

DATE May 16, 2018

PROJECT No. 1668667

TO Kevin Brown, Senior Municipal Engineer - Project Manager
The Municipal Infrastructure Group Ltd.

CC Heather Melcher, M.Sc.

FROM Gwendolyn Weeks, H.B.Sc.Env.

EMAIL gwendolyn_weeks@golder.com

**NATURAL ENVIRONMENT EXISTING CONDITIONS BRIEF, SCHEDULE B MUNICIPAL CLASS
ENVIRONMENTAL ASSESSMENT, WATER SYSTEM UPGRADES, WHITCHURCH-STOUFFVILLE,
ONTARIO**

Background & Summary

The Municipal Infrastructure Group (TMIG) retained Golder Associates Ltd. (Golder) to prepare a Natural Environment Existing Conditions technical memorandum as part of a Schedule B Class Environmental Assessment (EA) for water system upgrades in the Town of Whitchurch-Stouffville, Regional Municipality of York, Ontario (the Study Area) (Figure 1; Attachment A).

The purpose of this memo is to identify the known significant natural features in the Study Area that may pose a constraint to the project. The natural features considered in this memo are those listed in the Provincial Policy Statement (MMA, 2014), including:

- Significant wetlands (PSW) and coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat;
- Significant areas of natural and scientific interest (ANSI);
- Fish habitat; and
- Habitat of endangered and threatened species and threatened species.

Also considered are the natural heritage features as listed in the Greenbelt Plan (Ontario, 2017a) and the Oak Ridges Moraine Conservation Plan (ORMCP) (MMA, 2017b).



Study Area

The Study Area covers approximately 51 km² at the southeast corner of the Town of Whitchurch-Stouffville. It includes the community of Stouffville with boundaries at Vandorf Sideroad to the north, York-Durham Line to the east, 19th Avenue to the south, and McCowan Road to the west (Figure 1; Attachment A).

Methods

Background data reviewed for this project included existing documents and a number of information sources. The review was also used to identify significant natural features and species at risk (SAR) that have been reported as occurring in the Study Area, or have the potential to occur. Sources reviewed included:

- Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) Biodiversity Explorer (MNRF, 2016) for information on known occurrences of SAR and other significant natural features;
- Information and mapping available from the Toronto and Region Conservation Authority (TRCA) and Lake Simcoe Region Conservation Authority (LSRCA);
- Atlas of Breeding Birds of Ontario (Cadman et al., 2007);
- Atlas of the Mammals of Ontario (Dobbyn, 1994);
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2015);
- Ontario Butterfly Atlas (Jones et al., 2015);
- Bat Conservation International (BCI) range maps (BCI, 2013);
- eBird (2012);
- MNRF Land Information Ontario (LIO) mapping (LIO, 2017); and
- Existing aerial photography.

The MNRF was contacted by e-mail in order to obtain information on rare species, fish community data, and significant natural features on the Site. The MNRF declined to provide information relating to these features on the basis that the Study Area was too large (email dated July 14, 2017).

An assessment was conducted to determine which species listed under the federal *Species at Risk Act* (SARA) (Canada, 2002) or provincial *Endangered Species Act* (ESA) (Ontario, 2007) have the potential to be located in the Study Area. The potential for SAR to occur was assessed based on species range information, known records, review of existing habitats based on aerial images, and the preferred habitat requirements of these species. 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 recorded. High potential indicates a known species record in the Study Area and good quality habitat is present. The SAR screening is provided in Attachment A, and is based on the background materials reviewed as well as professional opinion.

Results

General Study Area Description

The Study Area lies within the Huron-Ontario sub-region of the Great Lake-St. Lawrence Forest Region. Trees characteristic of this sub-region include primarily sugar maple and beech, with associates of basswood, white and green ash, yellow birch, red maple, and white, red and bur oaks. Eastern hemlock, eastern white pine and balsam fir are scattered amongst tolerant hardwoods, and in low-lying areas eastern white cedar, silver maple, white and red elm, and black ash are present. Other less abundant species include large-tooth aspen, butternut, bitternut hickory, hop hornbeam, black cherry, sycamore and black oak (Rowe, 1977).

The northern part of the Study area (north of Bloomington Road) lies within the Oak Ridges Moraine physiographic region and the areas south of Bloomington Road lie within the South Slope physiographic region (Chapman and Putnam, 1966). The Oak Ridges Moraine is characterized by hilly topography with knob-and-basin relief, and is dominated by sandy or gravelly materials typical of a glacial moraine. The South Slope represents the lands sloping down from the Oak Ridges Moraine from the Niagara Escarpment in the west to Prince Edward County in the east. In the vicinity of the Study Area, this region is described as smoothed, faintly drumlinized, and scored at intervals by valleys.

The northern part of the study area (north of Bloomington Road) lies within the LSRCA jurisdiction, specifically the East Holland Subwatershed. This watershed contains two major tributaries: the East Holland and the Holland\Schomberg Rivers (LSRCA, 2000), both of which originate in headwaters on the Oak Ridges Moraine. Below Bloomington Road, the Study Area lies within the TRCA jurisdiction, specifically the Little Rouge River Watershed (approximately east of 9th Line) and the Duffins Creek Watershed (approximately west of 9th Line). The Little Rouge River drains an area of approximately 114 km². Creeks within the western portions of the Study Area were assessed by the TRCA as having a good biotic integrity (TRCA, 2002). The Duffins Creek Watershed is described as one of the healthiest watersheds along the north shore of Lake Ontario, draining an area of 283 km² (TRCA, 2002). Within the Study Area, Stouffville Creek, a tributary of West Duffins Creek, was assessed by the TRCA as having good biotic integrity (TRCA, 2002).

The dominant land-uses within the Study Area agricultural and urban areas within the Town of Stouffville, with isolated areas of natural cover including rural woodlots, hedgerows, wooded valleys, and remnant natural cover associated with wetlands.

Significant Natural Features

Habitat of Endangered or Threatened Species

Attachment A lists the endangered and threatened species with potential to be present in the Study Area, based on a review of background materials and aerial imagery to determine potential habitat suitability.

The species listed in Attachment A as endangered or threatened under the ESA, and their habitats, are protected by the ESA. Once the route alternatives are known, a more refined screening can be performed and additional studies may be required to determine their presence or absence and, if present, the extent of their habitats in the Study Area. Any alteration of the habitats of threatened or endangered species must be undertaken in accordance with the ESA and the associated regulations.

Wetlands

Wetlands are evaluated by the MNRF according to evaluation procedures established by the province, specifically, the Ontario Wetland Evaluation System (MNRF, 2013). Through this evaluation, wetlands are designated either

provincially significant (PSW) or non-provincially significant (non-PSW). Through the background review, the following PSW were identified within the Study Area:

- *Goodwood/Glasgow PSW Complex*: Located in the northeastern portion of the Study Area.
- *East Musselman PSW Complex*: Located in the north-central portion of the Study Area.
- *Musselman Lake PSW*: Located in the north-central portion of the Study Area, overlapping East Musselman PSW Complex.

