



APPENDIX A

Natural Environment Existing Conditions Report



December 17, 2015

NATURAL ENVIRONMENT EXISTING CONDITIONS REPORT

Municipal Class Environmental Assessment for Shoreline Protection along Sarnia Bay Harbour Front - Natural Environment Existing Conditions Report

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REPORT

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MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR SHORELINE PROTECTION ALONG SARNIA BAY HARBOUR FRONT - NATURAL ENVIRONMENT EXISTING CONDITIONS REPORT

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1.0 INTRODUCTION/BACKGROUND

On-going remedial activities are occurring to address historical contaminants in fill used to construct Centennial Park (the Park), which opened in 1967. The proposed solution (i.e., the placement of a clean soil cap at the Park) to contain contaminants requires an overall increase in site grading by approximately 0.5 metres, which necessitates the installation of shoreline protection at the Park's southern waterfront along Sarnia Bay. The waterfront works will also include removal of the existing boat ramps and installation of new ramps closer to the Sarnia Bay Marina.

The purpose of this report is to document the natural environment existing conditions by way of an existing information review and supplement with field investigations where data gaps exist. The natural environment study area has been defined as the area within 30 metres of the Sarnia Bay waters edge as shown on **Figure 1**. This investigation was limited to the assessment of natural features within the study area, with a primary focus on the aquatic community as it was determined to have the most potential for impact by shoreline development. Although potential impacts to terrestrial components (i.e., plant communities, breeding birds) within the study area were anticipated to be minimal, compliance with regulatory requirements (i.e., Provincial Policy Statement, *Endangered Species Act*) necessitated a limited review of these components and therefore been included herein.

2.0 METHODOLOGY

2.1 Background Information Review

Pertinent information on the natural environment features within the study area was obtained through a review of existing materials (as available) solicited from the following sources:

- Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) species and natural area database;
- MNRF Make-a-Map: Natural Heritage Areas Application Website¹ (MNRF, 2014);
- Consultation with MNRF Aylmer District Office Biologists to confirm the list of Species at Risk (SAR) that could potentially occur within the study area;
- information (including any watershed studies and wetland mapping) and mapping available through St. Clair Region Conservation Authority (SCRCA);
- Royal Ontario Museum Range maps (ROM, 2010);
- Ontario Breeding Birds Atlas Website² (BSC, et. al, 2006);
- Ontario Odonata Atlas (NHIC, 2005);
- Bat Conservation International (BCI) range maps (BCI 2013);

¹ <http://www.gisecoeapp.lrc.gov.on.ca/web/MNR/NHLUPS/NaturalHeritage/Viewer/Viewer.html>

²² <http://www.birdsontario.org/atlas/datasummaries.jsp>



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- Atlas of the Mammals of Ontario (Dobbyn, 1994);
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2015);
- City of Sarnia Official Plan (2014);
- Natural heritage related map layers from Ontario Base Map series, Natural Resource Values Information System (NRVIS) and Land Information Ontario (LIO); and
- Existing aerial imagery and mapping.

2.2 Field Investigations

The natural environment study area has been defined as the area within 30 metres of the Sarnia Bay Harbour-front water's edge (see **Figure 1**). Field investigations focused primarily on the assessment of fish and fish habitat within Sarnia Bay.

2.2.1 Fish Habitat Assessment

On June 29, 2015, Golder biologists conducted a detailed fish habitat assessment and recorded visual observations of the Sarnia Bay Harbour within the study area. Habitat characterization was completed from east to west along the shoreline and by the boat ramps since portions of the waterfront were fenced to prevent public access. During the survey habitat features were documented in order to identify factors that may influence fish community composition. These features included:

- in-stream cover;
- substrate composition;
- morphology;
- barriers to fish movement;
- canopy cover;
- aquatic vegetation; and
- riparian vegetation

These features were used to identify critical habitat within the study area such as spawning, nursery, feeding and migratory habitat. The identification of critical habitat is also necessary to inform the assessment of potential impacts of the Project on fish and fish habitat. In addition, the results of the field investigation were used to assist in the determination of whether or not the proposed works would result in serious harm to fish and require a *Fisheries Act Authorization*.

A photographic record of the study area was documented during the field survey and is appended as **Appendix A**.



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2.2.2 Fish Community Structure

Sufficient data on fish habitat and community composition was available through records through existing materials provided by SCRCA from 1986 to 2009 and collection of fish community data was not required or undertaken.

2.2.3 Plant Communities

Given the existing pre-disturbed environment beyond the study area and surrounding the Park, characterization and assessment of plant communities and other terrestrial features was limited to that required to address regulatory requirements (i.e., Provincial Policy Statement, *Endangered Species Act*).

Delineation of plant communities in the study area was completed using the Ecological Land Classification (ELC) system for Southern Ontario (Lee et. al. 1998) and confirmed by field documentation by Golder biologists on June 29, 2015.

2.2.4 Incidental Wildlife Observations

Incidental wildlife observations were noted by Golder biologists during the field investigations. As field investigations were conducted during the breeding bird season, any observed bird species were likely breeding in the vicinity.

2.3 Species at Risk Screening

Species at Risk (SAR) considered for this report include those species listed in the Endangered Species Act (ESA) in Ontario and the federal Species At Risk Act (SARA), as well as species ranked S1-S3 (NHIC) and regionally rare species. An assessment was conducted to determine which SAR had potential habitat in the study area. A screening of all SAR which have the potential to be found in the vicinity of the study area was conducted first as a desktop exercise, using the sources listed in **Section 2.1**. Species with ranges overlapping the study area, or recent occurrence records in the vicinity, were screened by comparing their habitat requirements to habitat conditions in the study area.

The potential for the species to occur was determined through a probability of occurrence. A ranking of low indicates no suitable habitat availability for that species in the study area and no specimens identified. Moderate probability indicates more potential for the species to occur, as suitable habitat appeared to be present in the study area, but no occurrence of the species has been recorded. High potential indicates a known species record in the study area (including during field surveys or background data review) and good quality habitat is present.

Searches for suitable habitats for SAR identified through the desktop screening were searched for, and signs of individuals were recorded. If the potential for the species to occur in the study area was moderate or high, the screening was refined based on data collected during field investigations (i.e., habitat assessment). Any habitat identified during ground-truthing or other field surveys with potential to provide suitable conditions for additional SAR not already identified through the desktop screening was also assessed and recorded.

Multiple information sources were reviewed, including those listed in **Section 2.1**. The MNRF NHIC species and natural area database was searched for rare species within 1 km of the study area using the *Make-a-Map Natural Heritage Areas Application* Tool (MNR, 2014). In addition, correspondence with the MNRF Aylmer District Office was initiated on May 28, 2015 to request additional information pertaining to natural heritage



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features and recent SAR records relevant to the study area. A second information request, incorporating the findings of the MNRF *Make-a-Map Natural Heritage Areas Application* (MNRF, 2014) was submitted to MNRF on June 5, 2015. A response was received on July 24, 2015 and included information related to SAR that have potential to occur within the study area.

Fisheries and Oceans Canada (DFO) SAR mapping for fish and freshwater mussel species was also downloaded and reviewed from Conservation Ontario's webpage³ for SCRCA region. In addition, correspondence with SCRCA staff was initiated on April 23, 2015 to request additional information pertaining to natural heritage features and recent SAR records relevant to the study area. A second request was made on June 12, 2015 and a response was received on June 15, 2015. Information in the response provided relevant fish community records for the study area and general vicinity. A habitat screening was completed for SAR identified through SAR screening requests to determine the likelihood of their occurrence within the study area.

3.0 EXISTING CONDITIONS

3.1 Fish Habitat

A photographic record was documented during the field survey and is provided as **Appendix A**. Field notes recorded during the fish habitat assessment are provided as **Appendix B**.

It was noted that Sarnia Bay Harbour within the study area was primarily a permanent open water system of uniform morphology. Habitat was generally consistent and non-limiting throughout. Substrates between the existing break wall at the eastern extent of the study area to the western extent of the study area near the Sarnia Bay Marina were predominantly sand with small areas of sparse gravel and cobble deposits near the eastern break wall, boat ramps and potential future location of the new boat ramps. Water depths ranged from 1.3 m at the eastern break wall to 2.1 m to 2.7 m near the existing boat ramp, and 2.8 m near the western extent of the study area near the Sarnia Bay Marina. Aquatic vegetation in the study area was limited to sparse Coontail (*Ceratophyllum demersum*) and Canadian waterweed (*Elodea canadensis*) in the vicinity of the boat ramps. In-stream cover was limited along the Harbour front to overhanging riparian vegetation at the eastern extent of the study area, as well as cover provided by cobble substrates noted above. Riparian vegetation consisted primarily of manicured lawns with a small meadow with species such as ash (*Fraxinus sp.*), willow (*Salix sp.*), poplar (*Populus sp.*), maple (*Acer sp.*), dogwood (*Cornus sp.*), phragmites (*Phragmites australis*), golden rod (*Solidago canadensis*), Canada thistle (*Cirsium arvense*) and terrestrial grasses at the eastern extent of the study area.

3.2 Fish Community Structure

Existing fish community records for the study area and general vicinity from 1986 to 2009 were provided by SCRCA and are documented in **Table 1**. Corresponding community survey locations are shown on **Figure 2**.

The fish community distribution historically documented within Sarnia Bay Harbour and general vicinity consists predominately of cool to coldwater species. Based on the fish community assemblage documented in **Table 1**, Sarnia Bay within the study area provides habitat to a fish community composed of generalist species that are generally widespread, in distribution (with two exceptions) and somewhat sensitive to environmental change. Of

³ http://www.dfo-mpo.gc.ca/Library/356763_StClairRegion_EN.pdf



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note, two species (Silver Lamprey and Spotted Sucker) identified within study area or general vicinity are listed as SAR with Special Concern Status both federally and provincially (**Section 3.5**).



