Stroud Water Storage Facility and Booster Pumping Station Municipal Class Environmental Assessment

Natural Heritage Report

November 12, 2025

Prepared for:

Stroud Water Storage Facility and Booster Pumping Station Municipal Class Environmental Assessment

Natural Heritage Report

InnServices Utilities Inc.

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RVA 257951

November 12, 2025

STROUD WATER STORAGE FACILITY AND BOOSTER PUMPING STATION MUNICIPAL CLASS EA

NATURAL HERITAGE REPORT

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1.0 Introduction

R.V. Anderson Associates Limited (RVA) has been retained by InnServices Utilities Inc. (Innservices, the Client) to undertake a Schedule B Municipal Class Environmental Assessment (MCEA) and preliminary design for the water storage facility, booster pumping station, as well as a sewage pumping station (provisional) in the Village of Stroud, in the Town of Innisfil (the Project).

In support of the preliminary design and EA requirements, this report summarizes the results of the background review, field investigations, Species at Risk (SAR) screening, and highlights significant or sensitive natural heritage features that should be considered during the facility siting and design.

1.1 Study Area

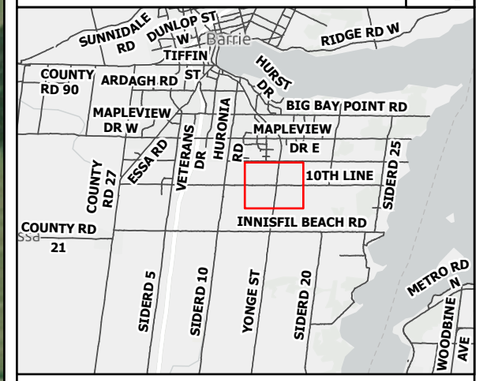
The Study Area is comprised of four properties located within the Village of Stroud, in the Town of Innisfil (the Town), along Yonge Street between 9th Line to the south and Lockheart Road to the north, hereafter collectively referred to as the Study Areas. Alternative Location 2 is located at 7678 Yonge Street (south of watercourse) and Alternative Location 3 is located at 7750 Yonge Street (north of watercourse) on the west side of Yonge Street across from Southview Avenue (Lot 15, Concession 9), Alternative Location 5 is located at 8156 Yonge Street towards the southeast corner of the property on the west side of Yonge Street immediately north of the Foodland Plaza (Lot 15, Concession 10), and Alternative Location 6 is located at 8093 Yonge Street towards the southwestern limit of the property on the east side of Yonge Street approximately 150 m north of Lynn Street (Lot 16, Concession 10) (Map 1).

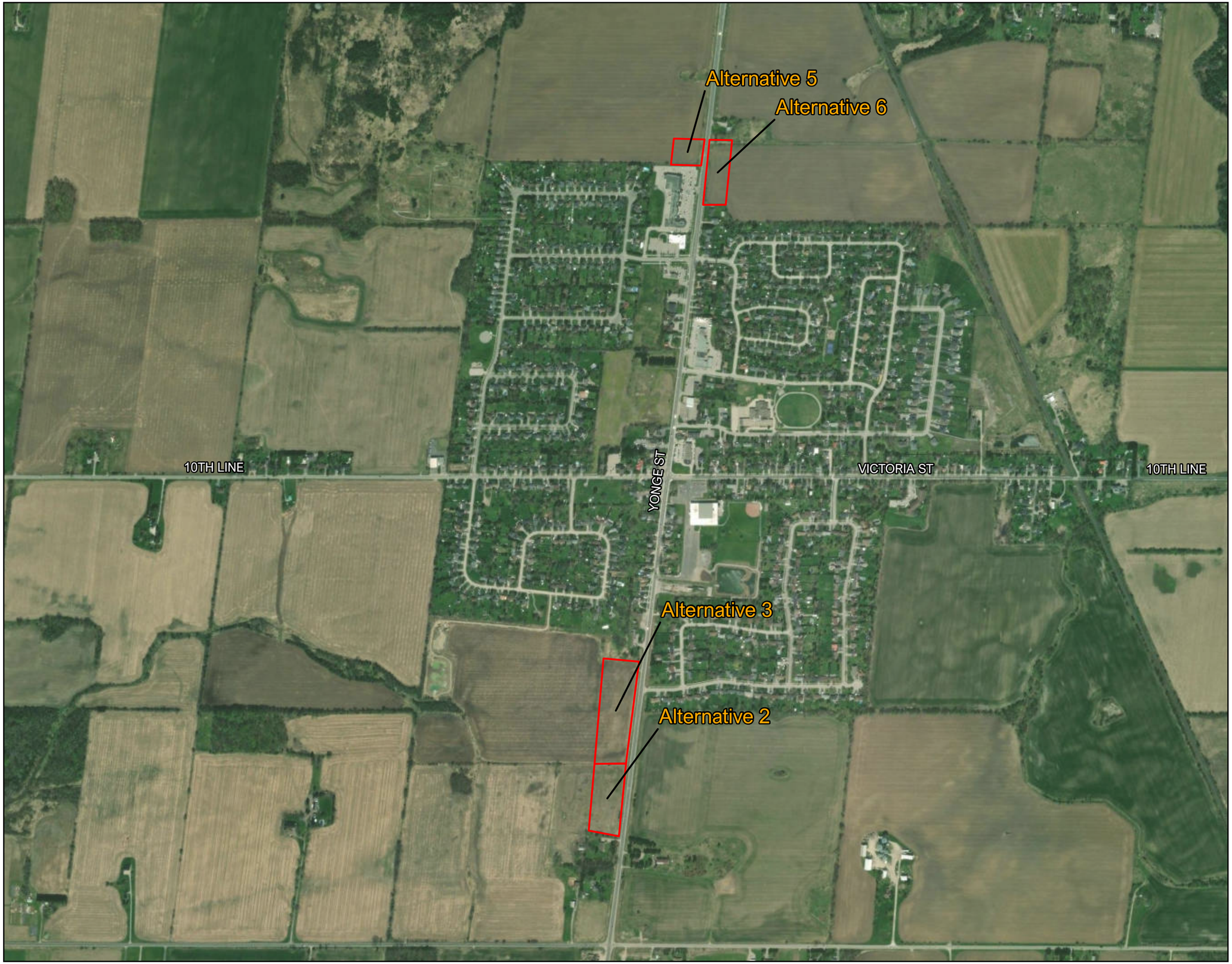
Stroud Storage SPS BPS Class EA

InnServices Utilities Inc.

Natural Environment Assessment Report

Study Area Overview | Map **1**





Legend

- Alternative Location of Infrastructure

RVA: 257951 | Date: 11/10/2025

Page 1 | Draft By: KW

N

0 150 300 450 600 m

Scale: 1:10,000 | NAD 1983 UTM Zone 17N

Data Source: Maxar, Microsoft, Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, InnServices Utilities Inc., Geospatial Ontario, Lake Simcoe Region Conservation Authority (LSRCA), RVA

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1.2 Project Scope

The intent of the Project is to undertake an EA study to provide the framework for the identification, systematic review and evaluation of alternatives based on the consideration of all aspects of the environment, including public and agency input. This Natural Heritage Report has been prepared to allow for the effective consideration of the natural environment and contribute to the identification and evaluation of the alternative solutions of the Project.

The objectives of this Natural Heritage Report include:

- High level identification of sensitive or significant natural heritage features and their functions within the Study Areas;
- Identification and review of applicable environmental legislation, municipal planning policies, and natural heritage considerations relevant to the Study Areas; and
- Identification of natural heritage features that require additional consideration for the implementation of the preferred Project design.

