < 20m and if following riparian area with at least 15m of vegetation on both sides of waterway. • Shorter corridors are more significant than longer corridors, cxlix. • SWHMiST cxlix Index #39 provides development effects and mitigation measures	**No;** Forest communities present, however Deer Wintering Habitat was not identified within the Study Area.	**No;** Candidate habitat was not identified.	There are no further considerations or requirements for this wildlife habitat.

Table 1.5.1 Significant Wildlife Habitat Exceptions for Ecodistricts within EcoRegion 6E

EcoDistrict	Wildlife Habitat and Species	Candidate SWH			Confirmed SWH	Candidate Habitat within the Study Area	Confirmed Habitat within the Study Area	Conclusions/ Recommendations
		Ecosites	Habitat Description	Habitat Criteria and Information	Defining Criteria			
6E-14 **<u>Rationale:</u>** The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracts with mast-producing tree species is important for bears. clxxxvi, ccxvii	**Mast Producing Areas** Black Bear	All Forested habitat represented by ELC Community Series: FOM FOD	• Black bears require forested habitat that provides cover, winter hibernation sites, and mast-producing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears.	Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech), <u>Information Sources</u> Important forest habitat for black bears may be identified by OMNRF.	All woodlands > 30ha with a 50%composition of these ELC VegetationⒺ Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5 SWHMiST cxlix Index #3 provides development effects and mitigation measures.	**No;** The Study Area is not within Ecodistrict 6E-14	**No;** The Study Area is not within Ecodistrict 6E-14	There are no further considerations or requirements for this wildlife habitat.
6E- 17 **<u>Rationale:</u>** Sharp-tailed grouse only occur on Manitoulin Island in Eco-region 6E, Leks are an important habitat to maintain their population	**Lek** **Sharp-tailed Grouse**	CUM CUS CUT	• The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated.	Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland ccxix. • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting <u>Information Sources</u> • OMNRF district office • Bird watching clubs • Local landowners • Ontario Breeding Bird Atlas	Studies confirming lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significantⒺ • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitatⒺ • SWHMiST Index #32 provides development effects and mitigation measures	**No;** The Study Area is not within Ecodistrict 6E-17	**No;** The Study Area is not within Ecodistrict 6E-17	There are no further considerations or requirements for this wildlife habitat.

Appendix F

Species at Risk Habitat Screening

Appendix F. Species at Risk Habitat Screening

AECOM

Taxonomy	Common Name	Scientific Name	[1]S-Rank (03-06-25)	2ESA Status (03-06-25)	[3]SARA Status (03-06-25)	[4]COSEWIC Status (03-06-25)	[5]Preferred Habitat	Associated ELC Communities (based on Lee et. al., 1998)	[5]Known Species Range	[6]Source Identifying Species Record	Probability of Occurrence within Study Area
Birds	Acadian Flycatcher	*Empidonax virescens*	S1B	END	END	END	It is typically found in mature, shady forests with ravines, or in forested swamps with lots of maple and beech trees. The nest is placed near the tip of a lower limb on a tree, and is loosely woven, with strands of plant material hanging down. In Canada, the Acadian Flycatcher nests only in southwestern Ontario, mostly in large forests and forested ravines near the shore of Lake Erie. The Acadian Flycatcher requires large areas of mature undisturbed forest. Most individuals occur in forests more than 40 hectares in size. The species is also considered to be a forest interior species, meaning that it avoids forest edges and build their nests in areas that are more than 100 meters from the forest edge. The bird lives in the understory of woods with a closed canopy. It is often found in well-wooded swamps and ravines. Acadian Flycatchers also occupy dry woods but they usually prefer to hang their nests over water. Prior to the 1800's, the Carolinian area of Ontario would have had abundant suitable habitat for this species. Currently, very little of the forest remains and the remnants are highly fragmented. Throughout the Carolinian Forest region of Ontario, most of the remaining forest patches are very small (less than three hectares) and only an extremely small percentage of them is large enough to meet the species' requirements.	**SWD, FOD** communities that are mature, have a closed canopy, and are of sufficient size.	In Ontario, the Acadian Flycatcher primarily lives in the warmer climate of southern Ontario's Carolinian forests. It needs large, undisturbed forests, often more than 40 hectares in size. It has also been known to nest at a few sites in the Greater Toronto Area but this is unusual. In Canada, the Acadian Flycatcher occurs in very low numbers in the Carolinian area of southern Ontario. The species is thought to have been more widespread and numerous in Canada prior to the clearing of forests in the early 1800s. Today, there is relatively little habitat remaining that is suitable for the species.	OBBA	**Low Probability** Study Area did not contain large areas (greater than 40 ha) of undisturbed forest.
Birds	Bank Swallow	*Riparia riparia*	S4B	THR	THR	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 stock piles 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.		The Bank Swallow is found all across southern Ontario, with sparser populations scattered across northern Ontario. The largest populations are found along the Lake Erie and Lake Ontario shorelines, and the Saugeen River (which flows into Lake Huron). In North America, it breeds widely across the northern two-thirds of the U.S., north to the treeline. It breeds in all Canadian provinces and territories, except perhaps Nunavut.	OBBA, Beacon Environmental (2022), (AtkinsRealis, 2024)	**Low Probability** Bank Swallows were observed foraging near Holt Road and the railway. The Bank Swallows were likely nesting outside of the Study Area, along the bluffs along Lake Ontario where suitable exposed banks occur. A study by Beacon Environmental (2022) confirmed Bank Swallows were nesting along the lakeshore, south of the Study Area. Access to the southeast portion of the Study Area was restricted due to construction. From a safe distance, a sediment pile located southeast of Holt Road and the railway was observed with
Birds	Barn Swallow	*Hirundo rustica*	S4B	SC	THR	SC	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.	The Barn Swallow may be found throughout southern Ontario and can range as far north as Hudson Bay, wherever suitable locations for nests exist. The Barn Swallow has become closely associated with human rural settlements. It breeds across much of North America south of the treeline, south to central Mexico. In Canada, it is known to breed in all provinces and territories.	OBBA, Dillon Consulting (2024), (AtkinsRealis, 2024)	**Low Probability** Buildings suitable for nesting were not observed within the Study Area, however Barn Swallow was incidentally observed flying over the Study Area during field investigations.
Birds	Black Tern	*Chlidonias niger*	S3B,S4M	SC		NAR	Black Terns build floating nests in loose colonies in shallow marshes, especially in cattails.	**MAS2-1** and **OAO**. These two communities must be present immediately adjacent each other and with sufficient water to provide suitable nesting habitat.	The Black Tern breeds in the temperate regions of Europe, and in North America where it ranges from northern British Columbia and Alberta south to Arizona and Kansas and east to New Brunswick. In Ontario, Black Terns are found scattered throughout the province, but breed mainly in the marshes along the edges of the Great Lakes.	OBBA	**Low Probability** The Study Area did not contain any suitable MAS2-1 or open water communities directly adjacent to each other.
Birds	Bobolink	*Dolichonyx oryzivorus*	S4B	THR	THR	SC	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	**TPO, TPS, CUM1** and **MAM2**.	The Bobolink breeds across North America. In Ontario, it is widely distributed throughout most of the province south of the boreal forest, although it may be found in the north where suitable habitat exists. The breeding range of the Bobolink in North America includes the southern part of all Canadian provinces from British Columbia to Newfoundland and Labrador and south to the northwestern, north-central and northeastern U.S.	NHIC, Beacon Environmental (2022), (AtkinsRealis, 2024)	**Low Probability** Numerous Dry – Moist Old Field Meadow Type (CUM1-1) communities were identified in the Study Area however the communities do not meet the minimum size criteria (greater than 5 ha) suitable for nesting. Species was not recorded during breeding bird surveys.