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Table 1: Fish Species Community Composition within Sarnia Bay Harbour Study Area and General Vicinity (SCRCA 1986 to 2009)

Common Name	Scientific Name	Year Caught	Habitat Preference ^(a)	Thermal Regime ^(a)	Tolerance ^(a)
Alewife	<i>Alosa pseudoharengus</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	open, waters (16-28 m) to a depth of 50 m (summer) or 90 m (winter); preferred water temperature range 16-21°C, spawning months June – August	coldwater	<u>Intermediate</u> Intermediately tolerant of turbidity
Rock Bass	<i>Ambloplites rupestris</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	rocky or vegetated shallows of lakes and pools of creeks and small to medium rivers; preferred water temperature range 21-26°C; reported to depths of 21 m, spawning months May – June	coolwater	<u>Intermediate</u> intolerant of low dissolved oxygen (<3 mg/L) and siltation; moderately tolerant of turbidity; sensitive to low pH (<5.6)
Freshwater Drum	<i>Aplodinotus grunniens</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	sandy, silty bottoms of lakes and reservoirs (to 18 m), and pools in low to moderate-gradient, often turbid, rivers; preferred water temperature range 24-28°C, spawning months May – July	warmwater	<u>Tolerant</u> Tolerant of turbidity
White Sucker	<i>Catostomus commersonii</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	Pools and riffles of creeks and rivers, warm shallow lakes and embayments of larger lakes usually at depths of 6 – 9 m; preferred water temperature range 22 -26°C, spawning months April – June	warmwater	<u>Tolerant</u> tolerant of pollution, moderately tolerant of turbidity
Common Carp	<i>Cyprinus carpio</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	Pools of small to large low gradient rivers, lakes, reservoirs and ponds, with abundant aquatic vegetation, at depths of <30 m; preferred water temperature range 28-32°C, spawning months May – August	warmwater	<u>Intermediate</u> intolerant of turbidity, siltation and industrial pollution
Gizzard Shad	<i>Dorosoma cepedianum</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	open surface waters (<33 m) of medium to large rivers, lakes and impoundments over mud bottom; often ascends creeks and small rivers with well-developed pools; preferred water temperature range 19-23°C, spawning months June – July	coolwater	<u>Tolerant</u> Tolerant of high water temperatures (35°C), turbidity and a wide range of salinity (to 33.7 ppt)
Silver Lamprey (SC)	<i>Ichthyomyzon unicuspis</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	feeding adults found attached to other fish in large rivers, lakes and impoundments; ammocoetes inhabit sandy or muddy pools and backwaters, spawning months May – June	coolwater	<u>Intermediate</u>
Smallmouth Bass	<i>Micropterus dolomieu</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	clear, gravel-bottomed runs and flowing pools of small to large rivers and shallow (5-7 m), rocky and sandy areas of lakes; preferred water temperature range 20-27°C, spawning months May – June	coolwater	<u>Intermediate</u> Moderately tolerant of turbidity, sensitive to low pH (<6) and low dissolved oxygen
Largemouth Bass	<i>Micropterus salmoides</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	Clear, warm, shallow lakes, bays, ponds, marshes and backwaters and pools of creeks and small to large rivers, often with soft mud or sand substrate and dense aquatic vegetation; usually at depths <6 m; preferred water temperature range 20 – 24°C, spawning months May – June	warmwater	<u>Tolerant</u> tolerant of high water temperatures(36.5°C) and a wide range of pH (5 -10), intolerant to low DO, moderately tolerant to turbidity
Spotted Sucker (SC)	<i>Minytrema melanops</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay) 2009 (Sarnia Bay Marina)	nearshore of lakes and deep pools of creeks and small to medium rivers with firm sandy, gravelly or rocky substrates; preferred water temperature range 25-27°C, spawning months May – June	warmwater	<u>Intermediate</u> Intolerant of turbidity, siltation and industrial pollution



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Common Name	Scientific Name	Year Caught	Habitat Preference ^(a)	Thermal Regime ^(a)	Tolerance ^(a)
Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	pools, runs and riffles in small to large rivers with sand and gravel substrates, and lake shallows; preferred water temperature range 26-27.5°C, spawning months April – June	warmwater	<u>Intermediate</u> Intolerant of pollution and siltation, tolerant of high water temperatures (37°C), moderately intolerant of turbidity
Greater Redhorse	<i>Moxostoma valenciennesi</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	moderate to swift current riffles, runs and pools of medium to large rivers with clear water and substrates of gravel, cobble or boulders; lakes, spawning months May – June	warmwater	<u>Intolerant</u> Sensitive to turbidity, siltation and pollution
Round Goby	<i>Neogobius melanostomus</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay) 1993, 1996 (Sarnia Bay)	cobble, gravel and sandy substrates in the lower to middle reaches of rivers and nearshore of lakes (to 20 m); optimum water temperature range 23-26°C, spawning months May – July	coolwater	<u>Intermediate</u> Tolerant of low dissolved oxygen, turbidity and a wide range of water temperatures
Emerald Shiner	<i>Notropis atherinoides</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay) 1991 (north and east shore of Sarnia Bay)	pools and runs of medium to large rivers with sand or gravel substrates and open waters of lakes; preferred water temperature range 9-23°C, spawning months June – August	coolwater	<u>Intermediate</u> Tolerant of turbidity
Rainbow Smelt	<i>Osmerus mordax</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	cool, clear, mid-waters (14-64 m) of lakes and medium to large rivers; preferred water temperature range 7-16°C, spawning months March – April	coldwater	<u>Intermediate</u>
Yellow Perch	<i>Perca flavescens</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay) 1996 (Sarnia Bay)	lakes, ponds and pools of creeks and small to large rivers with moderate aquatic vegetation and clear water, usually at depths <9 m; preferred water temperature range 18-24°C, spawning months April – May	coolwater	<u>Intermediate</u> Tolerant of low dissolved oxygen, turbidity and salinity
Lake Trout	<i>Salvelinus namaycush</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	cold deeper waters (12-18m) of lakes, below the thermocline in summer; preferred water temperature range 9-13°C, spawning months September – November	coldwater	<u>Intolerant</u>
Rainbow Trout	<i>Oncorhynchus mykiss</i>	1991 (north and east shore of Sarnia Bay) 1996 (Sarnia Bay)	mid-waters of lakes; creeks and rivers with moderate flow, gravelly bottoms and riffle-pool habitat; preferred water temperature range 12-18°C, spawning months March – May	coldwater	<u>Intolerant</u>
Brown Trout	<i>Salmo trutta</i>	1996 (Sarnia Bay)	cool creeks and rivers with moderate flow, gravelly substrates and riffle-pool habitat, and lake shallows; preferred water temperature range 15-18°C, spawning months October – November	coldwater	<u>Intolerant</u>
Walleye	<i>Sander vitreus</i>	1999 (St. Clair River; along rock wall outside of Sarnia Bay)	lakes (at depths up to 21 m), and pools, backwaters and runs of medium to large rivers; preferred water temperature range 19-23°C, spawning months April – June	coolwater	<u>Intermediate</u> Moderately tolerant of turbidity
Threespine Stickleback	<i>Gasterosteus aculeatus</i>	1991 (north and east shore of Sarnia Bay) 1996 (Sarnia Bay)	shallow vegetated areas of creeks and rivers, protected bays of lakes with mud or sand bottom, and coastal marine/estuarine environments; preferred water temperature range 9-12°C, spawning months May – June	coolwater	<u>Intermediate</u> Moderately tolerant of turbidity



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Common Name	Scientific Name	Year Caught	Habitat Preference ^(a)	Thermal Regime ^(a)	Tolerance ^(a)
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	1991 (north and east shore of Sarnia Bay; west side of Sarnia Bay) 1986 (St. Clair River)	mid-waters (15-60 m) in or below the thermocline; preferred water temperature range 12-16°C, spawning months September – October	<i>coldwater</i>	<u>Intolerant</u>
Logperch	<i>Percina caprodes</i>	1991 (west side of Sarnia Bay)	sand, gravel or rocky beaches in lakes and over similar substrates in creeks and rivers, avoiding silted areas and swift currents; reported at depths up to 39 m in Lake Erie, spawning months May – June	warmwater	<u>Intolerant</u> Moderately tolerant of turbidity, sensitive to siltation, domestic pollution and industrial wastes

Note: (a) Habitat Preferences, thermal regime and relative tolerance as described in the Ontario Freshwater Fishes Life History Online Database www.ontariofishes.ca, accessed September 1, 2015.



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3.3 Terrestrial Environment

3.3.1 Designated Natural Areas

Based on the desktop review, there are no Areas of Natural and Scientific Interest (ANSIs), Environmentally Sensitive Areas or Provincially Significant Wetlands (PSWs) located within the study area.

3.3.2 Plant Communities

Based on a desktop review of available aerial imagery and field investigations, a total of eight distinct plant communities were identified within the study area. The locations of the plant communities identified by ELC code and associated descriptions are shown on **Figure 3**. A brief description of each community is provided in **Table 2**.

Table 2: Description of Plant Communities Identified within the Study Area

Plant Community Designation	Description
Cultural Woodland (CUW)	The deciduous CUW along the eastern shore of Sarnia Bay is dominated by ash species (<i>Fraxinus</i> sp.) and willow species (<i>Salix</i> sp.) in the canopy and understory. Ground cover is composed of phragmites (<i>Phragmites</i> sp.), golden rod (<i>Solidago</i> sp.), Canada thistle (<i>Cirsium arvense</i>), and various terrestrial grasses. This woodland has very low canopy cover.
	The CUW and CUM complex located west of the boat launch is dominated by poplar species (<i>Populus</i> sp.), willows, maples (<i>Acer</i> sp.) and dogwood (<i>Cornus</i> sp.). Ground cover was dominated by phragmites and various terrestrial grasses. This community has very low canopy cover and occurs in a small area between the shoreline and a walking path.
Cultural Meadow (CUM)	The cultural meadow along the northeastern shore of Sarnia Bay, east of the boat launch, is dominated by various terrestrial grasses and some burred (<i>Sparganium</i> sp.). This community occurs in a narrow strip between the shoreline and a walking path.
Open Beach (BBO)	A small strip of sand that occurs along the shoreline in the northwest corner of Sarnia Bay. Tree and shrub cover is very minimal. The majority of the community consists of the terrestrial - aquatic interface.
Commercial (C)	Commercial areas include buildings, parking lots and other anthropogenic structures within the study area.
Manicured Lawn (L)	Areas of maintained lawn occur adjacent to the walking trail along the shoreline. These areas have little value with respect to wildlife habitat. Landscaped and/or planted trees may also occur within these communities throughout the study area.



