

July 2011



NORTHLAND POWER

McLean's Mountain Wind Farm

Natural Heritage Assessment Records Review Report



Submitted by:



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1. Introduction

Northland Power Inc. (Northland Power) and Mnidoo Mnising Power (MMP) propose to develop a wind facility with a maximum name plate capacity of 60 megawatts (MW) located south of Little Current in the Municipality of Northeastern Manitoulin and the Islands, Ontario (Figure 1). The renewable energy facility will be known as the McLean's Mountain Wind Farm and will be rated as a Class 4 wind facility. Northland Power has received a contract from the Ontario Power Authority (OPA) for the purchase of electricity generated by wind turbines from this renewable facility through the Province's Feed-in-Tariff (FIT) program (enabled by the Green Energy and Green Economy Act). The project will require approval under *Ontario Regulation 359/09 – Renewable Energy Approval (REA or Ontario Regulation 359/09)* under Section V.0.1 of the *Ontario Environmental Protection Act*.

Ontario Regulation 359/09 requires that all renewable energy projects conduct a records review of natural heritage features (*REA* Sections 24 and 25). This Records Review Report was completed in partial fulfillment of the regulatory requirements for the *REA* process. Additional details regarding the natural features, their significance, potential impacts and mitigation measures required to protect these features will be provided in separate reports, including the Site Investigation, Evaluation of Significance and Environmental Impact Study Reports. These reports will be submitted to the Ministry of Natural Resources (MNR) for review and comment, as required in *Ontario Regulation 359/09* and will provide for the protection of natural features within and adjacent to the project location. Discussion of species at risk, fish habitat and other information needs, as outlined in the MNR's Approval and Permitting Requirements Document for Renewable Energy (MNR 2009), are discussed in a separate report, under direction from the MNR and in compliance with the *REA*.



Figure 1: General Location of the McLean's Mountain Wind Farm Project in Ontario

2. The Proponent

Northland Power, founded in 1987, is an experienced developer, owner and operator of renewable power generation in Canada and abroad. Company activities include developing, managing, financing and owning renewable energy facilities. In the course of developing renewable energy projects, Northland Power strives to satisfy the various environmental approval requirements that vary depending on the jurisdiction, project capacity and site location. In addition, Northland Power builds long-term relationships with the communities that host its' projects. Northland Power is committed to the health and welfare of the community of Little Current and the Municipality of Northeastern Manitoulin and the Islands.

Contact information for the Proponent is as follows:

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Prime Contact: Rick Martin - Project Manager
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Dillon Consulting Limited is the prime contractor for the preparation of this Records Review Report. The contact at Dillon is:

Full Name of Company: Dillon Consulting Limited
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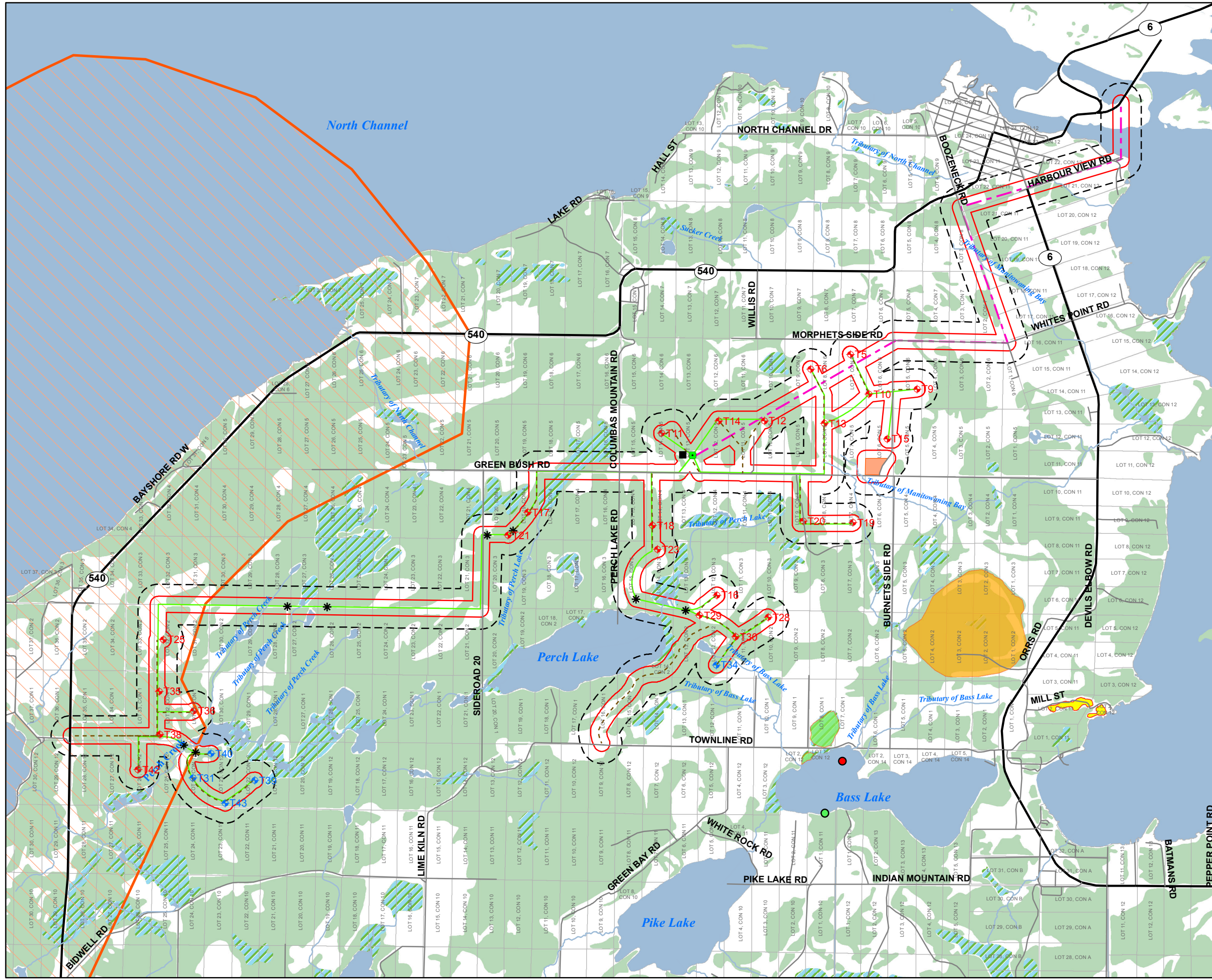
3. Project Location

The proposed Class 4 wind facility is located in the Municipality of Northeastern Manitoulin and the Islands, in northeastern Ontario, and covers approximately 8,200 ha of land south of the Town of Little Current. **Figure 1** shows the general location of the project. **Figure 2** shows the project location, as defined in *Ontario Regulation 359/09* as the location encompassing all projects components, and includes a 120 m setback for adjacent natural features. All project components, including wind turbines, access roads, and electrical facilities such as transmission lines, inverters, transformers, substations and electrical feeder lines, will be located on private land or municipal rights-of-way. The planned wind facility will occur primarily within lands currently zoned as rural, with small areas used for agriculture (Municipality of Northeastern Manitoulin and the Islands Official Plan 2002; see **Appendix A1**).



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McLean's Mountain Wind Farm Figure 2: Records Review Mapping



Legend

- Local Roads
 - Highway
 - 120 m Project Component Setback
 - 300 m Project Component Setback
 - Lots/Concessions
 - Water Body
 - Watercourse
 - Woodland
 - Unevaluated Wetland
- Area of Natural and Scientific Interest, Life Science**
- Sheguiandah Hill
 - Sheguiandah Quartzite Quarry
 - Base Lake Marsh/Swamp
- Wildlife Habitat**
- Osprey Nesting Site
 - Sandhill Crane Nesting Site
 - Important Bird Area (ON150)
- Project Components**
- 24 Wind Turbine Locations
 - Five Extra Permitted Sites
 - Substation
 - Operations Building
 - Horizontal Directional Drilling Access/Exit Pit
 - Access Road
 - Feeder Lines
 - Transmission Line
 - Construction Staging Area



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4. Records Review Purpose

A records review was completed, consistent with Section 25 of *Ontario Regulation 359/09*, for the project location (see **Figure 2**) using secondary source information.

Section 25 of *Ontario Regulation 359/09* states a natural heritage assessment for a renewable energy facility includes a records review to search for and determine whether the project location is:

1. In or within 120 m of a provincial park or conservation reserve,
2. In a natural feature, as defined to be:
 - i. a wetland (coastal wetland, northern wetland or southern wetland),
 - ii. a valleyland,
 - iii. a wildlife habitat,
 - iv. a woodland, or
 - v. an area of natural and scientific interest (ANSI, life science).
3. Within 50 m of an ANSI (earth science), or
4. Within 120 m of a natural feature that is not an ANSI (earth science).

Species at risk listed under the federal *Species at Risk Act* and provincial *Endangered Species Act, 2007*, with the potential to interact with the project location and/or adjacent lands, are being considered in consultation with the appropriate agency. Reporting related to the protection of these species at risk is being provided to the appropriate agency under separate cover.

In addition, the MNR is responsible for administering approvals and permits related to certain resources and land uses. The applicability of these resources and land uses within the project location and adjacent areas will be outlined in a separate Approval and Permitting Requirements Document (APRD) being submitted to the MNR for parallel consideration with this Natural Heritage Assessment. This reporting format meets the Natural Heritage requirements, as set out in *Ontario Regulation 359/09*, and is consistent with the direction provided by the MNR.

5. Records Review Methodology

For this records review, readily available resources were utilized in addition to consultation with all applicable federal, provincial and local regulatory agencies. **Table 1** outlines the sources of information used to conduct the natural heritage assessment records review.

Table 1: Records and Resources Searched and Analyzed During Records Review

Record Source		Records Requested and/or Reviewed
Ministry of Natural Resources		
District Office: Sudbury		Contact: Caleigh Sinclair, Planning/Biologist, via email
Date of Request: July 26, 2009	Date of Data Receipt: July, 2009	<ul style="list-style-type: none"> ▪ Records relating to natural features and wildlife species
Manuals/Guidelines		Natural Heritage Reference Manual, Second Edition, March 2010 Significant Wildlife Habitat Technical Guide, Appendices and Decision Support Tool
Land Information Ontario, data requested/accessed November 2010		<ul style="list-style-type: none"> ▪ Interactive Online Mapping Tool ▪ Warehouse Data (see Appendix B for data layers obtained)
Ontario Wind Resource Atlas, online data accessed November 2010		<ul style="list-style-type: none"> ▪ Used to identify bat hibernacula locations within 10 km² grids
Ontario Crown Land Use Policy Atlas, online data accessed November 2010		<ul style="list-style-type: none"> ▪ Information related to Crown land, federal and provincial parks and jurisdictional boundaries
Natural Heritage Information Centre (NHIC), last accessed December 2010		<ul style="list-style-type: none"> ▪ Biodiversity Explorer <ul style="list-style-type: none"> ▪ Rare species ▪ Rare plant communities ▪ Natural areas ▪ Invasive species ▪ Wildlife Concentration Areas ▪ Ontario Herpetofaunal Summary Atlas ▪ Ontario Odonata Atlas
MNR Species at Risk in Ontario (SARO) List, last accessed February 2011		Accessed to determine status of wildlife species as a species of conservation concern
Federal Government		
Canadian Wildlife Service/Environment Canada		Contact: Sheryl Lusk, Environmental Assessment Officer, via email
Date of Request: September 25, 2009	Date of Data Receipt: September 25, 2009	<ul style="list-style-type: none"> ▪ Records relating to natural features and wildlife species

