Environmental Impact Statement

6586 Beatty Line North, Fergus ON

Prepared for

Sorbara/Tribute Brubacher Holdings Inc.

3700 Steeles Ave West, Suite 800
Vaughan, ON L4L 8M9

January 15, 2025
Project No. P2023-753

Prepared by

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Quality Assurance and Control Checklist

Body

☐ Table of Contents follows approved Terms of Reference (ToR)

Terminology

☐ Subject Property/Study Area defined in introduction

☐ Species common names are lower case unless a formal name (e.g. Blanding's turtle)

☐ Species scientific names are in the following format: *Genus species*

Formatting

☐ Header/footer formatting checked throughout document

☐ Page numbers are sequential

☐ Table header rows repeated if table crosses multiple pages

Content

☐ Background information (e.g., NHIC Make a Map and OPs) has been re-checked for updates

Appendices

☐ Placeholder pages with map captions included in word document

EIS-Specific:

- ☐ Approved ToR included
- ☐ Agency correspondence included, including MECP
- ☐ Significant Wildlife Habitat (SWH) table

References

☐ All in-text citations appear in reference list

☐ All reference list citations appear in-text

☐ Caption format is consistent, suggested format: "Table X. Caption here"

☐ In-text references are formatted as word cross-references

☐ Citations follow a consistent citation format, like the following APA . The following example follows APA:

- *In-text citations:* (Smith, 2019) or Smith (2019) did X ….; two authors: (Johnson & Smith, 2019) or Johnson and Smith (2019) did Y; multiple authors: (Smith et al., 2019) or Smith et al. (2019) did Z.
- *Reference list citation:* Last Name, Initial., Last Name, Initial., & Last Name, Initial. (yyyy). Paper Title. *Volume(Issue):* pg - pg. DOI LINK.

Maps

☐ Client & spelling checked

☐ Date checked

☐ Drawn by/checked initials included

☐ Scale included with an even unit (e.g., 5) used

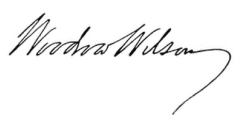
☐ *DRAFT* marker removed

☐ All legend items included as layers on map

☐ All map layers included in legend

Date: January 15, 2025

Checked by:



Name
Title

January 15, 2025

Herthana Siva
Manager, Development

Sorbara/ Tribute Brubacher Holdings Inc.
3700 Steeles Avenue W, Suite 800
Vaughn, ON L4L 8M9

Re: 6586 Beatty Line North, Fergus ON, Environmental Impact Study

Dear Herthana Siva:

GeoProcess Research Associates Inc. (GeoProcess) is pleased to present the following Environmental Impact Statement (EIS) for the proposed residential development at 6586 Beatty Line North, Fergus, Ontario herein referred to as the "Subject Property". This EIS functions as a Natural Heritage Evaluation, as required by the County of Wellington Official Plan (CWOP), due to the Subject Property's proximity to Core Greenlands. In addition, the Subject Property is subject to the Grand River Conservation Authority (GRCA) policies for the administration of the *Prohibited Activities, Exemptions and Permits (Ont. Reg. 41/24)*.

This EIS reports the findings from both in-field and desktop assessments conducted by GeoProcess and identifies the potential impacts and mitigation measures associated with the proposed development as they relate to the properties' natural heritage and hydrological features and functions.

Please do not hesitate to let us know if you have any questions regarding this report.

Regards,

GEOPROCESS RESEARCH ASSOCIATES INC

Ian Roul, MSc
Senior Ecologist

Alex Meeker, MA, CERP
Restoration Ecologist

Executive Summary

The following Environmental Impact Statement (EIS) was completed by GeoProcess Research Associates (GeoProcess) in accordance with the County of Wellington Official Plan and the Grand River Conservation Authority (GRCA) Regulations. The Subject Property is the proposed site of future residential development, pending its inclusion in the urban boundary expansion. Based on Schedule B1 Centre Wellington of the County of Wellington Official Plan, three areas are designated as Core Greenlands. These three areas are identified as Provincially Significant Wetlands (PSW). These wetlands are treed swamp ecotypes and as a result are also considered Woodlands. The site contains watercourses and GRCA regulated areas within the Provincially Significant Wetlands. When a development proposal has the potential to negatively impact natural heritage system features, an EIS is required. The EIS will identify the environmental values of the Subject Property, establish a developable limit and recommend mitigation measures to avoid impacting significant features and functions associated with the Core Greenlands areas.

GeoProcess conducted various surveys in the fall of 2023 and spring and summer of 2024 to characterize the natural heritage features located in the Study Area. A review of all relevant policies and applicable existing background information was included in the scope of the EIS.

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1. Introduction

GeoProcess Research Associates Inc. (GeoProcess) been retained by Sorbara/ Tribute Brubacher Holdings Inc. to complete an Environmental Impact Study (EIS) for the development located at 6586 Beatty Line North in Fergus, Ontario. This is herein referred to as the "Subject Property". The Subject Property is located on the west side of Beatty Line North, south of the Beatty Line North and Sideroad 15 intersection, and directly north of Fergus and Elora-Salem's delineated urban settlement area (Figure 1). The Subject Property is approximately 43.2 hectares in size, rectangular in shape and has approximately 300 metres of frontage along Beatty Line North. It is currently vacant except for one single-detached dwelling and an abandoned railway traverses through the Subject Property in a northwest/southeast direction.

The effects of the Official Plan Amendment (OPA) are to redesignate the Subject Property and to expand the boundaries of the North West Fergus Secondary Plan in the Township of Centre Wellington Official Plan (TCWOP). The proposed OPA will augment the County-level May 2024 SABE Request. The instrument will establish permissions for serviced, urban-type land uses on the Subject Property in conformity with the minimum density targets of the County of Wellington Official Plan (CWOP), the TCWOP and the Secondary Plan. In doing so, the OPA will assist the County and the Township in meeting their residential growth targets by the 2051 planning horizon.

The Subject Property is contemplated for the inclusion within the Fergus Settlement Area Boundaries to permit urban-type residential uses. The Subject Property would form a logical extension of the Storybrook Subdivision, which is a subdivision consisting of low and medium density residential uses, a park, and a stormwater management pond.

This EIS has been prepared to assess potential negative impacts that the proposed development may have on the natural heritage features and provides recommendations on the natural area boundaries, mitigation measures, and design measures to accommodate or enhance existing natural features and functions.

1.1. Site Description

The Subject Property is situated on the west side of Beatty Line North, approximately 600 m south of the intersection of Nichol Road 15 and Beatty Line North. It is surrounded by Beatty Line to the east, residential area to the south, and rural lands to the north and west. The property is approximately 43.2 hectares in size with an abandoned railway line bisecting the land to the east and west. The lands referred to as the "Study Area" are comprised of the Subject Property at 6586 Beatty Line N and 120 m outside the property boundary.

The Subject Property is described as Prime Agricultural Lands with three areas designated as Core Greenlands based on Schedule B1 Centre Wellington of the County of Wellington Official Plan and contain three Provincially Significant Wetlands and a watercourse regulated by the Grand River Conservation Authority (GRCA).

2. Policy Context

Municipal, provincial, and federal natural heritage policies applicable to the subject property have been reviewed and described below.

2.1. Provincial Policy Statement

The Provincial Policy Statement (PPS), 2020 is administered under Section 3 of the *Planning Act*. It became effective May 1, 2020, and replaces the 2014 PPS. The PPS applies to planning decisions made on or after that date. It provides policy direction for land use and development within the Province of Ontario and provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment. The policies of the PPS may be complemented by provincial and municipal plans and policies.

The PPS defines eight natural heritage features and provides planning polices for each, listed below. The function of Natural Heritage Features and Areas is further clarified by the definition of a Natural Heritage System, which is *"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."*

1. Significant wetlands;
2. Coastal wetlands;
3. Fish habitat;
4. Significant woodlands;
5. Significant valleylands;
6. Habitat of endangered species and threatened species;
7. Significant Wildlife Habitat; and,
8. Significant Areas of Natural and Scientific Interest (ANSIs).

Section 2.0 and 3.0 of the PPS deal with development and site alteration, and where these activities shall not be permitted. Section 2.0 policies surround the conservation of biodiversity, and protection of the health of the Great Lakes, natural heritage, water, agricultural, mineral and cultural heritage and archaeological resources for their economic, environmental and social benefits. Section 3.0 directs development away from areas of natural or human-made hazards to mitigate risks to public health or safety, and property damage from natural hazards, including the risks that may be associated with the impacts of a changing climate.

Policies in Section 2.1 are particularly relevant as they surround development and site alteration in and adjacent to *natural heritage features*. These policies and select others are outlined below, in Table 1.

Table 1. Applicable Policies of the Provincial Policy Statement

Policy Number	Policy
(2.1 - Natural Heritage) 2.1.2	The diversity and connectivity of natural features in an area and the long-term *ecological function* and biodiversity of *natural heritage systems*, should be maintained, restored or where possible, improved, recognizing linkages between and among *natural heritage features and areas*, *surface water features* and *ground water features*.
2.1.3	*Natural heritage systems* shall be identified in Ecoregions 6E & 7E, recognizing that *natural heritage systems* will vary in size and form in *settlement areas, rural areas*, and *prime agricultural areas*.
2.1.4	*Development* and site alteration shall not be permitted in: a) *significant wetlands* in Ecoregions 5E, 6E and 7E; and, b) *significant coastal wetlands*.
2.1.5	Development and site alteration shall not be permitted in: a) *significant wetlands* in the Canadian Shield north of Ecoregions 5E, 6E and 7E; b) *significant woodlands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and St. Marys River); c) *significant valleylands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and St. Marys River); d) *significant wildlife habitat*; e) *significant areas of natural and scientific interest*; and f) *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.
2.1.6	*Development* and *site alteration* shall not be permitted in *fish habitat* except in accordance with *provincial and federal requirements*.
2.1.7	*Development and site alteration* shall not be permitted in *habitat of endangered species and threatened species*, except in accordance with *provincial and federal requirements*.
2.1.8	*Development* and *site alteration* shall not be permitted on *adjacent lands* to the *natural heritage features and areas* identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated that there will be no *negative impacts* on the natural features or on their *ecological functions*.
(2.2 - Water) 2.2.2	*Development* and *site alteration* shall be restricted in or near *sensitive surface water features* and *sensitive ground water features* such that these features and their related *hydrologic functions* will be protected, improved or restored. Mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore *sensitive surface water features*, *sensitive ground water features*, and their *hydrologic functions*.
(3.1 - Natural Hazards) 3.1.1	Development shall generally be directed, in accordance with guidance developed by the Province (as amended from time to time), to areas outside of: a) *hazardous lands* adjacent to the shorelines of the *Great Lakes - St. Lawrence River System* and *large inland lakes* which are impacted by *flooding hazards, erosion hazards* and/or *dynamic beach hazards*; b) *hazardous lands* adjacent to *river, stream* and *small inland lake systems* which are impacted by *flooding hazards* and/or *erosion hazards*; and c) *hazardous sites*.
3.1.3	Planning authorities shall prepare for the impacts of a changing climate that may increase the risk associated with natural hazards

2.2. Endangered Species Act

The Endangered Species Act (ESA) (2007) provides protection to species designated as Threatened or Endangered on the Species at Risk in Ontario list (MECP 2019). The habitat of some species at risk is also protected under the ESA. Protected habitat is habitat identified as essential for life processes including breeding, rearing, feeding, hibernation and migration.

The ESA (Subsection 9(1)) states that:

"No person shall,

(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;

(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,

(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,

(ii) any part of a living or dead member of a species referred to in subclause (i),

(iii) anything derived from a living or dead member of a species referred to in subclause (i); or

(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii)."

Clause 10 (1)(a) of the ESA also states that:

"No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species."

An authorization or permit between the proponent and the MECP is required to authorize activities that would otherwise be prohibited by subsection 9(1) and 10(1) of the ESA.

There are three applicable regulations under the ESA, 2007; O. Reg. 230/08 - the Species at Risk in Ontario (SARO) List, O. Reg. 242/08 (General), and O. Reg 830/21 (Exemptions – Barn Swallow, Bobolink, Eastern Meadowlark and Butternut). These regulations serve to identify which species and habitats receive protection and provide direction on the current implementation of the ESA.

2.3. County of Wellington Official Plan (2024)

The County of Wellington Official Plan (CWOP) is a legal document intended to give direction over the next 20 years, to the physical development of the County, its local municipalities and to the long-term protection of County resources. All land use and servicing decisions must conform to the policies of this plan. The CWOP was adopted by Wellington County Council on September 24, 1998, and was approved by the Ministry of Municipal Affairs on April 13, 1999. This report references the consolidated version of the CWOP that was last updated July 2024.

The Greenlands System is intended to include those features and areas which are part of Wellington's natural heritage or areas in which natural or human-made condition may pose a threat to public safety. These often inter-related areas include:

- Wetlands

- Environmentally sensitive areas
- Streams and valley lands
- Ponds, lakes and reservoirs
- Areas of natural and scientific interest
- Woodlands
- Fish and wildlife habitat
- Floodplains and hazardous lands
- Threatened or endangered species

The Greenlands System is designated on Schedule B1 – Land Use for Centre Wellington of the CWOP and is divided into two broad categories – Core Greenlands and Greenlands. While the Greenlands System is based on features that have been mapped at a municipal scale, the diversity and connectivity of natural features in an area and long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features, surface water and groundwater features. Schedule B1 Centre Wellington shows the majority of the Subject Property as Prime Agricultural Lands with three additional areas designated as Core Greenlands.

2.3.1. *Section 5.4 - Core Greenlands*

Within the Greenlands System certain areas have greater sensitivity or significance. These areas will be identified in policy and protected. These areas have been included in the "Core" Greenlands designations and include:

- Provincially Significant Wetlands
- All other wetlands
- Habitat of endangered or threatened species and fish habitat
- Hazardous lands

Several areas of Provincially Significant Wetlands are mapped throughout the Subject Property. Section 5.4.1 of the CWOP states that development and site alteration will not be permitted in wetlands which area considered provincially significant. The appropriate Conservation Authority should be contacted when development is proposed in or adjacent to a wetland.

2.3.2. *Section 5.6 - Development Control*

Within the Core Greenlands designation, development and site alteration shall not be permitted within Provincially Significant Wetlands or in significant habitat of threatened or endangered species, except in accordance with provincial and federal requirements. Development shall only be permitted if:

a) There are no negative impacts on significant features and functions and no significant negative impacts on other greenlands features and functions.

b) The hazardous lands policies of Section 5.4.3 are met.

c) The development conforms to policies of the applicable adjacent or underlying designation.

According to Section 5.6.4, Core Greenland areas shall be placed in a restrictive zone which prohibits buildings, structures and site alterations except as may be necessary for the management or maintenance of the natural environment. Zoning by-laws may establish setbacks from Core Greenland areas in which no buildings or structures shall be permitted.

2.4. Township of Centre-Wellington Municipal Official Plan

The Township of Centre-Wellington encourages the protection and enhancement of the natural heritage of the Township. When planning for the future of Centre Wellington, the Township will consider the protection, preservation and enhancement of significant natural features. This applies regardless of whether the lands are designated Core Greenlands on the land use schedules.

Within *Section C.3 – Natural Heritage,* within the Natural Heritage System certain areas have greater sensitivity or significance. These areas are identified in policy and protected. These areas are included in a Core Greenlands designation on the land use schedules and include:

- Provincially Significant Wetlands
- Habitat of endangered or threatened species
- Floodways and hazardous lands

According to *Section D8 – Core Greenlands*, no development or site alteration is permitted within Provincially Significant Wetlands, in provincially significant portions of the habitat of threatened or endangered species, or in the floodway. Uses shall be limited to conservation and resource management, open space and passive recreation. Such uses shall only be permitted where it can be demonstrated that:

- There are no negative impacts on provincially significant features and functions and no significant negative impacts on other natural heritage features and functions;
- Any natural hazards can be safely overcome;
- The development conforms to policies of applicable adjacent or underlying designation.

Sections of the Subject Property have been labeled as Environmental Protection (EP) Zone within the Township of Centre-Wellington's Zoning By-Law mapping (Schedule A). In addition to the EP Zone delineation, the zoning maps comprising Schedule A also identify certain lands as Environmental Protection Overlay. This is not a separate zone, but an overlay that represents natural heritage features included in the "Greenlands" designation of the County or Township Official Plan, as well as lands to which GRCA Regulations apply. The EP Overlay permits development of the lands, subject to satisfying requirements of *Section 9.2.3.2*.