Appendix F. Species at Risk Habitat Screening

AECOM

Taxonomy	Common Name	Scientific Name	[1]S-Rank (03-06-25)	2ESA Status (03-06-25)	[3]SARA Status (03-06-25)	[4]COSEWIC Status (03-06-25)	[5]Preferred Habitat	Associated ELC Communities (based on Lee et. al., 1998)	[5]Known Species Range	[6]Source Identifying Species Record	Probability of Occurrence within Study Area
Birds	Canada Warbler	*Cardellina canadensis*	S5B	SC	THR	SC	The Canada Warbler breeds in a range of deciduous and coniferous, usually wet forest types, all with a well-developed, dense shrub layer. Dense shrub and understory vegetation help conceal Canada Warbler nests that are usually located on or near the ground on mossy logs or roots, along stream banks or on hummocks. It is also found in riparian shrub forests on slopes and in ravines and in old-growth forests with canopy openings and a high density of shrubs, as well as in stands regenerating after natural disturbances, such as forest fires, or anthropogenic disturbances, such as logging. Canada Warbler habitat is believed to be in decline, especially in South America, where the Canada Warbler overwinters. Habitat loss has also been observed in the eastern part of its breeding range, where wet forests have been drained for urban development or farming.	**FOC3, FOC4, FOM6, FOM7, FOM8, FOD6, FOD7, FOD8, FOD9, SWC, SWM** and **SWD** with a well-developed shrub layer.	The Canada Warbler only breeds in North America and 80% of its known breeding range is in Canada. Its primary breeding range is in the Boreal Shield, extending north into the Hudson Plains and south into the Mixedwood Plains. Although the Canada Warbler breeds at low densities across its range, in Ontario it is most abundant along the Southern Shield. The Canada Warbler breeds primarily across much of southeastern Canada, the northeastern United States, the Great Lakes region. In Canada, it breeds in all provinces and territories except Nunavut and Newfoundland and Labrador.	OBBA	**Low Probability** Canada Warbler was only observed once incidentally on June 6, 2025. This species was not recorded during any of the breeding bird surveys, indicating the species was moving through the Study Area. The species was observed in the Manitoba Maple Mineral Deciduous Swamp (SWD3-4). This community was disturbed as evidenced by the canopy and shrub layer being mostly comprised of invasives, particularly Manitoba Maple (Acer negundo) and European Buckthorn (Rhamnus cathartica). Given the lack of breeding evidence observed (i.e., not recorded on subsequent breeding bird surveys), lack of suitable nest habitat and the Study
Birds	Chimney Swift	*Chaetura pelagica*	S3B	THR	THR	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).	The Chimney Swift breeds in eastern North America, possibly as far north as southern Newfoundland. In Ontario, it is most widely distributed in the Carolinian zone in the south and southwest of the province, but has been detected throughout most of the province south of the 49th parallel. The Chimney Swift breeds mainly in eastern North America, from southern Canada down to Texas and Florida. The species breeds in east central Saskatchewan, southern Manitoba, southern Ontario, southern Quebec, New Brunswick, Nova Scotia, and possibly in Prince Edward Island and southwestern Newfoundland.	OBBA	**Low Probability** Buildings with suitable chimney structures were not present within the Study Area, however Chimney Swift was incidentally observed flying over the Study Area during field investigations and may use the Study Area for foraging.
Birds	Common Nighthawk	*Chordeiles minor*	S4B	SC	SC	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, and river banks. 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. The appearance of gravel roofs contributed to the expansion of the Common Nighthawk's habitat in North America.	**SD, BB, RB, CUM, BO, FOM, FOC** and **FOD** with openings with little vegetation.	The range of the Common Nighthawk spans most of North and Central America. In Canada, the species is found in all provinces and territories except Nunavut. In Ontario, the Common Nighthawk occurs throughout the province except for the coastal regions of James Bay and Hudson Bay.	OBBA	**Low Probability** The Study Area did not contain open areas with little to no ground vegetation. The Study Area does contain Cultural Meadow (CUM) communities and some areas of Agricultural Land that that may provide suitable habitat for nesting and foraging.
Birds	Eastern Meadowlark	*Sturnella magna*	S4B,S3N	THR	THR	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.	In Ontario, the Eastern Meadowlark is primarily found south of the Canadian Shield but it also inhabits the Lake Nipissing, Timiskaming, and Lake of the Woods areas. Including all subspecies, the Eastern Meadowlark's global breeding range extends from central and eastern North America, south through parts of South America. However, there is only one subspecies in Canada and the neighbouring northeastern U.S. In Canada, the bulk of the population breeds in southern Ontario.	NHIC, OBBA, Beacon Environmental (2022), (AtkinsRealis, 2024)	**Low Probability** Numerous Dry – Moist Old Field Meadow Type (CUM1-1) communities were identified in the Study Area however the communities do not meet the minimum size criteria (greater than 5 ha) suitable for nesting. Species was not recorded during breeding bird surveys.
Birds	Eastern Whip-poor-will	*Antrostomus vociferus*	S4B	SC	THR	SC	The Eastern Whip-poor-will is usually found in areas with a mix of open and forested areas, such as savannahs, open woodlands, or openings in more mature deciduous, coniferous, and mixed forests. It forages in these open areas and uses forested areas for roosting (resting and sleeping) and nesting. It lays its eggs directly on the forest floor, where its colouring means it will easily remain undetected by visual predators. Whip-poor-will breeding habitat is not dependent upon species composition, but rather on forest structure, although common tree associations in both summer and winter are pine and oak. The species shuns both wide-open spaces and dense forest. It prefers to nest in semi-open forests or patchy forests with clearings, such as barrens or forests that are regenerating following major disturbances. Other necessary breeding habitat elements are thought to involve ground-level vegetation and woodland size. Individuals will often feed in nearby shrubby pastures or wetlands with perches. Areas with decreased light levels where forest canopies are closed are generally not occupied, perhaps because of reduced forage success for this aerial-feeding insectivore.	**TPS, TPW, CUW, FOD, FOC** and **FOM** where open areas are present.	The Eastern Whip-poor-will's breeding range includes two widely separate areas. It breeds throughout much of eastern North America, reaching as far north as southern Canada. In Ontario they breed as far north as the shore of Lake Superior. Although Eastern Whip-poor-wills were once widespread throughout the central Great Lakes region of Ontario, their distribution in this area is now fragmented.	OBBA	**Low Probability** Suitable open or forest habitats was not observed and species was not observed during field investigations.