Record Source		Records Requested and/or Reviewed
Conservation Authority		
Not applicable; project location is not within the jurisdiction of a Conservation Authority		
Municipality		
Single-Tier Municipality: Northeastern Manitoulin and the Islands	<ul style="list-style-type: none"> ▪ Official Plan and mapping Schedules reviewed 	
Planning Authorities and Local Boards		
Manitoulin Planning Board	Jake Diebolt, GIS Technician/Coordinator; June 10, 2011, email correspondence <ul style="list-style-type: none"> ▪ No applicable information available specific to the project location 	
Local Roads Board	Not applicable in project location	
Local Services Board	Not applicable in project location	
Other Resources		
Ontario Breeding Birds Atlas (OBBA) - online data accessed November 2010	Atlas Squares 17ML18, 17ML28 and 17ML29	
Christmas Bird Count (CBC) – online data accessed November 2010	Count Circle ONMI (Manitoulin Island)	
Important Bird Areas – online data accessed November 2010	ID #ON150 (Manitoulin Island North Shore)	
Mammals of the Western Hemisphere v3.0, accessed via NatureServe October 2010	Digital data files of species' ranges	
Great Lakes Conservation Blueprint for Terrestrial Biodiversity. Volume 2: Ecodistrict Summaries	Henson and Brodribb 2005. Produced by the Nature Conservancy of Canada <ul style="list-style-type: none"> ▪ Summary of statistics and land use relating to natural features and wildlife species in each ecodistrict 	
Species at Risk Public Registry, last accessed February 2011	Accessed to determine status of wildlife species as a species of conservation concern	
Committee on the Status of Endangered Wildlife in Canada (COSEWIC) website	Accessed to determine status of wildlife species as a species of conservation concern	
Provincial Plan Area Records		
Niagara Escarpment Commission	Project location does not fall within the Niagara Escarpment Plan Area	
Oak Ridges Conservation Plan Area	Project location does not fall within the Oak Ridges Conservation Plan Area	
Greenbelt Plan Area	Project location does not fall within the Greenbelt Plan Area	

6. Records Review Results

The project location falls within Ecodistrict 6E-17 (Gore Bay) and was summarized as part of the Great Lakes Conservation Blueprint for Terrestrial Biodiversity (Henson and Brodribb 2005). The majority of land in this Ecodistrict is public and approximately 84% of this land exists as natural cover. Limestone plains (22%), deciduous forest (20%) and coniferous forest (13%) are the dominant natural vegetation communities present. Lands designated for conservation, make up approximately 10% of the Ecodistrict. Approximately 22% of the occurrences of species and vegetation communities of conservation concern occur within these conservation lands.

As stated in **Section 3.0**, the project location is located just outside the Town of Little Current and classed mainly as rural lands according to the Municipality of Northeastern Manitoulin and the Islands Official Plan (2002).

6.1 Natural Features

Based on our review and analysis of the records and resources outlined in **Table 1**, and in accordance with *Ontario Regulation 359/09*, the presence of natural features are documented below and determinations made whether the project location is in or within 120 m or 300 m of these features (see **Figure 2**). The consideration of features 300 m from the project location is included to meet the requirements of the Construction Plan Report. The Construction Plan Report will be required for submission to the Ministry of the Environment (MOE) as part of the REA Application.

6.1.1 Provincial Parks and Conservation Reserves

A search and analysis of the records and resources outlined in **Table 1** did not identify any provincial parks or conservation reserves in the project location or within the surrounding 300 m.

6.1.2 ANSI, Life Science

A search and analysis of the records and resources outlined in **Table 1** did not identify any Life Science ANSIs in the project location or within the surrounding 300 m.

6.1.3 ANSI, Earth Science

A search and analysis of the records and resources outlined in **Table 1** did not identify any Earth Science ANSIs in the project location or within the surrounding 300 m.

6.1.4 Valleylands

A search and analysis of the records and resources outlined in **Table 1** did not identify any valleylands, as defined by *Ontario Regulation 359/09*, in the project location or within the surrounding 300 m.

6.1.5 Wetlands

Several units of unevaluated southern wetlands are present in the general area of the project location. Only one section of wetland is found within the 120 m setback of the project location with additional wetland sections within the 300 m setback (see **Figure 2**). No wetlands previously evaluated to be provincially significant occur within 120 m of project location. A summary of the project components located within 120 m of an unevaluated wetland is available in **Section 6.1.8**.

6.1.6 Woodlands

Several areas of woodland occur within and adjacent to the project location. However, the project location is within the Canadian Shield as shown in Figure 1 of the Provincial Policy Statement (MMAH 2005). Therefore, woodland areas of this project do not meet the definition of woodland in section 1 of Ontario Regulation 359/09 and do not require further evaluation.

6.1.7 Wildlife Habitat

A review of wildlife habitat in the area of the project location was completed using information contained in the records and resources outlined in **Table 1**. Based on this information, known and available records of wildlife habitat and applicable species occurring in the area surrounding the project location were identified. Other potential candidate wildlife habitat related to this Ecoregion will be reviewed during the site investigation of the project location. The wildlife habitat that has been identified within and/or adjacent to the project location (within 1 km) is discussed below and displayed on **Figure 2**.

6.1.7.1 Seasonal Concentration Areas

Important Bird Area

Existing mapping indicates that the Manitoulin Island North Shore Important Bird Area (ON 150) boundary overlaps the western portion of the project location (see **Figure 2**). This site is considered globally significant due to the large number of congregatory species found in the North Channel between Manitoulin Island and mainland central Ontario, specifically a large number of moulting red-necked grebes. A description of this IBA, as prepared by Bird Studies Canada, is available in **Appendix A2**.

6.1.7.2 Rare Vegetation Communities

A search and analysis of the records and resources outlined in **Table 1** did not identify any vegetation communities of conservation concern in the project location or within the surrounding 1 km. This search included sand barrens, savannahs, tallgrass prairies and alvars.

6.1.7.3 Specialised Wildlife Habitat

Osprey Nesting Site

An Osprey nesting site has been identified south of the project location along the southwest shoreline of Bass Lake (see **Figure 2**). This nesting site is located more than 2 km from the project location.

Sandhill Crane Nesting Site

A Sandhill Crane nesting site has been identified south of the project location within the northwest section of Bass Lake (see **Figure 2**). This nesting site is located more than 2 km from the project location.

6.1.7.4 Habitat of Species of Conservation Concern

A search and analysis of the records and resources outlined in **Table 1** identified several species of conservation concern with the potential to occur in the general area of the project location. These species are further discussed in **Section 6.3** and outlined with respect to their status in **Appendix C1**. Species of Conservation Concern were identified according to the definition provided in the Significant Wildlife Habitat Technical Guide (MNR 2000) with exception to species that have been identified as *Threatened* and *Endangered* species in Ontario. As

discussed in **Section 6.5**, reporting related to the protection of species at risk is being provided to the appropriate agency under separate cover. Therefore, species listed in **Appendix C1** with an SRANK of S1, S2 or S3, *Special Concern* in Ontario or only have a status of Threatened or Endangered federally, denote Species of Conservation Concern.

6.1.7.5 Animal Movement Corridors

A search and analysis of the records and resources outlined in **Table 1** did not identify any known animal movement corridors in the project location or within the surrounding 1 km.

6.1.8 Summary of Natural Features in Proximity to Project Location

As outlined in **Table 2** below, various unevaluated southern wetlands, woodlands and identified wildlife habitat (i.e., Important Bird Area) are located either within the project location or within 120 m (**Figure 2**). These natural features will be the subject of site investigation work.

Table 2: Natural Features in Proximity to the Project Location

Project Component(s)	Lot/Concession	Distance to Nearest Natural Feature		
		Wetland	Woodland	Wildlife Habitat
TURBINES				
Turbine 5	Lot 7, Con 6	---	---	---
Turbine 6	Lot 9, Con 6	---	---	---
Turbine 9	Lot 5, Con 6	---	---	---
Turbine 10	Lot 6, Con 6	---	---	---
Turbine 11	Lot 14, Con 5	---	Within project location	---
Turbine 12	Lot 10, Con 5	---	Within project location	---
Turbine 13	Lot 8, Con 5	---	120 m setback	---
Turbine 14	Lot 12, Con 5	---	Within project location	---
Turbine 15	Lot 6, Con 5	---	---	---
Turbine 16	Lot 12, Con 3	---	---	---
Turbine 17	Lot 19, Con 4	---	Within project location	---
Turbine 18	Lot 14, Con 4	---	Within project location	---
Turbine 19	Lot 7, Con 4	---	120 m setback	---

Project Component(s)	Lot/Concession	Distance to Nearest Natural Feature		
		Wetland	Woodland	Wildlife Habitat
Turbine 20	Lot 9, Con 4	---	Within project location	---
Turbine 21	Lot 19 & 20, Con 4	---	Within project location	---
Turbine 23	Lot 14, Con 3	---	Within project location	---
Turbine 25	Lot 32, Con 2	---	Within project location	---
Turbine 28	Lot 10, Con 2	---	Within project location	---
Turbine 29	Lot 12 & 13, Con 2	---	120 m setback	---
Turbine 30	Lot 11, Con 2	---	Within project location	---
Turbine 31	Lot 24, Con 12	---	Within project location	---
Turbine 34	Lot 12, Con 2	---	Within project location	---
Turbine 35	Lot 32, Con 1	---	Within project location	---
Turbine 36	Lot 31, Con 1	---	Within project location	---
Turbine 38	Lot 32, Con 1	---	Within project location	---
Turbine 39	Lot 22, Con 12	---	Within project location	---
Turbine 40	Lot 23, Con 12	---	Within project location	---
Turbine 42	Lot 26, Con 12	---	Within project location	---
Turbine 43	Lot 23, Con 12	---	Within project location	---
ACCESS ROADS AND FEEDER LINES				
T5, T10 Access Road	Lot 6 and 7, Con 6	---	---	---
T10, T5, T9, T15 Feeder Line	Lot 7 and 8, Con 5; Lot 5, 6 and 7, Con 6	---	---	---
T9 Access Road	Lot 5, Con 6	---	---	---
T15 Access Road	Lot 6, Con 5	---	---	---
T6, T13 Feeder Line and Access	Lot 8, Con 5; Lot 8, Con 6; Lot 9, Con 6	---	Within project location	---

Project Component(s)	Lot/Concession	Distance to Nearest Natural Feature		
		Wetland	Woodland	Wildlife Habitat
Road				
T11 Access Road	Lot 13 and 14, Con 5	---	Within project location	---
T12 and T14 Access Road	Lot 10, 11 and 12, Con 5	---	Within project location	---
T11, T14, T12 Feeder Line	Lot 10, 11, 12, 13, 14 and 15, Con 5	---	Within project location	---
T17 Access Road and Feeder Line	Lot 18 and 19, Con 4, Lot 20, Con 4	120 m setback	Within project location	---
T18 and T23 Feeder Line Access Road	Lot 14, Con 3; Lot 14, Con 4	---	Within project location	---
T29, T16, T34, T30, T28 Feeder Line Access Road	Lot 14, Con 4; Lot 12, 13, 14 and 15, Con 3; Lot 10, 11, 12, and 13, Con 2	120 m setback	Within project location	---
T19 and T20 Feeder Line and Access Road	Lot 7, 8 and 9, Con 4	---	Within project location	---
T21 Access Road and Feeder Line	Lot 20, Con 4	---	Within project location	---
Green Bush Road to Sideroad 20 south Feeder Line	Lot 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20, Con 4 and 5; Lot 20 and 21 Con 3	---	Within project location	---
Feeder Line west of Sideroad 20 toward T25	Lot 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31 and 32, Con 3	120 m setback	Within project location	---
T25, T35, T36, T38, T42, T40, T31, T43, T39 Access Roads and Feeder Lines	Lot 32, Con 2; Lot 31, Lot 32, 33, 34 and 35, Con 1; Lot 22, 23, 24, 25 and 26, Con 12	---	Within project location	---
T29 to Townline Road Access Road	Lot 12, 13 and 14 Con 2. Lot 15 and 16 Con 1.	120 m setback	Within project location	---
SUBSTATION AND TRANSMISSION LINE				
Substation	Lot 13, Con 5	---	Within project location	---

Project Component(s)	Lot/Concession	Distance to Nearest Natural Feature		
		Wetland	Woodland	Wildlife Habitat
Transmission Line from Substation to Morphets Side Road	Lot 13, Con 5; Lot 12, Con 5; Lot 11, Con 5; Lot 10, Con 5; Lot 10, Con 6; Lot 9, Con 6; Lot 8, Con 6; Lot 7, Con 6; Lot 6, Con 6	---	Within project location	---
Transmission Line along Morphets Side Road	Lot 5, 4, 3, 2, and 1, Con 6/7	---	120 m setback	---
Transmission Line along Boozeneck Road	Lot 2; Con 7; Lot 3, Con 8/Lot 17, 18, 19, 20 and 21, Con 11	---	Within project location	---
Transmission Line from Boozeneck Road to Goat Island	Lot 22, Con 11; Lot 22, Con 12; Lot 21, Con 12; Goat Island	---	Within project location	---
OTHER				
Operations Building	Lot 13, Con 5	---	Within project location	---
Construction Staging Area	Lot 6, Con 5	---	---	---

“---” indicates the natural feature is not in proximity of the project location.

