

Environmental Impact Study – South March Road Battery Energy Storage System (BESS)

Final Report

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Table of Contents

1	Introduction	1
2	Planning Policies	2
2.1	Municipal	2
2.1.1	City of Ottawa Official Plan	2
2.1.2	City of Ottawa Tree By-Law	4
2.2	Provincial.....	5
2.2.1	Provincial Policy Statement	5
2.2.2	Endangered Species Act.....	5
2.2.3	Fish and Wildlife Conservation Act	5
2.2.4	Conservation Authorities Act.....	6
2.3	Federal	6
2.3.1	Species at Risk Act	6
2.3.2	Migratory Birds Convention Act	6
2.3.3	Fisheries Act	7
3	Study Approach.....	8
3.1	Background Review	8
3.2	Field Studies	8
3.2.1	Aquatic Resources	8
3.2.2	Ecological Land Classification	9
3.2.3	Amphibians	9
3.2.4	Turtle Surveys	9
3.2.5	Incidental Wildlife Observations and Habitat Features	10
3.3	Significant Wildlife Habitat Assessment	10
3.4	Species at Risk Screening	11
4	Existing Conditions	12
4.1	Landforms, Soils and Geology	12
4.2	Designated Areas.....	12
4.3	Aquatic Resources	13
4.3.1	Surface Water and Groundwater	13
4.3.2	Fish Habitat.....	14
4.4	Vegetation Cover	15
4.5	Amphibians	19
4.6	Turtles	19
4.7	Significant Natural Heritage Features	20
4.7.1	Significant Wetlands	20
4.7.2	Significant Woodlands	20
4.7.3	Significant Wildlife Habitat	20
4.8	Species at Risk	24
4.9	Fish Habitat	25
4.10	Natural Heritage Feature Summary	25
5	Project Description	27
6	Effects Assessment	28



Environmental Impact Study – South March Road Battery Energy Storage System (BESS)

Table of Contents

June 11, 2025

6.1	Potential Environmental Effects	28
6.1.1	Construction	28
6.1.2	Operation	30
6.2	Mitigation and Protective Measures	31
6.2.1	Construction	31
6.2.2	Operation	36
7	Authorization Requirements	38
8	Summary of Conclusion.....	39
9	References	40

List of Tables

Table 1	Vegetation Communities within the Study Area.....	16
Table 2	Amphibian Call Count Survey Results	19
Table 3	Summary of Natural Heritage Features	25
Table 4	Summary of Potential Authorizations That May be Required for the Project	38

List of Figures

Figure 1	NHS and Natural Heritage Feature Overlay in the Study Area (adapted from the OP)	3
Figure 2	Land use designations in the Study Area (adapted from the OP)	4

List of Appendices

Appendix A	Figures
Appendix B	Species List
Appendix C	Significant Wildlife Habitat Assessment
Appendix D	Species at Risk Screening



1 Introduction

The proposed South March Road Battery Energy Storage System (BESS) project (the Project) is located off Marchurst Road, northwest Ottawa, Ontario on part of Concession 1 Lot 26 and Lot 27. The Project is anticipated to be approximately 250 MW, with a Project Development Area (PDA) of approximately 6.1 hectares (ha). The PDA encompasses any land, structure, and air space in, on or over which part of the Project is proposed and is described in this report as the Subject Property. The Study Area includes the Subject Property and larger Project Area plus adjacent lands within a 120-meter buffer (Figure A1, Appendix A).

This Environmental Impact Study (EIS) identifies natural heritage features and significant natural features within the Study Area, as well as potential environmental effects and mitigation measures to lessen potential impacts of the proposed development on environmental resources. This EIS report was prepared in accordance with applicable policies and regulations described in Section 2 and the City of Ottawa (the City) *Environmental Impact Study Guidelines* (2023).



2 Planning Policies

The following sections discuss the legislation and policy documents that establish the natural heritage context for the Study Area. The policy documents discussed below were used to scope effects assessment, assess the natural heritage features and functions within the Study Area, as well as to determine natural heritage constraints.

2.1 Municipal

2.1.1 City of Ottawa Official Plan

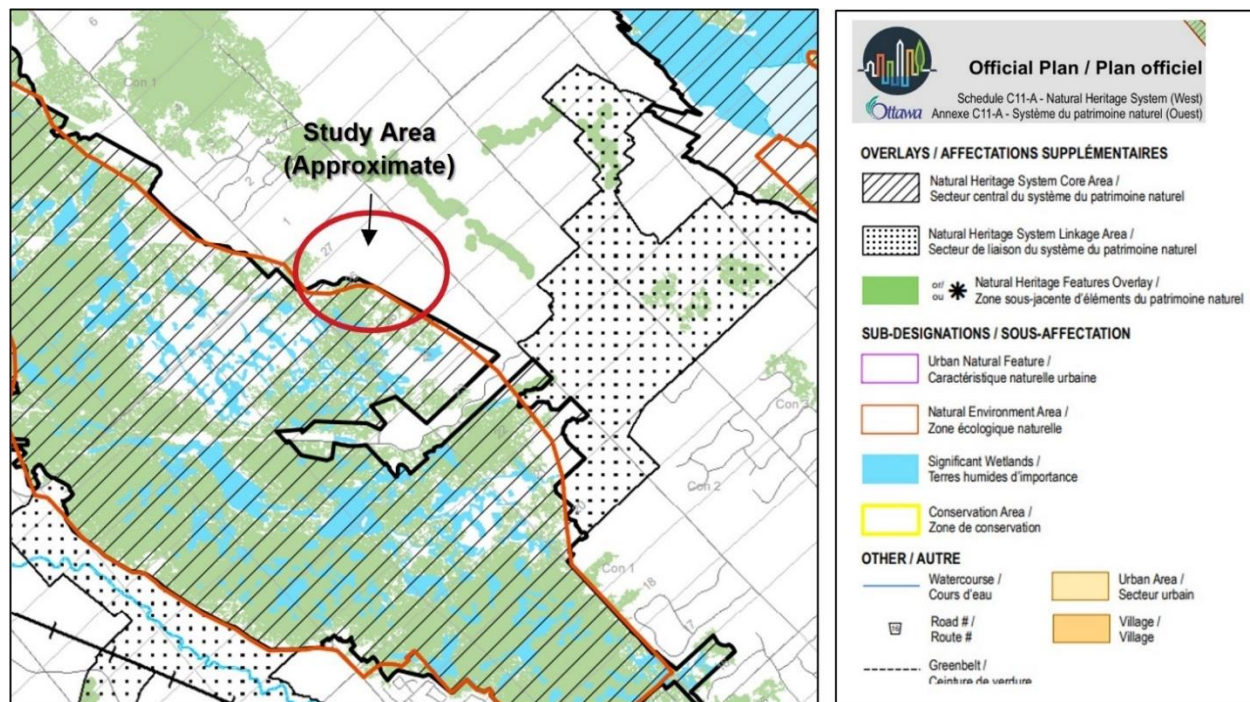
The City of Ottawa *Official Plan* (OP) was adopted by Council on November 2021. Section 4.8.1 of the OP states that “*the Natural Heritage System and the features within it are subject to a higher standard of protection than features outside*” and defined natural heritage features as the following:

- Significant Wetlands
- Significant Woodlands
- Significant Valleylands
- Significant Wildlife Habitat
- habitat for endangered and threatened species (i.e., habitat of SAR)
- areas of natural and scientific interest (ANSI)
- urban natural features
- natural environment areas
- natural linkage features and corridors
- groundwater features
- surface water features, including fish habitat
- landform features

The Natural Heritage System (NHS) and Natural Heritage Features Overlays within the Study Area are shown on Figure 1 below, as replicated from Schedule C11-A of the City’s OP.



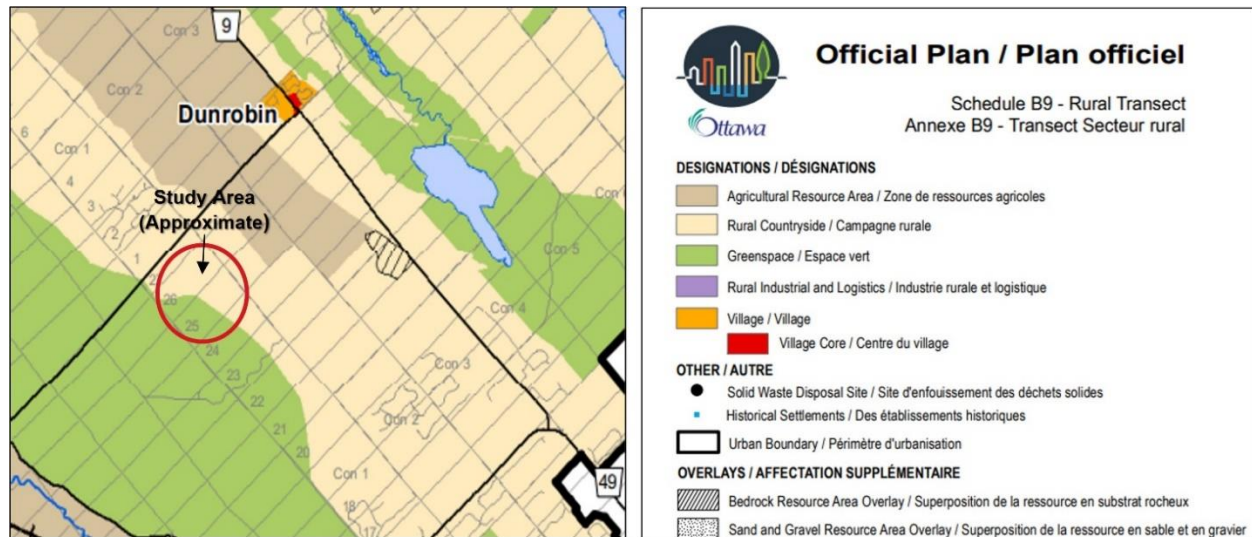
Figure 1 NHS and Natural Heritage Feature Overlay in the Study Area (adapted from the OP)



Section 5.6.4.1 of the OP states that “the City shall protect natural heritage features for their natural character and ecosystem services” and that “development or site alteration proposed in or adjacent to natural heritage features shall be supported by an environmental impact study prepared in accordance with the City’s guidelines.” Further, “development and site alteration shall have no negative impact on the Natural Heritage System and Natural Heritage Features” and “shall be consistent with the conclusions and recommendations of an approved environmental impact study”. As shown in Figure 1, a portion of the Study Area is within the NHS and Natural Heritage Features Overlay. The proposed development is not expected to encroach within these designated areas (Figure A1, Appendix A).

Section 7 of the OP includes policies for the Greenspace designations, which are shown on Schedule B9 with sub-designations also shown on Schedule C11-A. Section 7.3 of the OP states that “development and site alteration within 120 m of the boundary of a Significant Wetland must demonstrate no negative impacts on the natural features or their ecosystem services within the area” and that “development and site alteration within 120 m of the boundary of a Natural Environment Area must demonstrate no negative impacts on the natural features or their ecosystem services within the area”. As shown in Figure 2, the Study Area is within the Rural Countryside designation with a portion within Greenspace. The Greenspace designation overlaps areas within the NHS and Natural Heritage Feature Overlays (Figure 1).

Figure 2 Land Use Designations in the Study Area (adapted from the OP)



2.1.2 City of Ottawa Tree By-Law

The City's Tree Protection By-law (No. 2020-340) came into effect on January 1, 2021. The following trees are protected from injury or removal, except where a tree permit is obtained from the City:

- All City-owned trees throughout the urban and rural area.
- All trees 10 cm or more in diameter at breast height on private properties within the urban area that are subject to a Planning Act application for Site Plan, Plan of Subdivision, or Plan of Condominium.
- All trees 10 cm or more in diameter at breast height on private properties within the urban area that are over 1 hectare (ha) in size.
- All distinctive trees, which are trees 30 cm or more in diameter at breast height on private properties within the urban area that are 1 ha or less in size.

As the Study Area is located on private land within the rural area, a permit for injury or removal is not required.



2.2 Provincial

2.2.1 Provincial Policy Statement

The *Provincial Policy Statement, 2024* (PPS) was issued under Section 3 of the *Planning Act, 1990*; and came into effect October 20, 2024. The PPS provides the framework for provincial planning documents and regulating land use and development planning policies for specific geographic areas within Ontario.

The natural heritage provisions are outlined in Section 4.1 of the PPS with a focus on maintaining the diversity, ecological functions, and linkages of natural heritage features and areas, natural heritage systems, surface water and groundwater features over the long term. These provisions restrict development and site alteration in or adjacent to significant natural heritage features and areas (e.g., wetlands, woodlands, valleylands, wildlife habitat and areas of natural and scientific interest) unless it can be demonstrated that there will be no negative impacts on the features and their ecological functions. Additionally, these provisions apply to fish habitat and habitat of endangered and threatened species, except in accordance with provincial and federal requirements. The natural heritage policies are not intended to limit the ability of agricultural uses to continue.

2.2.2 Endangered Species Act

The *Endangered Species Act, 2007* (ESA) applies to species that are designated as extirpated, endangered or threatened and listed on the Species at Risk in Ontario (SARO) List (O.Reg. 230/08). Species and general habitat protection apply to all species, except those designated as special concern, which are not afforded protection under the ESA. Species specific habitat protection is also given to those species with regulated habitat, as identified in O.Reg. 832/21. The ESA also includes specific exemptions from the provisions of the ESA under certain conditions under O.Reg. 242/08 and O. Reg. 830/21. Exemptions and conditions vary by species, type of activity, the date the species was listed and the date the activity commenced. The province of Ontario has proposed replacing the existing ESA with the new Species Conservation Act, which may come into effect prior to construction of the Project. Consultation with MECP is ongoing and will continue to provide compliance with the applicable legislation.

2.2.3 Fish and Wildlife Conservation Act

The Ontario *Fish and Wildlife Conservation Act, 1997* (FWCA) provides protection of wildlife in Ontario including fish, furbearing mammals, game wildlife and specially protected wildlife through regulations for hunting, trapping, and fishing practices. Game and specially protected mammals, birds, reptiles, amphibians, and invertebrates are listed on Schedules 1-11 of the FWCA. Definitions provided for hunting include capturing or harassing wildlife (Section 4.10) and would include activities that collect or handle wildlife for inventories or other scientific purposes, or to relocate wildlife out of harm's way (e.g., during construction activities), including individuals and eggs. Sections 7 and 8 also provide protection for nest and eggs of specified bird species including raptors, and dens of bears and furbearing animals, and beaver dams. Under the FWCA, the Minister of Natural Resources (MNR) has the authority to authorize



activities that would otherwise be prohibited such as the safe capture of wildlife and removal of nests, dens, and dams, and impose conditions on an authorization.

2.2.4 Conservation Authorities Act

The Conservation Authorities Act, 1990, was updated in late 2022 with the purpose to provide for the organization and delivery of programs and services that further the conservation, restoration, development, and management of natural resources in watersheds in Ontario.

The Project is within the Mississippi Valley Conservation Authority (MVCA) jurisdiction, which administers *Ontario Regulation 41/24: Prohibited Activities, Exemptions and Permits* under Section 28 of the *Conservation Authorities Act*. The proposed development will not include works within the regulated limits and therefore, a permit is not anticipated.

2.3 Federal

2.3.1 Species at Risk Act

The federal *Species at Risk Act, 2002* (SARA) includes provisions for the protection of species that are classified as extirpated, endangered and threatened on Schedule 1 of the Act. This includes protection of the species and their residence (e.g., nest, den) and critical habitat. Critical habitat is defined as those habitats necessary for the survival or recovery of a listed species, as identified in the recovery strategy or in an action plan for the species. While SARA applies to species on federal land, such as Canadian oceans and waterways, national parks, national wildlife areas, some migratory bird sanctuaries and First Nations reserve lands, it also applies to migratory birds protected under the *Migratory Birds Convention Act, 1994* and fish, anywhere they occur. Under Section 73 of SARA, the competent minister may enter into an agreement or issue a permit authorizing an activity affecting a listed wildlife species, any part of its critical habitat, or the residences of its individuals and provided that the activity meets the following purposes:

1. The activity is scientific research relating to the conservation of the species and conducted by qualified persons.
2. The activity benefits the species or is required to enhance its chance of survival in the wild.
3. Affecting the species is incidental to the carrying out of the activity.

2.3.2 Migratory Birds Convention Act

The *Migratory Birds Convention Act, 1994* (MBCA) affords protection and conservation to migratory bird populations, individuals, and their nests within all of Canada. Most bird species in Canada are afforded protection, except for a few families (e.g., cormorants, pelicans, grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, falcons, kingfishers, and corvids). The MBCA is the enabling statute for the Migratory Birds Regulations (MBR), which were updated in May 2022 (MBR 2022). Section 6 of the MBR 2022 states that without the authorization of a permit, the disturbance, destruction, or taking of a nest,



egg, nest shelter, eider duck shelter, or duck box of a migratory bird, or possession of a migratory bird, carcass, skin, nest, or egg of a migratory bird are prohibited. Under the MBR 2022, nests for 18 bird species (7 of which occur in Ontario) receive year-round protection for a prescribed length of time ranging from 24-36 months (Schedule 1), and all other nests of migratory birds are protected when they contain a live bird or viable egg (S. 5(2)(b)). If a nest of a species identified on Schedule 1 of the MBR 2022 is determined to be empty of live birds or viable eggs, then the nest can be registered under Environment and Climate Change Canada's (ECCC) Abandoned Nest Registry, at which point the prescribed period of inactivity begins.