2.0 Governing Environmental Policy Framework

There are multiple federal, provincial, and municipal environmental regulations and permitting processes in place to protect components of the biotic and abiotic environment. This section discusses all relevant legislation and policies that are applicable to the Project.

2.1 Federal Legislation

2.1.1 Fisheries Act

The *Fisheries Act* (Government of Canada 1985) is administered by Fisheries and Oceans Canada (DFO) and provides a framework for the proper management and control of fisheries as well as the conservation and protection of fish and fish habitat, including the prevention of pollution. In June of 2019, Canada modernized the *Fisheries Act* with new provisions and stronger protections to better support the sustainability of Canada's fish and fish habitat for future generations. Section 34.4 of the *Fisheries Act* prohibits any work, undertaking or activity (other than fishing) that results in the death of fish; Section 35.1 prohibits the harmful alteration, disruption, or destruction of fish habitat (HADD); and Section 36 prohibits the deposition of deleterious substances.

The *Fisheries Act* requires that projects avoid causing death of fish or HADD of fish habitat unless authorized by DFO or a designated representative. Proponents are responsible for planning and implementing works, undertakings or activities in a manner that avoids harmful

impacts to fish and fish habitat. Should proponents believe that their work, undertaking or activity will result in harmful impacts to fish and fish habitat, a Request for Review (RFR) must be submitted, and the DFO will work with them to assess the risk and provide advice and guidance on how to comply with the *Fisheries Act*.

2.1.2 Migratory Birds Convention Act

The *Migratory Birds Convention Act* (MBCA) was passed in 1917 and updated in 1994 to implement the Migratory Birds Convention, a treaty signed with the United States in 1916 (Government of Canada 1994). Environment and Climate Change Canada administers the MBCA, which is enforced through the Migratory Birds Regulations. Together the MBCA and Migratory Birds Regulations serve to protect most migratory birds, their nests, and eggs anywhere they are found in Canada (Government of Canada 2022).

2.1.3 Species at Risk Act

At a federal level, Species at Risk (SAR) designations for species occurring in Canada are initiated by the completion of a comprehensive Status Report 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 both individual and critical habitat protection on federal lands under the *Species at Risk Act* (SARA). On private or provincially owned lands, only aquatic species or birds protected under the *Migratory Birds Convention Act* listed as Endangered, Threatened or Extirpated are protected under SARA, unless ordered by the Governor in Council.

2.2 Provincial Legislation

2.2.1 Environmental Assessment Act

The *Environmental Assessment Act* (Government of Ontario 1990) was created to provide for the protection, conservation, and wise management of the environment in Ontario. The Act applies to:

- (a) enterprises or activities or proposals, plans or programs in respect of enterprises or activities by or on behalf of His Majesty in right of Ontario or by a public body or public bodies or by a municipality or municipalities;
- (b) major commercial or business enterprises or activities or proposals, plans or programs in respect of major commercial or business enterprises or activities of a

person or persons, other than a person referred to in clause (a), designated by the regulations;

- (c) an enterprise or activity or a proposal, plan or program in respect of an enterprise or activity of a person or persons, other than a person or persons referred to in clause (a), if an agreement is entered into under Section 3.0.1 in respect of the enterprise, activity, proposal, plan or program. R.S.O. 1990, c. E.18, s. 3; 2001, c. 9, Sched. G, s. 3 (3).

The Stroud Water Storage Facility and Booster Pumping Station project is being completed in accordance with the Municipal Class Environmental Assessment (MCEA), Schedule "B". In support of the MCEA, a natural heritage investigation was conducted.

2.2.2 Provincial Planning Statement

The Provincial Planning Statement (PPS, Ministry of Municipal Affairs and Housing [MMAH] 2024) provides policy direction for regulating development and land use planning in the province. Both provincial and local land-use planning decisions build on the PPS and its relevant policies. This report deals specifically with the policies contained in Chapter 4, Section 4.1 (Natural Heritage) of the PPS which is directed at protection and management of natural heritage systems and features. A natural heritage system is defined by the Province of Ontario as:

A system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems. These systems can include natural heritage features and areas, federal and provincial parks and conservation reserves, other natural heritage features, lands that have been restored or have the potential to be restored to a natural state, areas that support hydrologic functions and working landscapes that enable ecological functions to continue (MMAH 2024).

Natural heritage features of significance are described in the Natural Heritage Reference Manual (OMNR 2010) and include:

- significant wetlands;
- significant coastal wetlands;
- other coastal wetlands in Ecoregions 5E, 6E and 7E;
- fish habitat;
- significant woodlands;

- significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
- habitat of endangered and threatened species;
- significant wildlife habitat; and
- significant areas of natural and scientific interest (ANSIs).

Development and site alteration is not permitted in:

- significant wetlands in Ecoregions 5E, 6E and 7E and significant coastal wetlands;
- significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E, significant woodlands and significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River), significant wildlife habitat, significant ANSIs, and coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b), unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions; and
- fish habitat or habitat of endangered and threatened species except in accordance with provincial and federal requirements.

2.2.3 Endangered Species Act

At the provincial level, SAR and their habitats are protected under the *Endangered Species Act* (ESA, Government of Ontario 2007) which is administered by the Ministry of Environment, Conservation and Parks (MECP). SAR designations for species in Ontario are initiated by the completion of a comprehensive Status Report by the Committee on the Status of Species at Risk in Ontario (COSSARO), and if approved by the provincial Minister of the Environment, Conservation and Parks, species are added to the SAR in Ontario (SARO) List (Ontario Regulation [O. Reg.] 230/08) under the ESA. Section 9(1) of the ESA, 2007 prohibits the killing, harming, harassment, capture, taking, possession, transport, collection, buying, selling, leasing, trading, or offering to buy, sell, lease or trade species listed as Extirpated, Endangered, or Threatened on the SARO List. Section 10(1) prohibits damaging or destroying habitat of Endangered or Threatened species on the SARO List and may apply to Extirpated species through special regulations. General habitat protection applies to all Endangered and Threatened species, with some species having 'categorized habitat', which protects areas within specific distances from known records. Some SAR are afforded a more precise habitat protection through a habitat regulation (regulated habitat), as identified in O. Reg. 242/08. Species designated as Special Concern are not protected under the Act.

The ESA, 2007 does include provisions for permits under Section 17(2)(c) that would otherwise contravene the Act. Projects which propose impacts to SAR or their habitat

require a permit or other process (e.g., registration) to proceed without contravening the Act.

As of June 5, 2025, the ESA was amended and will eventually be repealed as a component of the *Protecting Ontario by Unleashing the Economy Act* (Bill 5, Legislative Assembly of Ontario 2025) and replaced with the *Species Conservation Act* ([SCA], Government of Ontario 2025). At the time of this report, the ESA is still the effective piece of legislation, though in reduced capacity, mainly in that habitat protections are reduced. For animal species, habitat protection is limited to dwellings (nest, den, etc.) or other occupied or habitually occupied place (breeding, rearing, staging, hibernation, etc.) and immediate surroundings required to support such a place. The Act no longer applies to aquatic species or species of birds protected by the *Migratory Birds Convention Act* on the List of Wildlife Species at Risk under the *Species at Risk Act*. For vascular plants, the habitat is reduced to the critical root zone of an individual. For all other species, the habitat is described as "an area on which any member of a species directly depends in order to carry on its life processes: ("habitat")". The changes also permit harassment of a listed species, repeal the requirement of a recovery strategy for listed species, management plans for special concern species, and related government response statements, and a host of other changes related to implementation and enforcement. Once the SCA is in force, provincial protections will no longer apply to aquatic species or species of birds protected by the *Migratory Birds Convention Act* on the List of Wildlife Species at Risk under the *Species at Risk Act*.