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Plant Community Designation	Description
Recreational (REC)	A small playground that occurs in the northeast of the study area. The playground is currently overgrown by terrestrial grasses. The occasional tree occurs within the playground area, consisting of pine (<i>Pinus</i> sp.), maples and ash.
Deciduous Hedgerow (H)	A small strip of deciduous trees that have been planted along the shoreline in the southwest corner of the study area, adjacent to a parking lot.
Open Water (OAO)	This community consists entirely of Sarnia Bay. Substrates along the majority of the shoreline are sand. Water clarity was assessed to be slightly turbid. Aquatic vegetation was observed only in the area surrounding the boat launch and refueling area (along the northern shore) and consisted of coontail (<i>Ceratophyllum demersum</i>) and Canadian waterweed (<i>Elodea Canadensis</i>).

The shoreline within the study area is predominately bordered by manicured lawn with areas of deciduous meadow and cultural meadow eco-sites marked by the presence of species such as ash (*Fraxinus* sp.), willow (*Salix* sp.), poplar (*Populus* sp.), maple (*Acer* sp.), dogwood (*Cornus* sp.), phragmites (*Phragmites australis*), golden rod (*Solidago canadensis*), Canada thistle (*Cirsium arvense*) and terrestrial grasses. Of note, as a part of previous rehabilitation work at the Park, Golder landscape architects completed an inventory of trees along the waterfront and within the Park. Trees that were not captured as a part of this original inventory were identified for this Project. The results of the tree inventory have been reported under separate cover.

3.4 Wildlife

3.4.1 Breeding Birds

A list of breeding bird species within, or in the vicinity of, the study area was obtained from the Atlas of Breeding Birds of Ontario (ABBO) 2001 to 2005 database (Cadman et.al. 2006). The study area falls within a 10 x 10 kilometer UTM square (ID # 17LH85). A total of 82 bird species with some level of breeding evidence was identified within this square. A detailed list of the bird species identified within this square is provided in **Appendix C**. Of these, 82 species, one is listed as Endangered, six are listed as Threatened and three are listed as Special Concern under either the federal SARA or the ESA in Ontario (**Table 3**). Species identified as Endangered or Threatened are discussed further in **Section 3.5**.

Table 3: Atlas of Breeding Birds (2001 to 2005) SAR Records for UTM Square 17LH85

Common Name	Scientific Name	Category	Provincial Rank ¹ (S-Rank)	ESA	SARA	Habitat
Bank Swallow	<i>Riparia riparia</i>	confirmed	S4	THR	THR	Open Country
Barn Swallow	<i>Hirundo rustica</i>	confirmed	S4	THR	THR	Open Country
Bobolink	<i>Dolichonyx oryzivorus</i>	confirmed	S4	THR	THR	Open Country
Chimney Swift	<i>Chaetura pelagica</i>	confirmed	S5	THR	THR	Urban, Forest
Common Nighthawk	<i>Chordeiles minor</i>	possible	S4	SC	THR	Open Country



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Common Name	Scientific Name	Category	Provincial Rank ¹ (S-Rank)	ESA	SARA	Habitat
Eastern Meadowlark	<i>Stumella magna</i>	confirmed	S4	THR	THR	Open Country
Eastern Wood-Pewee	<i>Contopus virens</i>	probable	S4	SC	SC	Forest
Northern Bobwhite	<i>Colinus virginianus</i>	possible	S1	END	END	Forest, Open Country
Wood Thrush	<i>Hylocichla mustelina</i>	probable	S4	SC	THR	Forest

¹Provincial Rank S-Rank: — The Natural Heritage Provincial ranking system (provincial S-Rank) is used by MNRF Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. S-Rank assigned definitions are as follows:

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 and 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.

SE: Exotic; not believe to be a native component of Ontario's flora.

SH: Possibly Extirpated (Historical); Species or community occurred historically in the nation, state/province, and there is some possibility that it may be rediscovered. Its presence has not been verified in the past 20 to 40 years.

ESA/SARA Terms:

EXT: Extinct — A species that no longer exists.

EXP: Extirpated — A species that no long exists in the wild in the Province (ESA) /Canada (SARA), but occurring elsewhere in the world.

END: Endangered — A species facing imminent extirpation or extinction throughout its range.

THR: Threatened — A species likely to become endangered if nothing is done to reserve the factors leading to its extirpation or extinction.

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

IND: Indeterminate — A species for which there is insufficient information to support a status designation.

NAR: Not at Risk — A species that has been evaluated and found to be not at risk.

3.4.2 Herpetofaunal

A list of herpetofaunal species within or within the vicinity of the study area was obtained from a review of the Ontario Reptile and Amphibians Atlas (Ontario Nature, 2015). A total of eight species were identified and a detailed list is provided in **Table 4**. Of these eight species, four are listed as Endangered, four are listed as Threatened and one is listed as Special Concern under either the federal SARA or the ESA in Ontario. Species identified as Endangered or Threatened in are discussed further in **Section 3.5**.



MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR SHORELINE PROTECTION ALONG SARNIA BAY HARBOUR FRONT - NATURAL ENVIRONMENT EXISTING CONDITIONS REPORT

Table 4: Herpetofaunal Species with Potential to Occur Within, or in the Vicinity of, the Study Area

Common Name	Scientific Name	Provincial Rank ¹ (S-Rank)	ESA	SARA
Blanding's Turtle	<i>Emydoidea blandingii</i>	S3	THR	THR
Snapping Turtle	<i>Chelydra serpentina</i>	S3	SC	SC
Butler's Garter Snake	<i>Thamnophis butleri</i>	S2	END	END
Eastern Foxsnake (Carolinean Population)	<i>Pantherophis gloydi</i>	S2	END	END
Eastern Hog-nosed Snake	<i>Pantherophis gloydi</i>	S3	THR	THR
Massasauga Rattlesnake (Carolinian population)	<i>Sistrurus catenatus</i>	S3	END	THR
Five-lined skink (Carolinean Population)	<i>Plestiodon fasciatus</i>	S2	END	END
Western chorus frog Great Lakes St. Lawrence/Canadian Shield Population	<i>Pseudacris triseriata</i>	S3	No Status	THR

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- S1: Extremely Rare in Ontario; usually 5 or fewer occurrences in the province or very few remaining individuals; often especially vulnerable to extirpation.
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- S3: Rare to Uncommon in Ontario; usually between 20 and 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.
- SE: Exotic; not believe to be a native component of Ontario's flora.
- SH: Possibly Extirpated (Historical); Species or community occurred historically in the nation, state/province, and there is some possibility that it may be rediscovered. Its presence has not been verified in the past 20 to 40 years.

ESA/SARA Terms:

- EXT: Extinct — A species that no longer exists.
- EXP: Extirpated — A species that no long exists in the wild in the Province (ESA) /Canada (SARA), but occurring elsewhere in the world.
- END: Endangered — A species facing imminent extirpation or extinction throughout its range.
- THR: Threatened — A species likely to become endangered if nothing is done to reserve the factors leading to its extirpation or extinction.
- SC: Special Concern — A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events, but does not include an extirpated or endangered or threatened species.
- IND: Indeterminate — A species for which there is insufficient information to support a status designation.
- NAR: Not at Risk — A species that has been evaluated and found to be not at risk

3.4.3 Mammals

The Atlas of the Mammals of Ontario (Dobbyn, 1994) focuses on mapping the presence of Ontario's 86 wild mammal species and provides a resource for environmental assessments. Based on the atlas species geographical distribution maps, one species has potential to occur within the general vicinity of the study area. The Little Brown Myotis (*Myotis lucifugus*) was identified with a geographical distribution overlapping the study



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area. Although this species is listed as Endangered (END) under SARA and ESA, the likelihood of its occurrence is considered low as suitable habitat was not identified within the study area.

3.4.4 Butterflies and Dragonflies

Based on the desktop review, no SAR were identified within the general vicinity of the study area.

3.5 Incidental Wildlife Observations

Incidental wildlife observations recorded by Golder biologists during in field investigations are presented in **Table 5**. As a part of field investigations, effort was made to search for suitable nesting habitat for breeding birds within the study area. No nests were observed at the time of the field investigation.

Table 5: Incidental Wildlife Observations, June 29, 2015

Taxa	Common Name	Scientific Name
Birds	Canada Goose	<i>Branta canadensis</i>
	Mallard	<i>Anas platyrhynchos</i>
	Starling species	-
	Sparrow species	-
	Common Grackle	<i>Quiscalus quiscula</i>
	Red winged Blackbird	<i>Agelaius phoeniceus</i>
Fish	Lake Trout	<i>Salvelinus namaycush</i>
	Yellow Perch	<i>Perca flavescens</i>
	Cyprinid species	-

Incidental wildlife species observed are considered generally common and are listed under the Ontario *Endangered Species Act* or the federal *Species at Risk Act*.

3.6 Species At Risk

3.6.1 Species at Risk Act (SARA)

At a federal level, species at risk designations for species occurring in Canada are initially determined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). If approved by the federal Minister of the Environment, species are added to the federal List of Wildlife Species at Risk (Government of Canada 2002). Species that are included on Schedule 1 as endangered or threatened are afforded protection of critical habitat on federal lands under the *Species at Risk Act* (SARA). On private or provincially-owned lands, only aquatic species listed as endangered, threatened or extirpated and migratory birds are protected under SARA, unless ordered by the Governor in Council.

3.6.2 Endangered Species Act (ESA)

Species at risk designations for species in Ontario are initially determined by the Committee on the Status of Species at Risk in Ontario (COSSARO), and if approved by the provincial Minister of Natural Resources, species are added to the provincial *Endangered Species Act* (ESA) which came into effect June 30, 2008 (Ontario 2007). The legislation prohibits the killing or harming of species identified as endangered or threatened in the various schedules to the Act. The ESA also provides habitat protection to all species listed as threatened or



MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR SHORELINE PROTECTION ALONG SARNIA BAY HARBOUR FRONT - NATURAL ENVIRONMENT EXISTING CONDITIONS REPORT

endangered. As of June 30, 2008, the SARO List is contained in O. Reg. 230/08. O. Reg. 230/08 was last amended in January 2014.

Subsection 9(1) of the ESA prohibits the killing, harming or harassing of species identified as 'endangered' or 'threatened' in the various schedules to the Act. Subsection 10(1) (a) of the ESA states that "No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario (SARO) list as an endangered or threatened species".

General habitat protection is provided, by the ESA, to all threatened and endangered species. Species-specific habitat protection is only afforded to those species for which a habitat regulation has been prepared and passed into law as a regulation of the ESA. The ESA has a permitting process where alterations to protected species or their habitats may be considered.