6.2 Vascular Plant and Bryophyte Diversity

Using readily available secondary source information, as outlined in **Table 1**, plant species have been determined as potentially occurring in or adjacent to the project location. These species are outlined in **Appendix C1, Table C1**. The only available records pertaining to vascular plant and bryophyte diversity was a search of the MNR's NHIC database. The results of this search revealed occurrence records for 10 species, 8 of which are Species of Conservation Concern (i.e., SRank of S1, S2 or S3 and not listed under the *Endangered Species Act, 2007* as *Threatened* or *Endangered*):

- Wallrue spleenwort (*Asplenium ruta-muraria*). SRank of S2;
- Green Arrow-arum (*Peltandra virginica*). SRank of S2;
- Houghton's flat sedge (*Cyperus houghtonii*). SRank of S3;
- Slender blazing star (*Liatris cylindracea*). SRank of S3;

- Grooved yellow flax (*Linum sulcatum*). SRank of S3;
- Clustered broomrape (*Orobanche fasciculata*). SRank of SH;
- Prairie dropseed (*Sporobolous heterolepis*). SRank of S3; and,
- A Moss (*Hypnum recurvatum*). SRank of S1.

6.3 Wildlife Species Diversity

Using the readily available secondary source databases and wildlife atlases outlined in **Table 1**, various wildlife species have the potential to occur in or adjacent to the project location. These species are discussed below and in **Appendix C1, Table C2**. Each species has been assessed according to occurrence records and regional, provincial and federal conservation status.

6.3.1 Birds

After reviewing records in the OBBA (Cadman *et al.*, 2005; OBBA Mapping Squares 17ML18, 17ML28 and 17ML29; see **Appendix A3**) and the Manitoulin Island Christmas Bird Count (CBC), 169 avian species have been identified in the general area of the project location. These birds depend on a wide range of habitats including grasslands, forested habitats and wetlands.

The majority of the bird species that have the potential to occur in the general area of the project location are considered *Secure* (SRank of S5) or *Apparently Secure* in Ontario (SRank of S4). Of the 169 species found in the area of the project location, 17 are Species of Conservation Concern. A complete list of species is available in **Appendix C1, Table C2**.

6.3.2 Mammals

Ontario Mammal Atlas (Dobbyn 1994) information was used to determine possible species occurring within or adjacent to the project location. The range of 36 species overlapped the project location. All of the mammal species that have the potential to occur in the general area of the project location are considered *Secure* (SRank of S5) or *Apparently Secure* in Ontario (SRank of S4), with the exception of the Northern Long-eared Bat (*Myotis septentrionalis*) which is considered *Vulnerable* (SRank of S3) and qualifies as a Species of Conservation Concern. A complete list of species is available in **Appendix C1, Table C2**.

6.3.3 Herpetozoa

The Ontario Herpetofaunal Atlas (Oldham and Weller, 2000) was used to determine possible species occurring within or adjacent to the project location. Twenty-five herpetozoa species were identified with occurrence records in the general area of the project location. These species are a mix of salamanders, frogs and toads, turtles and snakes.

The majority of the herpetozoa species that have the potential to occur in the general area of the project location are considered *Secure* (SRank of S5) or *Apparently Secure* in Ontario (SRank of S4). Of the twenty-five species found in the area of the project location, 2 are Species of Conservation Concern. A complete list of species is available in **Appendix C1, Table C2**.

6.3.4 Invertebrates

The Ontario Odonata Atlas (2005) was reviewed to determine the potential for dragonflies and damselflies to occur in the general area of the project location. A total of 18 species, belonging to 8 taxonomic families, had occurrence records in the general vicinity of the project location. All odonates listed in **Appendix C1, Table C2** are considered *Secure* (SRank of S5) or *Apparently Secure* in Ontario (SRank of S4).

6.4 Provincial Plan Areas

Under *Ontario Regulation 359/09*, if any part of the project location falls within a provincial plan area the project may be subject to different criterion to evaluate the applicable natural features. In addition, should development occur within the prescribed setback area of a natural feature, it may be subject to a different set of prohibitions under *Ontario Regulation 359/09*. **Table 3** outlines the provincial plan areas that should be considered when planning a renewable energy project and identifies which, if any, are applicable to the project location.

Table 3: Summary of Provincial Plan Areas and Applicability to the Project Location

Provincial Plan Area	Applicability to Project
Oak Ridges Moraine Conservation Plan Area	Not Applicable
Niagara Escarpment Plan Area	Not Applicable
Greenbelt - Natural Heritage System	Not Applicable
Greenbelt – Protected Countryside	Not Applicable

6.5 Species at Risk

Species at risk listed under the federal *Species at Risk Act* and provincial *Endangered Species Act, 2007*, with the potential to interact with the project location and/or adjacent lands, are being considered in consultation with the appropriate agency. Reporting related to the protection of these species at risk is being provided to the appropriate agency under separate cover. This reporting format meets the Natural Heritage requirements, as set out in *Ontario Regulation 359/09*, and is consistent with the direction provided by the MNR.

6.6 Other Required Approvals and Permitting

In addition to the natural features included in this natural heritage assessment records review, the MNR is responsible for administering approvals and permits related to the following resources and land uses:

- Mineral Aggregate Resources;
- Harvesting Crown-owned Forest Resources;
- Provincial Parks and Conservation Reserves;
- Natural Hazard Lands;
- Areas under Forest Resource License or Sustainable Forest License;
- Petroleum Resources;
- Far North Applicability;
- Forest Resource Processing Facility Licensing; and,
- Wildfire Prevention and Preparedness Requirements.

The applicability of these resources and land uses within the project location and adjacent areas will be outlined in a separate Approval and Permitting Requirements Document (APRD) being submitted to the MNR for parallel consideration with this Natural Heritage Assessment.

7. Conclusions

This Records Review Report was completed in partial fulfillment of the regulatory requirements for the *REA* process. Additional details regarding the natural features, their significance, potential impacts and mitigation measures required to protect these features will be provided

in separate reports, including the Site Investigation, Evaluation of Significance and Environmental Impact Study Reports, where applicable. These reports will be submitted to the Ministry of Natural Resources (MNR) for review and comment, as required in *Ontario Regulation 359/09* and will provide for the protection of natural features within and adjacent to the project location.

The determinations made in this records review will form the baseline knowledge for the project location. Fieldwork completed to date, in addition to consultation with the MNR, will be used to determine the accuracy of this records review during the site investigation. **Table 4** summarizes the determinations made during this records review. All applicable natural features within the project location and surrounding 300 m are outlined on **Figure 2**.

Table 4: Summary of the Natural Heritage Assessment Records Review

Natural Feature ID	Source of Information	Evaluation Status	Location Relative to Project	
			Within	Within 120 m
Provincial Parks and Conservation Reserves				
Not applicable to project location				
ANSI, Life Science				
Not applicable to project location				
ANSI, Earth Science				
Not applicable to project location				
Valleylands				
Not applicable to project location				
Wetlands				
Multiple southern wetlands	MNR Land Information Ontario Data Layer	Unevaluated	No	✓
Woodlands				
Project location is within the Canadian Shield as shown in Figure 1 of the Provincial Policy Statement (MMAH 2005) and is therefore not applicable.				
Wildlife Habitat				
Seasonal Concentration Areas				
Manitoulin Island North Shore Important Bird Area (ON 150)	Important Bird Area Mapping, BirdLife International	Globally Significant	✓	✓
Rare Vegetation Communities				
No rare vegetation communities were identified in or adjacent to the project location				
Specialised Wildlife Habitat				
Osprey nesting site	MNR Land Information Ontario Data Layer	Not evaluated	No	No
Sandhill Crane nesting site	MNR Land Information Ontario Data Layer	Not evaluated	No	No
Habitat of Species of Conservation Concern				
Several Species of Conservation Concern have the potential to occur in the general area of project location (see Appendix C1). Existing records review information has not identified known habitat for these species in or adjacent to the project location.				
Animal Movement Corridors				
No known movement corridors have been identified in or adjacent to the project location.				
Provincial Plan Areas				
The project location does not fall within a provincial plan area.				