2.2.4 Conservation Authorities Act

The *Conservation Authorities Act* (Government of Ontario 1990a) was significantly modified on April 1, 2024 with subsequent changes occurring on June 6, 2024. In the revised Act, Section 28(1) of the *Conservation Authorities Act* prohibits a number of activities from occurring within the jurisdiction of an authority. Generally, these are activities that interfere with watercourses, valleys, shorelines, hazardous lands, wetlands, and similar, and regulated under the new Ontario Regulation (O. Reg.) 41/24 Prohibited Activities, Exemptions and Permits. The Study Area is located within the Lake Simcoe Region Conservation Authority (LSRCA) and sections are regulated under O. Reg. 41/24. LSRCA may grant permission to modify lands within their regulation limit under conditions outlined in a permit.

2.2.5 Invasive Species Act

Invasive species are an emerging concern, both due to their negative impacts to ecosystems as well as land use and infrastructure. In Ontario, the *Invasive Species Act* (ISA, Government of Ontario 2015) sets out rules to prevent and control the spread of invasive species. The ISA recognizes two classes of invasive species: prohibited and restricted. In the case of restricted invasive species, it is illegal to import, deposit, release, breed/grow, buy, sell, lease or trade restricted invasive species. Prohibited species have the same restrictions, but it is also illegal to possess or transport these species.

2.2.6 Fish and Wildlife Conservation Act

The *Fish and Wildlife Conservation Act* (Government of Ontario 1997) sets policies and regulations concerning the use of fish and wildlife resources in Ontario, including fishing and hunting, trapping, wildlife in captivity and the sale and purchase of wildlife and/or parts. This includes active pursuit, handling, or collection and retention of wildlife protected under relevant schedules that may be conducted as a part of a scientific study or wildlife salvage ahead of construction or similar activities.

2.3 Municipal Legislation

2.3.1 Town of Innisfil Official Plan (2018; office consolidation 2020)

The Town of Innisfil Official Plan describes the Natural Heritage System policies in Section 17.1. As per Schedule B (Land Use) of the Town of Innisfil's Official Plan, Agricultural Area comprises the entirety of the Study Areas, with the exception of the Alternative Location 3 Study Area where Rural Commercial Area, identified as Site-Specific Policy 18.6.6 (Schedule D: Site Specific Policies), is mapped North of the onsite watercourse. The watercourse transecting the Alternative Location 2 and 3 Study Areas is designated as "Key Natural Heritage Features & Key Hydrologic Features" and is overlain with "Hazard Land Area". The "Key Natural Heritage Features & Key Hydrologic Features" designation applies to significant natural heritage features and systems.

2.3.2 County of Simcoe Official Plan (office consolidation February 2023)

Land Use Designations, including Greenlands (natural heritage system of the County of Simcoe) and Agricultural Areas are identified on Schedule 5.1 of the County of Simcoe's Official Plan (office consolidation February 2023). No Greenlands are mapped within the Study Areas, and Agricultural Areas are the predominate land use identified across all four Study Areas, with a Rural Area delineated within the Alternative Location 3 Study Area,

north of the mapped watercourse as identified on Schedule 5.2.2 (Streams and Evaluated Wetlands).

3.0 Background Review

A desktop review was completed to identify natural environment components that are found within and adjacent to the Study Areas (Map 2).

3.1 Background Review Sources

The preliminary desktop review included an examination of publicly available information, related to geological and natural environment components within the Study Areas, that included public databases, published reports, and agency consultation. The information reviewed is listed in Table 3.1.

Table 3.1 – Summary of Background Information Sources

Source	
Town of Innisfil	› Town of Innisfil Official Plan (2018; office consolidation 2020)
County of Simcoe	› County of Simcoe Official Plan (office consolidation February 2023)
Ministry of Natural Resources (MNR)	› Aurora-Midhurst-Owen Sound District Information Request Letter › Natural Heritage Information Centre (NHIC) database › NHIC Information Request Letter › NHIC Make a Map: Natural Heritage Areas › Land Information Ontario (LIO) Mapping › Aquatic Resource Areas (ARA) Mapping (Government of Ontario, 2025a)
Lake Simcoe Region Conservation Authority (LSRCA)	› LSRCA Open Data Portal › Barrie Creeks, Lovers Creek, and Hewitt's Creek Subwatershed Plan › Information Request Letter
Fisheries and Oceans Canada (DFO)	› Aquatic SAR Mapping (DFO 2025)
Agriculture, Food and Agribusiness (OMAFA)	› AgMaps Mapping (Government of Ontario 2025a)
Other Publicly Available Data	› Ontario Breeding Bird Atlas (Birds Canada, 2018) › Ontario Nature – Ontario Reptile and Amphibian Atlas (ORAA, Ontario Nature 2020)

Source	Data
	› iNaturalist (screened to include Research Grade and Threatened species, iNaturalist 2025) › Ontario Moth Atlas (Kaposi *et al.* 2025) › Ontario Butterfly Atlas (MacNaughton *et al.* 2025) › Atlas of the Mammals of Ontario (Dobbyn, 1994) › Ontario Freshwater Fishes Life History Database, Robert J. Eakins (1999-2025)

3.2 Summary of Background Information

Review of the information sources listed in Section 2.1 indicated that several SAR are found or are potentially found within the vicinity of the Stroud Water Storage Facility and Booster Pumping Station Study Areas. The MNRF Make-a-Map: Natural Heritage Areas application did not identify significant natural heritage features adjacent to the Study Areas. DFO mapping did not identify any aquatic SAR within any of the Study Areas.

The Project area is located within the Lake Simcoe Region Conservation Authority. Alternative Locations 2 and 3 are located within the Lovers Creek subwatershed, while the Alternative Location 5 and 6 Study Areas are found within the Hewitts Creek subwatershed. The regulation limit of Lake Simcoe Region Conservation Authority under the *Conservation Authorities Act* (O. Reg.) 41/24 (Government of Ontario 1990a) is mapped within all of the Study Areas, associated with two watercourses; however, only the watercourse transecting the Alternative Location 2 and Alternative Location 3 Study Areas is identified by the Town of Innisfil Official Plan as a significant natural heritage feature.

Stroud Storage SPS BPS Class EA

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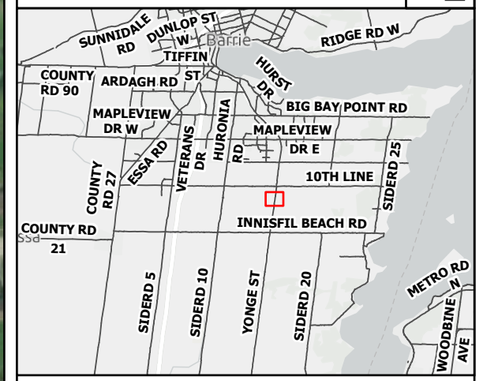
Natural Environment Assessment Report

Natural Heritage Features Overview | Map **2**



Legend

- Alternative Location of Infrastructure
- Watercourse
- Woodland
- LSRCA Regulation Limit

RVA: 257951 | Date: 11/10/2025

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Scale: 1:3,000 | NAD 1983 UTM Zone 17N

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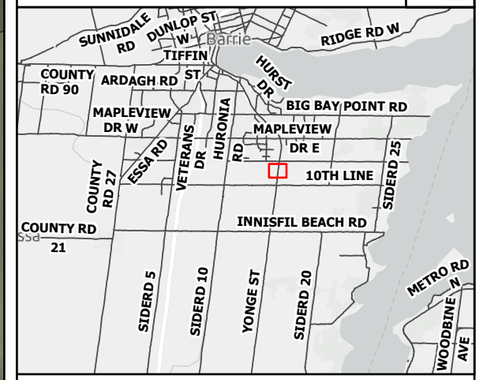
Natural Environment Assessment Report

Natural Heritage Features Overview | Map **2**



Legend

- Alternative Location of Infrastructure
- Woodland
- LSRCA Regulation Limit

RVA: 257951 | Date: 11/10/2025

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Scale: 1:3,000 | NAD 1983 UTM Zone 17N

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4.0 Field Review

Terrestrial field investigations were conducted during the 2025 field season including a single season floral inventory, Ecological Land Classification (ELC) vegetation community delineation, Fish Habitat Assessment, and incidental wildlife observations within the Study Areas (Table 4.1).