Based on the screening, SAR identified with the potential to occur within the study area or general vicinity as summarized in **Appendix D**.

A total of 24 SAR were identified to potentially occur, within, or in the vicinity of, the study area based on species ranges and/or the likelihood of suitable habitat being present. Through the SAR screening it was determined that four species have potentially suitable habitat in the study area. These species are discussed further below.

Spotted Sucker (*Minytrema melanops*) is a fish species listed as a Special Concern (SC) species under both SARA and the ESA. Although spotted sucker has been identified by MNRF as known to occur within the study area, the habitat preferences of this species (i.e., nearshore lake and deep pools with firm sandy, gravelly or rocky substrates) are generally present but are non-limiting within the study area.

Greater Redhorse (*Moxostoma valenciennes*) is a fish species that is Provincially listed as S3 Rank of rare to uncommon and is known to occur within the general area and has potential to occur within the study area. There is suitable habitat for this species in the study area. Greater Redhorse currently has no status under either the SARA or the ESA.

Snapping turtle (*Chelydra serpentina*) is a reptile species listed as a SC species under both SARA and the ESA. Snapping turtle uses a wide range of waterbodies but shows a preference for areas with shallow, slow moving water, soft substrates and dense aquatic vegetation. Although MNRF records indicate a known occurrence within the general area and potential to occur within the study area, the likelihood of occurrence within the immediate study area is moderate due to the lack of dense aquatic vegetation.

Barn Swallow (*Hirundo rustica*) is a bird species listed as Threatened (THR) under SARA but has no status under the ESA. Although barn swallow has been identified by MNRF as known to occur in the general area and has potential to occur within the study area, limited suitable nesting structures (i.e., vertical walls, ledge overhangs) were identified within the study area. It is possible this species may use the general area to forage, but foraging habitat would not be protected under the ESA. No incidental observations were noted during field investigations completed during breeding season and no nests were observed within the study area.

None of the SAR species identified with ranges which overlap the study area (**Appendix D**) were recorded during Golder Biologists field investigations in 2015. Should any SAR be identified within the study area prior to, or during construction, contact with relevant agencies for a permit or exemption will be necessary.



MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR SHORELINE PROTECTION ALONG SARNIA BAY HARBOUR FRONT - NATURAL ENVIRONMENT EXISTING CONDITIONS REPORT

4.0 CLOSURE

We trust that this report meets with your current expectations. Should you have any questions or concerns, please do not hesitate to contact the undersigned.



**MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR
SHORELINE PROTECTION ALONG SARNIA BAY HARBOUR
FRONT - NATURAL ENVIRONMENT EXISTING CONDITIONS
REPORT**

Report Signature Page

GOLDER ASSOCIATES LTD.

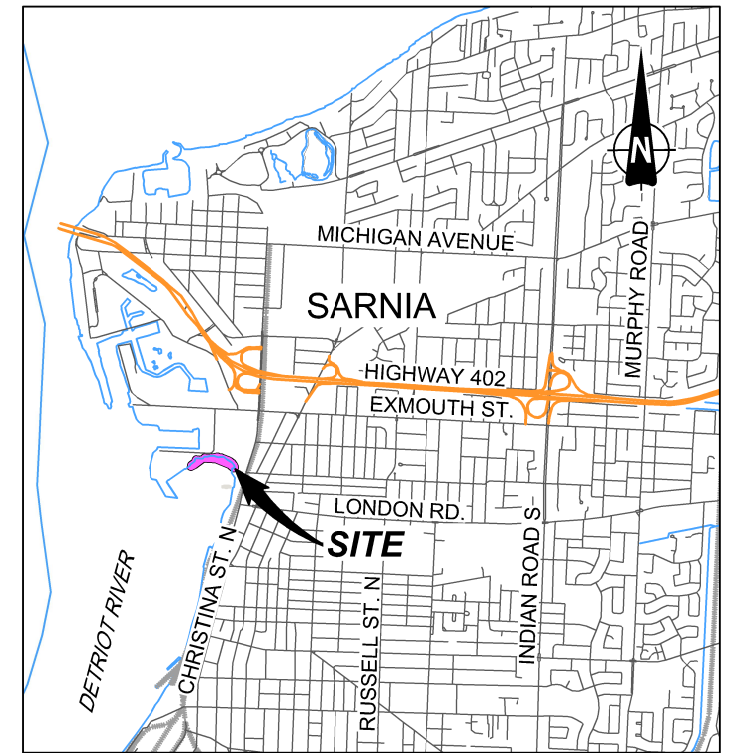
Heather Melcher, M. Sc.
Associate, Senior Ecologist

WO/HM/wo/wlm

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KEY PLAN

LEGEND

— STUDY AREA

REFERENCE

DRAWING BASED ON 2013 AERIAL IMAGE BY FIRST BASE SOLUTIONS;
 MONTEITH & SUTHERLAND LIMITED, OLS, SURVEY PLAN, FILE No. SAR-5854, PLAN FILE No. E-1520; AND
 CANMAP STREETFILES V2008.4.

NOTES

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 ALL LOCATIONS ARE APPROXIMATE.

PROJECT			
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY FOR THE PROPOSED SHORELINE PROTECTION OF CENTENNIAL PARK ALONG THE SARNIA BAY HARBOUR FRONT			
TITLE			
STUDY AREA			
PROJECT No.	1413940	FILE No.	1413940-7000-R01001
CADD	DGH	June 11/15	SCALE AS SHOWN REV.
CHECK			
			FIGURE 1

Drawing file: 1413940-7000-R01002.dwg Nov 02, 2015 - 2:54pm



LEGEND

- STUDY AREA
- HISTORICAL FISH COMMUNITY RECORDS

REFERENCE

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MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY FOR THE PROPOSED SHORELINE PROTECTION OF CENTENNIAL PARK ALONG THE SARNIA BAY HARBOUR FRONT			
TITLE			
HISTORICAL FISH COMMUNITY RECORDS			
PROJECT No.	1413940	FILE No.1413940-7000-R01002	
CADD	DCH	Nov 2/15	SCALE AS SHOWN REV.
CHECK			
Golder Associates			FIGURE 2

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LEGEND

- STUDY AREA
- BBO SHORELINE
- C COMMERCIAL
- CUM CULTURAL MEADOW
- CUW DECIDUOUS CULTURAL WOODLAND
- H DECIDUOUS HEDGEROW
- L MANICURED LAWN
- OAO OPEN WATER
- REC RECREATIONAL

REFERENCE

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 MONTEITH & SUTHERLAND LIMITED, OLS, SURVEY PLAN, FILE No. SAR-5854, PLAN FILE No. E-1520; AND
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PROJECT			
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY FOR THE PROPOSED SHORELINE PROTECTION OF CENTENNIAL PARK ALONG THE SARNIA BAY HARBOUR FRONT			
TITLE			
ELC COMMUNITIES WITHIN THE STUDY AREA			
PROJECT No.	1413940	FILE No.1413940-7000-R01003	
CADD	DCH	Nov 2/15	SCALE AS SHOWN REV.
CHECK			
Golder Associates			FIGURE 3



**MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR
SHORELINE PROTECTION ALONG SARNIA BAY HARBOUR
FRONT - NATURAL ENVIRONMENT EXISTING CONDITIONS
REPORT**

APPENDIX A

Photographic Log



APPENDIX A – PHOTOGRAPHIC LOG

1.0 PHOTOS

Photo 1: June 29/15: Looking north along Sarnia bay shoreline from the south eastern corner of the bay, looking towards the playground area. 17T UTM 0385349E, 4759728N.



Photo 2: June 29/15: Looking west from the Bluewater Bike Path across Sarnia Bay. Looking towards the fueling station. 17T UTM 0385365E, 4759738N.



Photo 3: June 29/15: Looking east along the shoreline showing the fenced area, and shoreline vegetative growth within the eastern extent of the study area. 17T UTM 0385346E, 4759766N.



Photo 4: June 29/15: Looking west towards the Sarnia Bay Marina. Showing Fenced area and meadow growth within the eastern extent of the study area. 17T UTM 0385346E, 4759766N.





APPENDIX A – PHOTOGRAPHIC LOG

Photo 5: June 29/15: Looking southwest towards the Sarnia Bay Marina from the Bluewater Bike Path. Showing fenced in area along shoreline and pleasure craft s in Sarnia Bay. 17T UTM 0385324E, 4759793N.



Photo 6: June 29/15: Photo taken from the existing boat ramps looking east towards the playground area. Showing fenced in area of the shoreline. 17T UTM 0385250E, 4759815N.



Photo 7: June 29/15: Photo taken from the dock of the existing boat ramps, looking north towards the parking lot. 17T UTM 0385223E, 4759794N.



Photo 8: June 29/15: Photo taken from the dock of the existing boat ramps. Looking east along shoreline at existing boat ramps. 17T UTM 0385223E, 4759794N.





APPENDIX A – PHOTOGRAPHIC LOG

Photo 9: June 29/15: Photo taken from Bluewater Bike Path at the Footsteps Tribute to Courage flagstones, looking west along the shoreline towards the Sarnia Bay Marina. Showing waterfowl along shoreline. 17T UTM 0385213E, 4759831N



Photo 10: June 29/15: Looking east along shoreline from Bluewater Bike Path, west of the Footsteps Tribute to Courage flagstones. Showing vegetative growth. 17T UTM 0385152E, 4759827N.



Photo 11: June 29/15: Looking west along shoreline toward pier and fueling station. Showing manicured grass and cobble stone shoreline. 17T UTM 0385152E, 4759827N.



Photo 12: June 29/15: Photo taken from the pier looking north towards Seaway Road. Showing Cobble stone shoreline. 17T UTM 0385110E, 4759806N.





APPENDIX A – PHOTOGRAPHIC LOG

Photo 13: June 29/15: Photo taken from pier, west of the fueling station. Looking northeast towards Seaway Road. Showing Cobble stone and sand shoreline. 17T UTM 0385048E, 4759801N.



Photo 14: June 29/15: Photo taken from pier, west of the fueling station. Looking west at the Sarnia Bay Marina parking lot. Showing cobble stone shoreline. 17T UTM 0385048E, 4759801N.