One wetland, the Stouffville Marsh, has been evaluated and was found to be non-PSW. Numerous other small unevaluated wetlands are present throughout the Study Area. Any works within the regulated area associated with wetlands (PSW, non-PSW and unevaluated) will require a *Development, Interference with Wetland and Alterations to Shorelines and Watercourses* permit from the LSRCA and TRCA.

Fish Habitat

Projects affecting waterbodies supporting Canada's commercial, recreational or aboriginal (CRA) fisheries must comply with the provisions of the *Fisheries Act* (Canada, 1985). The Act prohibits the serious harm to fish that are part of a CRA fishery, or to fish that support such a fishery. Serious harm to fish is defined as "the death of fish or any permanent alteration to, or destruction of, fish habitat".

Based on a review of background materials, the Study Area contains a large number of surface water features that are confirmed, or have high potential to be considered fish habitat. These include the headwaters of the Little Rouge River (Willowgrove Creek), Duffins Creek (Stouffville and Reesor Creek), and tributaries of the East Holland River, as well as the smaller unnamed tributaries of each of these systems, and headwater wetlands.

Depending upon final design, works associated with the Project may represent serious harm to fish. As such, a Request for Review may need to be completed and submitted to Fisheries and Oceans Canada (DFO) in order to determine if an Authorization under the *Fisheries Act* is required.

Significant Woodlands

Significant woodlands are to be defined and designated by the local planning authority (MNRF, 2010). According to the PPS, significant woodlands are to be identified using criteria established by the MNRF in the Natural Heritage Reference Manual (NHRM) for Policy 2.3 of the PPS (MNRF, 2010). The Whitchurch-Stouffville Official Plan (OP) (2000) maps Major Woodland Areas and Tableland Woodlot Areas (Schedule A) and other Woodlands (Schedules H and F-3) which are considered significant in the planning area. Development in or adjacent to these wooded areas are subject to the policies of the ORMCP (key natural heritage feature) and the OP (see following sections relating to the ORMCP and OP).

Significant Valleylands

Recommended criteria for designating significant valleylands under the PPS include prominence as a distinctive landform, degree of naturalness, importance of its ecological functions, restoration potential, and historical and cultural values. The Township of Whitchurch-Stouffville OP notes that significant valleylands should be determined using criteria established by the province, and have not identified any significant valleylands in the OP.

Significant Areas of Natural or Scientific Interest (ANSIs)

ANSIs are areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education. The MNRF is responsible

for identifying ANSIs. A single ANSI extends into north-central portion of the Study Area, namely the Musselman Lake Kettle Complex Life and Earth Science ANSI.

Significant Wildlife Habitat

Significant wildlife habitat, as defined by the NHRM, includes:

- Habitats of seasonal concentrations of animals;
- Rare vegetation communities or specialized habitat for wildlife;
- Habitat of species of conservation concern; and
- Animal movement corridors.

Guidance on determining the significance of these habitats is provided in the Significant Wildlife Habitat (SWH) Technical Guide (MNRF, 2000) and the SWH Ecoregion Criterion Schedules (MNRF, 2015). The Study Area has the potential to support a wide range of SWH, and where present, these areas would be subject to the policies of the ORMCP and Whitchurch-Stouffville OP (see following sections relating to the ORMCP and OP).

Natural Environment Planning Policies

Greenbelt Plan

The majority of the Study Area lies within the Oak Ridges Moraine Area of the Greenbelt Plan Area, with the exception of the southwest corner (Figure 2; Attachment A). This southwest corner is mapped as Natural Heritage System under the Protected Countryside designation along the major watercourse features (branches of Willowgrove Creek). The balance of the southwest corner of the Study Area, outside of the noted watercourse features, lies outside of the Greenbelt Plan Area.

Protected Countryside

With respect to infrastructure development within the Protected Countryside (including the Natural Heritage System), the following policies apply:

All existing, expanded or new *infrastructure* subject to and approved under the *Canadian Environmental Assessment Act*, the *Environmental Assessment Act*, the *Planning Act*, the *Aggregate Resources Act* or the *Telecommunications Act* or by the National or Ontario Energy Boards, or which receives a similar environmental approval, is permitted within the Protected Countryside, subject to the policies of this section and provided it meets one of the following two objectives:

- It supports agriculture, recreation and tourism, Towns/Villages and Hamlets, resource use or the rural economic activity that exists and is permitted within the Greenbelt; or
- It serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt by providing for the appropriate *infrastructure* connections among urban centres and between these centres and Ontario's borders.

The location and construction of *infrastructure* and expansions, extensions, operations and maintenance of *infrastructure* in the Protected Countryside are subject to the following:

- Planning, design and construction practices shall minimize, wherever possible, the amount of the Greenbelt, and particularly the Natural Heritage System and Water Resource System, traversed and/or occupied by such *infrastructure*;
- Planning, design and construction practices shall minimize, wherever possible, the *negative impacts* on and disturbance of the existing landscape, including, but not limited to, impacts caused by light intrusion, noise and road salt;
- Where practicable, existing capacity and co-ordination with different *infrastructure* services shall be optimized so that the rural and existing character of the Protected Countryside and the overall hierarchy of areas where growth will be accommodated in the *GGH* established by the Greenbelt Plan and the Growth Plan are supported and reinforced;
- New or expanding *infrastructure* shall avoid *key natural heritage features*, *key hydrologic features* or *key hydrologic areas* unless need has been demonstrated and it has been established that there is no reasonable alternative; and,

Where *infrastructure* does cross the Natural Heritage System or intrude into or result in the loss of a *key natural heritage feature*, *key hydrologic feature* or *key hydrologic areas*, including related *landform features*, planning, design and construction practices shall minimize *negative impacts* on and disturbance of the features or their related functions and, where reasonable, maintain or improve *connectivity*.

Natural Heritage System

For lands within the Natural Heritage System of the Protected Countryside, new development or site alteration must demonstrate that:

- a) There will be no negative impacts on key natural heritage features or key hydrologic features or their functions;
- b) Connectivity along the system and between key natural heritage features and key hydrologic features located within 240 metres of each other will be maintained or, where possible, enhanced for the movement of native plants and animals across the landscape; and
- c) The removal of other natural features not identified as key natural heritage features and key hydrologic features should be avoided. Such features should be incorporated into the planning and design of the proposed use wherever possible.

Where regulations or standards of other agencies or levels of government exceed the standards related to key natural heritage features or key hydrologic features in the Greenbelt Plan, such as may occur with hazardous lands under section 28 of the *Conservation Authorities Act (1990)* or with fisheries under the federal *Fisheries Act*, the most restrictive provision or standard applies.

Key Natural Heritage Features

According to the Greenbelt Plan, Key Natural Heritage features that may pertain to the Study Area (i.e., the watercourses that the Natural Heritage System designations are associated with) include:

- Habitat of endangered species and threatened species;
- Fish habitat;

- Wetlands;
- Significant valleylands;
- Significant woodlands; and
- Significant wildlife habitat (including habitat of special concern species).