Appendix F. Species at Risk Habitat Screening

AECOM

Taxonomy	Common Name	Scientific Name	[1]S-Rank (03-06-25)	2ESA Status (03-06-25)	[3]SARA Status (03-06-25)	[4]COSEWIC Status (03-06-25)	[5]Preferred Habitat	Associated ELC Communities (based on Lee et. al., 1998)	[5]Known Species Range	[6]Source Identifying Species Record	Probability of Occurrence within Study Area
Birds	Eastern Wood-pewee	*Contopus virens*	S4B	SC	SC	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**.	The Eastern Wood-pewee is found across most of southern and central Ontario, and in northern Ontario as far north as Red Lake, Lake Nipigon, and Timmins. The breeding range of the Eastern Wood-pewee covers much of south-central and eastern North America.	NHIC, OBBA, Dillon Consulting (2024), (AtkinsRealis, 2024)	**Confirmed** Species was confirmed as BBS-02, 04, 06, 08 and 10.
Birds	Golden-winged Warbler	*Vermivora chrysoptera*	S3B	SC	THR	THR	Golden-winged Warblers prefer to nest in areas with young shrubs surrounded by mature forest – locations that have recently been disturbed, such as field edges, hydro or utility right-of-ways, or logged areas. In their breeding areas, Golden-winged Warblers seem to be fond of regeneration zones where young shrubs grow, surrounded by mature forest, and characterized by plant succession of 10 to 30 years. The warblers frequent clusters of herbaceous plants and low bushes (where they place their nests, which are built on the ground). They favour environments where the trees are spread out, as well as the forest edge, and use this setting for perching, singing, and looking for food. Golden-winged Warblers are found in dry uplands, swamp forests, and marshes. This warbler shows a preference for beaver ponds and burned-out or intermittently cultivated areas.		The Golden-winged Warbler is found in southern Saskatchewan, Manitoba, Ontario, and Quebec, as well as the north-eastern United States. In Ontario, these birds breed in central-eastern Ontario, as far south as Lake Ontario and the St. Lawrence River, and as far north as the northern edge of Georgian Bay. Golden-winged Warblers have also been found in the Lake of the Woods area near the Manitoba border, and around Long Point on Lake Erie. Golden-winged Warblers nest primarily in the northeastern United States, southeastern Saskatchewan, southwestern Manitoba, southwestern Ontario and far southwestern Quebec.	OBBA	**Low Probability** The Study Area does not contain areas of mature forest suitable habitat for nesting. The Study Area does contain numerous Cultural Thicket (CUT) communities, Swamp Thicket (SWT) and areas that are recently disturbed including hydro right-of-way that may be suitable for nesting.
Birds	Grasshopper Sparrow	*Ammodramus savannarum*	S4B	SC		SC	It lives in open grassland areas with well-drained, sandy soil. It will also nest in hayfields and pasture, as well as alvars, prairies, and occasionally grain crops such as barley. It prefers areas that are sparsely vegetated. Its nests are well-hidden in the field and woven from grasses in a small cup-like shape. The Grasshopper Sparrow is a short-distance migrant and leaves Ontario in the fall to migrate to the southestern United States and Central America for the winter. In Canada, the Eastern Grasshopper Sparrow typically breeds in large human-created grasslands (5 ha or greater), such as pastures and hayfields, and natural prairies, such as alvars, characterized by well-drained, often poor soil dominated by relatively low, sparse perennial herbaceous vegetation.		The Grasshopper Sparrow can be found throughout southern Ontario, but only occasionally on the Canadian Shield. It is most common where grasslands, hay, or pasture dominate the landscape. In Canada, the breeding range of the Eastern Grasshopper Sparrow includes extreme southern Québec and southern Ontario, with the vast majority of birds occurring in Ontario.	OBBA	**Low Probability** Numerous Cultural Meadow (CUM) communities and some areas of Agricultural Land identified in the Study Area may provide suitable habitat for nesting and foraging, however, the pockets of communities are individually not larger than 5 ha.
Birds	King Rail	*Rallus elegans*	S1B	END	END	END	King Rails are found in densely vegetated freshwater marshes with open shallow water that merges with shrubby areas. They are sometimes found in smaller isolated marshes but most seem to prefer larger, coastal wetlands. Its nest is a dinner plate-sized platform made of plant material, placed just above the water in shrubs or clumps of other marsh plants. King Rails are found in a variety of freshwater marshes and marsh-shrub swamp habitats. The species occurs in areas where wild rice grows, but also in sedge and cattail marshes. Most importantly, the species requires large marshes with open shallow water that merges with shrubby areas. In fact, birds only return in successive years to large marshes that are not overgrown with cattails. Originally, the best habitat for King Rails was in southwestern Ontario, but most of these	**MAS, SWT,** and **MAM**.	