Within the Township of Centre Wellington's *Comprehensive Zoning By-Law No. 2009-045* document (May 2023), *Section 9.2 – Environmental Protection (EP) Zone* states that within any EP Zone, no land shall be used and no building or structure shall be constructed, altered or used except in accordance with the regulations listed in *Section 9.2.1*. Requirements for setbacks from EP Zones are set out in *Section 4.12*.

As described within *Section 4.12,* no building, structure or private sewage treatment system shall be constructed closer than 30 m from the limit of an EP Zone without prior written approval of the GRCA.

2.5. Grand River Conservation Authority

On April 1, 2024, a new Regulation came into force – *Ontario Regulation 41/24 – Prohibited Activities, Exemptions and Permits Regulation* (hereinafter referred to as "the Regulation"). The Regulation, issued under the CA Act replaced all 36 individual Conservation Authority regulations (including Regulation 150/06) with one consistent province-wide regulation. The "pollution" and "conservation of land" tests for granting permission were removed from the Act and a new emphasis on public safety was added. Conservation authorities may grant permission for development activities if in the opinion of the Conservation Authority the proposal is not likely to affect the control of flooding, erosion, dynamic beaches, unstable soil or bedrock and when the development activities are not likely to create conditions or circumstances that in the event of a natural hazard might jeopardize the health or safety of persons or result in the damage or destruction of property.

Section 28 (1) of the Act states that "Subject to subsections (2), (3) and (4) and section 28.1, no person shall carry on the following activities, or permit another person to carry on the following activities, in the area of jurisdiction of an authority:

1. Activities to straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse or to change or interfere in any way with a wetland.
2. Development activities in areas that are within the authority's area of jurisdiction and are,
    a. hazardous lands,
    b. wetlands,
    c. river or stream valleys the limits of which shall be determined in accordance with the regulations,
    d. areas that are adjacent or close to the shoreline of the Great Lakes-St. Lawrence River System or to an inland lake and that may be affected by flooding, erosion or dynamic beach hazards, such areas to be further determined or specified in accordance with the regulations, or
    e. other areas in which development should be prohibited or regulated, as may be determined by the regulations. 2017, c. 23, Sched. 4, s. 25."

The Subject Property is located within the jurisdiction of the Grand River Conservation Authority (GRCA) and contains a regulated watercourse and three separate provincially significant wetlands.

The following natural heritage feature setbacks are prescribed as per GRCA policies:

Feature	Setback
Riverine Flooding Hazard – Following Engineering Study	5 m
Riverine Flooding Hazard – Approximated/Estimated	15 m
Channel	15 m

Feature	Setback
Wetland	30 m*

*As per section 8.4.9 of the GRCA Policies document, *development within an area of interference less than or equal to 30 m from a wetland may be permitted* where an EIS demonstrates that:

- there are no negative or adverse hydrological or ecological impacts on the wetland.
- all development is located outside the wetland and maintains as much setback as feasible,
- development is located above the water table, and
- septic systems are located a minimum of 15 m from the wetland and 0.9 m above the annual maximum water table.

3. Methodology

3.1. Background Studies

Literature and data pertaining to the Subject Property were reviewed and evaluated to obtain natural heritage data and background planning policy information. A list of documents and information sources consulted for the purpose of this study are provided below:

- County of Wellington Official Plan (June 1, 2022)
- *Endangered Species Act (2007)* and Species at Risk in Ontario list (O. Reg. 230/08)
- Natural Heritage Information Centre (NHIC) database information (2022)
- iNaturalist (2022)
- Atlas of the Breeding Birds of Ontario (2022)
- Ontario Reptile and Amphibian Atlas (2022)
- Ontario Butterfly and Moth Atlas (2022)
- eBird Hotspots
- Fisheries and Oceans Canada (DFO) Aquatic Species at Risk Map

3.2. Field Work

GeoProcess Research Associates conducted field studies to characterize and inventory the natural heritage features and wildlife activity of the Subject Property and surrounding landscape. A summary of the field work details is provided below in Table 2.

Table 2. Completed Field Work

Activity	Timing	Date	Staff
Floristic Studies	Spring (May-June)	June 6, 2024	Scott Dowle, Emily Veres

	Summer (July-August) Fall (September-October)	September 7, 2023 October 4, 2023	
Tree Inventory	Summer	July 23, 2024	Scott Dowle, Emily Veres
Breeding Bird Study	Visit 1 Visit 2	June 11, 2024 June 26 & July 4, 2024	Alex Meeker, Emily Veres, Phil Anderson
Amphibian Survey	Visit 1 Visit 2 Visit 3	April 9, 2024 May 1, 2024 June 4, 2024	Alex Meeker, Scott Dowle, Lauren Barnett, Emily Veres
Snag Survey	Leaf Off	January 5, 2024	Scott Dowle, Lauren Barnett
HDF Assessment	Visit 1 Visit 2	March 3, 2024 May 1, 2024	Scott Dowle, Lauren Barnett
Watercourse Characterization		July 19, 2024	Scott Dowle, Phil Anderson

3.2.1. Floristic Studies

Summer and fall floristic inventories were completed in 2023 and spring inventory was completed in 2024. Species nomenclature and ranking was determined provincially by the Ministry of Natural Resources Natural Heritage Information Database (S_Ranks). Vegetation communities were mapped and described according to the Ecological Land Classification (ELC) system for Southern Ontario (Lee et al., 2008). Vegetation community boundaries were determined using desktop analysis and further refined in the field. The results of this assessment are found in Section 4.4 and Map 3.

3.2.2. Tree Inventory

GeoProcess conducted field studies on July 23rd, 2024, to identify and assess the existing trees within the Study Area. An assessment of individual trees included all trees 10 cm Diameter at Breast Height (DBH) or greater for the Study Area, including the Subject Property and the adjacent 6 m of lands. Trees were assessed for condition using the following parameters:

- Tree # - numbers assigned to tree that corresponds to their surveyed/mapped location.
- Species – common and botanical names provided in the inventory table.
- DBH – diameter (centimeters) at breast height, measured at 1.4 m above the ground.
- Condition – condition of trees was assessed as follows:
- Trunk integrity (TI): conditions on trunk that might affect likelihood of failure based on factors including co-dominant stems, cracks, decay, poor taper, lean, response growth, abnormal or missing/dead bark, etc.
- Crown Structure (CS): condition on crown structure that might affect likelihood of failure including live crown ratio, presence of defects (including bark, weak attachments, cracks, decay, cavities), crown density.

- Crown Vigor (CV): an assessment of overall tree health classified as weak/under stress (poor), average vigor for its species and site condition with some signs of stress (fair), growing well and appears to be free of significant health stress factors (good).

The location of trees within the vicinity of the proposed development were surveyed for location using a handheld GPS (+/- 3 m). Species nomenclature and ranking is based on the Ministry of Natural Resources and Forestry Natural Heritage Information Centre species list. The results of this assessment are found in Section 4.5.

3.2.3. Leaf-Off Snag Surveys

Snag surveys were conducted for the Subject Property during the leaf-off season following the Ministry of Natural Resources and Forestry current bat habitat survey protocol for Species at Risk Bats within Treed Habitats (MNRF 2017). The survey included an assessment of all trees with a Diameter at Breast Height (DBH) of 10 cm or greater, live, or dead, with loose or naturally exfoliating bark, cavities, hollows or cracks that provide suitable bat maternity roosting habitat.

3.2.4. Breeding Bird Survey

Breeding bird surveys were undertaken on three separate dates under appropriate weather conditions. The area was thoroughly surveyed through a wandering transect approach by walking through the Subject Property to search for birds within the features recording presence, abundance and level of breeding evidence using the Ontario Breeding Bird Atlas (OBBA) protocols. A travelling count approach was taken for the breeding bird surveys. Travelling counts are one of the survey methods that are listed under the Ontario Breed Bird Atlas (OBBA) and are implemented when the surveyor is travelling more than 50 m. Using the travelling count method, bird surveys were conducted on an 'area search' basis. This method involves the surveyor restricting their species list to a particular area such as a woodlot, wetland or field. This approach is also included as an observation type within the OBBA.

Additional incidental observations were also noted. The results of the breeding bird surveys are found in Section 4.7.

3.2.5. Amphibian Surveys

Amphibian surveys were completed following the Marsh Monitoring Program protocol (Bird Studies Canada 2009). This required three visits between mid-April and the end of June between the times of 9 pm and midnight, when there were light winds and air temperatures of 5°C, 10°C and 17°C or higher respectively.

3.2.6. Incidental Wildlife Surveys

Formal surveys for mammals, reptiles, and insects were not completed, but incidental observations were completed during other survey times. The results are found in Section 4.9.

3.2.7. Headwater Drainage Assessment

Following the 2014 protocol for Headwater Drainage Feature (HDF) assessment developed by the Toronto and Region Conservation Authority and the Credit Valley Conservation Authority, in conjunction with the Ministry of Natural Resources and Forestry, a HDF field assessment was completed. On March 3rd, 2024, GeoProcess completed a site visit to characterize the HDFs shortly after the spring freshet and then completed a second site visit in early spring (May 1st, 2024) to determine the hydrologic condition of each HDF. A third visit was not required given that the features were observed as dry during the second visit.

Visit 1 is conducted during a window of approximately two weeks, during spring freshet. The survey window is typically during late March or early April but is subject to variation depending on the weather in any given year. During the first site visit, the identified drainage lines are examined for both the flow condition and feature type. The first visit determines if a second HDF evaluation is necessary. If the feature is dry or standing water, or if there is no defined feature present, it is likely that the feature would be considered as "limited functions" and no additional data is required; therefore, no further field visits are required. If the feature exhibits functions beyond the "limited functions" criteria, such as a defined flow path and active flow, further data collection is then required to define those functions more fully.

Visit 2 is conducted after the freshet has ended when the melt/thaw related interflow has ceased and, preferably, after a few days with no precipitation. Timing of this visit should occur before spring plant growth is very far advanced to permit unobstructed examination of features and is typically from late April through mid-May. During this site visit, flow condition and fish presence are assessed.

Visit 3 is conducted if water was present in the feature during Site Visit 2. Water was not present during the second round of HDFs, therefore a third assessment was not conducted.

The data and observations collected from site visits are used to inform a series of classifications of the feature in relation to its function regarding hydrology, riparian character, fish and fish habitat, and terrestrial habitat. These classifications are then used to navigate a flow chart (Figure 1) that determines the most appropriate management approach for the feature. Management approaches can range from protection in situ to "no management" requirements (i.e., removal is possible), with interim management approaches that include replication of form and function or replication of function alone.

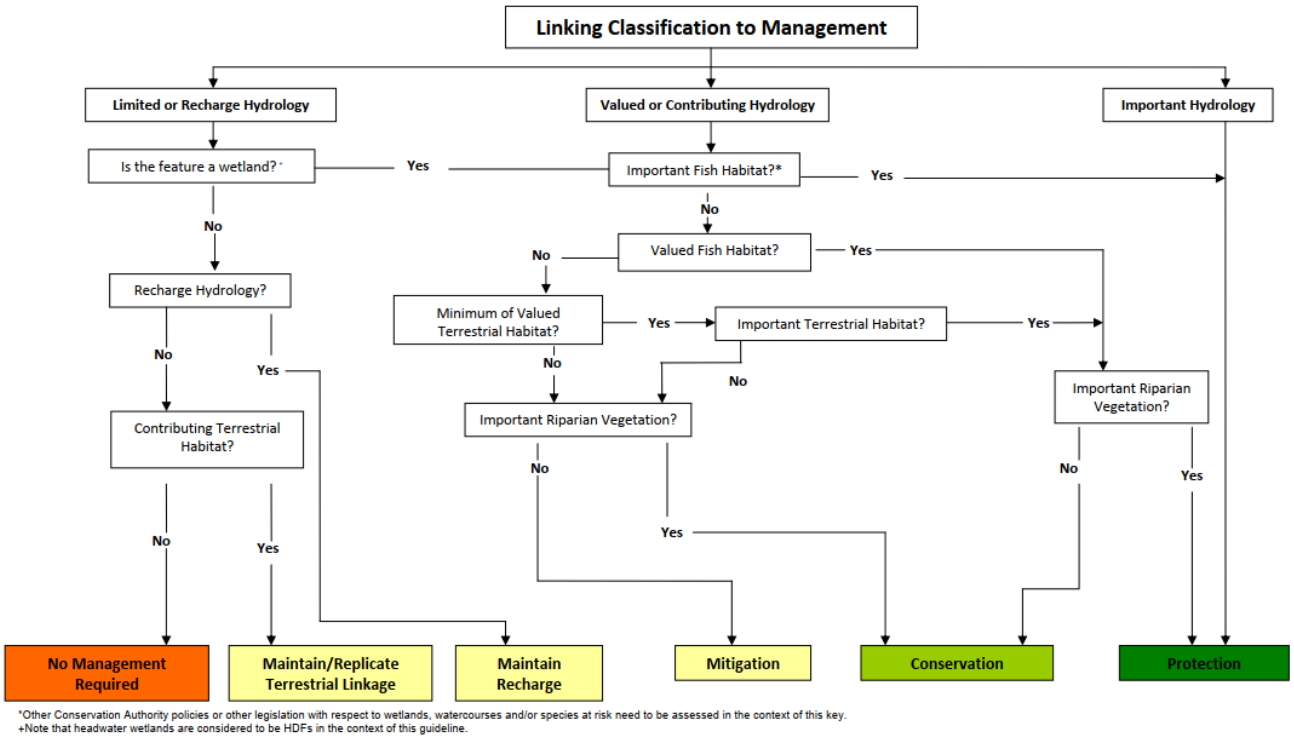

Figure 1. Flow chart providing direction on management options

3.2.8. Watercourse Characterization

An assessment and characterization of the watercourse through the eastern side of the Subject Property's habitat qualities and function were performed following the Ontario Stream Assessment Protocol (OSAP) Rapid Assessment Methodology (S4.M1) on July 19, 2024. Background information and secondary sources including the MNRF fish records and the Ontario Hydro Network (OHN) watercourse database were utilized to further characterize the watercourse within the Study Area. An active fish community assessment was not conducted (e.g. electrofishing). The results of this assessment are presented in Section 4.11.

3.2.9. Species at Risk Screening and Assessment

An assessment and screening of potential Species at Risk was conducted for the Property based on Federal and Provincial status. Following the MECP (2019) Client's Guide to Preliminary SAR Screening, this screening was based on a review of the Natural Heritage Information Centre, the regional species list, atlases (breeding bird, butterfly and moth) citizen science databases (i.e. iNaturalist), and any additional lists provided by the MECP. The preliminary screening was submitted as a memo to sar@ontario.ca for assignment to a management biologist for review. The Species at Risk assessment results are found in Section 5.

For the purpose of the screening, SAR are defined as:

- Endangered and Threatened species that are on the Species at Risk in Ontario (SARO) list and protected by the provincial Endangered Species Act, 2007 (ESA)

- Endangered and Threatened aquatic species that are listed on Schedule 1 of the federal Species at Risk Act, 2002 (SARA) and protected by the SARA

Species of Conservation Concern (SOCC) are defined as:

- Special Concern species on the SARO list
- Endangered, Threatened and Special Concern terrestrial species listed on Schedule 1 of SARA, but not protected by the ESA.
- Species with provincial ranks of S1 to S3. Provincial ranks (S ranks) are used by the NHIC to set protection priorities for rare species and vegetation communities. They are based on the number of occurrences in Ontario and are not legal designations. Provincial S ranks are defined as follows:

  S1: Critically imperiled; usually fewer than 5 occurrences
  S2: Imperiled; usually fewer than 20 occurrences
  S3: Vulnerable; usually fewer than 100 occurrences
  S4: Apparently secure; uncommon but not rare, usually more than 100 occurrences
  S5: Secure, common, widespread and abundant
  ? S-rank followed by a "?" indicates the rank is uncertain

3.2.10. Significant Wildlife Habitat Screening and Assessment

A screening for Significant Wildlife Habitat following the Ministry of Natural Resources and Forestry Significant Wildlife Habitat Technical Guide (2000) and Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E (January 2015) was conducted for the Subject Property. Potential SWH identified was assessed during the complementary field studies. The results of this assessment are found in Section 6.