Key Hydrologic Features that may pertain to these parts of the Study Area include:

- Permanent and intermittent streams;
- Seepage areas and springs; and
- Wetlands.

For lands within a Key Natural Heritage Feature or a Key Hydrologic Feature in the Protected Countryside, development or site alteration is not permitted in those features, including any associated vegetation protection zone, with the conditional exception of infrastructure, among other things.

In the case of wetlands, seepage areas and springs, fish habitat, permanent and intermittent streams, lakes and significant woodlands, the minimum vegetation protection zone shall be a minimum of 30 metres measured from the outside boundary of the feature.

A proposal for new development or site alteration within 120 metres of a key natural heritage feature within the Natural Heritage System or a key hydrologic feature anywhere within the Protected Countryside requires a natural heritage evaluation or a hydrological evaluation which identifies a vegetation protection zone which:

- Is of sufficient width to protect the key natural heritage feature or key hydrologic feature and its functions from the impacts of the proposed change and associated activities that may occur before, during and after construction and, where possible, restore or enhance the feature and/or its function; and
- Is established to achieve and be maintained as natural self-sustaining vegetation.

A proposal for new development or site alteration within the Natural Heritage System is not subject to policies of the *Greenbelt Plan* where the only key natural heritage feature is the habitat of endangered species and threatened species.

Oak Ridges Moraine Conservation Plan (ORMCP)

The majority of the Study Area lies within the Oak Ridges Moraine Area of the Greenbelt Plan Area, with the exception of the southwest corner (Figure 2; Attachment A), and is therefore subject to the ORMCP policies. Within the Oak Ridges Moraine Area, the Study Area includes several designations (Figure 3; Attachment A):

- Settlement Area;
- Countryside Area (including Rural Settlement);
- Natural Core Area; and
- Natural Linkage Area.

In the Oak Ridges Moraine Area, new infrastructure corridors or facilities shall only be allowed in the Natural Core Areas and Natural Linkage Areas if they are shown to be necessary and there is no reasonable alternative. They shall also have to meet stringent review and approval standards.

In addition to the areas identified as Core Natural Areas and Natural Linkage Areas, ORMCP Key Natural Heritage features that are known or have potential to occur in the Study Area include:

- Wetlands;
- Habitat of endangered and threatened species;
- Fish habitat;
- Areas of natural and scientific interest (life science);
- Significant valleylands;
- Significant woodlands;
- Significant wildlife habitat (including habitat of special concern species); and
- Sand barrens, savannahs and tallgrass prairies.

Further, the following key hydrologic features are known or have potential to occur in the Study Area:

- Permanent and intermittent streams;
- Wetlands;
- Kettle lakes; and
- Seepage areas and springs.

All development and site alteration with respect to land within a key natural heritage feature or key hydrologic feature or the related minimum vegetation protection zone is prohibited, with the conditional exception of infrastructure, among other things. An application for development or site alteration with respect to land within the minimum area of influence that relates to these features, but outside the feature itself and the related minimum vegetation protection zone, shall be accompanied by a natural heritage and/or hydrological evaluation.

Other designations that require consideration during project planning in the Study Area include:

- Wellhead Protection Areas;
- Landform Conservation Areas; and,
- Areas of High Aquifer Vulnerability.

Each of the designations discussed in this section, along with minimum vegetation protection zones and minimum areas of influence, are addressed in the Whitchurch-Stouffville OP, which has been brought into conformity with the ORMCP.

Whitchurch-Stouffville Official Plan

The Whitchurch-Stouffville OP provides more detail with respect to the land use designations discussed in the ORMCP at the local planning level. For infrastructure, the OP notes that new infrastructure is prohibited in all land use designations on Schedules A and B of the OP, as well as key natural heritage features and key hydrologic features, unless the requirements of Section 41 of the ORMCP are met. For the purposes of project planning, Table 1 outlines the natural features and associated minimum vegetation protection zones, as well as the areas of influence for each:

Table 1: Minimum Area of Influence and Minimum Vegetation Protection Zone

Feature	Minimum Area of Influence	Minimum Vegetation Protection Zone
Wetlands	All land within 120 metres of any part of feature	All land within 30 metres of any part of feature, subject to clause 23(1)(d) of ORMCP if a natural heritage evaluation is required.
Significant portions of habitat of endangered, rare and threatened species	All land within 120 metres of any part of feature	As determined by a natural heritage evaluation carried out under Section 23 of ORMCP.
Fish habitat	All land within 120 metres of any part of feature	All land within 30 metres of any part of feature, subject to clause 23(1)(d) of ORMCP if a natural heritage evaluation is required.
Areas of natural and scientific interest (life science)	All land within 120 metres of any part of feature	As determined by a natural heritage evaluation carried out under Section 23 of ORMCP.
Areas of natural and scientific interest (earth science)	All lands within 50 metres of any part of feature	As determined by an earth science heritage evaluation carried out under subsection 30(12) of ORMCP.
Significant valleylands	All land within 120 metres of stable top of bank	All land within 30 metres of stable top of bank, subject to clause 23(1)(d) of ORMCP if a natural heritage evaluation is required.
Significant woodlands	All land within 120 metres of any part of feature	All land within 30 metres of the base of outermost tree trunks within the woodland, subject to clause 23(1)(d) of ORMCP if a natural heritage evaluation is required.
Significant wildlife habitat	All land within 120 metres of any part of feature	As determined by a natural heritage evaluation carried out under Section 23 of ORMCP.
Sand barrens, savannahs and tallgrass prairies	All land within 120 metres of any part of feature	All land within 30 metres of any part of features, subject to clause 23(1)(d) of ORMCP if a natural heritage evaluation is required.
Kettle lakes	All land within 120 metres of the surface catchment area	All land within the surface catchment area or within 30 metres of any part of feature, whichever is greater, subject to clause 26(4)(c) of ORMCP if a hydrological evaluation is required.
Permanent and intermittent streams	All land within 120 metres of meander belt	All land within 30 metres of meander belt, subject to clause 26(4)(c) of ORMCP and subsection 26(5) if a hydrological evaluation is required.

Each of the features and zones discussed in Table 1 are mapped in the Whitchurch-Stouffville OP, with the exception of those that can only be determined through on-Site investigations (e.g., habitat of endangered and threatened species, etc.).

Additional areas that should be considered during project planning include Environmentally Significant Areas as shown on Schedule A of the OP (coinciding with the Natural Heritage System of the Greenbelt Plan Area) and Floodplains (Schedule A-2).

Recommendations

Given the number of known and potential natural heritage features in the Study Area, Golder recommends that future planning for the Whitchurch-Stouffville Water System Upgrades consider alternatives that avoid the natural heritage features confirmed in this report to be present in the Study Area. This would include consideration of the features as well as any associated minimum vegetation protection zone or minimum area of influence associated with them, as set out in the:

- Greenbelt Plan Natural Heritage System;
- ORMCP Natural Core Areas;
- ORMCP Natural Linkage Areas;
- Wetlands;
- Fish Habitat;
- Woodlands (OP Designations: Major Woodland Areas; Tableland Woodlot Area; Woodlands);
- Areas of Natural and Scientific Interest;
- Permanent and Intermittent Streams and Kettle Lakes;
- Environmentally Significant Areas; and
- Floodplains.