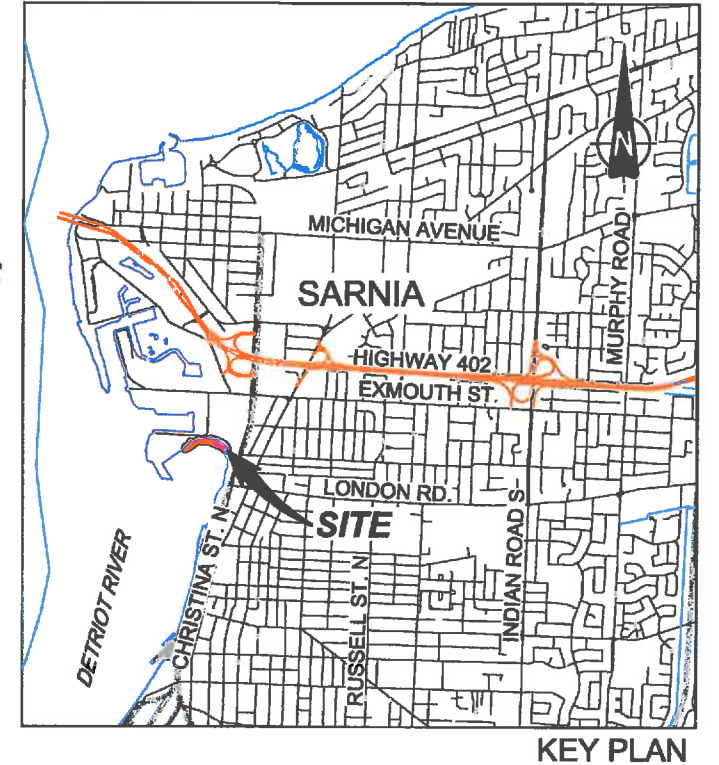
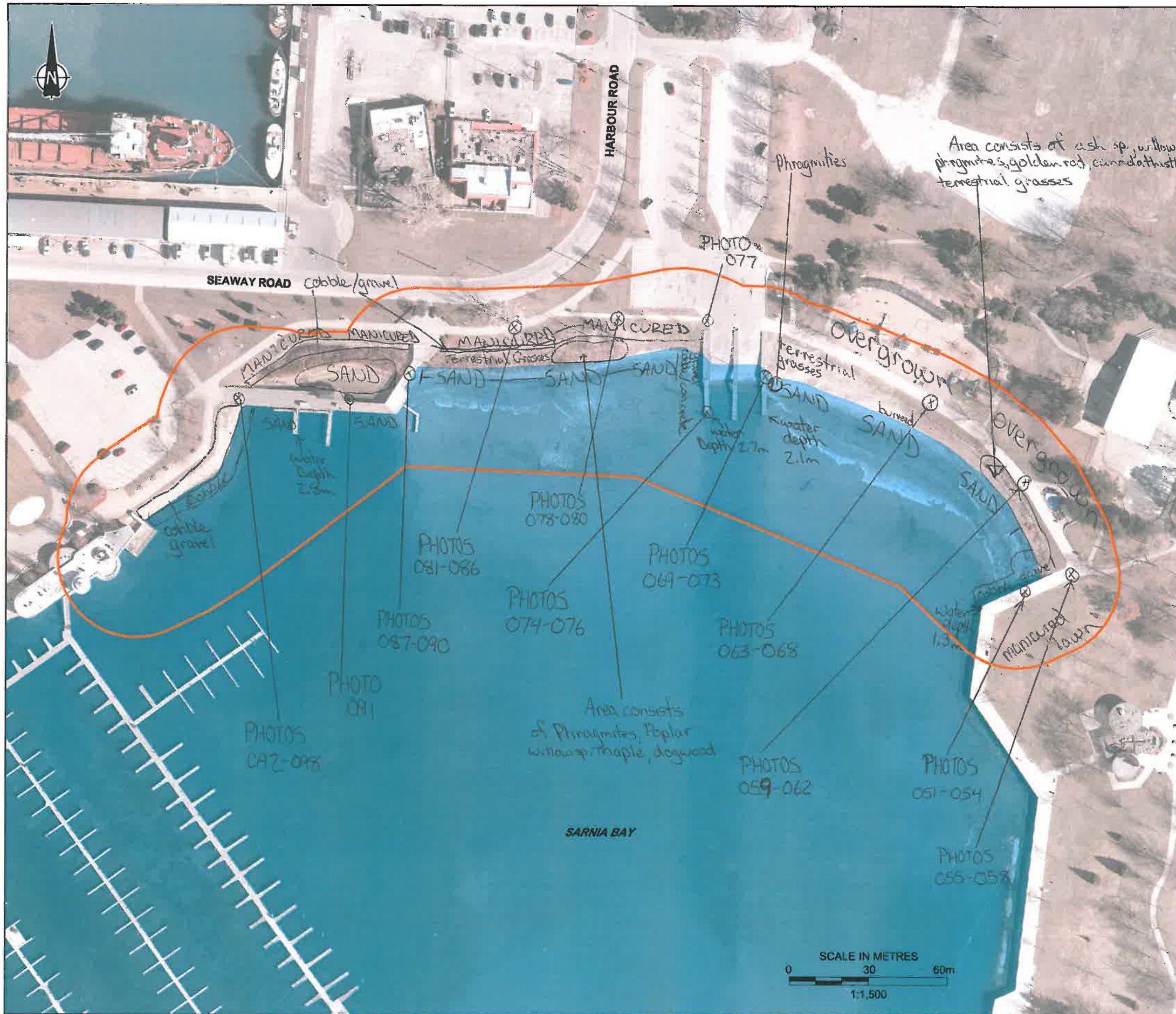


**MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR
SHORELINE PROTECTION ALONG SARNIA BAY HARBOUR
FRONT - NATURAL ENVIRONMENT EXISTING CONDITIONS
REPORT**

APPENDIX B

Field Investigation Notes

Drawing file: 1413940-7000-R01001.dwg Jun 11, 2015 - 8:24am



LEGEND

— STUDY AREA

REFERENCE

DRAWING BASED ON 2013 AERIAL IMAGE BY FIRST BASE SOLUTIONS;
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PROJECT
 MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY FOR THE PROPOSED SHORELINE PROTECTION OF CENTENNIAL PARK ALONG THE SARNIA BAY HARBOUR FRONT

TITLE		STUDY AREA	
PROJECT No.	1413940	FILE No.	1413940-7000-R01001
CADD	DCH	DATE	June 11/15
CHECK		SCALE	AS SHOWN
			FIGURE 1



29 Jun 2015

1413940

10fz

Crew D. Benallick

Purpose - Centennial Park Harbour Front Habitat Assessment

Weather: Partly cloudy, wind light, 26°C, humid

Arrive on site 0930 all check ins complete
Started on East side where fencing is up.

Area that is fenced off along water contains; ash sp, willow sp, phragmites, golden rod, canada thistle, terrestrial grasses.

Substrate from boat launch to the break wall is predominantly Sand, with the exception of the far East where there's a small area of Cobble & gravel adjacent to the break wall.

WL Depth @ break wall 1.3m

Area to the North of the trail that is fenced off consists of a playground that is overgrown with grasses; pine sp, maple & ash trees.

- Boat launch WL depth at end of docks are 2.1m & 2.7m. The Water temp @ 1025hrs, 18.4°C

- From the boat launch heading WEST consists of a Sand Substrate. Grass is manicured from trail, cobble/gravel is

29 Jun 2015

202

along the bank of the water.

- Boat Refueling Dock WL Depth was 2.8m
- Lake trout observed along walkway, 2 young anglers catching Yellow Perch
- The far West portion consist of a paved parking lot, manicured grass & cobble/gravel along bank.

Incidental Species

- | | |
|------------------------|----------------------|
| - Canada Geese | - Lake Trout |
| - Mallards | - Yellow Perch |
| - starling | - Cyprinids, shiners |
| - sparrow sp. | |
| - grackle | |
| - Red winged blackbird | |

The water clarity was slightly turbid it was hard to make out the aquatic veg. Aquatic veg was only observed in the vicinity of boat launch & Refueling area