2.3.3 Fisheries Act

The *Fisheries Act, 1985* (amended on August 28, 2019) is the main federal law governing fisheries in Canada and is administered by Fisheries and Oceans Canada (DFO). The *Fisheries Act* provides for the management and control of fisheries, the conservation and protection of fish, the protection of fish habitat and pollution prevention. Projects that may impact fish, fish habitat, aquatic species at risk (SAR) and aquatic invasive species may be subject to DFO review. The *Fisheries Act* prohibits causing the death of fish and the harmful alteration, disruption, or destruction (HADD) of fish habitat, unless authorized by the Minister of Fisheries, Oceans, and the Canadian Coast Guard. Conditions and circumstances for projects to be exempt from review are listed on DFO's Fish and Fish Habitat Protection Program web pages. Following guidance and criteria provided on DFO's website regarding mitigation, waterbody types and codes of practice, proponents determine whether their projects in or near water will require review by DFO. DFO review is requested through the submission of a 'Request for Review' (RfR) form. Following completion of their review, DFO can proceed in two ways: 1) issue a Letter of Advice indicating that the proposed work complies with the *Fisheries Act* or, 2) refer the project to the Regulatory Review Unit for site specific review. If the project can avoid impacts to fish and fish habitat, project approval is not required. If impacts that cause a HADD cannot be avoided, proponents must apply for a *Fisheries Act* Authorization and may be required to develop a habitat offsetting or compensation plan.



3 Study Approach

3.1 Background Review

The following information sources were reviewed for records of natural heritage features within the Study Area. The results are shown on Figure A1, Appendix A with a list of species provided in Appendix B.

- Geospatial Ontario environmental datasets (GEO; n.d.)
- Natural Heritage Information Centre (NHIC; MNR 2025)
- City of Ottawa Official Plan (City of Ottawa 2022)
- Mississippi Valley Conservation Authority (MVCA; 2025)
- Ontario Reptile and Amphibian Atlas (ORAA; 2020)
- Atlas of the Mammals of Ontario (AMO; Dobbyn 1994)
- Ontario Breeding Bird Atlas (OBBA; Cadman et al. 2007)
- Ontario Butterfly Atlas (OBA; Toronto Entomologists' 2025a)
- iNaturalist Online Observations (iNaturalist 2025)
- Fisheries and Oceans Canada Aquatic SAR Map (DFO 2025)

3.2 Field Studies

Stantec completed field investigations within the Study Area between October 2024 to May 2025. Additional field investigations will be completed in June 2025 to record breeding birds, bats and remaining amphibian and turtle surveys. These investigations involved documenting existing conditions and verifying data collected during the background review, including assessments of candidate significant wildlife habitat (SWH), potential for species at risk (SAR), and other natural heritage features. A summary of targeted field studies is provided in Table 1, with study methodologies discussed in the sections below.

3.2.1 Aquatic Resources

An unnamed surface water feature (SWF) that was identified during the background data review as bisecting the Study Area was groundtruthed (where access was available) during field work that was completed on October 8, 2024. An additional field investigation to characterize the aquatic habitats and fish community within the SWF was completed on June 2, 2025. The information was used to identify potential fish habitat constraints associated with the Study Area.

The aquatic habitat assessment was based on qualitative and quantitative measurements and include documentation of instream cover, bank stability, substrates, and morphology, riparian zone habitat and overall fish habitat potential.



The fish community assessment was conducted using dip nets as water levels were not conducive to backpack electrofishing. Dip-netting was completed throughout the entire wetted channel where water levels allowed.

To complete the fish community assessment, a *License to Collect Fish for Scientific Purposes* under the *Fish and Wildlife Conservation Act* (1997) was obtained from the MNR (Authorization No. KEKI-2025-FWCA-00286).

3.2.2 Ecological Land Classification

Vegetation communities were generally characterized following the first approximation of the *Ecological Land Classification System for Southern Ontario* (Lee *et al.*, 1998). The second approximation of ELC (Lee, 2008) was also used when there was no code available for a specific community type in the first approximation.

Prior to undertaking field surveys, vegetation communities were mapped through aerial photograph interpretation, with polygons delineated using ArcGIS. The field inventories included verifying and refining the boundaries mapped during the desktop exercise. Additional data was collected related to disturbances and wildlife species presence within each of the polygons that could be field verified. The vegetation communities were also assessed to determine if candidate SWH was present (this includes rare vegetation community types). Field investigations for ELC were completed on August 8, 2024.

3.2.3 Amphibians

Amphibian call surveys were recorded using ARUs, following the timing and weather conditions outlined in the Ontario Marsh Monitoring Program Participant's Handbook for Surveying Amphibians (BSC and ECCC 2009). ARUs were deployed to record calls for at least ten survey nights with suitable weather during the peak breeding period in the early spring (late April), late spring (late May), and early summer (late June).

Four (4) amphibian ARUs were placed at the Study Area where the BESS is proposed across representative habitats. Later, a qualified biologist (one who has completed amphibian call analysis before) analyzed recorded calls to identify species. At the time of this report, results for April 2025 surveys were available.

3.2.4 Turtle Surveys

Turtle surveys were completed in accordance with the Survey Protocol for Blanding's Turtle (*Emydoidea blandingii*) in Ontario (MNR 2013). Five (5) basking turtle surveys were completed during appropriate weather conditions (5-25°C and sunny), between late May and mid-June. At the time of this report, results for the first three surveys from 2025 surveys were available.



3.2.5 Incidental Wildlife Observations and Habitat Features

Incidental wildlife observations and wildlife habitat features were documented during the field investigations and include any species observations outside of targeted surveys. This information was collected for inclusion in the SWH assessment. Wildlife habitat features that were documented included, but were not limited to, rock piles, stick nests or other nests of wildlife, burrows, evidence of wildlife such as scat, tracks, and predated nests, among others.

3.3 Significant Wildlife Habitat Assessment

A preliminary screening for confirmed and candidate SWH was completed for the Study Area following the *SWH Criteria Schedules for Ecoregion 6E* (MNR 2015). The screening was completed based on vegetation communities identified during the site investigation, with results provided in Section 4.7.3.

The MNR provides specific guidance on identifying and assessing wildlife habitat in the Significant Wildlife Habitat (SWH) Criteria Schedules for Ecoregion 6E (MNR 2015). Other guidance documents used as part of the SWH assessment included the SWHTG (MNR 2000) and Natural Heritage Reference Manual (NHRM; MNR 2010). The MNR recognizes five (5) main categories of wildlife habitat, each with several wildlife habitat types. The general definitions of these habitat types are provided below:

- **Seasonal Concentration Areas of Animals** – defined as “areas where animals occur in relatively high densities for the species at specific periods in their life cycles and/or in particular seasons” and areas that are “localized and relatively small in relation to the area of habitat used at other times of the year” (MNR 2010).
- **Rare Vegetation Communities** – defined as “areas that contain a provincially rare vegetation community and areas that contain a vegetation community that is rare within the planning area” (MNR 2010).
- **Specialized Habitat for Wildlife** – defined as “areas that support wildlife species that have highly specific habitat requirements, areas with high species and community diversity, and areas that provide habitat that greatly enhances species’ survival” (MNR 2010).
- **Habitat for SOCC** – defined as “habitats of species that are designated at the national level as endangered or threatened by COSEWIC, which are not protected in regulation under Ontario’s ESA, 2007; habitats of species listed as special concern under the ESA, 2007 on the SARO List (formerly referred to as “vulnerable” in the SWHTG); and habitats of species that are rare or substantially declining, or have a high percentage of their global population in Ontario” (MNR 2010). More specifically, species of conservation concern (SOCC) include:
 - **Globally rare species** – These species are assessed by NatureServe and assigned a global conservation status rank (G-rank) of G1 to G3.
 - **Nationally rare species** – These species are assessed by COSEWIC as extirpated, endangered, threatened, or special concern but not listed in SARA; species not protected under SARA including those designated as special concern on Schedule 1



(e.g., Monarch) or any of the listed species in Schedule 2 and Schedule 3; species on non-federal land listed on Schedule 1 of SARA, other than migratory birds and fish.

- **Provincially rare species** – These species are designated and assessed under two categories: species listed as special concern on the SARO List, and species that are assigned a provincial sub-national conservation status rank of S1 to S3. There are species that can be found in both categories.
- **Animal Movement Corridors** – defined as “elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another” (MNR 2000).

3.4 Species at Risk Screening

This report considers species at risk (SAR) as those classified as extirpated, endangered or threatened and protected under the ESA and/or SARA, as defined below:

- Provincially protected species on the Species at Risk in Ontario (SARO) List under Ontario Regulation 230/08.
- Federally listed migratory birds and fish on Schedule 1 of SARA; these species are protected anywhere they occur, including non-federal lands. All other federally listed species are generally (except through an Order) only protected under SARA if they occur on federal lands.

A background review was completed to identify potential SAR previously recorded in proximity to the study area. All identified species were screened for habitat suitability, availability, and likelihood to occur within the Subject Property. The results of the screening are provided in Section 4.8.



4 Existing Conditions

4.1 Landforms, Soils and Geology

The physiographic landform in the Study Area comprises shallow till and rock ridges. This landform consists of shallow till deposits interspersed with exposed rock ridges, primarily shaped by glacial scouring. The thin soil layer, often comprising silty sand or sandy till, overlies bedrock, creating a rugged, uneven landscape with poor drainage and minimal soil development.

The physiographic region in the Study Area comprises the Ottawa Valley Clay Plains. The Ottawa Valley Clay Plains are characterized by flat to gently undulating terrain formed by the deposition of fine-textured sediments in glacial lakes. These clay plains feature poorly drained, compact soils, primarily consisting of clay and silt, which influence land use, vegetation, and drainage patterns in the region.

Surficial geology in the Study Area consists of fine-textured glaciomarine deposits, primarily silt and clay with minor sand and gravel components. Additionally, parts of the area are characterized by Precambrian bedrock and silty sand to sandy till deposits on Precambrian terrain, reflecting the area's glacial history and underlying geological diversity (City of Ottawa 2025).

4.2 Designated Areas

Designated Areas are defined by resource agencies, municipalities, the government and/or the public, through legislation, policies, or approved management plans, to have special or unique value. Such areas may have a variety of ecological, recreational, and/or aesthetic features and functions that are highly valued. Designated areas include provincial land use and environmental plan areas, national and provincial parks, designated federal wildlife/marine areas, Areas of Natural or Scientific Interest (ANSIs) and environmentally sensitive areas.

The western limit of the Study Area is within the NHS Core Area, as shown on Schedule C11-A of the City's OP (Figure 1), as well as the Carp Hills regional significant candidate life science ANSI from data obtained from GEO (Figure A1, Appendix A). These designated areas are within the City's Environmental Protection zoning. The proposed development is not expected to encroach within these areas.



4.3 Aquatic Resources

4.3.1 Surface Water and Groundwater

The Study Area is located within the Chaudière Falls-Ottawa River Quaternary Watershed.

A high-level aquatic habitat assessment of a section of the unnamed SWF that bisects the Study Area was conducted concurrently with the ELC survey to document existing conditions within the Study Area (Figure A3, Appendix A) in 2024. A section of the unnamed SWF was not assessed in the northerly parcel, as cattle and a bull were present, and it was deemed a safety hazard. A more detailed aquatic habitat assessment was completed on June 2, 2025, and three reaches were assessed (Figure A3, Appendix A).

This unnamed SWF appears to originate from the Carp-Hills Wetland Complex – Swamp south of the Study Area. Within the Study Area, background information (GEO n.d.) identifies this watercourse as having a permanent flow regime and no assigned thermal regime. This SWF, when flowing, would flow in a northerly direction.

Reach 1

Reach 1 was assessed from the Study Area through the agricultural field to where aquatic habitat conditions changed (tile drain outlet location) (Figure A3, Appendix A).

Between the Project Area and Study Area the unnamed SWF was observed to flow overland from a beaver dam / beaver pond for approximately 80 m to the agricultural field, then disappears underground. Within the agricultural field

Within this assessed reach, the channel lacks definition, appearing to be an ephemeral feature with a low gradient that directs excess surface water from the swamp in a northerly direction. A tile drain was observed (Shown on Figure A3, Appendix A), indicating that the field may be tiled (or was historically), and the surface flow has the potential to be excess surface water that the tiles cannot handle. The assessed reach is located within an active agricultural field, and the SWF is consistently affected by normal farming procedures. At the time of the assessment in October 2024 and June 2025, a slow flow was identified within the SWF in Reach 1, with small pools of water being present in ruts created by farming equipment. The SWF was primarily grass/hay lined with no sorting of substrates being present. No aquatic habitat or in-stream features were identified in the assessed reach.

Reach 2

Reach 2 was assessed from the tile drain outlet to the online agricultural pond (Figure A3, Appendix A).

The unnamed SWF runs along the northern side of the fence line (between the two parcels) before continuing in a northerly direction. Within this reach, the channel gains definition and limited flow was present, although limited through dense vegetation. The vegetation was primarily terrestrial grasses with limited early cattail (*Typha*) growth. No riffles, runs or pools were observed within this reach. Flow was observed to increase farther downstream / closer to where it outlets to the online agricultural pond.



As the property is an active pasture for cattle, the unnamed SWF is heavily degraded through farming practices and cattle trotting. Limited boulders were identified near the fence line. No aquatic habitat or in-stream features were identified in the assessed reach, which is likely ephemeral or intermittent.

Agricultural Pond

The unnamed SWF inlets to a small agricultural pond, as shown on Figure A3, Appendix A. The agricultural pond is online, with flow being present at the inlet and outlet. No flow was observed within the pond. In-pond vegetation was present and provided through Slender Naiad (*Najas flexilis*) and Water Plantain (*Alisma triviale*). Substrate within the pond were comprised of clay (60%), silt (20%), muck (10%) and detritus (10%).

The pond feature has been impacted by the presence of cattle and the banks were observed to have erosion, likely from the cattle.

Reach 3

Reach 3 was assessed from the agricultural pond outlet to Marchurst Road (Figure A3, Appendix A).

The first section of this reach within the agricultural field was primarily slow sheet flow through dense terrestrial grasses and hummocks. The second section, where there was more natural surrounding land use had a more defined channel with limited sinuosity and substrate sorting. Limited in-stream cover is also provided in the second section of Reach 3. Morphology was sheet flow and runs with one bedrock cascade that was limiting fish passage and a pool. Substrates were comprised of clay (35%), gravel (20%), cobble (15%), sand (10%), muck (10%), and detritus (10%).

At Marchurst Road, a new HDPE round culvert is present, directing the channel under the Road. The unnamed SWF then runs immediately adjacent to the east side of Marchurst Road through a roadside ditch. This is different than what was indicated on background mapping (Figure A1, Appendix A).

4.3.2 Fish Habitat

No fish community data were available for the unnamed SWF (GEO n.d.).

Fish community assessment was completed within the Study Area on June 2, 2025 using dip-nets.

No fish were captured within Reach 1, although Brook Stickleback (*Culea inconstans*) were observed within the beaver pond feature. As this reach is ephemeral with no channel definition, it would provide seasonal indirect fish habitat.

No fish were captured or observed within Reach 2. The majority of this reach would only provide seasonal indirect fish habitat. A small section (approximately 5 m in length) immediately upstream of the agricultural pond has the potential to provide seasonal direct fish habitat.

Brook Stickleback were captured within the online agricultural pond. No other species of fish were captured or observed. Brook Stickleback are a common, native, baitfish with a coolwater thermal regime



preference (Eakins 2025). The pond provides direct fish habitat and as it is connected to the unnamed SWF, it is not considered an artificial waterbody and the provisions within the *Fisheries Act* would be applicable.

Brook Stickleback were also captured within Reach 3, close to the pond outlet. Additional unidentifiable young-of-year baitfish were observed at the downstream end of the culvert under Marchurst Road. This reach provides seasonal direct fish habitat.

4.4 Vegetation Cover

The Study Area is within the rural landscape and includes a mix of agriculture and naturalized areas, including meadows, woodlands and wetlands. The proposed development is primarily located on agricultural land used for perennial cover crops and pasture with the access road encroaching within a woodland community, specifically Dry-Fresh Oak-Maple Deciduous Forest/ Oak-Red Maple-Pine Non-Calcareous Treed Rock Barren (FODM2-1/RBTB2-3). Wetlands are also present within the Study Area, including unevaluated wetlands and the Carp Hills PSW. The majority of these wetlands are located west of the hydro corridor within the western portion of the Study Area. A summary of vegetation communities documented within the Study Area is provided in Table 1 and shown on Figure A2, Appendix A.