Once potential route alternatives are known, additional natural heritage screening to identify potential features occurring within the refined (i.e., smaller) footprint should be identified along each proposed alternative alignment, where possible, including:

- Potential habitat of endangered and threatened species;
- Significant valleylands;
- Potential significant wildlife habitat (including sand barrens, savannah and tallgrass prairie); and
- Seepage and springs.

Where the Greenbelt Plan Natural Heritage System, ORMCP Natural Core Areas, ORMCP Natural Linkage Areas, key natural heritage and key hydrologic features (and associated minimum vegetation protection zones or minimum areas of influence) cannot be avoided by the preferred alternative, additional study will be required to

conform to the policies of the Greenbelt Plan (minimizing negative impacts), as well as the ORMCP and Town of Whitchurch-Stouffville OP to ensure conformity with Section 41 of the ORMCP to the satisfaction of the Town.

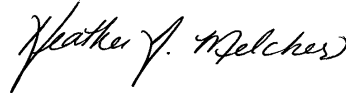
Closure

We trust that this report meets your current needs. If you have any questions, or if we may be of further assistance, please contact the undersigned at Gwendolyn_weeks@golder.com, or (613) 592-9600.



Gwendolyn Weeks, H.B.Sc.Env.
Ecologist

GW/HM/mp



Heather Melcher, M.Sc.
Associate, Senior Ecologist

Attachments: Figure 1: Site Plan
Figure 2: Greenbelt Plan Area Designations
Figure 3: Oak Ridges Moraine Conservation Plan Designations
Attachment A: Species at Risk Screening

[https://golderassociates.sharepoint.com/sites/13234g/1000 natural environment/report/1668667-tm-rev0-stouffville natural environment-16may2018.docx](https://golderassociates.sharepoint.com/sites/13234g/1000%20natural%20environment/report/1668667-tm-rev0-stouffville%20natural%20environment-16may2018.docx)

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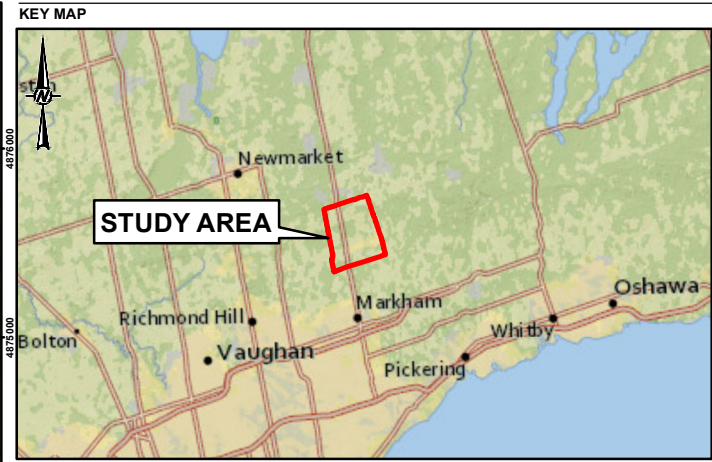
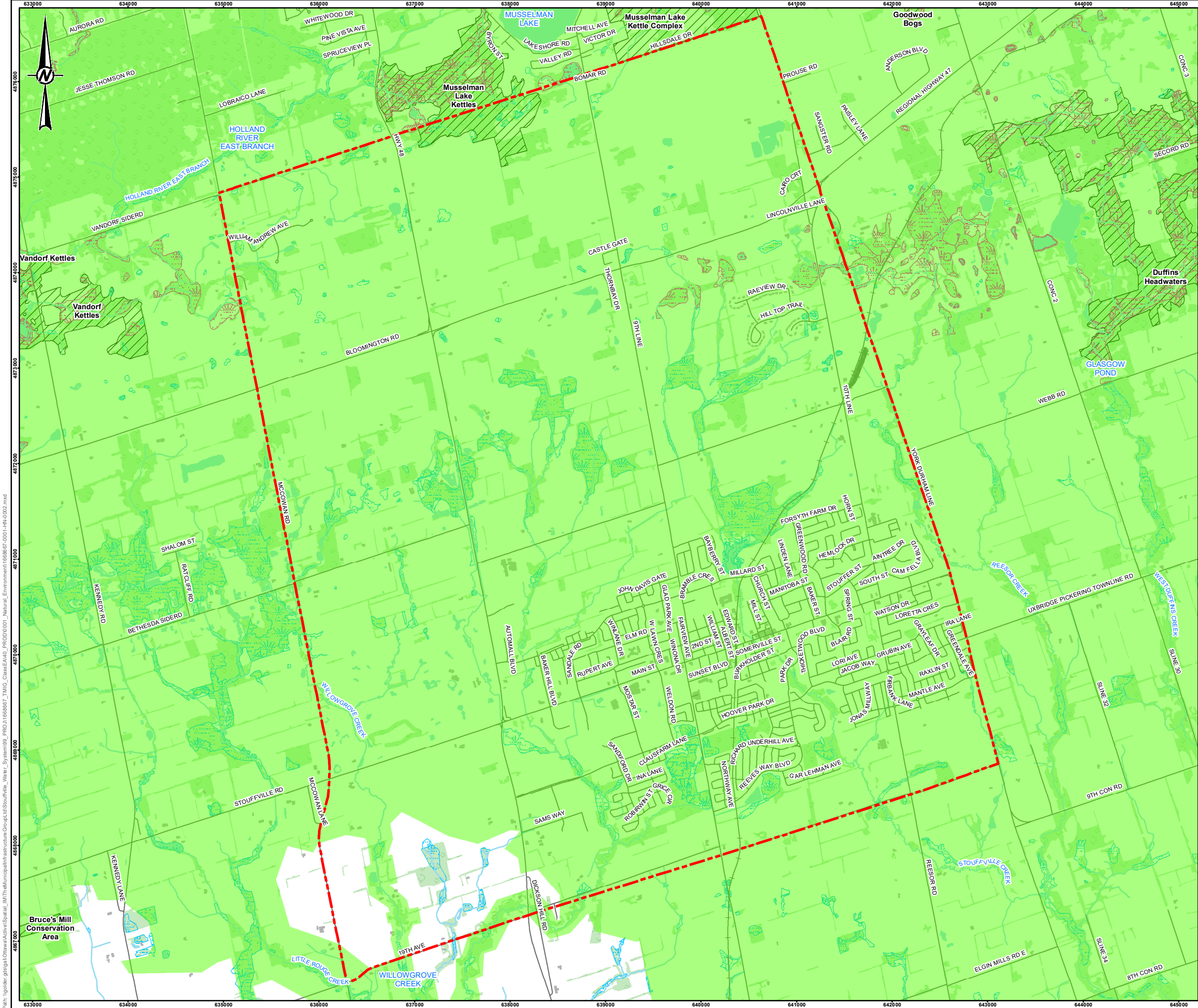
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FIGURES