4. Existing Conditions

4.1. General Landscape Position

The Subject Property is nested within the Upper Middle Grand Subwatershed, which is approximately 64,000 ha or 9% of the Grand River Watershed. Seven percent of the subwatershed is covered by wetland area with 12% of the area covered by woodland. Within GRCA's Watershed Report Card, the Upper Middle Grand Subwatershed received a 'Fair' grade for wetland cover 'Poor' grade for forest cover. Overall, the rural landscape that has been dominated by agricultural activity for many decades leaving patches of natural heritage features spread sporadically among farmlands. The urban footprints of Fergus and nearby Elora continue to intensify with applications to expand their urban boundaries.

4.2. Physiography and Geology

The Subject Property is situated mainly on till on Paleozoic terrain with glaciofluvial deposits as well as some sections of organic deposits on the eastern-most side near Beatty Line within the Guelph Drumlin Field (Chapman and Putnam 1984). The sedimentary rocks underlying the Subject Property are from the Guelph Formation, which is the uppermost bedrock stratum for a large part of the Grand River watershed, stretching a 30 km swath from Dundalk to the Hamilton International Airport (Janzen 2018).

4.3. Natural Heritage Systems

4.3.1. Wetlands

Within the Study Area, three Provincially Significant Wetlands were identified according to the Natural Heritage Information Centre mapping overseen by the Ministry of Natural Resources and Forestry (MNRF). The smallest wetland in the most western portion of the subject property, herein referred to as Wetland #1, is 0.76 ha. The wetland centred in the middle of the Study Area is 2.49 ha and finally, the third wetland along the eastern extent of the property is 7.39 ha. Wetlands #1 and #3 meet the criteria of provincially significant wetlands and therefore have received a setback of 30 m. Wetland #2 has been assigned a 15 m buffer at this time given that GeoProcess anticipates this wetland, once reevaluated, will not meet the criteria of a PSW.

4.3.2. Watercourse

A watercourse, regulated by the GRCA, runs north to southeast for approximately 180 m and is situated within one of the PSW features at the eastern extent of the Subject Property. Given that the watercourse is located within the provincially significant wetland, its setback of 15 m is superseded by the 30m setback of the wetland.

4.4. Vegetation Communities

The results of the ELC are presented below in Table 3 and are shown on Map 3. A full botanical inventory can be found in Appendix A. Nine vegetation communities were identified within the Study Area and a total of 97 species of vascular plants were identified. Of that number, 29 (or 30%) are exotic and 68 (or 70%) were native.

The majority of the native species (43%) are ranked S5 (secure in Ontario). Three species (3%) are ranked S4 (apparently secure in Ontario). None of the species recorded from the Subject Property had a co-efficient of conservation value of eight or higher.

Table 3: Ecological Land Classification Summary

ELC Code and Classification	Structural Layer	Dominant Vegetation	Comments
FOMM5-2: Dry-Fresh Poplar Mixed Forest	Ground	Spotted Jewelweed (*Impatiens capensis);* Herb-Robert (*Geranium robertianum)*	
	Sub-canopy	Common Buckthorn (*Rhamnus cathartica)*	
	Canopy	Trembling Aspen (*Populus tremuloides);* Balsam Poplar (*Populus balsamifera);* Green Ash (*Fraxinus pennsylvanica)*	
MAMM1: Graminoid Mineral Meadow Marsh	Ground	Common Buckthorn (*Rhamnus cathartica);* Virginia Clematis (*Clematis virginiana); Red-Osier Dogwood (Cornus sericea*); New-England Aster (*Symphytotrichum novae-angliae)*	The effective soil texture was clay loam and the water table was observed at 65 cm below ground surface level. Mottles were observed at 43 cm.
MAMM1-2: Cattail Graminoid Mineral Meadow Marsh	Ground	Narrow-Leaved Cattail (*Typha angustifolia);* Reed Canary Grass (*Phalaris arundinacea);* Annual Fleabane (*Erigeron annus);* Spotted Spurge (*Euphorbia maculata)*	
MAMM1-3: Reed-Canary Grass Graminoid Mineral Marsh Meadow	Ground	Reed Canary Grass (*Phalaris arundinacea);* Eastern Skunk Cabbage (*Symplocarpus foetidus*); Spotted Jewelweed (*Impatiens capensis)*	
	Sub-canopy	Red-Osier Dogwood (*Cornus sericea);* Wild Grape (*Vitis riparia)*	
MAMMO2-2: Joe Pye Weed Forb Organic Meadow Marsh	Ground	Narrow-Leaved Cattail (*Typha angustifolia);* Purple Stemmed Aster (*Symphytotrichum puniceum)*	The effective texture was loam and the water table was observed 35 cm below the ground surface level.

SWDM3-2: Silver Maple Mineral Deciduous Swamp	Ground	Fowl Bluegrass (*Poa palustris);* Tall Goldenrod (*Solidago altissima)*	
	Sub-canopy	Common Buckthorn (*Rhamnus cathartica);* Eastern White Cedar (*Thuja occidentalis);* Trembling Aspen	
SWDM4-1: Willow Mineral Deciduous Swamp	Ground	Spotted Jewelweed (*Impatiens canadensis);* Green Ash (*Fraxinus pennsylvanica);* Sensitive Fern (*Onoclea sensibilis):* Tall Goldenrod (*Solidago altissima)*	The effective soil texture was clay loam and the water table was observed at 37 cm below the ground surface level.
	Sub-canopy	Meadow Willow (*Salix petiolaris);* Tatarian Honeysuckle (*Lonicera tatarica);* Bebb's Willow (*Salix bebbiana)*	
SWM01-1: White Cedar – Hardwood Organic Mixed Swamp	Ground	Spotted Jewelweed (*Impatiens capensis);* Sensitive Fern (*Onoclea sensibilis)*	There were occasional occurrences of medium standing snags and deadfall. 39 species of plant were observed within the SWMO1-1
	Sub-canopy	Eastern White Cedar (*Thuja occidentalis);* Balsam Poplar (*Populus balsamifera)*	
	Canopy	Trembling Aspen (*Populus tremuloides);* Eastern White Cedar (*Thuja occidentalis);* Silver Maple (*Acer saccharinum);* Balsam Poplar (*Populus balsamifera)*	
SWTM5: Mineral Deciduous Thicket Swamp	Ground	Common Buckthorn (*Rhamnus cathartica);* Virginia Clematis (*Clematis virginiana); Red-Osier Dogwood (Cornus sericea);* Virginia Creeper (*Parthenocissus quinquefolia)*	
	Sub-canopy	Common Buckthorn (*Rhamnus cathartica);* Trembling Aspen (*Populus tremuloides)*	
	Canopy	Trembling Aspen (*Populus tremuloides)*	

WODM5-1: Moist Poplar Deciduous Woodland Type	Ground	Field Horsetail (*Equisetum arvense)*; Canada goldenrod (*Solidago canadensis)*	The effective soil texture was clay loam and the water table was observed at 75 cm. Mottles were observed at 50 cm.
	Sub-canopy	Red raspberry (*Rubus idaeus);* Virginia Clematis (*Clematis virginiana);* Common Buckthorn (*Rhamnus cathartica)*	
	Canopy	Trembling Aspen (*Populous tremuloides);* Yellow Birch (*Betula allegheniensis)*	

4.5. Tree Inventory

GeoProcess conducted a tree inventory on July 23, 2024, to assess existing trees within the developable area of the Subject Property. An assessment was completed for all individual trees 10 cm in diameter at breast height (DBH) or greater.

Table 4. Tree Inventory Results

Common Name	Scientific Name	S_Rank	Inventory Count
apple species	*Malus sp.*		6
bird cherry	*Prunus avium*	SNA	5
black cherry	*Prunus serotina*	S5	4
American basswood	*Tilia americana*	S5	2
white elm	*Ulmus americana*	S5	1
Manitoba maple	*Acer negundo*	S5	1
European buckthorn	*Rhamnus cathartica*	SNA	1
dotted hawthorn	*Crataegus punctata*	S5	1
Japanese walnut	*Juglans ailantifolia*		1
sugar maple	*Acer Saccharum*	S5	4
white spruce	*Picea glauca*	S5	79
norway maple	*Acer platanoides*	SNA	1
balsam fir	*Abies balsamea*	S5	2
silver maple	*Acer saccharinum*	S5	3
eastern white cedar	*Thuja occidentalis*	S5	6
eastern white pine	*Pinus strobus*	S5	2
trembling aspen	*Populus tremuloides*	S5	10
Freeman's maple	*Acer x freemanii*	SNA	1
maple species	*Acer sp.*		1
paper birch	*Betula papyrifera*	S5	1
Norway spruce	*Picea abies*	SNA	1
deciduous snag			1

4.6. Leaf-Off Snag Surveys

Ten snag trees were identified during the leaf-off snag survey that took place January 5, 2024. The location of these trees can be found in Map 3.

Table 5: Leaf-Off Snag Survey Results

Tree ID	Tree Species	dbh (cm)	Height Class	Snag Attributes	Notes
1	Freeman's Maple *Acer freemanii*	93	2	Cavity, loose bark, crack, decay class 2	Wildlife cavity present
2	Freeman's Maple *Acer freemanii*	93	2	Loos bark, knot hole, decay class 1	

3	Norway Maple *Acer platanoides*	41	2	Cavity, decay class 2	Many wildlife cavities present
4	Norway Maple *Acer platanoides*	83	1	Cavity, loose bark, knot hole, decay class 3	Shaggy bark with tiny holes in trunk (likely from sapsucker)
5	Conifer Snag	24.5	1	Cavity, loose bark, other snag within 10 m, decay class 3	Small holes in trunk
6	Conifer Snag	17	1	Cavity, loose bark, knot hole, other snag within 10 m, decay class 3	Small holes in trunk
7	Conifer Snag	30	2	Cavity, other snag within 10 m, decay class 3	Wildlife cavity present
8	Conifer Snag	25	1	Loose bark, other snag within 10 m, decay class 3	Not much bark left on tree, exposed trunk
9	Green Ash *Fraxinus pennsylvanica*	26	2	Cavity, other snag within 10 m, decay class 3	
10	Common Pear *Pyrus communis*	41.5	2	Loose bark, crack, knot hole, decay class 2	Wildlife cavities present

4.7. Breeding Bird Surveys

A travelling count approach was taken for the breeding bird surveys. Travelling counts are one of the survey methods that are listed under the Ontario Breed Bird Atlas (OBBA) and are implemented when the surveyor is travelling more than 50 m. Using the travelling count method, bird surveys were conducted on an 'area search' basis. This method involves the surveyor restricting their species list to a particular area such as a woodlot, wetland or field. This approach is also included as an observation type within the OBBA.

Six breeding bird transects were established for the Study Area, refer to Map 3 for the locations. The surveys were conducted under suitable conditions between 5 and 10 am (Table 6).

Table 6. Survey Conditions

Visit Date	Visit Time	Precipitation	Noise Level	Wind Speed [Beaufort scale]
June 11, 2024	7:03-10:10 am	0	2	3
June 26, 2024	7:50-9:00 am	0	1	0
July 4, 2024	8:21-9:51 am	0	2	0

Species heard and or observed within the search areas were recorded and the level of breeding evidence (using Ontario Breeding Bird Atlas [OBBA] protocols) was determined after completion of both surveys (Table 6).

Table 7. Breeding Bird Survey Results

Common Name	753-1	753-2	753-3	753-4	753-5	753-6	753-7	753-8	Highest Breeding Level	S_Rank	SARO	COSEWIC	Comment
alder flycatcher	1				1	2		1	P	S5B			
American crow		2	1	2	4	1	1	1	S/T	S5			
American goldfinch	2	4	10	1	2	2	2	2	P	S5			
American redstart		2			3	1			P	S5B			
American robin	1	2	1	4	7	2	2	2	A	S5			
Baltimore oriole		3		2	1	2			p	S4B			
bank swallow			**2**						**AE**	**S4B**		**THR**	**1 nest actively being used by a pair of bank swallows**
barn swallow		**1**	**4**						**S**	**S4B**	**SC**	**SC**	
black-capped chickadee	2	2			5	3		2	S/T	S5			
blue jay		1		2	1	1		1	S	S5			
brown-headed cowbird	1		2	2	4	6	2		A	S5			
cedar waxwing	1	4			2	1			P	S5			

chipping sparrow		1							S	S5B, S3N			
common grackle			2		3	1	1	3	CF	S5			
common yellowthroat	1	3		1	4	1	1		S/T	S5B, S3N			
eastern kingbird								2	P	S4B			
eastern phoebe							1		H	S5B			
eastern wood-pewee	**1**	**1**							**S**	**S4B**		**SC**	
European starling		7	2	6	4	5	4	2	S/T	SNA			
gray catbird	1	1		1	2				S	S5B, S3N			
great crested flycatcher	2	1							S	S5B			
green heron					2				S	S4B			
hairy woodpecker		1			2				S	S5			
horned lark				2					S	S4			
house sparrow			1						S	SNA			
house wren	3	1		2	5	1		1	A	S5B			
indigo bunting	2	1		2	3				A	S5B			
killdeer			1						S	S4B			
magnolia warbler	1								S	S5B			

mourning dove					1	1			S	S5			
mourning warbler	1								S	S5B			
northern cardinal	2	1			3			3	S/T	S5			
northern flicker	1				2				S	S5			
pileated woodpecker					1			1	S	S5			
red-eyed vireo	2								S/T	S5B			
red-winged blackbird		1	1	2	6	7	1	3	A	S5			
ring-billed gull		1			1				S	S5			
rose-breasted grosbeak	3	1			1				S/T	S5B			
savannah sparrow		1	3						S	S5B, S3N			
song sparrow	3	2	2	2	4	3	2	2	S/T	S5			
spotted sandpiper				1					S	S5B			
swamp sparrow						2		1	S	S5B, S4N			
turkey vulture			7	1			2		X	S5B, S3N			
warbling vireo					1				S	S5B			
white-throated sparrow					1				S	S5			
yellow warbler		2			1	2			S/T	S5B			

In the species columns, Breeding Evidence (BE) was identified for each species based on the highest level of BE observed. The number recorded represents the highest one-day total for that species with the associated breeding code.

Table 8: Species ranking system

Rank System	Code	Meaning
OBBA Breeding Level		
Possible	**H**	Species observed in breeding season in suitable nesting habitat.
	S	Singing male present or breeding calls heard in breeding season in suitable habitat.
Probable	**P**	Pair observed in their breeding season in suitable habitat.
	T	Permanent territory presumed through registration of territorial song or presence of adult bird in breeding habitat on at least 2 days, one week or more apart at the same place.
	D	Courtship or display between a male and female, or two males including courtship feeding and copulation.
	V	Visiting probable nest site.
	A	Agitated behavior or anxiety calls of adults.
	B	Brood patch on adult female or cloacal protuberance on adult male.
	N	Nest building or excavation of nest hole.
Confirmed	**DD**	Distraction display or injury feigning.
	NU	Used nest or eggshell found (occupied/laid during atlas period).
	FY	Recently fledged young or downy young.
	AE	Adults leaving or entering nest site in circumstances indicating occupied nest.
	FS	Adult carrying faecal sac.
	CF	Adult carrying food for young.
	NE	Nest containing eggs.
	NY	Nest with young seen or heard.
NHIC S-Rank		
SH	Possibly Extirpated (Historical); species occurred historically and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years.	
S1	Critically Imperiled. Extremely rare in Ontario; usually 5 or fewer occurrences in the province.	
S2	Imperiled. Very rare in Ontario; usually between 6 and 20 occurrences in the province.	
S3	Vulnerable. Rare to uncommon in Ontario; usually between 21 and 60 occurrences in the province; may have fewer occurrences, but with some extensive examples remaining.	
S4	Apparently secure. Considered to be common in Ontario. It denotes a species that is apparently secure, with over 80 occurrences in the province.	
S5	Secure. Indicates that a species is widespread in Ontario. It is demonstrably secure in the province.	
?	Indicates some uncertainty with the classification due to insufficient information.	
SNR	Not Ranked.	
SNA	Not Applicable, a conservation status rank is not applicable because the species is not a suitable target for conservation activities.	
COSEWIC/ESA & SARA Rankings		
SC	Special Concern.	
END	Endangered.	
THR	Threatened.	
EX	Extirpated.	