Environmental Impact Study – South March Road Battery Energy Storage System (BESS)

4 Existing Conditions

June 11, 2025

Table 1 Vegetation Communities within the Study Area

ELC Code	Community Description	Project Development	Adjacent Lands
Constructed			
CVI_1 (Transportation)	Two lane road that runs along Marchurst Road.	No	Yes
CVI_4 (Power Generation)	Hydro corridor running east-west across the Study Area. Additional species include: Willow sp, Trembling Aspen, Purple Loosestrife, Dark-green Bullrush (<i>Scirpus atrovirens</i>), Pearly Everlasting, Poison Ivy, Common Mulligan (<i>Verbascum thapsus</i>), Red Raspberry (<i>Rubus idaeus</i>), Wild Strawberry, Common Milkweed, Rock Polypody (<i>Polypodium virginianum</i>), Poverty Oat Grass (<i>Danthonia spicata</i>), Intermediate Woodfern (<i>Dryopteris intermedia</i>), Lichens (Ascomycetes sp), Grasses (Poaceae sp), Sedges (Carex sp), Mosses (Bryophytes sp).	No	Yes
CVR_R (Rural Property)	Houses on rural residential property off Marchurst Road.	Yes	Yes
Agriculture			
OAGM2 (Perennial Cover Crops)	Agricultural fields that appear to be used for hay. Additional species include Red Clover, Bedstraw (<i>Rubiaceae</i>), Cinquefoil (Potentilla sp), Common Milkweed (<i>Asclepias syriaca</i>), Solidago sp, Rushes (Juncus sp), Grasses (Poaceae sp), Orchard Grass (<i>Dactylis glomerata</i>).	Yes	Yes
OAGM4 (Open Pasture)	Mixed grass species dominant cattle pasture. Area near fence line has sedges and rushes. Additional species include Apple trees (Malus sp), Glossy Buckthorn, Red Clover, Fleabane (Erigeron sp), Common Milkweed, Water Marigold (<i>Caltha palustris</i>), Common Dandelion (<i>Taraxacum officinale</i>), Orchard Grass.	Yes	Yes
Meadow			
MEMM4 (Fresh-Moist Mixed Meadow Ecosite)	Mix of grasses (Poaceae sp) and broadleaf species.	No	Yes



Environmental Impact Study – South March Road Battery Energy Storage System (BESS)

4 Existing Conditions

June 11, 2025

ELC Code	Community Description	Project Development	Adjacent Lands
Woodland			
FODM2-1/ RBTB2-3 (Dry-Fresh Oak-Maple Deciduous Forest/ Oak-Red Maple-Pine Non-Calcareous Treed Rock Barren)	Freeman's Maple (<i>Acer freemanii</i>) is dominant in the canopy and sub-canopy. Trembling Aspen (<i>Populus tremuloides</i>) Northern Red Oak (<i>Quercus rubra</i>), Paper Birch (<i>Betula papyrifera</i>), and Butternut (<i>Juglans cinerea</i>) also in canopy. Sub-canopy is composed of Freeman's Maple, Trembling Aspen, and American Basswood (<i>Tilia americana</i>). Understory is dominated by Glossy Buckthorn (<i>Rhamnus frangula</i>), Staghorn Sumac (<i>Rhus typhina</i>), and Willows (<i>Salix</i> sp). Additional species include: Green Ash (<i>Fraxinus pennsylvanica</i>), American Elm (<i>Ulmus americana</i>), Tatarian Honeysuckle (<i>Lonicera tatarica</i>), Juniper (<i>Juniperus communis</i>), Common Hawkweed (<i>Hieracium lachenalii</i>), Wild Blueberry (<i>Vaccinium angustifolium</i>), Wild Strawberry (<i>Fragaria vesca</i>), Flattop Goldenrod (<i>Euthamia graminifolia</i>), Red Clover (<i>Trifolium pratense</i>), New England Aster (<i>Symphyotrichum novae-angliae</i>), Solidago sp, Riverbank Grape (<i>Vitis riparia</i>), Wild Raspberry (<i>Rubus moluccanus</i>), Tufted Vetch (<i>Vicia cracca</i>), Chicory (<i>Cichorium intybus</i>), Northern Lady Fern (<i>Athyrium angustum</i>), Sensitive Fern (<i>Onoclea sensibilis</i>), Common Bracken Fern (<i>Pteridium aquilinum</i>), Reindeer Lichen (<i>Cladonia rangiferina</i>), Haircap Moss (<i>polytrichum commune</i>), Rushes (<i>Juncaceae</i> sp), Sedges (<i>Cyperaceae</i> sp), Grasses (<i>Poaceae</i> sp). Patchy to semi-open treed communities; understory plant cover patchy to continuous. Igneous and metamorphic rock, patchy soil development, treed rock barrens typically reflect greater accumulation of soil cover over the bedrock or more fracturing of bedrock to allow for root penetration; substrate depth <15 cm and viable; extremes in moisture and temperatures.	Yes	Yes
FODM4-7 (Dry-Fresh Red Maple Deciduous Forest)	Tree species associations that are either relatively uncommon or a result of disturbance or management. Moderately dry to fresh moisture regimes and often found on upper to middle slopes or tablelands. Canopy and sub-canopy species appear to be Freeman Maple, Trembling Aspen, Paper Birch, and Sugar Maple (<i>Acer saccharum</i>).	No	Yes



Environmental Impact Study – South March Road Battery Energy Storage System (BESS)

4 Existing Conditions

June 11, 2025

ELC Code	Community Description	Project Development	Adjacent Lands
FODM4-7/RBTB2-3 (Dry-Fresh Red Maple Deciduous Forest/ Oak-Maple-Pine Non-Calcareous Treed Rock Barren)	Canopy is composed of Red Maple (<i>Acer rubrum</i>), Trembling Aspen, Bur Oak (<i>Quercus macrocarpa</i>), Northern Red Oak. Sub-canopy dominated by Glossy Buckthorn, Trembling Aspen, Freeman's Maple, and Bur Oak. Understory is composed of Glossy Buckthorn, Common Buckthorn, and Trembling Aspen. Forest ground layer includes Mosses (Bryophyta sp), Grasses (Poaceae sp), Sedges (Cyperaceae sp), and Common Bracken Fern (<i>Pteridium aquilinum</i>). Additional species include Eastern White Pine (<i>Pinus strobus</i>), American Basswood (<i>Tilia americana</i>), Trembling Aspen, Ironwood (<i>Ostrya virginiana</i>), Black Cherry (<i>Prunus serotina</i>), White Spruce (<i>Picea glauca</i>), Ground Ash (<i>Sorbus americana Marsh</i>), Beaked Hazelnut (<i>Corylus cornuta</i>), Red Clover (<i>Trifolium pratense</i>), Solidago sp, Poison Ivy (<i>Toxicodendron radicans</i>), Aster sp, Patridge Berry (<i>Mitchella repens</i>), Barren Strawberry (<i>Waldsteinia fragarioides</i>), Horsetail (<i>Equisetum</i> sp), Gooseberry sp (<i>Phyllanthaceae</i> sp), Pearly Everlasting (<i>Anaphalis margaritacea</i>), Intermediate Bellflower (<i>Campanula intercedens</i>), Intermediate Woodfern (<i>Dryopteris intermedia</i>). Patchy to semi-open treed communities; understory plant cover patchy to continuous. Igneous and metamorphic rock, patchy soil development, treed rock barrens typically reflect greater accumulation of soil cover over the bedrock or more fracturing of bedrock to allow for root penetration; substrate depth <15 cm and viable; extremes in moisture and temperatures.	No	Yes
WOD (Deciduous Woodland)	Deciduous tree species dominant and tree cover is >75%	No	Yes
Wetland			
SWTM3/SWTM5-8 (Willow Mineral Deciduous Thicket/ Non-native Mineral Deciduous Thicket Swamp)	Thicket swamp is dominated by Willows (Salicaceae sp) and Buckthorn (Rhamnaceae sp) species. Mineral and peaty phase mineral substrates. Seasonal flooding can be apparent, substrates may be aerated by early to mid summer. Additional species include Green Ash (<i>Fraxinus pennsylvanica</i>), Purple Loosestrife (<i>Lythrum salicaria</i>), Spotted Joe Pye Weed (<i>Eutrochium maculatum</i>), Aster sp, Solidago sp, Smooth Brome (<i>Bromus inermis</i>), Grasses sp (Poaceae sp), Sedges sp (Carex sp)	No	Yes



4.5 Amphibians

Survey results for 2025 amphibian call counts are provided in Table 2.

Table 2 Amphibian Call Count Survey Results

Station	Habitat	Date	Species – Calling Level				
			Western Chorus Frog	American Toad	Gray Treefrog	Northern Leopard Frog	Spring Peeper
AMP01	Pond between FODM2-1/ RBTB2-3 and OAGM2	April 17		1	3		3
		May 14			2	1	3
AMP02	Swale in FODM2-1/ RBTB2-3	April 17					3*
		May 14				1*	3*
AMP03	SWTM3/SWTM5-8	April 17					3
		May 14					3
AMP04	FODM4-7/RBTB2-3	April 17					3
		May 14	1		1		3

* Notes: Calling from more than 100 m from the survey station

Call activity levels: 1 – distinct number of calls; 2 – overlapping calls; full chorus

Five species of calling amphibians were recorded on the Subject Property: Spring Peeper (*Pseudacris crucifer*), American Toad (*Anaxyrus americanus*), Gray Treefrog (*Dryophytes versicolor*), Northern Leopard Frog (*Lithobates pipiens*) and Western Chorus Frog (*Pseudacris triseriata*).

Full choruses of frogs were detected at all four stations, however, calls at AMP02 were distant (not calls were detected within 100m of the station). Spring Peeper was the most abundant species heard calling in full chorus at each station. Station AMP01 had the highest diversity with three species observed.

One federal species at risk, Western Chorus Frog, was observed at Station AMP04, located more than 120m from the proposed Project, to the south on the opposite side of the hydro corridor.

4.6 Turtles

Turtle basking surveys were completed on May 28, June 4 and 5. One species was confirmed in the Study Area – Midland Painted Turtle (*Chrysemys picta*). Two individuals were observed basking in a pond between the FODM2-1/ RBTB2-3 and OAGM2. An additional three were observed in the SWTM3/SWTM5-8 to the south of the hydro corridor. Both features are more than 120m from the proposed project.



4.7 Significant Natural Heritage Features

4.7.1 Significant Wetlands

There are unevaluated wetlands and one PSW (Carp Hills wetland complex) within the Study Area; these wetlands are not within the Subject Property. All wetlands within the Study Area are characterized as swamp communities. The majority of these wetlands are located within the NHS Core Area, within the western extent of the Study Area. These wetlands are shown on Figure A1, Appendix A.

4.7.2 Significant Woodlands

Significant woodlands may be included in the Natural Heritage Overlays mapping on Schedule C11-A of the City's OP (Figure 1) or can be evaluated through an EIS. The Study Area is within the Natural Heritage Overlays (which also encompasses the NHS) with the associated woodlands assumed to be significant. There are additional woodlands east of the hydro corridor that are not within the Natural Heritage Overlays or NHS but are also assumed to be significant based on findings in this EIS. The FODM2-1/RBTB2-3 has the potential to provide habitat for SOCC (see Section 4.7.3) and bat SAR (Section 4.8).

4.7.3 Significant Wildlife Habitat

The following sections include a summary of the SWH types within the Study Area. A full assessment of SWH is provided in Appendix C. There were no rare vegetation communities identified in the Study Area.

4.7.3.1 Seasonal Concentration Areas

- Bat Maternity Colony Habitat (Big Brown Bat and Silver-haired Bat):
 - All FOD, FOM, SWM, and SWD Ecosites: maternity colonies can be found in tree cavities and vegetation in mature deciduous or mixed forests with > 10/ha large diameter (> 25 cm DBH) trees in the early stages of decay.
 - Maternity colony habitat can be confirmed by > 10 Big Brown Bats and or > 5 Adult Female Silver-haired Bats (Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects").



- Turtle Wintering Areas (Midland Painted Turtle, Northern Map Turtle, Snapping Turtle, Blanding's Turtle):
 - ELC communities of SW and open water areas that are deep enough to be used as overwintering habitat.
 - For most turtles, wintering habitat is in the same general area as their core habitat. Water has to be deep enough not to freeze over and substrates need to be soft. Overwintering areas are lakes, wetlands, and water bodies with adequate Dissolved Oxygen.
 - Confirmation of turtle overwintering habitat includes the presence of 5 overwintering Midland Painted Turtles, one or more Northern Map Turtle or Snapping Turtle.
 - Field surveys confirmed presence of turtles in early spring, suggesting overwintering. Two features are identified as SWH for Turtle Winter Area, however both are more than 120m from the proposed Project.

4.7.3.2 Specialized Habitats for Wildlife

- Colonially – Nesting Bird Breeding Habitat (Trees/Shrubs) (woodland; Great Blue Heron, Green Heron)
 - All ecosites associated with the ELC communities of SW.
 - Nests in live or dead standing trees in wetlands, lakes, islands and peninsulas. Shrubs and occasionally emergent vegetation may also be used.
 - Defining criteria should include presence of 5 or more active nests of Great Blue Heron .
 - Potential to occur in the wetland complex to the southwest of the Project on the opposite side of the hydro corridor, more than 120m from the Project.
- Deer Yarding Areas
 - ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC.
 - MNR determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual"
 - A Deer Wintering Area has been identified by MNR (Figure A1) in the forest/wetland complex to the southwest of the Study Area, more than 120m from the Project.
- Waterfowl Nesting Area
 - All ecosites associated with the marsh (MA) and swamp (SW)
 - A waterfowl nesting area extends 120 m 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.
 - Potential for Waterfowl Nesting Areas to occur associated with the SWTM3/SWTM5-8.



- Woodland Raptor Nesting Habitat
 - All natural or conifer plantation woodland/forest stands >30ha with 10ha of interior habitat. Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers Hawk nest along forest edges sometimes on peninsulas or small off-shore islands.
 - Forest communities in the Study Area have the potential to support nesting raptors.
- Turtle Nesting Areas
 - 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.
 - Suitable habitat observed in hydro corridor, more than 120m from Project.
- Amphibian Breeding Habitat (woodland; Eastern Newt, Blue-spotted Salamander, Spotted Salamander, Gray Treefrog, Spring Peeper, Western Chorus Frog, Wood Frog):
 - All ecosites associated with the ELC communities of: FOD, SWD, and OA.
 - 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.
 - Habitat criteria includes the presence of wetlands, pond, or woodlands pools (including vernal pools) >500 m² (about 25 m diameter) within or adjacent (within 120 m) to a woodland (no minimum size).
 - Field studies confirmed presence of five species with full chorus of Spring Peepers calling. Each of the three areas of SWH for amphibian breeding are more than 120m from the Project.
- Woodland Area Sensitive Bird Breeding Habitat (Yellow-bellied Sapsucker, Red-breasted Nuthatch, Veery, Blue-headed Vireo, Northern Parula, Black-throated Green Warbler, Blackburnian Warbler, Black-throated Blue Warbler, Ovenbird, Scarlet Tanager, Winter Wren, Cerulean Warbler, Canada Warbler):
 - Habitat ecosite classes include FOD within the Study Area.
 - Habitat criteria includes habitat where interior forest breeding birds are breeding, typically large mature (>60 years old) forest stands or woodlots >30 ha, interior forest habitat at least 200 m from forest edge habitat (this size description only applies to the FODM4-7/RBTB2-3 community in the southwest section of the Study Area).
 - Defining criteria includes the presence of nesting or breeding pairs of 3 or more of the listed wildlife species, and or any site with breeding Cerulean Warblers or Canada Warbler.
 - Woodland in the Study Area have interior habitat more than 200m from the forest edge and have the potential to support Area Sensitive Bird Breeding Habitat.



4.7.3.3 Habitat for Species of Conservation Concern

- Special Concern and Provincially Rare (S1-S3) plant and animal species:
 - This includes all plant and animal occurrence within a 1 or 10 km grid:
 - See Table 2, Appendix D for an assessment of SOCC species which may occur in the Study Area.
 - Defining criteria includes 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 and 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 to be easily mapped and cover an important life stage component for a species (such as nesting or foraging habitat).

4.7.3.4 Animal Movement Corridor Candidate SWH

- Amphibian Movement Corridors (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 and determined based on identifying significant breeding habitat.
 - Habitat criteria for movement corridors are between breeding habitat and summer habitat.
 - Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH (see Amphibian Breeding Habitat-Wetland, above).
 - Defining criteria includes that 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, waterbodies, and undeveloped areas are most significant.
 - Corridors should have at least 15 m of vegetation on both sides of waterway or be up to 200 m wide of woodland habitat and with gaps <20 m.
 - Within the Study Area, wetland breeding habitat and upland forest habitat are directly connected, as such, no Amphibian Movement Corridors have been identified.