8. References

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APPENDIX A

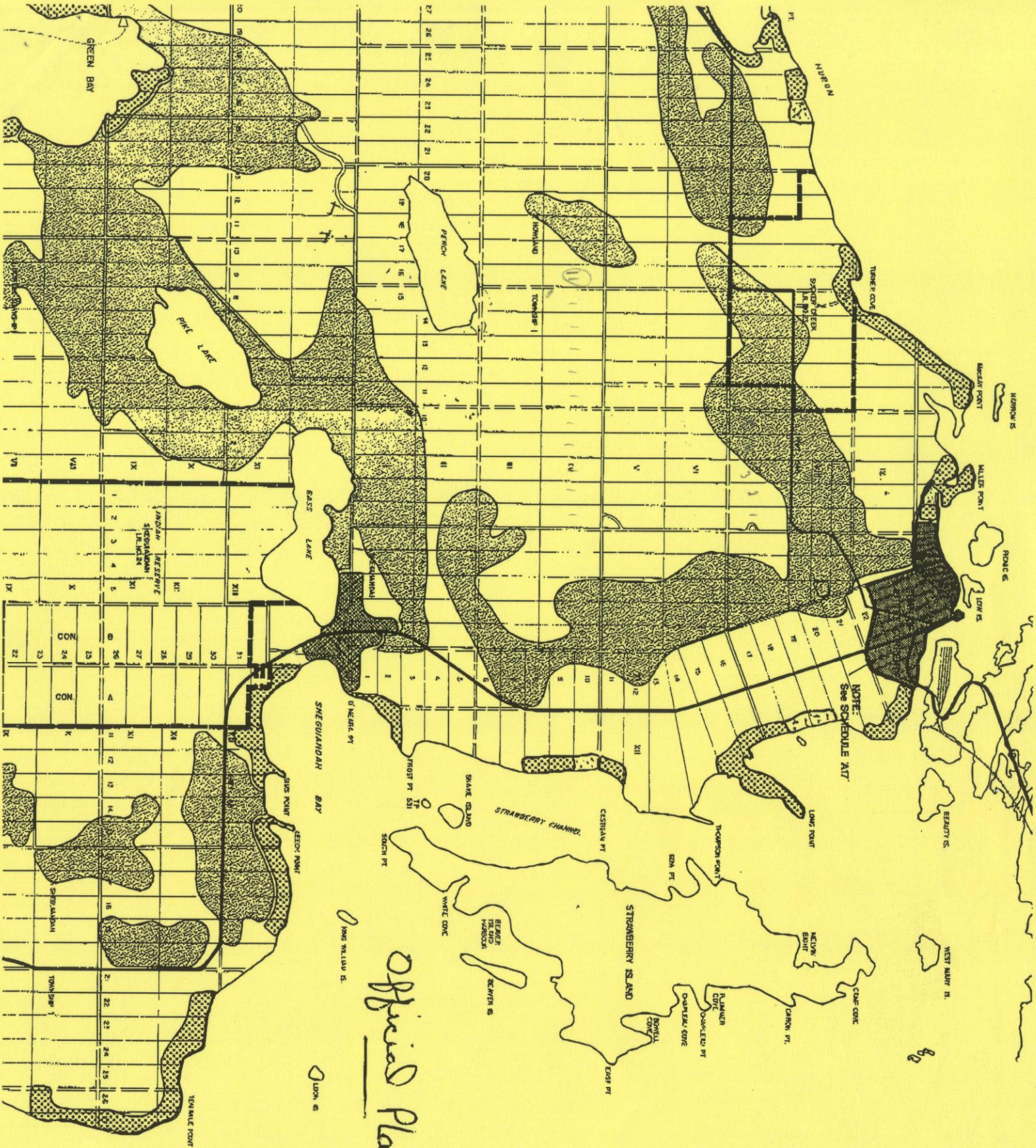
Supplementary Information



APPENDIX A

A1: Official Plan Mapping

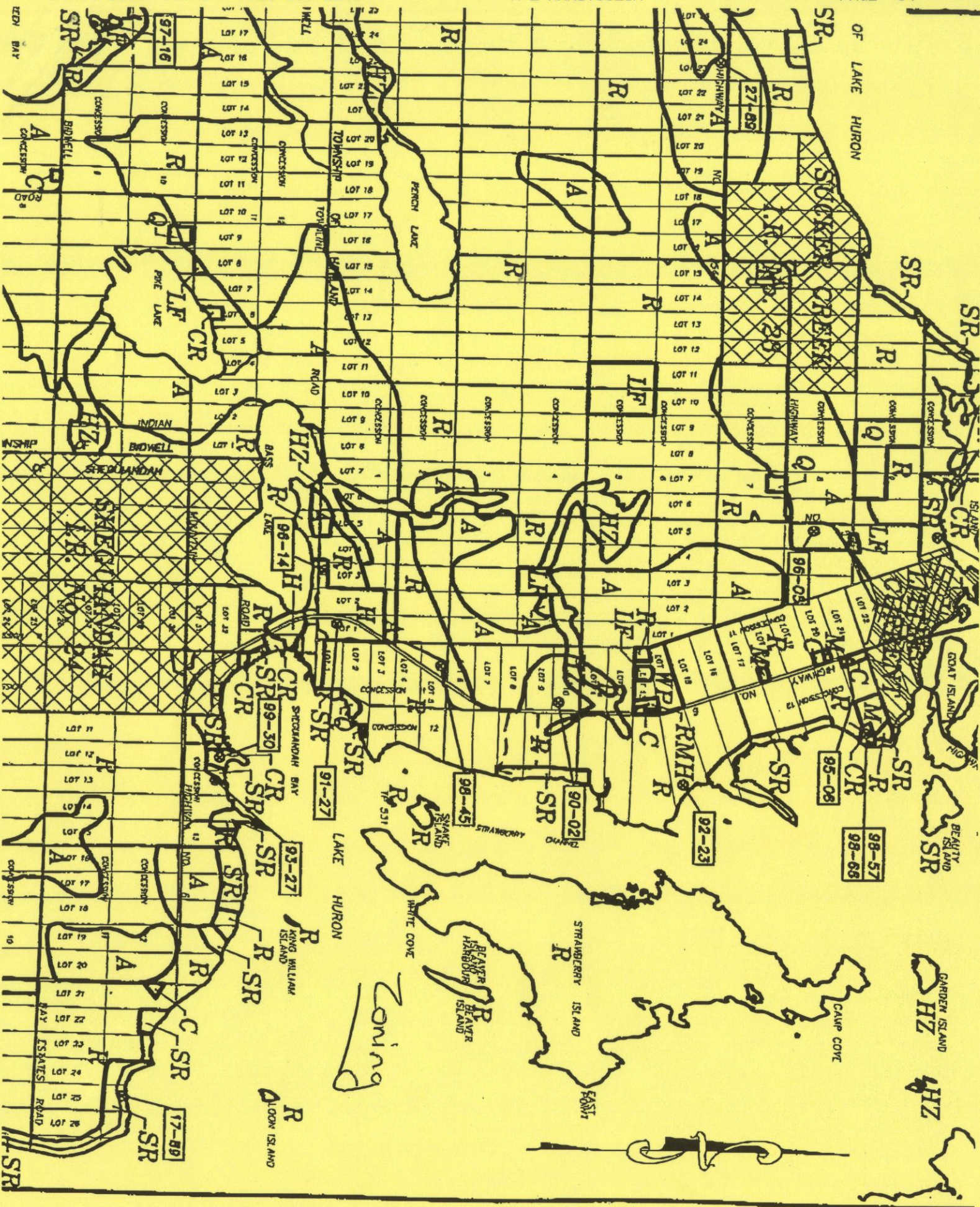




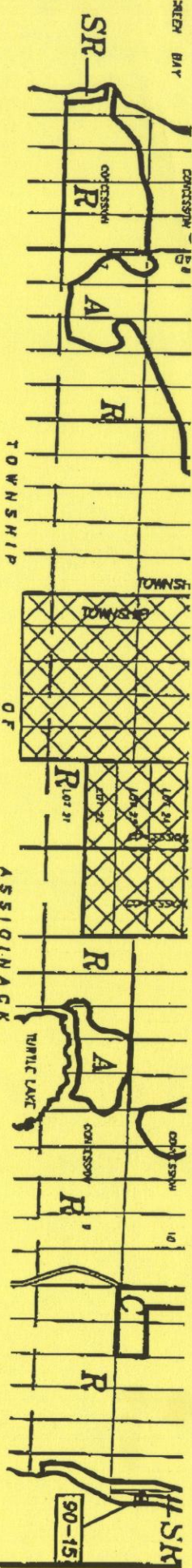
NOTE: See Schedule A17

Official Plan

82



Zoning



ZONES

Zone	Symbol
Agricultural (A)	A
Rural (R)	R
Hamlet (H)	H
Settlement (S)	S
Shoreline Residential (SR)	SR
Mobile Home Park (RMH)	RMH
Restricted Commercial (C)	C
Commercial Recreational (CR)	CR
Restricted Industrial (M)	M
Pit & Quarry (Q)	Q
Recreation (RE)	RE
Hazard (HZ)	HZ
Landfill (LF)	LF
Waste Processing (WP)	WP
Special Provision	⊙

By-Law No. 9

NOTE:
 No new habitable structure shall be constructed below the 178.3 metre contour adjacent to Lake Huron unless the setback from the shoreline is a minimum of 81 metres and the structure is flood proofed to the 179.8 metre contour.

This is Schedule A
 to By-Law No. 2092-32
 Passed this day of 18/12/2002.
 Mayor *[Signature]*
 Clerk *[Signature]*

APPENDIX A

A2: Important Bird Area Summary



IBA	Manitoulin Island North Shore Gore Bay, Ontario					
Site Summary						
ON150	Latitude Longitude	45.97° N 82.42° W	Elevation Size	177 m 788.0 km²		
Habitats: freshwater lake, inlets/coastal features (freshwater)		Land Use: Tourism/recreation		Potential or ongoing Threats: None		
IBA Criteria: Globally Significant: Congregatory Species						
Conservation status:						
IBA Main page	Map of Canadian IBA	Query the IBA database	Species Maps	IBA Criteria	Submit IBA checklist	Français

Site Description

The North Channel of Lake Huron lies between the northern shores of Manitoulin Island and the mainland of Central Ontario. The IBA follows the Manitoulin Island shoreline from Cole Bay to West Bay. This large piece of water is bordered on the south by the sloping shoreline of the island, and includes numerous bays and inlets.

Birds

Between September and December large numbers of moulting Red-necked Grebes are found in the North Channel. Total numbers of Red-necked Grebes recorded here have been as high as 1,163 in 1995, and 2,000 in 1996. This is perhaps 4% of the North American population of the species, although the percentage is difficult to estimate accurately since the population estimate is rough. The Cole Bay area and Julia Bay waters are two sections that see particularly high concentrations of grebes (about 300 at a time), although there are thought to be additional hotspots in other sections of water that are not so easy to survey. Other open water birds, such as Common Loons, Horned Grebes and small numbers of scoters and Oldsquaw, can be seen in the fall and early winter.

The moulting locations that Red-necked Grebes use in the vicinity of Manitoulin Island share several characteristics. They are generally between 100 to 2,000 m away from the shoreline, the water depth varies from 3 to 55 m, they are partially sheltered (that is in the lee of islands or in large bays), and have varied lake bottom topography containing shelves or holes.

Summary of bird records available for Manitoulin Island North Shore

[Click here to view all records](#)

Species	Season	Number	Unit	Date
Red-necked Grebe (Eastern)	FM	242 - 2,000	G I	1994 - 1996
Note: species shown in bold indicate that their population level (as estimated by the maximum number) exceeds at least one of the IBA thresholds (national, continental or global). The site may still not qualify for that level of IBA if the maximum number reflects an exceptional or historical occurrence.				

Conservation Issues

There are no known conservation issues surrounding the usage and birdlife of The North Channel. Although these waters are used fairly heavily by boaters at other times of the year, between October and December boating traffic is minimal or nonexistent.

APPENDIX A

A3: OBBA Mapping



Ontario Breeding Bird Atlas 2001 - 2005

Roadside Point Count Coordinates

No.	Easting	Northing
01	425144	5081526
02	429423	5083751
03	427814	5081802
04	423024	5087090
05	425184	5087066
06	426926	5089089
07	428335	5088496
08	424012	5087080
09	422848	5081218
10	421012	5087112
11	424441	5081528
12	426775	5080966
13	428002	5089073
14	427757	5081298
15	423728	5083513
16	420512	5087117
17	425307	5083012
18	428834	5087027
19	425691	5087061
20	426615	5088672
21	422524	5087096
22	420792	5089033
23	426463	5082993
24	422529	5087811
25	422648	5084080
26	428833	5089253
27	422575	5088303
28	421528	5087106
29	429692	5085942
30	424522	5087074
31	429322	5089418
32	425879	5081639
33	425311	5080445
34	427390	5080963
35	424521	5083318
36	427571	5083511
37	421208	5083060
38	426471	5089647
39	421731	5083056
40	429567	5087021
41	429172	5081377
42	424534	5084079
43	425358	5084186
44	422459	5083608
45	426563	5084186
46	422220	5083157
47	428523	5082329
48	426162	5081224
49	428522	5080956
50	425532	5081215

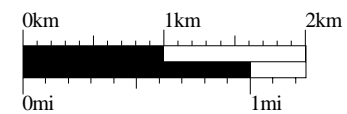
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- Wooded Areas
- Water Bodies
- Water Area
- Water Bodies Wetland Area
- Wetlands
- ANSI
- Pits and Quarries
- Parks and Reserves
- Public Road
- Private Road
- Track
- Trail
- Railway
- Contour Lines
- Lots
- Roadside Point Count Locations
- Fences
- Wall
- Hedge
- Feature Outline
- Race Track
- Building Points
- Building Polygons
- Airports
- Petroleum Tank
- Water Tank
- Survey Monuments
- Smoke Stack
- Towers
- Named Places
- Pipelines
- Transmission Line

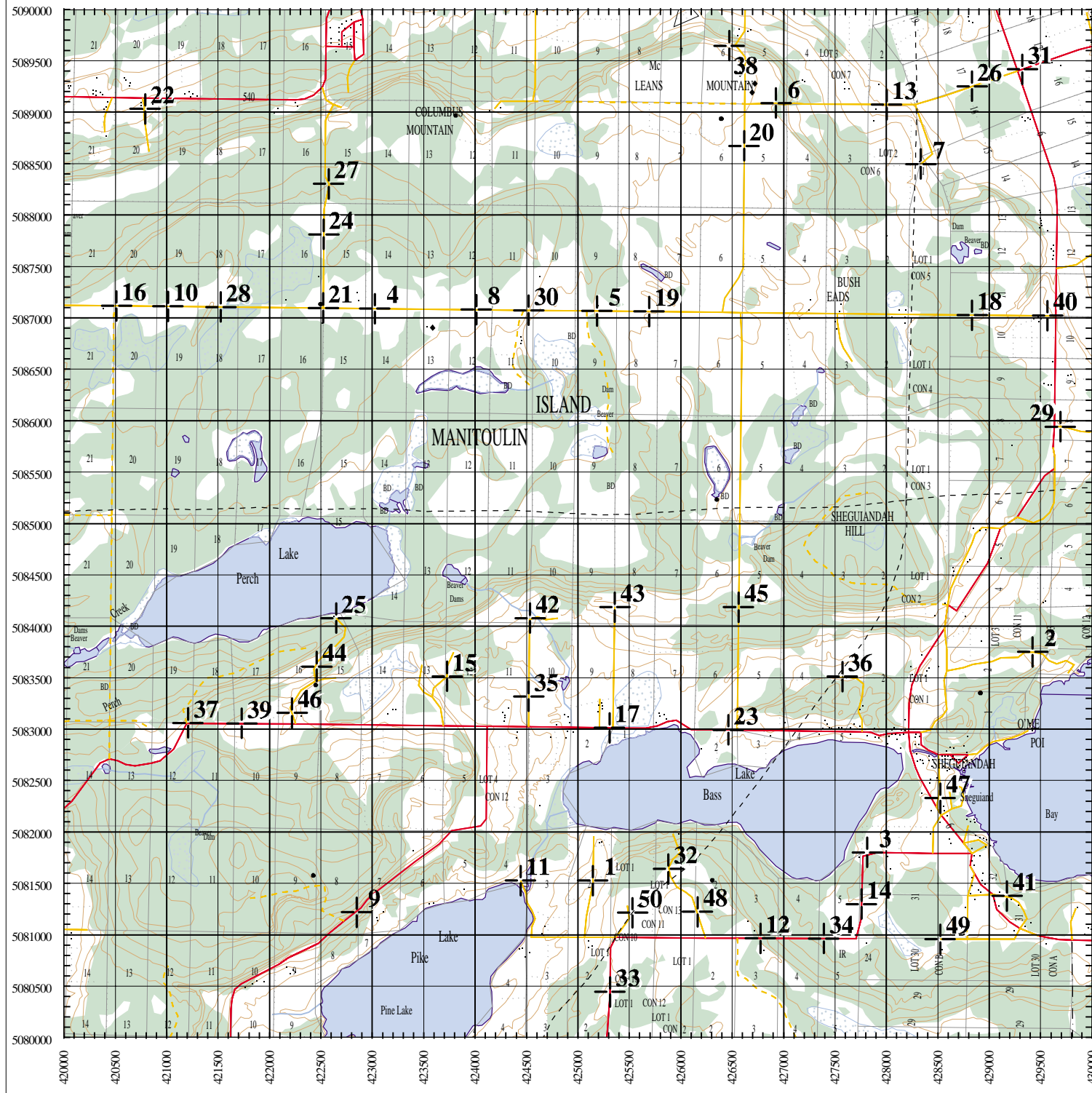
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 Some features on the Breeding Bird Atlas field maps may not have been updated since the early 1980's.

