Environmental Impact Statement

6684 & 6704 Beatty Line North, Fergus ON

Prepared for

Tribute (Fergus Oaks) Limited
1815 Ironstone Manor, Unit 1
Pickering, ON L1W 3W9

December 4, 2024
Project No. P2023-742

Prepared by

GeoProcess Research Associates Inc.
133 King Street West
PO Box 65506 DUNDAS
Dundas, ON L9H 6Y6

Table of Contents

List of Tables

List of Maps

1. Introduction

GeoProcess Research Associates Inc. (GeoProcess) been retained by Tribute (Fergus Oaks) Limited to complete an Environmental Impact Study (EIS) for the Settlement Area Boundary Expansion for the properties located at 6684 and 6704 Beatty Line North in Fergus, Ontario. These properties are referred to as the "Subject Property". The "Study Area" pertains to the Subject Property plus 120 m outside of the property boundary. The Subject Property is approximately 191.3 hectares (ha) in size and is the proposed site of a Settlement Area Boundary Expansion to permit future residential development.

This EIS has been prepared to define the Natural Heritage System, assess potential 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 at the intersection of Nichol Road 15 and Beatty Line North. It is surrounded by Beatty Line to the east, Nichol Road 15 to the south, and Irvine Creek to the west. The Subject Property is currently occupied by one rural house and two active farms with cattle as well as row crop throughout.

The majority of the Subject Property is described asPrime Agricultural Lands with two additional designations of Core Greenlands and Greenlands based on Schedule B1 Centre Wellington of the County of Wellington Official Plan. The property also contains a section of Irvine Creek and portions of the Irvine Creek Wetland Complex, which is designated as Provincially Significant Wetland (PSW) located in the east and west corners of the Subject Property. A large, naturalizing white pine plantation is located along the western border of the Subject Property along with a straightened watercourse feature bordering the southern edge of the property and flowing in the southwest direction.

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 Planning Statement (PPS), 2024 is administered under Section 3 of the *Planning Act*. It became effective October 24, 2024, and replaces the 2020 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 4.0 and 5.0 of the PPS deal with development and site alteration, and where these activities shall not be permitted. Section 4.0 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 5.0 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 4.1 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
(4.1 - Natural Heritage) 4.1.2	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*.
4.1.3	*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*.
4.1.4	*Development* and site alteration shall not be permitted in: a) *significant wetlands* in Ecoregions 5E, 6E and 7E; and, b) *significant coastal wetlands.*
4.1.5	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.

Policy Number	Policy
4.1.6	*Development* and *site alteration* shall not be permitted in *fish habitat* except in accordance with *provincial and federal requirements.*
4.1.7	*Development and site alteration* shall not be permitted in *habitat of endangered species and threatened species*, except in accordance with *provincial and federal requirements*.
4.1.8	*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*.
(4.2 - Water) 4.2.2	*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*.
(5.1 - 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.*
5.1.3	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) gives 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 B 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 two additional designations of Core Greenlands and 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

Two 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.

Within the Core Greenlands designation, *5.4.3 Hazardous Lands,* includes areas subject to flooding hazards and erosion hazards and hazardous sites that could be unsafe for development or site alteration due to naturally occurring hazards like organic soils or unstable bedrock conditions. Generally, development shall be directed away from areas in which conditions exist which would pose risks to public health and safety or property caused by natural hazards.

2.3.2. Section 5.5 - Greenlands

Other significant natural heritage features including habitat, areas of natural and scientific interest, streams and valleylands, woodlands, environmentally sensitive areas, ponds, lakes and reservoirs and natural links are also intended to be afforded protection from development or site alteration which would have negative impacts.

Within *Section 5.5.1 Habitat*, fish and wildlife habitat are included in the Greenlands System, often as part of other defined natural heritage features. Development and site alteration shall not be allowed in significant wildlife habitat unless it has been demonstrated that there will be no negative impacts on the habitat or its ecological functions. Development and site alteration shall not be allowed in fish habitat except in accordance with provincial and federal requirements.

Streams and valleylands are included in the Greenlands system as highlighted in *5.5.3*. All streams and valleylands will be protected from development or site alterations which would negatively impact on the stream or valley land or their ecological functions.

Section 5.5.4 Woodlands, states that (rural) woodlands over 4 hectares and plantations over 10 hectares are considered to be significant by the County and are included in the Greenlands system. Woodlands of this size are important due to their contribution to the amount of forest cover on the County landscape. Exceptions may include a plantation established and continuously managed for the sole purpose of complete removal at rotation without a reforestation objective, as demonstrated with documentation acceptable to the County.

Detailed studies such as environmental impact assessments may be used to identify, delineate and evaluate the significance of woodlands based on other criteria such as: proximity to watercourses, wetlands, or other woodlands; linkage functions; age of the stand or individual trees; presence of endangered or threatened species; or overall species composition. Significant woodlands will be protected from development or site alterations which would negatively impact the woodlands or their ecological functions. Good forestry practices will be encouraged and tree removal shall be subject to the Wellington County Forest Conservation Bylaw. Smaller woodlands may also have local significance and, where practical, these smaller woodlands should be protected.

Environmentally Sensitive Areas (5.5.5), as determined by the County from previous studies are included in the Greenlands system. The areas will be protected from development or site alterations which would negatively impact them or their ecological functions.

The County of Wellington does not have prescribed buffer or vegetation protection zone requirement for significant woodlands. However, Southern Ontario municipalities generally require a 10 m for this natural heritage feature.

2.3.3. 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. 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 Regulation 41/24 applies. The EP Overlay permits development of the lands, subject to satisfying municipal requirements.

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:

Table 2. GRCA Setbacks

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

A combination of desktop review of publicly available information and field studies was undertaken for the Study Area.

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 3.

Table 3. Completed Field Work

Activity	Timing/Visits	Date	Staff
Floristic Studies	One-season	August 27, 2024	Scott Dowle
Breeding Bird Study	Visit 1 Visit 2	June 18 & 19, 2024 June 28 & July 2, 2024	Alex Meeker, Emily Veres, Phil Anderson
Watercourse Characterization	One Visit	September 16, 2024	Scott Dowle, Phil Anderson
Hedgerow Assessment	One Visit	September 16, 2024	Scott Dowle, Phil Anderson

3.2.1. Floristic Studies

A one-season floristic inventory was completed in the summer of 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.

3.2.2. Breeding Bird Survey

Breeding bird surveys were undertaken on four 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 4.5.

3.2.3. 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 4.6.

3.2.4. Watercourse Characterization

An assessment and characterization of two watercourses adjacent to the Subject Property's habitat qualities and function were performed following the Ontario Stream Assessment Protocol (OSAP) Rapid Assessment Methodology (S4.M1) on September 16, 2024. The first watercourse is an unnamed channel located in a hedgerow along the southern edge of the Subject Property, and the second watercourse is Irvine Creek which is located at the western edge of the Subject Property. Background information and secondary sources including the Ministry of Natural Resources and Forestry (MNRF) and GRCA watercourse records were utilized to further characterize the watercourse within the Study Area. An active fish community assessment was not conducted for either watercourse (e.g. electrofishing). The results of this assessment are presented in Section 4.7.

3.2.5. 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 Table 9.

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

3.2.6. 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 situated on the west side of Beatty Line North, the north side of Nichol Road 15 and south of Side Road 10. It is surrounded by agricultural lands on all sides of the property with residential neighbourhoods further south of Nichol Road 15. The Subject Property consists of relatively flat agricultural lands containing row crops with two Provincially Significant Wetlands (PSW) and significant woodlands. One PSW and woodland is located at the corner of Beatty Line and Nichol Road 15 and the other wetland feature and woodland is located on the west side of the property and contains a watercourse, Irvine Creek, regulated by the GRCA.

4.2. Physiography and Geology

The Subject Property is situated mainly on till on Paleozoic terrain with glaciofluvial deposits on the eastern-most corner near the intersection of Beatty Line N and Nichol Road 15 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

The following natural heritage system components were identified through review of existing provincial mapping information for the Study Area.