4.8 Species at Risk

The background review identified several SAR within the potential to occur within the Study Area. The SAR screening is provided in Appendix D and summarized below and shown on Figure A3, Appendix A.

One Eastern Meadowlark was observed during the survey in the pasture (OAGM4 vegetation community) within the Project Area. However, the survey was conducted outside of the active season (May-October) for most species and this incidental bird observation could have been a migrating individual.

Suitable reproductive and foraging habitat for Eastern Meadowlark and Bobolink may be present within the Project Area and Study Area in the form of perennial cover crops (OAGM2), pasture (OAGM4), and moist meadow (MEMM4) vegetation communities. Eastern Meadowlark and Bobolink utilize agricultural areas such as hayfields, pastures, and meadows for nesting and rearing young between May 1 to July 31 (MECP 2021a). The NHIC (Ontario Geospatial 2023a), OBBA (Cadman et al. 2007), and iNaturalist (2024) have records of Eastern Meadowlark and Bobolink within 2 km of the Study Area.

Targeted bat surveys have not yet been completed. However, suitable reproductive and foraging habitat for SAR bats (Little Brown Myotis, Northern Myotis, Eastern Small-footed Myotis, Tri-colored Bat, Eastern Red Bat, Hoary Bat, and Silver-haired Bat) is present within the Project Area and Study Area in the form of forests (FODM2-1/RBTB2-3), woodlands (WOD) and swamp (SWTM3) vegetation communities. These areas contain large standing snags and mature trees (trees greater than 25 cm diameter at breast height [DBH]) that may act as suitable roost and maternity roosts for SAR bat species (MNR 2024).

Targeted surveys for Eastern Whip-poor-will have not yet been completed. However, suitable reproductive and foraging habitat for Eastern Whip-poor-will may be present within the Project Area and Study Area in the form of deciduous forests with rocky outcrops (FODM2-1/RBTB2-3 and WOD vegetation communities). The NHIC (Ontario Geospatial 2023a), OBBA (Cadman et al. 2007), and iNaturalist (2024) have records of Eastern Whip-poor-will within a 2 km radius of the Study Area.

Field surveys completed to date have not detected Blanding's Turtles. However, suitable migration, basking, overwintering, and nesting habitat may be present for Blanding's Turtles within the Project Area and Study Area. Blanding's Turtles may use the thicket wetland swamp (SWTM3/SWTM5-8) as corridor habitat for moving to and from the Provincially Significant wetland located south of the Study Area. Three unevaluated wetlands within the Project Area and 1 within the Study Area may provide suitable overwintering and foraging habitat. Blanding's Turtles may also attempt to nest within soft organic substrates found in the agricultural (OAGM2 and OAGM4) fields within the Project Area and Study Area. While Blanding's Turtles may nest along the gravel shoulders of Marchurst Road and Thomas A. Dolan Parkway due to the presence of soft substrates, roads and road shoulders do not constitute as suitable turtle nesting habitat (MECP 2021b). Unidentified eggshells were observed along the hydro corridor during the survey (**Error! Reference source not found., Error! Reference source not found.**). These eggshells appear to be from a turtle a species (species unknown) and were likely predated upon earlier in the season. Records of Blanding's Turtles have been recorded in the NHIC (Ontario Geospatial 2023a), ORAA (2024), and iNaturalist (2024) within a 2 km radius of the Study Area, including records from 2024.



No Black Ash were observed during the survey, but the Project Area and Study Area may contain potentially suitable habitat in the form of moist to wet soils with adequate sunlight. Black Ash can often be found growing along the edges of moist forests, hydro corridors, pastures, and swamps. The thicket swamp (SWTM5-8) to the south of the Study Area may provide potentially suitable habitat for Black Ash as this vegetation community has moist soils and adequate sunlight. Black Ash has been recorded in iNaturalist twelve times within a 6 km radius of the Study Area (iNaturalist 2025). The Ontario Tree Atlas lists Black Ash as occurring within the Ottawa region (MNR 2025).

During the ELC survey, six (6) mature Butternut were visually located within the Project Area. Suitable habitat for Butternut was confirmed within the Project Area in the form of moist, well-drained soils within the deciduous forest and forest edge habitats FODM2-1/RBTB2-3 vegetation communities. Butternut is associated with deciduous forests where sunlight is plentiful such as in forest openings or along edges. Butternut require moist but well-drained soils such as those along floodplains, ravines, and waterways. The maple and oak deciduous forest habitat provide suitable habitat for Butternut to carry out its life processes.

4.9 Fish Habitat

Fish habitat, as defined in the federal *Fisheries Act*, are those parts of the environment on which fish depend, directly or indirectly, to carry out their life processes. Fish SOCC are provided general habitat protections and are protected under this Act.

Fish habitat is provided within the unnamed SWF and online agricultural pond. Upstream of the pond the unnamed SWF provides seasonal indirect fish habitat. The pond provides direct fish habitat, and the downstream reach provides seasonal direct fish habitat. As such the provisions with the *Fisheries Act* may apply pending the proposed works.

4.10 Natural Heritage Feature Summary

A summary of natural heritage features within the Study Area are summarized in Table 3.

Table 3 Summary of Natural Heritage Features

Natural Heritage Feature	Project Footprint	Study Area
Natural Heritage System, including cores and linkages	No	Yes (Core Area; Figure 1)
Natural Environment Areas	No	Yes (Figure 1)
Significant Wetlands	No	Yes (Figure A1, Appendix A)
Areas of Natural and Scientific Interest (Earth or Life Science)	No	Yes (regional candidate life science ANSI; Figure A1, Appendix A)



Environmental Impact Study – South March Road Battery Energy Storage System (BESS)

4 Existing Conditions

June 11, 2025

Natural Heritage Feature	Project Footprint	Study Area
Habitat of SAR	Potential (Bobolink / Eastern Meadowlark)	Potential (Bobolink/Eastern Meadowlark, bats, Blanding's turtle)
Significant Woodlands	Yes (assumed)	Yes (assumed)
Significant Valleylands	No	No
Significant Wildlife Habitat	Yes (access road through woodland)	Potential (woodlands and wetland habitats)
Surface and Groundwater Features	Yes (watercourses)	Yes (watercourses)
Fish habitat	Yes (indirect and direct)	Yes



5 Project Description

Brookfield Renewable Power Inc. (BRPI) is developing a 250 MW lithium iron phosphate Battery Energy Storage System (BESS) located at 2555 and 2625 Marchurst Road in Ottawa, Ontario. The site will consist of an access road connecting to Marchurst Road, 256 BESS containers capable of 1,000 MWh of energy storage, and a 230 kV circuit connection.

Construction completion is expected by 2027.



6 Effects Assessment

6.1 Potential Environmental Effects

6.1.1 Construction

6.1.1.1 Permanent and Temporary Habitat Loss

Potential impacts to vegetation and vegetation communities during construction include:

- Direct loss of vegetation (6.86 ha), primarily agricultural land (6.5 ha) with some encroachment of woodland (0.36 ha). No wetland habitat will be removed by the Project.
- Direct loss of approximately 400 m (~200 m² area) of indirect fish habitat where existing SWF will be realigned.
 - New vegetated diversion ditch to be approximately 550 m in length.
- The active agricultural lands in the Project Footprint do not contain SWH. However, the fields provide habitat for Eastern Meadowlark and Bobolink (species at risk). Mitigation and permitting associated with species at risk are discussed below.
- The woodland encroachment is associated with the access road and overlaps with potential SWH (Bat Maternity Colony Habitat, Woodland Raptor Nesting Habitat, Woodland Area Sensitive Bird Breeding Habitat and Habitat for Species of Conservation Concern). However, given the relatively small, linear strip, of woodland removal, the Project is not anticipated to affect the availability, form or function of SWH to wildlife in the local landscape, nor result in changes to species diversity or abundance.
- Other SWH identified in the Study Area (Turtle Wintering Areas, Colonially – Nesting Bird Breeding Habitat, Deer Yarding Areas, Waterfowl Nesting Area, Turtle Nesting Areas and Amphibian Breeding Habitat (woodland)) occur more than 120m from the proposed Project and are not anticipated to be impacted.
- Within temporary disturbed areas, soil compaction which can affect growing conditions if replanting is proposed in those areas following construction.
- Injury to trees outside of the construction limits if the proposed works occur within the root zones.
- Exposure of soils from vegetation clearing, grubbing and grading can result in sediment runoff discharging into nearby terrestrial and aquatic communities.

6.1.1.2 Habitat Alteration, Disruption and Avoidance

- Edge effects to habitats where vegetation that was previously sheltered is now exposed (e.g., trees in woodland that are part of the new edge may be susceptible to windthrow).
- Damage to vegetation due to fugitive dust suppression, salt spray effects, sedimentation, and accidental spills (e.g., fuel, oil, other hazardous materials).



- Changes to community structure due to the introduction and spread of invasive species including Phragmites.
- Construction activities, such as grading can alter community structure, affect species composition and habitat quality due to changes in moisture regime, flow volume, rates, and water quality if natural drainage pathways are not maintained.
- Construction noise, vibration and increased human presence can result in disruption and avoidance of habitat. Construction noise may result in habitat avoidance or disturbance to individuals where interference with vocalizations could disrupt breeding and other natural processes.
- Temporary loss of or access to existing wildlife corridors/movement pathways during construction works.

6.1.1.3 Injury and Incidental Take

- Collisions with vehicles, machinery, or physical barriers may occur if wildlife are able to access the construction limits (e.g., improper design or installation of exclusionary measures). Bats may also be susceptible to injury and/or incidental take, particularly if habitat is removed while being occupied.
- Light pollution, including temporary and permanent lighting may cause disorientation or attract birds and bats to the area due to increased foraging potential which may result in injury or incidental take of individuals through collisions with vehicles or physical barriers.
- Migratory birds' nests and eggs are susceptible to incidental take during construction activities, especially during vegetation removal.
- Snake hibernaculum has the potential to be incidentally discovered during construction, particularly in areas where there are rock piles, bedrock outcrops, housing foundations, wetlands and woodlands.

6.1.1.4 Potential Indirect Impacts to Fish and Aquatic Habitat

The unnamed SWF indirectly support fish and fish habitat seasonally upstream of the online agricultural pond.

The proposed BESS plan involves a realignment of the Unnamed SWF within the southern portion of the Project Area. Potential impacts to fish habitat can be identified as indirect changes to fish habitat that may occur downstream and may occur long-term.

As indirect fish habitat has the potential to be impacted by the proposed works, further review by Fisheries and Oceans Canada (DFO) should be for compliance with the *Fisheries Act*. Fish habitat under the *Fisheries Act* means *water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas*.



The Fish and Fish Habitat Protection Program of DFO provides Pathway of Effects (PoE) diagrams that assist with identifying project risks to fish and fish habitat, inform avoidance and mitigation measures that are needed to manage risks, and describe potential harmful impacts that may occur if risks are not avoided or mitigated. The PoE's were reviewed in determining the potential indirect impacts to fish and fish habitat and mitigation measures are further discussed in Section 6.2.1.6.

The realignment will involve the removal of approximately 200 m² area (400 m length X 0.5 m maximum width) of existing indirect seasonal fish habitat. The proposed length of the realigned SWF is approximately 535 m in length. The proposed vegetated diversion ditch to convey the SWF will have a 2:1 side slope and bottom width of approximately 1 m. The proposed vegetated diversion ditch will function in the same capacity as the existing SWF, conveying water to the online agricultural pond, which supports fish.

Residual effects provided are based on the following changes to fish habitat:

- Destruction (200 m²): Permanent removal/infilling of 400 m length of the unnamed SWF.
- Alteration (~10 m²): Two small sections where alteration occurring (realignment overlaps with existing). The habitat alterations are not harmful alterations, as the areas will continue to provide indirect seasonal habitat for use by fish.
- New Habitat (~535 m²): New habitat is based on the length and bottom width of the new vegetated diversion ditch.

The infilling of the existing unnamed SWF will remove the existing food supply (although it is expected to be limited contribution given that the feature is seasonal). Food supply in the new diversion ditch will be altered temporarily until the vegetation becomes established, then the new habitat will function in the same manner as the existing.

Despite the implementation of mitigation measures and the realignment creating new habitat that will function in the same manner as the existing, the realignment has the potential to result harmful alteration, disruption or destruction (HADD) of fish habitat; therefore a Request for Review form should be submitted to DFO. Based on the existing conditions and proposed works, it is anticipated that the review would result in DFO issuing a Letter of Advice.

A high-level assessment was carried out to determine the presence of fish and fish habitat and identify whether the proposed BESS development has the potential to impact aquatic habitat. As it is unknown whether the unnamed SWF is connected to a fish bearing waterbody downstream of the Project Area, and there will be works in-water, consultation with DFO through a Request for Review should be further evaluated as the detail design progresses. Additional field investigations should be undertaken to further

6.1.1.5 Operation

There could be potential risks of off-site contamination to surface water, groundwater and other natural heritage features should a fire occur. However, these risks are considered unlikely through implementation of appropriate mitigation measures.



The potential for collisions between wildlife and vehicles on the access road may occur through the operational phase of the Project. Light pollution from permanent site lighting has the potential to disorient bird during migration, or attract bats to the area due to increased foraging potential.

During operation, Project acoustic emissions may result in changes to habitat use, in particular wildlife that communicate or attract mates through vocalization (e.g., birds, amphibians). Although some birds may habituate to human-made noise and human presence associated with predictable or consistent sounds of day-to-day operations (Steidl and Anthony 2000).

6.2 Mitigation and Protective Measures

6.2.1 Construction

6.2.1.1 Vegetation and Vegetation Communities

The following mitigation measures and opportunities are provided to address potential impacts to vegetation and vegetation communities during construction, particularly related to the access road which will encroach within a woodland community:

- The boundaries of the project limits, vegetation clearing and retention zones within the project limits, and natural areas adjacent to the project limits, shall be clearly delineated in plans/drawings and in the field.
- Vegetation removals shall be reduced to the extent feasible and limited to the construction footprint. Review opportunities to reduce grading limits for all areas of vegetation removal.
- Install tree protection fencing along the dripline to protect the root zone of trees adjacent to the work zone and project limits.
- Utilize appropriate vegetation clearing techniques and minimize clearing, grubbing and grading to only includes areas necessary to complete the works.
- Vegetation removals shall adhere to the applicable timing windows. Generally, time vegetation removal to occur between November 1 to April 14 which will accommodate most species, unless otherwise specified for specific species, locations or as dictated through permits or approvals.
- Install surface protection measures to minimize soil compaction, particularly in areas where post-construction plantings are proposed.
- Implement dust control measures for the suppression of fugitive dust.
- In the case of unexpected vegetation removal or accidental damage to trees, vegetation shall be replaced and/or restored.
- Implement invasive species management, including vehicle washing, to address the potential for introduction of invasive species to the site.
- Trees/shrubs that are felled within areas where active construction is being undertaken should be mulched or relocated to natural areas as soon as possible, especially during the breeding bird season to prevent birds from nesting and snakes from seeking refuge.



- Temporarily disturbed areas shall be restored and vegetated to pre-construction conditions or better. Vegetation plantings shall include seed mixes that are appropriate for the area, and include a mix of native species, that are appropriate to the site and conditions.

6.2.1.2 Erosion and Sediment Control

- Develop and implement an Erosion and Sediment Control (ESC) Plan prior to construction to protect sensitive natural heritage features.
- The ESC Plan shall capture measures related to vegetation communities, natural areas, and wildlife habitat.
- Maintain vegetative buffers and retain natural vegetation to the extent feasible, to help control erosion.
- Timing of vegetation removal shall consider rainfall and other weather conditions that could increase the likelihood of erosion and sedimentation.
- Minimize the extent and duration of exposed soil and cover areas to suppress dust and prevent sedimentation due to wind and rainfall erosion.
- Re-vegetate disturbed areas as soon as possible to help re-stabilize soils. Vegetation plantings shall include a seed mix that is appropriate to the area and similar to or better than pre-construction conditions.
- Selection of ESC measures shall be appropriate for the site and extent of disturbance, and potential impacts to wildlife, such as entanglement. For example, measures that contain plastic or wire mesh or netting shall not be used, and fully biodegradable options shall be implemented wherever feasible (e.g. erosion control blankets made from coconut fiber, fibre rolls, etc.). Placement of silt fencing shall not create a barrier to movement and wildlife should be redirected to areas where there is safe passage and access to habitat.
- ESC measures shall be installed prior to vegetation removal and remain in place until vegetation has become established and soils re-stabilized.
- Remove non-biodegradable ESC materials, where approved, once site is stabilized.
- ESC measures shall be inspected to confirm they are installed in accordance with manufacturer's instructions and maintained so that controls are working effectively and per design. A monitoring log shall be maintained and include any corrective actions taken and additional recommendations to maintain compliance.

6.2.1.3 Earth and Excess Material, Waste, Refueling, Spills

- Management and placement of earth, excess soil and stockpiles shall be suitably planned so it does not result in the discharge of contaminants into the natural environment or promote use by wildlife (e.g. bird nesting).
- Stockpiles shall not be placed within wetland areas, 30 m of natural areas, adjacent to woodland edges, in sites where it would interfere with natural drainage patterns.