Table 4.1 – Field Investigations Schedule

Survey Type	Date	Weather	RVA Staff
Single-season site review/ELC; Fish Habitat Assessment; Incidental Wildlife Observations	September 16, 2025	22°C, Cloudy	Henrique Pacheco Natasha Welch

5.0 Existing Site Conditions

5.1 Vegetation and Vegetation Communities

A single-season floral inventory and ELC vegetation community survey was completed for the Study Areas. The field visit was completed during the summer inventory window for plants and vegetation communities were evaluated as per Lee *et al*. (1998).

Vegetation surveys were restricted to the road right-of ways (ROW) adjacent to the Study Areas. Surveys were completed during a single site visit by walking transects throughout ROWs and scanning into adjacent lands. Areas exhibiting variation in floral or topographical composition, such as ditches or vegetation clumps, were reviewed in further detail. Vegetation communities identified within the Study Area are described in Table 5.1 and shown on Map 3.

Table 5.1 – Vegetation Communities

ELC Code	ELC Vegetation Community	Description
Agricultural	-	Areas of active or recent agricultural activity. Typically, monoculture crop dominated.
CUM1-1	Dry – Moist Old Field Meadow Type	Meadow and grassland communities that have a history of anthropogenic influence. Non-native floral species are often the most dominant vegetation form.

The Study Area is within a landscape that is primarily rural agriculture land use along the borders of suburban Stroud. The surrounding area is a mixture of agricultural areas and

suburban neighbourhoods. All 4 alternative locations occur within similar habitats. Each alternative option consists of mostly actively cultivated agricultural field bordered by Dry – Moist Old Field Meadow (CUM1-1) within roadsides and field edges. Each alternative option location was surveyed individually with its own unique floral list (Appendix B). None of the recorded species within the Study Area are Species at Risk (SAR) or Species of Conservation Concern (SoCC).

Within CUM1-1 polygons, the vegetation was dominated by exotic grasses (Smooth Brome (*Bromus inermis*), Reed-canary Grass (*Phalaris arundinacea*), Orchard Gras (*Dactylis glomerata*), Red Fescue (*Festuca rubra*) and forbs such as Canada Goldenrod (*Solidago canadensis*), Wild Carrot (*Daucus carota*), Grass-leaved Goldenrod (*Euthamia graminifolia*), and Common Ragweed (*Ambrosia artemisiifolia*). Most areas were dominated by exotic species typical of dry road shoulders and ditches however, within every alternative option Mineral Shallow Marsh (MAS2) inclusions were observed. These were pockets of marsh habitat with permanent water that corresponded to LSRCA Regulated Areas mapping (LSRCA 2025) (Map 2).

A total of 68 plant species were recorded within the Study Area by RVA staff during field investigations including 35 introduced species (51.5%) and 31 native species (45.5%) with two hybrid taxa observed. These species are all considered relatively common in Ontario (S4 or S5, Government of Ontario 2025b) (Appendix B).

No additional natural/successional vegetation communities were identified within the remaining Study Area. Features outside of the Study Area were not investigated in detail.

Alternative 3

Alternative 2

8th Line Drain - Branch B

YONGE ST

Stroud Storage SPS BPS Class EA

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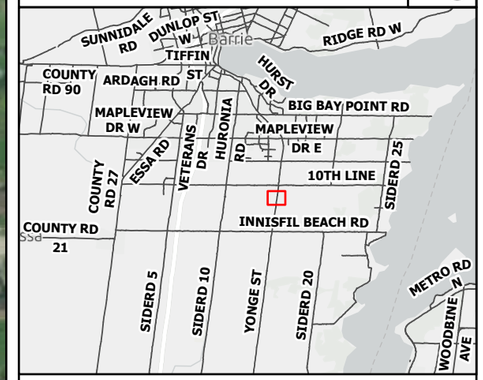
Natural Environment Assessment Report

Vegetation Communities Overview

Map 3



Legend

- Alternative Location of Infrastructure
- Watercourse

Ecological Land Classification

- Agricultural
- Dry - Moist Old Field Meadow Type (CUM1-1)

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Scale: 1:3,000 | NAD 1983 UTM Zone 17N

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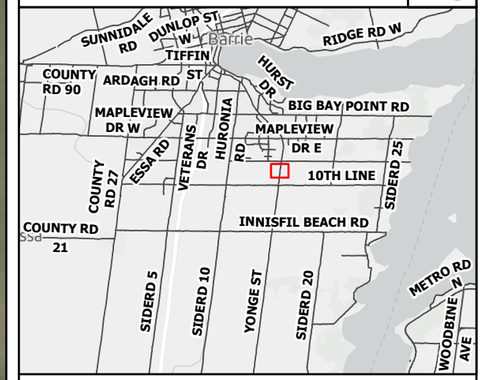
Natural Environment Assessment Report

Vegetation Communities Overview | Map **3**



Legend

- Alternative Location of Infrastructure

Ecological Land Classification

- Agricultural
- Dry - Moist Old Field Meadow Type (CUM1-1)

RVA: 257951 | Date: 11/10/2025

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Scale: 1:3,000 | NAD 1983 UTM Zone 17N

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5.2 Wildlife and Wildlife Habitats

During field investigations on September 16, 2025, all terrestrial wildlife observed, including calls and signs, were recorded. Due to the rural nature of the Study Area, it is anticipated that most wildlife species in the area are limited to those that tolerate some degree of habitat fragmentation and cultural landscapes. Table 5.2 lists all wildlife species identified during field investigations.

Table 5.2 – Incidental Terrestrial Wildlife

Common Name	Scientific Name	Provincial Status (S Rank) *	ESA Status
Birds			
American Crow	*Corvus brachyrhynchos*	S5	-
American Goldfinch	*Carduelis tristis*	S5	-
Blue Jay	*Cyanocitta cristata*	S5	-
Eastern Phoebe	*Sayornis phoebe*	S5B	-
European Starling	*Sturnus vulgaris*	SNA	-
House Finch	*Haemorhous mexicanus*	SNA	-
Mourning Dove	*Zenaida macroura*	S5	-
Red-tailed Hawk	*Buteo jamaicensis*	S5	-
Ring-billed Gull	*Larus delawarensis*	S5	-
Turkey Vulture	*Cathartes aura*	S5B,S3N	-
White-breasted Nuthatch	*Sitta carolinensis*	S5	-
Mammals			
Eastern Chipmunk	*Tamias striatus*	S5	-
Eastern Gray Squirrel	*Sciurus carolinensis*	S5	-
Striped Skunk	*Mephitis mephitis*	S5	-
Reptiles			
Red-bellied Snake	*Storeria occipitomaculata*	S5	-
Amphibians			
Green Frog	*Lithobates clamitans*	S5	-
Invertebrates			
Common Eastern Bumble Bee	*Bombus impatiens*	S5	-
Common Ringlet	*Coenonympha california*	S5	-
European Honey Bee	*Apis mellifera*	SNA	-
European Mantis	*Mantis religiosa*	SNA	-
Northern Crescent	*Phyciodes cocyta*	S5	-

* S Rank: S5 – Secure, S4 – Apparently secure, S3 – Vulnerable, S2 – Imperiled, S1 – Critically imperiled, SNA – Non-native

5.2.1 Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) was assessed based on the collection of targeted and incidental field data and comparisons to thresholds set out in the Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E (OMNR 2015), a significant component of which is the ELC communities described earlier. SWH are areas or features that are rare or provide important habitat functions and are subsequently protected through the Natural Heritage section (4.1) of the Provincial Planning Statement (PPS; MMAH 2024). To complete a full suite of evaluations for every potential SWH would be extremely arduous and time consuming, professional opinion and experience is utilized to screen potential SWH. The PPS does not apply to the Project due to the nature of the work (infrastructure supported by an EA process) but is being discussed regardless given the importance of SWH features.