Atlas Square: 17ML28
Region: 33

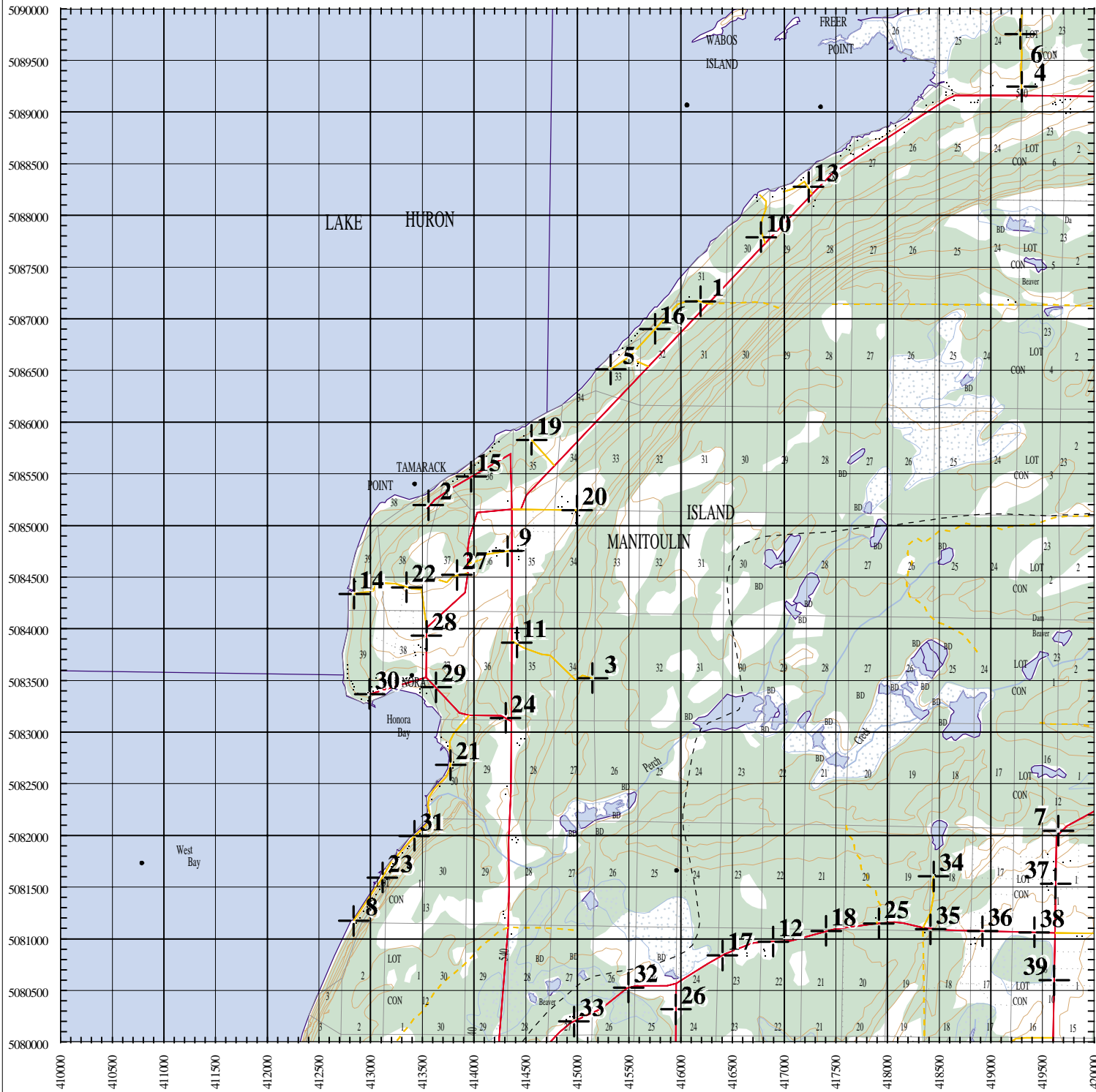
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Ontario Breeding Bird Atlas 2001 - 2005



Roadside Point Count Coordinates

No.	Easting	Northing
01	416189	5087169
02	413559	5085197
03	415146	5083523
04	419300	5089245
05	415323	5086510
06	419285	5089755
07	419653	5082046
08	412837	5081173
09	414323	5084753
10	416777	5087790
11	414414	5083867
12	416894	5080973
13	417237	5088277
14	412840	5084337
15	413974	5085473
16	415751	5086902
17	416404	5080840
18	417407	5081077
19	414557	5085828
20	414997	5085146
21	413773	5082681
22	413349	5084401
23	413114	5081593
24	414306	5083138
25	417915	5081149
26	415953	5080318
27	413835	5084522
28	413541	5083932
29	413632	5083435
30	412989	5083368
31	413423	5081996
32	415495	5080527
33	414968	5080200
34	418447	5081603
35	418416	5081093
36	418919	5081075
37	419626	5081534
38	419419	5081064
39	419611	5080599
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41	0	0
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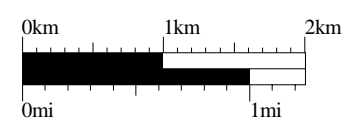
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- Water Bodies
- Water Area
- Water Bodies Wetland Area
- Wetlands
- ANSI
- Pits and Quarries
- Parks and Reserves
- Public Road
- Private Road
- Track
- Trail
- Railway
- Contour Lines
- Lots
- Roadside Point Count Locations
- Fences
- Wall
- Hedge
- Feature Outline
- Race Track
- Building Points
- Building Polygons
- Airports
- Petroleum Tank
- Water Tank
- Survey Monuments
- Smoke Stack
- Towers
- Named Places
- Pipelines
- Transmission Line

North American Datum 1983
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 Zone 17, Central Meridian 81 degrees W.
 Grid Interval 1000 meters
 Contour Interval 10 meters
 Some features on the Breeding Bird Atlas field maps may not have been updated since the early 1980's.

Atlas Square: 17ML18
Region: 33

(NAD27 - 17MA18)



Ontario
 Breeding
 Bird Atlas



































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Ontario Breeding Bird Atlas 2001 - 2005

Roadside Point Count Coordinates

No.	Easting	Northing
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02	429800	5093632
03	423970	5092165
04	422394	5091158
05	422805	5090871
06	429286	5092425
07	424491	5092165
08	427376	5092905
09	428586	5092806
10	425013	5092162
11	425516	5092151
12	426021	5092146
13	422663	5090392
14	429185	5093282
15	428043	5092847
16	427781	5092151
17	428920	5091812
18	428532	5092302
19	426540	5092141
20	427254	5092372
21	427339	5091876
22	428221	5091899
23	427502	5091404
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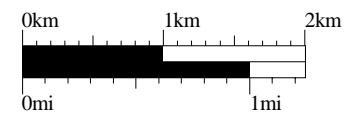
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-  Water Area
-  Water Bodies Wetland Area
-  Wetlands
-  ANSI
-  Pits and Quarries
-  Parks and Reserves
-  Public Road
-  Private Road
-  Track
-  Trail
-  Railway
-  Contour Lines
-  Lots
-  Roadside Point Count Locations
-  Fences
-  Wall
-  Hedge
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-  Race Track
-  Building Points
-  Building Polygons
-  Airports
-  Petroleum Tank
-  Water Tank
-  Survey Monuments
-  Smoke Stack
-  Towers
-  Named Places
-  Pipelines
-  Transmission Line

North American Datum 1983
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 Some features on the Breeding Bird Atlas field maps may not have been updated since the early 1980's.

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Region: 33

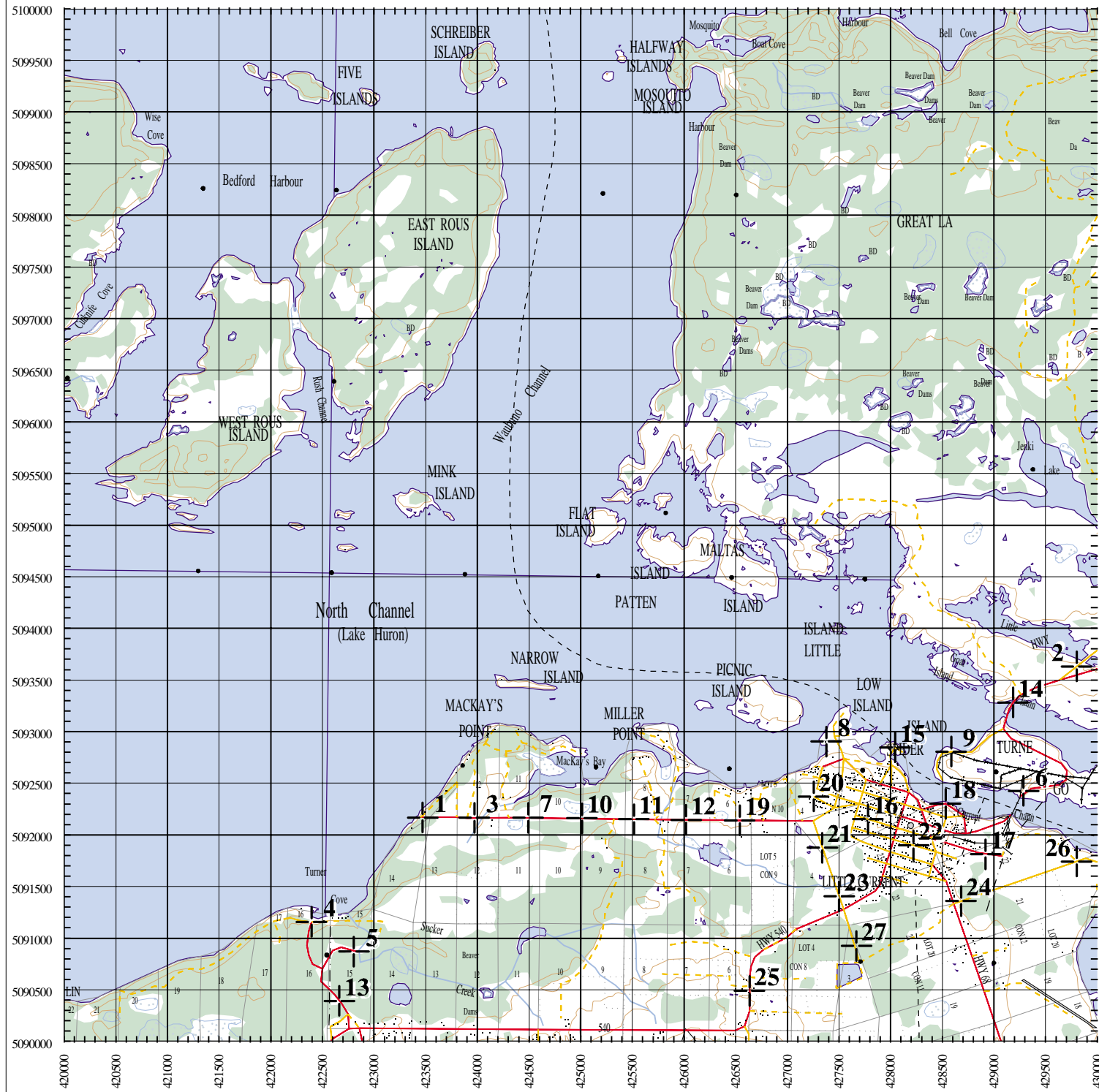
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APPENDIX B