King Rails reach their northern limit in southern Ontario, where they are quite rare. Recent province-wide surveys suggest there are only about 30 pairs left, the majority of which are in the large wetlands bordering Lake St. Clair. Most of the remainder are found in several key coastal marshes along Lakes Erie and Ontario. In Canada, the species breeds only in the extreme	OBBA	**Low Probability** Marsh communities identified in the Study Area were small, disturbed and lacked dense vegetation suitable for nesting. Species was not observed during breeding bird surveys.
Birds	Least Bittern	*Ixobrychus exilis*	S4B	THR	THR	THR	In Ontario, the Least Bittern is found in a variety of wetland habitats, but strongly prefers cattail marshes with a mix of open pools and channels. This species prefers to breed in marshes with tall emergent vegetation (usually cattails, Typha spp.), relatively stable water levels (less than 1 m, and usually 10-50 cm), and about 50% open water interspersed in small pockets throughout the vegetated areas that are at least 5 ha in size (COSEWIC, 2009). This bird builds its nest above the marsh water in stands of dense vegetation, hidden among the cattails. The nests are almost always built near open water, which is needed for foraging. This species eats mostly frogs, small fish, and aquatic insects. The Least Bittern breeds strictly in marshes dominated by emergent vegetation surrounded by areas of open water. Most breeding grounds in Canada are dominated by cattails, but breeding also occurs in areas with other robust emergent plants and in shrubby swamps. The presence of stands of dense vegetation is essential for nesting because the nests of Least Bittern sit on platforms of stiff stems. The nests are almost always within 10 m of open water. Open water is also needed for foraging, because Least Bitterns forage by ambushing their prey in shallow water near marsh edges, often from platforms that they construct out of bent vegetation. Access to clear water is essential for the birds to see their prey. This small heron prefers large marshes that have relatively stable water levels throughout the nesting period. Adults can raise nests somewhat to deal with rising waters, but persistent or sudden increases will flood nests. Conversely, drops in water level can reduce foraging opportunities and increase the species' exposure to predators	**MAS2-1, MAS3-1, SA** and **OAO**.	In Ontario, the Least Bittern is mostly found south of the Canadian Shield, especially in the central and eastern part of the province. Small numbers also breed occasionally in northwest Ontario. This species has disappeared from much of its former range, especially in southwestern Ontario, where wetland loss has been most severe. The Least Bittern breeds from southern Canada to South America. In Canada, the Least Bittern has been observed in every province, but most individuals occur in Ontario. The species breeds primarily in southern Ontario.	NHIC, OBBA	**Low Probability** The Study Area did not contain vegetated wetlands such as shallow marsh, shallow aquatic or open aquatic that are at least 5 ha or larger.
Birds	Louisiana Waterthrush	*Parkesia motacilla*	S2B	THR	THR	THR	The Louisiana Waterthrush is usually found in steep, forested ravines with fast-flowing streams. The Louisiana Waterthrush occupies specialized habitat, showing a strong preference for nesting along relatively pristine headwater streams and wetlands situated in large tracts of mature forest. Although it prefers running water (especially clear, cold-water streams), it also inhabits heavily wooded swamps with vernal or semi-permanent pools, where its territories can overlap with its sister species the Northern Waterthrush. It is often classified as both an area-sensitive forest species, and a riparian-obligate species. Louisiana Waterthrush nests are constructed within niches in steep stream banks, in the roots of uprooted trees, or in mossy logs and stumps, usually within a few metres of water.	**FOD, FOM,** and **SWD** with fast flowing cold-water streams or large pools of open water.	The Louisiana Waterthrush summer range extends from the lower Great Lakes south to Georgia and west to Kansas. In Canada, the Louisiana Waterthrush breeds only in southern Ontario, along the Niagara Escarpment, in woodlands along Lake Erie, and scattered locations elsewhere. In Canada, the Louisiana Waterthrush breeds in southern Ontario, where it is considered a rare, but regular local summer resident. The bulk of the Canadian population is concentrated in two areas of Ontario: the Norfolk Sand Plain region bordering the	OBBA	**Low Probability** No mature forests/swamps with fast flowing streams were present in the Study Area.

Appendix F. Species at Risk Habitat Screening

AECOM

Taxonomy	Common Name	Scientific Name	[1]S-Rank (03-06-25)	2ESA Status (03-06-25)	[3]SARA Status (03-06-25)	[4]COSEWIC Status (03-06-25)	[5]Preferred Habitat	Associated ELC Communities (based on Lee et. al., 1998)	[5]Known Species Range	[6]Source Identifying Species Record	Probability of Occurrence within Study Area
Birds	Northern Bobwhite	*Colinus virginianus*	S1?	END	END	END	Northern Bobwhites live in savannahs, grasslands, around abandoned farm fields, along brushy fencerows, and other similar sites. Grasslands that are occasionally burned are particularly important because the fires help keep the habitat from becoming too forested. In such places, bobwhites can find most of their needs such as food, nesting cover, and places to hide and rest throughout the year. In severe winter conditions bobwhites sometimes need to move into small forest areas to find snow-free areas for foraging. Bobwhites lay up to 16 eggs in a shallow natural depression that they line with plant material and conceal with grasses and vines. The Northern Bobwhite requires an early successional habitat that can be provided in a variety of vegetation types. Minimally it requires an interspersion of grassland, cropland, and brushy cover. In Ontario it is now usually associated with cultivated lands rather than native prairie fringes. In Ontario there were originally thousands of hectares of long-grass prairie in the extreme southwest. After settlement by Europeans, the creation of numerous small farms with diverse crops, inefficient harvest methods, and large weedy hedgerows greatly enhanced the potential for bobwhites, and resulted in the tremendous population increase. But, through the previous century, the trend has been away from	**TPO, TPS, CUM, CUT, CUS,** and **CUW**.	The Northern Bobwhite is near its northern range limit in southern Ontario. This bird benefited greatly when the original forests were cleared and it expanded its range significantly in Ontario. At its peak over a century ago, its range in Ontario extended north to Georgian Bay and east to Kingston. This range has steadily retracted and now includes only the southwest corner of the province, mostly on Walpole Island, and possibly a few scattered locations nearby. Isolated sightings away from this area are usually a result of introductions or birds escaping from captivity. It has been introduced to many other areas with limited long-term success	NHIC	**Low Probability** Study Area is located at the northern extent of the species range. Record is likely historical. Species was not observed during field investigations.
Birds	Peregrine Falcon	*Falco peregrinus*	S4	SC		NAR	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. 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.	**CLO**	The historic North American distribution of the eastern subspecies is east of the Rocky Mountains and south of the tree line. Although Peregrine Falcons now nest in and around Toronto and several other southern Ontario cities, the majority of Ontario's breeding population is found around Lake Superior in northwestern Ontario. The anatum Peregrine Falcon breeds in the interior of Alaska and throughout northern Canada up to southern Greenland, and across continental North America up to northern Mexico. In Canada it is found in all territories and provinces except Prince Edward Island, Nunavut, and the Island of Newfoundland. The tundrius Peregrine Falcon breeds in Alaska and throughout northern Canada up to Greenland. In Canada, it breeds from northern Yukon, the low	OBBA	**Low Probability** The Study Area did not contain any Open Cliff communities.
Birds	Piping Plover	*Charadrius melodus*	S1B	END	END	END	Piping Plovers nest exclusively on dry sandy or gravelly beaches just above the reach of high water and waves. When not migrating, this bird spends virtually all of its time between the water's edge and the back of the beach. It pecks the sand and searches small pools of water for food - mostly insects and small crustaceans.	**BBO**	In North America, the Piping Plover primarily breeds along the Atlantic coast, the western Great Lakes, and along wetlands, rivers, and lakes in the northern Great Plains. In Ontario, although never common, they breed along the shores of the Great Lakes, and at Lake of the Woods in northwestern Ontario. The circumcinctus subspecies of the Piping Plover is a North American bird that breeds on the American shores of the Great Lakes (Michigan) and throughout the Great Plains from the southern Canadian prairies to Nebraska. In Canada, the circumcinctus subspecies breeds in central Alberta, southern Saskatchewan, southern Manitoba, and used to breed in southern Ontario. The numbers of Piping Plovers have been decreasing everywhere. However, the most dramatic declines have occurred in the Great Lakes region. The last known nesting of Piping Plovers on the Canadian Great Lakes occurred at Long Point in 1977.	OBBA	**Low Probability** While in close proximity to Lake Ontario, the Study Area does not contain any Open beach/ bar communities.
Birds	Red-headed Woodpecker	*Melanerpes erythrocephalus*	S3	END	END	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.	The Red-headed Woodpecker is found across southern Ontario, where it is widespread but rare. In Canada, its range includes southern Saskatchewan, Manitoba, Ontario, and Quebec.	OBBA	**Low Probability** No potential nest cavities were observed during leaf-off snag/cavity tree surveys within or adjacent to the Bowmanville SS Expansion area. Additionally, species was not observed during call-back surveys.
Birds	Wood Thrush	*Hylocichla mustelina*	S4B	SC	THR	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.	The Wood Thrush is found all across southern Ontario. It is also found, but less common, along the north shore of Lake Huron, as far west as the southeastern tip of Lake Superior. There is a very small population near Lake of the Woods in northwestern Ontario, and there have been scattered sightings in the mixed forest of northern Ontario. The Wood Thrush breeds in southeastern Canada from southern Ontario east to Nova Scotia.	(AtkinsRealis, 2024)	**Low Probability** No mature forests with moderate understory and open forest floors present in the Study Area. Species was not observed during field investigations.

Appendix F. Species at Risk Habitat Screening

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Taxonomy	Common Name	Scientific Name	[1]S-Rank (03-06-25)	2ESA Status (03-06-25)	[3]SARA Status (03-06-25)	[4]COSEWIC Status (03-06-25)	[5]Preferred Habitat	Associated ELC Communities (based on Lee et. al., 1998)	[5]Known Species Range	[6]Source Identifying Species Record	Probability of Occurrence within Study Area
Fish	American Eel	*Anguilla rostrata*	S1S2	END		THR	Over the course of its life, the American Eel can be found in both salt and fresh water. In fact, some scientists consider the American Eel to have the broadest diversity of habitats of any fish species in the world. In Canada, it is found in all fresh water, estuaries, and coastal marine waters that are accessible to the Atlantic Ocean, from Niagara Falls in the Great Lakes up to the mid- Labrador coast. American Eel can be declining in certain locations and be stable elsewhere.		In Canada, it is found in fresh water and salt water areas that are accessible from the Atlantic Ocean. This area extends from Niagara Falls in the Great Lakes up to the mid-Labrador coast. In Ontario, American Eels can be found as far inland as Algonquin Park. Once the eels mature (10-25 years) they return to the Sargasso Sea to spawn.	Aquatic Resource Area Polygon	**Low Probability** Study Area did not contain a lake with very deep water depths as Lake Ontario is not included in the Study Area.
Fish	Shortnose Cisco	*Coregonus reighardi*	SH	END	END	END	In Ontario, the Shortnose Cisco lives in the deep, cold water of the Great Lakes, usually at depths between 22 to 110 metres. It has been found at depths reaching 144 metres. This species eats mostly freshwater shrimp.		The Shortnose Cisco is found only in the Great Lakes of North America. It was last seen in Lake Ontario in 1964 and in Lake Huron in 1985.	DFO	**Low Probability** Study Area did not contain a lake with very deep water depths as Lake Ontario is not included in the Study Area.
Insects	Monarch	*Danaus plexippus*	S2N,S4B	SC	END	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 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.	**AI, TP,** and **CUM** where milkweed plants are present.	The Monarch's range extends from Central America to southern Canada. In Canada, Monarchs are most abundant in southern Ontario and Quebec where milkweed plants and breeding habitat are widespread. During late summer and fall, Monarchs from Ontario migrate to central Mexico where they spend the winter months. During migration, groups of Monarchs numbering in the thousands can be seen along the north shores of Lake Ontario and Lake Erie. The overall native range of the Monarch occurs from Central America northward through the continental United States to southern Canada, and from the Atlantic Coast westward to the Pacific Coast. The Canadian range of occurrence includes portions of all ten provinces and the Northwest Territories.	OBA	**High Probability** Multiple observations of Monarch were recorded within the Study Area. Additionally, there are numerous cultural meadow communities containing Common Milkweed in the Study Area that would make the area habitat suitable for Monarch.
Mammals	Eastern Red Bat	*Lasiurus borealis*	S2S3	END	No Status	END	Eastern Red Bats occupy a wide diversity of habitats across their geographic range. They use both deciduous and coniferous forests, of any age class. In some parts of their range, Eastern Red Bats avoid conifer species when suitable deciduous species are present. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. They typically roost among the foliage of trees and occasionally shrubs. Male Eastern Red Bats in particular have been observed to use saplings as roosts, which is rarely reported for reproductive females. They forage in both forested and non-forested habitats, often foraging over open spaces including wetlands, grasslands and fields. Heavily disturbed habitats are generally avoided.	**FOD** and **FOM**, where suitable roosting (i.e. cavity trees and trees with loose bark) habitat is available.	Eastern Red Bats are found throughout eastern Canada including Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, and parts of Saskatchewan, Alberta, and Nunavut. Eastern Red Bats migrate to overwintering areas in the southern United States but their migration routes are not known.	BCI, Beacon Environmental (2022)	**Confirmed** Acoustic monitoring surveys identified the presence of habitat for Eastern Red Bat at stations ARU 02, 04, 07, 10-17, 20, 23, 24, 29-33, 35-44, 47 and 51. Suitable roost habitat is present within the Mineral Cultural Woodland (CUW1), Dry - Fresh Sugar Maple - White Ash Deciduous Forest (FOD5-8), Green Ash Mineral Deciduous Swamp (SWD2-2), Manitoba Maple Mineral Deciduous Swamp (SWD3-4), and Willow Mineral Deciduous Swamp (SWD4-1) communities identified in the Study Area.