During site visits within the Study Area, terrestrial wildlife observations, including call and signs, were recorded. Specific habitats surveyed for included mammal burrows (often on slopes), recently disturbed soils, potential cover objects, or other anomalous or unique features or habitat within the Study Area including large dead or decaying (wildlife) trees. Wildlife surveys were conducted in conjunction with floral inventories, described above.

No provincially rare vegetation communities were observed during site investigations nor were any candidate or confirmed point-source areas of wildlife concentration/specialized habitats, such as terrestrial reptile hibernacula, turtle nesting areas, or terrestrial crayfish burrows.

5.3 Fish Habitat

5.3.1 Alternative Location 2 and 3

The municipal 8th Line Drain – Branch B, is mapped as a Class D drain, and extends between the Alternative Location 2 and the Alternative Location 3 Study Areas. The watercourse forms the northern boundary of Alternative Location 2 and the southern boundary of Alternative Location 3. Class D drains are considered to support sensitive fish species. On the east side of Yonge Street, the roadside ditches convey surface flow toward an open-footing box culvert, which directs flow westward into the Alternative Location 2 (south) and Alternative Location 3 (north) Study Areas. At the time of field investigation, sediment at the culvert outlet was saturated, but no standing water was observed. The roadside ditches parallel to the west side of Yonge Street, leading to the culvert outlet area from the north and south, were dry at the time of investigation.

A narrow channel extended westward from the culvert outlet through the road ROW toward a fence delineating the ROW boundary, before continuing into the adjacent agricultural field, (Alternative Locations 2 and 3). The channel substrate consisted of sand, silt, and detritus, with cattails forming the dominant vegetation along the channel margins. The channel had a wetted width of approximately 0.20 m and a wetted depth of approximately 0.08 m at the time of assessment. Water was present within the channel throughout the ROW; however, no active flow was observed.

Due to limitations of the field survey, direct access to the Alternative Location 2 and Alternative Location 3 Study Areas was not possible, and fish sampling was outside the scope of this assessment. As such, to err on the side of caution, this channel is assumed to support direct fish habitat, based on its likely connection to the confirmed Brook Trout (*Salvelinus fontinalis*) habitat approximately 2.7 km downstream in Lovers Creek.

5.3.2 Alternative Location 5

Field observations for Alternative Location 5 were conducted from the road ROW due to site access limitations. The roadside ditch abutting the Alternative Location 5 Study Area was dry at the time of investigation, and no visible drainage paths were observed within the Study Area from the ROW. There did not appear to be any potential for fish habitat at this location.

5.3.3 Alternative Location 6

Field observations for Alternative Location 6 were conducted from the road ROW due to site access limitations. The roadside ditch abutting the Alternative Location 6 Study Area was dry at the time of investigation, and no visible drainage paths were observed within the Study Area from the ROW.

Although no surface flow or drainage features were identified during the field investigations the LSRCA has a mapped regulated area within this property, which appears to be associated with downstream Hewitts Creek. Given the presence of regulated area and the potential for headwater drainage features to occur within this Study Area, it is recommended that additional surveys be undertaken in the spring to confirm headwater (and indirect fish habitat) presence.

5.4 Species at Risk

Provincially protected SAR can be found throughout Ontario in both documented and undocumented populations and are protected through the Endangered Species Act (ESA

2007) administered by the MECP. According to the sources reviewed in Table 2.1, a variety of floral and faunal species of provincial interest have been recorded within or in the vicinity of the Study Area. These species and their habitat are generally found in more natural landscapes; however, some listed species have adapted to anthropogenic habitats. Additionally, the province has not been surveyed extensively, and novel individuals and populations can be located during site-specific surveys.

SAR Bats (Endangered) including Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), Silver-haired Bat (*Lasionycteris noctivagans*), Northern Hoary Bat (*Lasiurus cinereus*), Eastern Red Bat (*Lasiurus borealis*), Eastern Small-footed Myotis (*Myotis leibii*) and Tri-colored bat (*Perimyotis subflavus*) were noted as occurring in the Study Area during background review. Many of these bats utilize hollow trees, flaking bark, clumps of dead leaves and rock crevices during the active season for roosting and rearing their pups, often in colonies, while Northern, Hoary and Eastern Red Bats roost singly amongst tree foliage during the active season. Though no forested habitats exist within the Study Area, with the addition of foliage-roosting species to the list of provincially-protected at-risk bats, any tree within the Study Area has the potential to host roosting SAR bats. Additionally, there is no way to determine which trees may support these species outside of dedicated studies. Current guidance from MECP (Preliminary Technical Habitat Summary for Bats, August 2025) protects all maternity and migration roosts, as well as hibernacula and a specified radius around each habitat (up to 1000m) but has not defined what, if any activities may be permitted within the protected radii. At this time, vegetation clearing windows to prevent incidental impacts to these species is the primary mitigation tool prescribed however further guidance is expected from MECP on this subject. As bats change roosts often, it is not possible to determine which trees on a landscape provide protected habitat without further study (MECP 2025).

A full list of SAR identified in the background sources with potential to be found in the Study Area is presented in Appendix A. The field studies described above were compared to the known habitat preferences and general locations of SAR to determine the potential that these species or their habitat could occur in the Study Area. No SAR individuals identified in background review were observed during the completed field investigations within the Study Area. Habitat within the Study Area was determined to not have the potential to support the species listed in Appendix A, outside of the potential presence of SAR bats as discussed above.

5.5 Natural Heritage and Significant Habitat Summary

5.5.1 Confirmed Habitat within the Study Area

While no wildlife habitats of significance were confirmed within the Study Area during site investigations; sensitive fish habitat, known to support Brook Trout downstream, is mapped through the Alternative Location 2 and Alternative Location 3 Study Areas.

5.5.2 Candidate Habitat within the Study Area

No candidate significant wildlife habitat was determined to have the potential to occur within the Study Area.

6.0 Natural Heritage Constraints

A map of the Study Areas was created identifying low, moderate, and high constraint areas (Map 4) based on candidate and confirmed natural heritage features and functions and applicable legislation. The watercourse mapped through the Alternative Location 2 and Alternative Location 3 Study Areas is the only area defined as a high natural heritage constraint, due to the presumed presence of direct fish habitat within the watercourse. A 30 m buffer was applied to the mapped watercourse, which is the recommended minimum buffer for coldwater streams (OMNR 2010). Moderate natural heritage constraint areas include areas regulated by LSRCA under Ontario Regulation 41/24 for Prohibited Activities, Exemptions and Permits and indirect fish habitat. The remaining land within the Study Areas and adjacent lands, consisting primarily of agricultural fields and Cultural Meadow, are presented as being a low natural heritage constraint.