- coontail
- Canadian Waterweed

Photos were taken with GPS co-ordinates saved on the photo log



APPENDIX C

Atlas of Breeding Birds (2001 – 2005) Records for UTM Square 17LH85

Appendix C: Atlas of Breeding Birds (2001 to 2005) Records for UTM Square 17LH85

Common Name	Scientific Name	Category	Provincial Rank ¹ (S-Rank)	SARO ²	SARA ³	Habitat
American Crow	Corvus brachyrhynchos	CONF	S5			Forest, Open Country
American Goldfinch	Carduelis tristis	PROB	S5			Forest
American Kestrel	Falco sparverius	CONF	S4			Forest
American Robin	Turdus migratorius	CONF	S5			Forest
American Woodcock	Scolopax minor	CONF	S4			Forest
Baltimore Oriole	Icterus galbula	PROB	S4			Forest
Bank Swallow	Riparia riparia	CONF	S4	THR	THR	Open Country
Barn Swallow	Hirundo rustica	CONF	S4	THR	THR	Open Country
Belted Kingfisher	Megaceryle alcyon	POSS	S4			Forest
Black-billed Cuckoo	Coccyzus erythrophthalmus	POSS	S5			Forest
Black-capped Chickadee	Poecile atricapillus	CONF	S5			Forest
Blue Jay	Cyanocitta cristata	POSS	S5			Forest
Blue-gray Gnatcatcher	Poliophtila caerulea	POSS	S4			Forest, Open Country
Blue-winged Teal	Anas discors	CONF	S4			Marsh, Open Water
Bobolink	Dolichonyx oryzivorus	CONF	S4	THR	THR	Open Country
Brown Thrasher	Toxostoma rufum	PROB	S4			Forest
Brown-headed Cowbird	Molthrus ater	POSS	S4			Forest
Canada Goose	Branta canadensis	CONF	S5			Marsh, Open Country
Cedar Waxwing	Bombycilla cedrorum	POSS	S5			Forest
Chimney Swift	Chaetura pelagica	CONF	S5	THR	THR	Urban, Forest
Chipping Sparrow	Spizella passerina	PROB	S5			Forest
Cliff Swallow	Petrochelidon pyrrhonota	POSS	S4			Open Country
Common Gallinule	Gallinula galeata	POSS	S5			Marsh
Common Grackle	Quiscalus quiscula	CONF	S5			Forest
Common Nighthawk	Chordeiles minor	POSS	S4	SC	THR	Open Country
Common Snipe	Gallinago gallinago	PROB	S5			Marsh
Common Yellowthroat	Geothlypis trichas	PROB	S5			Forest
Downy Woodpecker	Picoides pubescens	POSS	S5			Forest
Eastern Bluebird	Sialia sialis	POSS	S5	NAR	NAR	Forest
Eastern Kingbird	Tyrannus tyrannus	CONF	S4			Forest
Eastern Meadowlark	Stumella magna	CONF	S4	THR	THR	Open Country
Eastern Phoebe	Sayornis phoebe	PROB	S5			Forest
Eastern Screech-Owl	Megascops asio	POSS	S4	NAR	NAR	Forest
Eastern Towhee	pilo erythrophthalmus	PROB	S4			Forest
Eastern Wood-Pewee	Contopus virens	PROB	S4B	SC	SC	Forest
European Starling	Stumus vulgaris	CONF	SNA			Forest
Field Sparrow	Spizella pusilla	POSS	S5			Forest, Open Country
Gray Catbird	Dumetella carolinensis	CONF	S4			Forest
Great Crested Flycatcher	Myiarchus crinitus	PROB	S4			Forest
Great Horned Owl	Bubo virginianus	CONF	S4			Forest
Green Heron	Butorides virescens	POSS	S4			Marsh
Herring Gull	Larus argentatus	CONF	S5			Forest
Horned Lark	Eremophila alpestris	CONF	S5			Open Country
House Finch	Haemorhous mexicanus	CONF	SNA			Forest, Open Country
House Sparrow	Passer domesticus	CONF	SNA			Forest, Open Country
House Wren	Troglodytes aedon	CONF	S5			Forest, Open Country
Indigo Bunting	Passerina cyanea	PROB	S4			Forest
Killdeer	Charadrius vociferus	CONF	S5			Open Country
Least Flycatcher	Empidonax minimus	PROB	S4			Forest
Mallard	Anas platyrhynchos	CONF	S5			Marsh
Mourning Dove	Zenaidura macroura	CONF	S5			Forest
Northern Bobwhite	Colinus virginianus	POSS	S1	END	END	Forest, Open Country
Northern Cardinal	Cardinalis cardinalis	CONF	S5			Forest
Northern Flicker	Coleptes auratus	CONF	S4			Forest
Northern Rough-winged Swallow	Stelgidopteryx serripennis	CONF	S4			Forest
Orchard Oriole	Icterus spurius	CONF	S5			Forest
Ovenbird	Seiurus aurocapillus	POSS	S4			Forest
Pied-billed Grebe	Podilymbus podiceps	CONF	S4			Marsh, Open Water
Purple Martin	Carpodacus purpureus	POSS	S4			Forest
Red-bellied Woodpecker	Melanerpes carolinus	PROB	S3			Forest
Red-eyed Vireo	Vireo olivaceus	POSS	S5			Forest
Red-tailed Hawk	Buteo jamaicensis	CONF	S5	NAR	NAR	Forest
Red-winged Blackbird	Agelaius phoeniceus	CONF	S4			Marsh
Ring-necked Pheasant	Phasianus colchicus	CONF	SNA			Forest
Rock Pigeon	Columba livia	CONF	SNA			Forest, Open Country
Rose-breasted Grosbeak	Pheucticus ludovicianus	CONF	S4			Forest
Ruby-throated Hummingbird	Archilochus colubris	POSS	S5			Forest
Savannah Sparrow	Passerculus sandwichensis	CONF	S4			Open Country
Song Sparrow	Melospiza melodia	PROB	S5			Open Country
Sora	Porzana carolina	CONF	S4			Marsh
Spotted Sandpiper	Actitis macularia	CONF	S5			Open Country
Swamp Sparrow	Melospiza georgiana	POSS	S5			Marsh
Tree Swallow	Tachycineta bicolor	CONF	S4			Forest
Turkey Vulture	Cathartes aura	CONF	S5			Forest
Upland Sandpiper	Bartramia longicauda	CONF	S4			Open Country
Vesper Sparrow	Poocetes gramineus	PROB	S4			Forest
Warbling Vireo	Vireo gilvus	PROB	S5			Marsh
Wild Turkey	Meleagris gallopavo	POSS	S4			Forest
Willow Flycatcher	Empidonax traillii	PROB	S5			Forest
Wood Duck	Aix sponsa	PROB	S5			Forest
Wood Thrush	Hylocichla mustelina	PROB	S4	SC	THR	Forest
Yellow Warbler	Setophaga petechia	CONF	S5			Forest

Notes:

¹ **S-Rank:** — The Natural Heritage Provincial ranking system (provincial S-Rank) is used by MNRF Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. S-Rank assigned definitions are as follows:

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 and 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.

SE: Exotic; not believe to be a native component of Ontario's flora.

SH: Possibly Extirpated (Historical): Species or community occurred historically in the nation, state/province, and there is some possibility that it may be rediscovered. Its presence has not been verified in the past 20 to 40 years.

² **SARO:** Species at Risk Ontario as governed by ESA, 2007.

EXT: Extinct - no longer lives anywhere in the world

EXP: Extirpated - lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.

END: Endangered - lives in the wild in Ontario but is facing imminent extinction or extirpation

THR: Threatened - lives in the wild in Ontario, is not endangered but is likely to become endangered if steps are not taken to address factors threatening it

SC: Special Concern (SC) - lives in the wild in Ontario, is not endangered or threatened but may become threatened or endangered due to a combination of biological characteristics identified as threats

³ **SARA: Species At Risk in Canada**

EXT: Extinct — A species that no longer exists.

EXP: Extirpated — A species that no long exists in the wild in Canada, but occurring elsewhere in the world.

END: Endangered — A species facing imminent extirpation or extinction throughout its range.

THR: Threatened — A species likely to become endangered if nothing is done to reserve the factors leading to its extirpation or extinction.

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

IND: Indeterminate — A species for which there is insufficient information to support a status designation.

NAR: Not at Risk — A species that has been evaluated and found to be not at risk.



**MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT FOR
SHORELINE PROTECTION ALONG SARNIA BAY HARBOUR
FRONT - NATURAL ENVIRONMENT EXISTING CONDITIONS
REPORT**

APPENDIX D

Species At Risk Screening



APPENDIX D: SPECIES AT RISK SCREENING

Species	Presence (Information Source)	Global Status	Federal Status	Provincial Status		Habitat Preference	Habitat Present within Study Area (Low/Moderate/High)
		G-Rank ¹	SARA ³	S-Rank ⁴	ESA		
Fish							
Spotted Sucker (<i>Minytrema melanops</i>)	<ul style="list-style-type: none"> Potential to occur within general area; (MNRF Make a Map Natural Heritage Application) Known occurrence within study area; (MNRF Aylmer District Office SAR screening correspondence) Present in the general area SCRC Fish Community Records 1999; and within the study area SCRC Fish Community Records 2009 	G5	SC	S2	SC	Spotted sucker prefers the nearshore of lakes and deep pools of creeks and small to medium rivers with firm sandy, gravelly or rocky substrates. Spawning occurs in May to June. Thermal Regime: warmwater. Generally Intolerant of turbidity, siltation and industrial pollution.	High: known occurrence within study area based on MNRF and SCRC correspondence. Habitat preferences of this species are present within the study area but are non-limiting throughout.
Greater Redhorse (<i>Moxostoma valenciennes</i>)	<ul style="list-style-type: none"> Potential to occur within general area; (MNRF Make a Map Natural Heritage Application) Known occurrence in the general area with potential to occur within the study area; (MNRF Aylmer District Office SAR screening correspondence) Present in the general area SCRC Fish Community Records; 1999 	G4	No Status	S3	No Status	Greater Redhorse prefer moderate to swift current riffles, runs and pools of medium to large rivers with clear water and substrates of gravel, cobble or boulders; lakes. Spawning occurs in May to June. Thermal Regime: warmwater Generally intolerant to turbidity, siltation and pollution	Moderate: known occurrence within the general area with potential to occur within the study area based on MNRF correspondence. Some of the habitat preferences of this species are present within the study area.
Lake Sturgeon (<i>Acipenser fulvescens</i>)	<ul style="list-style-type: none"> Potential to occur within general area; (MNRF Make a Map Natural Heritage Application) Not identified (Aylmer District Office SAR screening correspondence) Not identified in SCRC fish community records 	G3/G4	No Status	S2	THR	Lake Sturgeon lives almost exclusively in freshwater lakes and rivers with soft bottoms of mud, sand or gravel. They are usually found at depths of 5 to 20 metres. Thermal Regime: coolwater Spawning occurs in May to June. They spawn in relatively shallow fast flowing water (usually below waterfalls, rapids or dams) with gravel and boulders at the bottom. However, they will spawn in deeper water where habitat is available. They also are known to spawn on open shoals in large rivers with strong currents. Intermediately tolerant of environmental perturbation. This species can be associated with the following ELC codes: OAO . Large lakes/rivers required.	Low: Shallow waters of shoreline within the study area are not suitable habitat. Suitable spawning habitat does not exist within the study area. Species has not been identified within the study area based on MNRF correspondence.
Plants							
Swamp Rose Mallow (<i>Hibiscus moscheutos</i>)	<ul style="list-style-type: none"> Not identified (MNRF Make a Make Natural Heritage Application) Known occurrence in the general area with potential to occur within the study area (MNRF Aylmer District Office SAR screening correspondence) 	G5	SC	S3	SC	Swamp rose mallow is restricted to shoreline marshes associated with Lake Erie, Ontario, and St. Clair. It is most commonly found in deep-water cattail marshes and meadow marshes, but is also found in dyked wetlands, open wet woods, thickets, spoil banks, and drainage ditches where it grows on organic or clay soils. Periodic water level fluctuations are necessary to maintain swamp rose mallow.	Low: There is no suitable shoreline marsh or wetland habitat to support this species. The shoreline within the study area is developed and maintained for recreational purposes.