- The placement of earth, excess soil and stockpiles shall not negatively impact drainage patterns within the project limits or negatively impact drainage patterns of adjacent natural features.
- Waste resulting from construction shall be removed from the site and disposed of at an appropriate facility. This includes packaging (bags, wraps, boxes, ties, etc.), waste materials (excess fill, cement, grout, asphalt, or other substances), and ESC structures (silt fencing, flow checks, etc.) once permanent vegetation has established and ESC measures are no longer required.
- Develop and implement a Spill Prevention and Response Contingency Plan that includes measures for preventing, addressing, and reporting potential spills, in accordance with all applicable regulations, permits, and guidelines.
- On-site hazardous materials, vehicle maintenance and refueling activities shall be properly stored and located at least 30 m away from wetlands, and other sensitive natural features.
- All on-site materials shall be self-contained, maintained according to manufacturer's instructions, and disposed of appropriately.
- Spill kits shall always be kept on-site and accessible at all times.
- Control all activities, including equipment maintenance and re-fueling, to prevent entry of petroleum products or other deleterious substances, including any debris, waste, rubble, or concrete material, into the natural environment.
- Re-fueling stations shall be located away from the identified natural areas.

6.2.1.4 Wildlife and Wildlife Habitat

6.2.1.4.1 *Migratory Birds*

- Vegetation removal within 'complex habitats' (e.g., woodlands, thickets, tall grasslands, wetlands, and areas where risk of disturbance to breeding birds and active nests are high) should be scheduled outside of the active breeding bird season. However, if works are needed in 'complex habitat' and unless otherwise specified (i.e., through a permit or contract document), a Qualified Biologist shall complete a nest sweep. The active season for migratory birds is April 15 to August 31.
- If vegetation removal within 'simple habitats' (e.g., developed areas, manicured grass) or other activities that could impact birds is required during the active breeding period, prior to undertaking the proposed works a search for nests shall be completed by staff trained in conducting nest sweeps.
- Nest searches shall be completed within 24-48 hours or immediately prior to the proposed works.
- If an active nest is found within the work area at any time (including times outside of the typical nesting season), construction in the vicinity must cease until the young birds have fledged or the nest is otherwise abandoned.



- A setback from the nest (e.g., 30 m) shall be identified by a Qualified Biologist and the area demarcated so that work does not occur within the setback limits. A Qualified Biologist shall be consulted to determine the appropriate setback limits.
- Avoid construction during night-time, to the extent possible, in particular during the spring (April/May) and fall (September/October) migration periods. Where lighting of the construction site is unavoidable, direct lighting downwards and towards the construction area, away from adjacent natural areas.

6.2.1.4.2 *Wildlife Encounters, Safe Handling and Relocation*

Minimizing risk of wildlife encounters as well as implementing appropriate protocols during unavoidable wildlife encounters is critical to mitigate direct impacts (i.e., injury and incidental take) to wildlife. These measures include:

- Implement speed limits (40km/hr or less) and internal access road during construction to reduce the risk of wildlife collision.
- If wildlife is encountered during construction, whenever possible, work shall be temporarily suspended until the species is out of harm's way. If relocation is necessary, the species shall be handled and transported following the Ontario Species at Risk Handling Manual: For Endangered Species Act Authorization Holders (Ontario Ministry of Natural Resources (MNR) 2013).
- Wildlife shall not be harmed or harassed.
- Inspect equipment and brush piles for wildlife prior to movement of equipment.
- If bird nests are documented within the construction limits, the mitigation measures identified for migratory birds shall be implemented.
- Wildlife shall be relocated within 50 m of the capture location toward the direction they were heading and outside of the construction zone, where possible, or as otherwise specified by permits.
- Injured wildlife (including endangered and threatened species) shall be transported to an authorized wildlife rehabilitator by trained staff or Qualified Biologist.
- If a snake hibernaculum is incidentally discovered, all work must cease, and a Qualified Biologist shall be contacted to discuss mitigation options.
- If overwintering turtles or snakes are disturbed by construction activities, work shall cease and a Qualified Biologist shall be contacted to discuss mitigation measures. Overwintering turtles and snakes shall not be relocated.
- Immediately upon observation of an actively nesting turtle, personnel and vehicles shall clear the area within the turtle's line of sight as much as possible to allow the female to finish laying. Startling a nesting female could lead to abandonment of the partially laid nest before the eggs are concealed.



- If potential turtle nest sites (i.e., areas of fresh digging in loose gravel or sandy material) are found within the work areas, all work in that area shall cease. The nests shall be left undisturbed, flagged and a setback applied to protect against construction activities. If avoidance is not possible, egg salvage may be completed by a Qualified Biologist.

6.2.1.4.3 *Habitat of SAR*

- Time vegetation removal activities to occur between October 1 to March 31, which is outside of the active period for bats, or as authorized by MECP.
- Potential cavity trees to be retained shall be identified and their root zone protected by clearly demarcating vegetation clearing/construction limits within the dripline.
- Construction activities within 30 m of known cavity trees shall be restricted to daylight hours when possible.
- Clearing vegetation in agricultural fields outside of the Eastern Meadowlark and Bobolink breeding season (May through July).
- Install reptile exclusion fence between Project Construction Activities and suitable turtle habitat during the turtle active season (April through October).
- MECP consultation is ongoing regarding potential impacts to species and risk habitat and permitting requirements. The Project will comply with applicable species at risk legislation during construction and operation.

6.2.1.5 Environmental Training and Monitoring

- Wildlife protocols shall be developed, and staff training shall be implemented to educate workers of potential wildlife occurrences, including SWH and habitat of SAR, and measures to take in the event of potential encounters. Preventative measures to minimize encounters, injury, and incidental take shall also be provided (e.g., timing restrictions, visual inspections, etc.).
- Monitoring shall occur so that mitigation and contingency measures are implemented, and performance objectives are being met. A construction monitoring log shall be maintained so that any deficiencies and corrective actions are documented.
- Environmental monitoring during construction shall include, but not be limited to:
 - Regular inspections of sensitive features so that setbacks are adhered to and that damage/alteration to the demarcations of these features is addressed.
 - Required monitoring activities so that spills and sediment releases are prevented or addressed quickly and effectively.
 - Visual inspections and wildlife monitoring shall be required where exclusionary measures have been installed and where wildlife activity has been noted.
 - Inspection of turtle exclusion fencing shall occur daily during the turtle active period (April 1 to October 31) and shall be conducted by an Environmental Monitor or a worker who is trained and given the responsibility.



- Monitoring during construction of environmental features to confirm works are carried out in accordance with the design and specifications, including, but not limited to, construction of wildlife passages, wildlife fencing, landscaping, and restoration, nesting preventative measures, compensation structures, etc.
- Specialized environmental monitoring programs shall be developed and implemented as it relates to rehabilitation and enhancement and any permitting or approvals required for the Project.

6.2.1.6 Fish and Aquatic Habitat

The following mitigation measures and opportunities are provided to minimize potential indirect impacts to aquatic habitats. These are in addition to the measures outlined in Sections 6.2.1.2 and 6.2.1.3.

- Include a combination of passive and active riparian restoration techniques.
- Consider fencing off cattle from unnamed SWF.
- Follow the Pathways of Effects outlined by DFO to identify and implement appropriate mitigation measures.
- Follow timing windows for work in or around water (timing window assumed to be no in-water works allowed from March 15 to July 15 of any given year)
 - Timing window does not apply if feature is dry.
- If flow present when works occurring, flow must be maintained during construction works.
- Complete the diversion ditch offline and connect to existing channel during in-water timing windows (or when feature is dry).
- SWF should be monitored regularly during all phases of work.
- Develop and implement a Salt management plan.
- Design and implement an erosion and sediment control plan to reduce the risk of the entry of sediment to fish habitat.
- Design and implement restoration plans.
- Schedule the work to allow time for restoration measures to become established during the growing season.

6.2.2 Operation

The following mitigation measures have been identified to lessen potential impacts due to fire and off-site contamination:

- Comply with key safety standards, including Underwriters Laboratories (UL) 9540, UL 9540A, and National Fire Protection Association (NFPA) 855.
- Develop and implement a Fire Protection and Explosion Mitigation and Management Plan.
- Develop and implement a Spill Prevention and Response Contingency Plan for operation of the Project.



- Implement speed limits (40km/hr or less) and internal access road to reduce the risk of wildlife collision.
- Implement acoustic mitigation to reduce background noise levels for wildlife. An Acoustic Assessment Report is to be prepared under a separate cover to provide acoustic mitigation recommendations.
- The Project should consider the effects of light trespass (light pollution) on adjacent natural habitats. The City of Toronto's Best Practices for Effective Lighting (City of Toronto, 2017) and the City of Guelph Lighting Guidelines for Lighting Plans (LEA Consulting, 2019) provide guidance on effective techniques and light fixtures for reducing light trespass.



7 Authorization Requirements

The following table (Table 4) outlines relevant environmental legislation and potential permits, approvals or compliance measures anticipated for the Project.

Table 4 Summary of Potential Authorizations That May be Required for the Project

Legislation	Approval Type	Species/Features	Notes
Endangered Species Act (ESA)	Permit	- Bats (woodlands) - Blanding's Turtle	An IGF has been submitted; awaiting response from MECP.
ESA, O. Reg. 830/21*	Registration	Bobolink / Eastern Meadowlark	Undertake targeted studies to verify habitat use.
Conservation Authorities Act, O.Reg. 41/24	Permit	Works within the regulated areas	Consult with MVCA to determine if a permit is required.
Migratory Birds Convention Act (MBCA) – general	Compliance	Adhere to timing windows and avoid vegetation removals between April 15 to August 31, where feasible	Nest sweeps can be completed if removals required during active period (April 15 to August 31).
MBCA – Migratory Birds Regulations (Schedule 1 species)	Permit or 36 month Waiting Period	Pileated Woodpecker	Confirm there are no Pileated Woodpecker nests. If present, confirmation of active use is required. A permit or 36 month waiting period may apply where removal is not permitted.
Species at Risk Act (SARA)	Compliance	Migratory birds	Avoidance through timing windows (same as MBCA).
Fisheries Act	Request for Review / Letter of Advice	Unnamed SWF	As indirect fish habitat is being infilled for the realignment of the diversion ditch, DFO review is recommended.

* ESA may be replaced by the Species Conservation Act prior to construction of the Project. Regardless, the Project will comply with all applicable species at risk legislation during construction and operation.



8 Summary of Conclusion

This report was prepared to document natural features that require consideration through the municipal application process and may pose constraints to development, including features that are protected by the City of Ottawa's OP (City of Ottawa 2021) and other relevant legislation and policy.



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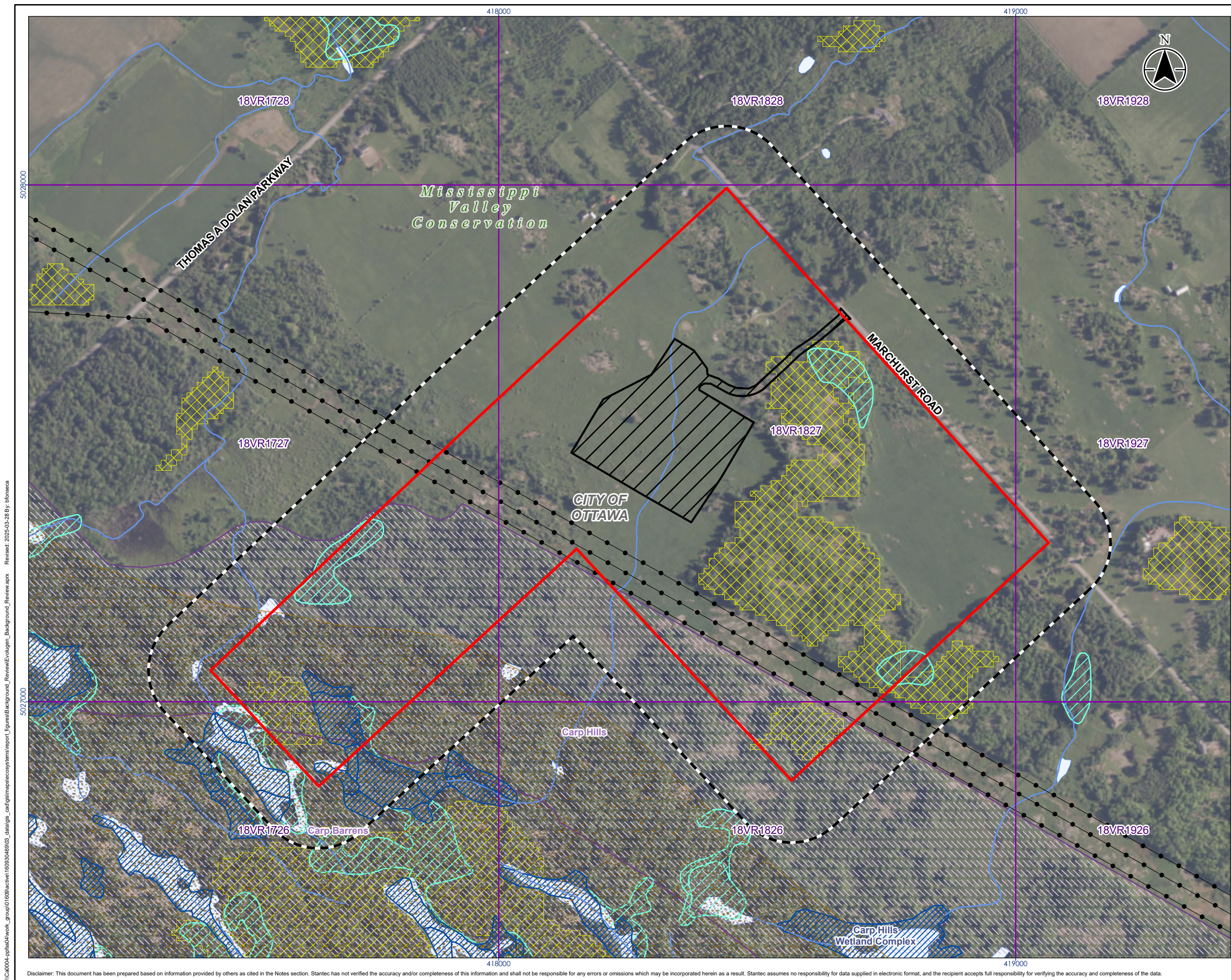
June 11, 2025

Appendices



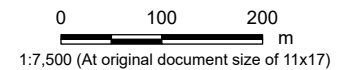
Appendix A Figures





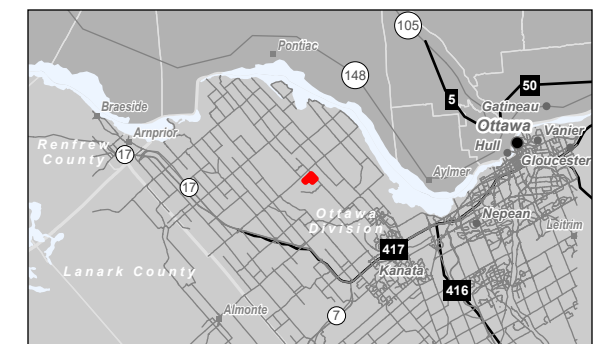
Legend

- Project Area
- Project Footprint
- Study Area (120 m)
- Hydro Line
- Watercourse (Permanent)
- Candidate ANSI, Life Science
- Overwintering Area
- Significant Woodland
- Waterbody
- Wetland, Provincially Significant
- Wetland, Unevaluated
- 1 km UTM Grid



Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2025.
3. This figure contains parcel data provided by First Base Solutions®, 2025.
4. Orthomagey © City of Ottawa, 2025. Imagery Date, 2022.