4.3.1. Wetlands

Within the Study Area, two Provincially Significant Wetlands (PSWs) were identified. One PSW is located on the northeastern corner of the Subject Property and is characterized as a White Cedar-Hardwood Mineral Mixed Swamp. It is approximately 6.9 hectares in size. A second PSW is located along the southern property limits near Gerrie Road and is associated with an intermittent, unnamed watercourse. This wetland is characterized as a meadow marsh and is approximately 0.3 hectares in size within the Study Area. Additional PSWs within the Study Area are associated with Irvine Creek in the southwestern corner of the Study Area.

4.3.2. Watercourses

There are two watercourses present in the Study Area. The first watercourse of interest is an intermittent stream that conveys flow along the southern edge of the Subject Property. It is located primarily between the southern property limit and Gerrie Road. This feature connects to Irvine Creek on the western limits of the Subject Property near Gerrie Road.

Irvine Creek conveys flows from the agricultural lands to the north, along the western edge of the Subject Property, and into the Grand River at Elora, ON. It is a permanent watercourse, that originates in West Garafraxa township. A 1200-metre-long reach of Irvine Creek forms the western property boundary.

Both of these watercourses are regulated by the GRCA.

4.4. Vegetation Communities

The results of the Ecological Land Classification (ELC) are presented in Table 4 and shown on Map 3.

Table 4. Ecological Land Classification Communities

ELC Code and Classification	Vegetation		Comments
WOCM1-2 Cedar Valley Slope	Canopy	White cedar (*Thuja occidentalis*)	Sandy loam soil with a moisture regime of 3.
	Sub-canopy	White cedar	
	Ground	Poa sp. European buckthorn (*Rhamnus cathartica*) seedlings	
SWMM1-1	Canopy	Yellow birch (*Betula alleghaniensis*), trembling aspen (*Populus tremuloides*)	Sandy clay loam soil with a moisture regime of 4. Mottles and gley appear
	Sub-canopy	White cedar	

ELC Code and Classification		Vegetation	Comments
White Cedar-Hardwood Mineral Mixed Swamp			at 45cm and 52cm respectively.
	Ground	Enchanter's nightshade (*Circaea lutetiana*), white avens (*Geum canadense*), jewelweed (*Impatiens capensis*)	
FODM5-1 "Visual Only" Sugar Maple Deciduous Forest	Canopy	Sugar maple (*Acer saccharum*)	Surveyors did not have property access permissions to do a detailed survey of this polygon. Visual assessment was completed from Subject Property limits.
	Sub-canopy	Sugar maple, black cherry (*Prunus serotina*)	
	Ground	Wood avens (*Geum urbanum*), garlic mustard (*Alliaria petiolata*)	
MAMM2-6 Joe Pyeweed Meadow Marsh	Canopy	Joe Pyeweed (Eutrochium purpureum), Giant Hogweed (*Heracleum mantegazzianum*)	This Polygon was adjacent to the watercourse. Soil cores were not taken due to the presence of Giant Hogweed.
	Sub-Canopy		
	Ground	Blue Joint Grass (Calamagrostis canadensis),	
FOCM6-1 "Visual Only" Naturalizing White Pine Plantation	Canopy	White pine (*Pinus Strobus*), trembling aspen	
	Sub-Canopy	American elderberry (*Sambuca canadensis*)	
	Ground	Red raspberry (Rubus idaeus), ostrich fern (*Matteuccia struthiopteris*), Canada wood nettle (*Laportea canadensis*)	
MAM "Visual Only" Meadow Marsh	Canopy	Cattails (*Typha spp.*)	Surveyors did not have property access permissions to do a detailed survey of this polygon. Visual assessment was completed from Subject Property limits.
	Sub-Canopy	Joe pyeweed	
	Ground	Reed canary grass (*Phalaris arundinacea*)	

4.5. 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.

Seven 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 5).

Table 5. BBS Survey Conditions

Visit Date	Visit Time	Precipitation	Noise Level	Wind Speed [Beaufort scale]
June 18, 2024	7:25-10:19 am	0	1	0-1
June 19, 2024	7:33-10:20 am	0	0	1
June 18, 2024	7:10-10:10 am	0	1-2	1-2
July 2, 2024	7:56-10:25 am	0	0	1

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 6. Breeding Bird Survey Results

Common Name	Site 1A		Site 2B		Site 3C		Site 4D		Site 5E		Site 6F		Site 7G		S_Rank	COSSARO
	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*		
Alder Flycatcher	2	S	-	-	-	-	-	-	-	-	-	-	-	-	S5B	0
American Crow	2	S/T	1	S	7	S/T	-	-	4	S/T	9	S/T	7	A/T	S5	0
American Goldfinch	4	S/T	-	-	3	S/T	-	-	6	P/T	17	S/T	3	S	S5	0
American Redstart	6	S/T	-	-	-	-	-	-	-	-	-	-	1	S	S5B	0
American Robin	5	S/T	5	S/T	-	-	2	S	5,1	S,CF	8	S/T	2	S	S5	0
Baltimore Oriole	-	-	-	-	-	-	-	-	4,2,1	P,A,CF	2	P	1	S	S4B	0
Barn Swallow	**11**	**A**	**12**	**S/T**	**-**	**-**	**1**	**S**	**-**	**-**	**1**	**H**	**1**	**S**	**S4B**	**SC**
Black-capped Chickadee	2	S	-	-	1	S	1	S	4	S/T	27	S/T	8	S/T	S5	0
Blue Jay	2	S	1	S	3	S/T	-	-	1	H	2	S/T	2	S	S5	0
Brown-headed Cowbird	2	S	-	-	-	-	-	-	-	-	2	S	-	-	S5	0
Cedar Waxwing	3	S	5	P/T	1	S	1	S	2	S	8	P/T	2	S/T	S5	0
Chipping Sparrow	-	-	5	S/T	1	S	2	S/T	4	S	-	-	1	S	S5B, S3N	0
Cliff Swallow	-	-	-	-	-	-	-	-	-	-	20,3	S,AE	-	-	S4S5B	0
Common Grackle	1	S	2	P	1	H	-	-	-	-	10	S/T	1	CF	S5	0

Common Name	Site 1A		Site 2B		Site 3C		Site 4D		Site 5E		Site 6F		Site 7G		S_Rank	COSSARO
	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*		
Common Yellowthroat	1	S	-	-	3	S/T	-	-	1	S	8	S/T	1	S	S5B, S3N	0
Downy Woodpecker	2	FY	-	-	-	-	-	-	-	-	-	-	-	-	S5	0
Eastern Kingbird	-	-	-	-	-	-	-	-	-	-	1	H	-	-	S4B	0
Eastern Phoebe	-	-	-	-	-	-	-	-	-	-	1	S	-	-	S5B	0
Eastern Wood-pewee	**-**	**-**	**-**	**-**	**2**	**S**	**1**	**H**	**1**	**S**	**5**	**S/T**	**1**	**S**	**S4B**	**SC**
European Starling	-	-	3	S	3	S	4	S	-	-	-	-	-	-	SNA	0
Gray Catbird	3	S	-	-	1	S	-	-	3	P/T	-	-	1	S	S5B, S3N	0
Great Blue Heron	-	-	-	-	-	-	-	-	-	-	1	H	1	X	S4	0
Great Crested Flycatcher	6	S/T	-	-	1	S	-	-	1	S	6	S/T	1	S	S5B	0
Great Egret	-	-	-	-	-	-	-	-	-	-	3	A/T	-	-	S2B, S3M	0
Green Heron	-	-	-	-	-	-	-	-	-	-	2	H	-	-	S4B	0
Hermit Thrush	-	-	-	-	-	-	-	-	-	-	1	S	-	-	S5B, S4N	0
Horned Lark	-	-	1	S	3	S	-	-	2	S	1	S	-	-	S4	0
House Sparrow	-	-	-	-	2	S	7	S/T	2	S	-	-	-	-	SNA	0