4.8. Amphibian Surveys

Amphibian surveys were completed following the Marsh Monitoring Protocol during the appropriate weather conditions and temperature requirements. Survey stations are provided on Map 3 and the results in Table 9. Amphibians were heard calling from within Stations 1,2,4,5, 6 and 7. The results that are bolded in Table 9 below indicate results where a full chorus of a species was heard within 100 m of the station. Given that more than species were heard calling at a Code 3, those stations are considered Significant Wildlife Habitat – Amphibian Breeding Habitat. This is discussed in more detail in Section 6.

Table 9: Summary of amphibian survey results.

Visit	Start Time	Air Temp (°C)	Wind (Beaufort Scale)	Precip.	Cloud Cover (%)	Species Calling (Call-Code-# of Individuals)		Back ground Noise	Notes
						In Station	Out of Station		
Station 1									
1	20:27	17	2	0	80%	-	-	1	
2	20:57	19	2	0	20%	AMTO1-1	AMTO1-1	3	Road noise, airplanes, bird calls
3	21:35	22	1	0	50%	-	GRTR3	1	Full chorus of GRTR
Station 2									
1									
2	21:00	19	0	0	20%	SPPE1-1	AMTO1-2 SPPE3	3	Road noise, bird calls
3	21:48	22	1	0	60%	-	GRTR3	1	
Station 3									
1	20:40	17	2	0	70%	-	-		
2	21:10	19	0	0	10%	-	AMTO2-3 SPPE3	2	Road noise
3	22:00	21	1	0	60%	-	GRTR3	1	
Station 4									
1	20:47	17	3	0	80%	WOFR 1-1	SPPE 3		
2	21:15	19	0	0	0%	-	SPPE 3 AMTO3	2	Road noise
3	22:15	21	1	0	60%	**GRTR3 GRFR3**	-	1	
Station 5									
1	20:48	17	2	0	80%	**SPPE-3**	SPPE-3		

						WOFR 2-3			
2	21:22	19	0	0	0%	**AMTO3 SPPE3**	SPPE1-1	3	Road noise, airplanes overhead. Full chorus in all directions
3	22:22	21	1	0	40%	GRFR2-2 **GRTR3**	-	1	Many amphibians calling
Station 6									
1	21:05	17	1	0	100%	WOFR 2-2 **SPPE-3**	SPPE-3 WOFR 2-2		
2	21:34	19	0	0	0%	-	SPPE3 AMTO3	2	Road noise from multiple directions
3	22:40	21	1	0	20%	-	GRTR3 GRFR3	1	
Station 7									
1	21:13	17	2	0	100%	WOFR 1-2 **SPPE-3**	SPPE-3		
2	21:40	19	0	0	0%	-	AMTO3 SPPE3	2	
3	22:32	21	1	0	40%	**GRFR3** GRTR2-3	GRFR3	1	

**Call level codes: Code 1 – Calls not simultaneous, # of individuals can be accurately counted.; Code 2 – Some calls simultaneous, # of individuals can be reliably estimated; Code 3 – Full chorus, calls continuous and overlapping, # of individuals cannot be reliably counted.*

Table 10: Species codes of amphibians heard during surveys.

Species Code	Common Name
AMTO	American Toad
GRFR	Green Frog
GRTR	Grey Tree Frog
SPPE	Spring Peeper
WOFR	Wood Frog

4.9. Incidental Wildlife

Incidental wildlife was recorded during each site visit, the observations are provided in Table 11.

Table 11. Incidental Wildlife Summary

Common Name	Latin Name	Evidence	Abundance
white-tailed deer	*Odocoileus virginianus*	Visual	4 (3 adults, 1 baby)
green frog	*Lithobates clamitans*	Heard	Several
American woodcock	*Scolopax minor*	Heard	2
red-winged blackbird	*Agelaius phoeniceus*	Heard	
horned lark	*Eremophila alpestris*	Heard	
American robin	*Turdus migratorius*	Heard/Visual	
northern cardinal	*Cardinalis cardinalis*	Heard	
black-capped chickadee	*Poecile atricapillus*	Heard	
common grackle	*Quiscalus quiscula*	Heard	
song sparrow	*Melospiza melodia*	Heard	
blue jay	*Cyanocitta cristata*	Heard	
eastern phoebe	*Sayornis phoebe*	Heard	
American goldfinch	*Spinus tristis*	Heard	
ring-billed gull	*Larus delawarensis*	Heard	
brown-headed cowbird	*Molothrus ater*	Heard/Visual	
barn swallow	*Hirundo rustica*	Heard	
killdeer	*Charadrius vociferus*	Heard	
Bat species	*Odocoileus virginianus*	Visual	1

4.10. Headwater Drainage Feature Assessment

Based on the topography of the site, it was confirmed that no Headwater Drainage Features are present on the site. Small areas of low lying topography were disconnected from the drainage system and no areas constituted Headwater Drainage Features.

4.11. Watercourse Characterization

The Subject Property lies within the headwaters of the Irvine Creek Watershed. There are two wetlands on the Subject Property, one to the north of the laneway off Beatty Line, and one to the south. The wetland to the south has a single watercourse that runs from the laneway, southeast towards the edge of the Subject Property. The watercourse continues past the Subject Property, into a small pond at the corner of Beatty Line and Farley Road. This watercourse is contained entirely within the natural heritage development limit, outside the developable area (Map 3).

This watercourse originates from an unconfined wetland on the north side of the laneway. The watercourse travels through a culvert and into the defined channel on the south side of the laneway. The channel is approximately 150 m in length on the Subject Property. It continues on for an additional 180m beyond the Subject Property, before entering a large box culvert underneath the intersection of Beatty Line and Farley

Road. The surveyed watercourse consisted of a U-shaped channel with steep banks and marsh vegetation instream and in the riparian area.

Due to recent heavy precipitation events, the watercourse was at bankfull level, therefore bankfull depth could not be measured and bankfull and wetted widths were equivalent. The mean wetted width of the surveyed channel was approximately 4.3m. Both banks appear to be relative stable and protected due to abundant vegetation. The mean depth of the watercourse was approximately 742 mm. Bed substrates are dominated by fines, with larger cobbles observed infrequently in the channel.

Riparian and instream vegetation provided the majority of the cover, with woody debris also present in some areas. Riparian vegetation was predominantly a marsh community, with Cattails, Reed Canary Grass, Red Osier Dogwood, Poa sp., and Salix sp. found throughout the watercourse. The width of the riparian vegetation varies, but on average is approximately 10 to 30 m in width. Beyond the riparian area is a woodland on the right-hand bank and agricultural fields on the left-hand bank.

The channel is fed by a large wood swamp across the laneway, which helps to moderate flows. The watercourse could potentially support fish and fish habitat, but none were observed during surveying. Due to the entire watercourse being outside the developable limit, no fisheries assessment was conducted. Downstream barriers to fish passage possibly limit the value of the watercourse to spawning and/or migratory species.

5. Species at Risk Screening

A list of SAR and SOCC with the potential to occur in the study area was prepared by reviewing the following sources:

- MNRF Land Information Ontario (LIO) digital mapping of natural heritage features
- Natural Heritage Information Centre (NHIC) database (Atlas ID: 17NJ4740 and 17NJ4739)
- Species at Risk in Ontario (SARO) List Schedule 2 & 3
- Species at Risk Act (SARA), Schedule 1
- Ontario Breeding Bird, Butterfly, Moth, Reptile and Amphibian Atlases (Atlas Square: 17NJ43 and 17NJ44)
- iNaturalist and eBird (citizen science databases)

The desktop background review identified 12 SAR that have been previously documented as occurring in the atlas square or citizen science database associated with the Study Area (Table 12). Observations of SAR within these squares do not necessarily represent observations within the boundaries of the Study Area.

Table 12: SAR Screening Results.

Species		Status		
Common Name	**Scientific Name**	**S_Rank**	**SARO**	**SARA**
		Birds		
Eastern Meadowlark[1,2,4]	*Sturnella magna*	S4B,S3N	THR	Threatened
Bobolink[1,2]	*Dolichonyx oryzivorus*	S4B	THR	Threatened
Eastern Wood-pewee[1,2]	*Contopus virens*	S4B	SC	Special Concern
Chimney Swift[2,4]	*Chaetura pelagica*	S3B	THR	Threatened
Wood Thrush[2,4]	*Hylocichla mustelina*	S4B	SC	Threatened
Barn Swallow[2,4]	*Hirundo rustica*	S4B	SC	Special Concern
American Coot[4]	*Fulica americana*	S3B,S4N	NAR	-
Red-headed Woodpecker[2]	*Melanerpes erythrocephalus*	S3	END	Endangered
Bank Swallow[2]	*Riparia riparia*	S4B	THR	Threatened
		Amphibians and Reptiles		
Midland Painted Turtle[1,3]	*Chrysemys picta marginata*	S4	0	Special Concern
Snapping Turtle[3]	*Chelydra serpentina*	S4	SC	Special Concern
Eastern Milksnake[3]	*Lampropeltis triangulum*	S4	NAR	Special Concern
		Insects		
Monarch[5,7]	*Danaus plexippus*	S2N,S4B	SC	Special Concern

[1] NHIC Database
[2] OBBA
[3] Ontario Reptile and Amphibian Atlas
[4] eBird Database
[5] Ontario Buttefly Atlas
[6] DFO Aquatic SAR Map
[7] iNaturalist

5.1. SAR Assessment

Based on the screening, in combination with vegetation communities and other environmental features observed during field work, the following species were identified for further assessment:

- Eastern wood pewee
- Wood thrush
- Red-headed woodpecker
- Bank swallow

5.1.1. Possibly Occurring

An assessment of the above list found that the Study Area has the potential to provide habitat for the species described below.

5.1.1.1. Wood Thrush

The Wood Thrush was added to the SARO list on June 27, 2014, as a species of Special Concern. It is a medium-sized songbird, about 20 cm long – slightly smaller than the American robin and similar in shape. These birds are rusty brown on the upper parts, have white under parts and large blackish spots on the breast and sides. The Wood Thrush lives in mature deciduous and mixed (conifer-deciduous) forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing perches. These migrants fly south to Mexico and Central America for the winter. Major threats include the loss and fragmentation of forest habitat from urban, suburban and cottage development, over-browsing by white-tailed deer which decreases the number and type of plants and trees in the forest where the Wood Thrush nests, and parasitic behaviour from brown-headed cowbirds, which lay their eggs in the nests of the Wood Thrush (and other birds).

5.1.1.2. Red-Headed Woodpecker

The red-headed woodpecker was already assessed as a species of special concern when the *Endangered Species Act* took effect in 2008. Red-headed woodpecker populations have declined by more than 60 percent in Ontario in the last 20 years due to habitat loss caused by forestry, agricultural uses, and the removal of dead trees. This species typically occurs in open woodland and woodland edge habitats and typically perch, forage, and nest in areas with many snag trees. The species has an insect diet in the summer and feeds on acorns and beechnuts in the winter months. The red-headed woodpecker is a medium-sized bird and is easily distinguishable for its vivid red head and neck. The bird's wings are black and white, and the body is a uniform white colour. This species typically returns to the same nesting sites every year and both parents take care of the young.

5.1.2. Confirmed Presence

Three species at risk were observed on site by GeoProcess staff during the breeding bird surveys. The sections below describe the implications of their presence within the Subject Property.

5.1.2.1. Eastern Wood Pewee

The Eastern Wood-pewee was designated as Special Concern on the Species at Risk in Ontario List on June 27, 2014. An aerial insectivore forest bird, it is identified by its distinct "pee-ah-wee" song and is difficult to distinguish from related species by morphology. Individuals reach only 15 cm in length and colouring is adapted to provide camouflage within the forest setting. It is one of many forest flycatchers which partition the forest canopy into different niches of foraging habitat. The most common habitat is intermediate age to mature forest with limited understory vegetation, though it is also found along forest edges and within clearings of forests. The species is found throughout the eastern half of the continent with its northern limit located north of the Great Lakes system. Threats to the species survival are relatively unclear but may include overall land use conversion and loss of forest, a decrease in available prey, an increase in predators (urbanized squirrels and jays), and impacts related to the over-browsing of forests by White-Tailed Deer. Threats specific to migration and overwinter habitat in the south must also be considered.

The eastern wood pewee was heard singing within Wetlands #1 and #2. This species habitat is not begin impacted by the proposed development given the appropriate setbacks are being applied to these features, therefore no negative impacts to the eastern wood pewee are anticipated.

5.1.2.2. Barn Swallow

The Barn Swallow was designated as Special Concern under the Ontario *Endangered Species Act* on January 13, 2012. It is found throughout southern Ontario and to the north as far as Hudson Bay. This species uses almost exclusively human-made structures to mount their cup-shaped nests on. Males show a glossy colouring of steel-blue on their back and breast band, while females have a pale underbelly and short tail feathers. The tail feathers form a distinctive deep fork with a line of white spots across the end. Since the mid-1980's the population has been in decline due to causes not well understood. Modernization of buildings, especially barns, and the use of agricultural pesticides are probable threats.

Although barn swallows were observed singing and foraging on site, no barn or other suitable nesting structures were observed on site.

5.1.2.3. Bank Swallow

The bank swallow was designated as Threatened on the Species at Risk in Ontario List as of June 27, 2014. The bank swallow is a small songbird with brown upperparts and a distinctive dark breast band. The bank swallow is found across southern Ontario and some sparser populations are scattered across northern Ontario. Bank swallows are insectivores and primarily consume flying insects but will also eat land and water-based insects or spiders when available. Bank swallows nest in burrows they dig out of vertical faces of sand and silt deposits. Many are found in natural areas such as the banks of rivers and lakes, however they are also found in aggregate pits where the sand and silt deposits remain suitable for nesting. The birds breed in small to large colonies ranging from several to a few thousand. Threats to the bank swallow population include loss of breeding, nesting, and foraging habitat. The use of widespread pesticides and collision with vehicles are also factors contributing to their population decline.

Bank swallows were observed nesting in a temporarily fill pile within the Subject Property during the second breeding bird visit. It is recommended that preventative actions be taken to prevent the re-establishment of

nesting habitat in the fill pile well before the birds begin to return in mid- to late April. It is recommended that the *Best Management Practices for the Protection, Creation and Maintenance of Bank Swallow Habitat in Ontario* document published by the Ministry of Natural Resources and Forestry (2017) be consulted to inform appropriate nesting prevention techniques and timing.

6. Significant Wildlife Habitat Screening

Significant Wildlife Habitat (SWH) is considered natural heritage and is protected as per Section 2.1 of the Provincial Policy Statement, 2014. The Significant Wildlife Habitat Technical Guide (OMNRF, 2000) aids in land use planning by providing the identification, description, and prioritisation of significant wildlife habitat in Ontario. The associated Ecoregion Criteria Schedules are used to further provide detailed criteria for assessing and confirming SWH within Ontario. This section will provide a screening in the form of a summary table followed and an assessment of the potentially or confirmed occurring SWH.

Significant (and/or sensitive) Wildlife Habitat features and functions as described within the OMNRF Significant Wildlife Habitat Ecoregion Criteria Schedule for Region 6E (OMNRF, 2015) were reviewed and evaluated for the Study Area. The documented groups wildlife habitat into five main categories:

- Seasonal concentration areas of animals;
- Rare vegetation communities or specialized habitats for wildlife;
- Specialized Habitat for Wildlife
- Habitat for species of conservation concern; and,
- Animal movement corridors.

The full screening found in Appendix E consisted of a review of the ELC codes and habitat criteria for candidate SWH. Any SWH on the Subject Property or adjacent lands was noted in Column 4 and a rationale was provided in Column 5. In the case of potential SWH, Confirmed Defining Criteria Studies were reviewed, and applicable mitigation measures (in summary form) were also provided in Column 5.

6.1. Screening

The results of the assessment indicated the presence of candidate and confirmed SWH within two of the five categories, including:

- Seasonal concentration areas of animals;
- Specialized habitat for wildlife

6.1.1. Seasonal Concentration Areas for Animals

Bat Maternity Colonies – The forested wetland and mixed forest communities can provide roosting habitat to Ontario bats in the form of exfoliating bark, snags and cavities. Acoustic surveys were not conducted as part of the EIS as the Provincially Significant Wetlands are being preserved with a 30 m buffer.