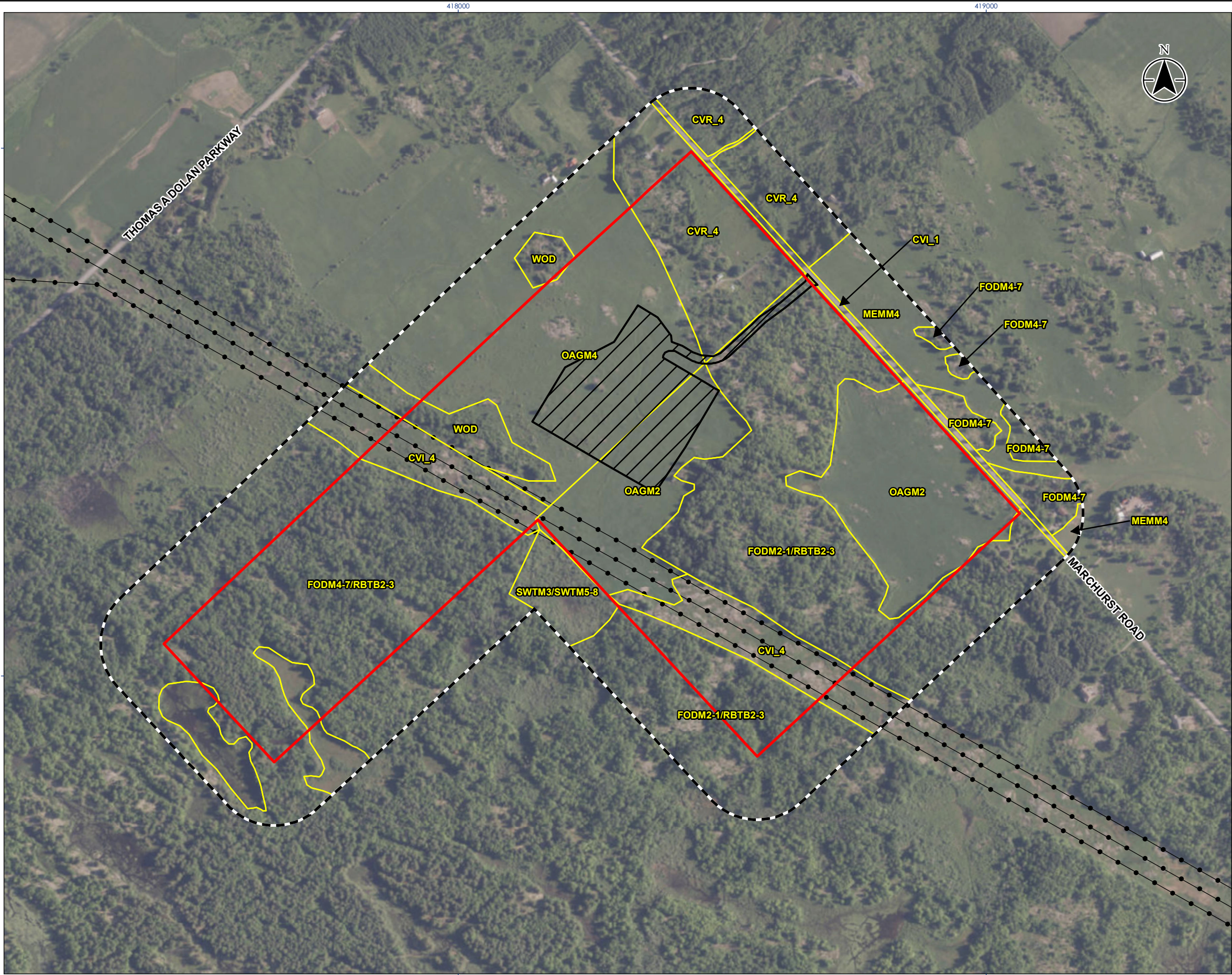
Project Location: City of Ottawa
 160930481 REV2
 Prepared by BF on 2025-03-28
 Technical Review by AW on 2025-02-11

Client/Project: Evolgen
 Evolgen Battery Energy Storage System (South March Location)

Figure No.: A1

Title: Background Data

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\\G:\004-projects\work_group\01609\active\160930481_Fig01_ELC.mxd Revised: 2025-03-24 By: b.bensica

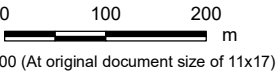


Legend

- Project Area
- Project Footprint
- Study Area (120 m)
- Existing Hydro Line
- Ecological Land Classification Boundary

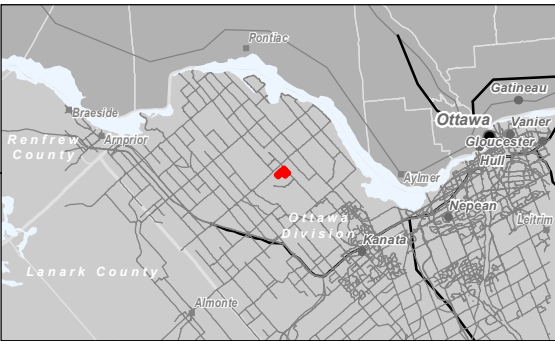
ELC Description

- CVI_1 (Transportation)
- CVI_4 (Power Generation)
- CVR_4 (Rural Property)
- FODM2-1 (Dry – Fresh Oak – Red Maple Deciduous Forest Type), RBTB2-3 (Oak – Red Maple – Pine Non-Calcareous Treed Rock Barren Type)
- FODM4-7 (Dry - Fresh Red Maple Deciduous Forest Type)
- FODM4-7 (Dry - Fresh Red Maple Deciduous Forest Type), RBTB2-3 (Oak – Red Maple – Pine Non-Calcareous Treed Rock Barren Type)
- MEMM4 (Fresh - Moist Mixed Meadow Ecosite)
- OAGM2 (Perennial Cover Crops)
- OAGM4 (Open Pasture)
- SWTM3 (Willow Mineral Deciduous Thicket Swamp Ecosite), SWTM5-8 (Non-native Mineral Deciduous Thicket Swamp Type)
- WOD (Deciduous Woodland)



Notes

- Coordinate System: NAD 1983 UTM Zone 18N
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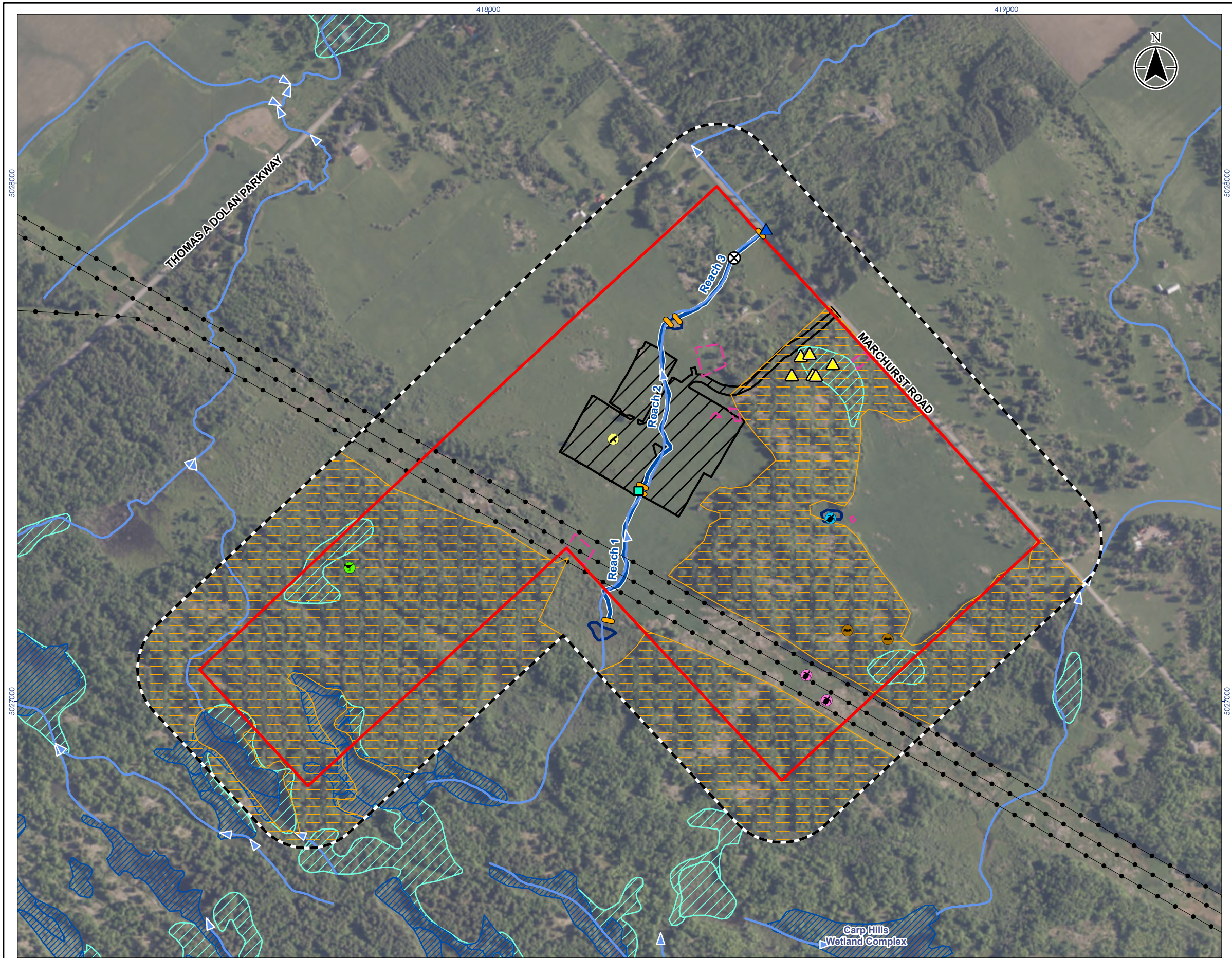


Project Location: 160930481 REV3
City of Ottawa Prepared by BF on 2025-03-24

Client/Project:
Evolugen
Evolugen Battery Energy Storage System (South March Location)

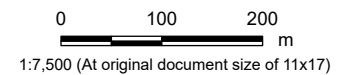
Figure No.
A2

Title
Ecological Land Classification: South March



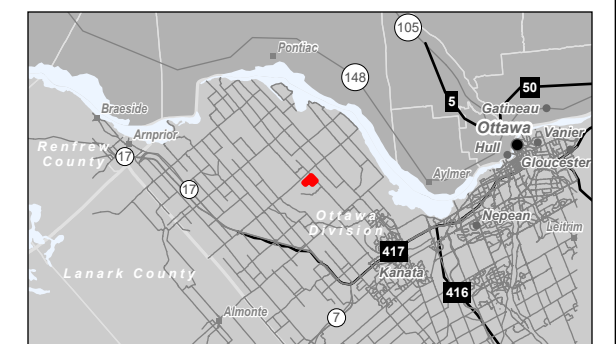
Legend

-  Project Area
 -  Project Footprint
 -  Study Area (120 m)
 -  Barrier to Fish Passage
 -  Culvert
 -  Tile Drain
 -  Existing Hydro Line
 -  Reach
 -  Watercourse (Ephemeral or Intermittent)
 -  Wetland, Provincially Significant
 -  Wetland, Unevaluated
- Species and Habitat Features**
-  Butternut
 -  Eastern Meadowlark
 -  Potential Eastern Small-footed Bat Roost Habitat
 -  Potential Pileated Woodpecker Nesting Cavity Tree
 -  Predated Turtle Eggs
 -  Potential Turtle Habitat
 -  Pond Feature
 -  Potential Bat SAR Habitat
 -  Potential Pollinator Habitat



Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Contains information licensed under the Open Government Licence – Ontario, and the Open Government Licence - Canada, accessed 2025.
3. This figure contains parcel data provided by First Base Solutions®, 2025.
4. Watercourses shown in this figure have been modified based on field investigations.
5. Orthoimagery © City of Ottawa, 2025. Imagery Date, 2022.



Project Location
City of Ottawa

160930481 REV3
Prepared by BF on 2025-06-10

Client/Project
Evolgen
Evolgen Battery Energy Storage System (South March
Location)

Figure No. **A3**
Title **Terrestrial and Aquatic Habitat**

Appendix B Species List



Appendix B - Species List

Species		SAR Status		Conservation Rank and Rarity Status			Source
Common Name	Scientific Name	Provincial (ESA, 2007)	National (SARA)	National (COSEWIC)	Global (G-rank)	Provincial (S-rank)	
AMPHIBIANS							
American Bullfrog	<i>Lithobates catesbeianus</i>				G5	S4	ORAA
American Toad	<i>Bufo americanus</i>				G5	S5	ORAA
Blue-spotted Salamander	<i>Ambystoma laterale</i>				GNA	S4	ORAA
Eastern Red-backed Salamander	<i>Plethodon cinereus</i>				G5	S5	ORAA
Gray Treefrog	<i>Hyla versicolor</i>				G5	S5	ORAA
Green Frog	<i>Rana clamitans</i>				G5	S5	ORAA
Northern Leopard Frog	<i>Rana pipiens</i>				G5	S5	ORAA
Red-spotted Newt	<i>Notophthalmus viridescens viridescens</i>				G5T5	S5	ORAA
Spring Peeper	<i>Pseudacris crucifer</i>				G5	S5	ORAA
Wood Frog	<i>Lithobates sylvaticus</i>				G5	S5	ORAA
Western Chorus Frog	<i>Pseudacris maculata</i> pop. 1		THR	THR	G5TNRQ	S4	ORAA
REPTILES							ORAA
Blanding’s Turtle	<i>Emydoidea blandingii</i>	THR	END, Schedule 1	END	G4	S3	NHIC, ORAA
Eastern Gartersnake	<i>Thamnophis sirtalis</i>				G5T5	S5	ORAA
Eastern Milksnake	<i>Lampropeltis triangulum</i>		SC, Schedule 1	SC	G5	S4	NHIC, ORAA
Midland Painted Turtle	<i>Chrysemys picta marginata</i>		SC, Schedule 1	SC	G5T5	S4	ORAA
Northern Map Turtle	<i>Graptemys geographica</i>	SC	SC, Schedule 1	SC	G5	S3	ORAA
Northern Watersnake	<i>Nerodia sipedon</i>				G5T5	S5	
Red-bellied Snake	<i>Storeria occipitomaculata</i>				G5	S5	ORAA
Smooth Greensnake	<i>Opheodrys vernalis</i>				G5	S4	
Snapping Turtle	<i>Chelydra serpentina</i>	SC	SC, Schedule 1	SC	G5	S4	ORAA
MAMMALS							
Beaver	<i>Castor canadensis</i>				G5	S5	AMO
Big Brown Bat	<i>Eptesicus fuscus</i>				G5	S4	AMO
Coyote	<i>Canis latrans</i>				G5	S5	AMO
Eastern Chipmunk	<i>Tamias striatus</i>				G5	S5	AMO
Eastern Cottontail	<i>Sylvilagus floridanus</i>				G5	S5	AMO
Eastern Grey Squirrel	<i>Sciurus carolinensis</i>				G5	S5	AMO
Eastern Red Bat	<i>Lasiurus borealis</i>	END		END	G3G4	S4	AMO
Eastern Small-footed Myotis	<i>Myotis leibii</i>	END			G4	S2S3	AMO
Hoary Bat	<i>Lasiurus cinereus</i>	END		END	G3G4	S4	AMO
Little Brown Myotis	<i>Myotis lucifugus</i>	END	END, Schedule 1	END	G3G4	S3	AMO
Northern Short-tailed Shrew	<i>Blarina brevicauda</i>				G5	S5	AMO
Northern Myotis	<i>Myotis septentrionalis</i>	END	END, Schedule 1	END	G2G3	S3	AMO
Raccoon	<i>Procyon lotor</i>				G5	S5	AMO
Red Squirrel	<i>Tamiasciurus hudsonicus</i>				G5	S5	AMO
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	END		END	G3G4	S4	AMO
Tri-colored Bat	<i>Perimyotis subflavus</i>	END	END, Schedule 1	END	G3G4	S3?	AMO
White-tailed deer	<i>Odocoileus virginianus</i>				G5	S5	AMO
BIRDS							
Alder Flycatcher	<i>Empidonax alnorum</i>				G5	S5B	OBBA
American Bittern	<i>Botaurus lentiginosus</i>				G5	S5B	OBBA
American Crow	<i>Corvus brachyrhynchos</i>				G5	S5	OBBA
American Goldfinch	<i>Spinus tristis</i>				G5	S5	OBBA
American Goshawk	<i>Accipiter atricapillus</i>				G5	S4	OBBA
American Kestrel	<i>Falco sparverius</i>				G5	S4	OBBA
American Redstart	<i>Setophaga ruticilla</i>				G5	S5B	OBBA
American Robin	<i>Turdus migratorius</i>				G5	S5	OBBA
American Woodcock	<i>Scolopax minor</i>				G5	S4B	OBBA
Baltimore Oriole	<i>Icterus galbula</i>				G5	S4B	OBBA
Bank Swallow	<i>Riparia riparia</i>	THR	THR, Schedule 1	THR	G5	S4B	OBBA
Barn Swallow	<i>Hirundo rustica</i>	SC	THR, Schedule 1	SC	G5	S4B	NHIC, OBBA
Barred Owl	<i>Strix varia</i>				G5	S5	OBBA
Belted Kingfisher	<i>Megaceryle alcyon</i>				G5	S5B,S4N	OBBA
Black-and-white Warbler	<i>Mniotilta varia</i>				G5	S5B	OBBA
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>				G5	S4S5B	OBBA
Blackburnian Warbler	<i>Setophaga fusca</i>				G5	S5B	OBBA
Black-capped Chickadee	<i>Poecile atricapillus</i>				G5	S5	OBBA
Black-throated Green Warbler	<i>Setophaga virens</i>				G5	S5B	OBBA
Blue Jay	<i>Cyanocitta cristata</i>				G5	S5	OBBA
Blue-headed Vireo	<i>Vireo solitarius</i>				G5	S5B	OBBA
Blue-winged Warbler	<i>Vermivora cyanoptera</i>				G5	S4B	OBBA
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	THR, Schedule 1	SC	G5	S4B	NHIC, OBBA
Broad-winged Hawk	<i>Buteo platypterus</i>				G5	S5B	OBBA
Brown Creeper	<i>Certhia americana</i>				G5	S5	OBBA
Brown Thrasher	<i>Toxostoma rufum</i>				G5	S4B	OBBA
Brown-headed Cowbird	<i>Molothrus ater</i>				G5	S5	OBBA
Canada Goose	<i>Branta canadensis</i>				G5	S5	OBBA
Canada Warbler	<i>Cardellina canadensis</i>	SC	THR, Schedule 1	SC	G5	S5B	OBBA
Cape May Warbler	<i>Setophaga tigrina</i>				G5	S5B	OBBA
Cedar Waxwing	<i>Bombycilla cedrorum</i>				G5	S5	OBBA
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>				G5	S5B	OBBA
Chimney Swift	<i>Chaetura pelagica</i>	THR	THR, Schedule 1	THR	G4G5	S3B	OBBA
Chipping Sparrow	<i>Spizella passerina</i>				G5	S5B,S3N	OBBA
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>				G5	S4S5B	OBBA
Common Grackle	<i>Quiscalus quiscula</i>				G5	S5	OBBA
Common Nighthawk	<i>Chordeiles minor</i>	SC	SC, Schedule 1	SC	G5	S4B	NHIC, OBBA
Common Raven	<i>Corvus corax</i>				G5	S5	OBBA
Common Yellowthroat	<i>Geothlypis trichas</i>				G5	S5B,S3N	OBBA
Cooper’s Hawk	<i>Accipiter cooperii</i>				G5	S4	OBBA
Dark-eyed Junco	<i>Junco hyemalis</i>				G5	S5	OBBA
Downy Woodpecker	<i>Dryobates pubescens</i>				G5	S5	OBBA
Eastern Bluebird	<i>Sialia sialis</i>				G5	S5B,S4N	OBBA
Eastern Kingbird	<i>Tyrannus tyrannus</i>				G5	S4B	OBBA
Eastern Meadowlark	<i>Sturnella magna</i>	THR	THR, Schedule 1	THR	G5	S4B,S3N	NHIC, OBBA
Eastern Phoebe	<i>Sayornis phoebe</i>				G5	S5B	OBBA
Eastern Towhee	<i>Pipilo erythrophthalmus</i>				G5	S4B,S3N	OBBA
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	THR	THR, Schedule 1	SC	G5	S4B	NHIC, OBBA
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	SC, Schedule 1	SC	G5	S4B	NHIC, OBBA
European Starling	<i>Sturnus vulgaris</i>				G5	SNA	OBBA
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	SC	SC, Schedule 1	SC	G5	S4	OBBA
Field Sparrow	<i>Spizella pusilla</i>				G5	S4B,S3N	OBBA