Common Name	Site 1A		Site 2B		Site 3C		Site 4D		Site 5E		Site 6F		Site 7G		S_Rank	COSSARO
	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*		
House Wren	7	S/T	2	S/T	1	S	-	-	6	S/T	5	S/T	4	A/T	S5B	0
Indigo Bunting	4	S/T	-	-	-	-	-	-	6	S/T	8	S/T	3	S/T	S5B	0
Mallard	-	-	-	-	-	-	-	-	-	-	1	H	-	-	S5	0
Merlin	-	-	-	-	-	-	-	-	-	-	1	S	-	-	S5	NAR
Mourning Dove	2	S	2	S/T	-	-	-	-	2	H	2	H	-	-	S5	0
Mourning Warbler	-	-	-	-	-	-	-	-	4	S/T	4	S/T	1	S	S5B	0
Northern Cardinal	1	S	1	S	2	S/T	-	-	3	S/T	2	S/T	1	H	S5	0
Northern Flicker	-	-	-	-	-	-	-	-	1	S	3	S/T	1	H	S5	0
Pileated Woodpecker	1	S	-	-	-	-	-	-	2	S/T	1	S	1	S	S5	0
Red-breasted Nuthatch	-	-	-	-	-	-	-	-	1	S	2	S/T	-	-	S5	0
Red-eyed Vireo	-	-	-	-	2	S/T	-	-	3	S/T	4	S/T	-	-	S5B	0
Red-tailed Hawk	-	-	-	-	-	-	-	-	1	S	-	-	1	H	S5	NAR
Red-winged Blackbird	6	S	1	S	3	S/T	4	S/T	-	-	11,2	S/T,A	-	-	S5	0
Ring-billed Gull	-	-	-	-	-	-	-	-	-	-	2	H	-	-	S5	0
Rock Pigeon	-	-	-	-	12	H	-	-	4	X	-	-	-	-	SNA	0

Common Name	Site 1A		Site 2B		Site 3C		Site 4D		Site 5E		Site 6F		Site 7G		S_Rank	COSSARO
	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*		
Rose-breasted Grosbeak	5	S/T	-	-	-	-	-	-	-	-	2	-	-	-	S5B	0
Savannah Sparrow	1	S	1	S	-	-	-	-	-	-	-	-	-	-	S5B, S3N	0
Song Sparrow	8	S/T	1	S	3	S/T	-	-	3	S/T	26	S/T	7	S/T	S5	0
Turkey Vulture	-	-	-	-	7	X	-	-	-	-	4	H	5	X	S5B, S3N	0
Veery	1	S	-	-	-	-	-	-	-	-	-	-	-	-	S5B	0
Vesper Sparrow	-	-	-	-	-	-	-	-	-	-	1	S	-	-	S4B	0
White-throated Sparrow	4	S/T	-	-	-	-	-	-	-	-	-	-	-	-	S5	0
Wood Duck	-	-	-	-	-	-	-	-	-	-	4	FY	-	-	S5B, S3N	0
Wood Thrush	**-**	**-**	**1**	**S**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**S4B**	**SC**
Yellow Warbler	1	S	-	-	-	-	-	-	1	S	-	-	-	-	S5B	0
Gull Sp.	-	-	-	-	5	S	1	H	1	X	2	X	2	X	#N/A	#N/A
Killdeer	-	-	-	-	-	-	-	-	-	-	1	S	-	-	S4B	0
Herring Gull	-	-	-	-	-	-	-	-	-	-	3	H	-	-	S4B, S5N	0
Double-crested Cormorant	-	-	-	-	-	-	-	-	-	-	1	H	-	-	S5B, S4N	NAR
Tree Swallow	-	-	-	-	-	-	-	-	-	-	2	H	-	-	S4S5B	0

Common Name	Site 1A		Site 2B		Site 3C		Site 4D		Site 5E		Site 6F		Site 7G		S_Rank	COSSARO
	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*	Quantity	BE*		
Chestnut-sided Warbler	-	-	-	-	-	-	-	-	-	-	1	S	-	-	S5B	0
Pine Warbler	-	-	-	-	-	-	-	-	1	S	-	-	-	-	S5B, S3N	0

**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 7: 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.	

4.6. Incidental Wildlife

Incidental wildlife was recorded during each site visit, the observations are provided in Table 8.

Table 8. Incidental Wildlife Summary

Common Name	Latin Name	Evidence	Abundance
White-tailed deer	*Odocoileus virginianus*	Visual	2 (1 adult, 1 fawn)
Eastern gray squirrel	*Sciurus carolinensis*	Visual	1
Red squirrel	*Tamiasciurus hudsonicus*	Visual	1
Eastern chipmunk	*Tamias striatus*	Visual	1
American mink	*Neovison vison*	Visual	2
Green frog	*Lithobates clamitans*	Heard	3

4.7. Watercourse Characterization

4.7.1. Unnamed Watercourse

The first watercourse of interest is an intermittent stream that conveys flow along the southern edge of the Subject Property. The unnamed stream channel is approximately 600m long and is dry through most of the length. The channel is inconsistently wetted for approximately 250m at the downstream end. Wetted areas were potentially associated with agricultural irrigation runoff and stormwater management. An old culvert enters the channel from the lefthand bank, from outside the Subject Property. The water course joins a permanent stream that runs roughly southwest towards Irvine Creek. The permanent stream flows for approximately 550m from the edge of the subject property, into a small wetland area through a cleared meadow, until it meets with Irvine Creek upstream of a bridge on Gerrie Road.

The mean channel bankfull width is approximately 2.8 m with a mean bankfull depth of approximately 0.45 m. Standing water was observed at two of the seven transection locations, but the depths were less than 0.1 m. The stream channel likely only conveys flow during periods of heavy precipitation or spring freshet. The channel is relatively straight with minimal instream roughness. Fine silty sediment is the dominant substrate type and was observed throughout the stream. Small amounts of large gravels were noted sporadically and the sub dominant substrate type at four of the seven transects. Instream vegetation was minimal and limited to terrestrial plants growing in the soft sediments at the time of the survey. Both banks appear to be vulnerable to erosion as they have exposed bank material and steep slopes at all seven transect locations.

The width of the riparian vegetation varies, but on average is approximately 5 to 10 m in width, on the righthand man, adjacent to the agricultural field currently cropped on the Subject Property. The width of riparian habitat is much greater on the lefthand bank, as the neighbouring property has a pine plantation in that area. Instream cover was present at approximately 20% of the transect observation points. The cover was predominately large woody debris but would only be functional during significant water level rises. No fish were observed in the watercourse during the survey.

4.7.2. Irvine Creek

Irvine Creek conveys flows from the agricultural lands to the north, along the western edge of the Subject Property, and into the Grand River at Elora, ON. It is a permanent watercourse, that originates in West

Garafraxa township. The Subject Property has approximately 1200 m of Irvine Creek shoreline that makes up the western property boundary.

The mean channel bankfull width is approximately 12.0 m, with a mean bankfull depth of 0.30 m. Water depths were generally between 15 and 30 cm in riffle and run habitats and 40 cm in pools. One run section of the creek was notably deeper than the other transects, with a depth in excess of 1.0 m. The channel winds through the floodplain, with a number of small islands and braided sections present. Cobble is the dominant substrate throughout the creek with gravel and fine sediment composing the subdominant class in fast- and slow-moving sections, respectively. The banks of Irvine Creek are generally stable or protected from erosion in part due to rooted vegetation, cobble banks and gradual bank angle. Nearly all transect observations described instream cover, with the majority being round cobbles and boulders, followed by instream vegetation and large woody debris. Abundant small bodied fish, predominant various cyprinid spp., were observed throughout the creek. Crayfish and amphibians were also observed during the surveys. The MNRF Fish ON-line database indicates that brook trout (Salvelinus fontinalis), rock bass (Ambloplites rupestris), smallmouth bass (Micropterus dolomieu), and white sucker (Catostomus commersonii) have been confirmed by ministry staff to have once been present in the watercourse. Irvine Creek provides valuable fish habitat directly adjacent to the Subject Property, and acts as a connection between upstream and downstream habitat areas.

5. Species at Risk Screening

A list of SAR and SOCC with the potential to occur in the study area (Table 9Table 9) 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 eight SAR that have been previously documented as occurring in the atlas square or citizen science database associated with the Study Area (Table 9). Observations of SAR within these squares do not necessarily represent observations within the boundaries of the Study Area.