6.1.2. Specialized Habitat for Wildlife

Amphibian Breeding Habitat (Wetland) – The SWMT-5, MAMM-1, MAMO2-2 and MAMM1-2 are providing ty breeding habitat for amphibians in sufficient quantity to be considered Significant Wildlife Habitat. This assumption was reinforced during amphibian breeding surveys where four different species of frog were heard calling at the Code 3 level. According to the SWH guidelines, if two or more species of frog are heard calling at the Code 3 level then this triggers the designation of Amphibian Breeding Habitat.

7. Proposed Development

The proposed site plan will occupy an approximate area of 29 hectares to accommodate the construction of single detached and town home residential buildings, which will include a stormwater management facility in the southwest corner of the parcel. The proposed development is located outside of the applicable natural heritage system buffers.

7.1. Natural Heritage System Buffers

7.1.1. Provincially Significant Wetlands

Three Provincially Significant Wetlands (PSWs) are identified by the MNRF on their Natural Heritage Information Centre mapping. The central wetland located in the middle of the property is a candidate for re-evaluation based on the observed topography and vegetation community. Surveys be undertaken by a qualified biologist in 2025 to confirm whether it is meets the criteria of a Provincially Significant Wetland.

According to the Grand River Conservation Authority, PSWs receive a 30 m buffer. The proposed development is at least 30 m from the wetlands and the full buffer is provided. It is recommended that these buffers are planted with native, self-sustaining vegetation to reduce the impact of the proposed development on the natural heritage features. Additional details regarding the implementation of the vegetated buffer are provided below in Section 9.1.1.

One exception to the application of 30 m buffers is noted within Wetland #3 on the eastern extent of the Subject Property. Where the collector road is proposed to run through the wetland along the existing laneway and connects with Beatty Line, no additional buffers have been provided.

7.1.2. Watercourse

A watercourse regulated by the GRCA, runs north to southeast for approximately 180 m and is situated within one of the PSW features at the eastern extent of the Subject Property. Given that the watercourse is located within the provincially significant wetland, its setback of 15 m is superseded by the 30m setback of the wetland, as a result, this feature is protected with an appropriate setback.

7.2. Stormwater Management, grading and Servicing Requirements

One stormwater management facility has been proposed in the south-western portion of the Subject Property. The facility is proposed to take up approximately 6% of the net developable area of the site, which is 29 ha. No further details regarding the SWM facility design are available at this time.

8. Environmental Impact Assessment

Impacts on the various natural heritage features associated within and adjacent to the Subject Property were considered in the impact analysis. Table 14 presents the natural heritage components considered in this assessment, the proposed activity associated with that component, potential short-term and long-term impacts, recommended mitigation measures, and if any residual effects are anticipated. Potential impacts were assessed using secondary source information, including an overlay of the proposed site plan.

8.1. Impact Summary Table

Table 13: Impact Summary Table

Feature and Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
Short-Term Impacts				
Natural Heritage System (NHS)	Grading, Servicing & Development	Release of dust as a result of construction activities.	Implement dust suppression measures during site grading when conditions are dry or strong winds are anticipated.	Impacts from dust to the surrounding landscape should be minimal. No residual effects expected.
Breeding Birds	Site Clearing/ Tree Removal	Impacts to nests and nesting birds	Vegetation and tree clearing should not occur between April 1-September 30th as per the Migratory Birds Convention Act (1994). If clearing is to occur during the nesting season, a nest survey should be completed by a qualified bird biologist 48 hours prior to the proposed works to identify any nest which are not to be disturbed until the young have fledged. Nests are not to be disturbed until the young have fledged or until the nest is deemed inactive. Education of contractors on wildlife encounters is recommended.	No impacts to birds from tree clearing are anticipated as long the recommended mitigation measures are adhered to.
Surrounding habitats	Grading, Servicing & Development	Release of petroleum products or other contaminants into surrounding habitats.	To prevent contaminant runoff into the nearby natural heritage features, equipment maintenance and refuelling need to be controlled to prevent any discharge of petroleum products. Vehicular maintenance and refuelling should be conducted at least 30 m from the Woodland and Core Area. Construction material, excess material, construction debris, and empty containers should be stored in one location with proper containment and spill control measure in place.	No residual effects expected it mitigation measures are followed.

Feature and Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
Local and migrating wildlife	Grading, Servicing & Development	Noise from construction works on local and migrating wildlife.	Limited measures can be employed as a certain level of construction noise will occur. Limit construction activities at sunrise and sunset during the active spring breeding bird season.	Noise impacts to wildlife may occur, however, as the majority of the wildlife found within the local landscape is tolerant of disturbances, they are anticipated to return to the area once construction activities end. No residual effects are expected.
Surrounding habitat	Grading, Servicing & Development	Soil compaction and rutting outside of the construction zone	Implement a construction restoration plan to detail how the site will be remediated once construction is complete and install fencing to delineate where the extent of the development footprint is limited.	Minimal residual effects anticipated.
Adjacent Woodland	Grading, Servicing and Development	Damage to riparian area. Erosion and sedimentation release to the watercourse.	Implement silt fencing along the development limit to ensure construction activities and sediment do not migrate to the adjacent NHS. Avoid construction during high-volume rain events or significant snow melts/thaws. Construction should resume once soils have stabilized to avoid the risk of erosion, soil compaction, or the potential for sediment release into nearby natural features/watercourses.	Inspection of the erosion and sediment controls (e.g. silt fences, sediment traps, outlets, vegetation, etc.) by a qualified environmental professional (i.e. CAN-CISEC designation or approved equivalent) with follow-up reports to the governing municipality should ensure proper implementation throughout the development. Fencing should be left in place until after construction works are complete and the site has sufficiently stabilized/ re-vegetated. No residual effects are expected.
Surrounding Habitat	During Construction	Movement of invasive species to and from the site	Machinery is a major vector for spreading terrestrial invasive species into new areas as they may spread seeds or plant parts to other properties. Contractors are to follow Clean Equipment Protocol for Industry (2013) as laid out by the Ontario Invasive Plants Council. Giant Hogweed was noted on site, it is recommended that these individuals be flagged out by a qualified environmental professional before construction starts to ensure their seeds	Minimal residual effects are expected while adhering to the recommended mitigation measures.

Feature and Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
			are not distributed throughout the site of the natural heritage system.	
			Long-Term Impacts	
Local and migrating wildlife	Development	Light pollution resulting in changes to animal behaviour.	Lights directed downward will reduce the amount of ambient light issuing from the Subject Property. It is recommended that downward-casting lighting is used across the site. Lighting along the backside of the building that faces the Core Area should be minimized.	Due to the overall size of the proposed development, it is likely to create additional ambient light pollution. If mitigation measures are implemented, the overall impact of light pollution on wildlife and insects can be reduced. The shielding and downward casting lights and closing window coverings at night are good steps to reducing impacts. It is likely there will be some impact due to night-time lighting as all outdoor lighting will not be eliminated.
Breeding Birds	Development	Bird Strikes/ Deaths	Developments close to natural areas with glass surfaces pose a threat to birds. Birds can see through glass and what is reflected on glass, but not the glass itself. There are several options to reduce bird strikes depending on whether the treatments are before or after the glass has been installed. 1) Pre-Installation measures include: Frit and etched patterns; opaque materials and frosted glass; reducing features that create 'fly-through' conditions like glass corners; window muntins; exterior shutters; UV-treated glass. 2) Temporary Solutions: Encourage tenants to install their own deterrent measures on the outside of the windows like decals, ribbon, tape. Encourage tenants to turn off their lights at night during migration windows in the spring and fall. The majority of songbirds migrate at night, bright lights can cause confusion and draw migrating birds off course and result in additional bird strikes, delaying their migration. Making design choices with birds in mind before construction is the most effective way to reduce bird strikes.	Bird-friendly measures are recommended to be considered when designing the residential area. There is the potential for residual negative impact on the local and migrating avian population from bird strikes. For more information on bird strikes and bird-friendly building design, visit FLAP Canada's website.

Feature and Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
			Encouraging individual tenants to install their own mitigative measures is not as effective as not everyone may want to participate.	
Woodland, ESA	Snow Storage	Salt run-off	All snow storage locations have yet to be determined. However, snow storage will likely occur within road right-of-ways and some parking areas. All snow melt from these locations will be captured in the SWM system and provided enhanced level quality and quantity treatment. Untreated snow storage melt water will not be discharged directly to the environment.	The treatment of all snow storage melt water prior to release to the environment will mitigate impacts from both volume and contaminant releases. Impacts from salt will be managed through the Township of Centre Wellington's winter salt application program, which aims to reduce overall salt use during the winter. There is low likelihood that sodium enriched water will be discharged into the surrounding natural environment.
Natural Heritage System	Post-Development	Encroachment, dumping and spread of invasive species	Thorn baring plants will be implemented in the vegetated buffer to deter humans and pets from entering the Core Area. Fencing installation is recommended along property boundaries to discourage local residential use of the NHS.	The Provincially Significant Wetlands will be maintained by a 30-metre setback. Surrounding land use currently supports residential development agriculture, as a result no long-term residual effects are anticipated from the proposed development. Opportunities for native planting with the vegetated buffer will serve to improve the ecological features and functions associated with the Subject Property.
Wildlife	Road Construction	Road mortality	The development concept has proposed that approximately 167 m of existing driveway be upgraded to a collector road, which will result in further bisecting of the provincially significant wetland. The increase in local traffic and the construction of a formal road could result in a higher number of interactions with wildlife on the road as well as mortalities. As such, a combination of exclusion fencing along both sides of the proposed collector road and one wildlife tunnel to accommodate reptiles and amphibian	The installation of exclusion fencing along both sides of the proposed collector road and one wildlife crossing will provide a safer route for reptiles and amphibians to pass between both sides of the provincially significant wetland. This should reduce the likelihood of automobile strikes and sufficiently mitigate road mortality risks for reptiles and amphibians. When designing these features, it is recommended that the City of Guelph's Wildlife Crossing

Feature and Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
			movement are recommended. The design criteria of the fencing and wildlife crossing are to be confirmed at the site plan approval stage.	Guideline (2023) be consulted for best practices.
Watercourse	Development	The release of unwanted pets/invasive species such goldfish, koi, and red-eared sliders into the stormwater management pond could result in negative impacts downstream if they were to enter into the tributary of Innisfil Creek.	Install one educational sign that describes the importance of a stormwater management pond and the native plants installed there and discourages people from dumping anything into the facility.	Residual impacts are expected to reduce with appropriate communication materials (e.g. interpretive signage).

8.2. Direct Impact Assessment

Direct impacts are directly attributed to the proposed development activities, often occurring during the construction phase or associated with physically altering the landscape or removing vegetation communities. Construction activities including grading, servicing, and site development, can cause direct impacts on the surrounding habitats and potential local and migrating wildlife.

Based on the existing disturbances in the area, the history of agriculture on the site dating back a minimum of 20 years, and the natural heritage buffers, the proposed site development will not result in any measurable changes to the adjacent NHS composition, structure, or function except for a reduction groundwater inputs due to the increase in impermeable area and coincidental lack of infiltration measures.

The natural heritage system, including the three provincially significant wetlands, are not proposed to be reduced in size. The 30 m and 15 m buffers will be planted with self-sustaining native vegetation and will result in the mitigation of negative impacts on the function of the nearby natural heritage system.

8.3. Indirect Impact Assessment

Indirect impacts are those which occur as a secondary result of the proposed activity, and not necessarily as a direct result of the activity. These are usually associated with population growth or density changes, or alterations/additions to road networks. Indirect impacts on wildlife and the surrounding environment are expected to be minimal based on the location of the development 15-30 m away from the NHS, the nature of the construction work, and the existing conditions of the Subject Property.

8.4. Cumulative Impacts

Cumulative impacts are changes to the environmental due to past, present and the reasonably foreseeable future impacts. The proposed development is situated within a landscape that has been transformed primarily for agricultural purposes for over 40 years, resulting in a natural area that has already undergone and continues to undergo anthropogenic stressors. These stressors have played a role in the form and function of the NHS, including ambient noise, shifts in insect and vegetation communities, shifts towards agricultural tolerant wildlife, and changes in both surface and groundwater flow and volumes. The proposed development, by it very nature, may result in a continuation of a shift towards a natural area that supports only those species most adapted to living with anthropogenic disturbances and stressors. Recognizing the role that urbanization has on adjacent natural areas, and will continue to have, the proposed development has included mitigation measures to reduce these cumulative impacts, in an effort to limit them as much as possible. The primary mitigation measure being the inclusion of 30 m and 15 m buffers planted with self-sustaining native vegetations reflective of the local area. The purpose of native plantings in the setback is to mitigate potential impacts from increased human population density.

Although the development does include upgrading an existing laneway into a collector road through the PSW along the eastern boundary of the Subject Property, the wildlife crossing measures should reduce the impact of road mortality resulting from increased traffic.

Cumulative impacts are changes to the environmental due to past, present and the reasonably foreseeable future impacts.

9. Mitigation Measures and Recommendations

The following mitigation measures are recommended to avoid and minimize impacts. The measures have two distinct intended outcomes: mitigation to reduce the impact on the natural heritage system and mitigation to reduce the impact of active construction.

9.1. Natural Heritage System Measures

Before machinery is active on site, a visual search of the work area should be conducted before work commences each day, particularly for the period when most wildlife is active (generally April 1st to October 31st). Visual inspections will aim to locate snakes, turtles, and other ground-dwelling wildlife such as small mammals. Visual searches should also include inspection of machinery and equipment left in the work area overnight before starting equipment to ensure that wildlife are safely out of the work area.

Other natural heritage system measures include:

- Minimize outdoor lighting and direct it down and away from natural areas.
- Inspection by a qualified person(s) to conduct regular monitoring of all sediment and erosion measures implemented to ensure they are in working order. Any deficiencies observed are to be recorded and immediately reported to the site contractor.
- Architectural considerations to minimize bird strikes, which could include window glazing, frosting or etching, UV-treated glass, or exterior window coverings (i.e. shutters or muntins), awnings or canopies over entryways.
- Provide native plantings reflective of the local area within the wetland setbacks, further discussed in Section 9.1.1 below.

9.1.1. Vegetated Buffers

Vegetated buffers are recommended within the setbacks of the PSWs to reduce the impacts of the development on these natural heritage features. The vegetated buffer is intended to protect the Core Greenlands area and its ecological functions from impacts of the proposed land use occurring during development and should be comprised of self-sustaining native vegetation. A 30 m vegetated buffer is recommended along the development-facing boundaries of PSWs #1 and #3. It is anticipated that Wetland #2 (the central wetland) will be reevaluated in 2025 and will not meet the conditions of a PSW, as such we are comfortable assigning a 15 m vegetated buffer at this time.

It is recommended that the VPZ is planted to mimic natural successional edges found around woodlands. Typically, a woodland edge is a gradient from grasses and forbs to shrubs and finally to larger trees. It is recommended that this transitional condition be established along the woodland edge through the implementation of buffer zone plantings.

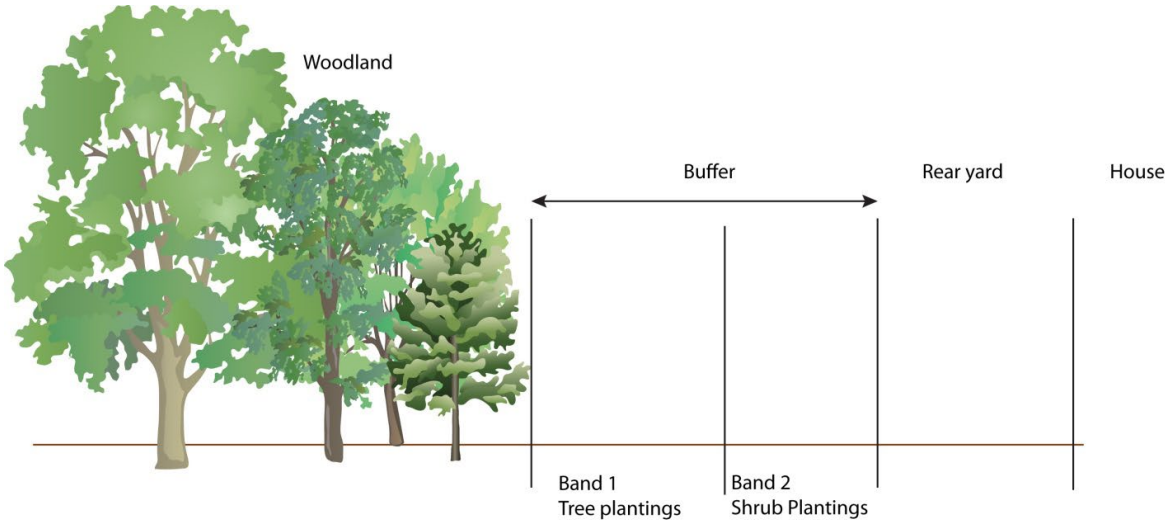

Figure 1. Proposed buffer planting approach, three planting bands of trees, shrubs and upland seed mix.