GIS Data Layer Summary



Table B1: GIS Data Layer Information

Title of Data Set	Data Layers	Vintage of Data or Date Info/Searched/Collected	Ownership of Information
Roads		Collected 2007	DMTI Spatial
Lots		Collected 2010	Ministry of Natural Resources (Land Information Ontario)
Waterbody		Collected 2010	Ministry of Natural Resources (Land Information Ontario)
Watercourse		Collected 2010	Ministry of Natural Resources (Land Information Ontario)
Woodland		Collected 2010	Ministry of Natural Resources (Land Information Ontario)
Wetlands		Collected 2010	Ministry of Natural Resources (Land Information Ontario)
ANSI	Sheguiandah Hill, Sheguiandah Quartzite Quarry, Base Lake Marsh/Swamp	Collected 2009	Ministry of Natural Resources (Land Information Ontario)
Wildlife Habitat	Osprey Nesting Site, Sandhill Crane Nesting Site, Unknown Large Stick Nest	Collected 2009	Ministry of Natural Resources (Land Information Ontario)
Manitoulin Island North Shore IBA		Accessed online 2009	BirdLife International

APPENDIX C

Species



APPENDIX C

C1: Species List



Table C1: Plant Species Identified as Potentially Occurring in the General Area of the Project Location

Scientific Name	Common Name	Conservation Status					Information Source
		National	Provincial		Coefficient of Conservation	Coefficient of Wetness	
		SARA ¹	ESA, 2007 ²	SRank ³			
PLANTS							
<i>Solidago houghtonii</i>	Houghton's goldenrod	SC	THR	S2	10	-5	•
<i>Agalinis gattingeri</i>	Gattinger's agalinis	END	END	S1	10	-3	•
<i>Asplenium ruta-muraria</i>	Wallrue spleenwort*	NAR	NAR	S2	10	5	•
<i>Peltandra virginica</i>	Green Arrow-arum*	NAR	NAR	S2	9	-5	•
<i>Cyperus houghtonii</i>	Houghton's flat sedge*	NAR	NAR	S3?	8	5	•
<i>Liatris cylindracea</i>	Slender blazing star*	NAR	NAR	S3	10	5	•
<i>Linum sulcatum</i>	Grooved yellow flax*	NAR	NAR	S3	9	5	•
<i>Orobanche fasciculata</i>	Clustered broomrape*	NAR	NAR	S1	10	5	•
<i>Sporobolous heterolepis</i>	Prairie dropseed*	NAR	NAR	S2	10	4	•
MOSES AND LIVERWORTS							
<i>Hypnum recurvatum</i>	A Moss*	---	---	S1	---	---	•

¹Species at Risk Act; ²Endangered Species Act; ³SRank Code (see below); ⁴MNR NHIC Database. For all codes, please see **Appendix C2**.

• denotes occurrence record; --- denotes no information, no status or not applicable; *denotes species of conservation concern

Table C2: Wildlife Species Identified as Potentially Occurring in the General Area of the Project Location

Scientific Name	Common Name	Conservation Status					Information Source								
		National		Provincial		Regional		NHIC ⁶	OBBA ⁷ Square # 17ML18	OBBA ⁷ Square # 17ML28	OBBA ⁷ Square # 17ML29	CBC ⁸	Ontario Mammal Atlas ⁹	Herpetofaunal Atlas ¹⁰	Odonata Atlas ¹¹
		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴	Municipal ⁵								
BIRDS															
<i>Branta canadensis</i>	Canada goose	-	-	S5B, SZN	-	-		•		•	•				
<i>Aix sponsa</i>	Wood duck	-	-	S5B, SZN	-	Yes		•	•	•	•				
<i>Anas strepera</i>	Gadwall	-	-	S4B, SZN	-	Yes			•	•					
<i>Anas americana</i>	American wigeon	-	-	S4B, SZN	-	Yes			•	•					
<i>Anas rubripes</i>	American black duck	-	-	S5B, SZN	-	Yes			•	•	•				
<i>Anas platyrhynchos</i>	Mallard	-	-	S5B, SZN	-	-		•	•	•	•				
<i>Anas discors</i>	Blue-winged teal	-	-	S5B, SZN	-	Yes		•	•	•					
<i>Anas clypeata</i>	Northern shoveler	-	-	S4B, SZN	-	-			•	•					
<i>Anas acuta</i>	Northern pintail	-	-	S5B, SZN	-	Yes			•						
<i>Anas crecca</i>	Green-winged teal	-	-	S4B, SZN	-	-				•					
<i>Aythya americana</i>	Redhead	-	-	S2B, SZN	-	-				•					
<i>Aythya collaris</i>	Ring-necked duck	-	-	S5B, SZN	-	Yes			•	•					
<i>Aythya affinis</i>	Lesser scaup	-	-	S4B, SZN	-	Yes			•	•	•				
<i>Clangula hyemalis</i>	Long-tailed duck*	-	-	S2S3B, SZN	-	-					•				
<i>Bucephala albeola</i>	Bufflehead	-	-	S4	-	-					•				
<i>Bucephala clanula</i>	Common goldeneye	-	-	S5B, SZN	-	Yes		•		•	•				
<i>Lophodytes cucullatus</i>	Hooded merganser	-	-	S5B, SZN	-	Yes		•	•	•	•				

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		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴	Municipal ⁵								
<i>Mergus merganser</i>	Common merganser	-		-	S5B, SZN	-	-			•	•	•			
<i>Mergus serrator</i>	Red-breasted merganser	-		-	S4B, SZN	-	-				•	•			
<i>Bonasa umbellus</i>	Ruffed grouse	-		-	S5	-	Yes			•	•	•			
<i>Tympanuchus phasianellus</i>	Sharp-tailed grouse	-		-	S4	-	Yes					•			
<i>Phasianus colchicus</i>	Ring-necked pheasant	-		-	SE	-	-					•			
<i>Gavia immer</i>	Common Loon	-		-	S4B, SZN	-	Yes		•	•		•			
<i>Podilymbus podiceps</i>	Pied-billed grebe	-		-	S4B, SZN	-	Yes			•		•			
<i>Podiceps auritus</i>	Horned grebe*	-		-	S1B, SZN	-	-					•			
<i>Podiceps grisegena</i>	Red-necked grebe*	-		-	S3B, SZN	-	-	•		•		•			
<i>Phalacrocorax auritus</i>	Double-crested cormorant	-		-	S4B, SZN	-	-					•			
<i>Botaurus lentiginosus</i>	American bittern	-		-	S4B, SZN	-	Yes		•	•	•				
<i>Ixobrychus exilis</i>	Least bittern	THR		THR	S3B, SZN	-	Yes			•					
<i>Ardea herodias</i>	Great blue heron	-		-	S5B, SZN	-	-		•	•					
<i>Butorides virescens</i>	Green heron	-		-	S4B, SZN	-	-		•	•					
<i>Cathartes aura</i>	Turkey vulture	-		-	S4B, SZN	-	Yes			•	•				

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		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴	Municipal ⁵									
<i>Pandion haliaetus</i>	Osprey	-		-	S4B, SZN	-	Yes		•	•	•					
<i>Circus cyaneus</i>	Northern harrier	-		-	S4B, SZN	Yes	-		•	•	•	•				
<i>Haliaeetus leucocephalus</i>	Bald eagle*	-		SC	S4B, SZN	Yes	Yes				•	•				
<i>Accipiter cooperii</i>	Cooper's hawk	-		-	S4B, SZN	-	Yes					•				
<i>Accipiter gentilis</i>	Northern goshawk	-		-	S4	-	Yes					•				
<i>Buteo platypterus</i>	Broad-winged hawk	-		-	S5B, SZN	-	Yes		•	•						
<i>Buteo lineatus</i>	Red-shouldered hawk		SC	-	S4B, SZN	-	Yes	•								
<i>Buteo jamaicensis</i>	Red-tailed hawk	-		-	S5B, SZN	-	-			•		•				
<i>Buteo lagopus</i>	Rough-legged hawk*	-		-	S1B, SZN	-	-					•				
<i>Falco sparverius</i>	American kestrel	-		-	S5B, SZN	Yes	Yes		•	•	•	•				
<i>Falco rusticolus</i>	Gyrfalcon	-		-	SNA	-	-					•				
<i>Rallus limicola</i>	Virginia rail	-		-	S4B, SZN	-	Yes			•						
<i>Porzana carolina</i>	Sora	-		-	S4B, SZN	-	Yes			•						
<i>Fulica americana</i>	American coot	-		-	S4B, SZN	-	Yes			•						
<i>Grus canadensis</i>	Sandhill crane	-		-	S4B, SZN	-	Yes		•							
<i>Charadrius vociferus</i>	Killdeer	-		-	S5B, SZN	-	-		•	•						
<i>Actitis macularia</i>	Spotted sandpiper	-		-	S5B, SZN	-	Yes		•	•						
<i>Bartramia longicauda</i>	Upland sandpiper	-		-	S4B, SZN	-	Yes			•						

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		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴	Municipal ⁵									
<i>Gallinago gallinago</i>	Common snipe	-		-	S5B, SZN	-	Yes		•	•						
<i>Scolopax minor</i>	American woodcock	-		-	S5B, SZN	-	Yes			•						
<i>Larus delawarensis</i>	Ring-billed gull	-		-	S5B, SZN	-	-		•		•	•				
<i>Larus argentatus</i>	Herring gull	-		-	S5B, SZN	-	-		•		•	•				
<i>Larus hyperboreus</i>	Glaucous gull	-		-	S4N	-	-					•				
<i>Larus marinus</i>	Great black-backed gull*	-		-	S2B, SZN	-	-					•				
<i>Sterna caspia</i>	Caspian tern*	-		-	S3B, SZN	-	-		•		•					
<i>Sterna hirundo</i>	Common tern	-		-	S4B, SZN	-	Yes		•		•					
<i>Chlidonias niger</i>	Black tern*	-		SC	S3B, SZN	-	Yes	•		•						
<i>Columba livia</i>	Rock Pigeon	-		-	SE	-	-		•			•				
<i>Zenaida macroura</i>	Mourning dove	-		-	S5B, SZN	-	-		•	•	•	•				
<i>Coccyzus erythrophthalmus</i>	Black-billed cuckoo	-		-	S4B, SZN	Yes	Yes		•	•	•					
<i>Bubo virginianus</i>	Great horned owl	-		-	S5	-	-		•			•				
<i>Strix varia</i>	Barred owl	-		-	S4S5	-	Yes		•	•		•				
<i>Asio flammeus</i>	Short-eared owl*	SC		SC	S3S4B, SZN	Yes	Yes				•					
<i>Aegolius acadicus</i>	Northern saw-whet owl	-		-	S4B, SZN	-	Yes		•	•						
<i>Surnia ulula</i>	Northern hawk owl	-		-	S4	-	-					•				

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		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴	Municipal ⁵									
<i>Chordeiles minor</i>	Common nighthawk*	THR		SC	S4B, SZN	-	Yes		•							
<i>Caprimulgus vociferus</i>	Whip-poor-will	THR (no schedule)		THR	S4B, SZN	Yes	Yes			•						
<i>Chaetura pelagica</i>	Chimney swift	THR		THR	S5B, SZN	Yes	-			•	•					
<i>Archilochus colubris</i>	Ruby-throated hummingbird	-		-	S5B, SZN	-	Yes		•	•	•					
<i>Ceryle alcyon</i>	Belted kingfisher	-		-	S5B, SZN	Yes	-			•						
<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker*	THR		SC	S3B, SZN	Yes	Yes			•						
<i>Melanerpes carolinus</i>	Red-bellied woodpecker	-		-	S4	-	Yes					•				
<i>Sphyrapicus varius</i>	Yellow-bellied sapsucker	-		-	S5B, SZN	-	Yes		•	•	•					
<i>Picoides pubescens</i>	Downy woodpecker	-		-	S5	-	-		•	•		•				
<i>Picoides villosus</i>	Hairy woodpecker	-		-	S5	-	-		•	•	•	•				
<i>Colaptes auratus</i>	Northern flicker	-		-	S5B, SZN	Yes	-		•	•	•					
<i>Dryocopus pileatus</i>	Pileated woodpecker	-		-	S4S5	-	Yes			•		•				
<i>Contopus cooperi</i>	Olive-sided flycatcher*	THR		SC	S5B, SZN	-	Yes			•						
<i>Contopus virens</i>	Eastern wood-	-		-	S5B, SZN	Yes	-		•	•						