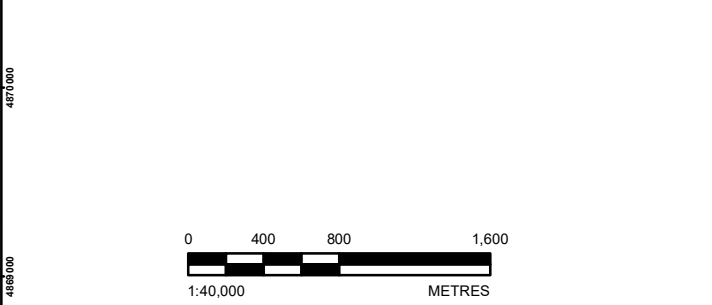


LEGEND

- ROADWAY
- RAILWAY
- WATERCOURSE
- WETLAND
- PROVINCIALY SIGNIFICANT WETLAND (PSW)
- AREAS OF NATURAL AND SCIENTIFIC INTEREST (ANSI)
- WATERBODY
- BUILDING FOOTPRINT
- WOODED AREA
- GREENBELT DESIGNATION
- STUDY AREA

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. SERVICE LAYER CREDITS: CONTENT MAY NOT REFLECT NATIONAL GEOGRAPHIC'S CURRENT MAP POLICY. SOURCES: NATIONAL GEOGRAPHIC, ESRI, DELORME, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, INCREMENT P CORP.
3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83.
COORDINATE SYSTEM: UTM ZONE 17, VERTICAL DATUM: CGVD28

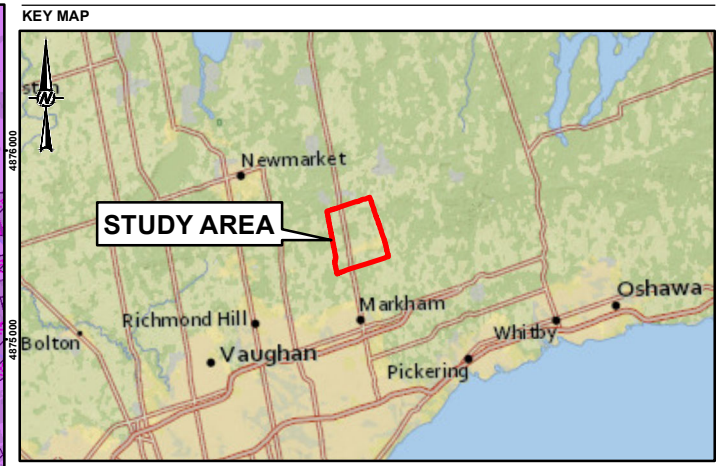
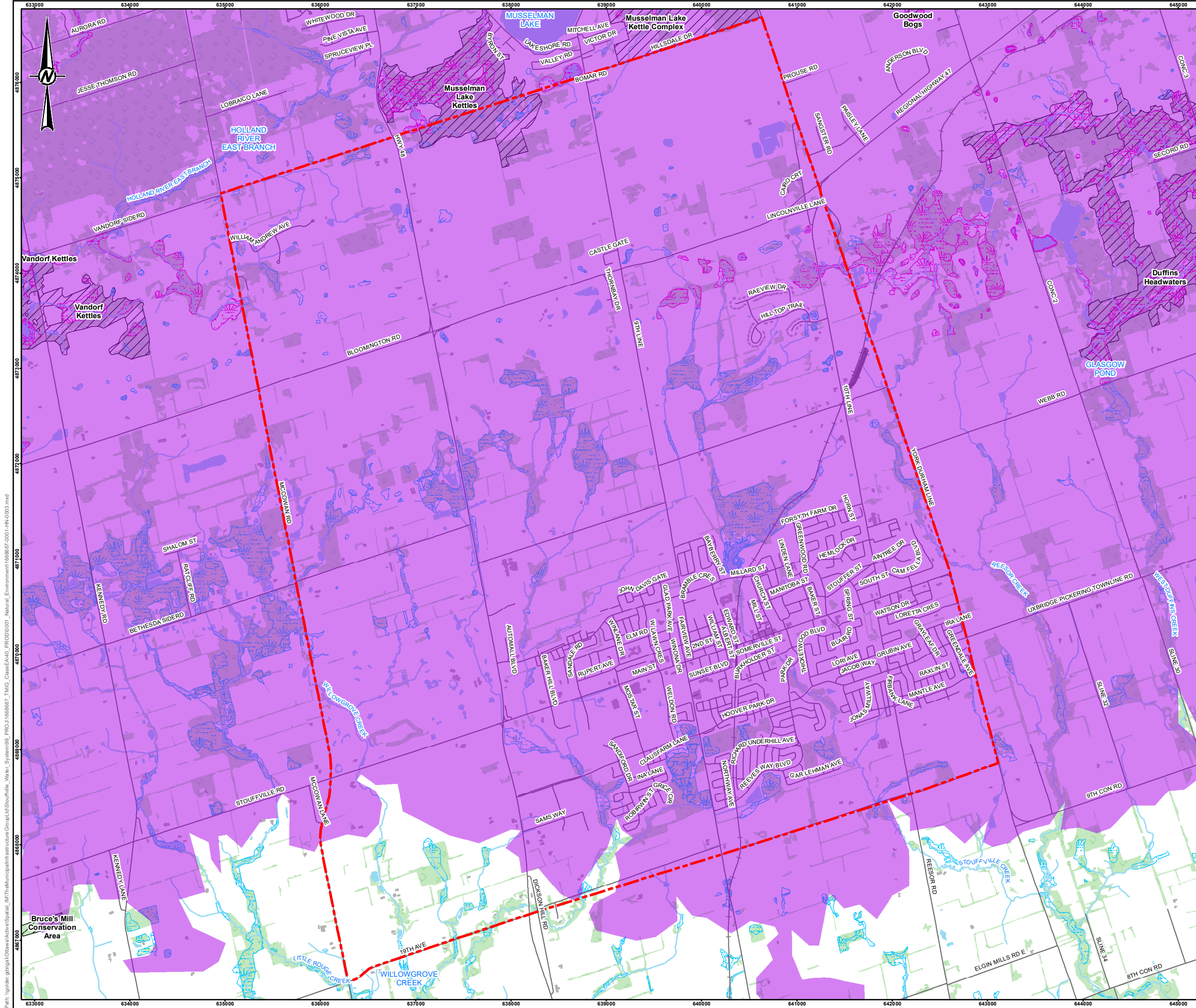


CLIENT
THE MUNICIPAL INFRASTRUCTURE GROUP LTD.

PROJECT
CLASS ENVIRONMENTAL ASSESSMENT
WATER SYSTEM UPGRADES FOR THE COMMUNITY OF STOUFFVILLE,
YORK REGION, ONTARIO

TITLE
GREENBELT PLAN AREA DESIGNATIONS

CONSULTANT	YYYY-MM-DD	2017-06-16
DESIGNED	---	
PREPARED	JEM	
REVIEWED	GW	
APPROVED	HM	

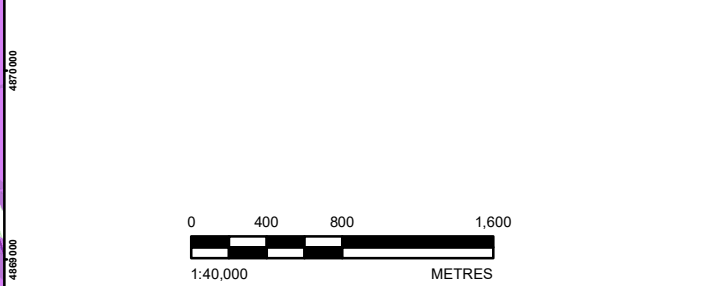


LEGEND

- ROADWAY
- RAILWAY
- WATERCOURSE
- WETLAND
- PROVINCIALY SIGNIFICANT WETLAND (PSW)
- AREAS OF NATURAL AND SCIENTIFIC INTEREST (ANSI)
- WATERBODY
- BUILDING FOOTPRINT
- WOODED AREA
- OAK RIDGE MORaine DESIGNATION
- STUDY AREA

NOTE(S)
1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. SERVICE LAYER CREDITS: CONTENT MAY NOT REFLECT NATIONAL GEOGRAPHIC'S CURRENT MAP POLICY. SOURCES: NATIONAL GEOGRAPHIC, ESRI, DELORME, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, INCREMENT P CORP.
3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 17, VERTICAL DATUM: CGVD28



CLIENT
THE MUNICIPAL INFRASTRUCTURE GROUP LTD.

PROJECT
CLASS ENVIRONMENTAL ASSESSMENT
WATER SYSTEM UPGRADES FOR THE COMMUNITY OF STOUFFVILLE,
YORK REGION, ONTARIO

TITLE
OAK RIDGES MORaine CONSERVATION PLAN DESIGNATIONS

CONSULTANT	YYYY-MM-DD	2017-06-16
DESIGNED	---	
PREPARED	JEM	
REVIEWED	GW	
APPROVED	HM	

ATTACHMENT A

Species at Risk Screening

APPENDIX A
Species at Risk Screening

Taxon	Common Name	Scientific Name	Endangered Species Act, Reg. 230/08 SARO List Status ¹	Species at Risk Act, Schedule 1 List of Wildlife SAR Status ²	COSEWIC Status ³	Global Rarity Rank ⁴	Provincial Rarity Rank ⁵	Source(s) *	Ontario Habitat Descriptions	Probability of Occurrence (Desktop)
Amphibian	Western chorus frog - Great Lakes St. Lawrence / Canadian Shield population	<i>Pseudacris triseriata</i>	—	THR	THR	G5TNR	S3	ORAA	In Ontario, habitat of this amphibian species 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 (Environment Canada 2015).	High - this species was recorded as part of the ORAA and suitable shrubby wetlands associated with upland habitat appear to be present in the Study Area.
Arthropod	Monarch	<i>Danaus plexippus</i>	SC	SC	END	G5	S2N, S4B	Range	In Ontario, monarch is found throughout the northern and southern regions of the province. This butterfly is found wherever there are milkweed (<i>Asclepius</i> spp.) plants for its caterpillars and wildflowers that supply a nectar source for adults. It is often found on abandoned farmland, meadows, open wetlands, prairies and roadsides, but also in city gardens and parks. Important staging areas during migration occur along the north shores of the Great Lakes (COSEWIC 2010).	Moderate - This species was not recorded in the Study Area, but an abundance of open habitats and roadsides in the Study Area that may provide suitable habitat.
Arthropod	West Virginia white	<i>Pieris virginiensis</i>	SC	—	—	G3G4	S3	Range	In Ontario, west Virginia white is found primarily in the central and southern regions of the province. This butterfly lives in moist, mature, deciduous and mixed woodlands, and the caterpillars feed only on the leaves of toothwort (<i>Cardamine</i> spp.), which are small, spring-blooming plants of the forest floor. These woodland habitats are typically maple-beech-birch dominated. This species is associated with woodlands growing on calcaerous bedrock or thin soils over bedrock (Burke 2013).	Moderate - This species was not recorded from the Study Area but deciduous forests with the larval host plant may be present in the Study Area.
Bird	Bank swallow	<i>Riparia riparia</i>	THR	THR	THR	G5	S4B	OBBA	In Ontario, 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 (Garrison 1999).	Moderate - this species was recorded as part of the OBBA, however suitable habitat could not be confirmed in the Study Area through aerial imagery.
Bird	Barn swallow	<i>Hirundo rustica</i>	THR	THR	THR	G5	S4B	OBBA	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 right-of-ways, and wetlands (COSEWIC 2011). Mud nests are fastened to vertical walls or built on a ledge underneath an overhang. Suitable nests from previous years are reused (Brown and Brown 1999).	High - This species was observed as part of the OBBA and suitable structures are abundant in the Study Area.

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Bird	Black tern	<i>Chlidonias niger</i>	SC	—	NAR	G4	S3B	eBird	In Ontario, black tern breeds in freshwater marshlands where it forms small colonies. It prefers marshes or marsh complexes greater than 20 ha in area and which are not surrounded by wooded area. Black terns are sensitive to the presence of agricultural activities. The black tern nests in wetlands with an even combination of open water and emergent vegetation, and still waters of 0.5-1.2 m deep. Preferred nest sites have short dense vegetation or tall sparse vegetation often consisting of cattails, bulrushes and occasionally burreed or other marshland plants. Black terns also require posts or snags for perching (Weseloh 2007).	Low - although Stouffville Marsh may offer this habitat type, it is surrounded by wooded area and this species was not recorded during the OBBA.
Bird	Bobolink	<i>Dolichonyx oryzivorus</i>	THR	THR	THR	G5	S4B	OBBA	In Ontario, bobolink breeds in grasslands or graminoid dominated hayfields with tall vegetation (Gabhauer 2007). Bobolink prefers grassland habitat with a forb component and a moderate litter layer. They have low tolerance for presence of woody vegetation and are sensitive to frequent mowing within the breeding season. They are most abundant in established, but regularly maintained, hayfields, but also breed in lightly grazed pastures, old or fallow fields, cultural meadows and newly planted hayfields. 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 forbs (Martin and Gavin 1995).	High - This species was observed as part of the OBBA and suitable open habitats are abundant in the Study Area.
Bird	Canada warbler	<i>Cardellina canadensis</i>	SC	THR	THR	G5	S4B	OBBA	In Ontario, breeding habitat for Canada warbler consists of moist mixed forests with a well-developed shrubby understory. This includes low-lying areas such as cedar and alder swamps, and riparian thickets (McLaren 2007). It is also found in densely vegetated regenerating forest openings. Suitable habitat often contains a developed moss layer and an uneven forest floor. Nests are well concealed on or near the ground in dense shrub or fern cover, often in stumps, fallen logs, overhanging stream banks or mossy hummocks (Reitsma et al. 2010).	High - This species was observed as part of the OBBA and suitable forested habitat may be present in the Study Area.
Bird	Cerulean warbler	<i>Setophaga cerulea</i>	THR	END	END	G4	S3B	OBBA	In Ontario, breeding habitat of cerulean warbler consists of second-growth or mature deciduous forest with a tall canopy of uneven vertical structure and a sparse understory. This habitat occurs in both wet bottomland forests and upland areas, and often contains large hickory and oak trees. This species may be attracted to gaps or openings in the upper canopy. The cerulean warbler is associated with large forest tracks, but may occur in woodlots as small as 10 ha (COSEWIC 2010). Nests are usually built on a horizontal limb in the mid-story or canopy of a large deciduous tree (Buehler et al. 2013).	Moderate - This species was observed as part of the OBBA but large woodlots do not appear present in the Study Area.

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Bird	Chimney swift	<i>Chaetura pelagica</i>	THR	THR	THR	G5	S4B, S4N	OBBA	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 (COSEWIC 2007).	High - this species was recorded in the OBBA and abundant suitable structures appear to be present in the Study Area.
Bird	Common nighthawk	<i>Chordeiles minor</i>	SC	THR	THR	G5	S4B	eBird	In Ontario, 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 (Sandilands 2007)	Moderate - this species has not been recorded in the Study Area but suitable open habitats appear to be present in the Study Area.
Bird	Eastern meadowlark	<i>Sturnella magna</i>	THR	THR	THR	G5	S4B	NHIC; OBBA	In Ontario, eastern meadowlark breeds in pastures, hayfields, meadows and old fields. Eastern meadowlark prefers moderately tall grasslands with abundant litter cover, high grass proportion, and a forb component (Hull 2003). They prefer well drained sites or slopes, and sites with different cover layers (Roseberry and Klimstra 1970)	High - This species was recorded in the OBBA and the NHIC, and suitable open habitats appear to be present in the Study Area.
Bird	Eastern wood-pewee	<i>Contopus virens</i>	SC	SC	SC	G5	S4B	OBBA	In Ontario, eastern wood-pewee inhabits a wide variety of wooded upland and lowland habitats, including deciduous, coniferous, or mixed forests. It occurs most frequently in forests with some degree of openness. Intermediate-aged forests with a relatively sparse midstory are preferred. In younger forests with a relatively dense midstory, it tends to inhabit the edges. Also occurs in anthropogenic habitats providing an open forested aspect such as parks and suburban neighborhoods. Nest is constructed atop a horizontal branch, 1-2 m above the ground, in a wide variety of deciduous and coniferous trees.	High - this species was observed in the OBBA and suitable forested habitats appear abundant in the Study Area.
Bird	Golden-winged warbler	<i>Vermivora chrysoptera</i>	SC	THR	THR	G4	S4B	OBBA	In Ontario, golden-winged warbler breeds in regenerating scrub habitat with dense ground cover and a patchwork of shrubs, usually surrounded by forest. Their preferred habitat is characteristic of a successional landscape associated with natural or anthropogenic disturbance such as rights-of-way, and field edges or openings resulting from logging or burning. The nest of the golden-winged warbler is built on the ground at the base of a shrub or leafy plant, often at the shaded edge of the forest or at the edge of a forest opening (Confer et al. 2011).	High - this species was recorded in the OBBA and suitable shrubby habitats associated with forested areas appear present in the Study Area.
Bird	Grasshopper sparrow <i>pratensis</i> subspecies	<i>Ammodramus savannarum</i> (<i>pratensis</i> subspecies)	SC	SC	SC	G5	S4B	OBBA	In Ontario, grasshopper sparrow is found in medium to large grasslands with low herbaceous cover and few shrubs. It also uses a wide variety of agricultural fields, including cereal crops and pastures. Close-grazed pastures and limestone plains (e.g., Carden and Napanee Plains) support highest density of this bird in the province (COSEWIC 2013).	High - this species was recorded in the OBBA and suitable open habitats appear abundant in the Study Area.

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Bird	Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	SC	THR	THR	G5	S4B	eBird	In Ontario, red-headed woodpecker breeds in open, deciduous woodlands or woodland edges and are often found in parks, cemeteries, golf courses, orchards and savannahs (Woodliffe 2007). They may also breed in forest clearings or open agricultural areas provided that large trees are available for nesting. They prefer forests with little or no understory vegetation. They are often associated with beech or oak forests, beaver ponds and swamp forests where snags are numerous. Nests are excavated in the trunks of large dead trees (Smith et al. 2000).	Moderate - this species was not recorded as part of the OBBA but suitable open habitats appear to be present in the Study Area.
Bird	Wood thrush	<i>Hylocichla mustelina</i>	SC	THR	THR	G5	S4B	OBBA	In Ontario, wood thrush breeds in moist, deciduous hardwood or mixed stands that are often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches. This species selects nesting sites with the following characteristics: lower elevations with trees less than 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 (COSEWIC 2012).	High - this species was recorded in the OBBA and suitable forested habitats appear abundant in the Study Area.
Fish	Redside dace	<i>Clinostomus elongatus</i>	END	END	END	G3G4	S2	NHIC	In Ontario, redbase dace, a small coolwater species common in the USA but less so in Canada, is found in tributaries of western Lake Ontario, Lake Erie, Lake Huron and Lake Simcoe. They are found in pools and slow-moving areas of small headwater streams with clear to turbid water. Overhanging grasses, shrubs, and undercut banks, are an important part of their habitat, as are instream boulders and large woody debris. Preferred substrates are variable and include silt, sand, gravel and boulders. Spawning occurs in shallow riffle areas (Redside Dace Recovery Team 2010).	High -this species is known to occur in the Study Area.
Mammal	Eastern small-footed myotis	<i>Myotis leibii</i>	END	—	—	G3	S2S3	BCI	This species is not known to roost within trees, but there is very little known about its roosting habits. The species generally roosts on the ground under rocks, in rock crevices, talus slopes and rock piles. It occasionally inhabits buildings. Areas near the entrances of caves or abandoned mines may be used for hibernaculum, where the conditions are drafty with low humidity, and may be subfreezing.	Moderate - there are no records of this species in the Study Area, and the presence of suitable habitat could not be confirmed through aerial imagery.
Mammal	Little brown myotis	<i>Myotis lucifugus</i>	END	END	END	G5	S4	BCI	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.	Moderate - there are no records of this species in the Study Area, although suitable forested habitats and structures appear to be present in the Study Area.
Mammal	Northern myotis	<i>Myotis septentrionalis</i>	END	END	END	G4	S3	BCI	In Ontario, this species range is extensive and covers much of the province. It will usually roost in hollows, crevices, and under loose bark of mature trees. Roosts may be established in the main trunk or a large branch of either living or dead trees. Caves or abandoned mines may be used for hibernaculum, but high humidity and stable above freezing temperatures are required.	Moderate - there are no records of this species in the Study Area, although suitable forested habitats and structures appear to be present in the Study Area.