See Tables 14 and 15 below for the proposed list of native trees, shrubs, and seed mix that are appropriate for installation within the 30 and 15 metre wetland setbacks and associated Bands. Several thorn-baring species have been incorporated into the bands to reduce the likelihood that the public will venture into the Core Greenlands.

Table 14: List of appropriate native tree species planted in Band 1.

Common Name	Scientific Name
eastern white cedar	*Thuja occidentalis*
yellow birch	*Betula allegheniensis*
trembling aspen	*Populus tremuloides*
balsam poplar	*Populus balsamifera*
American basswood	*Tilia americana*
red oak	*Quercus rubra*
sugar maple	*Acer saccharum*
red maple	*Acer rubrum*
dotted hawthorn	*Crataegus punctata*

Table 15: List of appropriate native shrub species to be included in Band 2.

Common Name	Scientific Name
red-osier dogwood	*Cornus sericea*

Common Name	Scientific Name
red raspberry	*Rubus idaeus*
black raspberry	*Rubus occidentalis*
pussy willow	*Salix discolor*
nannyberry	*Viburnum lentago*
chokecherry	*Prunus virginiana*
staghorn sumac	*Rhus typhina*

9.2. Construction Measures

General construction-related mitigation measures include the following:

- Clearing of vegetation within the Subject Property as part of site preparation should be conducted in late summer or winter months (September to March) so as not to coincide with breeding bird season. If clearing is to proceed within the breeding bird window, the Subject Property should be screened by a qualified bird biologist to determine if any migratory songbirds are nesting within the work zone. Any identified nests are to be protected until it is confirmed that the young have fledged from the nest.
- Construction activities should be limited at sunrise and sunset when birds are most active during the breeding bird season to reduce construction noise impacts.
- Implementation of the erosion and sediment control plan is recommended to prevent releases of sediment into the adjacent natural areas.
- Inspection by a qualified person(s) to conduct regular monitoring of all sediment and erosion measures to ensure they are in good working order. Any deficiencies observed are to be recorded and immediately reported to the site contractor. Gaps in fencing should be repaired immediately.
- Topsoil removed during stripping is recommended to be stockpiled for reapplication post-construction.
- A construction work plan should designate specific locations for stockpiling of soils and other materials or outline the location of materials trucked offsite.
- Implementation of dust control measures is recommended to reduce dust impacts on the adjacent lands.
- Implementation of tree protection measures as presented in the Tree Protection and Preservation report.

10. Policy Conformity

An outline of the applicable policies, including federal, provincial, and municipal protection and planning policies and regulations, relative to the Study Area was provided in Section 2 of this report. In conformity with the policies identified within the Township of Centre Wellington, the County of Wellington, and GRCA regulations, an evaluation of how the Study Area complied with these policies concludes that the proposed development meets the requirements of mitigating impacts on wildlife habitat and natural functions of the Study Area. Potential impacts associated with the proposed development can be mitigated through the appropriate measures mentioned in Section 9. Planning, design, offsetting, and construction measures identified for the Study Area will promote the protection of natural features outlined in this preliminary EIS.

11. Closing

This EIS completed a policy review, conducted biophysical surveys to document the existing ecological conditions, reviewed the proposed site plan, functional servicing report, hydrogeological report, and landscape and restoration plan. From a natural heritage perspective, the proposed plan meets the requirements of the County of Wellington's Official Plan and with the implementation of the standard mitigation measures described can proceed without negative impacts to the natural environment.

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Environmental Impact Statement – 6586 Beatty Line North, Fergus ON

Prepared for Sorbara/Brubacher Holdings Inc.

January 15, 2025

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Disclaimer

Project Number P2023-753

Maps (Figures or Drawings)

GeoProcess RESEARCH ASSOCIATES

CREATED BY:	DH	PROJECT NO.:	P2023-753
CHECKED BY:	IR	DATE:	Nov 08, 2024

0 0.25 0.5 0.75 1 km

NAD83 / UTM zone 17N (EPSG:26917)

Notes:
[1] Contains information licensed under the Open Government Licence – Ontario from Land Information Ontario (LIO)
[2] Imagery from Google Earth.

Map 1.

Key Map

6586 Beatty Line North
Fergus, Ontario
Sorbara/Tribute Brubacher Holdings Inc.

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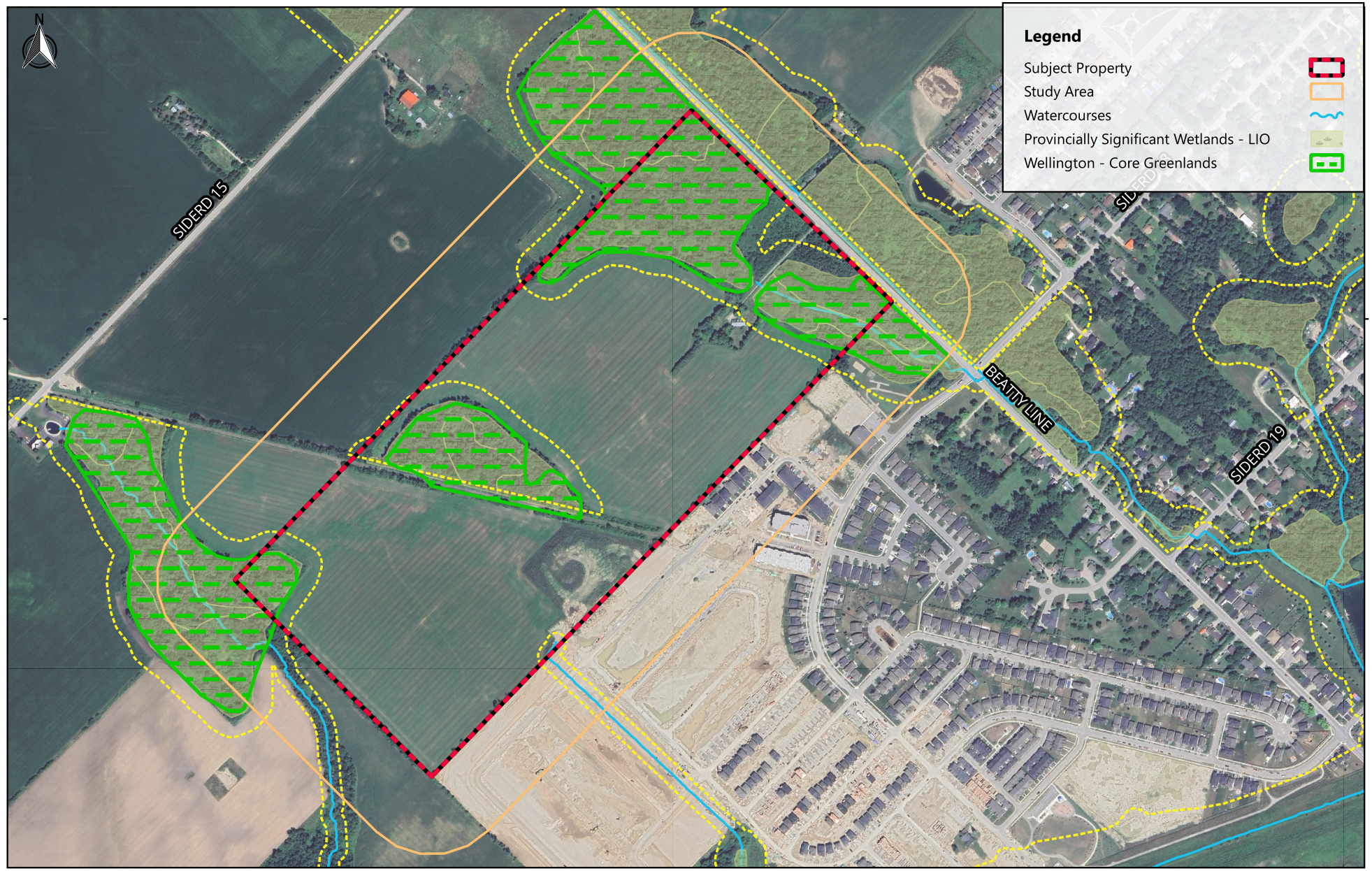

GeoProcess RESEARCH ASSOCIATES

CREATED BY:	DH	PROJECT NO.:	P2023-753
CHECKED BY:	IR	DATE:	Nov 08, 2024

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NAD83 / UTM zone 17N (EPSG:26917)

Notes:
[1] Contains information licensed under the Open Government Licence – Ontario from Land Information Ontario (LIO)
[2] Imagery from Google Earth.

Map 2.

Natural Heritage Features Existing Conditions

6586 Beatty Line North
Fergus, Ontario

Sorbara/Tribute Brubacher Holdings Inc.

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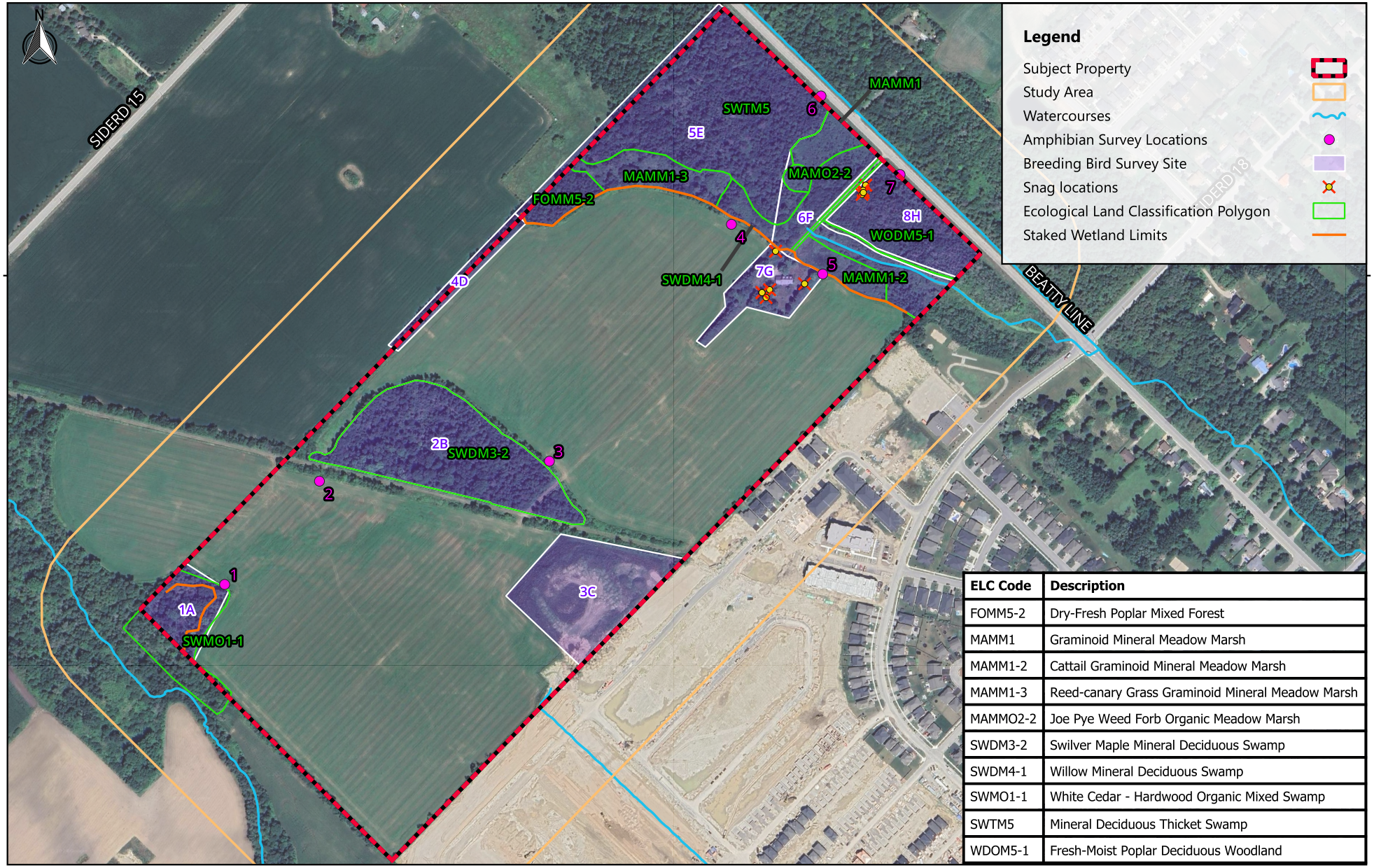

ELC Code	Description
FOMM5-2	Dry-Fresh Poplar Mixed Forest
MAMM1	Graminoid Mineral Meadow Marsh
MAMM1-2	Cattail Graminoid Mineral Meadow Marsh
MAMM1-3	Reed-canary Grass Graminoid Mineral Meadow Marsh
MAMMO2-2	Joe Pye Weed Forb Organic Meadow Marsh
SWDM3-2	Swilver Maple Mineral Deciduous Swamp
SWDM4-1	Willow Mineral Deciduous Swamp
SWMO1-1	White Cedar - Hardwood Organic Mixed Swamp
SWTM5	Mineral Deciduous Thicket Swamp
WDOM5-1	Fresh-Moist Poplar Deciduous Woodland

GeoProcess RESEARCH ASSOCIATES

CREATED BY:	DH	PROJECT NO.:	P2023-753
CHECKED BY:	IR	DATE:	Nov 15, 2024

0 100 200 300 400 m

NAD83 / UTM zone 17N (EPSG:26917)

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[2] Imagery from Google Earth.

Map 3.

Natural Heritage Surveys & Ecological Land Classification

6586 Beatty Line North
Fergus, Ontario

Sorbara/Tribute Brubacher Holdings Inc.

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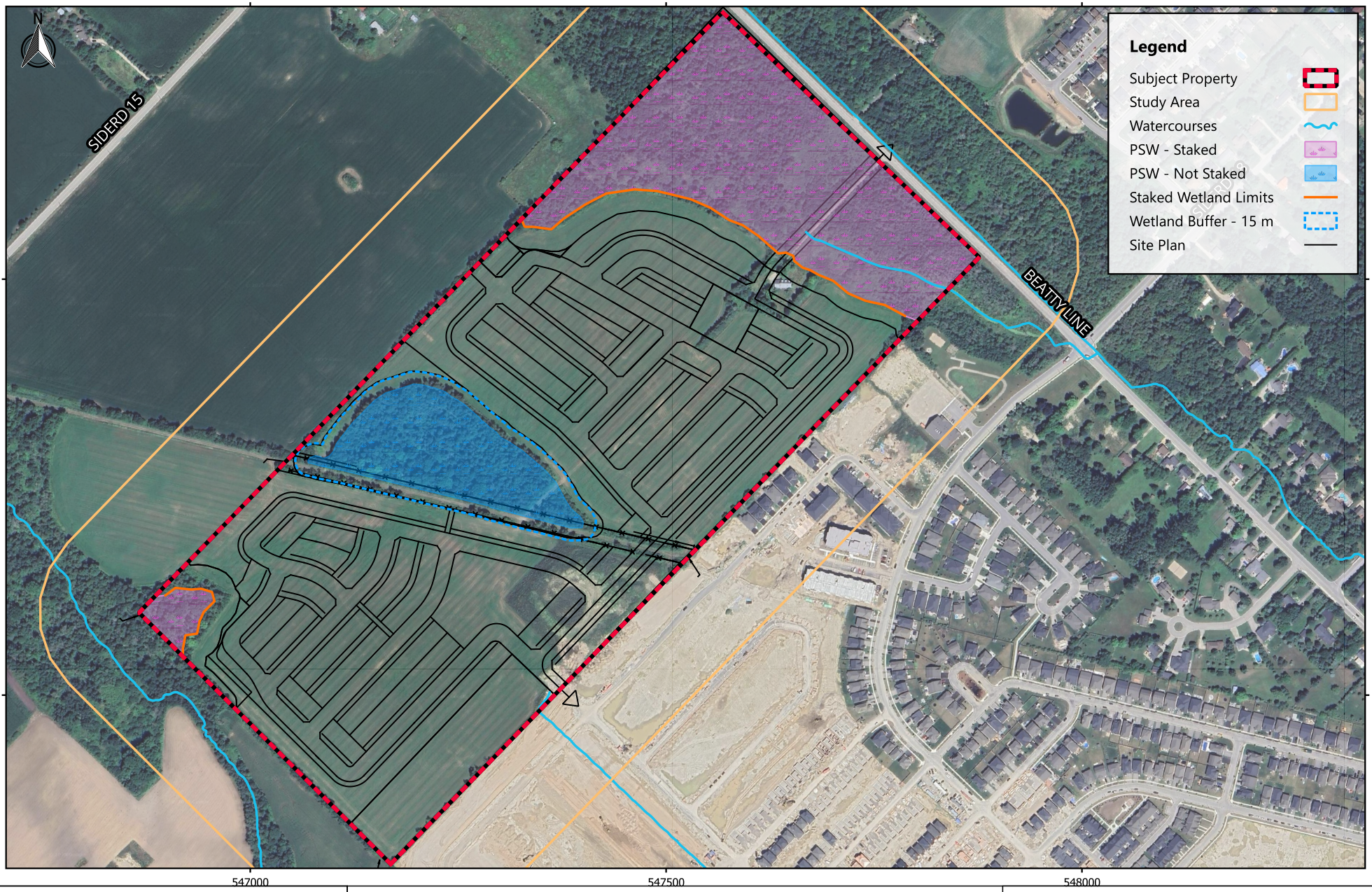

GeoProcess RESEARCH ASSOCIATES

CREATED BY:	DH	PROJECT NO.:	P2023-753
CHECKED BY:	IR	DATE:	Jan 15, 2025

0 100 200 300 400 m

NAD83 / UTM zone 17N (EPSG:26917)

Notes:
[1] Contains information licensed under the Open Government Licence – Ontario from Land Information Ontario (LIO)
[2] Imagery from Google Earth.
[3] All natural heritage limits are to be confirmed as part of future planning applications.