If other disciplines (i.e., geotechnical, archaeology, etc.) are engaging in future field work within the Study Areas where vegetation clearing may be required during sensitive periods, these areas should be reviewed for species and habitats protected under the ESA (SAR Bats) or other legislation prior to the initiation of works. One notable piece of legislation is the federal Migratory Birds Convention Act (1994) that protects most birds, their nests and young from disturbance or injury. In all instances of field work there are general timing windows that protect fish and wildlife during vulnerable life stages (i.e., spawning or nesting), and any work that has the potential for disturbance to fish and wildlife should only be completed with respect to these windows. For the Alternative Location 2 and 3 Study Areas, if the 8th Line Drain – Branch B is confirmed to support direct fish habitat, no in-water work is permitted between October 1 and June 1.

The Town promotes the removal and mitigation of invasive species within the Town of Innisfil Official Plan (2018; office consolidation 2020). Notable invasive species observed within the Study Area included Siberian Elm (*Ulmus pumilla*), Scots Pine (*Pinus sylvestris*), Common Buckthorn (*Rhamnus cathartica*), and Autumn Olive (*Elaeagnus umbellata*) (Appendix B). Vegetation clearing anticipated to support the Project provides an opportunity for enhancement of affected areas by implementing invasive species management procedures consistent with the Invasive Species Centre's best management practices (Invasive Species Center 2025).

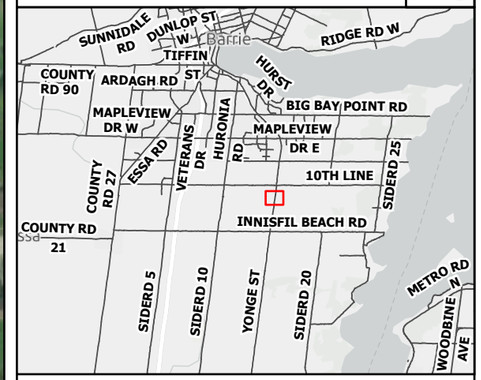
To prevent incidental impacts to nesting birds and active bat maternity colonies, woody vegetation clearing should be restricted to outside of the bat maternity and migratory bird nesting seasons, generally April 1 through September 30. If vegetation clearing must occur within this window, a qualified ecological professional should be retained to ensure no birds, active bird nests, bats or SAR are incidentally harmed by vegetation removals.

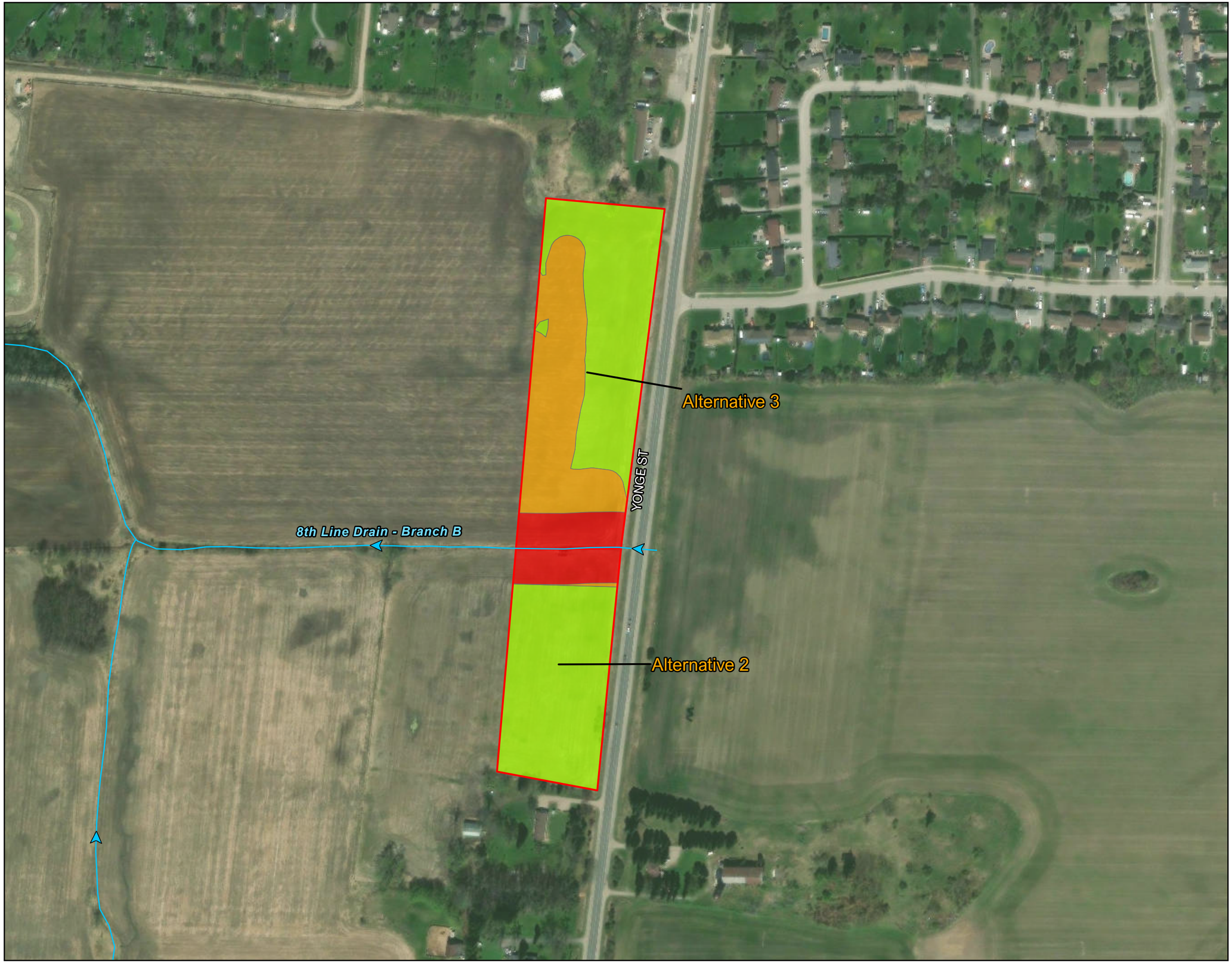
Stroud Storage SPS BPS Class EA

InnServices Utilities Inc.

Natural Environment Assessment Report

Environmental Constraints Overview | Map **4**





Legend

- Alternative Location of Infrastructure
- Watercourse
- High Risk
- Medium Risk
- Low Risk