Table 9. Screening Results

Species		Status	
Common Name	**Scientific Name**	**S_Rank**	**SARO**
Eastern Meadowlark[1,2,4]	*Sturnella magna*	S4B, S3N	THR
Bobolink[1,2]	*Dolichonyx oryzivorus*	S4B	THR
Eastern Wood-pewee[2]	*Contopus virens*	S4B	SC
Wood Thrush[2]	*Hylocichla mustelina*	S4B	SC
Barn Swallow[2]	*Hirundo rustica*	S4B	SC
Bank Swallow[2]	*Riparia riparia*	S4B	THR
Midland Painted Turtle[3]	*Chrysemys picta marginata*	S4	0
Monarch[5]	*Danaus plexippus*	S2N, S4B	SC

[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
- Barn Swallow
- Wood thrush
- Bank swallow
- Bobolink
- Eastern Meadowlark

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. 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.

Suitable habitat for bank swallow may be present within the NHS along Irvine Creek.

5.1.1.2. Bobolink

Bobolink was listed as Threatened in the Province of Ontario September 28, 2010. The preferred breeding habitat for Bobolink consists of hayfields, pastures, and meadows which are dominated by a mixture of grasses and broad-leaved forbs (e.g., red clover, dandelion, timothy). It also occurs in wet prairie, graminoid peatlands, abandoned fields, no-till cropland, small-grain fields, and reed beds. It does not *typically* occupy agricultural fields of row crops such as corn, soybean, and wheat.

Bobolink density is significantly higher in areas with relatively low amounts of total vegetative cover, low alfalfa cover, and low total legume cover but with high litter cover and high grass-to-legume ratios (e.g. hayfields ≥ 8 yrs. old). The nests tend to be sited in wet habitats, transitional between drier soils and areas providing poor drainage and are always on ground, often at base of large forbs such as meadow rue, golden alexander, clover, etc. Bobolink avoids nesting in habitats dominated by overly dense shrubs and overly deep litter layer (>2cm). Bobolink density and likelihood of occurrence increase as a function of distance from forest edges (Martin et al., 1995; COSEWIC 2010). The primary threat to the species is loss of habitat through the conversion of hayfields to other crops and mowing practices.

The site was under active annual agriculture and no bobolink were observed.

5.1.1.3. Eastern Meadowlark

The eastern meadowlark was designated as Threatened under the Ontario *Endangered Species Act* on January 13, 2012. This species primarily resides south of the Canadian Shield within mid-height meadows and open areas including agricultural crops (hay and alfalfa), pastures, orchards, fallow fields and other similar ecosites. The species uses shrubbery and fence posts for perching and singing. The eastern meadowlark is a migratory songbird of medium build with distinct colouring. Their throat and belly are bright yellow against a brown with black-streaked head and back. They have a black "V" across their breast area and white flanks. The species is threatened by habitat loss on breeding grounds from several factors including land use change, farming practices, pesticides and habitat fragmentation.

The site was under active annual agriculture and no Eastern meadowlark were observed.

5.1.2. Confirmed Presence

Three species at risk, listed as Special Concern, 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.

This species is found within the forested swamps on site which will be protected in the proposed Natural Heritage System.

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.

Barn swallows were observed to be utilizing one of sheds on the Subject Property for nesting. Replacement nests should be considered when the shed is removed.

5.1.2.3. 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).

This species is found within the forested swamps on site which will be protected in the proposed Natural Heritage System.

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 B 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 four of the five categories, including:

- Seasonal Concentration Areas of Animals
    - Bat Maternity Colonies (Candidate)
    - Deer Yarding Areas (Confirmed)
- Specialized Habitat for Wildlife
    - Waterfowl Nesting Areas (Candidate)
    - Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat (Candidate)
    - Amphibian Breeding Habitat (Woodland) (Candidate)

    - Amphibian Breeding Habitat (Wetlands) (Candidate)
- Habitat for Species of Conservation Concern (Not including Endangered or Threatened species)
    - Marsh Bird Breeding Habitat (Candidate)
    - Terrestrial Crayfish (Candidate)
- Animal Movement Corridors
    - Amphibian Movement Corridors (Candidate)
    - Deer Movement Corridors (Candidate)

6.2. Significant Wildlife Habitat Assessment

The significant wildlife habitat (SWH) listed in the screening have been assessed for their potential to occur in the Study Area. Criteria outlined in the screening were compared to conditions observed in the Study Area. These features have been assessed relative to the natural heritage features and overall natural heritage system identified for the Study Area (Map 4).

Bat Maternity Colonies

Maternity colonies for bats may be found in tree cavities (standing snags) within mixed deciduous-coniferous woodlands or hedgerows. Snag surveys were not completed for the Study Area, however multiple hedgerows and woodland features are present. Tree removals in hedgerows are anticipated in a future development scenario for the Subject Property. Bat habitat surveys may need to be conducted, such as snag surveys and acoustic surveys, to identify potential maternity roosting trees and consultation with the MECP may be required.

Deer Yarding Areas

Deer yarding areas or winter concentration areas (yards) are present in the Study Area and are identified on MNRF mapping. This includes white-tailed deer wintering area (stratum 2) in the SWMM1-1 and MAMM2-6 wetland communities, as well as the WOCM1-2 woodland communities. These habitats are contained within the natural heritage system and are protected by the wetland and woodland setbacks.

Waterfowl Nesting Areas

Waterfowl nesting habitat may be present in the wetland associated with Irvine Creek (MAMM2-6) and the adjacent woodland (WOCM1-2). This combination of habitats may be suitable for wood ducks or hooded mergansers which utilize large-diameter trees (>40cm dbh) in woodlands located near wetlands. These habitats are contained within the natural heritage system and are further protected by the wetland and woodland setbacks.

Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat

Bald eagles and ospreys make use of woodlands and wetlands that are associated with large watercourses which may provide habitat for prey such as large fish. Suitable woodland and wetland habitat is present along Irvine Creek and the creek itself may provide foraging habitat. These habitats are contained within the natural heritage system and are further protected by the wetland and woodland setbacks.

Amphibian Breeding Habitat (Woodland)

Potential amphibian breeding habitat is present in the Study Area. Woodlands associated with wetlands (FOCM6-1, WOCM1-2) as well as swamp communities are present (SWMM1-1). These features may contain vernal pools of the appropriate size to meet the habitat criteria (>500m^2). These habitats are contained within the natural heritage system and are further protected by the wetland and woodland setbacks.

Amphibian Breeding Habitat (Wetlands)

There is potential for amphibian habitat to be present in the Study Area. Wetlands are present on the eastern, western, and southern limits of the Study Area which may provide suitable amphibian breeding habitat. These habitats are contained within the natural heritage system and are further protected by the wetland and woodland setbacks.

Marsh Bird Breeding Habitat

Suitable wetlands that contain shallow water with emergent vegetation may be present as inclusion habitats along Irvine Creek within the meadow marsh (MAMM2-6). These habitats are contained within the natural heritage system and are further protected by the wetland and woodland setbacks.

Terrestrial Crayfish

Suitable habitat may be present in wetlands associated with Irvine Creek (MAMM2-6). This habitat is set back within the natural heritage system.

Amphibian Movement Corridors

Amphibian movement corridors are identified as habitats that connect two or more Amphibian Breeding SWH areas and may allow amphibians to move between breeding habitats. The most likely locations for amphibian breeding habitat are in the wetland features close to Irvine Creek to the west, the PSW in the southern woodland (MAM, FOCM6-1) along Gerrie Road, and the PSW on the eastern corner of the Subject Property. The western and southern wetland features are connected by natural heritage features that are contained within the natural heritage system. No habitat linkages were identified between the eastern wetland and the western and southern wetlands.

Deer Movement Corridors

Deer movement corridors may be present if deer wintering habitat is confirmed as SWH. This includes habitats that are used by deer to access wintering areas during the fall migration and spring dispersion. Deer wintering habitat is mapped within the Study Area by the MNRF along Irvine Creek and within the PSW located on the eastern portion of the Subject Property. Woodlands that are not currently mapped as suitable deer wintering habitat (FOCM6-1, FODM5-1) may act as movement corridors. These features are contained within the natural heritage system for the Study Area.

7. Natural Heritage System

This EIS identifies the limits of the natural heritage system for the Study Area in the context of a Settlement Area Boundary Expansion (SABE) for the Subject Property. The SABE proposes that the Subject Property's land use designation be altered to accommodate future residential development. A concept plan for the proposed future development is attached in Appendix C. This EIS provides an analysis of the natural heritage system and establishes an estimate of the natural heritage system limits for the Study Area.