Appendix F. Species at Risk Habitat Screening

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Mammals	Eastern Small-footed Myotis (Eastern Small-footed Bat)	*Myotis leibii*	S2S3	END	END		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.		The Eastern Small-footed Bat has been found from south of Georgian Bay to Lake Erie and east to the Pembroke area. There are also records from the Bruce Peninsula, the Espanola area, and Lake Superior Provincial Park. Most documented sightings are of bats in their winter hibernation sites.	BCI, Beacon Environmental (2022)	**Low Probability** Acoustic monitoring surveys did not identify the presence of Eastern Small-footed Myotic at any of the acoustic monitoring stations.
Mammals	Hoary Bat	*Lasiurus cinereus*	S2S3	END	No Status	END	Hoary Bats occupy a wide diversity of habitats across their geographic range. They use both deciduous and coniferous forests, of any age class. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. They typically roost among the foliage of trees and occasionally shrubs. They forage in the open, and suitable habitats may include wetlands, grasslands and open fields with patchily distributed trees. Heavily disturbed habitats are generally avoided.	**FOD** and **FOM**, where suitable roosting (i.e. cavity trees and trees with loose bark) habitat is available.	Hoary Bats are found throughout eastern Canada including Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, and parts of Saskatchewan, Alberta, and Nunavut. Hoary Bats migrate to overwintering areas in the southern United States but their migration routes are not known.	BCI, Beacon Environmental (2022)	**Confirmed** Acoustic monitoring surveys identified the presence of habitat for Hoary Bat at stations ARU 01-23, 25-32, 34-42, 44-46, 48 and 52. Suitable roost habitat is present within the Mineral Cultural Woodland (CUW1), Dry - Fresh Sugar Maple - White Ash Deciduous Forest (FOD5-8), Green Ash Mineral Deciduous Swamp (SWD2-2), Manitoba Maple Mineral Deciduous Swamp (SWD3-4), and Willow Mineral Deciduous Swamp (SWD4-1) communities identified in the Study Area.
Mammals	Little Brown Myotis (Little Brown Bat)	*Myotis lucifugus*	S3	END	END	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.		The Little Brown Bat is widespread in southern Ontario and found as far north as Moose Factory and Favourable Lake. In Canada, *Myotis lucifugus* occurs from Newfoundland to British Columbia, and northward to near the treeline in Labrador, Northwest Territories and Yukon.	BCI, Beacon Environmental (2022)	**Confirmed** Acoustic monitoring surveys identified the presence of Little Brown Myotis at ARU 07,11,13,15, 17 ,20 , 40, and 42. Study Area does not have any caves or rocky areas suitable for hibernation. Suitable roost habitat is present within the Mineral Cultural Woodland (CUW1), Dry - Fresh Sugar Maple - White Ash Deciduous Forest (FOD5-8), Green Ash Mineral Deciduous Swamp (SWD2-2), Manitoba Maple Mineral Deciduous Swamp (SWD3-4), and Willow Mineral Deciduous Swamp (SWD4-1) communities identified in the Study Area.
Mammals	Northern Myotis (Northern Long-eared Bat)	*Myotis septentrionalis*	S3	END	END	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.	The Northern Long-eared Bat is found throughout forested areas in southern Ontario, to the north shore of Lake Superior and occasionally as far north as Moosonee, and west to Lake Nipigon. In Canada, *Myotis septentrionalis* occurs from Newfoundland to British Columbia, and northward to near the treeline in Labrador, Northwest Territories, and Yukon.	BCI, Beacon Environmental (2022)	**Confirmed** Acoustic monitoring surveys identified the presence of Northern Myotis at stations ARU 15, 24, 34, and 46. Suitable roost habitat is present within the Mineral Cultural Woodland (CUW1), Dry - Fresh Sugar Maple - White Ash Deciduous Forest (FOD5-8), Green Ash Mineral Deciduous Swamp (SWD2-2), Manitoba Maple Mineral Deciduous Swamp (SWD3-4), and Willow Mineral Deciduous Swamp (SWD4-1) communities identified in the Study Area.

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Taxonomy	Common Name	Scientific Name	[1]S-Rank (03-06-25)	2ESA Status (03-06-25)	[3]SARA Status (03-06-25)	[4]COSEWIC Status (03-06-25)	[5]Preferred Habitat	Associated ELC Communities (based on Lee et. al., 1998)	[5]Known Species Range	[6]Source Identifying Species Record	Probability of Occurrence within Study Area
Mammals	Silver-haired Bat	*Lasionycteris noctivagans*	S2S3	END	END	END	Silver-haired Bats occupy a wide diversity of habitats across their geographic range. They roost in a variety of large diameter coniferous and deciduous trees. Roosting occurs primarily under peeling bark and in the cavities of trees, and occasionally in anthropogenic structures (e.g., buildings). They forage in young and old forest, as well as forest openings (canopy gaps), but are typically concentrated along forest edges and intact forest. In British Columbia, Silver-haired Bats have been documented hibernating in mines, rock crevices, trees, and snags. Little else is known about their winter ecology.	**FOC, FOM, FOD, SWC, SWM**, and **SWD** where suitable roosting (i.e. cavity trees and trees with loose bark) habitat is available.	The range of the Silver-haired Bat extends across southern Canada from Nova Scotia to British Columbia, and north along the Pacific coast to Yukon. Within Ontario, the species inhabits the Mixedwood Plains and Ontario Shield Ecozones and is excluded from the Hudson Bay Lowlands. Silver-haired Bats overwinter in the United States, southeastern British Columbia and sometimes the Great Lakes region.	BCI, Beacon Environmental (2022)	**Confirmed** Acoustic monitoring surveys identified the presence of habitat for Silver-haired Bat at all ARU stations. Suitable roost habitat is present within the Mineral Cultural Woodland (CUW1), Dry - Fresh Sugar Maple - White Ash Deciduous Forest (FOD5-8), Green Ash Mineral Deciduous Swamp (SWD2-2), Manitoba Maple Mineral Deciduous Swamp (SWD3-4), and Willow Mineral Deciduous Swamp (SWD4-1) communities identified in the Study Area.
Mammals	Tri-colored Bat	*Perimyotis subflavus*	S3?	END	END	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 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.		This bat is found in southern Ontario and as far north as Espanola near Sudbury. Because it is very rare, it has a scattered distribution. It is also found from eastern North America down to Central America. In Canada, *Perimyotis subflavus* occurs in Nova Scotia, New Brunswick, Quebec, and Ontario.	BCI, Beacon Environmental (2022)	**Confirmed** Acoustic monitoring surveys identified the presence of Tri-coloured Bat at stations ARU 07, 10, 13, 17, 29, 30, 31, 37, 42, 45, 51. Study Area does not have any caves or rocky areas suitable for hibernation. Suitable roost habitat is present within the Mineral Cultural Woodland (CUW1), Dry - Fresh Sugar Maple - White Ash Deciduous Forest (FOD5-8), Green Ash Mineral Deciduous Swamp (SWD2-2), Manitoba Maple Mineral Deciduous Swamp (SWD3-4), and Willow Mineral Deciduous Swamp (SWD4-1) communities identified in the Study Area.
Plants	Butternut	*Juglans cinerea*	S2?	END	END	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).	Butternut can be found throughout central and eastern North America. In Ontario, this species is found throughout the southwest, north to the Bruce Peninsula, and south of the Canadian Shield. Butternut's native Canadian range is restricted to southern Ontario and Quebec (primarily south of the area bounded by Georgian Bay, the Ottawa Valley, and the Quebec City region), and western and southern portions of New Brunswick.	Ontario Tree Atlas, Beacon Environmental (2022)	**Low Probability** Deciduous Forest (FOD) communities and Hedgerows were identified in the Study Area however species was not observed during field investigations.
Plants	Black Ash	*Fraxinus nigra*	S4	END	NAR	THR	Black Ash is predominantly a wetland species found in swamps, floodplains and fens. Black Ash occurs from western Newfoundland to southeastern Manitoba and North Dakota, ranging southward to Iowa, Illinois, Virginia and Delaware. Black Ash's range extends farther north than any other ash and approximately 51% of the species' global range is within Canada.	**SWD, FET**	Black Ash occurs throughout most of Ontario, except the Far North, ranging from southern Ontario east to the Quebec border, west to the Manitoba border and north to approximately 51° latitude. Approximately 25% of the global range of Black Ash occurs in Ontario.	Ontario Tree Atlas	**Low Probability** Deciduous Swamp (SWD) communities were identified in the Study Area however species was not observed during field investigations.