RVA: 257951 | Date: 11/10/2025

Page 1 | Draft By: KW

N

0 50 100 150 200 m

Scale: 1:3,000 | NAD 1983 UTM Zone 17N

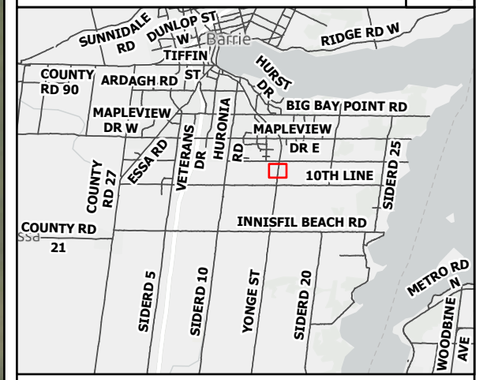
innservices | RVA

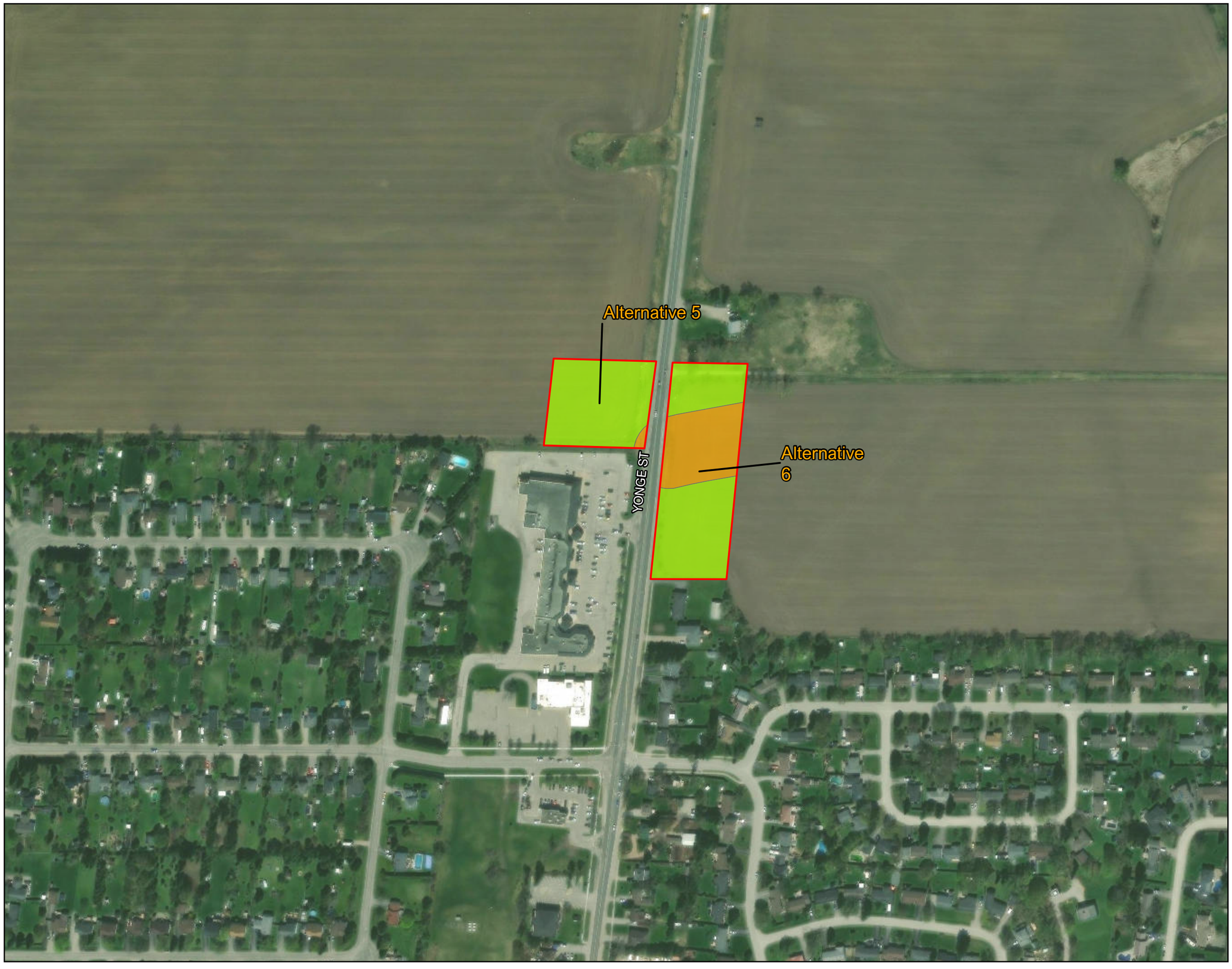
Stroud Storage SPS BPS Class EA

InnServices Utilities Inc.

Natural Environment Assessment Report

Environmental Constraints Overview | Map **4**





Legend

- Alternative Location of Infrastructure
- Medium Risk
- Low Risk

RVA: 257951 | Date: 11/10/2025

Page 2 | Draft By: KW

N

0 50 100 150 200 m

Scale: 1:3,000 | NAD 1983 UTM Zone 17N

innservices | RVA

7.0 Conclusions

This Natural Heritage Report documents the existing conditions within the Stroud Water Storage Facility and Booster Pumping Station Study Areas, supported by field studies completed in 2025. These studies included a single season review for rare and at-risk species, as well as a wildlife habitat assessment, incidental wildlife observations, and fish habitat review.

Within the PPS (2024), Section 4.1 Natural Heritage, describes the identification, protections and prohibitions provided to natural features and areas. Key among these statements is the prohibition of development within various important features or functional areas. However, with the definitions of the PPS, development does not include, among other actions, activities that create or maintain infrastructure authorized under an environmental assessment process. Because of this definition and that all prohibitions are described in reference to development, Section 4.1 does not generally apply to this project, as it is proceeding under an environmental assessment process. Irrespective of planning process, this project must consider SAR protected under the ESA, birds protected under the Migratory Birds Convention Act (MBCA 1994), fish and fish habitat protected under the Fisheries Act, and species protected under the Fish and Wildlife Act, all of which require consideration. Overall, with the exception of Alternative Location 2 and Alternative Location 3, where direct fish habitat is mapped, there are limited natural heritage concerns with this project, and those that do exist relate to incidental impacts that may occur during construction.

The conceptual design for the proposed Stroud Water Storage Facility and Booster Pumping Station area should take into consideration the natural heritage features and functions noted above and depicted on Map 2, to confirm compliance with policy as well ecological sustainability through appropriate stewardship. It is recommended that appropriate mitigation measures to protect the identified natural heritage components be incorporated into an Environmental Management Plan (EMP) at detailed design, including discussion of site preparation (e.g. vegetation clearing) and construction timing windows, Erosion and Sediment Controls (ESCs), and contractor education.

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APPENDIX A

SPECIES AT RISK BACKGROUND REVIEW

Rare and At-Risk Species Potentially Present in the Vicinity of the Study Area

Common Name	Scientific Name	S-Rank/G-Rank	ESA/SARA Status	Source*	Last Observed (Year)
Flora					
-	-	-	-	-	-
Birds					
Red-headed Woodpecker	*Melanerpes erythrocephalus*	S3/G5	END/END	OBBA	2005
Yellow-breasted Chat	*Icteria virens*	S1B/G5	END/-	OBBA	2005
Acadian Flycatcher	*Empidonax virescens*	S1B/G5	END/END	OBBA	2005
Chimney Swift	*Chaetura pelagica*	S3B/G4G5	THR/THR	OBBA	2005
Eastern Meadowlark	*Sturnella magna*	S4B,S3N/G5	THR/THR	OBBA	2005
Bank Swallow	*Riparia riparia*	S4B/G5	THR/THR	OBBA	2005
Bobolink	*Dolichonyx oryzivorus*	S4B/G5	THR/THR	OBBA	2005
Least Bittern	*Botaurus exilis*	S4B/G4	THR/THR	OBBA	2005
Eastern Wood-pewee	*Contopus virens*	S4B/G5	SC/SC	OBBA	2005
Common Nighthawk	*Chordeiles minor*	S4B/G5	SC/SC	OBBA	2005
Wood Thrush	*Hylocichla mustelina*	S4B/G4	SC/THR	OBBA	2005
Barn Swallow	*Hirundo rustica*	S4B/G5	SC/SC	OBBA	2005
Evening Grosbeak	*Coccothraustes vespertinus*	S4/G5	SC/SC	NHIC	-
Peregrine Falcon	*Falco peregrinus*	S4/G4	SC/-	OBBA	2005
Black Tern	*Chlidonias niger*	S3B,S4M/G4G5	SC/-	OBBA	2005
Reptiles and Amphibians					
Blanding's Turtle	*Emydoidea blandingii*	S3/G4	THR/-	ORAA	2018
Snapping Turtle	*Chelydra serpentina*	S4/G4G5	SC/SC	ORAA	2019
Northern Map Turtle	*Graptemys geographica*	S3/G4G5	SC/SC	ORAA	2017
Midland Painted Turtle	*Chrysemys picta marginata*	S4/G5T5	-/SC	ORAA	2018
Eastern Milksnake	*Lampropeltis triangulum*	S4/G5	-/SC	NHIC; ORAA	2023
Invertebrates (excludes mussels)					
Monarch	*Danaus plexippus*	S2N,S4B/G4	SC/END	OBA	2024
Mammals					
Eastern Red Bat	*Lasiurus borealis*	S3/G3G4	END/-	AMO	-
Eastern Small-footed Myotis	*Myotis leibii*	S2S3/G4	END/-	AMO	-
Little Brown Myotis	*Myotis lucifugus*	S3/G3G4	END/END	AMO	-
Northern Hoary Bat	*Lasiurus cinereus*	S3/G3G4	END/-	AMO	-
Northern Myotis	*Myotis septentrionalis*	S3/G2G3	END/END	AMO	-
Silver-haired Bat	*Lasionycteris noctivagans*	S3/G3G4	END/-	AMO	-
Tri-colored bat	*Perimyotis subflavus*	S3?/G3G4	END/END	AMO	-