7.1. Natural Heritage System Components

An overall natural heritage system (NHS) has been delineated for the Study Area based on the results of the field surveys and background assessment in this EIS (Map 4). The NHS for the Study Area is primarily composed of wetlands and woodlands along with their associated setbacks as prescribed by municipal, regional, and conservation authority policies. The majority of the natural heritage features are located along the western, southern, and eastern limits of the Subject Property. Irvine Creek and its associated wetlands and woodlands comprise the western portion of the NHS. The outer limits of the western NHS are primarily governed by the woodland (WOCM1-2). The 15-metre setback from this woodland provides a development buffer for the woodland habitat, Irvine Creek, and its associated wetland habitats (MAMM2-6). The southern portion of the natural heritage system is primarily composed of the woodlands (FOCM6-1, FODM5-1) which contain a PSW (MAM) to the southwest. The limits of the NHS in the south are governed by the 15-metre setback from the woodland dripline. This setback provides a development buffer for the woodland and the PSW contained within. The eastern limit of the NHS is composed of another PSW (SWMM1-1) and is governed by a 30-metre setback. The concept plan for the Subject Property respects the limits identified for the NHS as described here. In addition to respecting the NHS limits, the concept plan allows for additional greenspace between the two woodlands located along the southern property boundary (FODM5-1, FOCM6-1). This enhanced 300-metre-long linkage area is likely to enhance connectivity for these features since they are currently disconnected by several structures used for agriculture operations.

Two watercourses were also observed in the Study Area which constitute a portion of the NHS. Irvine Creek, located along the western boundary of the Subject Property, would be prescribed a 15-metre watercourse setback plus a 5-15 metre floodplain setback. Based on a review of the watercourse location and GRCA floodplain data, the watercourse and floodplain setbacks for Irvine Creek are expected to be fully contained by the neighbouring woodland features and their associated setbacks. The second watercourse is an unnamed tributary south of the Subject Property limits. Land Information Ontario mapping indicates that the most upstream portion of this watercourse is aligned parallel to the southern property limit, however, following field investigation, this watercourse was found to be dry for most of its length and the wetted portion appears to originate in the PSW south of the Subject Property. The setback limits for this watercourse and the PSW are expected to be fully encompassed by the woodland and its associated setback.

7.2. Setbacks

The natural heritage system outer limits are composed of setbacks for all identified natural heritage features including PSWs, woodlands, floodplains, and watercourses. The governing setback limits that form the overall natural heritage system limit are those that extend the furthest into the Subject Property from their respective features. These outer limits include a 15-metre woodland dripline setback and a 30 metre PSW setback. The

floodplain and watercourse setbacks are contained within the wetland and woodland buffers. These setbacks are shown on Map 4 along with a consolidated natural heritage system limit which is comprised of the outermost limits of all setbacks combined. Natural heritage feature limits were delineated based on aerial imagery interpretation, publicly available mapping, and field observations. Staking of precise feature limits has not been completed at this time and is likely to be required for any future development application. As such, natural heritage limits may be refined following staking exercises with municipal and/or conservation authority staff.

7.3. Significant Wildlife Habitat in the NHS

Several candidate significant wildlife habitats were identified as potentially occurring in the Study Area. These include ten distinct SWH types from four of the five SWH categories. As noted in Section 6 of this EIS, the extent of all ten SWH habitats would be limited to features that are protected within the proposed natural heritage system limits. The multiple SWH types flagged for the Study Area overlap and are primarily confined to the woodland and wetland features which have been identified to be protected. The only SWH that may be present outside of the NHS is the Bat Maternity Colonies. Additional surveys for the presence of bats outside of the NHS and consultation with the MECP may be required in the future, however this is not likely to result in a modification of the NHS limits.

8. Policy Conformity

A Settlement Area Boundary Expansion has been proposed for the Study Area along with a proposed concept plan for a potential future residential development. A future residential development must meet the requirements of the county, municipal, and provincial natural heritage policies. The County of Wellington Official Plan and the Township of Centre-Wellington Official Plan identify several areas within the Study Area as part of the county and municipal natural heritage systems. These areas are identified in Map 2 as Greenlands and Core Greenlands. While the Greenlands System is based on features that have been mapped at a municipal scale, the CWOP requires that 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.

No encroachments on natural heritage features or their prescribed buffers are proposed. The NHS delineated in this EIS is expected to support the long-term ecological function and biodiversity of natural heritage systems in the Study Area. The natural heritage features identified for the Study Area, including wetlands, woodlands, watercourses, and potential significant wildlife habitat, will be protected through their prescribed setbacks which were applied as per the policies of the County of Wellington, the Township of Centre-Wellington, and the GRCA. In addition, a new linkage has been proposed as part of the concept plan which would result in an improvement for the natural heritage system overall.

9. Summary

The natural heritage system for the Study Area has been identified to primarily consist of wetland and woodland features associated with Irvine Creek. In addition, a PSW has been identified in the eastern corner of the Subject Property. Woodlands are also present on along the southern limits of the Subject Property. Setbacks to these features have been recommended in line with the requirements of the municipal official plan and GRCA policies. The majority of the Subject Property is comprised of active agricultural lands with natural heritage features located primarily along the property boundaries. A consolidated natural heritage system limit is shown on Map 4. The overall natural heritage system limit is primarily governed by wetland and woodland setbacks which are respected in the proposed concept plan. It is recommended that the linkage proposed between the two woodland features on the southern property limits be maintained in any refined future plans to provide linkage enhancement to the NHS.

10. References

Alan Macnaughton, Ross Layberry, Rick Cavasin, Bev Edwards and Colin Jones. Ontario Butterfly Atlas Accessed February 2020.

Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (eds). 2007. Atlas of the Breeding Birds of Ontario 2001- 2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto. 706 pp.

Chapman, L.J. and Putnam, D.F. 1984. The Physiography of Southern Ontario; Ontario Geological Survey, Special Volume 2, 270p. Accompanied by Map P.2715 (coloured), scale 1:600 000.

David Kaposi, Alan Macnaughton and Bev Edwards. Ontario Moth Atlas Accessed December 2020.

Fisheries and Oceans Canada. Available from https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html. Accessed December 2020.

iNaturalist. Available from https://www.inaturalist.org. Accessed December 2020.

Janzen, B. 2018. Geology of the Grand River Watershed – An Overview of Bedrock and Quaternary Geological Interpretations in the Grand River Watershed.

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological land classification for Southwestern Ontario: first approximation and its application. Ontario Ministry of Natural Resources, South Central Region, Science Development and Transfer Branch. Technical Manual ELC-005.

MNRF. (2010). Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp

Natural Heritage Information Centre (NHIC). NHIC website. Ontario Ministry of Natural Resources.

OMNRF. January 2009. Working Draft. Significant Wildlife Habitat Ecoregion 6E Criterion Schedule. Addendum to Significant Wildlife Habitat Technical Guide.

OMNRF. 2013. Southern Ontario Vascular Plant Species List 3rd Edition. Southern Science & Information Section.

Ontario Breeding Bird Atlas. 2001. Guide for Participants. Bird Studies Canada.

Ontario Ministry of Natural Resources. 2000. Significant Wildlife Habitat Technical Guide. Fish and Wildlife Branch, Wildlife Section. Science Development and Transfer Branch, Southcentral Sciences Section.

Ontario Ministry of Natural Resources. 2009a. Draft Significant Wildlife Habitat Ecoregion Criteria Schedules. Addendum to Significant Wildlife Habitat Technical Guide.

Ontario, Ministry of Municipal Affairs. (2014). Provincial Policy Statement (Toronto: Ministry of Municipal Affairs, 2014).

Environmental Impact Statement
6684 & 6704 Beatty Line North Fergus

Prepared for Tribute (Fergus Oaks) Limited

December 4, 2024

Prepared by:

Emily Veres, BAS, CERPIT
Terrestrial Ecologist

Devin Hock, M.Eng
Ecologist & Water Resources Specialist

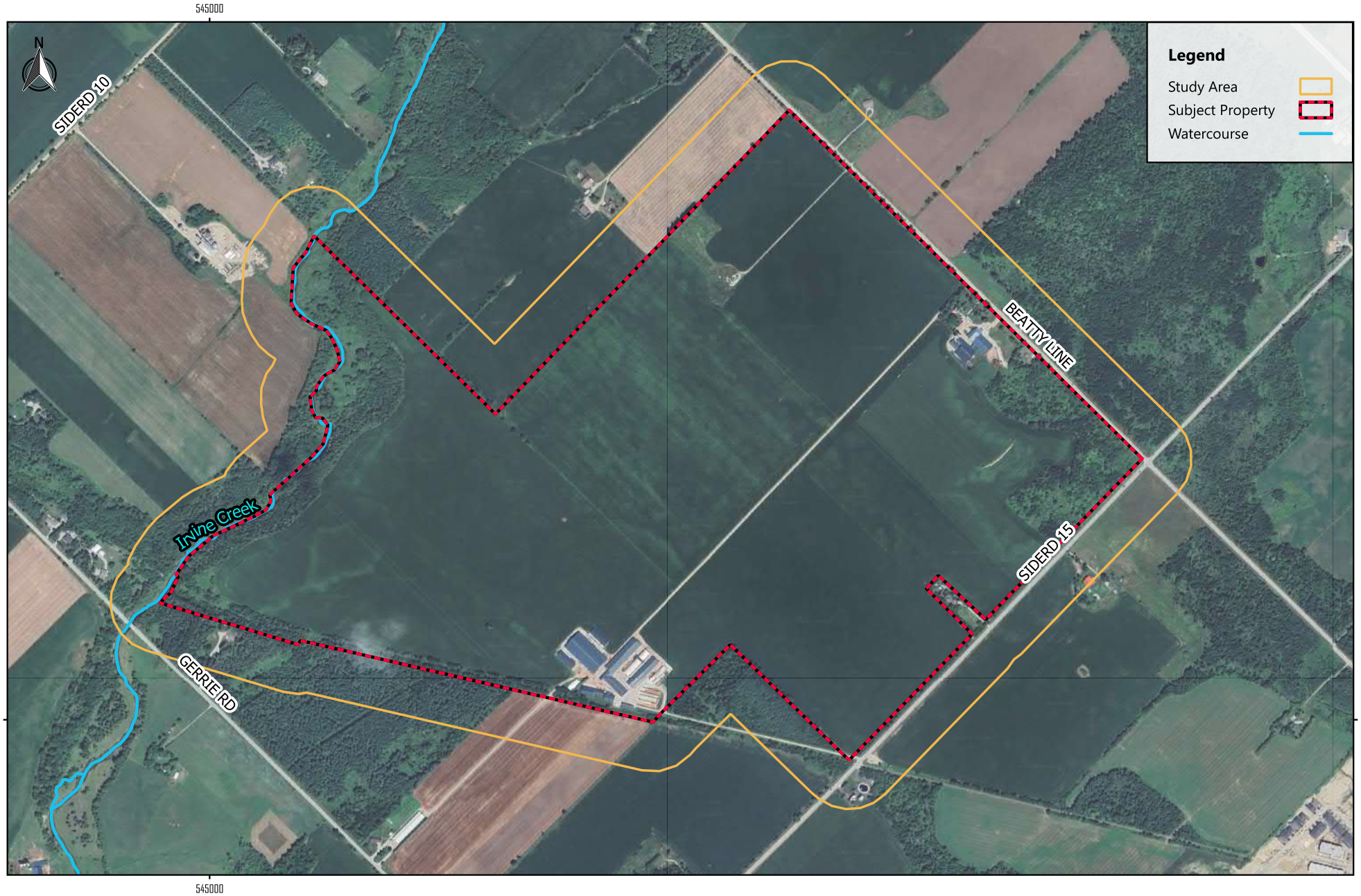
Reviewed by:

Ian Roul, M.Sc.
Senior Ecologist

Disclaimer

Project Number P2023-742

Maps



GeoProcess RESEARCH ASSOCIATES

CREATED BY:	DH	PROJECT NO.:	P2023-742
CHECKED BY:	IR	DATE:	Nov 27, 2024

0 250 500 750 1,000 m

NAD83 / UTM zone 17N (EPSG:26917)

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

Map 1.

Key Map

6684 & 6704 Beatty Line North Fergus, ON

Tribute (Fergus Oaks) Limited

G:\Shared drives\Projects-2023\P2023-742 6684 & 6704 Beatty Line North Due Diligence\GIS\Project\Basemap - 6684 & 6704 Beatty Line North.qgz

GeoProcess RESEARCH ASSOCIATES

CREATED BY:	DH	PROJECT NO.:	P2023-742
CHECKED BY:	IR	DATE:	Dec 03, 2024

0 250 500 750 1,000 m

NAD83 / UTM zone 17N (EPSG:26917)

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

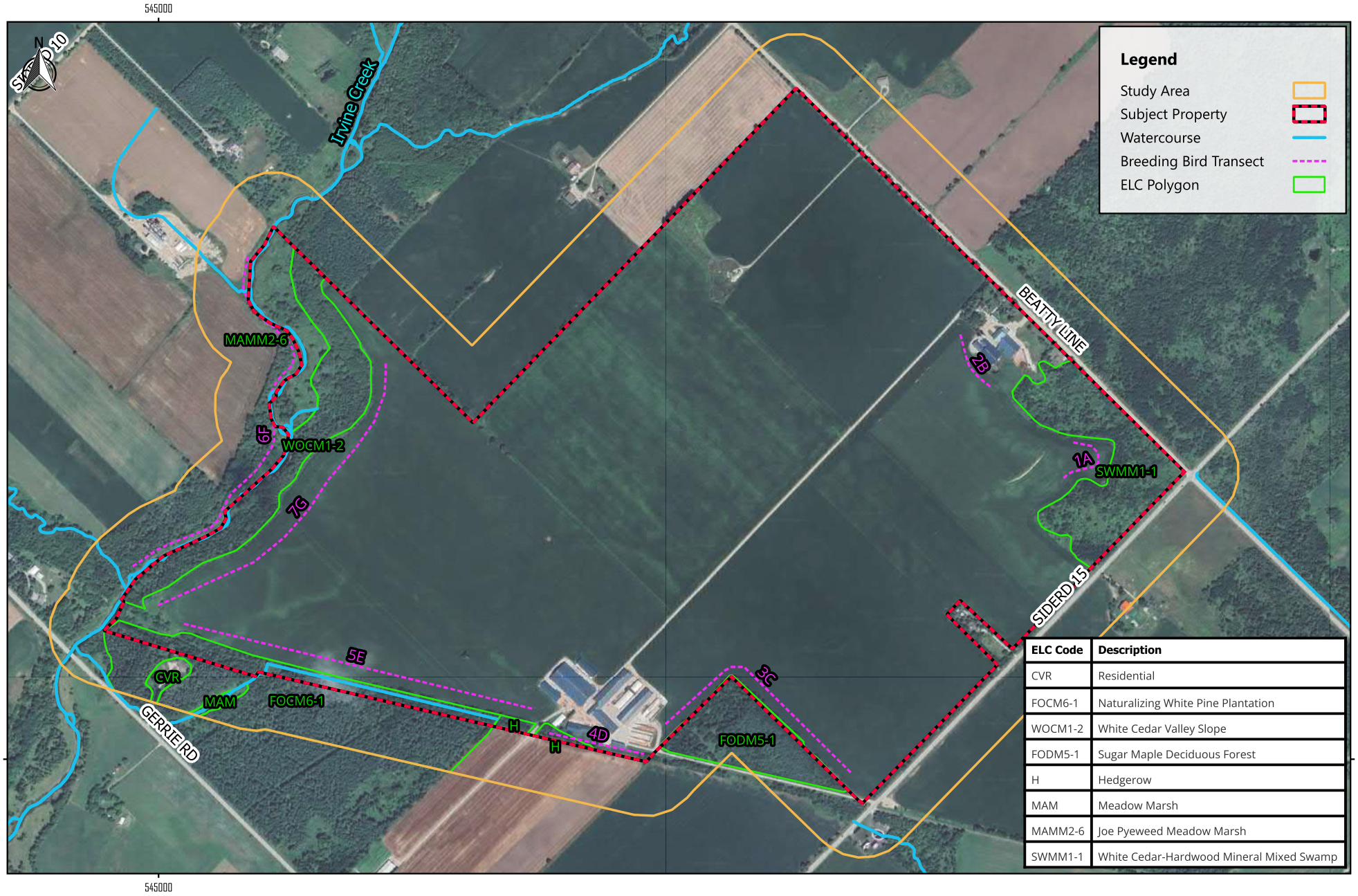
Map 2.

Existing Conditions

6684 & 6704 Beatty Line North Fergus, ON

Tribute (Fergus Oaks) Limited

G:\Shared drives\Projects-2023\P2023-742 6684 & 6704 Beatty Line North Due Diligence\GIS\Project\Basemap - 6684 & 6704 Beatty Line North.qgz



GeoProcess RESEARCH ASSOCIATES

CREATED BY:	DH	PROJECT NO.:	P2023-742
CHECKED BY:	IR	DATE:	Dec 03, 2024

0 250 500 750 1,000 m

NAD83 / UTM zone 17N (EPSG:26917)

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

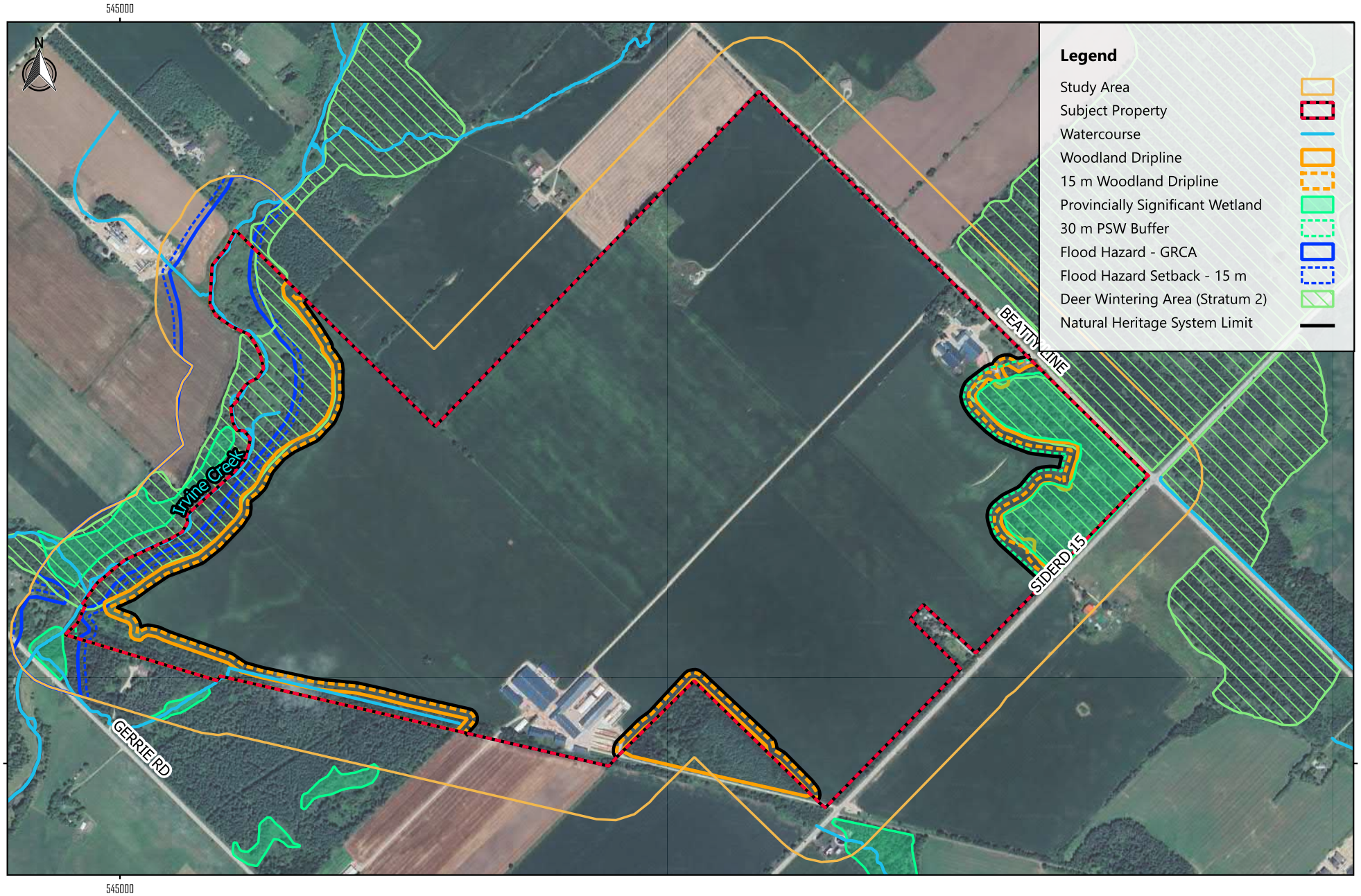
Map 3.

Natural Heritage Surveys

6684 & 6704 Beatty Line North
Fergus, ON

Tribute (Fergus Oaks) Limited

G:\Shared drives\Projects-2023\P2023-742 6684 & 6704 Beatty Line North Due Diligence\GIS\Project\Basemap - 6684 & 6704 Beatty Line North.qgz



GeoProcess RESEARCH ASSOCIATES

CREATED BY:	DH	PROJECT NO.:	P2023-742
CHECKED BY:	IR	DATE:	Dec 03, 2024

0 250 500 750 1,000 m

NAD83 / UTM zone 17N (EPSG:26917)

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

Map 4.

Natural Heritage System

6684 & 6704 Beatty Line North Fergus, ON

Tribute (Fergus Oaks) Limited

G:\Shared drives\Projects-2023\P2023-742 6684 & 6704 Beatty Line North Due Diligence\GIS\Project\Basemap - 6684 & 6704 Beatty Line North.qgz

Appendix A

Species at Risk Screening Resources

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 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 B

Significant Wildlife Habitat Screening Table

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 avaulable.	No	No habitat features on site or species aggregation.	
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.	
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.	
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	The FOCM6-1 woodland located on the southern portion of the Study Area may provide this habitat since it is a woodland larger than 20 hectares, however no suitable low-disturbance fields are present.	

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
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.	
Bat Maternity Colonies	All Ecosites in: FOD,FOM,SWD,SWM.	Maternity colonies can be found in tree cavities, vegetation and often in building. *Building 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 - Candidate	Habitat features may be present in the form of snags located in hedgerows and woodland features.	•Confimed 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 as deeper rivers or streams and lakes.	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. •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.	No	No habitat features on site.	
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	No	No habitat features on site.	

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm…
	ELC Ecosite Codes	ELC Ecosite Codes			
		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			
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.	
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.	
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.	
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	No	No habitat features on site.	

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		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.			
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	Site is not located within 5 km of Lake Erie or Lake Ontario.	
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 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.	Yes	Suitable habitat features are present on site along Irvine Creek and the eastern PSW. These areas are also identified in provincial mapping as White-tailed Deer Wintering Area (Stratum 2).	Future studies may be 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 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

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm…
	ELC Ecosite Codes	ELC Ecosite Codes			
		• 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			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 woodlots are present that meet the size criteria.	
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.	
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.	
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.	
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	No	No habitat features on site.	

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm…
	ELC Ecosite Codes	ELC Ecosite Codes			
		encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.			
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.	
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.	
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.	
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	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	Yes - Candidate	Habitat features may be present in the FODM2-2 woodland near the MAMM2-6 wetland. Surveys for waterfowl were not completed near MAMM2-6.	•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

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm…
	ELC Ecosite Codes	ELC Ecosite Codes			
	Provincially Significant Wetlands	sites. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests.			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.	Yes - Candidate	The FODM2-2 and FOCM6-1 are located near a watercourse may support bald eagle or osprey nesting, foraging, or perching habitat.	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. •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	No	Woodlands in the study area are not large enough to provide suitable habitat.	

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		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.			
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 turtlenesting 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.	
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.	
Amphibian Beeding 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.	Yes - Candidate	Habitat may be present in the Study Area near the MAM or MAMM2-6 wetlands.	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 fo observational and call count surveys required during the spring (March-June) . •The habitat is the wetland area plus a 230m radius of woodland area.

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm…
	ELC Ecosite Codes	ELC Ecosite Codes			
					• 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 Beeding 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 containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	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. •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.	Yes - Candidate	Habitat may be present in the Study Area near the MAM or MAMM2-6 wetlands.	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 -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 are of appropriate size.	
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	Yes - Candidate	Suitable habitat may be present in the MAMM2-6 wetlands along Irvine Creek.	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,

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		shrubs or forest a considerable distance from water..			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
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.	
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.	
Terrestrial Crayfish	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1-with inclusions of above meadow marsh ecosites can	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.	Yes - Candidate	Suitable habitat may be present in the MAMM2-6 wetland near Irvine Creek.	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

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm…
	ELC Ecosite Codes	ELC Ecosite Codes			
	be used by terrestrial crayfish.	•Can often be found far from water.			meadow marsh or swamp within the larger ecosite area is the SWH. •Surveys should be done April to August in temporary or permanent water. • 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	N/A	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.	Yes - Candidate	The FODM2-2 and MAMM2-6 features may act as amphibian movement corridors.	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).	Yes - Candidate	Deer overwintering habitat stratum 2 is currently mapped by the MNRF in the study area. Other woodland features present in the study area may act as deer movement corridors (FOCM6-1, FODM5-1).	• 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	
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 • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying)	No	Site not located within EcoDistrict 6E-17	

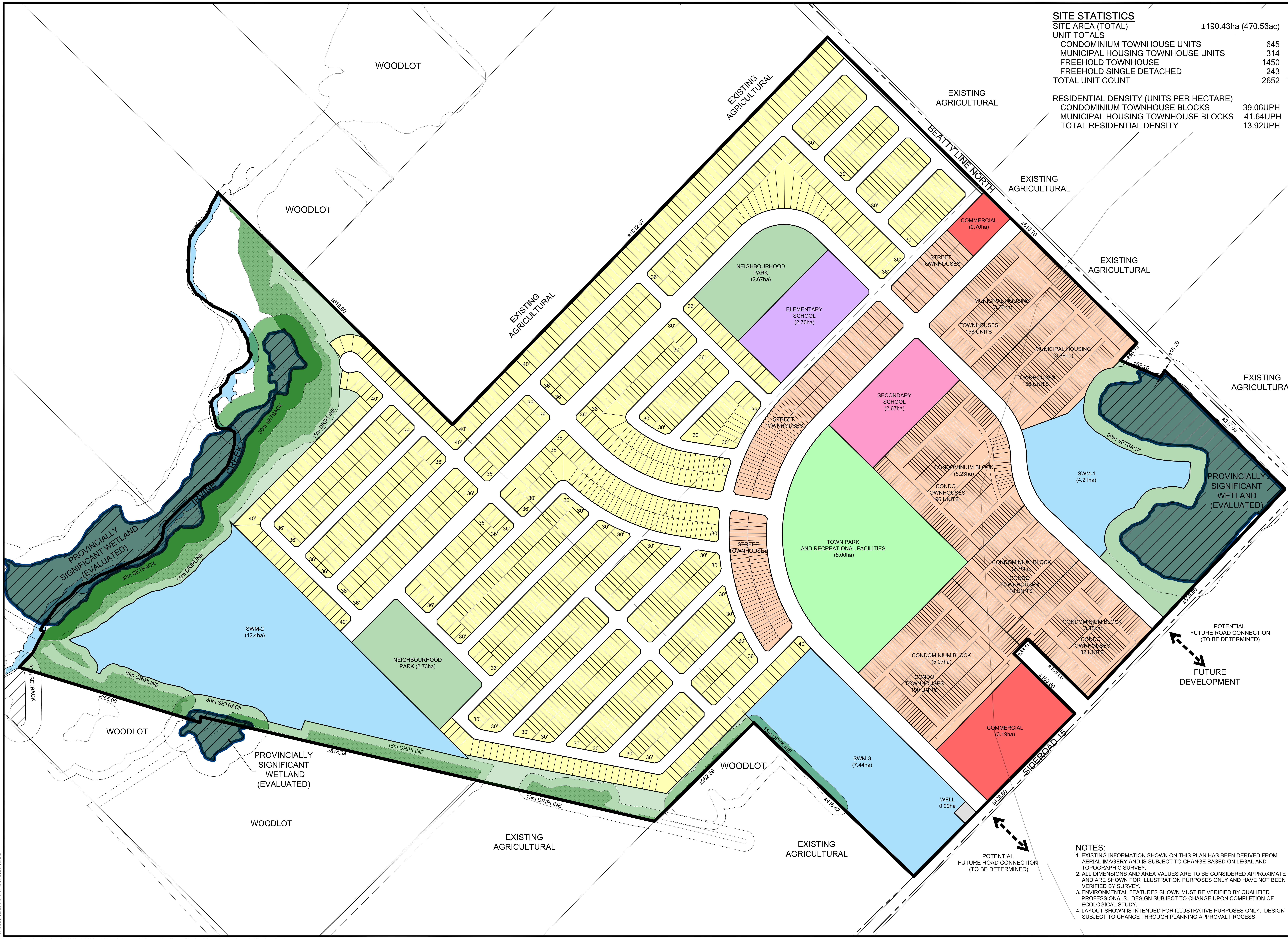
Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm…
	ELC Ecosite Codes	ELC Ecosite Codes			
		• Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting			

Appendix C

Concept Plan

SITE STATISTICS

SITE AREA (TOTAL)	±190.43ha (470.56ac)
UNIT TOTALS	
CONDOMINIUM TOWNHOUSE UNITS	645
MUNICIPAL HOUSING TOWNHOUSE UNITS	314
FREEHOLD TOWNHOUSE	1450
FREEHOLD SINGLE DETACHED	243
TOTAL UNIT COUNT	2652
RESIDENTIAL DENSITY (UNITS PER HECTARE)	
CONDOMINIUM TOWNHOUSE BLOCKS	39.06UPH
MUNICIPAL HOUSING TOWNHOUSE BLOCKS	41.64UPH
TOTAL RESIDENTIAL DENSITY	13.92UPH



NOTES:

1. EXISTING INFORMATION SHOWN ON THIS PLAN HAS BEEN DERIVED FROM AERIAL IMAGERY AND IS SUBJECT TO CHANGE BASED ON LEGAL AND TOPOGRAPHIC SURVEY.
2. ALL DIMENSIONS AND AREA VALUES ARE TO BE CONSIDERED APPROXIMATE AND ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY AND HAVE NOT BEEN VERIFIED BY SURVEY.
3. ENVIRONMENTAL FEATURES SHOWN MUST BE VERIFIED BY QUALIFIED PROFESSIONALS. DESIGN SUBJECT TO CHANGE UPON COMPLETION OF ECOLOGICAL STUDY.
4. LAYOUT SHOWN IS INTENDED FOR ILLUSTRATIVE PURPOSES ONLY. DESIGN SUBJECT TO CHANGE THROUGH PLANNING APPROVAL PROCESS.

LEGAL DESCRIPTION

LEGEND

REVISIONS

REV.	DESCRIPTION	DATE	INIT.
A	REVIEW	7-OCT-2024	JS

PROJECT TITLE

FERGUS OAKS

6704 BEATTY LINE N, 6684-6688 BEATY LINE N, 7692 SIDEROAD 15
TOWNSHIP OF CENTRE WELLINGTON, ONTARIO

landwise PLAN • DESIGN • MANAGE
310 LIMERIDGE ROAD WEST, SUITE 6
HAMILTON ONTARIO, L9C 2V2
P 905-574-1993
W LANDWISE.CA

DRAWING TITLE

CONCEPTUAL STRUCTURE PLAN

PRINT DATE: 07-OCT-2024	DRAWN BY: JS
REVISION: A	DESIGNED BY: JS
SCALE: 1:3000	DRAWING NUMBER: CSP1-1

Plotted by: Justin Soldo, 07-OCT-2024, 8:31AM

File Location: C:\Landwise Dropbox\SERVER\PROJECTS\Tribute Communities\Fergus Due Diligence\Drawings\Planning\Fergus Conceptual Structure Plan.dwg