APPENDIX D: SPECIES AT RISK SCREENING

<p>Carolina Whitlow-grass (<i>Draba reptans</i>)</p>	<ul style="list-style-type: none"> • Potential to occur within general area; (MNRF Make a Map Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) 	<p>G5</p>	<p>No status</p>	<p>S3</p>	<p>No status</p>	<p>Carolina whitlow-grass is found in dry sandy areas and open flats, as well as on limestone and alvar pavements.</p>	<p>Low: There is no alvar habitat within the study area. The meadows along the shoreline of Sarnia Bay are small and highly disturbed, reducing habitat suitability for this species.</p>
<p>Birds</p>							
<p>Bank Swallow (<i>Riparia riparia</i>)</p>	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Atlas of Breeding Birds of Ontario (BSC, et.al., 2006) square 17LH85 	<p>G5</p>	<p>THR</p>	<p>S4</p>	<p>THR</p>	<p>In Ontario, the bank swallow breeds in a variety of natural and anthropogenic habitats, including lake bluffs, stream and river banks, sand and gravel pits, and roadcuts. Nests are generally built in a vertical or near-vertical bank. Breeding sites are typically located near open foraging sites such as rivers, lakes, grasslands, agricultural fields, wetlands and riparian woods. Forested areas are generally avoided.</p>	<p>Low: Vertical or near vertical banks suitable for nesting are not present within the study area. May use general area to forage based on general area range maps from ABBO. No incidental observations during field studies. No nests observed within study area on pier/marina structures. No species specific surveys were completed.</p>
<p>Barn Swallow (<i>Hirundo rustica</i>)</p>	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Known occurrence in the general area with potential to occur within the study area (MNRF Aylmer District Office SAR screening correspondence) • Atlas of Breeding Birds of Ontario (BSC, et.al., 2006) square 17LH85 	<p>G5</p>	<p>No Status</p>	<p>S4</p>	<p>THR</p>	<p>In Ontario, barn swallow breeds in areas that contain a suitable nesting structure, open areas for foraging, and a body of water. This species nests in human made structures including barns, buildings, sheds, bridges, and culverts. Preferred foraging habitat includes grassy fields, pastures, agricultural cropland, lake and river shorelines, cleared rights-of-way, and wetlands. Mud nests are fastened to vertical walls or built on a ledge underneath an overhang. Suitable nests from previous years are reused. This species can be associated with the following ELC codes: TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1; nests on suitable structures.</p>	<p>Moderate: limited suitable nesting structures (i.e. vertical wall structures) within the study area. May use general area to forage based on general area known occurrence documented through MNRF correspondence. No incidental observations during field studies. No nests observed within study area on pier/marina structures. No species specific surveys were completed.</p>
<p>Bobolink (<i>Dolichonyx oryzivorus</i>)</p>	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Atlas of Breeding Birds of Ontario (BSC, et.al., 2006) square 17LH85 	<p>G5</p>	<p>THR</p>	<p>S4</p>	<p>THR</p>	<p>In Ontario, the bobolink breeds in grasslands or graminoid dominated hayfields with tall vegetation. Bobolinks prefer grassland habitat with a broad-leaf component and a substantial litter layer. They have low tolerance for presence of woody vegetation and are sensitive to extensive mowing. They are found in greater numbers in old fields where mowing and re-sowing are infrequent. Their nest is woven from grasses and forbs. It is built on the ground, in dense vegetation, usually under the cover of one or more broad-leaved forbs.</p>	<p>Low: Suitable habitat not available within study area. Not identified by MNRF Make a Map Application tool or MNRF correspondence. No incidental observations during field studies. No species specific surveys were completed.</p>



APPENDIX D: SPECIES AT RISK SCREENING

Chimney Swift (<i>Chaetura pelagica</i>)	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Atlas of Breeding Birds of Ontario (BSC, et.al., 2006) square 17LH85 	G5	THR	S4	THR	In Ontario, chimney swift breeding habitat is varied and includes urban, suburban, rural and wooded sites. They are most commonly associated with towns and cities with large concentrations of chimneys. Preferred nesting sites are dark, sheltered spots with a vertical surface to which the bird can grip. Unused chimneys are the primary nesting and roosting structure, but other anthropogenic structures and large diameter cavity trees are also used.	Low: Suitable habitat not available within study area. Not identified by MNRF Make a Map Application tool or MNRF correspondence. No incidental observations during field studies. No species specific surveys were completed.
Common Nighthawk (<i>Chordeiles minor</i>)	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Atlas of Breeding Birds of Ontario (BSC, et.al., 2006) square 17LH85 	G5	SC	S4	SC	These aerial foragers require areas with large open habitat. This includes farmland, open woodlands, clearcuts, burns, rock outcrops, alvars, bog ferns, prairies, gravel pits and gravel rooftops in cities.	Low: Suitable habitat not available within study area. Not identified by MNRF Make a Map Application tool or MNRF correspondence. No incidental observations during field studies. No species specific surveys were completed.
Eastern Meadowlark (<i>Sturnella magna</i>)	<ul style="list-style-type: none"> • Potential to occur within general area; (MNRF Make a Map Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Atlas of Breeding Birds of Ontario (BSC, et.al., 2006) square 17LH85 	G5	No Status	S4	THR	In Ontario, the eastern meadowlark breeds in pastures, hayfields, meadows and old fields. Eastern meadowlarks prefer moderately tall grasslands with abundant litter cover, high grass proportion, and a forb component. They prefer well drained sites or slopes, and sites with different cover layers. This species can be associated with the following ELC codes: TPO, TPS, CUM1, MAM2, MAS2	Low: suitable habitat is not located within the study area. Species was not observed during field investigations. No species specific surveys were completed.
Eastern Wood-Pewee (<i>Contopus virens</i>)	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Atlas of Breeding Birds of Ontario (BSC, et.al., 2006) square 17LH85 	G5	SC	S4	SC	In Ontario, the eastern wood-pewee inhabits a wide variety of wooded upland and lowland habitats, including deciduous, coniferous, or mixed forests.	Low: Suitable habitat not available within study area. Not identified by MNRF Make a Map Application tool or MNRF correspondence. No incidental observations during field studies. No species specific surveys were completed.
Northern Bobwhite (<i>Colinus virginianus</i>)	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Atlas of Breeding Birds of Ontario (BSC, et.al., 2006) square 17LH85 	G5	END	S1	END	In Ontario, the northern bobwhite breeds in early successional habitats. This species requires a combination of three habitat types: woody cover, cropland and grassland. Croplands provide foraging habitat, grassland and fields are used for nesting, and dense brush provides both winter forage and year round cover. These birds nest on the ground in a shallow depression lined with grasses and other dead vegetation.	Low: Suitable habitat not available within study area. Not identified by MNRF Make a Map Application tool or MNRF correspondence. No incidental observations during field studies. No species specific surveys were completed.



APPENDIX D: SPECIES AT RISK SCREENING

<p>Peregrine Falcon (<i>Falco peregrinus</i>)</p>	<ul style="list-style-type: none"> • Potential to occur within general area; (MNRF Make a Map Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) 	G4	SC	S3	SC	<p>In Ontario, the peregrine falcon breeds in areas containing suitable nesting locations and sufficient prey resources. Such habitat includes both natural locations containing cliff faces (heights of 50 - 200 m preferred) and also anthropogenic landscapes including urban centres containing tall buildings, open pit mines and quarries, and road cuts. Peregrine falcons nest on cliff ledges and crevices and building ledges. Nests consist of a simple scrape in the substrate. This species can be associated with the following ELC codes: CLO</p>	<p>Low: suitable anthropogenic structure or cliff habitat is not located within the study area.</p> <p>Species was not observed during field investigations. No species specific surveys were completed.</p>
<p>Wood Thrush (<i>Hylocichla mustelina</i>)</p>	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Atlas of Breeding Birds of Ontario (BSC, et.al., 2006) square 17LH85 	G5	SC	S4	SC	<p>During the breeding season, the wood thrush is found in moist, deciduous hardwood or mixed stands, often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches. Wood thrush chooses habitats based on the structure of the forest. Specifically, this species selects nesting sites with the following characteristics: lower elevations with trees >16 m in height, a closed canopy cover (>70 %), a high variety of deciduous tree species, moderate subcanopy and shrub density, shade, fairly open forest floor, moist soil, and decaying leaf litter.</p>	<p>Low: Suitable habitat not available within study area. Not identified by MNRF Make a Map Application tool or MNRF correspondence. No incidental observations during field studies. No species specific surveys were completed.</p>
Reptiles							
<p>Butler's Garter Snake (<i>Thamnophis butleri</i>)</p>	<ul style="list-style-type: none"> • Potential to occur within study area; (MNRF Make a Map Natural Heritage Application) • Known occurrence in the general area with potential to occur within the study area; (MNRF Aylmer District Office SAR screening correspondence) • Herpetofaunal Summary Atlas (Ontario Nature, 2015) 	G4	THR	S2	END	<p>Butler's garter snakes inhabit moist, grassy, open canopy areas, such as meadows, wet prairies, marshes, savannas and grasslands, but may also be found in grassy vacant lots in suburban and residential areas. The species can often be found under rocks, logs, trash, and boards.</p> <p>In Ontario, butler's gartersnake occurs at fewer than 50 sites in Essex, Lambton, Middlesex, Dufferin and Wellington counties in southern Ontario. This snake species inhabits open areas with dense grasses (e.g. prairies) near seasonally dry marshes, wet meadows, ditches, and marshy pond and lake edges, and other moist, grassy areas. They will also utilize less-favored habitat, including shrubby areas and vacant urban lots. Hibernation can occur in burrows made by mammals or crawfish, or other areas that provide access below the frost line.</p>	<p>Low: The open meadow and shoreline habitat within the study area is small and fragmented from other nearby natural areas, which reduces habitat suitability.</p> <p>No incidental observations were noted during field surveys. No species specific surveys were completed.</p>



APPENDIX D: SPECIES AT RISK SCREENING

<p>Eastern Foxsnake – Carolinian Population (<i>Pantherophis gloydi</i>)</p>	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Herpetofaunal Summary Atlas (Ontario Nature, 2015) 	GNR	END	S2	END	<p>Eastern foxsnake will utilize a range of habitats including unforested areas, such as old fields, prairies, marshes and shoreline dunes, as well as hedgerows and riparian areas along drainage canals. Their preferred habitat is coastal marsh and near-shore habitats along the Great Lakes. All types of microhabitats are utilized, such as brush piles, stumps, and trash. Hibernation is communal and occurs in bedrock fissures, mammal burrows, bases of utility poles, canals, wells, cisterns and building foundations. Large rotting logs and driftwood were found to provide important oviposition sites in the Carolinian Region.</p>	<p>Low: Not identified by MNRF Make a Map Application tool or MNRF correspondence. No incidental observations during field studies. No species specific surveys were completed.</p>
<p>Eastern Hog-nosed Snake (<i>Heterodon platirhinos</i>)</p>	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Herpetofaunal Summary Atlas (Ontario Nature, 2015) 	G5	THR	S3	THR	<p>Eastern hog-nosed snake can be classified as a habitat generalist as it uses a variety of habitats across its range. Typically, this snake species uses habitat with open vegetation cover, including open woodlands, wetlands, fields, forest edges, beaches and dunes, and disturbed sites, most often near water. In the Georgian Bay area, disturbed fields, rock barrens and forests appear to be preferred habitats. This species relies on sandy well drained soils. Hibernation occurs in sandy soils below the frost line. This species has been observed excavating hibernation sites in mixed intolerant upland forests. Nesting and oviposition has been noted in upland sandy areas and rock outcrops under large flat rocks. Majority of their diet is comprised of american toad and fowler’s toad.</p>	<p>Low: Not identified by MNRF Make a Map Application tool or MNRF correspondence. No incidental observations during field studies. No species specific surveys were completed.</p>
<p>Massasauga Rattlesnake – Carolinian Population (<i>Sistrurus catenatus</i>)</p>	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Herpetofaunal Summary Atlas (Ontario Nature, 2015) 	G3G4	END	S3	END	<p>Massasauga occurs in four separate regional populations: eastern Georgian Bay, Bruce peninsula and Manitoulin Island, Wainfleet bog, and the Ojibway Prairie complex in Windsor. This snake species utilizes a wide range of habitats across its range, all of which share specific characteristics including open areas for basking and areas of vegetation and rock for shelter. They are most typically associated with wetlands and damp areas/lowlands during the spring. They forage in shrubby fields and grasslands in the summer months. Hibernation sites are often associated with wetlands or wet depressions, in rock fissures, mammal and crayfish burrows, sphagnum hummocks and tree root systems, where snakes will access the area below the frost line, but above the water table. Gestation habitat includes areas with low canopy closure such as bedrock outcrops with vegetative cover and a large structure such as a table rock for refuge during this period.</p>	<p>Low: Suitable habitat not available within study area. Not identified by MNRF Make a Map Application tool or MNRF correspondence. No incidental observations during field studies. No species specific surveys were completed.</p>



APPENDIX D: SPECIES AT RISK SCREENING

<p>Blandings Turtle – Great Lakes/St. Lawrence Population (<i>Emydoidea blandingii</i>)</p>	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Herpetofaunal Summary Atlas (Ontario Nature, 2015) 	G4	THR	S3	THR	<p>Blanding's turtle will utilize a range of aquatic habitats, but favor those with shallow, standing or slow-moving water, rich nutrient levels, organic substrates and abundant aquatic vegetation. They will use rivers, but prefer slow-moving currents and are likely only transients in this type of habitat. This species is known to travel great distances over land in the spring in to order reach nesting sites, which can include dry conifer or mixed forests, partially vegetated fields, and roadsides. Suitable nesting substrates include organic soils, sands, gravel and cobble. They hibernate underwater and infrequently under debris close to water bodies.</p>	<p>Low: Suitable habitat not available within study area (sparse vegetative cover). Not identified by MNRF Make a Map Application tool or MNRF correspondence. No incidental observations during field studies. No species specific surveys were completed.</p>
<p>Snapping turtle (<i>Chelydra serpentina</i>)</p>	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Known occurrence in the general area with potential to occur within the study area (MNRF Aylmer District Office SAR screening correspondence) • Herpetofaunal Summary Atlas (Ontario Nature, 2015) 	G5	SC	S3	SC	<p>Snapping turtle utilizes a wide range of waterbodies, but shows preference for areas with shallow, slow-moving water, soft substrates and dense aquatic vegetation. Hibernation takes place in soft substrates under water. Nesting sites consist of sand or gravel banks along waterways or roadways.</p> <p>This species may be associated with the following ELC codes: OAD, MAS, SAS, SAM, SAF</p>	<p>Moderate: Although aquatic soft mud/sandy bottom exists within the study area, vegetation is sparse to non-existent. Sandy substrate suitable for nesting habitat occurs along the shoreline.</p> <p>No incidental observations were noted during field surveys. No species specific surveys were completed.</p>
<p>Common Five-lined Skink -Carolinian population (<i>Plestiodon fasciatus</i>)</p>	<ul style="list-style-type: none"> • Potential to occur within general area; (MNRF Make a Map Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Herpetofaunal Summary Atlas (Ontario Nature, 2015) 	G5	END	S2	END	<p>Five-lined skinks are ground-dwelling animals that prefer moist, partially wooded habitat that provides ample cover or inside walls of buildings as well as sites to bask in the sun. They can also be found in broken, rocky areas at the northern edge of their habitat.</p> <p>In southwestern Ontario, five-lined skink is associated with dune habitat, open woods or savannah with ample debris for cover. This species also requires abundant basking habitat in the form of stumps, logs, rocky outcrops and brush/wood piles. Nesting takes place under rocks or logs. Hibernation takes place under tree trunks or rocks below the frost line.</p>	<p>Low: There is no suitable woodland or dune habitat within the study area. The study area is generally maintained and manicured.</p> <p>No incidental observations were noted during field surveys. No species specific surveys were completed.</p>
<p>Western Chorus Frog – Great Lakes/Canadian Shield Population (<i>Pseudacris triseriata</i>)</p>	<ul style="list-style-type: none"> • Not identified (MNRF Make a Make Natural Heritage Application) • Not identified (Aylmer District Office SAR screening correspondence) • Herpetofaunal Summary Atlas (Ontario Nature, 2015) 	G5	No Status	S3	No Status	<p>In Ontario, this amphibian species habitat typically consists of marshes or wooded wetlands, particularly those with dense shrub layers and grasses, as this species is a poor climber. They will breed in almost any fishless pond including roadside ditches, gravel [pits and flooded swales in meadows. This species hibernates in terrestrial habitats under rocks, dead trees or leaves, in loose soil or in animal burrows. During hibernation, this species is tolerant of flooding.</p>	<p>Low: Suitable habitat not available within study area. Not identified by MNRF Make a Map Application tool or MNRF correspondence. No incidental observations during field studies. No species specific surveys were completed.</p>



APPENDIX D: SPECIES AT RISK SCREENING

Mammals							
Little Brown myotis (<i>Myotis lucifugus</i>)	<ul style="list-style-type: none"> Not identified (MNRF Make a Make Natural Heritage Application) Not identified (Aylmer District Office SAR screening correspondence) Atlas of the Mammals of Ontario (Dobbyn, 1994) 	G5	END	S4	END	In Ontario, this species range is extensive and covers much of the province. It will roost in both natural and man-made structures. They require a number of large dead trees, in specific stages of decay and that project above the canopy in relatively open areas. May form nursery colonies in the attics of buildings within 1 km of water. Caves or abandoned mines may be used for hibernaculum, but high humidity and stable above freezing temperatures are required.	Low: Not identified by MNRF make a map application tool or through correspondence with MNRF Aylmer district office. Specific habitat requirements for large numbers of dead trees above the canopy etc...not identified within the study area. No incidental observations were noted during field surveys. No species specific surveys were completed.

Notes:

¹**G-Rank:** Global ranks are assigned by a consensus of the network of Conservation Data Centres, scientific experts and The Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies or variety. G-Rank assigned definitions are as follows:

GX: Presumed Extinct (species) — Not located despite intensive searches and virtually no likelihood of rediscovery.

Eliminated (ecological communities) — Eliminated throughout its range, with no restoration potential due to extinction of dominant or characteristic species.

GH: Possibly Extinct (species) — Missing; known from only historical occurrences but still some hope of rediscovery.

Presumed Eliminated — (Historic, ecological communities)-Presumed eliminated throughout its range, with no or virtually no likelihood that it will be rediscovered, but with the potential for restoration.

G1: Critically Imperiled — At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.

G2: Imperiled — At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.

G3: Vulnerable — At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.

G4: Apparently Secure — Uncommon but not rare; some cause for long-term concern due to declines or other factors.

G5: Secure — Common; widespread and abundant.

Federal Status:

²**Species At Risk Act (SARA)** — National Strategy for the Protection of Species at Risk. At a federal level, species at risk designations for species occurring in Canada are initially determined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). If approved by the federal Minister of the Environment, species are added to the federal List of Wildlife Species at Risk (Government of Canada 2002). Species that are included on Schedule 1 as endangered or threatened are afforded protection of critical habitat on federal lands under the Species at Risk Act (SARA). On private or provincially-owned lands, only aquatic species listed as endangered, threatened or extirpated and migratory birds are protected under SARA, unless ordered by the Governor in Council.

EXT: Extinct — A species that no longer exists.

EXP: Extirpated — A species that no long exists in the wild in Canada, but occurring elsewhere in the world.

END: Endangered — A species facing imminent extirpation or extinction throughout its range.

THR: Threatened — A species likely to become endangered if nothing is done to reserve the factors leading to its extirpation or extinction.

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

IND: Indeterminate — A species for which there is insufficient information to support a status designation.

NAR: Not at Risk — A species that has been evaluated and found to be not at risk.

Provincial Status:

³**S-Rank:** — The Natural Heritage Provincial ranking system (provincial S-Rank) is used by MNRF Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. S-Rank assigned definitions are as follows:

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 and 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.

SE: Exotic; not believe to be a native component of Ontario's flora.

SH: Possibly Extirpated (Historical); Species or community occurred historically in the nation, state/province, and there is some possibility that it may be rediscovered. Its presence has not been verified in the past 20 to 40 years.

⁴**Endangered Species Act in Ontario (ESA)** - Species at risk designations for species in Ontario are initially determined by the Committee on the Status of Species at Risk in Ontario (COSSARO), and if approved by the provincial Minister of Natural Resources, species are added to the provincial Endangered Species Act (ESA) which came into effect June 30, 2008 (Ontario 2007). The legislation prohibits the killing or harming of species identified as endangered or threatened in the various schedules to the Act. The ESA also provides habitat protection to all species listed as threatened or endangered. As of June 30, 2008, the SARO List is contained in O. Reg. 230/08. O. Reg. 230/08 was last amended in January 2014.

EXT: Extinct — A species that no longer exists.

EXP: Extirpated — A species that no long exists in the wild in Canada, but occurring elsewhere in the world.

END: Endangered — A species facing imminent extirpation or extinction throughout its range.

THR: Threatened — A species likely to become endangered if nothing is done to reserve the factors leading to its extirpation or extinction.

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

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NAR: Not at Risk — A species that has been evaluated and found to be not at risk.

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