Notes:
SRank: S5 – Secure, S4 – Apparently secure, S3 – Vulnerable, S2 – Imperiled, S1 – Critically imperiled (NHIC 2025)

*Source Abbreviations:
AMO – Atlas of the Mammals of Ontario
OBA – Ontario Butterfly Atlas (Toronto Entomological Society)
OBBA – Ontario Breeding Bird Atlas (Birds Canada)
ORAA – Ontario Reptile and Amphibian Atlas (Ontario Nature)
NHIC – Natural Heritage Information Center

APPENDIX B

FLORAL INVENTORY

Floral Inventory

Common Name	Scientific Name	SARO	SRank	Invasive	Alternate Option 2	Alternative Option 3	Alternative Option 5	Alternative Option 6
Autumn Olive	*Elaeagnus umbellata*		SE3	Y	•			
Basswood	*Tilia americana*		S5		•			
Bradford Pear	*Pyrus calleryana*		-		•			
Broad-leaved Cattail	*Typha latifolia*		S5		•	•	•	•
Butter-and-eggs	*Linaria vulgaris*		SE5				•	•
Canada Goldenrod	*Solidago canadensis var. canadensis*		S5		•	•	•	•
Canada Horseweed	*Erigeron canadensis*		S5			•		•
Canada Thistle	*Cirsium arvense*		SE5	Y	•	•	•	
Chokecherry	*Prunus virginiana*		S5				•	
Coltsfoot	*Tussilago farfara*		SE5	Y				•
Common Apple	*Malus pumila*		SE4				•	
Common Evening-primrose	*Oenothera biennis*		S5		•			•
Common Lamb's-quarters	*Chenopodium album*		SE5					•
Common Milkweed	*Asclepias syriaca*		S5		•	•	•	•
Common Pear	*Pyrus communis*		SE4				•	
Common Ragweed	*Ambrosia artemisiifolia*		S5		•		•	•
Common St. John's-wort	*Hypericum perforatum*		SE5	Y			•	
Common Three-square Bulrush	*Schoenoplectus pungens*		S5			•		•
Compressed Rush	*Juncus compressus*		SE5		•	•		
Curled Dock	*Rumex crispus*		SE5				•	
Dark-green Bulrush	*Scirpus atrovirens*		S5		•			
European Buckthorn	*Rhamnus cathartica*		SE5	Y	•	•		
Field Bindweed	*Convolvulus arvensis*		SE5		•			
Field Horsetail	*Equisetum arvense*		S5					•
Field Sow-thistle	*Sonchus arvensis*		SE5		•		•	•
Fox Sedge	*Carex vulpinoidea*		S5		•			
Freeman Maple	*Acer x freemanii*		SNA					•
Garden Asparagus	*Asparagus officinalis*		SE5					•
Garden Bird's-foot Trefoil	*Lotus corniculatus*		SE5	Y	•	•	•	
Grass-leaved Goldenrod	*Euthamia graminifolia*		S5		•	•	•	•

Common Name	Scientific Name	SARO	SRank	Invasive	Alternate Option 2	Alternative Option 3	Alternative Option 5	Alternative Option 6
Green Foxtail	*Setaria viridis*		SE5		•	•	•	•
Hairy Crabgrass	*Digitaria sanguinalis*		SE5		•	•	•	•
Hybrid Cattail	*Typha x glauca*		SNA	Y	•	•		
Manitoba Maple	*Acer negundo*		S5		•			•
Meadow Ryegrass	*Lolium pratense*		SE5		•	•		•
Narrow-leaved Cattail	*Typha angustifolia*		SE5	Y	•	•		•
New England Aster	*Symphyotrichum novae-angliae*		S5		•		•	•
Norway Spruce	*Picea abies*		SE3		•			
Old Field Aster	*Symphyotrichum pilosum*		S5		•	•		
Orchard Grass	*Dactylis glomerata*		SE5		•	•	•	
Panicled Aster	*Symphyotrichum lanceolatum*		S5		•	•	•	•
Purple Loosestrife	*Lythrum salicaria*		SE5	Y	•	•		•
Red Ash	*Fraxinus pennsylvanica*		S4				•	•
Red Clover	*Trifolium pratense*		SE5				•	•
Red Fescue	*Festuca rubra*		S5		•	•	•	•
Red-osier Dogwood	*Cornus sericea*		S5			•		
Reed Canarygrass	*Phalaris arundinacea var. arundinacea*		S5		•	•	•	•
Retrorse Sedge	*Carex retrorsa*		S5		•			
Riverbank Grape	*Vitis riparia*		S5		•	•	•	•
Russian Olive	*Elaeagnus angustifolia*		SE3	Y	•			
Scots Pine	*Pinus sylvestris*		SE5	Y	•			
Siberian Elm	*Ulmus pumilla*		SE3	Y	•			•
Smooth Bedstraw	*Galium mollugo*		SE5	Y			•	
Smooth Brome	*Bromus inermis*		SE5	Y	•	•	•	•
Spotted Jewelweed	*Impatiens capensis*		S5		•			
Staghorn Sumac	*Rhus typhina*		S5					•
Thicket Creeper	*Parthenocissus vitacea*		S5				•	•
Torrey's Rush	*Juncus torreyi*		S5		•			
Tufted Vetch	*Vicia cracca*		SE5	Y	•		•	
White Ash	*Fraxinus americana*		S4				•	
White Clover	*Trifolium repens*		SE5				•	•

Common Name	Scientific Name	SARO	SRank	Invasive	Alternate Option 2	Alternative Option 3	Alternative Option 5	Alternative Option 6
White Elm	*Ulmus americana*		S5		•			
White Spruce	*Picea glauca*		S5		•			
White Sweet-clover	*Melilotus albus*		SE5	Y	•	•	•	•
Wild Carrot	*Daucus carota*		SE5		•	•	•	•
Wild Chicory	*Cichorium intybus*		SE5		•	•	•	•
Yellow Foxtail	*Setaria pumila*		SE5		•	•	•	•

Notes:
SRank: S5 – Secure, S4 – Apparently secure, S3 – Vulnerable, S2 – Imperiled, S1 – Critically imperiled (NHIC 2025)
Invasive: Y – Invasive in Ontario based on UFA (2002)