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Mammal	Tri-colored bat	<i>Perimyotis subflavus</i>	END	END	END	—	S3?	BCI	In Ontario, tri-colored bat may roost in foliage, in clumps of old leaves, hanging moss or squirrel nests. They are occasionally found in buildings although there are no records of this in Canada. They typically feed over aquatic areas with an affinity to large-bodied water and will likely roost in close proximity to these. Hibernation sites are found deep within caves or mines in areas of relatively warm temperatures. These bats have strong roost fidelity to their winter hibernation sites and may choose the exact same spot in a cave or mine from year to year.	Moderate - there are no records of this species in the Study Area, although suitable forested habitats appear to be present in the Study Area.
Reptile	Blanding's turtle - Great Lakes / St. Lawrence population	<i>Emydoidea blandingii</i>	THR	THR	END	G4	S3	ORAA	In Ontario, Blanding's turtle will use 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 order to 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 (COSEWIC 2005).	High - this species was observed as part of the ORAA and suitable habitat appears to be present in the form of wetlands.
Reptile	Eastern ribbonsnake - Great Lakes population	<i>Thamnophis sauritus</i>	SC	SC	SC	G5	S3	Range	In Ontario, eastern ribbonsnake is semi-aquatic, and is rarely found far from shallow ponds, marshes, bogs, streams or swamps bordered by dense vegetation. They prefer sunny locations and bask in low shrub branches. Hibernation occurs in mammal burrows, rock fissures or even ant mounds (COSEWIC 2012).	Moderate - this species has not been recorded in the Study Area but suitable habitat in the form of vegetated riparian areas appear present in the Study Area.
Reptile	Milksnake	<i>Lampropeltis triangulum</i>	NAR	SC	SC	G5	S3	ORAA	In Ontario, milksnake uses a wide range of habitats including prairies, pastures, hayfields, wetlands and various forest types, and is well-known in rural areas where it frequents older buildings. Proximity to water and cover enhances habitat suitability. Hibernation takes place in mammal burrows, hollow logs, gravel or soil banks, and old foundations (COSEWIC 2014).	High - this species was observed as part of the ORAA and this species is a habitat generalist.
Reptile	Snapping turtle	<i>Chelydra serpentina</i>	SC	SC	SC	G5	S3	ORAA	In Ontario, snapping turtle uses 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 (COSEWIC 2008).	High - this species was observed as part of the ORAA and suitable habitat appears to be present in the form of wetlands.
Vascular Plant	American ginseng	<i>Panax quinquefolius</i>	END	END	END	G3G4	S2	Range	In Ontario, American ginseng is found in moist, undisturbed and relatively mature deciduous woods often dominated by sugar maple. It is commonly found on well-drained, south-facing slopes. American ginseng grows under closed canopies in neutral, loamy soils (COSEWIC 2000).	Moderate - this species has not been recorded in the Study Area but suitable habitat in the form of mature deciduous forests appear to be present in the Study Area.

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Vascular Plant	Butternut	<i>Juglans cinerea</i>	END	END	END	G4	S3?	NHIC	In Ontario, butternut is found along stream banks, on wooded valley slopes, and in deciduous and mixed forests. It is commonly associated with beech, maple, oak and hickory (Voss and Reznicek 2012). Butternut prefers moist, fertile, well-drained soils, but can also be found in rocky limestone soils. This species is shade intolerant (Farrar 1995).	High - this species was recorded in the NHIC for the Study Area and suitable habitat is abundant.
Vascular Plant	Purple twayblade	<i>Liparis liliifolia</i>	THR	END	THR	G5	S2	Range	In Ontario, purple twayblade occurs in a wide variety of habitats such as open oak woodland and savannah, mixed deciduous forest, shrub thicket, shrub alvar, deciduous swamp, and conifer plantation. This species is commonly found in dry mesic conditions, but there have been reports from wetland habitats (COSEWIC 2010).	Moderate - this species was not recorded in the Study Area but suitable habitats appear to be present.

¹ *Endangered Species Act* (ESA), 2007 (O.Reg 242/08 last amended 14 Sept 2016 as O.Reg 308/16). Species at Risk in Ontario List, 2007 (O.Reg 230/08 last amended 2 June 2017 as O. Reg 167/17, s. 1.); Schedule 1 (Extirpated - EXP), Schedule 2 (Endangered - END), Schedule 3 (Threatened - THR), Schedule 4 (Special Concern - SC)

² *Species at Risk Act* (SARA), 2002. Schedule 1 (Last amended 17 Dec 2014); Part 1 (Extirpated), Part 2 (Endangered), Part 3 (Threatened), Part 4 (Special Concern)

³ Committee on the Status of Endangered Wildlife in Canada (COSEWIC) <http://www.cosewic.gc.ca/>

⁴ Global Ranks (GRANK) are Rarity Ranks assigned to a species based on their range-wide status. GRANKS are assigned by a group of consensus of Conservation Data Centres (CDCs), scientific experts and the Nature Conservancy. These ranks are not legal designations. G1 (Extremely Rare), G2 (Very Rare), G3 (Rare to uncommon), G4 (Common), G5 (Very Common), GH (Historic, no record in last 20yrs), GU (Status uncertain), GX (Globally extinct), ? (Inexact number rank), G? (Unranked), Q (Questionable), T (rank applies to subspecies or variety). Last assessed August 2011

⁵ Provincial Ranks (SRANK) are Rarity Ranks assigned to a species or ecological communities, by the Natural Heritage Information Centre (NHIC). These ranks are not legal designations. SRANKS are evaluated by NHIC on a continual basis and updated lists produced annually. SX (Presumed Extirpated), SH (Possibly Extirpated - Historical), S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), SNA (Not Applicable), S#S# (Range Rank), S? (Not ranked yet), SAB (Breeding Accident), SAN (Non-breeding Accident), SX (Apparently Extirpated). Last assessed August 2011.

⁶ General Habitat Protection is applied when a species is newly listed as endangered or threatened on the SARO list under the ESA, 2007. The definition of general habitat applies to areas that a species currently depends on. These areas may include dens and nests, wetlands, forests and other areas essential for breeding, rearing, feeding, hibernation and migration. General habitat protection will also apply to all listed endangered or threatened species without a species-specific habitat regulation as of June 30, 2013 (ESA 2007, c.6, s.10 (2)). Regulated Habitat is species-specific habitat used as the legal description of that species habitat. Once a species-specific habitat regulation is created, it replaces general habitat protection. Refer to O.Reg 242/08 for full details regarding regulated habitat.

General References:

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⁷ Refer to the individual species' federal recovery strategy for a full description of the critical habitat (http://www.sararegistry.gc.ca/sar/recovery/recovery_e.cfm)

^{*}Species Codes derived from the following sources: Birds – 53rd AOU Supplement (2012); Amphibians – Marsh Monitoring Program (Bird Studies Canada 2003); Fish – Golder; Reptiles – Golder.

[†]NHIC (Natural Heritage Information Centre); ROM (Royal Ontario Museum); OBBA (Ontario Breeding Bird Atlas); Herp Atlas (Reptiles and Amphibians of Ontario); Odonata Atlas (of Ontario); Mammal Atlas (of Ontario); BCI (Bat Conservation International); Butterfly Atlas (Ontario Butterfly Atlas)

‘—’ No status