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	pewee														
<i>Empidonax alnorum</i>	Alder flycatcher	-		-	S5B, SZN	-	Yes		•	•	•				
<i>Empidonax traillii</i>	Willow flycatcher	-		-	S5B, SZN	Yes	-				•				
<i>Empidonax minimus</i>	Least flycatcher	-		-	S5B, SZN	-	-		•	•					
<i>Sayornis phoebe</i>	Eastern phoebe	-		-	S5B, SZN	-	Yes		•	•					
<i>Myiarchus crinitus</i>	Great crested flycatcher	-		-	S5B, SZN	-	-		•	•	•				
<i>Tyrannus tyrannus</i>	Eastern kingbird	-		-	S5B, SZN	Yes	Yes		•	•	•				
<i>Lanius ludovicianus</i>	Loggerhead shrike	END		END	S2B, SZN	-	Yes								
<i>Lanius excubitor</i>	Northern shrike*	-		-	S2S3B, SZN	-	-					•			
<i>Vireo gilvus</i>	Warbling vireo	-		-	S5B, SZN	-	-			•	•				
<i>Vireo olivaceus</i>	Red-eyed vireo	-		-	S5B, SZN	-	-		•	•	•				
<i>Cyanocitta cristata</i>	Blue jay	-		-	S5	-	-		•	•	•	•			
<i>Corvus brachyrhynchos</i>	American crow	-		-	S5B, SZN	-	-		•	•	•	•			
<i>Corvus corax</i>	Common raven	-		-	S5	-	Yes		•	•	•	•			
<i>Eremophila alpestris</i>	Horned lark	-		-	S5B, SZN	-	Yes					•			
<i>Progne subis</i>	Purple martin	-		-	S4B, SZN	-	-			•					
<i>Tachycineta bicolor</i>	Tree swallow	-		-	S5B, SZN	-	-		•	•	•				

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		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴	Municipal ⁵									
<i>Stelgidopteryx serripennis</i>	Northern rough- winged swallow	-		-	S5B, SZN	-	Yes			•						
<i>Riparia riparia</i>	Bank swallow	-		-	S5B, SZN	Yes	Yes			•						
<i>Petrochelidon pyrrhonota</i>	Cliff swallow	-		-	S5B, SZN	-	Yes			•	•					
<i>Hirundo rustica</i>	Barn swallow	-		-	S5B, SZN	-	Yes		•	•	•					
<i>Poecile atricapillus</i>	Black-capped chickadee	-		-	S5	-	Yes		•	•	•	•				
<i>Sitta canadensis</i>	Red-breasted nuthatch	-		-	S5B, SZN	-	Yes			•		•				
<i>Sitta carolinensis</i>	White-breasted nuthatch	-		-	S5	-	-		•	•	•	•				
<i>Certhia americana</i>	Brown creeper	-		-	S5B, SZN	-	Yes			•		•				
<i>Regulus satrapa</i>	Golden-crowned kinglet	-		-	S5B, SZN	-	Yes					•				
<i>Troglodytes aedon</i>	House wren	-		-	S5B, SZN	-	-			•	•					
<i>Troglodytes troglodytes</i>	Winter wren	-		-	S5B, SZN	-	Yes		•		•					
<i>Cistothorus palustris</i>	Marsh wren	-		-	S5B, SZN	-	Yes			•						
<i>Cistothorus platensis</i>	Sedge wren	-		-	S4B, SZN	-	Yes		•							
<i>Sialia sialis</i>	Eastern bluebird	-		-	S4S5B, SZN	-	Yes		•	•						
<i>Catharus</i>	Veery	-		-	S4B, SZN	-	Yes		•	•	•					

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<i>fuscenscens</i>																
<i>Catharus ustulatus</i>	Swainson's thrush	-	-	S5B, SZN	-	-		•		•						
<i>Catharus guttatus</i>	Hermit thrush	-	-	S5B, SZN	-	Yes		•	•							
<i>Turdus migratorius</i>	American robin	-	-	S5B, SZN	-	-		•	•	•	•					
<i>Dumetella carolinensis</i>	Gray catbird	-	-	S5B, SZN	-	-		•	•	•						
<i>Mimus polyglottos</i>	Northern mockingbird	-	-	S4B, SZN	-	Yes			•							
<i>Toxostoma rufum</i>	Brown thrasher	-	-	S5B, SZN	Yes	Yes			•	•						
<i>Sturnus vulgaris</i>	European starling	-	-	SE	-	-		•	•	•	•					
<i>Anthus rubescens</i>	American pipit	-	-	S4B, SZN	-	-										
<i>Bombycilla garrulus</i>	Bohemian waxwing	-	-	SNA	-	-						•				
<i>Bombycilla cedrorum</i>	Cedar waxwing	-	-	S5B, SZN	-	-		•	•	•	•					
<i>Vermivora ruficapilla</i>	Nashville warbler	-	-	S5B, SZN	-	Yes		•	•							
<i>Dendroica petechia</i>	Yellow warbler	-	-	S5B, SZN	-	-		•	•	•						
<i>Dendroica pensylvanica</i>	Chestnut-sided warbler	-	-	S5B, SZN	-	Yes		•	•	•						
<i>Dendroica magnolia</i>	Magnolia warbler	-	-	S5B, SZN	-	Yes		•	•	•						
<i>Dendroica</i>	Black-throated	-	-	S5B, SZN	-	Yes			•							

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<i>caerulescens</i>	blue warbler														
<i>Dendroica coronata</i>	Yellow-rumped warbler	-		-	S5B, SZN	-	Yes	•	•	•					
<i>Dendroica virens</i>	Black-throated green warbler	-		-	S5B, SZN	-	Yes	•							
<i>Dendroica fusca</i>	Blackburnian warbler	-		-	S5B, SZN	-	Yes	•	•						
<i>Dendroica castanea</i>	Bay-breasted warbler	-		-	S5B, SZN	-	Yes		•						
<i>Mniotilta varia</i>	Black-and-white warbler	-		-	S5B, SZN	-	Yes	•	•	•					
<i>Setophaga ruticilla</i>	American redstart	-		-	S5B, SZN	-	Yes	•	•	•					
<i>Seiurus aurocapillus</i>	Ovenbird	-		-	S5B, SZN	-	Yes								
<i>Seiurus noveboracensis</i>	Northern waterthrush	-		-	S5B, SZN	-	Yes		•	•					
<i>Oporornis philadelphia</i>	Mourning warbler	-		-	S5B, SZN	-	Yes	•	•	•					
<i>Geothlypis trichas</i>	Common yellowthroat	-		-	S5B, SZN	-	-	•	•	•					
<i>Wilsonia canadensis</i>	Canada warbler*	THR		SC	S5B, SZN	Yes	Yes		•						
<i>Spizella passerina</i>	Chipping sparrow	-		-	S5B, SZN	-	-	•	•	•					
<i>Spizella arborea</i>	American tree	-		-	S5B, SZN	-	-				•				

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		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴	Municipal ⁵								
	sparrow														
<i>Pooecetes gramineus</i>	Vesper sparrow	-	-	S4B, SZN	Yes	Yes		•	•	•					
<i>Passerculus sandwichensis</i>	Savannah sparrow	-	-	S5B, SZN	Yes	Yes		•	•	•					
<i>Melospiza melodia</i>	Song sparrow	-	-	S5B, SZN	-	-		•	•	•					
<i>Melospiza georgiana</i>	Swamp sparrow	-	-	S5B, SZN	-	Yes		•	•	•					
<i>Zonotrichia albicollis</i>	White-throated sparrow	-	-	S5B, SZN	-	Yes		•	•	•	•				
<i>Junco hyemalis</i>	Dark-eyed junco	-	-	S5B, SZN	-	Yes					•				
<i>Calcarius lapponicus</i>	Lapland longspur*	-	-	S3B	-	-					•				
<i>Plectrophenax nivalis</i>	Snow bunting			SNA	-	-					•				
<i>Piranga olivacea</i>	Scarlet tanager	-	-	S5B, SZN	-	Yes		•							
<i>Cardinalis cardinalis</i>	Northern cardinal	-	-	S5	-	-					•				
<i>Pheucticus ludovicianus</i>	Rose-breasted grosbeak	-	-	S5B, SZN	Yes	-		•	•	•					
<i>Passerina cyanea</i>	Indigo bunting	-	-	S5B, SZN	-	-		•	•						
<i>Dolichonyx oryzivorus</i>	Bobolink	THR (no schedule)	THR	S4B, SZN	Yes	Yes		•	•	•					

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		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴	Municipal ⁵								
<i>Agelaius phoeniceus</i>	Red-winged blackbird	-		-	S5B, SZN	-	-		•	•	•	•			
<i>Sturnella magna</i>	Eastern meadowlark	-		-	S5B, SZN	Yes	Yes		•	•	•				
<i>Euphagus carolinus</i>	Rusty blackbird	SC		-	S5B, SZN	-	Yes					•			
<i>Euphagus cyanocephalus</i>	Brewer's blackbird	-		-	S4B, SZN	-	-			•					
<i>Quiscalus quiscula</i>	Common grackle	-		-	S5B, SZN	-	-		•	•	•	•			
<i>Molothrus ater</i>	Brown-headed cowbird	-		-	S5B, SZN	-	-		•	•	•	•			
<i>Icterus galbula</i>	Baltimore oriole	-		-	S5B, SZN	Yes	-		•	•	•				
<i>Pinicola enucleator</i>	Pine grosbeak	-		-	S4B	-	-					•			
<i>Carpodacus purpureus</i>	Purple finch	-		-	S5B, SZN	-	-		•	•		•			
<i>Carpodacus mexicanus</i>	House finch	-		-	SE	-	-					•			
<i>Loxia leucoptera</i>	White-winged crossbill	-		-	S5B, SZN	-	Yes					•			
<i>Carduelis flammea</i>	Common redpoll	-		-	S4B, SZN	-	-					•			
<i>Carduelis pinus</i>	Pine siskin	-		-	S5B, SZN	-	-					•			
<i>Carduelis tristis</i>	American goldfinch	-		-	S5B, SZN	-	Yes		•	•		•			
<i>Coccothraustes</i>	Evening grosbeak	-		-	S5B, SZN	-	Yes					•			

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		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴	Municipal ⁵								
<i>vespertinus</i>															
<i>Passer domesticus</i>	House sparrow	-	-	SE	-	-		•	•		•				
MAMMALS															
<i>Sorex cinereus</i>	Common Shrew	-	-	S5	-	-							•		
<i>Sorex fumeus</i>	Smoky Shrew	-	-	S5	-	-							•		
<i>Sorex hoyi</i>	Pygmy Shrew	-	-	S4	-	-							•		
<i>Blarina brevicauda</i>	Northern Short-tailed Shrew	-	-	S5	-	-							•		
<i>Condylura cristata</i>	Star-nosed Mole	-	-	S5	-	-							•		
<i>Myotis lucifugus</i>	Little Brown Bat	-	-	S5	-	-							•		
<i>Myotis septentrionalis</i>	Northern Long-eared Bat*	-	-	S3	-	-							•		
<i>Lepus americanus</i>	Snowshoe Hare	-	-	S5	-	-							•		
<i>Tamias striatus</i>	Eastern Chipmunk	-	-	S5	-	-							•		
<i>Marmota monax</i>	Woodchuck	-	-	S5	-	-							•		
<i>Sciurus carolinensis</i>	Gray Squirrel	-	-	S5	-	-							•		
<i>Tamiasciurus hudsonicus</i>	Red Squirrel	-	-	S5	-	-							•		
<i>Glaucomys sabrinus</i>	Northern Flying Squirrel	-	-	S5	-	-							•		
<i>Castor canadensis</i>	Beaver	-	-	S5	-	-							•		
<i>Peromyscus maniculatus</i>	Deer Mouse	-	-	S5	-	-							•		