Appendix B - Species List

Species		SAR Status		Conservation Rank and Rarity Status			Source
Common Name	Scientific Name	Provincial (ESA, 2007)	National (SARA)	National (COSEWIC)	Global (G-rank)	Provincial (S-rank)	
Golden-crowned Kinglet	<i>Regulus satrapa</i>				G5	S5	OBBA
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	SC	THR, Schedule 1	THR	G4	S3B	NHIC, OBBA, iNaturalist
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	SC		SC	G5	S4B	NHIC
Gray Catbird	<i>Dumetella carolinensis</i>				G5	S5B,S3N	OBBA
Great Blue Heron (+)	<i>Ardea herodias</i>				G5	S4	OBBA
Great Crested Flycatcher	<i>Myiarchus crinitus</i>				G5	S5B	OBBA
Great Egret (+)	<i>Ardea alba</i>				G5	S2B,S3M	OBBA
Great Horned Owl	<i>Bubo virginianus</i>				G5	S4	OBBA
Green Heron (+)	<i>Butorides virescens</i>				G5	S4B	OBBA
Hairy Woodpecker	<i>Dryobates villosus</i>				G5	S5	OBBA
Hermit Thrush	<i>Catharus guttatus</i>				G5	S5B,S4N	OBBA
Hooded Merganser	<i>Lophodytes cucullatus</i>				G5	S5	OBBA
Horned Lark	<i>Eremophila alpestris</i>				G5	S4	OBBA
House Finch	<i>Haemorhous mexicanus</i>				G5	SNA	OBBA
House Sparrow	<i>Passer domesticus</i>				G5	SNA	OBBA
House Wren	<i>Troglodytes aedon</i>				G5	S5B	OBBA
Indigo Bunting	<i>Passerina cyanea</i>				G5	S5B	OBBA
Killdeer	<i>Charadrius vociferus</i>				G5	S4B	OBBA
Least Bittern	<i>Botaurus exilis</i>	THR	THR, Schedule 1	THR	G4	S4B	NHIC, OBBA
Least Flycatcher	<i>Empidonax minimus</i>				G5	S5B	OBBA
Magnolia Warbler	<i>Setophaga magnolia</i>				G5	S5B	OBBA
Mallard	<i>Anas platyrhynchos</i>				G5	S5	OBBA
Marsh Wren	<i>Cistothorus palustris</i>				G5	S4B,S3N	OBBA
Merlin	<i>Falco columbarius</i>				G5	S5	OBBA
Mourning Dove	<i>Zenaida macroura</i>				G5	S5	OBBA
Mourning Warbler	<i>Geothlypis philadelphia</i>				G5	S5B	OBBA
Nashville Warbler	<i>Leiothlypis ruficapilla</i>				G5	S5B	OBBA
Northern Cardinal	<i>Cardinalis cardinalis</i>				G5	S5	OBBA
Northern Flicker	<i>Colaptes auratus</i>				G5	S5	OBBA
Northern Harrier	<i>Circus hudsonius</i>				G5	S5B,S4N	OBBA
Northern Saw-whet Owl	<i>Aegolius acadicus</i>				G5	S5	OBBA
Northern Waterthrush	<i>Parkesia noveboracensis</i>				G5	S5B	OBBA
Ovenbird	<i>Seiurus aurocapilla</i>				G5	S5B	OBBA
Pileated Woodpecker (+)	<i>Dryocopus pileatus</i>				G5	S5	OBBA
Pine Siskin	<i>Spinus pinus</i>				G5	S5	OBBA
Pine Warbler	<i>Setophaga pinus</i>				G5	S5B,S3N	OBBA
Purple Finch	<i>Haemorhous purpureus</i>				G5	S5	OBBA
Purple Martin	<i>Progne subis</i>				G5	S3B	OBBA
Red-breasted Nuthatch	<i>Sitta canadensis</i>				G5	S5	OBBA
Red-eyed Vireo	<i>Vireo olivaceus</i>				G5	S5B	OBBA
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	END	END, Schedule 1	END	G5	S3	NHIC, OBBA
Red-shouldered Hawk	<i>Buteo lineatus</i>				G5	S4B,S2N	OBBA
Red-tailed Hawk	<i>Buteo jamaicensis</i>				G5	S5	OBBA
Red-winged Blackbird	<i>Agelaius phoeniceus</i>				G5	S5	OBBA
Ring-billed Gull	<i>Larus delawarensis</i>				G5	S5	OBBA
Rock Pigeon	<i>Columba livia</i>				G5	SNA	OBBA
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>				G5	S5B	OBBA
Ruby-throated Hummingbird	<i>Archilochus colubris</i>				G5	S5B	OBBA
Ruffed Grouse	<i>Bonasa umbellus</i>				G5	S5	OBBA
Sandhill Crane	<i>Antigone canadensis</i>				G5	S5B,S3N	OBBA
Savannah Sparrow	<i>Passerculus sandwichensis</i>				G5	S5B,S3N	OBBA
Scarlet Tanager	<i>Piranga olivacea</i>				G5	S5B	OBBA
Sedge Wren	<i>Cistothorus stellaris</i>				G5	S4B	OBBA
Sharp-shinned Hawk	<i>Accipiter striatus</i>				G5	S5	OBBA
Song Sparrow	<i>Melospiza melodia</i>				G5	S5	OBBA
Spotted Sandpiper	<i>Actitis macularius</i>				G5	S5B	OBBA
Swamp Sparrow	<i>Melospiza georgiana</i>				G5	S5B,S4N	OBBA
Tree Swallow	<i>Tachycineta bicolor</i>				G5	S4S5B	OBBA
Trumpeter Swan	<i>Cygnus buccinator</i>				G4	S4	OBBA
Turkey Vulture	<i>Cathartes aura</i>				G5	S5B,S3N	OBBA
Upland Sandpiper	<i>Bartramia longicauda</i>				G5	S2B	NHIC
Veery	<i>Catharus fuscescens</i>				G5	S5B	OBBA
Vesper Sparrow	<i>Poocetes gramineus</i>				G5	S4B	OBBA
Virginia Rail	<i>Rallus limicola</i>				G5	S4S5B	OBBA
Warbling Vireo	<i>Vireo gilvus</i>				G5	S5B	OBBA
White-breasted Nuthatch	<i>Sitta carolinensis</i>				G5	S5	OBBA
White-throated Sparrow	<i>Zonotrichia albicollis</i>				G5	S5	OBBA
Wild Turkey	<i>Meleagris gallopavo</i>				G5	S5	OBBA
Willow Flycatcher	<i>Empidonax traillii</i>				G5	S4B	OBBA
Wilson's Snipe	<i>Gallinago delicata</i>				G5	S5B	OBBA
Wood Duck	<i>Aix sponsa</i>				G5	S5B,S3N	OBBA
Wood Thrush	<i>Hylocichla mustelina</i>	SC	THR, Schedule 1	THR	G4	S4B	NHIC, OBBA
Yellow Warbler	<i>Setophaga petechia</i>				G5	S5B	OBBA
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>				G5	S5B	OBBA
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>				G5	S5B,S3N	OBBA
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>				G5	S4B	OBBA
Yellow-rumped Warbler	<i>Setophaga coronata</i>				G5	S5B,S4N	OBBA
INVERTEBRATES							
Acadian Hairstreak	<i>Satyrium acadica</i>				G5	S4	OBA
American Copper	<i>Lycaena hypophlaeas</i>				G5	S5	OBA
American Lady	<i>Vanessa virginiensis</i>				G5	S5	OBA
Aphrodite Fritillary	<i>Speyeria aphrodite</i>				G5	S5	OBA
Appalachian Brown	<i>Lethe appalachia</i>				G5	S4	OBA
Arctic Skipper	<i>Carterocephalus mandan</i>				G5	S5	OBA
Baltimore Checkerspot	<i>Euphydryas phaeton</i>				G4	S4	OBA
Banded Hairstreak	<i>Satyrium calanus</i>				G5	S4	OBA
Black Swallowtail	<i>Papilio polyxenes</i>				G5	S5	OBA
Broad-winged Skipper	<i>Poanes viator</i>				G5	S4	OBA
Bronze Copper	<i>Lycaena hyllus</i>				G5	S5	OBA
Brown Elfín	<i>Callophrys augustinus</i>				G5	S5	OBA
Cabbage White	<i>Pieris rapae</i>				G5	SNA	OBA
Canadian Tiger Swallowtail	<i>Papilio canadensis</i>				G5	S5	OBA
Chryxus Arctic	<i>Oeneis chryxus</i>				G5	S5	OBA
Clouded Sulphur	<i>Colias philodice</i>				G5	S5	OBA
Columbine Duskywing	<i>Erynnis lucilius</i>				G3	S4	OBA
Common Ringlet	<i>Coenonympha california</i>				G5	S5	OBA
Common Roadside Skipper	<i>Amblyscirtes vialis</i>				G5	S4	OBA
Common Wood-Nymph	<i>Cercyonis pegala</i>				G5	S5	OBA
Compton Tortoiseshell	<i>Nymphalis l-album</i>				G5	S5	OBA
Coral Hairstreak	<i>Satyrium titus</i>				G5	S5	OBA
Crossline Skipper	<i>Polites origenes</i>				G5?	S4	OBA

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Species		SAR Status		Conservation Rank and Rarity Status			Source
Common Name	Scientific Name	Provincial (ESA, 2007)	National (SARA)	National (COSEWIC)	Global (G-rank)	Provincial (S-rank)	
Delaware Skipper	<i>Anatrytone logan</i>				G5	S4	OBA
Dion Skipper	<i>Euphyes dion</i>				G5	S4	OBA
Dreamy Duskywing	<i>Erynnis icelus</i>				G5	S5	OBA
Dun Skipper	<i>Euphyes vestris</i>				G5	S5	OBA
Eastern Comma	<i>Polygonia comma</i>				G5	S5	OBA
Eastern Giant Swallowtail	<i>Heracles cressphontes</i>				G5	S4	OBA
Eastern Pine Elfin	<i>Callophrys niphon</i>				G5	S5	OBA
Eastern Tailed Blue	<i>Cupido comyntas</i>				G5	S5	OBA
European Skipper	<i>Thymelicus lineola</i>				G5	SNA	OBA
Eyed Brown	<i>Lethe eurydice</i>				G5	S5	OBA
Gray Comma	<i>Polygonia progne</i>				G5	S5	OBA
Great Spangled Fritillary	<i>Speyeria cybele</i>				G5	S5	OBA
Harvester	<i>Feniseca tarquinius</i>				G5	S4	OBA
Henry's Elfin	<i>Callophrys henrici</i>				G5	S4	OBA
Hobomok Skipper	<i>Poanes hobomok</i>				G5	S5	OBA
Indian Skipper	<i>Hesperia sassacus</i>				G5	S4	OBA
Juvenal's Duskywing	<i>Erynnis juvenalis</i>				G5	S5	OBA
Least Skipper	<i>Ancyloxypha numitor</i>				G5	S5	OBA
Leonard's Skipper	<i>Hesperia leonardus</i>				G4	S4	OBA
Little Wood-Satyr	<i>Megisto cymela</i>				G5	S5	OBA
Long Dash Skipper	<i>Polites mystic</i>				G5	S5	OBA
Meadow Fritillary	<i>Boloria bellona</i>				G5	S5	OBA
Milbert's Tortoiseshell	<i>Aglais milberti</i>				G5	S5	OBA
Monarch	<i>Danaus plexippus</i>	SC	END, Schedule 1	END	G4	S2N, S4B	OBA
Mourning Cloak	<i>Nymphalis antiopa</i>				G5	S5	OBA
Mustard White	<i>Pieris oleracea</i>				G5	S4	OBA
Northern Azure	<i>Celastrina lucia</i>				G5	S5	OBA
Northern Broken-Dash	<i>Wallengrenia egeremet</i>				G5	S5	OBA
Northern Cloudywing	<i>Thorybes pylades</i>				G5	S5	OBA
Northern Crescent	<i>Phyciodes cocyta</i>				G5	S5	OBA
Northern Pearly-Eye	<i>Lethe anthedon</i>				G5	S5	OBA
Orange Sulphur	<i>Colias eurytheme</i>				G4G5	S5	OBA
Painted Lady	<i>Vanessa cardui</i>				G4G5	S5B	OBA
Pearl Crescent	<i>Phyciodes tharos</i>				G4G5	S4	OBA
Peck's Skipper	<i>Polites peckius</i>				G5	S5	OBA
Question Mark	<i>Polygonia interrogationis</i>				G5	S5	OBA
Red Admiral	<i>Vanessa atalanta</i>				G5	S5B	OBA
Silver-bordered Fritillary	<i>Boloria myrina</i>				G5?	S5	OBA
Silver-spotted Skipper	<i>Epargyreus clarus</i>				G5	S4	OBA
Silvery Blue	<i>Glaucopsyche lygdamus</i>				G5	S5	OBA
Silvery Checkerspot	<i>Chlosyne nycteis</i>				G5	S5	OBA
Striped Hairstreak	<i>Satyrium liparops</i>				G5	S5	OBA
Tawny Crescent	<i>Phyciodes batesii</i>				G3G4	S4	OBA
Tawny-edged Skipper	<i>Polites themistocles</i>				G5	S5	OBA
Viceroy	<i>Limenitis archippus</i>				G5	S5	OBA
White Admiral	<i>Limenitis arthemis arthemis</i>				G5T5	S5	OBA
Wild Indigo Duskywing	<i>Erynnis baptisiae</i>				G5	S4	OBA
PLANTS							
Butternut	<i>Juglans cinerea</i>	END	END, Schedule 1	END	G3	S2?	Stantec field observation

Definitions, Acronyms and Symbols

(+) = Migratory Birds Regulations (MBR 2022) Schedule 1 Species

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

OBBA, ORAA, OBA 10km² Map Squares: 18VR12

NHIC 1km² Map Squares: 18VR1726 & 27, 18VR1826, 27 & 28, 18VR1927

Global G-rank

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

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

SARA or ESA designagtion

- END - Endangered
- THR - Threatened
- SC - Special Concern

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Appendix C Significant Wildlife Habitat Assessment