Appendix F. Species at Risk Habitat Screening

AECOM

Taxonomy	Common Name	Scientific Name	[1]S-Rank (03-06-25)	2ESA Status (03-06-25)	[3]SARA Status (03-06-25)	[4]COSEWIC Status (03-06-25)	[5]Preferred Habitat	Associated ELC Communities (based on Lee et. al., 1998)	[5]Known Species Range	[6]Source Identifying Species Record	Probability of Occurrence within Study Area
Reptiles	Snapping Turtle	*Chelydra serpentina*	S4	SC	SC	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.	The Snapping Turtle's range extends from Ecuador to Canada. The Snapping Turtle's range is contracting. In Canada, the species is widespread from Nova Scotia to southeastern Saskatchewan, though it is absent from northwestern Ontario, where summers are likely too cool for Snapping Turtle embryos to complete development successfully. The Snapping Turtle is therefore present in mainland Nova Scotia, southern New Brunswick, southern and central Quebec, southern and central Ontario, southern Manitoba, and southeastern Saskatchewan, primarily in the Qu'Appelle watershed.	ORAA	**Medium Probability** Study Area did not contain open water or shallow water with adjacent sandy/ gravely area suitable for nesting. Two small Mineral Shallow Marsh Ecosites (MAS2) within in the proposed expansion area may provide habitat.
Reptiles	Wood Turtle	*Glyptemys insculpta*	S2	END	THR	THR	The Wood Turtle prefers clear rivers, streams, or creeks with a slight current and sandy or gravelly bottom. It spends more time on land and the shores of watercourses than other native Ontario turtles. Wooded areas are essential habitat for the Wood Turtle, but they are found in other habitats, such as wet meadows, swamps, and fields. Like all freshwater turtles, the Wood Turtle needs water for many of its vital functions, including mating, hibernation, and temperature regulation. It generally hibernates at the bottom of the water, spends spring and fall in or near water, and summers on the ground. However, it is considered a semi-aquatic turtle because it spends a great deal of time on land, although it rarely strays farther than 300 meters from water. The Wood Turtle's natural nesting sites are found on sand or gravel-sand beaches and banks. Although they prefer riparian areas with diverse, patchy cover, females also lay in gravel holes, at the edges of roads and railways, in utility right-of-ways, in farming fields, pastures, and former fields – any sunny and easily dug spot. Other habitats used less frequently by the Wood Turtle include bogs, marshy pastures, beaver ponds, shrubby cover, meadows, coniferous forests, mixed forests, hay, and agricultural fields and pastures. Even though quantitative historic and contemporary data on changes in the area of available and suitable habitat for the Wood Turtle do not exist, it is evident that this habitat is declining over much of the species' range.		In Ontario, Wood Turtles have been found in three separate regions of the province. The Wood Turtle is found in isolated patches from Nova Scotia and New Brunswick south to Virginia, and west through southern Quebec and Ontario to Minnesota and northeastern Iowa. Populations are distributed in around 13 drainage basins in Ontario.	ORAA	**Low Probability** Study Area is outside of the range for isolated populations of this species.

Glossary	
EXP	ESA - Extripated - a species that no longer exists in the wild in Ontario but still occurs elsewhere.
	SARA - Extripated - a wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END	ESA - Endangered - a species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act.
	SARA - Endangered - a wildlife species that is facing imminent extirpation or extinction.
THR	ESA - Threatened - a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
	SARA - Threatened - a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC	ESA - Special Concern (formerly Vulnerable) - a species with characteristics that make it sensitive to human activities or natural events.
	SARA - Special Concern - a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
OMNR	Ontario Ministry of Natural Resources
ESA	Endangered Species Act
SARA	Species at Risk Act (Federal)
Schedule 1	The official list of species that are classified as extirpated, endangered, threatened, and of special concern.
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.
COSEWIC	Committee on the Stauts of Endangerd Wildlife in Canada - a committee of experts that assesses and designates which wild species are in some danger of disappearing from Canada.
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