Scientific Name	Common Name	Conservation Status					Information Source								
		National		Provincial		Regional		NHIC ⁶	OBBA ⁷ Square # 17ML18	OBBA ⁷ Square # 17ML28	OBBA ⁷ Square # 17ML29	CBC ⁸	Ontario Mammal Atlas ⁹	Herpetofaunal Atlas ¹⁰	Odonata Atlas ¹¹
		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴	Municipal ⁵								
<i>Clethrionomys gapperi</i>	Southern Red-backed Vole	-		-	S5	-	-						•		
<i>Microtus pennsylvanicus</i>	Meadow Vole	-		-	S5	-	-						•		
<i>Ondatra zibethicus</i>	Muskrat	-		-	S5	-	-						•		
<i>Rattus norvegicus</i>	Norway Rat	-		-	SE	-	-						•		
<i>Mus musculus</i>	House Mouse	-		-	SE	-	-						•		
<i>Zapus hudsonius</i>	Meadow Jumping Mouse	-		-	S5	-	-						•		
<i>Erethizon dorsatum</i>	Porcupine	-		-	S5	-	-						•		
<i>Canis latrans</i>	Coyote	-		-	S5	-	-						•		
<i>Canis lupus</i>	Gray wolf	-		-	S4	-	-						•		
<i>Vulpes vulpes</i>	Red Fox	-		-	S5	-	-						•		
<i>Ursus americanus</i>	Black Bear	-		-	S5	-	-						•		
<i>Procyon lotor</i>	Raccoon	-		-	S5	-	-						•		
<i>Martes pennanti</i>	Marten	-		-	S5	-	-						•		
<i>Mustela erminea</i>	Ermine	-		-	S5	-	-						•		
<i>Mustela vison</i>	Mink	-		-	S5	-	-						•		
<i>Mephitis mephitis</i>	Striped Skunk	-		-	S5	-	-						•		
<i>Lontra canadensis</i>	River Otter	-		-	S5	-	-						•		
<i>Lynx canadensis</i>	Canada Lynx	-		-	S5	-	-						•		
<i>Lynx rufus</i>	Bobcat	-		-	S4	-	-						•		
<i>Odocoileus</i>	White-tailed Deer	-		-	S5	-	-						•		

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		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴	Municipal ⁵								
<i>virginianus</i>															
<i>Alces americanus</i>	Moose	-		-	S5	-	-						•		
HERPETOZOA															
<i>Necturus maculosus</i>	Common mudpuppy	-		-	S4	-	-								•
<i>Notophthalmus viridescens viridescens</i>	Red-spotted newt	-		-	S5	-	-								•
<i>Ambystoma laterale</i>	Blue-spotted salamander	-		-	S4	-	-								•
<i>Ambystoma jeffersonianum-laterale "complex"</i>	Jefferson-Blue-spotted salamander complex	-		-	-	-	-								•
<i>Ambystoma maculatum</i>	Spotted salamander	-		-	S4	-	-								•
<i>Hemidactylum scutatum</i>	Four-toed salamander	-		-	S4	-	-								•
<i>Plethodon cinereus</i>	Northern redback salamander	-		-	S5	-	-								•
<i>Bufo americanus</i>	American toad	-		-	S5	-	-								•
<i>Pseudacris crucifer</i>	Spring peeper	-		-	S5	-	-								•
<i>Hyla versicolor</i>	Gray treefrog	-		-	S5	-	-								•
<i>Rana sylvatica</i>	Wood frog	-		-	S5	-	-								•

Scientific Name	Common Name	Conservation Status					Information Source										
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		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴	Municipal ⁵										
<i>Rana pipiens</i>	Northern leopard frog	-	-	-	S5	-	-									•	
<i>Rana clamitans</i>	Green frog	-	-	-	S5	-	-									•	
<i>Rana catesbeiana</i>	Bull frog	-	-	-	S4	-	-									•	
<i>Chelydra serpentina</i>	Common snapping turtle*	SC (no schedule)		SC	S5	-	-									•	
<i>Chrysemys picta marginata</i>	Midland painted turtle	-	-	-	S5	-	-									•	
<i>Emydoidea blandingii</i>	Blanding's turtle	THR		THR	S3	-	-									•	
<i>Thamnophis sirtalis sirtalis</i>	Eastern garter snake	-	-	-	S5	-	-									•	
<i>Nerodia sipedon sipedon</i>	Northern water snake	-	-	-	S5	-	-									•	
<i>Storeria occipitomaculata occipitomaculata</i>	Northern Redbelly snake	-	-	-	S5	-	-									•	
<i>Storeria dekayi</i>	Brown snake	-	-	-	S5	-	-									•	
<i>Opheodrys vernalis</i>	Smooth green snake	-	-	-	S4	-	-									•	
<i>Diadophis punctatus edwardsi</i>	Northern ringneck snake	-	-	-	S4	-	-									•	

Scientific Name	Common Name	Conservation Status					Information Source								
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		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴	Municipal ⁵								
<i>Lampropeltis triangulum</i>	Eastern milk snake*	SC		SC	S3	-	-	•							•
<i>Sistrurus catenatus</i>	Eastern massasauga	THR		THR	S3	-	-	•							•
ODONATA															
<i>Calopteryx maculata</i>	Ebony jewelwing	-		-	S5	-	-								•
<i>Lestes disjunctus</i>	Common spreadwing	-		-	S5	-	-								•
<i>Lestes rectangularis</i>	Slender spreadwing	-		-	S5	-	-								•
<i>Enallagma carunculatum</i>	Tule bluet	-		-	S5	-	-								•
<i>Enallagma ebrium</i>	Marsh bluet	-		-	S5	-	-								•
<i>Enallagma hageni</i>	Hagen's bluet	-		-	S5	-	-								•
<i>Ischnura verticalis</i>	Eastern forktail	-		-	S5	-	-								•
<i>Nehalennia irene</i>	Sedge sprite	-		-	S5	-	-								•
<i>Aeshna canadensis</i>	Canada darner	-		-	S5	-	-								•
<i>Aeshna interrupta interrupta</i>	Variable (interrupted darner)	-		-	S5	-	-								•
<i>Aeshna umbrosa</i>	Shadow darner	-		-	S5	-	-								•
<i>Anax junius</i>	Common green darner	-		-	S5	-	-								•

Scientific Name	Common Name	Conservation Status					Information Source								
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		SARA ¹		ESA, 2007 ²	SRank ³	BCR 13 ⁴									Municipal ⁵
<i>Boyeria grafiana</i>	Ocellated darner	-		-	S4	-	-								•
<i>Ophiogomphus colubrinus</i>	Boreal snaketail	-		-	S4	-	-								•
<i>Macromia illinoensis</i>	Illinois River Cruiser	-		-	S4	-	-								•
<i>Somatochlora williamsoni</i>	Williamson's emerald	-		-	S4	-	-								•
<i>Celithemis elisa</i>	Calico pennant	-		-	S5	-	-								•
<i>Sympetrum obtrusum</i>	White-faced meadowhawk	-		-	S5	-	-								•

¹Species at Risk Act; ²Endangered Species Act; ³SRank Code (see below); ⁴Partners in Flight (2008); ⁵Municipal Priority Species; ⁶MNR NHIC Database; ⁷Ontario Breeding Bird Atlas; ⁸Christmas Bird Count; ⁹Dobbyn. (1994); ¹⁰Oldham and Weller(2000); ¹¹Ontario Odonata Atlas. For all codes, please see **Appendix C2**.

• denotes occurrence record and/or project location includes species range; - denotes no information, no status or not applicable; *denotes species of conservation concern

APPENDIX C

C2: Conservation Status Codes



Overview of Codes for the Conservation Status of Species

Federal Conservation Status

Federal Status: Status assigned by the Committee on the Status of Endangered Wildlife in Canada. (COSEWIC, 2007) and listed under the *Species at Risk Act*

- EXT Extinct. A wildlife species that no longer exists.
- EXP Extirpated. A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
- END Endangered. A wildlife species facing imminent extirpation or extinction.
- THR Threatened. A wildlife species likely to become endangered if limiting factors are not reversed.
- SC Special Concern. A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
- DD Data Deficient - A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.
- NAR Not At Risk. A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

Provincial Conservation Status

Provincial Status: Status assigned by the Ontario Ministry of Natural Resources (OMNR, 2006) under the *Endangered Species Act, 2007*

- EXT Extinct. A species that no longer exists anywhere.
- EXP Extirpated. A species that no longer exists in the wild in Ontario but still occurs elsewhere.
- END Endangered. A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA.
- THR Threatened. A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
- SC Special Concern. A species with characteristics that make it sensitive to human activities or natural events.
- DD Data Deficient. A species for which there is insufficient information for a provincial status recommendation.
- NAR Not At Risk. A species that is currently not listed as risk.

Provincial (S) Rank

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (2007) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario. By comparing the global and provincial ranks, the status, rarity, and the urgency of conservation needs can be ascertained. The NHIC

evaluates provincial ranks on a continual basis and produces updated lists at least annually.

- S1 Extremely rare in Ontario; usually 5 or fewer occurrences in the province or very few remaining individuals; often especially vulnerable to extirpation.
- S2 Very rare in Ontario; usually between 5 and 20 occurrences in the province or with many individuals in fewer occurrences; often susceptible to extirpation.
- S3 Rare to uncommon in Ontario; usually between 20 & 100 occurrences in the province; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances. Most species with an S3 rank are assigned to the watch list, unless they have a relatively high global rank.
- S4 Common and apparently secure in Ontario; usually with more than 100 occurrences in the province.
- S5 Very common and demonstrably secure in Ontario.
- SH Historically known from Ontario, but not verified recently (typically not recorded in the province in the last 20 years); however suitable habitat is thought to be still present in the province and there is reasonable expectation that the species may be rediscovered.
- SR Reported for Ontario, but without persuasive documentation which would provide a basis for either accepting or rejecting the report.
- SRF Reported falsely from Ontario.
- SX Apparently extirpated from Ontario, with little likelihood of rediscovery. Typically not seen in the province for many decades, despite searches at known historic sites.
- SE Exotic; not believed to be a native component of Ontario's flora.
- S? Not Ranked Yet, or if following a ranking, Rank Uncertain (e.g. S3?). S? Species have not had a rank assigned.
- SU Unrankable, often because of low search effort or cryptic nature of the species, there is insufficient information available to assign a more accurate rank; more data is needed.

Coefficient of Conservatism (CC) Definition (Plants)

Each native taxon was assigned a rank of 0 to 10 ("coefficient of conservatism") based on its degree of fidelity to a range of synecological parameters. Plants found in a wide variety of plant communities, including disturbed sites, were assigned ranks of 0 to 3. Taxa that typically are associated with a specific plant community, but tolerate moderate disturbance, were assigned ranks of 4 to 6. Rankings of 7 to 8 were applied to those taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance. Those plants with high degrees of fidelity to a narrow range of synecological parameters were assigned a value of 9 to 10

Wetness Index (CW) (Plants)

The wetness index gives an indication of where plant species are typically found. A wetness value (coefficient of wetness) between -5 and 5. A value of -5 was assigned to

Obligate Wetland (OBL) species and a value of 5 to Obligate Upland species (UPL), with intermediate values assigned to the remaining categories. The wetland categories and their corresponding values are as follows:

These categories are defined as follows:

OBL	-5	OBL Wetland	Obligate Wetland	Occurs almost always in wetlands under natural conditions (estimated > 99% probability).
FACW+	-4	FACW	Facultative Wetland	Usually occurs in wetlands, but occasionally found in non-wetlands (estimated 67-99% probability).
FACW	-3			
FACW-	-2			
FAC +	-1	FAC	Facultative	Equally likely to occur in wetlands or non-wetlands (estimated 34-66% probability).
FAC 0				
FAC-	1			
FACU+	2	FACU	Facultative Upland	Occasionally occurs in wetlands, but usually occurs in non-wetlands (estimated 1-33 % probability).
FACU	3			
FACU-	4			
UPL	5	UPL	Obligate Upland	Occurs almost never in wetlands under natural conditions (estimated <1 % probability).