Appendix C: SOCC Assessment

Species		SAR Status		Conservation Rank and Rarity Status			Source	Habitat	Assessment
Common Name	Scientific Name	Provincial (ESA, 2007)	National (SARA)	National (COSEWIC)	Global (G-rank)	Provincial (S-rank)			
AMPHIBIANS									
Western Chorus Frog	<i>Pseudacris maculata</i> pop. 1		THR	THR	G5TNRQ	S4	ORAA	Inhabits wetlands, grassy areas, forest edges, and sometimes agricultural fields. They breed in shallow, temporary ponds that form in spring, called vernal pools.	Potential - Suitable habitat is present within the Study Area.
REPTILES									
Eastern Milksnake	<i>Lampropeltis triangulum</i>		SC, Schedule 1	SC	G5	S4	NHIC, ORRA	Generally, occur in rural areas, where it is most frequently reported in and around buildings, especially old structures. It is also found in a wide variety of habitats, from prairies, pastures, and hayfields to rocky hillsides and a wide variety of forest types. They must also be in proximity of water and suitable locations for basking and egg-laying.	Potential - Suitable habitat is present within the Study Area.
Midland Painted Turtle	<i>Chrysemys picta marginata</i>		SC, Schedule 1	SC	G5T5	S4	ORRA	Midland Painted Turtles inhabit water bodies, such as ponds, marshes, lakes, and slow-moving creeks, that have a soft bottom and provide abundant basking sites and aquatic vegetation. These turtles often bask on shorelines or on logs and rocks that protrude from the water. The midland-painted turtle hibernates on the bottom of water bodies.	Potential - Suitable habitat is present within the Study Area. Unidentified eggshells were observed along the hydro corridor during the survey. These eggshells appear to be from a turtle a species (species unknown) and were likely predated upon earlier in the season.
Northern Map Turtle	<i>Graptemys geographica</i>	SC	SC, Schedule 1	SC	G5	S3	ORRA	Found in large rivers, lakes, and reservoirs with slow-moving water and ample basking sites, such as logs or rocks. They often choose areas with abundant aquatic vegetation and sandy or muddy substrates for nesting.	Unlikely - Suitable habitat is considered absent within the Study Area.
Snapping Turtle	Chelydra serpentina	SC	SC, Schedule 1	SC	G5	S4	ORRA	Snapping Turtles inhabit ponds, sloughs, streams, rivers, and shallow bays that are characterized by slow-moving water, aquatic vegetation, and soft bottoms.	Potential - Suitable habitat is present within the Study Area. Unidentified eggshells were observed along the hydro corridor during the survey. These eggshells appear to be from a turtle a species (species unknown) and were likely predated upon earlier in the season.
BIRDS									
Common Nighthawk	<i>Chordeiles minor</i>	SC	SC, Schedule 1	SC	G5	S4B	OBBA	Inhabit open areas, including grasslands, forest clearings, and urban rooftops. They prefer habitats with bare or sparsely vegetated ground for nesting and are frequently seen foraging for insects at dusk or dawn.	Potential - Suitable habitat is present within the Study Area.
Eastern Kingbird	<i>Tyrannus tyrannus</i>				G5	S4B	OBBA	Found in open habitats with scattered trees or shrubs, such as fields, orchards, and forest edges. They often nest on tree branches or shrubs near open spaces, where they hunt for flying insects.	Potential - Suitable habitat is present within the Study Area.
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	SC, Schedule 1	SC	G5	S4B	OBBA	The Eastern Wood-Pewee is a forest bird of deciduous and mixed woods. Nest-site selection favors open space near the nest, typically provided by clearings, roadways, water, and forest edges.	Potential - Suitable habitat is present within the Study Area.
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	SC	SC, Schedule 1	SC	G5	S4	OBBA	Inhabits a variety of habitats, primarily mature coniferous and mixed forests with species like spruce, fir, and pine, which provide essential food sources such as seeds and buds, along with nesting sites. They are also commonly found near forest edges and open woodlands, where they forage for seeds, fruits, and insects.	Unlikely -Suitable habitat is considered absent within the Study Area due to lack of coniferous and mixed woodlands.
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	SC		SC	G5	S4B	OBBA	Grassland specialists, favoring open fields, meadows, and prairies with sparse vegetation. They build their nests on the ground, concealed by grass or other low-growing plants.	Potential - Suitable habitat is present within the Study Area.
Purple Martin	<i>Progne subis</i>				G5	S3B	OBBA	Colonial nesters that rely on open areas near water, where they can forage for flying insects. They nest in cavities, often in artificial structures such as birdhouses, placed in open, predator-free locations.	Unlikely -Suitable habitat is considered absent within the Study Area due to lack of open areas near watercourses or marshlands.
Upland Sandpiper	<i>Bartramia longicauda</i>				G5	S2B	OBBA	Inhabit open grasslands, pastures, and hayfields. They prefer tall grasses for nesting and are often found in agricultural or prairie-like landscapes.	Potential - Suitable habitat is present within the Study Area.
Wood Duck	<i>Aix sponsa</i>				G5	S5B,S3N	OBBA	Wooded wetlands, swamps, and riparian areas with abundant vegetation. They nest in tree cavities near water but will also use artificial nest boxes placed in suitable habitats.	Potential - Suitable habitat is present within the Study Area.
INVERTEBRATES									
Monarch	<i>Danaus plexippus</i>	SC	SC, Schedule 1	END	G4	S2N, S4B	OBA	In southern Ontario the Monarch is found primarily wherever milkweed and wildflowers (including goldenrods, asters, and purple loosestrife) exist. The Larvae occur only where milkweed exists; adults are more generalized, feeding on a variety of wildflower nectar.	Potential - Suitable habitat is present within the Study Area, although there is limited habitat within the Subject Property. The agricultural fields are active lands with limited milkweed potential.

Definitions, Acronyms and Symbols

Global G-rank
G1: Critically Imperiled (at very high risk of extinction)
G2: Imperiled (at high risk of extinction)
G3: Vulnerable (at moderate risk of extinction)
G4: Apparently Secure (Uncommon but not rare)
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G#G#: Range Rank (range of uncertainty about the status of a taxon or ecosystem type)
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SARA: Species at Risk Act
SARO: Species at Risk in Ontario

SARA or ESA designagtion
END - Endangered
THR - Threatened
SC - Special Concern

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

Regionally Rare (Bird Conservation Priorities¹) EC, 2014
Recovery Objective - At risk
Increase - Population in decline
Maintain Current - Appears to be stable or increasing
*Recovery Objective and Increase are considered SOCC, unless they are also protected under the ESA or SARA

Locally Rare (List of the Vascular Plants of Ontario's Carolinian Zone²) - Oldham, 2017
R: Rare. Native to the Carolinian Zone
X: Present; status unknown or not specified in source lists

Appendix D Species at Risk Screening



Species		SAR Status		Source	Habitat	Assessment
Common Name	Scientific Name	Provincial (ESA, 2007)	National (SARA)			
REPTILES						
Blanding's Turtle	<i>Emydoidea blandingii</i>	THR	END, Schedule 1	NHIC, ORAA	Found in wetlands, such as ponds, lakes, and marshes. This species prefers shallow, slow-moving waters with soft, muddy bottoms and plenty of vegetation for shelter.	Potential - Suitable habitat is present within the Study Area but not within the Subject Property except for transient movement.
MAMMALS						
Eastern Red Bat	<i>Lasiurus borealis</i>	END	END	AMO	Forage in open areas, forested and non-forested habitats, including both deciduous and coniferous forests. Maternity roosts tend to be large diameter and tall, exceeding the forest canopy. Saplings have been used for roosting by males. Roosts by hanging from branches and using several trees during the breeding season with high inter-annual roosting area fidelity. Migratory species that overwinter in the southern United States. (COSEWIC 2023).	Potential - Suitable habitat is present within the Study Area in all woodland communities. The Project may impact habitat of this species, if confirmed present. Targeted studies to confirm habitat use is recommended to determine if an ESA permit is required.
Eastern Small-footed Myotis	<i>Myotis leibii</i>	END		AMO	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius; Maternal Roosts: primarily under loose rocks on exposed rock outcrops, crevices, and cliffs, and occasionally in buildings, under bridges and highway overpasses and under tree bark.	Potential - Suitable habitat is present within the Study Area in all woodland communities, particularly in areas of rock outcrops (if present). The Project may impact habitat of this species, if confirmed present. Targeted studies to confirm habitat use is recommended to determine if an ESA permit is required.
Hoary Bat	<i>Lasiurus cinereus</i>	END	END	AMO	Forage in open areas, wetlands, open/patchy treed areas, open fields and grasslands. This species will use both deciduous and coniferous forests, with maternity roosts tending to be large diameter and tall, exceeding the forest canopy. Roosts by hanging from branches and using several trees during the breeding season with high inter-annual roosting area fidelity. Migratory species that overwinter in the southern United States. (COSEWIC 2023).	Potential - Suitable habitat is present within the Study Area in all woodland communities. The Project may impact habitat of this species, if confirmed present. Targeted studies to confirm habitat use is recommended to determine if an ESA permit is required.
Little Brown Myotis	<i>Myotis lucifugus</i>	END	END, Schedule 1	AMO	Uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges (MNRF, 2000). Roosts in crevices and cavities in dead or dying trees, or sometimes beneath naturally loose bark on species like Shagbark Hickory (MNRF, 2017).	Potential - Suitable habitat is present within the Study Area in all woodland communities. The Project may impact habitat of this species, if confirmed present. Targeted studies to confirm habitat use is recommended to determine if an ESA permit is required.
Northern Myotis	<i>Myotis septentrionalis</i>	END	END, Schedule 1	AMO	Hibernates during winter in mines or caves; during summer males roost alone and females form maternity colonies of up to 60 adults; roosts in houses, manmade structures but prefers hollow trees or under loose bark; hunts within forests, below canopy (MNRF, 2000)	Potential - Suitable habitat is present within the Study Area in all woodland communities. The Project may impact habitat of this species, if confirmed present. Targeted studies to confirm habitat use is recommended to determine if an ESA permit is required.
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	END	END	AMO	Forage along the edge of forests, forest openings, including young and old forests and edge of forests. Roost in tree cavities or under exfoliating bark. Migratory species that overwinters in the United States, southeastern British Columbia and occasionally the Great Lakes region (COSEWIC 2023).	Potential - Suitable habitat is present within the Study Area in all woodland communities. The Project may impact habitat of this species, if confirmed present. Targeted studies to confirm habitat use is recommended to determine if an ESA permit is required.
Tri-colored Bat	<i>Perimyotis subflavus</i>	END	END, Schedule 1	AMO	Open woods near water; roosts in trees, cliff crevices, buildings or caves; hibernates in damp, draft-free, warm caves, mines, or rock crevices (MNRF, 2000). Prefers roosts in foliage within or below the canopy, mostly in oak species but also sometimes in maples. Clusters of dead or dying leaves on live branches are preferred (MNRF, 2017).	Potential - Suitable habitat is present within the Study Area in all woodland communities. The Project may impact habitat of this species, if confirmed present. Targeted studies to confirm habitat use is recommended to determine if an ESA permit is required.
BIRDS						
Bank Swallow	<i>Riparia riparia</i>	THR	THR, Schedule 1	OBBA	The Bank Swallow is ranked as S4B (apparently secure breeding status) in Ontario and is designated provincially as threatened (June 2014). This species receives general habitat protection under the ESA (2007). The Bank Swallow excavate nests in exposed earth banks along watercourses and lakeshores, roadsides, stockpiles of soil, and the sides of sand and gravel pits. Single nests may occur, although colonies are typical and range from two to several thousand. Adjacent grasslands and watercourses are used for foraging habitat (Cadman et al., 2007).	Unlikely - Suitable habitat is considered absent within the Study Area.
Barn Swallow	<i>Hirundo rustica</i>	SC	THR, Schedule 1	NHIC, OBBA	Barn Swallows often live in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts. They prefer unpainted, rough-cut wood as mud does not adhere as well to smooth surfaces.	Potential - Suitable habitat is present in the Study Area but considered absent in the Subject Property. Nesting habitat is limited to building structures. The Project is not expected to have a direct impact this species or its habitat.
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	THR, Schedule 1	NHIC, OBBA	Bobolink nest primarily in forage crops with a mixture of grasses and broad-leaved forbs, predominantly hayfields and pastures. Preferred ground cover species include grasses such as Timothy and Kentucky bluegrass and forbs such as clover and dandelion (COSEWIC 2022). Bobolink is an area-sensitive species, with reported lower reproductive success in small habitat fragments (COSEWIC 2022).	Potential - Suitable habitat is present in the Study Area. The agricultural lands within the Subject Property have the potential to support habitat. The Project may impact habitat of this species, if confirmed present. Targeted studies to confirm habitat use is recommended to determine if registration under the ESA is required.
Canada Warbler	<i>Cardellina canadensis</i>	SC	THR, Schedule 1	OBBA	Inhabit moist, mixed woodlands with dense understory, often near wetlands, streams, or bogs. They prefer forested areas with abundant shrubs and mossy ground cover for nesting.	Unlikely - Suitable habitat is considered absent within the Study Area due to lack of mixed forests.
Chimney Swift	<i>Chaetura pelagica</i>	THR	THR, Schedule 1	OBBA	Urban specialists that nest and roost in chimneys or other vertical structures. Historically, they used hollow trees in old-growth forests, but now they are most commonly found in areas with human-made structures.	Potential - Suitable habitat may be present in the Study Area if chimneys are present; habitat is considered absent in the Subject Property as structures are not present. The Project is not expected to have a direct impact this species or its habitat.
Eastern Meadowlark	<i>Sturnella magna</i>	THR	THR, Schedule 1	NHIC, OBBA	Meadowlarks are ground nesting birds (Harrison, 1975), which are often associated with human-modified habitats where they sing from prominent perches such as roadside wires, trees, and fenceposts. As a grassland species, the Eastern Meadowlark typically occurs in meadows, hayfields and pastures. The Eastern Meadowlark is generally tolerant of habitat with an early succession of trees or shrubs.	Potential - Suitable habitat is present in the Study Area. The agricultural lands within the Subject Property have the potential to support habitat. The Project may impact habitat of this species, if confirmed present. Targeted studies to confirm habitat use is recommended to determine if registration under the ESA is required.
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	THR	THR, Schedule 1	NHIC, OBBA	Inhabit open woodlands, forest edges, and rocky or sandy clearings. They nest directly on the ground, often choosing sites with sparse vegetation and good camouflage, close to areas for nocturnal insect foraging.	Potential - Suitable reproductive and foraging habitat for Eastern Whip-poor-will may be present within the Study Area in the form of deciduous forests with rocky outcrops (FODM2-1/RBTB2-3 and WOD vegetation communities) Impacts to this species can be minimized through adherence to timing windows to comply with the MBCA and SARA. This species is not protected under the ESA and therefore, a permit would not be required.
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	SC	THR, Schedule 1	NHIC, OBBA, iNaturalist	Breeds in successional scrub habitat surrounding by mature forests, including upland communities, swamps and marshes (COSEWIC 2006).	Potential - Suitable habitat is present within the Study Area, including the Subject Property. Impacts to this species can be minimized through adherence to timing windows to comply with the MBCA and SARA. This species is not protected under the ESA and therefore, a permit would not be required.
Least Bittern	<i>Botaurus exilis</i>	THR	THR, Schedule 1	NHIC, OBBA	Found in dense, shallow wetlands with tall vegetation like cattails or reeds. This species prefers quiet, protected areas with shallow water and plenty of cover.	Unlikely - Suitable habitat is considered absent within the Study Area due to lack of marsh communities.
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	END	END, Schedule 1	NHIC, OBBA	Found in open woodlands, savannas, and areas with scattered trees. This species prefers habitats with a mix of mature trees and open spaces, such as forest edges, grasslands, or agricultural fields, where it can find food and nesting sites.	Potential - Suitable habitat is present within the Study Area, including the Subject Property within the woodland community. Targeted surveys for breeding birds is recommended to confirm habitat use and determine if a permit is required under the ESA.
Wood Thrush	<i>Hylocichla mustelina</i>	SC	THR, Schedule 1	NHIC, OBBA	Prefers moist deciduous or mixed second-growth forests with dense undergrowth and tall trees for perching (COSEWIC, 2012).	Potential - Suitable habitat is present within the Study Area, including the Subject Property. Impacts to this species can be minimized through adherence to timing windows to comply with the MBCA and SARA. This species is not protected under the ESA and therefore, a permit would not be required.
PLANTS						
Butternut	<i>Juglans cinerea</i>	END	END, Schedule 1	Stantec field observation	Butternut typically 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	Confirmed - Six (6) Butternut were identified within the Study Area, all within 200 m or less of Marchurst Road within the FODM2-1/ RBTB2-3 (Dry-Fresh Oak-Maple Deciduous Forests/ Oak-Red Maple-Pine Non-Calcareous Treed Rock Barren (Figure A3, Appendix A). The Project is not expected to impact these individuals. A permit under the ESA is not anticipated.

Definitions, Acronyms and Symbols

ESA: Endangered Species Act
SARA: Species at Risk Act

SARA or ESA designation
EXT - Extinct
END - Endangered
THR - Threatened
SC - Special Concern
NAR - Not at Risk

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