Map 4.

Site Plan

6586 Beatty Line North
Fergus, Ontario
Sorbara/Tribute Brubacher Holdings Inc.

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Appendix A - Plant Species List

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
Balsam Fir	*Abies balsamea*	SWDM3-2	S5	5	-3
Manitoba Maple	*Acer negundo*	THDM3-1; FOMM5-2	S5	0	0
Silver Maple	*Acer saccharinum*	SWDM3-2; SWMO1-1	S5	5	-3
Sugar Maple	*Acer saccharum*	SWDM3-2	S5	4	3
(Acer rubrum X Acer saccharinum)	*Acer x freemanii*	SWDM3-2	SNA	6	-5
American Spikenard	*Aralia racemosa*	SWMO1-1	S5	7	5
Common Burdock	*Arctium minus*	SWDM4-1; SWMO1-1	SNA	0	3
Jack-in-the-pulpit	*Arisaema triphyllum*	FOMM5-2; SWDM3-2; SWMO1-1	S5	5	-3

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
Common Milkweed	*Asclepias syriaca*	WODM5-1; MAMO2-2	S5	0	5
Northeastern Lady Fern	*Athyrium filix-femina var. angustum*	SWDM3-2; SWMO1-1	S5	4	0
Bitter Wintercress	*Barbarea vulgaris*	SWMO1-1	SNA	0	0
Yellow Birch	*Betula alleghaniensis*	SWMO1-1	S5	6	0
Paper Birch	*Betula papyrifera*	WODM5-1	S5	2	3
Dewey's Sedge	*Carex deweyana*	SWMO1-1	S5	6	3
Bladder Sedge	*Carex intumescens*	FOMM5-2; SWDM3-2; SWMO1-1	S5	6	-3
Rosy Sedge	*Carex rosea*	FOMM5-2	S5	2	5
Spiked Sedge	*Carex spicata*	MAMM1-3; SWDM3-2	SNA	0	3

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
White Turtlehead	*Chelone glabra*	SWDM4-1	S5	7	-5
Canada Thistle	*Cirsium arvense*	MAMM1-2	SNA	0	3
Virginia Clematis	*Clematis virginiana*	THDM3-1; MAMM1; WODM5-1; MAMO2-2	S5	3	0
Grey Dogwood	*Cornus racemosa*		S5	2	0
Red-osier Dogwood	*Cornus sericea*	MAMM1; WODM5-1; SWDM4-1; MAMM1-3; SWMO1-1; MAMO2-2	S5	2	-3
February Daphne	*Daphne mezereum*	SWMO1-1	SNA	0	3
Wild Carrot	*Daucus carota*	MAMM1	SNA	0	5

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
Spinulose Wood Fern	*Dryopteris carthusiana*	FOMM5-2; SWDM3-2; SWMO1-1	S5	5	-3
Marginal Wood Fern	*Dryopteris marginalis*	SWDM3-2	S5	5	3
Wild Cucumber	*Echinocystis lobata*	MAMM1-3	S5	3	-3
Alder-leaved Buckthorn	*Endotropis alnifolia*	WODM5-1; SWDM4-1	S5	7	-5
Field Horsetail	*Equisetum arvense*	WODM5-1; FOMM5-2; SWDM3-2; SWMO1-1	S5	0	0
Annual Fleabane	*Erigeron annuus*	MAMM1; WODM5-1; SWDM4-1; MAMM1-3	S5	0	3
Philadelphia Fleabane	*Erigeron philadelphicus*	SWDM3-2	S5	1	-3

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
Rough Fleabane	*Erigeron strigosus*	SWDM3-2	S5	4	3
Spotted Spurge	*Euphorbia maculata*	THDM3-1; MAMM1;SWDM4-1; MAMM1-2	SNA	0	3
Grass-leaved Goldenrod	*Euthamia graminifolia*	MAMM1	S5	2	0
Spotted Joe Pye Weed	*Eutrochium maculatum*	MAMM1-3; SWDM3-2; MAMO2-2	S5	3	-5
Woodland Strawberry	*Fragaria vesca*		S5	4	3
Wild Strawberry	*Fragaria virginiana*	FOMM5-2; SWDM3-2; SWMO1-1	S5	2	3
Black Ash	*Fraxinus nigra*		S4	7	-3
Red Ash	*Fraxinus pennsylvanica*		S4	3	-3

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
Spotted Geranium	*Geranium maculatum*		S5	6	3
Herb-Robert	*Geranium robertianum*	FOMM5-2; SWDM3-2; SWMO1-1	S5	2	3
Canada Avens	*Geum canadense*	FOMM5-2; SWDM3-2; SWMO1-1	S5	3	0
Large-leaved Avens	*Geum macrophyllum*	SWDM4-1	S5	9	-3
Water Avens	*Geum rivale*	SWDM3-2	S5	7	-5
Wood Avens	*Geum urbanum*	FOMM5-2; SWDM3-2; SWMO1-1	SNA	0	5
Tall Mannagrass	*Glyceria grandis*	SWMO1-1	S5	5	-5
Fowl Mannagrass	*Glyceria striata*	MAMM1-3; SWDM3-2	S5	3	-5

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
Spotted Jewelweed	*Impatiens capensis*	WODM5-1; SWDM4-1; MAMM1-2; MAMM1-3; FOMM5-2; SWDM3-2; SWMO1-1	S5	4	-3
Canada Wood Nettle	*Laportea canadensis*	SWMO1-1	S5	6	-3
Tatarian Honeysuckle	*Lonicera tatarica*	MAMM1; WODM5-1; SWDM4-1	SNA	0	3
Ostrich Fern	*Matteuccia struthiopteris*	SWMO1-1	S5	5	0
Sensitive Fern	*Onoclea sensibilis*	SWDM4-1; MAMM1-3; SWDM3-2; SWMO1-1; MAMO2-2	S5	4	-3
Cinnamon Fern	*Osmundastrum cinnamomeum*	WODM5-1; SWDM3-2	S5	7	-3

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
Eastern Hop-hornbeam	*Ostrya virginiana*	WODM5-1	S5	4	3
Virginia Creeper	*Parthenocissus quinquefolia*	THDM3-1; WODM5-1; FOMM5-2; SWDM3-2; SWMO1-1	S4?	6	3
Reed Canarygrass	*Phalaris arundinacea*	MAMM1; SWDM4-1; MAMM1-2; MAMM1-3; SWDM3-2	S5	0	-3
Norway Spruce	*Picea abies*	MAMM1	SNA	0	5
Lesser Clearweed	*Pilea fontana*	SWDM4-1	S4	5	-3
Fowl Bluegrass	*Poa palustris*	MAMM1-3; SWDM3-2; SWMO1-1	S5	5	-3

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
Kentucky Bluegrass	*Poa pratensis*	SWDM3-2; SWMO1-1	S5	0	3
Balsam Poplar	*Populus balsamifera*	WODM5-1; SWDM4-1; FOMM5-2; SWDM3-2; SWMO1-1	S5	4	-3
Trembling Aspen	*Populus tremuloides*	THDM3-1; MAMM1; WODM5-1; FOMM5-2; SWDM3-2; SWMO1-1	S5	2	0
Black Cherry	*Prunus serotina*	WODM5-1; SWMO1-1	S5	3	3
Chokecherry	*Prunus virginiana*	THDM3-1; FOMM5-2; SWDM3-2	S5	2	3

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
Kidney-leaved Buttercup	*Ranunculus abortivus*	FOMM5-2; SWDM3-2; MAMO2-2	S5	2	0
Hooked Buttercup	*Ranunculus recurvatus*	SWMO1-1	S5	4	-3
European Buckthorn	*Rhamnus cathartica*	THDM3-1; MAMM1; WODM5-1; SWDM4-1; FOMM5-2; SWDM3-2; SWMO1-1	SNA	0	0
American Black Currant	*Ribes americanum*	FOMM5-2; SWDM3-2; SWMO1-1	S5	4	-3
European Red Currant	*Ribes rubrum*	MAMM1-3; FOMM5-2	SNA	0	5
Red Raspberry	*Rubus idaeus*	WODM5-1; SWDM3-2; SWMO1-1	S5	2	3

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
Dwarf Raspberry	*Rubus pubescens*	MAMM1-3; SWDM3-2; SWMO1-1	S5	4	-3
Bebb's Willow	*Salix bebbiana*	SWDM4-1	S5	4	-3
Meadow Willow	*Salix petiolaris*	SWDM4-1; MAMO2-2	S5	3	-3
Autumn Willow	*Salix serissima*	MAMO2-2	S5	6	-5
Common Elderberry	*Sambucus canadensis*	MAMM1-3; SWDM3-2	S5	5	-3
Bittersweet Nightshade	*Solanum dulcamara*	WODM5-1; SWDM4-1; MAMM1-3; SWDM3-2; SWMO1-1	SNA	0	0
Tall Goldenrod	*Solidago altissima*	SWDM4-1; SWDM3-2; SWMO1-1; MAMO2-2	S5	1	3

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
Canada Goldenrod	*Solidago canadensis*	MAMM1; WODM5-1; MAMM1-3; MAMO2-2	S5	1	3
Rough-stemmed Goldenrod	*Solidago rugosa*	THDM3-1	S5	4	0
Field Sow-thistle	*Sonchus arvensis*	MAMM1-2	SNA	0	3
European Mountain-ash	*Sorbus aucuparia*	SWMO1-1	SNA	0	5
White Meadowsweet	*Spiraea alba*	WODM5-1	S5	3	-3
Panicled Aster	*Symphyotrichum lanceolatum*	THDM3-1; MAMO2-2	S5	3	-3
Calico Aster	*Symphyotrichum lateriflorum*	MAMM1-3	S5	3	0

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
New England Aster	*Symphyotrichum novae-angliae*	THDM3-1; MAMM1; MAMM1-2	S5	2	-3
Purple-stemmed Aster	*Symphyotrichum puniceum*	MAMM1-3; FOMM5-2; SWDM3-2; SWMO1-1	S5	6	-5
Eastern Skunk Cabbage	*Symplocarpus foetidus*	THDM3-1; MAMM1-3; FOMM5-2; SWDM3-2; SWMO1-1	S5	7	-5
Eastern White Cedar	*Thuja occidentalis*	SWDM3-2; SWMO1-1	S5	4	-3
Basswood	*Tilia americana*	SWDM3-2; SWMO1-1	S5	4	3
Eastern Hemlock	*Tsuga canadensis*	SWMO1-1	S5	7	3

Common Name	Scientific Name	Polygons Observed	Provincial Conservation Rank (SRank)	Coefficient of Conservation	Coefficient of Wetness
Narrow-leaved Cattail	*Typha angustifolia*	MAMM1-2; MAMO2-2	SNA	0	
White Elm	*Ulmus americana*	SWDM3-2; SWMO1-1	S5	3	
Slippery Elm	*Ulmus rubra*	SWMO1-1	S5	6	
Stinging Nettle	*Urtica dioica*	SWMO1-1	SNA	0	
Nannyberry	*Viburnum lentago*	THDM3-1	S5	4	
Riverbank Grape	*Vitis riparia*	MAMM1-3; FOMM5-2; SWDM3-2; SWMO1-1	S5	0	

Appendix B

Species at Risk Screening R

Table A 1. SAR screening resources

Screening Resource	Description
Natural Heritage Information Center (NHIC)	The Natural Heritage Information Center (NHIC), operated by the Ontario Ministry of Natural Resources and Forestry, collects, reviews, manages and distributes information on Ontario's biodiversity. Data distributed by the NHIC is used in conservation and natural resource management decision making and was a primary resource for this report. Through the NHIC Make-a-Map tool, data on species, plant communities, wildlife concentration areas and natural areas is made accessible to the public and professionals using generalized 1-kilometer grid units to protect sensitive information. The mapping interface provides current and historical occurrences of SAR within the specified grid unit. The database also identifies environmental designations which provide insight into habitat potential including wetland, areas of natural and scientific interests and woodlands.
Breeding Bird Atlas	The atlas divides the province into 10×10 km squares and then birders find as many breeding species as possible in each square. Atlassers who know birds well by song complete 5-minute "Point Counts", 25 of which are required to provide an index of the abundance of each species in a square. Data from every square are mapped to show the distribution of each species. Point count data from each square show how the relative abundance of each species varies across the province.
eBird	eBird data document bird distribution, abundance, habitat use, and trends through checklist data collected within a simple, scientific framework. Birders enter when, where, and how they went birding, and then fill out a checklist of all the birds seen and heard during the outing. eBird's free mobile app allows offline data collection anywhere in the world, and the website provides many ways to explore and summarize your data and other observations from the global eBird community. eBird hotspots that are within 1 km of the Study Area are selected for species review.
Ontario Moth Atlas	The Ontario Moth Atlas is a project of the Toronto Entomologists' Association. The atlas currently covers about 250 species from 7 of the best-known families. The atlas presently includes 62,000 records. The last update of the atlas was in April 2020. The atlas is updated at least every 3 months. Most atlas data come from iNaturalist records. However, there is some data from Chris Schmidt of Agriculture Canada, the BOLD (Barcode of Life Datasystems) project of the University of Guelph, and from other records submitted directly to the TEA. The atlas uses the same 10×10 km squares at the Breeding Bird Atlas.
Ontario Butterfly Atlas	The Ontario Butterfly Atlas is a project of the Toronto Entomologists' Association (TEA). The TEA has been accumulating records and publishing annual seasonal summaries (Ontario Lepidoptera) for 50 years, with the first edition appearing in 1969. Atlas data comes from eButterfly records, iNaturalist records, BAMONA records, and records submitted directly to the TEA. The atlas uses the same 10×10 km squares at the Breeding Bird Atlas.
i-Naturalist	i-Naturalist is a nature app that helps public identify plants and animals. Using algorithms as well as scientists and taxonomic experts' multiple observations can be identified at a research scale. This data

Screening Resource	Description
	generated by the iNat community can be used in science and conservation. The program actively distributes the data in venues where scientists and land managers can find it. I-Naturalist has a project group for (NHIC) Rare species of Ontario. GeoProcess only records observations with-in 1 km of the Study Area.
Fisheries and Ocean Aquatic Species at Risk Maps	The DFO has compiled critical habitat and distribution data for aquatic species listed under the Species at Risk Act (SARA). The interactive map is intended to provide an overview of the distribution of aquatic species at risk and the presence of their critical habitat within Canadian waters. The official source of information is the Species at Risk Public Registry. Using this map, a 1 km radius circle is outlined around aquatic features located within the Study Area.

Appendix C

Significant Wildlife Habitat Screening

EcoRegion 6E

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Seasonal Concentration Areas of Animal					
Waterfowl Stopover and Staging Areas (Terrestrial)	CUM, CUT1 - plus evidence of annual spring flooding within these ecosites *Fields with seasonal flooding and waste grains in certain areas are specific to Tundra Swan	Fields with sheet water during Spring (mid-March to May) •agricultural fields with waste grain are not SWH unless they have spring sheet water available.	No	No habitat features on site or species aggregation.	•Any mixed species aggregations of 100+ individuals • the flooded field plus 100-300m radius, dependant on localized site and adjacent land us • Annual Use of Habitat is documented from information sources or field studies •Specific evaluation methods required
Waterfowl Stopover and Staging Areas (Aquatic)	MAS1,MAS2,MAS3,SAS1,SAM1,SAF1,SWD1,SWD2,SWD3,SWD4,SWD5,SWD6,SWD7	Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. • Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify.	No	No habitat features on site.	•Aggregations of 100 + of species listed for 7 days, results in > 700 waterfowl use days. •Areas with annual staging for ruddy ducks, canvasbacks and redheads. •The combined area of the ELC ecosites and a 100m radius area. •Wetland area and shorelines associated with sites identified within the SWHTG, Appendix K, are significant wildlife habitat. •Annual Use of Habitat is documented from information sources or field studies • Specific evaluation methods required
Shorebird Migratory Stopover Area	BBO1,BBO2,BBS1,BBS2,BBT1,BBT2,SDO1,SDS2,SDT1,MAM1,MAM2,MAM3,MAM4,MAM5	•Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. •Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores in May to mid-June and early July to October. • No sewage treatment or storm water management ponds.	No	No habitat features on site.	•Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. •Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. •The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. •Annual Use of Habitat is documented from information sources or field studies • Specific evaluation methods required

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Raptor Wintering Area	Combo of one of each Community Series from one of each: Forest (FOD,FOM,FOC) and Upland (CUM,CUT,CUS,CUW). Bald Eagle: Forest on shoreline area adjacent to large rivers and lakes.	A combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Need to be > 20 ha. •Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water and large trees and snags available for roosting .	No	No habitat features on site.	•One or more Short-eared Owls or; •One of more Bald Eagles or; • At least 10 individuals and two of the listed hawk/owl species. •To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. •for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Specific evaluation methods required
Bat Hibernacula	CCR1,CCR2,CCA1,CCA2. * buildings are not to be considered SWH	May be found in caves, mine shafts, underground foundations and Karsts. •Active mine sites are not considered SWH.	No	No habitat features on site.	•All sites with confirmed hibernating bats are SWH. • area includes 200m radius around the entrance of the hibernaculum for most development types and 1000m for wind farms. •Studies are to be conducted during the peak swarming period (Aug. – Sept.). • Specific survey methods required
Bat Maternity Colonies	**All Ecosites in: FOD,FOM,SWD,SWM.**	**Maternity colonies can be found in tree cavities, vegetation and often in building. *Buildings are not considered SWH. • Not found in caves or mines in ON. •Located in Mature Deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees. •Prefer snags in early stages of decay (class 1-3 or class 1 or class 2). •Silver-haired Bats prefer older mixed or deciduous forests with at least 21 snags/ha.**	**Yes**	**Summarize snag survey results here**	**•Confirmed use by: >10 Big Brown Bats >5 Adult female Silver Haired Bats. •The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. • Specific evaluation methods required**
Turtle Wintering Areas	Snapping and Midland Painted: SW,MA,OA,SA and FEO/BOO Series. Northern Map: Open water areas such	Wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates.	No	No habitat features on site.	•Presence of 5 over-wintering Midland Painted Turtles is significant •One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
	as deeper rivers or streams and lakes.	•Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. *Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH.			• The mapped ELC ecosite area with the over wintering turtles is the SWH. • If the hibernation site is within a stream or river, the deepwater pool where the turtles are over wintering is the SWH. • Search for congregations in Basking Areas in spring and fall.
Reptile Hibernaculum	Any ecosite other that very wet. •Talus, Rock Barren, Crevice, Cave, Alvar may be directly related. •Observations of congregations in spring or fall is good indicator.	Sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. •Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. •Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures	No	No habitat features on site.	•Presence of snake hibernacula used by - a minimum of five individuals of a snake sp. or; - individuals of two or more snake spp.. •Congregations of -a minimum of five individuals of a snake sp. or; -individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). • If there are Special Concern Species present, then site is SWH. •The feature in which the hibernacula is located plus a 30 m radius area is the SWH. • Hibernacula are used annually, often by the same individuals (strong site fidelity) and other life processes often take place near by
Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns. CUM1,CUS1,BLS1,CLO1,CLT1,CUT1,BLO1,BLT1,CLS1.	Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area *does not include man-made structures, recently (2 years) disturbed soil areas or liscenced Mineral Aggregate Operation.	No	No habitat features on site.	•Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. •Field surveys to observe and count swallow nests are to be completed during the breeding season.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					• Specific evaluation methods required
Colonially-Nesting Bird Breeding Habitat (Tree/Shrub)	SWM2,SWM3,SWM5,SWM6,SWD1,SWD2,SWD3,SWD4,SWD5,SWD6,SWD7,FET1	Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. •Most nests in trees are 11 to 15 m from ground, near the top of the tree.	No	No habitat features on site.	•Presence of 5 or more active nests of Great Blue Heron or other listed species. •The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH. •Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells.
Colonially-Nesting Bird Breeding Habitat (Ground)	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM,CUT,CUS	Nesting colonies on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands.	No	No habitat features on site.	•Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. •Presence of 5 or more pairs for Brewer's Blackbird. •Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. •The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH. •Studies would be done during May/June when actively nesting. • Specfic evaluation methods required

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Migratory Butterfly Stopover Areas	Combo of one of each Field (CUM, CUT, CUS) and Forest (FOC, FOD,FOM,CUP).	Minimum 10 ha in size with combo of field and forest located within 5km of Lake Erie or Lake Ontario. •Should not be disturbed. • Field/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. •Should provide protection from the elements, often spits of land or areas with the shortest distance to cross the Great Lakes.	No	No habitat features on site.	•Presence of Monarch Use Days (MUD) during Fall migration (Aug/Oct) •Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. •MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.
Landbird Migratory Stopover Areas	All Ecosites within: FOC,FOM,FOD,SWC,SWM,SWD	Woodlots >10ha in size and within 5km of Lake Erie and Lake Ontario. • If woodlands are rare in area, smaller size can be considered. • If multiple woodlands located along shore line, those <2km from shoreline are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes. •The largest sites are more significant. •Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Erie and Lake Ontario are Candidate SWH.	No	No habitat features on site.	•Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. •Studies should be completed during spring (Mar to May) and fall (Aug to Oct) migration using standardized assessment techniques. • Specific evaluation methods required
Deer Yarding Areas	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also	No	No habitat features on site.	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH. • Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual. •Woodlots with high densities of deer due to artificial feeding are not significant			by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO). • Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations. • If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. •
Deer Winter Congregation Areas	All forested ecosites within: FOC,FOM,FOD,SWC,SWM,SWD + conifer plantations much smaller than 50 ha may be used.	Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment. • Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. *Woodlots with high densities of deer due to artificial feeding are not significant.	No	No habitat features on site.	•Will be mapped by MNRF. • All woodlots exceeding the criteria are significant unless determined to be not by the MNRF. •Studies to be completed during winter when >20 cm of snow is on the ground, using aerial survey or pellet count.
Rare Vegetation Communities					

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Cliffs and Talus Slopes	Any Ecosite within: TAO CLO TAS CLS TAT CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris. Most cliff and talus slopes occur along the Niagara Escarpment.	No	No habitat features on site.	•Confirm any ELC Vegetation Type for Cliffs or Talus Slopes
Sand Barren	SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicketlike (SBS1), or more closed and treed (SBT1). Tree cover always < or equal to 60%	A sand barren area >0.5ha in size. • Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. • Vegetation can vary from patchy and barren to tree covered, but less than 60%.	No	No habitat features on site.	•Confirm any ELC Vegetation Type for Sand Barrens. •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.
Alvar	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2, Five Alvar Indicator Species: 1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum	An Alvar site > 0.5 ha in size, only known sites are found in the western islands of Lake Erie. • An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. • Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. • Vegetation cover varies from patchy to barren with a less than 60% tree cover.	No	No habitat features on site.	•Studies that identify four of the five Alvar Indicator Species at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). •The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Old Growth Forest	FOD FOC FOM SWD SWC SWM	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest. • Characterized by heavy mortality or turnover of overstorey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	No	No habitat features on site.	•If dominant trees species of the area are >140 years old, then the area containing these trees is Significant Wildlife Habitat. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities • The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest forest area containing the old growth characteristics
Savannah	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. • No minimum size to site. • Site must be restored or a natural site. *Remnant sites such as railway right of ways are not considered to be SWH.	No	No habitat features on site.	•Field studies confirm one or more of the Savannah indicator species found in Appendix N, Ecoregion 6E of the SWHTG, OMNR (2000). •Entire area of the ELC Ecosite is SWH. •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic species).
Tallgrass Prairie	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. •An open Tallgrass Prairie habitat has < 25% tree cover. •No minimum size to site. •Site must be restored or a natural site. *Remnant sites such as railway right of ways are not considered to be SWH.	No	No habitat features on site.	•Field studies confirm one or more of the Prairie indicator species in Appendix N, Ecoregion 6E of The SWHTG, OMNR (2000). •Area of the ELC Ecosite is the SWH. •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.)
Other Rare Vegetation Communities	See the Significant Wildlife Habitat Techinical Guide (OMNR, 200), Appendix M for Provincially Rare S1,S2 and S3 ELC Vegetation Types.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M. •May include beaches, fens, forest, marsh, barrens, dunes and swamps. See OMNRF/NHIC for up to date list of rare vegetation communities.	No	No habitat features on site.	•Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG, OMNR (2000). •Area of the ELC Vegetation Type polygon is the SWH.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Specialized Habitat for Wildlife					
Waterfowl Nesting Area	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4. * Note: includes adjacency to Provincially Significant Wetlands	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. •Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests.	No	No habitat features on site.	•Presence of 3 or more nesting pairs for listed species excluding Mallards OR •Presence of 10 or more nesting pairs for listed species including Mallards. •Any active nesting site of an American Black Duck is considered significant. •Nesting studies should be completed during the spring breeding season (April - June). •Specific evaluation methods required •A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. *Nests located on man-made objects are not to be included as SWH. •Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy.	No	No habitat features on site.	One or more active Osprey or Bald Eagle nests in an area. •Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. •For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH. *with additional requirements •For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. * with additional requirements •To be significant a site must be used annually. •When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					•Observational studies to determine nest site use, perching sites and foraging areas need to be done from early March to mid August. • Specific evaluation methods required
Woodland Raptor Nesting Habitat	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3.	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat. • Interior habitat determined with a 200m buffer. •Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.	No	No habitat features on site.	Presence of 1 or more active nests from species list is considered significant. •Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH. (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) •Barred Owl – A 200m radius around the nest is the SWH. •Broad-winged Hawk and Coopers Hawk,– A 100m radius around the nest is the SWH. •Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area.
Turtle Nesting Areas	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. •For an area to function as a turtle nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. *Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.	No	No habitat features on site.	Presence of: - 5 or more nesting Midland Painted Turtles OR - One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. •The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					•Field investigations should be conducted in prime nesting season typically late spring to early summer. •Observational studies observing the turtles nesting is a recommended method.
Seeps and Springs	Where ground water comes to the surface. Often they are found within headwater areas within forested habitats. •Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system.	No	No habitat features on site.	Presence of a site with 2 or more seeps/springs should be considered SWH. •The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. •The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat.
Amphibian Breeding Habitat (Woodland)	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD •Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	Presence of a wetland, pond or woodland pool (including vernal pools) >500m2 (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). • Some small wetlands may not be mapped and may be important breeding pools for amphibians. •Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.	No	No suitable habitat features on site.	Presence of breeding population of: - 1 or more of the listed newt/salamander species or - 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or - 2 or more of the listed frog species with Call Level Codes of 3. •A combo of observational and call count surveys required during the spring (March-June) . •The habitat is the wetland area plus a 230m radius of woodland area. • If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat.
Amphibian Breeding Habitat (Wetlands)	**ELC Community Classes SW, MA, FE, BO, OA and SA. •Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger**	**Wetlands >500m2 (about 25m diameter), supporting high species diversity are significant; •some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats.**	**Yes**	**Suitable SWD and FOD ecosites were identified within the Subject Property that provide suitable**	**Presence of breeding population of: -1 or more of the listed newt/salamander species or -2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or**

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
	wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	**•Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation.**		**amphibian breeding habitat. Four amphibian species were observed calling within the station with Call Level Codes of 3.**	**-2 or more of the listed frog/toad species with Call Level Codes of 3. or; -Wetland with confirmed breeding Bullfrogs are significant. •The ELC ecosite wetland area and the shoreline are the SWH. •A combo of observational and call count surveys will be required during the spring (March-June). •If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered.**
Woodland Area-Sensitive Bird Breeding Habitat	All Ecosites withing: FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha. •Interior forest habitat is at least 200 m from forest edge habitat.	No	No habitat features on site.	Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. *any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer. • Specific evaluation methods required
Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)					
Marsh Bird Breeding Habitat	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites	Nesting occurs in wetlands. All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. •For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water..	No	No habitat features on site.	Presence of: - 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes or; -breeding by any combination of 5 or more of the listed species. •any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. •Area of the ELC ecosite is the SWH. •Breeding surveys should be done in May/June. • Specific evaluation methods required

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Open Country Bird Breeding Habitat	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha. •Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). •Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. •The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.	No	No habitat features on site.	Presence of nesting or breeding of: -2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. •The area of SWH is the contiguous ELC ecosite field areas. •Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Specific evaluation methods required.
Shrub/Early Successional Bird Breeding Habitat	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 •Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	Large field areas succeeding to shrub and thicket habitats>10ha in size. •Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no rowcropping, haying or livestock pasturing in the last 5 years). •Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. •Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.	No	No habitat features on site.	Presence of nesting or breeding of - 1 of the indicator species and at least 2 of the common species. •A habitat with breeding Yellow breasted Chat or Golden-winged Warbler is to be considered as SWH. •The area of the SWH is the contiguous ELC ecosite field/thicket area. •Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Specific evaluation methods required
Terrestrial Crayfish	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1- with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. •Usually the soil is not too moist so that the tunnel is well formed. •Can often be found far from water.	No	No habitat features on site.	Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. •Surveys should be done April to August in temporary or permanent water.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					• Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult.
Special Concern and Rare Wildlife Species	**All plant and animal element occurrences (EO) within a 1 or 10km grid. All Special Concern and Provincially Rare plant and animal species.**	**identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites**	**Yes**	**See SAR Screening Section.**	**Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable.** **•The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat.**
Animal Movement Corridors					
Amphibian Movement Corridors	Corridors may be found in all ecosites associated with water.	Corridors will be determined based on identifying the significant breeding habitat for these species. Movement corridors between breeding habitat and summer habitat. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from this Schedule.	No	No habitat features on site.	Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Deer Movement Corridors	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH. A deer wintering habitat identified by the OMNRF as SWH will have corridors that the deer use during fall migration and spring dispersion •Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges).	No	No habitat features on site.	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas . • Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas. • Corridors should be at least 200m wide with gaps <20m and if following riparian area with at least 15m of vegetation on both sides of waterway •Shorter corridors are more significant than longer corridors.
Exceptions for EcoRegion 6E					
Mast Producing Areas (Black Bear) •EcoDistrict 6E-14	All Forested habitat represented by ELC Community Series: FOM FOD	Black bears require forested habitat that provides cover, winter hibernation sites, and mastproducing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears Criteria •Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech)	No	Site not located within EcoDistrict 6E-14	•All woodlands >30 ha with a 50% composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5
Lek (Sharp-tailed grouse) •EcoDistrict 6E-17	CUM CUS CUT	The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated. Criteria •Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland	No	Site not located within EcoDistrict 6E-17	Studies confirming lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significant • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		• Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting			