Final

Eramosa Farms

Environmental Impact Study

Prepared for:

Eramosa Farms Limited
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NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Eramosa Farms

Environmental Impact Study

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1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained by Eramosa Farms Limited to complete an Environmental Impact Study (EIS) in support of a Zone Change Application for the proposed development of a trailer storage area on the property at 8075 Highway 7, in Guelph-Eramosa Township, Wellington County, Ontario (hereafter referred to as the "Subject Property") (Map 1).

The Subject Property is approximately 32.72 hectares in size and is characterized primarily as active row-crop agricultural land. A house is present with frontage on Wellington Road 29. A registered municipal drain, referred to as Highway No. 7 Drain, borders the western portions of the property and drains into Clythe Creek, which is a cold-water system and provides habitat for fish. Clythe Creek is surrounded by the Clythe Creek Provincially Significant Wetland (PSW) Complex and both features run parallel to the south side of the Subject Property, ranging from approximately 100-130m from the property boundary (Map 1). The regulated floodplain associated with the Highway No. 7 Drain is identified as Core Greenlands in the County of Wellington Official Plan (2024). Due to the presence of the Highway No. 7 Drain, the nearby Creek, floodplains, and the PSW, portions of the Subject Property are regulated by the Grand River Conservation Authority (GRCA). Development Applications to rezone the lands adjacent to these natural features have triggered the requirement of an EIS by the GRCA and the County.

The lands are currently zoned as Agriculture and Environmental Protection area according to the Township of Guelph/Eramosa Zoning By-law (By-law Number 40/2016). According to the County of Wellington Official Plan, the property is designated Rural Employment Area and Core Greenlands.

Technical studies, relevant to other aspects of the development such as site planning, stormwater management, engineering etc. have been prepared by the consulting team and have been used to supplement the natural feature characterization and assess potential impacts to natural features. The consulting team is comprised of:

- MacNaughton Hermsen Britton Clarkson (MHBC) Planning Limited (Site Plan)
- MTE Consulting Ltd. (Stormwater Management)
- NRSI (Natural Heritage, Tree Inventory, Tree Preservation Plan).

This EIS was prepared and written in accordance with County of Wellington, Township of Guelph-Eramosa (County of Wellington 2021), and GRCA guidelines (2005).

1.1 Proposed Undertaking

The proposed development is a gravel parking lot for transport truck trailers with a gate house, internal drive aisles, landscaped areas, and a stormwater management (SWM) pond. No buildings or servicing is proposed as part of the development. The facility will be accessed from a gated road connection located off Wellington Road 29. The concept plan for the proposed development, prepared by MHBC and dated February 9 2024, is provided in Appendix I.

Stormwater generated from the site will be collected and conveyed via stormpipes and catchment basins that drain to a proposed SWM facility in the southern corner of the Subject Property, outside the GRCA regulated floodplain. The outflow from this facility, will lead to the municipal drain west of the Subject Property. The proposed grading strategy has been developed to respect the existing grades along all property boundaries, the existing grades of the GRCA regulated floodplain, and any environmental setbacks associated with driplines and/or other natural heritage features. For more details on the SWM the reader is referred to the Stormwater Management Report (MTE 2024).

1.2 Project Scoping

In order to determine a study approach for this EIS, NRSI collected existing background information on the biological features for the Subject Property, as well as the area within 120m of the Subject Property ('adjacent lands'; herein referred to as the 'Study Area') from the following sources:

- Government of Canada SARA Registry (2023),
- MNRF Make a Map: Natural Heritage Areas online mapping (MNRF 2014),
- GRCA – Grand River Conservation Network: Interactive Mapping Tool (2021),
- Ministry of Natural Resources and Forestry (MNRF) Species at Risk List for Wellington County (2018),
- Mapping of a Natural Heritage System in the County of Wellington (GRCA 2018)
- Clythe Creek Subwatershed Study (Ecologistics 1998),
- Clythe Creek, Guelph, Ontario 2007 Temperature Report - Trout Unlimited Canada Technical Report No. ON-03 (Trout Unlimited Canada 2007),
- Significant Plant List for Wellington County (Dougan and Associates 2009),

- Ontario Breeding Bird Atlas (Cadman et al. 2007),
- Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature 2019),
- Atlas of the Mammals of Ontario (Dobbyn 1994),
- Ontario Butterfly Atlas (MacNaughton et al. 2023),
- Ontario Odonata Atlas (2023),
- Species at Risk fish data (DFO 2019).

In addition, fish data was requested from the Ministry of Natural Resources and Forestry (MNRF), Guelph District for the Study Area.

1.2.1 Species at Risk and Species of Conservation Concern Screening

Initial wildlife species lists for the area were developed using these background sources and informed a screening exercise to determine the potential for Species at Risk (SAR) or Species of Conservation Concern (SCC) to occur within or adjacent to the Subject Property.

SAR are those listed on the Species at Risk in Ontario (SARO) list (MNRF 2023), and include species identified by the Committee on the Status of Species at Risk in Ontario (COSSARO) as provincially Endangered, Threatened, or Special Concern. Regulated SAR refer to species listed as Endangered or Threatened, due to the protection afforded to the species and their habitat under the *Endangered Species Act* (ESA) (Government of Ontario 2007) and *Species at Risk Act* (SARA).

SCC includes species that are:

- Designated provincially as Special Concern (MNRF 2020),
- Assigned a conservation status (S-Rank) of S1 to S3 or SH (i.e., critically imperiled, imperiled, vulnerable, or historical) (MNRF 2020),
- Non-aquatic species and non-migratory bird species listed as Threatened or Endangered on SARA, but not provincially on the ESA.

SCC are discussed further within the context of Significant Wildlife Habitat (SWH).

This SAR/SCC screening exercise was conducted to identify which species have suitable habitat within the Study Area. This involved cross-referencing the preferred habitat for reported SAR (MNR 2000) against habitats known to occur in the Subject Property or adjacent lands.

This was completed to ensure that the potential presence of all SAR and SCC within the study area was adequately assessed in this EIS.

Several SAR and SCC species were identified as having suitable habitat within the Study Area. The full results of the SAR/SCC screening exercise are provided in Appendix II.

1.2.2 Significant Wildlife Habitat Screening

The Significant Wildlife Habitat Technical Guide (SWHTG) is a guideline document that outlines the types of habitats that the Ministry of Natural Resources and Forestry (MNRF) considers significant in Ontario as well as criteria to identify these habitats (MNR 2000, MNR 2015). The SWHTG groups SWH into 4 broad categories: 1) seasonal concentration areas, 2) rare vegetation communities and specialized wildlife habitat, 3) habitats of SCC, and 4) animal movement corridors. A SWH screening exercise compared site conditions with criteria set in the SWH Ecoregion 6E Criterion Schedule (MNRF 2015) to determine the presence of any candidate SWH within the Study Area. The results of the SWH screening informed the surveys required to confirm such habitat. Where surveys to confirm SWH habitat were not completed (i.e., the candidate SWH was off-property or outside the proposed development area), the SWH type is considered candidate SWH.

The candidate and confirmed SWH types are discussed further in Section 5.0 of this report. Full results of the SWH screening exercise are included in Appendix III.

1.2.3 Terms of Reference

A TOR for the Scoped EIS was prepared by NRSI based on the findings of the background review, including SAR, SCC, and SWH screening exercises, as well as comments received at a pre-consultation meeting held (virtually) with the County of Wellington, Township of Guelph/ Eramosa, GRCA, Ministry of Transportation Ontario (MTO), and Wellington Source Water Protection.

This TOR was submitted to the County of Wellington, Township of Guelph/ Eramosa, and GRCA for review and comment on May 14, 2020. Comments were received from the County on June 1, 2020 and from the GRCA on September 10, 2020 but no response was received from the Township. The TOR and agency review comments are provided in Appendix IV.

2.0 Relevant Policies, Legislation, and Planning Studies

For the purposes of this report, information on the natural heritage features within the Subject Property was collected and assessed for significance. To help inform the land-use concept, guide the layout of the proposed concept development, and identify areas to be protected, these features were evaluated against relevant policies, legislation, and planning studies. The specific implications of these policies to the study are discussed in further detail later on in the report. Table 1 provides an overview of policies that were considered and which informed the field program and analysis.

Table 1. Relevant Policies, Legislation and Regulations

Policy/Legislation	Description	Project Relevance
Provincial Policy Statement (PPS) (OMMAH 2020)	• Issued under the authority of Section 3 of the Planning Act and came into effect on May 1, 2020, replacing the 2014 PPS (OMMAH 2020). • Section 2.1 of the PPS – Natural Heritage establishes clear direction on the adoption of an ecosystem approach and the protection of resources that have been identified as 'significant'. • The Natural Heritage Reference Manual (MNR 2010) and the Significant Wildlife Habitat Technical Guide (MNR 2000, MNRF 2015) were prepared by the MNRF to provide guidance on identifying natural features and in interpreting the Natural Heritage sections of the PPS.	• Natural features that occur or may occur within or adjacent to the Subject Property, and which receive protection under the PPS, include: o Provincially Significant Wetlands, o Habitat for Endangered and Threatened species (Species at Risk (SAR)) o Significant Wildlife Habitat (SWH), and o Fish Habitat. • Development and site alteration shall not be permitted in SWH unless it has been demonstrated that there will be no negative impacts on natural features or their ecological functions (Section 2.1.5). • Development and site alteration shall not be permitted in fish habitat or habitat of endangered and threatened species except in accordance with provincial and federal requirements (Sections 2.1.6, 2.1.7). • 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.
Endangered Species Act (ESA) (Government of Ontario 2007)	• The original ESA, written in 1971, underwent a year-long review which resulted in a number of changes which came into force in 2007. • The ESA prohibits killing, harming, harassing or capturing SAR and protects their habitats from damage and destruction.	• Based on the SAR several SAR and SCC have the potential to occur within or adjacent to the Subject Property based on presence of candidate suitable habitat.
Migratory Birds Convention Act	• The MBCA protects migratory game birds, insectivorous birds, and several other migratory non-game birds from persecution in the form of harassment.	• Any vegetation removal required for the proposed development must have regard for this legislation in the form of timing window restrictions or other suitable mitigation measures.

Policy/Legislation	Description	Project Relevance
(Government of Canada 1994)	• Prohibits the disturbance, destruction, or taking of a nest or eggs of migratory birds. • The schedule of on-site work must consider MBCA windows, with timing of breeding bird season typically occurring approximately between April 1 and August 31; however, this is a guideline, since the MBCA applies to nesting bird species. • "Incidental take" is considered illegal, with the exception of a permit obtained by the Canadian Wildlife Service (CWS).	
Fisheries Act (Government of Canada 1985)	• The *Fisheries Act* includes protections for fish and fish habitat in the form of standards, codes of practice, and guidelines for projects near water. • Any proposed work, undertaking, or activity should aim to avoid causing the death of fish, or the harmful alteration, disruption or destruction of fish habitat through the course or as a result of any proposed undertaking. Fish habitat is defined as "spawning grounds and any other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes". • Manages threats to the sustainability and productivity of Canada's commercial, recreational and Aboriginal fisheries. • The Act prohibits "serious harm to fish" including destruction of habitat. • DFO has developed an online, self-assessment tool, where proponents can determine whether their projects require DFO review based on the type of water body the work is occurring in and the nature of the proposed activity.	• Highway No. 7 Drain may provide habitat for fish. • If the Highway No. 7 Drain provides habitat for fish, any proposed work below the high-water mark or in the channel itself will require a DFO self-assessment screening to determine whether a request for review by DFO is required.
Fish and Wildlife Conservation Act (Government of Ontario 1997)	• The FWCA provides protection for certain bird species, not protected under the MBCA (i.e., raptors), as well as furbearing mammals and their dens or habitual	• The timing of future construction activities, especially vegetation clearing and site grading must have consideration for bird nesting and den sites for furbearing mammals.

Policy/Legislation	Description	Project Relevance
	dwellings, aside from the Red Fox (*Vulpes vulpes*) and Striped Skunk (*Mephitis mephitis*).	
Conservation Authorities Act, R.S.O. 1990 (Government of Ontario 1990)	• This Act delineates the Conservation Authorities of Ontario and their boundaries (both geographically and their limits as a regulating power). • It also provides information on the regulation of the authorities' jurisdiction, particularly permitting/zoning permissions and guidelines.	• Portions of the Subject Property and Study Area are regulated by the Grand River Conservation Authority
O. Reg 41/24 - Prohibited Activities, Exemptions, and Permits (Government of Ontario 2024)	• Development in or adjacent to wetlands and watercourses is regulated under the *Conservation Authorities Act,* R.S.O. 1990 (Government of Ontario 1990) and O. Reg 41/24 - Prohibited Activities, Exemptions, and Permits. • Regulation issued under Conservation Authorities Act, R.S.O. 1990. • Through this regulation, Conservation Authorities have the responsibility to regulate activities in natural and hazardous areas (i.e., areas in and near rivers, streams, floodplains, wetlands, and slopes).	• The Highway No. 7 Drain and associated floodplain is regulated by the GRCA. • The Clythe Creek PSW, is located outside and to the southeast of the Subject Property and is regulated by the GRCA.
County of Wellington Official Plan (County of Wellington 2024)	• The Official Plan includes policies related to the protection of the natural environment through the Greenlands System. • The Official Plan states that "*The Greenlands System will be maintained or enhanced. Activities which diminish or degrade the essential functions of the* • *Greenlands System will be prohibited. Activities which maintain, restore or, where possible, enhance the health of the Greenlands System will be encouraged where reasonable.*" • The Official Plan is the principle document used to guide long range planning for the Township of Guelph/Eramosa • The Official Plan may require that studies regarding tree preservation and replacement be prepared if there are any trees proposed to be removed as part of a proposed development.	• The Highway No. 7 Drain floodplain is identified as Core Greenlands in the County of Wellington Official Plan (2024). • The Clythe Creek PSW, located outside and to the southeast of the Subject Property, is identified as Core Greenlands in the County of Wellington Official Plan (2024). • Habitat for Endangered or Threatened species, which is considered Core Greenlands, may also be present within the Subject Property.

Policy/Legislation	Description	Project Relevance
County of Wellington Woodlands Conservation By-law 5115-09 (County of Wellington 2009)	• The Woodlands Conservation By-law regulates the removal of trees within woodlands and is intended to conserve the forest cover within the County.	• No woodlands are to be removed or impacted by the proposed development. • Although this by-law does is not applicable to isolated trees, an inventory of trees being removed or impacted by the proposed development was completed to characterize trees within the impacted area and to determine suitable compensation. The requirement for a tree inventory and tree impact study is based on NRSI's experience with the County as well as the Official Plan.

3.0 Field Methods

In addition to property-specific field surveys, the results of a two-season (spring and summer) field inventory program completed for the parcel southwest of the Subject Property (5063 Jones Baseline) were used to inform this EIS. The two properties are largely agricultural with isolated trees and scattered hedgerows and they also largely share common natural features, such as the riparian area around the municipal drain. The landowners of these two parcels have entered into a data-sharing agreement to realize efficiencies. The results of these shared surveys were previously submitted as part of the 5063 Jones Baseline Scoped Environmental Impact Study dated June 22, 2021 (NRSI 2021).

A total of 12 field visits were completed between April 24 and November 13, 2020 as well as on March 12, 2021, and April 3, 2024 (Table 2), to characterize natural features within and adjacent to the Subject Property and identify significant and sensitive natural heritage features. Surveys were also conducted to identify species that have the potential to be adversely affected by the proposed development.

Survey methods are described in detail in the TOR (Appendix IV) and additional details on the tree inventory and aquatic survey methods are provided in Section 3.1, below. Monitoring station locations are shown on Map 2.

Table 2. Field Survey Summary

Survey Type	Protocol	Location	Date[2]	Observer(s)[1]
General Habitat Identification				
Significant Wildlife Habitat Assessment	MNR 2000, MNR 2015	Subject Property	April 24	JEL
		Adjacent Property	August 13	JIM
Vascular Plants				
Vegetation Community Mapping	Lee et al. 1998	Subject Property	June 2	JBB
Vascular Flora Inventories[3]	Systematic search by ELC polygon	Subject Property	June 2	JBB
		Subject Property	July 29	JF, EB
		Adjacent Property	August 13	JIM
Tree Inventory	n/a	Subject Property	April 3 2024	SLM
Birds				
Breeding Bird Survey	OBBA 2001	Subject Property	June 2	KMH
		Subject Property	June 29	KMH

Survey Type	Protocol	Location	Date[2]	Observer(s)[1]
Barn Swallow Nest Survey	Buck 2012	Adjacent Property	August 13	JIM
Mammals				
Bat Habitat Assessment	MNR 2014b, MNRF 2017, MECP 2022a, MECP 2022b	Subject Property	April 24	JEL
		Adjacent Property	August 13	JIM
		Subject Property	April 3 2024	SLM
Reptiles				
Snake Board Survey & Visual Encounter Surveys	MNRF 2016	Subject Property	May 3	DLF
			May 4	DLF, EV
			May 6	AER
Aquatic Habitat Assessment				
Aquatic Habitat Characterization	Modified Stanfield 2013	Adjacent Property	June 29	GKM, ST
			March 12, 2021	GKM

[1]All fieldwork was conducted in 2020, unless otherwise stated.
[2]AER = Amy Reinert, CLH = Christy Humphrey, DLF = Desta Frey, EB = Erin Bannon, EV = Emma Voogjarv, GKM = Gina MacVeigh, JBB = Jeremy Bannon, JEL = Jessica Linton, JF = Jessica Ferguson, JIM = Jennifer McCarter, KMH = Kathryn Hoo, SLM = Sophia Munoz, ST = Sam Turner

3.1 Terrestrial Surveys

3.1.1 Tree Inventory

An inventory of trees with the potential to be impacted by the proposed development was completed by NRSI staff. Trees ≥10cm in diameter at breast height (DBH) were assessed by a Certified Arborist. The location of trees inventoried was surveyed using a SXBlue II GNSS GPS unit, capable of sub-meter accuracy. Trees within the Subject Property were tagged with a prenumbered aluminum forestry tag. A complete list of the trees that were assessed and their overall health and potential for structural failure is included in the Tree Preservation Plan (Appendix V).

The following information was recorded for each individual tree:

- Tree location;
- Species (common and scientific name);
- DBH (cm);
- Crown radius (m);
- General health (excellent, good, fair, poor, very poor, dead);
- Potential for structural failure (improbable, possible, probable, imminent);

- Potential cavities that could be used by Species at Risk (SAR) bats;
- General comments (i.e., disease, aesthetic quality, development constraints, sensitivity to development, etc.).

3.1.2 Additional Wildlife

All observations of birds, mammals, herpetofauna and insects were documented on all field visits. This included actual direct observations of individuals, as well as signs of wildlife presence (i.e., tracks, scats, dens, nests etc.).

3.2 Aquatic Surveys

NRSI aquatic biologists conducted the first site visit to the study area on June 29, 2020 to characterize the aquatic habitat on the drainage feature from Highway 7 to the property extent downstream (approximately 800m). In order to characterize aquatic habitats, the following information was recorded at multiple locations, where possible:

- substrate type,
- water temperature,
- dissolved oxygen,
- riparian and aquatic vegetation,
- cover type and quality, and,
- flow conditions.

Representative photographs of the site and the drain conditions were also taken (Appendix VI).

As there was a drainage report for the feature from 1980, but the drain was not identified on the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) drainage layer and the DFO did not have the drain classified. Additional surveys were completed in order to have the drain identified and classified.

The DFO has developed guidance for classifying Ontario municipal drains (Kavanagh et al. 2017), which outlines the required information needed for DFO to classify or update a drain class. The data required to support a drain classification process includes the drain location/extent, flow characteristics, and the fish species present. As field surveys occurred prior to the knowledge that the feature was a municipal drain, the classification process was not followed. However, the information collected provides a good understanding of the feature.

NRSI completed a follow-up survey on March 12, 2021, after there had been numerous days of above zero temperatures, to document melt conditions within the drainage feature. Additional dates where the drain was assessed have been identified below in Table 3.

As the feature was dry during all site assessments (Table 3), the information able to be collected was limited (i.e., no water temperature or water quality parameters). A fish community assessment, although included within the TOR, was also not completed on the drain due to lack of water during all assessments.

Table 3. Drain Assessment Dates

Date	Firm
April 24, 2020	NRSI
June 2, 2020	NRSI
June 29, 2020	NRSI
July 29, 2020	NRSI
January 2021	Chung & Vander Doelen Engineering Ltd.
February 2, 2021	Chung & Vander Doelen Engineering Ltd
March 3, 2021	Chung & Vander Doelen Engineering Ltd
March 12, 2021	NRSI

4.0 Existing Conditions

4.1 Soil, Terrain and Drainage

The Study Area is situated in a Spillway within the Guelph Drumlin Field physiographic region (Chapman and Putnam 1984). The portion of this physiographic region within the Study Area rests on dolostone bedrock of the Eramosa member of the Amabel Formation (Chung & Vander Doelen Engineering Ltd. 2021). The soils in the Study Area are primarily Caledon Fine Sandy Loam (Department of Agriculture 1963). The topographic survey completed for the Subject Property and surrounding lands identified two drainage catchment areas. In the existing condition, the majority of surface runoff from the Subject Property generally drains north to south towards the municipal drain located along the west property line and only 1% of the site is impervious related to a small gravel area (MTE 2024). A small portion of the northern subject property drains towards the roadside ditch along Wellington Road 29. There is an elevation difference of approximately 7.0m between the north and south property line (MTE 2024).

4.2 Vegetation

4.2.1 Vegetation Communities

The majority of the Subject Property is characterized by active farm land (annual row crop) with two small cultural meadows and an existing house in the east corner along Wellington Road 29. Immediately southeast of the Subject Property (i.e., outside the proposed development area), in addition to residential lots, is a Cultural Woodland, beyond all of which is the Clythe Creek PSW. A hedgerow follows either side of the municipal drain along the west side of the property. A residential lot containing a Sugar Maple – Basswood deciduous forest borders the Subject Property to the west. A summary of the vegetation communities identified within the Subject Property is provided in Table 4 and all communities within the Subject Property and broader Study Area are shown on Map 2.

Table 4. Vegetation Communities Identified within and adjacent to the Subject Property

ELC Ecosite Type	Description	Environmental Characteristics
Cultural		
FOD5-6	Dry - Fresh Sugar Maple - Basswood Deciduous Forest Type	This community is located adjacent to the Subject along Highway 7. It is partially bisected by a residential driveway and has contains two cleared areas surround the house and out-buildings. The canopy is primarily comprised of mid-age Sugar Maple (*Acer saccharum*), Black Maple (*A. saccharum*), and American Basswood (*Tilia americana*). Two invasive species, European Buckthorn (*Rhamnus cathartica*) and Garlic Mustard

ELC Ecosite Type	Description	Environmental Characteristics
		(*Alliaria petiolata*), dominate the understory and ground cover layers. Due to being primarily off-site, this feature was characterized from observations made from the property line and airphoto imagery.
CUW	Cultural Woodland	This community is located along south-east property line; its dripline overlaps the property but the majority is located off-site. The northern half of this community is narrow (approximately 30m wide) and bisected by an access road. The canopy is dominated by Black Walnut (*Juglans nigra*), Manitoba Maple (*Acer negundo*), and American Basswood and encompasses a row of Norway Spruce (*Picea abies*). Two invasive species, European Buckthorn and Garlic Mustard, dominate the understory and ground cover layers.
CUM	Cultural Meadow	Two areas of cultural meadow exist along the property boundary in proximity to residential lots. They are dominated by common and/or weedy forbs and grasses, including Common Ragweed (*Ambrosia artemisiifolia*), White Goosefoot (*Chenopodium album*), Rough Fleabane (*Erigeron strigosus*.), Common Mullein (*Verbascum thapsus*) and others. The northern meadow is untreed and receives occasional mowing. The eastern meadow contains scattered trees (primarily Black Walnut), landscaped areas, and a house and driveway.
H	Hedgerows	The hedgerow is largely comprised of young trees and are dominated by Manitoba Maple and European Buckthorn, with some Black Walnut, and Norway Maple (*Acer platanoides*). Ground cover species include Garlic Mustard, Smooth Brome (*Bromus inermis*), Tall Goldenrod (*Solidago altissima*), and Wild Carrot (*Daucus carota*).
Ag	Agriculture: Annual Row Crop	The majority of the Subject Property is comprised of active row crop agriculture which was planted with soy in 2020 and Winter Wheat in 2021.

4.2.2 Vascular Flora

A total of 96 species of plants were recorded during the multi-season vegetation inventories within the Study Area and 44 species were documented within the Subject Property itself (ie. the cultural meadow communities). Of all the vascular plant species observed within the Subject Property, 40 or 42% were non-native.

Background information and SAR screening indicates that one SAR, Butternut (*Juglans cinerea*), and one SCC, Hill's Pondweed (*Potamogeton hillii*), have potentially suitable habitat within the Study Area, and are known from within 1km of the study area (MNRF 2018). No SAR

or SCC plants, including these species, were observed within the Subject Property or broader Study Area.

One plant, considered rare in Wellington County, Black Maple (*Acer nigrum*), was observed in the Dry-Fresh Sugar Maple-Basswood Deciduous Forest (FOD5-6) which is almost entirely outside and to the west of the Subject Property (Map 3).

See Appendix VI for a full list of the vascular flora species observed within the Study Area, as well as their conservation statuses.

4.3 Wildlife

4.3.1 Birds

A total of 112 bird species are reported from the study area based on the OBBA (BSC et al. 2008) for Square 17NJ62. A total of 39 species were documented by NRSI within the Study Area during field surveys in 2020. Twenty-eight of these species exhibited signs of breeding, such as males singing, females carrying food or nest materials, or the presence of fledged young.

Background information and SAR screening indicates that five significant bird species have potentially suitable habitat within the Study Area (see SAR/SCC screening in Appendix II). Two SCC, Barn Swallow (*Hirundo rustica*) and Eastern Wood-Pewee (*Contopus virens*), were observed by NRSI during breeding bird surveys in 2020.

Three Barn Swallows, listed as Special Concern provincially and Threatened federally (MNRF 2023, Government of Canada 2011), were observed flying around BMB-001 in the eastern corner of the property. No breeding evidence was observed, and no suitable nesting habitat is present within the Subject Property.

One Eastern Wood-Pewee, listed as Special Concern provincially and Threatened federally (MNRF 2020, Government of Canada 2019), was heard singing during the second breeding bird survey from station BMB-003 (Map 2). Given that this species was heard calling during only one breeding bird survey it is considered a “Possible” breeder in the woodland (outside the Subject Property).

A full list of bird species observed in the Study Area, including significant species and their current status, are presented in Appendix VIII.

4.3.2 Herpetofauna

According to the ORAA (Ontario Nature 2019), 27 species of herpetofauna are known from within 10km of the Study Area. No reptile or amphibian SAR or SCC, known from within 1km of the Study Area (Ontario Nature 2019), were determined, through the SAR/SCC Screening, to have potentially suitable habitat in the Study Area. No reptiles or amphibians were documented within the Study Area during NRSI's field investigations.

A complete list of herpetofauna reported from the Study Area, based on background information, is included in Appendix VIII.

4.3.3 Mammals

According to the Mammal Atlas of Ontario (Dobbyn 1994), 46 mammal species are reported from within 10 km of the study area. Four common species in Ontario were observed during field investigations within the Study Area: Eastern Cottontail (*Sylvilagus floridanus*), Eastern Gray Squirrel (*Sciurus carolinensis*), Eastern Chipmunk (*Tamias striatus*), and Red Squirrel (*Tamiasciurus hudsonicus*).

Background information indicates that four SAR bats, Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifungus*), Northern Myotis (*Myotis septentrionalis*), and Tri-coloured Bat (*Perimyotis subflavus*), are known from within 1 km of the Study Area (Dobbyn 1994, MNRF 2019) and may have suitable habitat within the Subject Property.

The bat habitat assessment of trees or snags ≥10cm DBH within the Subject Property, undertaken on April 24, 2020 and April 3, 2024, identified potentially suitable maternity roosting habitat for bat SAR in six trees within or along the Subject Property boundary (Map 3).

Appendix VIII provides a full list of the mammal species observed in the Study Area.

4.3.4 Butterflies

The Ontario Butterfly Atlas has records of 71 butterfly species in the vicinity of the Study Area, (MacNaughton et al. 2020). Three common species, Cabbage White (*Pieris rapae*), Red-spotted Purple (*Limenitis arthemis astyanax*), and Little Wood-Satyr (*Megisto cymela*), were observed by NRSI in the Study Area.

Background information indicates that one SCC butterfly, Monarch (*Danaus plexippus*), is known from within 1 km of the Study Area (MacNaughton et al. 2020, MNRF 2019) and may

have suitable habitat within the Subject Property. Monarch was documented during ELC and vascular plant surveys within the Subject Property. Monarch is discussed further in the context of Significant Wildlife Habitat (Section 5.2). No other significant butterfly species were observed.

A complete list of the butterfly species known from the Study Area and observed by NRSI is provided in Appendix VIII.

4.3.5 Odonates

The Ontario Odonate Atlas has records of 58 dragonfly and damselfly species in the vicinity of the Study Area (Ontario Odonata Atlas Database 2020).

No significant donates were identified in the SAR/SCC screening as being known from within 1 km of the Study Area (Ontario Odonata Atlas Database 2020, MNRF 2019) and having potentially suitable habitat within the Subject Property.

No species were observed within the Study Area by NRSI staff in 2020.

A complete list of the Odonate species known from the Study Area is provided in Appendix VIII.

4.4 Aquatic Habitat

The Highway No. 7 Drain was dry during all site assessments (Table 5) and, as such, no water temperature or water quality parameters could be collected. A memo was previously prepared (Appendix IX), which was provided to DFO to classify the drainage feature. Email correspondence from DFO (Ridgeway, pers. comm. 2021) confirms that the feature is now classified as an F type Drain. OMAFRA has also updated their drainage mapping to show the Highway No. 7 Drain. A Class F type drain is intermittent or ephemeral, with no restricted timing window and no requirement for an Authorization under the *Fisheries Act* and work can be done when the drain is dry, frozen or there is no flow.

Table 5. Summary of Drain Assessments and Flow Conditions

Date	Firm	Flow Conditions	Photos Taken?
April 24, 2020	NRSI	Drain was dry	No- notes taken during a terrestrial field survey
June 2, 2020	NRSI	Drain was dry	No- notes taken during a terrestrial field survey
June 29, 2020	NRSI	Drain was dry	Yes– photographs taken during aquatic assessment

Date	Firm	Flow Conditions	Photos Taken?
July 29, 2020	NRSI	Drain was dry	No- notes taken during a terrestrial field survey
January 2021	Chung & Vander Doelen Engineering Ltd.	Snow within drain, no flow, no evidence of flow	No– notes taken
February 2, 2021	Chung & Vander Doelen Engineering Ltd	Snow within drain, no flow, no evidence of flow	Yes
March 3, 2021	Chung & Vander Doelen Engineering Ltd	Snow within drain, no flow, no evidence of flow	Yes
March 12, 2021	NRSI	Very limited snow present within drain. Dry with no evidence of flow. Small pool of water at laneway but no connection.	Yes

Assessment (June 29, 2020)

During the aquatic habitat assessment completed by NRSI, the soils within the Drain were dry, with no indication of pooling or flow. The drainage feature was uniform in size and there was no defined channel within the feature, and terrestrial vegetation (grasses, shrubs) were present within the confines of the drain. The feature had a low gradient, was straight and had stable banks. Bank vegetation was high in density and comprised of grasses and shrubs. The drainage feature had a limited riparian zone, although what was present did provide good shading to the drain. The adjacent lands are primarily agricultural, with several residential properties near Highway 7. There was no evidence of substrate sorting within the feature, and dry soil and detritus was present.

An approximately 1.0m-diameter corrugated steel pipe (CSP) culvert was present north of Highway 7 under the railway. A very small amount of water was present on the upstream (north) side but there was not enough water to collect any water quality data and no flow.

A 1.75 m CSP is present under Highway 7. At the time of the assessment there was no water present, and slumping of the bank was observed at the downstream end of the CSP. This slumping would cause any water from upstream to pool within the culvert. The drainage feature was grass lined at this location, and the grass continued to within the CSP.

At the downstream extent of the Subject Property, where the drain turns to the southwest (Map 3), an old laneway crosses the drainage feature. There is no culvert under the laneway. There is no evidence of erosion indicating the feature is primarily dry. It is uncertain when the laneway was created but, as no culvert was installed and downstream of the laneway was also dry, it can be concluded that the municipal drain is not connected to Clythe Creek.

No fish or fish habitat was identified within the drainage feature. No evidence of groundwater or groundwater indicators were found within the feature.

Photographs from the assessment are attached in Appendix VI.

Assessment (March 12, 2021)

An aquatic biologist visited the site on March 12, 2021, during melt conditions to document flow conditions within the drainage feature. The feature was assessed from the Railway, all the way to the laneway at the edge of the Subject Property.

There was a small amount of water within the CSP culvert under the railway, but no evidence of flow from this culvert to the culvert under Hwy 7. Snow had primarily melted off the agricultural field to the north, but there was still a small amount of snow in the right-of-way at the culvert.

No water was present within the downstream end of the culvert under Hwy 7, and the slumping that was identified during the characterization on June 29, 2020 was still present (which would cause a barrier to flow if any was present).

Throughout the straightened segments of the feature, the detritus soils were damp from the snow melt, but there was no evidence that flow is ever present. The surrounding agricultural fields were primarily clear of snow, having melted previous week.

At the old laneway (where the drain turns to the southwest (Map 3), a pool of water was present in the drain. This pool of water is likely formed from spring melt water as this is a low point for the surrounding area. Given that there is no culvert under the laneway, there was no flow from this pool. Immediately downstream of the old laneway, the drainage feature had no water and no flow.

Photographs from the assessment are attached in Appendix VI.

5.0 Significance and Sensitivity of Natural Features

An analysis of the significance of existing natural features within the Subject Property was completed. This analysis is based on the rarity or significance of features and/or associated functions/processes and/or current policies, legislation, or planning related studies. This information helped to inform the proposed concept plan so as to avoid or minimize impacts to significant natural features and their ecological functions. Identified significant natural features are described in detail, below, are summarized in Table 6, and are shown on Map 3.

5.1 Habitat of Threatened and Endangered Species

The Provincial Policy Statement (PPS) states that development and site alteration shall not be permitted in habitat of threatened and endangered species and development and site alteration shall not be permitted on adjacent lands, 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 (OMMAH 2020). The County of Wellington Official Plan (2024) also protects the habitats of Threatened and Endangered Species through their designation as Core Environmental Features. No habitat for regulated SAR were identified within the Subject Property.

5.2 Significant Wildlife Habitat

Development or site alteration within SWH is not permitted under the PPS unless it has been demonstrated that there will be no negative impacts on the habitat or its ecological functions (OMMAH 2020).

Based on NRSI's field studies, one SWH type was confirmed within the Study Area and two were maintained as candidate SWH (Appendix III). These SWH types are discussed further in the sections below. Confirmed and candidate SWH types are shown on Map 3.

5.2.1 Confirmed Significant Wildlife Habitat

Habitat for Species of Conservation Concern: Special Concern and Rare Wildlife

These species are quite rare or have experienced significant population declines in Ontario. According to the MNRF guidelines, to inventory a site for the identified special concern or rare species, studies need to be completed during the time of year when the species is present or easily identifiable, and for SCC habitat to qualify as SWH it needs to be easily mapped and cover an important life stage component for the species (e.g., specific nesting habitat, foraging habitat, etc.) (MNRF 2015b).

Eastern Wood-Pewee

Based on the results of wildlife field surveys, Eastern Wood-Pewee (SC) was confirmed using woodlands south of the Subject Property, for an important life stage component (breeding). The Cultural Woodland (CUW) and Deciduous Swamp (SWD) vegetation communities are considered breeding habitats for this species (Map 3). Given that this confirmed SWH lies almost entirely outside the Subject Property and will not be encroached by the proposed development, this SWH will not be impacted by the proposed development.

Barn Swallow (not SWH)

Three (3) Barn Swallow (provincially SC, federally THR) individuals were observed on June 2 flying over the open agricultural field and cleared storage area in the eastern corner of the Subject Property. There was no evidence of breeding by Barn Swallows within the Subject Property.

Monarch (not SWH)

Although Monarch (provincially SC, federally END) adults were observed within the Subject Property, a review of the criteria included in Appendix Q of the SWHTG (MNRF 2000) for the determination of significance of habitat for SCC indicates that the Subject Property is not SWH for Monarch. This is due to the Subject Property being largely agricultural in nature and providing neither a good source of breeding or foraging habitat for the species.

5.2.2 Candidate Significant Wildlife Habitat

Seasonal Concentration Areas

Bat Maternity Colonies

Known locations of forested maternity colonies for Big Brown Bat and Silver-haired Bat (*Lasionycteris noctivagans*) are extremely rare in all Ontario landscapes (MNR 2000). Maternity colonies can be found in tree cavities, vegetation and often in buildings, however buildings are not considered to be SWH (MNRF 2015b). Maternity colonies are often located in mature deciduous or mixed forest stands with greater than 10/ha large diameter (>25cm Diameter at Breast Height) cavity trees (MNRF 2015b). Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred (MNR 2000). Given that the proposed development will not encroach any woodland communities within the study area, and maternal roosting areas will therefore remain intact, surveys were not completed to confirm this habitat type and it remains

candidate SWH. Therefore, the Cultural Woodland is considered candidate bat maternal roosting habitat based on the presence of suitable cavity trees (Map 3).

Snake Hibernaculum (not SWH)

The ability of reptiles to overwinter successfully in cold climates can have a large impact on population persistence (MNRF 2014). For snakes, hibernation takes place underground, beneath the frost line. Access to such sites may be through fissures in rock, along tree roots, or through mammal burrows. For a number of snake species, the necessary characteristics for hibernacula are not well known and it is therefore not possible to predict with certainty where snakes will overwinter (MNRF 2014).

As two old stone foundations and rock piles were are found within the Subject Property, snake coverboards and visual encounter surveys were used to assess whether this SWH is confirmed. No snakes were observed during the coverboard or snake visual encounter surveys conducted in early May and it was concluded that no hibernacula were present on the Subject Property.

5.3 Watercourse and Floodplains

The Highway No. 7 Drain, which runs along the northeastern side of the Subject Property, is classified by the GRCA as a permanent, cool- cold thermal regime. The drain was dry during all of the assessments and, given that it has no connection past the laneway to Clythe Creek, it does not provide fish habitat (direct or indirect). In addition, no groundwater or groundwater indicator plant species were identified within the drain. Based on the drainage class and site assessments, the drain should be an ephemeral feature with a warm water regime.

As shown on Map 3 the municipal drain floodplain extends into the Subject Property along the southwestern property boundary. The municipal drain floodplain is identified as Core Greenlands by the County of Wellington (2024). Development in or adjacent to wetlands and watercourses is regulated under the Conservation Authorities Act, R.S.O. 1990 (Government of Ontario 1990) and O. Reg 41/24 - Prohibited Activities, Exemptions, and Permits.

5.4 Buffers

Buffers are mitigation measures required around natural heritage features such as woodlands, wetlands, significant wildlife habitats, and watercourses to provide protection to such features and their associated functions from potential impacts as a result of development and/or site alteration. Properly functioning buffers protect natural features against sedimentation, erosion, provide attenuation of precipitation and run-off, protect against human disturbances, serve as

habitat transition zones, and contribute to the protection of the natural feature through, for example, maintaining microclimate conditions and limiting the spread of invasive species to within the sensitive natural feature.

The outer limit of the buffers determines the outer boundary of the protected natural features and the constraints to guide development activities within the Subject Property. The only feature within the Subject Property identified as requiring a buffer is the municipal drain. The County of Wellington Official Plan (2024) and the Clythe Creek Subwatershed Study (Ecologistics 1998), recommend 30m vegetation protection zones next to intermittent streams/creek channels. Given that the floodplain associated with the municipal drain is greater than 30m wide and no grading is proposed within the floodplain, this 30m zone will be provided. A 5m buffer has also been recommended from the dripline of the Cultural Woodland along the east side of the property (Map 3). This woodland is characterized as a young, culturally-influenced community with a high presence of invasive shrubs (eg, European Buckthorn and Tatarian Honeysuckle (*Lonicera tatarica*) and groundcover (eg. Garlic Mustard). As such, it is considered to have a low level of ecological sensitivity to development. The recommendation of a 5m buffer will mitigate direct impacts to vegetation and tree root protection zones through the creation of a spatial offset to the development area. Furthermore, the proposed woodland buffer area is currently tilled for agriculture. The cessation of agricultural activities in this area will reduce disturbance to the retained woodland.

6.0 Impact Analysis

6.1 Approach to Impact Analysis

The impact analysis presented here is based on comparing the proposed development details, including the concept plan, grading details, and stormwater management plans to the existing natural features, their significance and sensitivity and recommended woodland buffer. The details of the proposed development are provided in the concept plan prepared by MHBC (2024) (Appendix I). Details on the stormwater management approach are included in the Stormwater Management Report prepared by MTE (2024). Where the development proposal overlaps with the natural features, impacts may arise. A map of the significant natural features overlaid with the proposed development plans is shown on Map 4.

NRSI worked closely with the study team to ensure the proposed development was designed to avoid significant natural features, and reduce the level of impact to the ecological function of the Study Area.

Consistent with the County of Wellington (2024) definition of 'negative impacts', the Impact Analysis presented here examines,

- "*in regard to water resources, the degradation to the quality and quantity of water, sensitive surface water features and sensitive ground water features, and their related hydrologic functions, due to single, multiple or successive development or site alteration activities;*
- *in regard to fish habitat, the harmful alteration, disruption or destruction of fish habitat, except where, in conjunction with the appropriate authorities, it has been authorized under the Fisheries Act, using the guiding principle of no net loss of productive capacity;*
- *in regard to other natural heritage features and areas, degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities*."

The following is a description of the types of impacts which will be discussed:

- Direct impacts to the natural features on the Subject Property associated with disruption or displacement caused by the actual proposed 'footprint' of the undertaking.

- Indirect impacts associated with changes in site conditions such as drainage and water quantity/quality.
- Induced impacts associated with impacts after the development is constructed such as subsequent demand on the resources created by increased use of the area and vicinity.

6.2 Direct Impacts and Mitigations

The approach to identifying and delineating the natural features and associated buffers was aimed at avoiding direct impacts from development on important natural features. Tree and Vegetation Removal and Site Grading are potential sources of direct impacts associated with the proposed development.

Tree and Vegetation Removal

The majority of the proposed development area is currently an active row crop agriculture field and, therefore, no native vegetation communities will be impacted.

According to the Tree Preservation Plan, a total of 18 isolated trees within the Subject Property and County right-of-way of Wellington Road 29 will be removed for the proposed development (see Appendix V).

Mitigations:

- The limit of development should be clearly delineated in the field prior to construction beginning.
- Tree protection fencing should be installed around isolated trees to be retained as well as areas of the Cultural Woodland that are closer to the area of grading. Fencing must be installed and inspected by a Certified Arborist prior to construction and maintained during construction.
- Tree Protection Fencing should be inspected on a regular basis by an Environmental Inspector or qualified biologist and should be inspected by a Certified Arborist or qualified other to ensure no roots or limbs are damaged during installation.
- Any limbs or roots of trees to be retained which are damaged during construction should be pruned using appropriate arboricultural techniques. Hazard trees should be identified by a Certified Arborist or tree professional and removed as warranted.

- Vegetation removal is recommended to occur outside of the breeding and nesting season for migratory birds as established by the Canadian Wildlife Service. The peak breeding period for birds in southern Ontario extends from approximately April 1 through August 31 (CWS 2018).
- Should vegetation removal be required during the nesting season for migratory birds, surveys for nesting birds may be undertaken to permit vegetation removal should breeding bird absence be confirmed.
- Tree removals for any trees identified as candidate bat roost habitat should occur between October 1 and March 15. Should removals be required during the roosting period, exit surveys should be conducted to ensure no bats are present.

Compensation

- As discussed in the TPP (Appendix V), it is understood that typical replacement ratios include:
    - A 2:1 replacement ratio for every tree removed.
    - Where space for tree planting within the Subject Property is insufficient, the County may accept compensation via cash in lieu which may be determined through correspondence.
- Suitable regionally-native species should be selected for planting as compensation and these should be maintained appropriately.

Site Grading

A site grading plan with finished grade contours has been prepared by MTE as part of the Stormwater Management Report (MTE 2024). The grading design of the site was controlled by matching existing boundary grades and the elevation of the proposed improvements to the municipal drain, as this will act as the stormwater management outlet for the site (MTE 2024). All recommended buffers have been respected.

Mitigations:

- *The limit of grading will not encroach the floodplain.*
- *The limit of grading should be protected with heavy duty silt fencing in areas around the municipal drain and floodplain.*

6.3 Indirect Impacts

The following outlines potential sources of indirect impacts associated with the proposed development:

- Changes to surface flow, groundwater balance and water quality
- Sedimentation and erosion
- Indirect impacts to wildlife

Surface Flow, Groundwater Water Balance and Water Quality

This section of the impact analysis focuses on the potential changes to the flow patterns, quality and quantity of groundwater and surface water flows to the municipal drain and downstream watercourse (Clythe Creek) within the Subject Property as a result of the proposed development.

The approach to SWM for the proposed development is presented in the Stormwater Management Report (MTE 2024). The post-development drainage catchments maintain the pre-development drainage patterns, as the overall outlet of the municipal drain is maintained.

Stormwater generated from the site will be collected and conveyed via stormpipes and catchment basins that drain to a proposed stormwater management facility in the southern corner of the Subject Property. The stormwater management facility will ultimately discharge into the municipal drain.

Water Balance:

MTE provides a water balance analysis in their Stormwater Management Report (MTE 2024). Based on their analysis, the proposed development will result in a reduced infiltration rate from existing conditions due to the increased impervious coverage from the proposed gravel parking lot. An end-of-pipe infiltration gallery is proposed in order to achieve the infiltration volume targets. With the addition of the infiltration gallery, annual post-development infiltration is 104,457.3m^3, resulting in a gain of 44,519m^3 of runoff infiltrated on-site.

Water Quality:

Quality control treatment for runoff generated from the site is proposed to be provided through a treatment train. The treatment train consists of 1) proposed grassed swales, 2) an oil-grit separator (OGS) unit and 3) the permanent pool of the SWM Facility. These measures have been designed to provide a total of 80% TSS removal to off-site runoff.

Water Quantity and Erosion Control:

Quantity control for the development will be provided with one SWM facility that discharges to the municipal drain.

The 5 and 100-year post-development flow rates from the site will be attenuated to pre-development condition levels (MTE 2024).

Based on the proposed stormwater management strategy, adverse impacts to Clythe Creek and its association PSWs and fish habitats are not anticipated subject to the implementation of proposed mitigation measures.

Mitigations:

- *The limit of grading should be protected with heavy duty silt fencing in areas around the municipal drain.*
- *An Erosion and Sediment Control Plan should be developed to ensure the fencing is properly installed and functioning during construction.*
- *All soil stockpile areas and machinery refueling areas should be >30m from the floodplain.*
- *All graded areas, not in the active construction area should be seeded in a reasonable timeframe.*
- *If salt will be used on site, a Salt Management Plan should be implemented as part of the proposed development.*

Indirect Impacts to Wildlife

There are no important natural features for wildlife within the Subject Property. Potential indirect impacts to wildlife in the adjacent natural areas may arise from noise and dust associated with construction activities and unnatural lighting resulting from the development. Noise and dust associated with construction is anticipated to be temporary, therefore significant impacts to wildlife are not expected.

Mitigations:

- *In order to suppress dust, areas of bare soil should be moistened with water during construction activities to ensure that the amount of dust within the Subject Property is reduced. Topsoil stockpile locations should be in areas of lesser wind exposure and away from natural features and their buffers.*

- *Detailed lighting designs will be provided at the detailed design stage. Lighting designs should include directional lighting for developments that are within 30m of natural features to eliminate lightwash.*

6.4 Induced Impacts

Induced impacts are described as those that are not directly related to the construction or operation of the facilities in question, but rather arise from the use of the natural areas as a result of the development. Given the nature of the proposed development, as an industrial site for transport truck trailer, the most likely induced impacts anticipated are litter or other deposition of refuse.

Mitigations:

- *The inclusion of fencing around the site perimeter should limit the amount of litter or other refuse reaching natural areas.*

Table 6. Summary of Potential Development Impacts and Mitigation

Significant Natural Feature	Relevant Policies	Potential Impacts	Recommended Mitigation
Highway No. 7 Drain (municipal drain), Floodplain	• Federal *Fisheries Act* (Government of Canada 1985) • Provincial Policy Statement (OMMAH 2020) • *Conservation Authorities Act,* R.S.O. 1990 (Government of Ontario 1990) • O. Regulation 41/24 - Prohibited Activities, Exemptions, and Permits (Government of Ontario 2024) • County of Wellington Official Plan (2024)	**Indirect Impacts**: • Sedimentation and erosion • Indirect impacts to wildlife	**Direct and Indirect Impacts:** • The limit of grading should be protected with heavy duty silt fencing in areas around the Highway No. 7 Drain. • Buffers should be delineated in the field prior to any construction activities. **Indirect Impacts**: • An Erosion and Sediment Control Plan should be developed to ensure the fencing is properly installed and functioning during construction. • All graded areas, not in the active construction area should be seeded in a reasonable timeframe. • If salt will be used on site, a Salt Management Plan should be implemented as part of the proposed development.
Endangered or Threatened Species and Their Habitat	• Endangered Species Act (Government of Ontario 2007) • Provincial Policy Statement (MMAH 2014) • County of Wellington Official Plan (2024)	**Direct Impacts:** • One candidate SAR bat habitat tree is proposed to be removed for the proposed development (see tree #436) **Indirect Impacts**: • Noise and dust associated with construction is anticipated to be temporary, therefore significant impacts to wildlife from noise and dust are not expected.	**Direct Impacts:** • Tree removal should occur outside of the active roosting season (April 1 to September 30) to avoid impacting bats, and therefore contravention of the *ESA*. **Indirect Impacts**: • In order to suppress dust, areas of bare soil can be moistened with water during construction activities to ensure that the amount of dust within the Subject Property is reduced. Topsoil stockpile locations should be in areas of lesser wind exposure and away from natural features and their buffers.

Significant Natural Feature	Relevant Policies	Potential Impacts	Recommended Mitigation
			• Detailed lighting designs will be provided at the detailed design stage. Lighting designs should include directional lighting for developments that are within 30m of natural features to eliminate lightwash. • Tree protection fencing must be installed, maintained, and inspected by a certified arborist or other recognized professional prior to, and during, construction.
Significant Wildlife Habitat (SWH)	• Provincial Policy Statement (OMMAH 2020) • County of Wellington Official Plan (2024)	**Direct Impacts:** • Direct impacts to the confirmed SWH - Habitat for Species of Conservation Concern: Special Concern and Rare Wildlife – Eastern Wood-Pewee are avoided as this SWH type is outside the development footprint. • Direct impacts to candidate SWH – Seasonal Concentration Areas – Bat Maternity Colonies are avoided as this SWH type is outside the development footprint. **Indirect Impacts**: • Sedimentation and erosion • Indirect impacts to wildlife	**Direct and Indirect Impacts:** • Buffers should be delineated in the field prior to any construction activities. **Indirect Impacts**: • A detailed Sediment and Erosion Control Plan should be developed at the Detailed Design Stage.
Individual Trees	• Migratory Birds Convention Act (Government of Canada 1994) • County of Wellington Official Plan (2024)	**Direct Impacts:** • Eighteen trees are proposed to be removed as a result of the proposed development.	**Direct Impacts:** • An updated Tree Preservation Plan report for the entire Subject Property should be provided at the Site Plan Application stage. • Where the grading is close to tree driplines, trees should be protected with temporary

Significant Natural Feature	Relevant Policies	Potential Impacts	Recommended Mitigation
	• County of Wellington Woodlands Conservation By-law 5115-09 (2009)	• Trees to be retained could be impacted by grading or construction activities. **Indirect Impacts**: • Potential indirect impacts to individual trees retained within the development area may include sedimentation, erosion, disturbance to the tree's roots through grading, or disturbance to the tree's trunk or crown by construction equipment.	protective fencing and erosion control fencing, located less than 1m outside of the dripline. • The Tree Preservation Plan should include recommended mitigation measures and criteria for the development of a planting plan. • Compensation trees should be planted for all trees removed. • Time vegetation removal activities to occur outside the core bird breeding season (April 1 to August 31). • If vegetation removal must occur during the bird breeding season, retain an avian biologist to survey for active nests just prior to vegetation removal activities. **Indirect Impacts**: • Tree protection fencing must be installed, maintained, and inspected by a certified arborist or other recognized professional prior to, and during, construction. • Full details of recommended tree protection measures and mitigation measures are provided in the Tree Preservation Plan.

7.0 Summary

NRSI was retained by Eramosa Farms Limited to complete an Environmental Impact Study (EIS) in support of a Zoning Bylaw Amendment Application for a proposed industrial development of the property at 8075 Highway 7, in Guelph-Eramosa Township/Wellington County, Ontario.

This EIS report provides a detailed characterization of existing natural features based on compiled background information and NRSI's 2020, 2021, and 2024 field investigations. An analysis of the significance and sensitivity of identified natural features, with consideration for applicable County and provincial policies and legislation, is provided. The Subject Property is characterized primarily as active row-crop agricultural land, surrounded by hedgerows, and with a house at the western corner of the property. The Highway No. 7 municipal drain floodplain is identified as Core Feature in the County's Core Greenlands System. Significant natural features within the Subject Property include the municipal drain and its floodplain, confirmed SWH - Habitat for Species of Conservation Concern for Eastern Wood-pewee and candidate SWH – Bat Maternity Colonies. The Highway No. 7 Drain is a Class F Type Drain is not connected to Clythe Creek, does not provide fish habitat (direct or indirect), and should be considered ephemeral.

A Tree Preservation Plan for trees identified as requiring removal within the proposed development is provided. Eighteen trees are identified as requiring removal for the proposed development. A revised Tree Preservation Plan report for the entire Subject Property will be provided at the Site Plan Application stage.

An analysis of impacts for the proposed development is provided. Direct impacts have been avoided through protection and buffering of the existing natural features and recommended timing windows for tree removals. Potential impacts to stormwater quality and quantity outletting to the Highway 7 Drain are addressed in MTE's Stormwater Management Report (2024). The SWM criteria are satisfied with the implementation of quantity control measures and a water quality target of 80%. Based on their analysis of the water balance, the installation of an infiltration gallery will result in an annual increase of runoff infiltrated on-site in the post-development condition.

This report provides recommendations to minimize direct, indirect, and induced impacts that may arise during the proposed development and ensure that mitigation measures are implemented properly.

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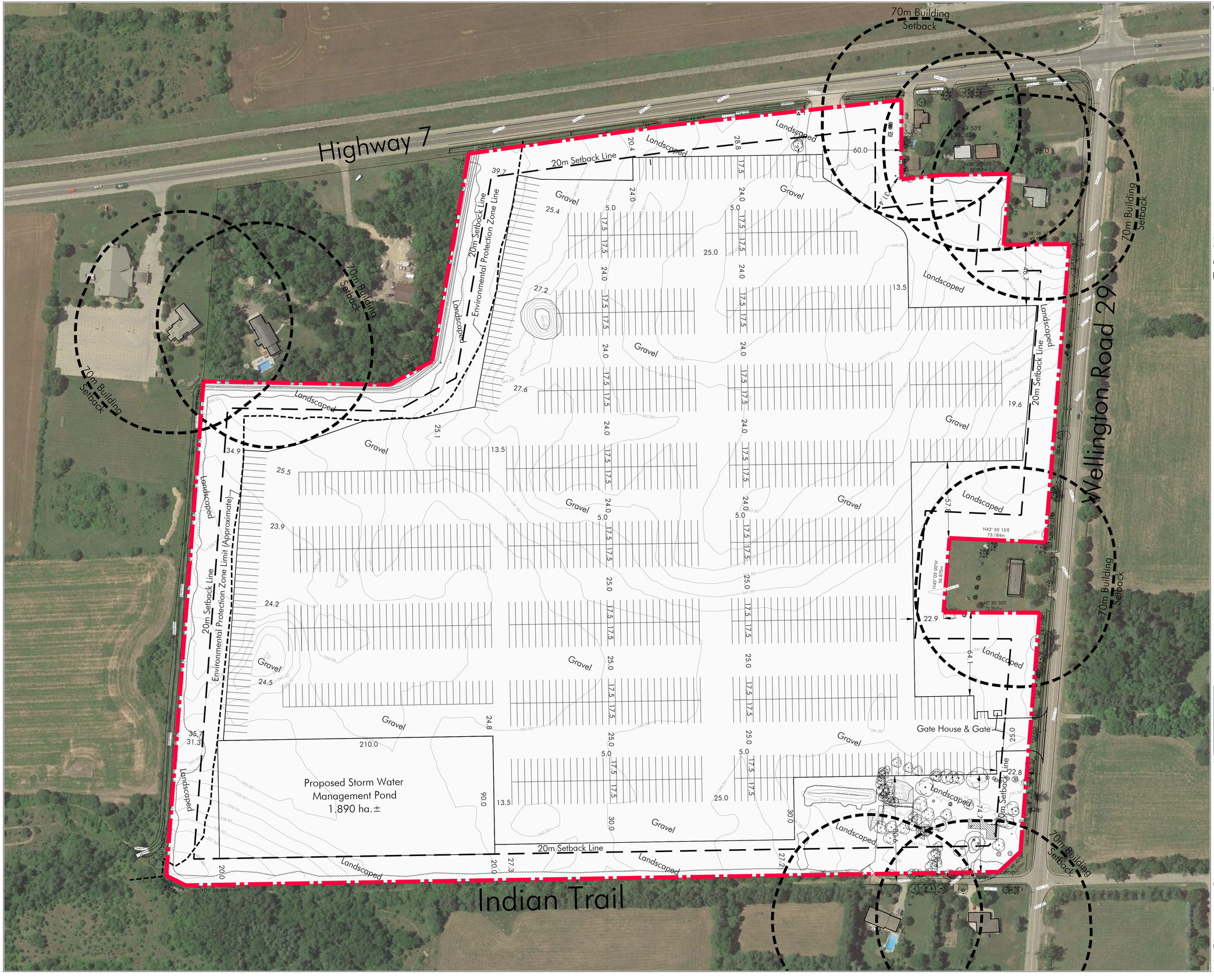
Appendix I
Proposed Concept Plan

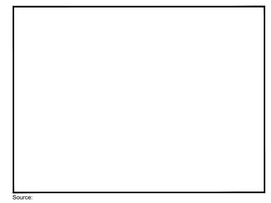


Legal Description

CONCEPTUAL PLAN A

PART OF LOT 5, CONCESSION 1,
TOWNSHIP OF GUELPH-ERAMOSA,
COUNTY OF WELLINGTON

Key Plan



SITE STATISTICS

SITE AREA	32.72 ha.±
TRAILER STALLS	1,170
GRAVEL AREA	22.03 ha.±
LANDSCAPED AREA	10.69 ha.±

Preliminary

Rev.	Date	Issued / Revision	By

Notes:

- Topographic information prepared by X.
- Contour interval 1.0m.

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
200-540 BINGEMANS CENTRE DR. KITCHENER, ON, N2B 3X9 | P: 519.576.3650 F: 519.576.0121 | WWW.MHBCPLAN.COM

Stamp

Date	February 9,2024
Drawn By	LHB
Plan Scale	1:1,250
File No.	20360A
Checked By	
Other	

Project

Gatestone Capital Corp.,
Eramosa Farms Limited
8075 Highway 7,
Township of Guelph-Eramosa,

File Name

Conceptual Development Plan

K:\20360A–8075 HWY 7–GUELPH ERAMOSA\SITE PLAN\CONCEPT A – FEBRUARY 9 2024.DWG

Appendix II
Species at Risk Screening

Species at Risk (SAR) and Species of Special Concern (SCC) Screening Table

Common Name	Scientific Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Habitat Source	Habitat Preference	Suitable Habitats within Study Area	Rationale	NRSI Observed
Vascular Plants											
American Ginseng	*Panax quinquefolius*	S2	THR	E	E	Schedule 1	Michigan Flora Online (A. A. Reznicek, E. G. Voss, & B. S. Walters. 2011)	Rich, even swampy, hardwoods (beech, sugar maple, hemlock), especially on slopes or ravines (including forested dunes). Flowering in early summer.	No	There are no forests within the Study Area which may provide suitable habitat for this species.	No
American Chestnut	*Castanea dentata*	S1S2	END	E	E	Schedule 1	Flora of North America Online (Flora of North America Editorial Committee, eds. 1993+)	Rich deciduous and mixed forests, particularly with oak. Flowering in summer.	No	There are no forests within the Study Area which may provide suitable habitat for this species.	No
Butternut	*Juglans cinerea*	S2?	END	E	E	Schedule 1	Michigan Flora Online (A. A. Reznicek, E. G. Voss, & B. S. Walters. 2011)	Stream banks and swamps, as well as upland beech-maple, oak-hickory, and mixed hardwood stands.	Yes	The Study Area may provide suitable habitat for this species.	No
Hill's Pondweed	*Potamogeton hillii*	S2S3	SC	SC	SC	Schedule 1	Flora of North America Online (Flora of North America Editorial Committee, eds. 1993+)	Shallow water of small lakes, ponds, ditches, and streams. Flowering and fruiting in summer.	Yes	This species could be present within the adjacent tributary of Clythe Creek.	No
Birds											
Northern Bobwhite	*Colinus virginianus*	S1?	END	E	E	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Grassland, prairie or hay fields with woody cover in form of thickets, tangles of vines, shrubs; fence rows or woodland edges; cropland growing corn, soybeans or small grains and clover or grass; well-drained sandy or loamy soil; pond edges.	Yes	The corn fields within the Study Area may provide suitable habitat for this species.	No
Eastern Whip-poor-will	*Antrostomus vociferus*	S4B	THR	SC	T	Schedule 1	Recovery Strategy for the Eastern Whip-poor-will (MECP 2019)	Areas with a mix of open and forested areas, such as open woodlands, savannas, pine plantations, woodland edges, or openings in more mature deciduous, coniferous and mixed forests. Forages in open areas and uses forested areas for roosting and nesting.	No	There are no forests within the Study Area which may provide suitable habitat for this species.	No
Common Nighthawk	*Chordeiles minor*	S4B	SC	SC	SC	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Open ground; clearings in dense forests (including burns and logged areas); rock barrens; peat bogs; ploughed fields; gravel beaches or barren areas with rocky soils; open woodlands; flat gravel roofs.	No	There is no suitable vegetation-free habitat within the Study Area suitable for this species. There is one gravel parking lot on the NW side of the Subject Property, however, as an active parking lot it is not suitable habitat.	No
Chimney Swift	*Chaetura pelagica*	S3B	THR	T	T	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Commonly found in urban areas near buildings; nests in chimneys, hollow trees, and crevices of rock cliffs. Feeds over open water.	No	There are no structures with suitable chimneys for nesting by this species within the Study Area.	No
Black Tern	*Chlidonias niger*	S3B,S4M	SC	NAR	NS	No schedule	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Large cattail marshes; marshy edges of rivers, lakes or ponds; wet open fens; wet meadows. Returns to same area to nest each year. Must have areas of shallow water (0.5 to 1m deep) and area of open water near nests. Generally found in marshes >20 ha in size.	No	There are no marshes large enough within the Study Area to provide suitable habitat for this species.	No
Least Bittern	*Ixobrychus exilis*	S4B	THR	T	T	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Strongly prefers cattail marshes with a mix of open pools and channels. Also found in swamps and bogs and marshy borders of lakes, ponds, streams and ditches with dense emergent vegetation of cattail, bulrush and sedge. Nests in cattails. Intolerant of loss of habitat and human disturbance.	No	The Clythe Creek PSW complex may provide suitable habitat for this species, however it is more than 120m away from the Subject Property.	No
Barn Owl	*Tyto alba*	S1	END	E	E	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Open areas such as fields and agricultural lands with scattered woodlots, buildings and/or orchards; grasslands, sedge meadows and marshes. Nests in hollow trees and live trees >46 cm dbh; also nests in barns and abandoned buildings.	No	Although, the open fields could provide suitable foraging habitat, while treed area may provide suitable nesting habitat, there are only a handful of breeding pairs in Ontario, none of which are in Wellington County. The presence of this species within the subject property is therefore considered very unlikely.	No
Short-eared Owl	*Asio flammeus*	S4?B,S2S3N	THR	T	SC	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Grasslands, open areas or meadows that are grassy or bushy; marshes, bogs or tundra. Nests on the ground and requires 75-100 ha of contiguous open habitat.	No	There are no suitable marsh and grasslands habitat for this species present within the Study Area.	No
Red-headed Woodpecker	*Melanerpes erythrocephalus*	S3	END	E	E	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Open, deciduous forest with little understory; fields, parks or pasture lands with scattered large trees; wooded swamps; orchards, small woodlots or forest edges; groves of dead or dying trees. Requires cavity trees with at least 40 cm dbh.	Yes	Woodlots and woodlot edges within the Study Area may provide suitable habitat for this species.	No
Olive-sided Flycatcher	*Contopus cooperi*	S4B	SC	SC	SC	Schedule 1	Species at Risk in Ontario (MECP 2022)	Semi-open, conifer or mixed forest, usually adjacent to rivers or wetlands. Prefers spruce, Jack Pine and Balsam Fir for nesting. Will use burned or logged areas with ample tall snags and trees for nests, singing and foraging perches.	No	There is no suitable coniferous forest for this species within the Study Area.	No
Eastern Wood-pewee	*Contopus virens*	S4B	SC	SC	SC	Schedule 1	Species at Risk in Ontario (MECP 2022)	Mid-canopy layer of forest clearings and edges of deciduous and mixed forest. Abundant in intermediate-age mature forest stands with little understory vegetation.	Yes	Forests within the Study Area, and hedgerows within the Subject Property, may provide suitable habitat for this species. Evidence of Eastern Wood-pewee breeding ("Possible") was observed during the breeding bird surveys.	Yes

Common Name	Scientific Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Habitat Source	Habitat Preference	Suitable Habitats within Study Area	Rationale	NRSI Observed
Acadian Flycatcher	*Empidonax virescens*	S1B	END	E	E	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Mature, shady, deciduous and mixed forests; heavily wooded ravines; creek bottoms or river swamps. Generally needs at least 30 ha of forest.	No	There are no forests within the Study Area which may provide suitable habitat for this species.	No
Loggerhead Shrike	*Lanius ludovicianus*	S1B	END	E	E	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Prefers pasture and other grasslands with scattered low trees and shrubs. Located on core areas of limestone plain adjacent to Canadian Shield. Probably needs at least 25 ha of suitable habitat.	No	There are no large pastures or grasslands with scattered shrubs within the Study Area suitable for this species.	No
Barn Swallow	*Hirundo rustica*	S4B	SC	SC	T	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Farmlands, rural areas and other open or semi-open areas near body of water. Nests almost exclusively on human-made structures such as open barns, buildings, bridges and culverts.	Yes	Suitable open rural areas providing habitat for this species are present within the Study Area. Three Barn Swallow were observed flying over the open agricultural field within the Subject Property; no breeding evidence was observed.	Yes
Bank Swallow	*Riparia riparia*	S4B	THR	T	T	Schedule 1	Recovery Strategy for the Bank Swallow in Ontario (Falconer et al. 2016)	Nests in burrows in natural and human-made settings with vertical faces in silt and sand deposits. Usually on banks of river and lakes, but also found in sand and gravel pits.	No	There are no sand, clay or gravel river banks or steep riverbank cliffs within the Study Area.	No
Wood Thrush	*Hylocichla mustelina*	S4B	SC	T	T	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Carolinian and Great Lakes-St. Lawrence forest zones. Undisturbed moist mature deciduous or mixed forest with deciduous sapling growth. Near pond or swamp. Must have some trees higher than 12 m.	Yes	Woodlots and woodlot edges within the Study Area may provide suitable habitat for this species.	No
Grasshopper Sparrow	*Ammodramus savannarum*	S4B	SC	SC	SC	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Well-drained grassland or prairie with low cover of grasses, taller weeds or sandy soil; hayfields or weedy fallow fields; uplands with ground vegetation of various densities. Requires perches for singing and tracts of grassland generally >5ha.	No	There are no large, open, expansive grasslands within the Study Area suitable for this species.	No
Henslow's Sparrow	*Centronyx henslowii*	S1B	END	E	E	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Large, fallow, grassy area with ground mat of dead vegetation, dense herbaceous vegetation, ground litter and some song perches; neglected weedy fields; wet meadows; cultivated uplands. Requires a minimum tract of grassland of 40 ha, but usually in areas >100 ha.	No	There are no large, open, expansive pastures or wet meadows within the Study Area suitable for this species.	No
Yellow-breasted Chat	*Icteria virens*	S1B	END	E	E	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Thickets and scrub, tall tangles of shrubbery beside streams and ponds, overgrown bushy clearings with deciduous thickets.	No	Dense thickets, and shrubbery beside ponds and wetlands are not present in the Study Area.	No
Bobolink	*Dolichonyx oryzivorus*	S4B	THR	SC	T	Schedule 1	Recovery Strategy for the Bobolink and Eastern Meadowlark in Ontario (McCracken et al. 2013)	Large (>10 ha), open expansive grasslands, pastures, hayfields, meadows or fallow fields with dense ground cover. Occasionally nest in large (>50 ha) fields of winter wheat and rye in southwestern Ontario.	No	There are no large, open, expansive grasslands within the Study Area suitable for this species.	No
Eastern Meadowlark	*Sturnella magna*	S4B,S3N	THR	T	T	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Open pastures, hayfields, grasslands or grassy meadows with elevated singing perches (small trees, shrubs or fence posts). Also weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields or other open areas. Generally prefers larger tracts of habitat >10 ha, but will sometimes use smaller tracts.	No	There are no large, open, expansive grasslands within the Study Area suitable for this species.	No
Canada Warbler	*Cardellina canadensis*	S5B	SC	SC	T	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Moist, mixed coniferous and deciduous forests with well-developed, dense shrub layer and closed canopy; wet bottomlands of cedar or alder; shrubby undergrowth in cool moist mature woodlands; riparian habitat. Most often found in large forest tracks.	No	Suitable forest habitat, with a shrubby and mossy understory is not present within the Study Area.	No
Louisiana Waterthrush	*Parkesia motacilla*	S2B	THR	T	T	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Usually steep, forested ravines with fast-flowing streams. Prefers running water, especially clear, coldwater streams, but also less frequently inhabits heavily wooded, deciduous swamps having large pools of open water.	No	There are no wooded ravines along running streams, or woodland swamps within the Study Area suitable for this species.	No
Cerulean Warbler	*Setophaga cerulea*	S2B	THR	E	E	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Mature deciduous woodland of Great Lakes-St. Lawrence and Carolinian forests, with large, tall trees and an open understory. Area sensitive species needing extensive areas of forest (>100 ha).	No	There are no forests within the Study Area which may provide suitable habitat for this species.	No
Golden-winged Warbler	*Vermivora chrysoptera*	S3B	SC	T	T	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Areas with young shrubs surrounded by mature forest, including locations that have recently been disturbed, such as abandoned fields, field edges, hydro or utility right-of-ways, or logged areas with saplings and grasses.	No	Although there are field edges, there are no large areas of early sucessional vegetation within the Study Area.	No
Reptiles and Amphibians											
Snapping Turtle	*Chelydra serpentina*	S4	SC	SC	SC	Schedule 1	Species at Risk in Ontario (MECP 2022)	Slow-flowing rivers and streams, lakes, and permanent or semi-permanent wetlands with soft substrates and vegetation. Key habitat requirements: open areas with structures for basking, open sand or gravel areas for nesting, shallow areas with soft substrates to bury in, soft banks or substrates for hibernation.	No	There are no wetlands within the Study Area that may provide suitable habitat for this species. The Clythe Creek PSW complex may provide suitable habitat for this species, however it is more than 120m away from the Subject Property.	No

Common Name	Scientific Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Habitat Source	Habitat Preference	Suitable Habitats within Study Area	Rationale	NRSI Observed
Blanding's Turtle (Great Lakes / St. Lawrence population)	*Emydoidea blandingii*	S3	THR	E	E	Schedule 1	Recovery Strategy for the Blanding's Turtle (MECP 2019)	Eutrophic, shallow wetlands such as marshes, ponds, swamps, bogs, fens, or coastal wetlands, with soft, muddy substrates, abundant aquatic vegetation, and basking structures (logs, stumps, hummocks). Large overland movements occur between aquatic habitats and to open sandy or gravelly areas for nesting. Forest habitat is important for upland movements. Overwintering typically occurs in permanent wetlands.	No	There are no wetlands within the Study Area that may provide suitable habitat for this species. The Clythe Creek PSW complex may provide suitable habitat for this species, however it is more than 120m away from the Subject Property.	No
Northern Map Turtle	*Graptemys geographica*	S3	SC	SC	SC	Schedule 1	Species at Risk in Ontario (MECP 2022)	Large bodies of water such as rivers and lakes with soft bottoms, aquatic vegetation, abundant mollusc prey, and basking structures such as logs or rocks. Nesting occurs in open areas with soft substrates such as sand or gravel. Hibernate on the bottom of deep areas of lakes or deep, slow-moving sections of rivers.	No	There are no rivers or lakes suitable for this species within the Study Area.	No
Massasauga (Great Lakes / St. Lawrence population)	*Sistrurus catenatus pop. 1*	S3	THR	T	T	Schedule 1	Species at Risk in Ontario (MECP 2022)	Massasaugas live in different types of habitats throughout Ontario, including tall grass prairie, bogs, marshes, shorelines, forests and alvars. Within all of these habitats, Massasaugas require open areas to warm themselves in the sun. Pregnant females are most often found in open, dry habitats such as rock barrens or forest clearings where they can more easily maintain the body temperature required for the development of their offspring. Non-pregnant females and males forage and mate in lowland habitats such as grasslands, wetlands, bogs and the shorelines of lakes and rivers. Massasaugas hibernate underground in crevices in bedrock, sphagnum swamps, tree root cavities and animal burrows where they can get below the frost line but stay above the water table.	No	There have been no recent (within the last 20 years) observations of Massasauga within Wellington County (the last observation recorded in Wellington County was in 1949).	No
Butler's Gartersnake	*Thamnophis butleri*	S2	END	E	E	Schedule 1	Recovery Strategy for the Butler's Gartersnake (MECP 2019)	Open, moist habitats, such as cultural meadows, grasslands, old fields, tallgrass prairie, in close proximity to wetlands where it can feed on leeches and earthworms. Dense grass cover and thatch is important for shelter. Small mammal or crayfish burrows, rock or log piles, drains, stone walls, or foundations are used for hibernation.	No	Suitable habitat exists within the study area; however, there are no known occurrences of Butler's Gartersnake from the Guelph area (the closest observations are in Luther Marsh ~60km to the north).	No
Northern Ribbonsnake	*Thamnophis saurita septentrionalis*	S4	SC	SC	SC	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Sunny grassy areas with low dense vegetation near bodies of shallow permanent quiet water; wet meadows grassy marshes or sphagnum bogs; borders of ponds, lakes or streams; hibernates in groups.	No	There are no wetlands within the Study Area that may provide suitable habitat for this species. The Clythe Creek PSW complex may provide suitable habitat for this species, however it is more than 120m away from the Subject Property.	No
Jefferson Salamander	*Ambystoma jeffersonianum*	S2	END	E	E	Schedule 1	Recovery Strategy for the Jefferson Salamander (Linton, J, J. McCarter & H. Fotherby)	Large deciduous or mixed forest containing, or in close proximity to, suitable breeding ponds which include fishless vernal pools or wetlands with suitable hydroperiod for larval development (was present until Aug/Sept). Habitats must contain shelter features including leaf litter, woody debris, rocks, logs, or stumps. Hibernation sites are underground in mammal burrows, root systems, or crevices or fissures in rocks.	No	The are no woodlands within the Study Area that would be suitable for this species.	No
Unisexual Ambystoma (Jefferson Salamander-dependent population)	*Ambystoma laterale - (2) jeffersonianum*	S2	END	E	E	Schedule 1	Species at Risk in Ontario (MECP 2022)	Unisexual Ambystoma salamanders live in leaf litter, under logs and in underground cavities in deciduous and mixed forests, typically within close proximity to breeding habitats. Adults breeds in vernal pools (temporary woodland ponds) or fish-free permanent wetlands. They lay their eggs in clumps attached to underwater vegetation in shallow water. The eggs hatch into aquatic larvae after about one month, and the larvae transform into juveniles by the end of summer. The juveniles leave the pond and head into the surrounding forest. Unisexual Ambystoma salamanders spend the winter underground where they can get below the frost line and avoid freezing temperatures, such as in mammal burrows, rock crevices or other underground cavities. Although these salamanders spend much of the year underground or under cover, they can often be observed in early spring when they travel to breeding sites.	No	The are no woodlands within the Study Area that would be suitable for this species.	No
Western Chorus Frog (Great Lakes / St. Lawrence - Canadian Shield population)	*Pseudacris triseriata pop. 2*	S4	NAR	T	T	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Roadside ditches or temporary ponds in fields; swamps or wet meadows; woodland or open country with cover and moisture; small ponds and temporary pools ponds and temporary pools.	No	Wetlands within the Study Area may provide suitable habitat for this species.	No
Mammals											
Eastern Small-footed Myotis	*Myotis leibii*	S2S3	END				Recovery Strategy for Eastern Small-footed Myotis In Ontario (Humphrey 2017)	Primarily roosts in open, sunny, rocky habitats, including cracks and crevices in cliffs and boulders, in talus slopes, beneath stones on rock barrens and in rock outcrops containing crevices. Occasionally roosts in buildings (including barns, sheds, and exterior walls). Maternity roosts have been documented in rocky habitats, on bridge structures, and in or on buildings. Overwinters in caves and abandoned mines.	Yes	Trees present within the subject property may provide suitable roosting habitat. No potential hibernation sites are present.	No

Common Name	Scientific Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Habitat Source	Habitat Preference	Suitable Habitats within Study Area	Rationale	NRSI Observed
Little Brown Myotis	*Myotis lucifugus*	S3	END	E	E	Schedule 1	Recovery Strategy for the Little Brown Myotis, Northern Myotis and Tri-colored Bat in Ontario (Humphrey, C. & H. Fortherby. 2019)	Uses caves, quarries, tunnels, hollow trees or buildings for roosting. Winters in humid caves. Maternity sites in dark warm areas such as attics and barns. Feeds primarily in wetlands and forest edges.	Yes	Trees present within the subject property may provide suitable roosting habitat. No potential hibernation sites are present.	No
Northern Myotis	*Myotis septentrionalis*	S3	END	E	E	Schedule 1	Recovery Strategy for the Little Brown Myotis, Northern Myotis and Tri-colored Bat in Ontario (Humphrey, C. & H. Fortherby. 2019)	Roosts in houses and man-made structures but prefers hollow trees or under loose bark. Hibernates in mines or caves. Hunts within forest, below the canopy.	Yes	Trees present within the subject property may provide suitable roosting habitat. No potential hibernation sites are present.	No
Tri-colored Bat	*Perimyotis subflavus*	S3?	END	E	E	Schedule 1	Recovery Strategy for the Little Brown Myotis, Northern Myotis and Tri-colored Bat in Ontario (Humphrey, C. & H. Fortherby. 2019)	Roosts and maternity colonies in older forests and occasionally in barns or other structures. Forage over water and along streams in the forest. Hibernate in caves.	Yes	Trees present within the subject property may provide suitable roosting habitat. No potential hibernation sites are present.	No
Woodland Vole	*Microtus pinetorum*	S3?	SC	SC	SC	Schedule 1	Species at Risk in Ontario (MECP 2022)	Mature deciduous forest in the Carolinian region where there is a deep litter layer that allows it to burrow.	No	There are no deciduous forests, grasslands, meadows, or orchards within the Study Area suitable for this species.	No
Gray Fox	*Urocyon cinereoargenteus*	S1	THR	T	T	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Hardwood forests with a mix of fields and woods; swamps; wooded, brushy or rocky habitats; woodland farmland edge; old fields with thickets; dens in hollow log or tree; individual has numerous winter dens throughout its range which is > 40 ha	No	This species is presently reported from only two locations in Ontario: one population is located near Pelee Island and one is near the Rainy River District west of Lake Superior. The presence of this species within the subject property is therefore considered very unlikely.	No
American Badger (Southwestern Ontario population)	*Taxidea taxus jacksoni*	S1	END	E	E	Schedule 1	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Open grasslands and oak savannahs; dens in new hole or enlarged existing hole; sometimes makes food caches	Yes	Suitable habitat for this species may be present in fields and forest edges throughout the Study Area.	No
Butterflies											
Black Dash	*Euphyes conspicua*	S3					Lotts, K and T. Naberhaus. 2021. Butterflies and Moths of North America Online. Available: https://www.butterfliesandmoths.org/	Boggy marshes, wet meadows, and marshy stream banks with host plants Carex stricta.	Yes	This species could be present in the wooded wetlands within the Subject Lands.	No
West Virginia White	*Pieris virginiensis*	S3	SC				Species at Risk in Ontario (MECP 2022)	Rich, moist, deciduous woods with populations of Two-leaved Toothwort (Cardamine diphylla; larval food plant).	No	The are no moist, deciduous woodlands within the Study Area may provide suitable habitat for this species.	No
Hackberry Emperor	*Asterocampa celtis*	S3					Lotts, K and T. Naberhaus. 2021. Butterflies and Moths of North America Online. Available: https://www.butterfliesandmoths.org/	Wooded streams, forest glades and river edges, wooded roadsides, urban areas. Requires host tree species of the genus Celtis.	No	This species could be present within the adjacent Clythe Creek Wetland Complex, however the presence of the species' food plant Hackberry was not observed during field studies. Suitable habitat for this species is not present within the subject property.	No
Tawny Emperor	*Asterocampa clyton*	S3					Lotts, K and T. Naberhaus. 2021. Butterflies and Moths of North America Online. Available: https://www.butterfliesandmoths.org/	Densely wooded riparian areas, dry woods, open woods. Requires host tree species of the genus Celtis.	Yes	Wetland/Riparian areas within the study area may provide suitable habitat for this species.	No
Monarch	*Danaus plexippus*	S2N,S4B	SC	E	E	Schedule 1	Species at Risk in Ontario (MECP 2022)	Adults found in a diversity of habitats with a variety of wildflowers. Caterpillars are confined to meadows and open areas where milkweeds grow (larval food plants).	Yes	Open areas with milkweed were observed within the Study Area, however, the property provides neither a good source of breeding or foraging habitat for the species. One incidental observation of this species was observed during a field survey in 2020 within the gravel area of the Subject Property.	Yes
Odonates											
Harpoon Clubtail	*Phanogomphus descriptus*	S3					OOAD 2020	Clear or sandy-bottom streams with silt-bottomed pools.	No	There are no streams within the Study Area.	No
Uhler's Sundragon	*Helocordulia uhleri*	S3					OOAD 2020	Typically near small streams in forests, sometimes lakes.	No	There are no streams within the Study Area.	No
Clamp-tipped Emerald	*Somatochlora tenebrosa*	S3					OOAD 2020	Shaded streams.	No	There are no streams within the Study Area.	No
Painted Skimmer	*Libellula semifasciata*	S3					OOAD 2020	Marshy ponds near woodlands, most common in coastal plain.	No	There are no marshy ponds within the Study Area.	No

Reference List

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Common Name	Scientific Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Habitat Source	Habitat Preference	Suitable Habitats within Study Area	Rationale	NRSI Observed

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Appendix III
Significant Wildlife Habitat Screening

Significant Wildlife Habitat Type	Presence Within Study Area	Presence Within Subject Property	Assessment Details
Seasonal Concentration Areas			
Waterfowl Stopover and Staging Areas (Terrestrial)	Not Present	Not Present	Fields with sheet water are not present within the study area.
Waterfowl Stopover and Staging Areas (Aquatic)	Not Present	Not Present	Wetland habitat suitable for waterfowl stopover and staging may be present within the PSW west of the Subject Property, however there are no wetlands within the Subject Property.
Shorebird Migratory Stopover Area	Not Present	Not Present	The subject property does not contain and water features/ watercourses which would be suitable for waterfowl stopover or staging.
Raptor Wintering Area	Not Present	Not Present	Although the study area and subject property both contain field and forested habitat, the fields are active agricultural fields not meadows.
Bat Hibernacula	Not Present	Not Present	There are no mine shafts, caves, or Karts within the subject property or study area.
Bat Maternity Colonies	Candidate	Candidate	The study area and subject property both contain forested areas which contain suitable tree habitat.
Turtle Wintering Area	Not Present	Not Present	There is no sutiable water bodies within the subject property.
Reptile Hibernaculum	Candidate	Not Present	Old stone foundations and rock piles that may provide suitable snake hibernaculum features exist on the Subject Property. No snakes were observed during field studies.
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	Not Present	Not Present	The study area and subject property do not contain suitable banks or cliffs for nesting bird breeding habitat.
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)	Not Present	Not Present	The study area or subject property do not contain suitable habtiat for nesting bird breeding habitat.
Colonially - Nesting Bird Breeding Habitat (Ground)	Not Present	Not Present	The study are and subject property do not contain islands or peninsulas in open water or marshy areas.
Migratory Butterfly Stopover Areas	Not Present	Not Present	The study area or subject property is not within 5km of Lake Ontario.
Landbird Migratory Stopover Areas	Not Present	Not Present	The study area and subject property is not within 5km of Lake Ontario.
Deer Yarding Areas	Not Present	Not Present	There are no suitable natural features for deer yarding that have been identified by OMNRF.
Deer Winter Congregation Areas	Not Present	Not Present	The study area or subject property is not not >100 ha in size.
Rare Vegetation Communities			
Cliff and Talus Slopes	Not Present	Not Present	The study area or subject proerty do not contain cliff and talus slopes.
Sand Barrens	Not Present	Not Present	The study area or subject property do not contain sand barren type habitat.
Alvar	Not Present	Not Present	The study area or subject property do not contain alvar habitat.
Old Growth Forest	Not Present	Not Present	The study area or subject property do not contain old growth forest habitat.
Savannah	Not Present	Not Present	The study area or subject property does not contain savannah habitat.
Tallgrass Prairie	Not Present	Not Present	The study area and subject property does not contain tallgrass prarie.
Other Rare Vegetation Communities	Not Present	Not Present	There are no other rare vegeration communites present within the study area or subject property.
Specialized Wildlife Habitat			
Waterfowl Nesting Area	Not Present	Not Present	There is no suitable habitat for waterfowl nesting within the Study Area.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Not Present	Not Present	The Study Area is not within vicinity of a lake, pond, river or wetland.
Woodland Raptor Nesting Habitat	Not Present	Not Present	There are no large woodlands with interior habitat suitable for nesting woodland raptors.
Turtle Nesting Areas	Not Present	Not Present	There are no nesting habitats for turtles within the Study Area.
Seeps and Springs	Not Present	Not Present	There are no seeps or springs within the Study Area.
Amphibian Breeding Habitat (Woodland)	Not Present	Not Present	There are no wetlands, ponds, or woodland pools within the Study Area.
Amphibian Breeding Habitat (Wetland)	Not Present	Not Present	There are no wetlands or ponds within the Study Area.
Woodland Area-Sensitive Bird Breeding Habitat	Not Present	Not Present	There are no forests habitats suitable for interior forest breeding birds within the Study Area.
Habitat for Species of Conservation Concern			
Marsh Bird Breeding Habitat	Not Present	Not Present	Suitable habitat for marsh birds is not present within the Study Area.
Open Country Bird Breeding Habitat	Not Present	Not Present	Large grasslands, meadows, or cultural fields of suitable size (>30 ha) are not present within the Study Area.
Shrub/Early Successional Bird Breeding Habitat	Not Present	Not Present	Large early successional fields or large thicket habitats (>10 ha) are not present within the Study Area.
Terrestrial Crayfish	Not Present	Not Present	Given that there are no wetlands within the Study Area, there is no suitable habitat for terrestrial crayfish.
Special Concern and Rare Wildlife Species	Confirmed	Confirmed	A number of SCC were identified within the subject property. For more details, refer to the Species at Risk screening table. Eastern Wood-pewee was confirmed using woodlands in the southwest area of the Subject Property.
Animal Movement Corridors			
Amphibian Movement Corridors	Not Present	Not Present	Presence of this SWH type is dependent on the confirmation of Amphibian Breeding Habitat (Wetland) within the Subject Property. Given that there's no candidate Amphibian Breeding Habitat within the Study Area, there is no Amphibian Movement Corridors.
Deer Movement Corridors	Not Present	Not Present	There is no MNRF-identified deer wintering habitat in the study area (and the woodlot adjacent to the Subject Property is not >100ha in size). Therefore, there is no potential for deer movement corridors.
Exceptions			
EcoDistrict 6E-14 Mast Producing Areas	Not Present	Not Present	The subject property and study area are not in Ecodistrict 6E-14.
EcoDistrict 6E-17 Lek	Not Present	Not Present	The subject property and study area are not in Ecodistrict 6E-17.

Significant Wildlife Habitat Assessment Tables

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Waterfowl Stopover and Staging Areas (Terrestrial)					Not Present	Not Present
Rationale: Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available[exlviii]. Information Sources • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities (CAs) • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • Any mixed species aggregations of 100 or more individuals required. • The area of the flooded field ecosite habitat plus a 100-300m radius buffer dependent on local site conditions and adjacent land use is the significant wildlife habitat[cxlviii]. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • SWHMiST[cxlix] Index #7 provides development effects and mitigation measures.	Fields with sheet water are not present within the study area.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Waterfowl Stopover and Staging Areas (Aquatic)					Not Present	Not Present
Rationale: Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked Duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback	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. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). Information Sources • Environment Canada • Naturalist clubs often are aware of staging/stopover areas. • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of: • Aggregations of 100[i] or more of listed species for 7 days[i], results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH[cxlix] • The combined area of the ELC ecosites and a 100m radius area is the SWH[cxlviii] • Wetland area and shorelines associated with sites identified within the SWHTG[cxlviii] Appendix K[cxlix] are significant wildlife habitat. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWHMiST[cxlix] Index #7 provides development effects and mitigation measures.	Wetland habitat suitable for waterfowl stopover and staging may be present within the PSW west of the Subject Property, however there are no wetlands within the Subject Property.	
Wildlife Habitat: Shorebird Migratory Stopover Area					Not Present	Not Present

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Rationale: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin Whimbrel	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, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH. Information Sources • Western hemisphere shorebird reserve network. • Canadian Wildlife Service (CWS) Ontario Shorebird Survey. • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area[cxlviii] • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMiST[cxlix] Index #8 provides development effects and mitigation measures.	The subject property does not contain and water features/ watercourses which would be suitable for waterfowl stopover or staging.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Raptor Wintering Area					Not Present	Not Present
Rational: Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Special Concern: Short-eared Owl Bald Eagle	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class: Forest: FOD, FOM, FOC Upland: CUM, CUT, CUS, CUW	The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Raptor wintering sites need to be > 20 ha[cxlviii, cxlix] with a combination of forest and upland.[xvi, xvii, xviii, xix, xx, xxi]. Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands[cxlix] Field area of the habitat is to be wind swept with limited snow depth or accumulation. Eagle sites have open water, large trees and snags available for roosting Information Sources • OMNRF Ecologist or Biologist • Field Natural Clubs • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Reports and other information available from Conservation Authorities CAs.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two listed hawk/owl species • To be significant a site must be used regularly (3 in 5 years)[cxlix] for a minimum of 20 days by the above number of birds • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • SWHMiST[cxlix] Index #10 and #11 provides development effects and mitigation measures.	Although the study area and subject property both contain field and forested habitat, the fields are active agricultural fields not meadows.	
Wildlife Habitat: Bat Hibernacula					Not Present	Not Present
Rationale Bat hibernacula are rare habitats in Ontario landscapes.	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH • The locations of bat hibernacula are relatively poorly known. Information Sources • OMNRF for possible locations and contact for local experts • Natural Heritage Information Center (NHIC) Bat Hibernaculum • Ministry of Northern Development and Mines for location of mine shafts. • Clubs that explore caves (eg. Sierra Club) • University Biology Departments with bat experts.	• All sites with confirmed hibernating bats are SWH. • The habitat area includes a 200m radius around the entrance of the hibernaculum[cxlviii, ccvii] for most. • Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects"[ccv] • SWHMiST[cxlix] Index #1 provides development effects and mitigation measures.	There are no mine shafts, caves, or Karts within the subject property or study area.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Bat Maternity Colonies					Candidate	Candidate
Rationale: Known locations of forested bat maternity colonies is extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	Maternity colonies can be found in tree cavities, vegetation and often in buildings[xxii, xxv, xxvi, xxvii, xxxi] (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario[xxii] • Maternity colonies located in Mature deciduous or mixed forest stands[ccix, ccx] with >10/ha large diameter (>25cm dbh) wildlife trees[ccvii] • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3[ccxiv] or class 1 or 2[ccxii] • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred[ccx] Information Sources • OMNRF for possible locations and contact for local experts • University Biology Departments with bat experts.	• Maternity Colonies with confirmed use by: • >10 Big Brown Bats • >5 Adult Female Silver-haired Bats • The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for wind Power Projects[ccv] • SWHMiS T[cxlix] Index #12 provides development effects and mitigation measures.	The study area and subject property both contain forested areas which contain suitable tree habitat.	
Wildlife Habitat: Turtle Wintering Area					Not Present	Not Present
Rationale: Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant	Midland Painted Turtle Special Concern: Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles - ELC Community Classes: SW, MA, OA and SA; ELC Community Series: FEO and BOO Northern Map Turtle - Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	For most turtles, 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[cix, cx, cxi, cxviii]. • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. Information Sources • EIS studies carried out by Conservation Authorities. • Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • OMNRF ecologist or biologist • Natural Heritage Information Center (NHIC)	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May)[cvii] • Congregation of turtles is more common where wintering areas are limited and therefore significant[cix, cx, cxi, cxii]. • SWHMiST[cxlix] Index #28 provides development effects and mitigation measures for turtle wintering habitat.	There is no sutiable water bodies within the subject property.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Snake Hibernaculum					Candidate	Not Present
Rationale: Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant	Snakes: Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Special Concern: Milksnake Eastern Ribbonsnake Lizard: Special Concern (Southern Shield population): Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats. Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations. The existence of features that go below the 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[xliv, l, li, lii, cxii.] • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures cciii. Information Sources • In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). • Reports and other information from CAs. • Local Field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. clubs • Natural Heritage Information Center (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). • Note: If there are Special Concern Species present, then site is SWH • Note: Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population [i.e. strong hibernation site fidelity]. Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30m buffer is the SWH[í] • SWHMiST[cxlix] Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • SWHMiST[cxlix] Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	Old stone foundations and rock piles that may provide suitable snake hibernaculum features exist on the Subject Property. No snakes were observed during field studies.	
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)					Not Present	Not Present
Rationale: Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow populations are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• 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 (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. Information Sources • Reports and other information available from CAs • Ontario Breeding Bird Atlas [ccv] • Bird Studies Canada; *NatureCounts* http://www.birdscanada.org/birdmon/ • Field Naturalist clubs	Studies confirming: • Presence of 1 or more nesting sites with 8[cxlvix] or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests[ccvii] • Field surveys to observe and count swallow nests are to be completed during the breeding season Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • SWHMiST[cxlix] Index #4 provides development effects and mitigation measures	The study area and subject property do not contain suitable banks or cliffs for nesting bird breeding habitat.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)					Not Present	Not Present
Rationale: Large Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-heron Great Egret Green Heron	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 15m from ground, near the top of the tree. Information Sources • Ontario Breeding Bird Atlas[ccv], colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNR). • NHIC Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries • Reports and other information available from CAs • MNRF District Offices • Local naturalist clubs	Studies confirming: • Presence of 5[í] or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH [cc, ccvii] • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells • SWHMiST[cxlix] Index #5 provides development effects and mitigation measures.	The study area or subject property do not contain suitable habtiat for nesting bird breeding habitat.	
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Ground)					Not Present	Not Present
Rationale: Colonies are important to local bird populations, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	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 of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. Information Sources • Ontario Breeding Bird Atlas[ccv], rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from CAs • Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices • Field naturalist clubs	Studies confirming: • Presence of >25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern[í]. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150m area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH[cc, ccvii] • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMiST[cxlix] Index #6 provides development effects and mitigation measures.	The study are and subject property do not contain islands or peninsulas in open water or marshy areas.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Migratory Butterfly Stopover Areas					Not Present	Not Present
Rationale: Butterfly stopovers areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Painted Lady Red Admiral Special Concern: Monarch	Combination of ELC Community Series: Need to have present one Community Series from each landclass: Field: CUM CUS CUT Forest: FOC FOM FOD CUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed.	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario[cxlix]. • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south[xxxii, xxxiii, xxxiv, xxxv, xxxvi.] • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat cxlviii, cxlix. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes[xxxvii, xxxviii, xxxix, xl, xli.] Information Sources • OMNRF (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)[xliii]. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day[xxxvii], significant variation can occur between years and multiple years of sampling should occur [xl, xliii]. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. • SWHMiST[cxlix] Index #16 provides development effects and mitigation measures.	The study area or subject property is not within 5km of Lake Ontario.	
Wildlife Habitat: Landbird Migratory Stopover Areas					Not Present	Not Present
Rationale: Sites with a high diversity of species as well as high number are most significant	All migratory songbirds. Canadian Wildlife Service Ontario website: http://www.on.ec.gc.ca/wildlife_e.html All migrant raptors species: Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	Woodlots need to be >10 ha[i] in size and within 5km [iv, v, vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv] of Lake Ontario. • If multiple woodlands are located along the shoreline, those woodlands <2km from Lake Ontario are more significant[cxlix] • Sites have a variety of habitats; forest, grassland and wetland complexes[cxlix]. • The largest sites are more significant[cxlix] • Woodlots and forest fragments are important habitats to migrating birds[ccxviii], these features located along the shore and located within 5km of Lake Ontario are Candidate SWH[cxlviii]. Information Sources • Bird Studies Canada • Ontario Nature • Local birders and naturalist club • Ontario Important Bird Areas (IBA) Program	Studies confirm: • Use of the woodlot by >200 birds/day and with >35 spp. with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (Apr/May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMiST[cxlix] Index #9 provides development effects and mitigation measures.	The study area and subject property is not within 5km of Lake Ontario.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Deer Yarding Areas					Not Present	Not Present
Rationale: Winter habitat for deer is considered to be the main factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.	White-tailed Deer	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 20cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%[cxciv]. • OMNRF determines deer yards following methods outlined in “Selected Wildlife and Habitat Features: Inventory Manual"[cxcv] • Woodlots with high densities of deer due to artificial feeding are not significant.	No Studies Required: • Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH[lvi, lvii, lviii, lix, lx, Í]. • 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 establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations[cxcv]. • 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. • SWHMiST[cxlix] Index #2 provides development effects and mitigation measures.	There are no suitable natural features for deer yarding that have been identified by OMNRF.	
Wildlife Habitat: Deer Winter Congregation Areas					Not Present	Not Present

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Rationale: 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 to reduce or avoid the impacts of winter conditions[exlviii]	White-tailed Deer	All Forested Ecosites with these ELC Community Series: FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50ha may also 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 Eco-region 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands[cxlviii]. • If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule. • 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[ccxxiv]. • Woodlots with high densities of deer due to artificial feeding are not significant. Information Sources • MNRF District Offices • LIO/NRVIS	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF[cxlviii]. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNR[l]. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques[ccxxiv] , ground or road surveys, or a pellet count deer density survey[ccxxv]. • If a SWH is determined for Deer Wintering Area of 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. • SWHMiST[cxlix] Index #2 provides development effects and mitigation measures.	The study area or subject property is not not >100 ha in size.	

Significant Wildlife Habitat Assessment Tables

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Cliff and Talus Slopes					Not Present	Not Present
Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: 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. Information Sources • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF District • Natural Heritage Information Center (NHIC) has location information on their website • Local naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes[lxxviii] • SWHMiST[cxlix] Index #21 provides development effects and mitigation measures.	*The study area or subject proerty do not contain cliff and talus slopes.*	
Sand Barrens					Not Present	Not Present
Rationale: Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry.	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always <60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. 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%.	Any sand barren area, >0.5ha in size. Information Sources • OMNRF Districts. • Natural Heritage Information Center (NHIC) has location information on their website • Field naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens[lxxviii] • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics)[i]. • SWHMiST[cxlix] Index #20 provides development effects and mitigation measures.	The study area or subject property do not contain sand barren type habitat.	

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Alvar					Not Present	Not Present
Rationale: Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregion 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 Five Alvar Indicator Species: 1) Carex crawei 2) Panicum philadelphicum 3) Eleochairs compressa 4) Scutellaria parvula 5) Trichostema branchiatum These indicator species are very specific to Alvars within Ecoregion 6E	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 plant. Undisturbed alvars can be phyto- and zoo geographically 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[lxxviii].	An Alvar site > 0.5 ha in size[lxxv]. Information Sources • Alvars of Ontario (2000), Federation of Ontario Naturalists[lxxvi]. • Ontario Nature – Conserving Great Lakes Alvars[ccviii]. • Natural Heritage Information Center (NHIC) has location information on their website • Field Naturalist clubs • Conservation Authorities	Field studies identify four of the five Alvar indicator species[lxxv, cxlix] at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotics sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses[lxxv]. • SWHMiST[cxlix] Index #17 provides development effects and mitigation measures.	The study area or subject property do not contain alvar habitat.	
Old Growth Forest					Not Present	Not Present
Rationale: Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland Stands areas 30ha or greater in size or with at least 10 ha interior habitat assuming 100m buffer at edge of forest Í. Information Sources • OMNRF Forest Resource Inventory mapping • OMNRF Forester, Ecologist or Biologist • Field Local naturalist clubs • Conservation Authorities • Sustainable Forestry License (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species of the ecosite are >140 years old, then stand is Significant Wildlife Habitat[cxlviii] • The stand will have experienced no recognizable forestry activities[cxlviii] • The area of Forest Ecosites combined to make up the stand is the SWH. • Determine ELC Vegetation Type for forest stand[lxxviii] • SWHDSS[cxlix] Index #23 provides development effects and mitigation measures.	The study area or subject property do not contain old growth forest habitat.	

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Savannah					Not Present	Not Present
Rationale: Savannahs are extremely rare habitats in Ontario.	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. Information Sources • Natural Heritage Information Center (NHIC) has location information on their website • OMNRF Ecologists • Field naturalists clubs • Conservation Authorities	Field studies confirm one or more of the Savannah indicator species listed in[lxxv] Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used[cxlviii]. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics sp.). • SWHMiST[cxlix] Index #18 provides development effects and mitigation measures.	The study area or subject property does not contain savannah habitat.	
Tallgrass Prairie					Not Present	Not Present
Rationale: Tallgrass Prairies are extremely rare habitats in Ontario.	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. Information Sources • OMNR Districts • Natural Heritage Information Center (NHIC) has location information available on their website • Field naturalists clubs • Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in[lxxv] Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used[cxlviii]. • Area of the ELC Ecosite is the SWH • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • SWHMiST[cxlix] Index #19 provides development effects and mitigation measures.	The study area and subject property does not contain tallgrass prarie.	

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Other Rare Vegetation Communities					Not Present	Not Present
Rationale: Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG[cxlviii]. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M[cxlviii] The OMNR/NHIC will have up to date listing for rare vegetation communities. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field naturalists clubs • Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG[cxlviii]. • Area of the ELC Vegetation Type polygon is the SWH. • SWHMiST[cxlix] Index #37 provides development effects and mitigation measures.	There are no other rare vegeration communites present within the study area or subject property.	

Significant Wildlife Habitat Assessment Tables

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Waterfowl Nesting Area					Not Present	Not Present
Rationale: Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 Note: includes adjacency to Provincially Significant Wetlands	A waterfowl nesting area extends 120m[cxlix] 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 120m of each individual wetland where waterfowl nesting is known to occur[cxlix]. • Upland areas should be at least 120m wide so that predators such as raccoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. Information Sources • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from CAs	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • 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 120m[cxlviii] from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiST[cxlix] Index #25 provides development effects and mitigation measures.	There is no suitable habitat for waterfowl nesting within the Study Area.	

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Bald Eagle and Osprey Nesting, Foraging and Perching Habitat					Not Present	Not Present
Rationale: Nest sites are fairly uncommon in Eco-region 6E are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey Special Concern: Bald Eagle	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. • 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. • Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms). Information Sources • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF Districts • Sustainable Forestry License (SFL) companies will identify additional nesting locations through field operations. • Check the Ontario Breeding Bird Atlas[ccv] or Rare Breeding Birds in Ontario for species documented • Reports and other information available from CAs. • Field naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area[cxlviii]. • 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 300m radius around the nest or the contiguous woodland stand is the SWHccvii, maintaining undisturbed shorelines with large trees within this area is important[cxlviii]. • For a Bald Eagle the active nest and a 400-800m radius around the nest is the SWH[cvi], ccvii. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat[cvi]. • 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[ccvii] • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMiST[cxlix] Index #26 provides development effects and mitigation measures	The Study Area is not within vicinity of a lake, pond, river or wetland.	

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Woodland Raptor Nesting Habitat					Not Present	Not Present
Rationale: Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	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[lxxxviiii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii]. Interior habitat determined with a 200m buffer[cxlviii]. • 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 Cooper's hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. Information Sources • OMNRF • Check the Ontario Breeding Bird Atlas[ccv] or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada • Reports and other information available from CAs	Studies confirm: • Presence of 1 or more active nests from species list is considered significant[cxlviii]. • Red-shouldered Hawk and Northern Goshawk – a 400m radius around the nest or 28ha area of habitat is the SWH[ccvii]. • Barred Owl – a 200m radius around the nest is the SWH[ccvii]. • Broad-winged Hawk and Coopers Hawk – a 100m radius around the nest is the SWH[ccvii]. • Sharp-shinned Hawk – a 50m radius around the nest is the SWH[ccvii]. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWHMiST[cxlix] Index #27 provides development effects and mitigation measures.	There are no large woodlands with interior habitat suitable for nesting woodland raptors.	
Wildlife Habitat: Turtle Nesting Area					Not Present	Not Present
Rationale: These habitats are rare and when identified will often be the only breeding site for local populations of turtles	Midland Painted Turtle Special Concern: Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m)[cxlviii] or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. Information Sources • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • Field Naturalist clubs and landowners	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH[l] • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH[cxlviii]. • Travel routes from wetland to nesting area are to be considered within the SWH[cxlix]. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWHMiST[cxlix] Index #28 provides development effects and mitigation measures for turtle nesting habitat.	There are no nesting habitats for turtles within the Study Area.	

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	**ELC Ecosite Codes**	**Habitat Criteria and Information Sources**	**Defining Criteria**	**Study Area**	**Subject Property**
Wildlife Habitat: Seeps and Springs					Not Present	Not Present
<u>Rationale:</u> Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas 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[cxvii, cxlix]. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species[cxix, cxx, cxxi, cxxii, cxiii, cxiv] <u>Information Sources</u> • Topographical Map • Thermography • Hydrological surveys conducted by CAs and MOE • Field naturalists clubs and landowners • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat[cxlviii] • SWHMiST[cxlix] Index #30 provides development effects and mitigation measures	There are no seeps or springs within the Study Area.	
Wildlife Habitat: Amphibian Breeding Habitat (Woodland)					Not Present	Not Present
<u>Rationale:</u> These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	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) >500m^2 (about 25m diameter) [ccvii] within or adjacent (within 120m) to a woodland (no minimum size)[clxxxii, lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx] 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[cxlviii] <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF District • OMNRF wetland evaluations • Field naturalist clubs • Canadian Wildlife Service Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm: • 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)[lxxi] or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys[cviii] will be required during the spring March-June when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the woodland area plus a 230m radius of woodland area[lxiii,lxv, lxvi, lxvii, lxviii, lxix, lxx, lxxi] if a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is the be included in the habitat. • SWHMiST[cxlix] Index #14 provides development effects and mitigation measures.	There are no wetlands, ponds, or woodland pools within the Study Area.	

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Amphibian Breeding Habitat (Wetland)					Not Present	Not Present
Rationale: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Tree frog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	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)[ccvii] 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[clxxxiv]. • 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. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations • Reports and other information available from CAs.	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species and with at least 20 individuals (adults or eggs masses)[lxxi, lxxiii], 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 combination of observational study and call count surveys[cviii] will be required during spring March to June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST[cxlix] Index #15 provides development effects and mitigation measures.	There are no wetlands or ponds within the Study Area.	
Woodland Area-Sensitive Bird Breeding Habitat					Not Present	Not Present
Rationale: Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-Bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Special Concern: Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series: 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.[cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxv, cxxvi, cxxxvii, cxxxviii, cxxxix, cxl, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cl, cli, clii, cliii, cliv, clv, clvii, clviii, clix] • Interior forest habitats are at least 200m from forest edge habitat. Information Sources • Local bird clubs • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to greatest value to interior species • Reports and other information available from CAs.	• Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • SWHMiST[cxlix] Index #34 provides development effects and mitigation measures.	There are no forests habitats suitable for interior forest breeding birds within the Study Area.	

Significant Wildlife Habitat Assessment Tables

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	Wildlife Species	**ELC Ecosites**	**Detailed Information and Sources**	**Defining Criteria**	**Study Area**	**Subject Property**
Wildlife Habitat: Marsh Bird Breeding Habitat					Not Present	Not Present
Rationale: Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Gallinule American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan Special Concern: Black Tern Yellow Rail	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[cxxiv]. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. Information Sources • Contact OMNRF, wetland evaluations are a good source of information. • Field naturalist clubs • Natural Heritage Information Center (NHIC) Records • Reports and other information available from CAs. • Ontario Breeding Bird Atlas[ccv]	Studies confirm: • 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[j]. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH[j]. • Area of the ELC ecosite is the SWH • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi]. • SWHMiST[cxlix] Index #35 provides development effects and mitigation measures	Suitable habitat for marsh birds is not present within the Study Area.	
Wildlife Habitat: Open Country Bird Breeding Habitat					Not Present	Not Present
Rationale: This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Special Concern: Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha [clx, clxi, clxii, clxiii, clxiv, clxv, clxvi, clxvii, clxviii, clxix]. 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)[j]. 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. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Ask local birders • Ontario Breeding Bird Atlas[ccv] • Reports and other information available from CAs.	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owl is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi]. • SWHMiST[cxlix] Index #32 provides development effects and mitigation measures.	Large grasslands, meadows, or cultural fields of suitable size (>30 ha) are not present within the Study Area.	

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	Wildlife Species	**ELC Ecosites**	**Detailed Information and Sources**	**Defining Criteria**	**Study Area**	**Subject Property**
Wildlife Habitat: Shrub/Early Successional Bird Breeding Habitat					Not Present	Not Present
Rationale: This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records cxcix.	Indicator spp.: Brown Thrasher Clay-coloured Sparrow Common spp.: Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher Special Concern: Yellow-breasted Chat Golden-winged Warbler	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[clxiv] in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years)[í]. Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species [clxxiii]. Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. Information Sources • Agricultural land classification maps Ministry of Agriculture Local bird clubs • Ontario Breeding Bird Atlas[ccv] • Reports and other information available from CAs	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species[í]. • A field with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”[ccxi] • SWHMiST[cxlix] Index #33 provides development effects and mitigation measures.	Large early successional fields or large thicket habitats (>10 ha) are not present within the Study Area.	
Wildlife Habitat: Terrestrial Crayfish					Not Present	Not Present
Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.[ccii]	Chimney or Digger Crayfish: (*Fallicambarus fodiens*) Devil Crawfish or Meadow Crayfish: (*Cambarus Diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM	Wet meadow and edges of shallow marshes (no minimum size) identified should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can’t be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. Information Sources • Information sources from “Conservation Status of Freshwater Crayfishes” by Dr. Premek Hamr for the WWF and CNF March 1998	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable marsh meadow or terrestrial sites[cci] • Area of ELC Ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH • Surveys should be done April to August during in temporary or permanent water Note the presence of burrows or chemistry are often the only indicator of presence, observance or collection of individuals is very difficult[cci] • SWHMiST[cxlix] Index #36 provides development effects and mitigation measures.	Given that there are no wetlands within the Study Area, there is no suitable habitat for terrestrial crayfish.	

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	Wildlife Species	**ELC Ecosites**	**Detailed Information and Sources**	**Defining Criteria**	**Study Area**	**Subject Property**
Wildlife Habitat: Special Concern and Rare Wildlife Species					Confirmed	Confirmed
Rationale: These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is 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[lxxviii]. Information Sources • Natural Heritage Information Centre (NHIC) will have the Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC Website: "Get Information": http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas[ccv] • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: • 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 to be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat. • SWHMiST[cxlix] Index #37 provides development effects and mitigation measures.	A number of SCC were identified within the subject property. For more details, refer to the Species at Risk screening table. Eastern Wood-pewee was confirmed using woodlands in the southwest area of the Subject Property.	

Significant Wildlife Habitat Assessment Tables

Table 5. Characteristics of Animal Movement Corridors for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	Wildlife Species	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Amphibian Movement Corridors					Not Present	Not Present
Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1.	Movement corridors between breeding habitat and summer habitat [clxxiv, clxxv, clxxvi, clxxvii, clxxviii, clxxix, clxxx, clxxxi]. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat – Wetland) of this Schedule[i]. Information Sources • MNRF District Office • Natural Heritage Information Center NHIC • Reports and other information available from CAs • Field Naturalist Clubs	• 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. Cooridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant[cxlix]. • Corridors should have at least 15m of vegetation on both sides of waterway [cxlix] or be up to 200m wide[cxlix] of woodland habitat and with gaps <20m [cxlix]. • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat[cxlix]. • SWHMiST[cxlix] Index #40 provides development effects and mitigation measures.	Presence of this SWH type is dependent on the confirmation of Amphibian Breeding Habitat (Wetland) within the Subject Property. Given that there's no candidate Amphibian Breeding Habitat within the Study Area, there is no Amphibian Movement Corridors.	
Wildlife Habitat: Deer Movement Corridors					Not Present	Not Present
Rationale: Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	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 from Table 1.1 of this schedule[i]. • A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion [clxxxii, clxxxiii, cxlix, cxciv]. • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). Information Sources • MNRF District Office • Natural Heritage Information Center (NHIC) • Reports and other information available from CAs • Field Naturalist Clubs	• 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 yard should be unbroken by roads and residential areas. • Corridors should be at least 200m wide[cxlix] with gaps <20m[cxlix] and if following riparian area with at least 15m of vegetation on both sides of waterway[cxlix]. Shorter corridors are more significant than longer corridors[cxlix] • SWHMiST[cxlix] Index #39 provides development effects and mitigation measures.	There is no MNRF-identified deer wintering habitat in the study area (and the woodlot adjacent to the Subject Property is not >100ha in size). Therefore, there is no potential for deer movement corridors.	

Significant Wildlife Habitat Assessment Tables

Table 6. Exceptions for Ecodistricts within Ecoregion 6E.

Rationale	Candidate SWH				Confirmed SWH	Assessment Details	
	Wildlife Habitat and Species	Ecosites	Habitat Description	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Study Area	Subject Property
EcoDistrict: 6E-14						Not Present	Not Present
Rationale: The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracks with mast producing tree species is important for bears. clxxxvi, ccxvii	**Mast Producing Areas** Black Bear	All Forested habitat represented by ELC Community Series: FOM FOD	• Black bears require forested habitat that provides cover, winter hibernation sites, and mast producing tree species. clxxxv, clxxxvii, clxxxviii, clxxxix, cxc, cxci, cxcii, cxciii, ccxvii • Forested habitats need to be large enough to provide cover and protection for black bears ccxvii.	Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech), Information Sources Important forest habitat for black bears may be identified by OMNRF.	• All woodlands > 30 ha with a 50% composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5 • SWHMiST cxlix Index #3 provides development effects and mitigation measures.	The subject property and study area are not in Ecodistrict 6E-14.	

Table 6. Exceptions for Ecodistricts within Ecoregion 6E.

Rationale	Candidate SWH				Confirmed SWH	Assessment Details	
	Wildlife Habitat and Species	Ecosites	Habitat Description	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Study Area	Subject Property
EcoDistrict: 6E-17						Not Present	Not Present
Rationale: Sharp-tailed grouse only occur on Manitoulin Island in Ecoregion 6E, Leks are an important habitat to maintain their population	**Lek** Sharp-tailed Grouse	CUM CUS CUT	• The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topographyccxix. • Leks are typically a grassy field/meadow >15h with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated. ccxix	Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland[ccxix]. • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting[ccxix] Information Sources • OMNRF district office • Bird watching clubs • Local landowners • Ontario Breeding Bird Atlas	Studies confirming lek habitat are to be completed from late March to June. • Any site confirmed with sharp-tailed grouse courtship activities is considered significant • The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat • SWHMiST [cxlix] Index #32 provides development effects and mitigation measures	The subject property and study area are not in Ecodistrict 6E-17.	

Appendix IV
Terms of Reference and Agency Comments

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project #2409

To: Ashley Rye, Resource Planner, GRCA
Gaetanne Kruse, Planning Administrator, Township of Guelph/Eramosa
Curtis Marshall, Manager of Development Planning, Wellington County

CC: Hugh Handy, GSP Group Inc.

From: Jessica Linton, NRSI

Date: April 24, 2020

Re: Eramosa Farms, 8075 Highway #7, Guelph-Eramosa
Environmental Impact Study - Terms of Reference

On behalf of Eramosa Farms Limited, we are pleased to provide the following Terms of Reference (TOR) to prepare an Environmental Impact Study (EIS) in support of Zone Change Application for a proposed development of the property at 8075 Highway #7, in Guelph-Eramosa Township/ Wellington County, Ontario (hereafter referred to as the "Subject Property") (Map 1).

The Subject Property is approximately 33 hectares in size and is characterized primarily by active agricultural land, a house, several old foundcations and a storage yard off Indian Trail. A tributary of Clythe Creek borders the southwestern portion of the property and is currently classified as a cold-water feature. The floodplain area associated with the creek is identified as Core Greenlands in the Wellington County Official Plan (2019) and is regulated by the Grand River Conservation Authority (GRCA). Development Applications to rezone the lands adjacent to these natural features have triggered the requirement of an EIS by the GRCA and County.

The lands are currently zoned as Agriculture and Environmental Protection area According to the Township of Guelph/ Eramosa Zoning By-law (By-law Number 40/2016). According to the County of Wellington Official Plan, the majority of the property is within Rural Employment Area, with creek and floodplain within Core Greendlands.

The following TOR outlines the steps required to complete the EIS for the proposed development in accordance with the *GRCA Environmental Impact Study Guidelines and Submission Standards for Wetlands* (GRCA 2005), and the Wellington County Official Plan (2019).

The work plan for this EIS has been divided into three phases:

1. characterization of on-site features including biological resources,

2. data analysis using the characterization information to identify opportunities and constraints as well as inter-relationships between biological and physical processes, and

3. the impact analysis, and completion of the EIS report.

Phase 1. Characterization of On-Site Features

This component of the study will focus on characterizing the physical and biological characteristics of the Subject Property and adjacent lands. The extent of each study component is described along with the approach to characterization.

Collection and Review of Background Information

NRSI collected existing background information on the biological features for the Subject Property, as well as the area within 120m of the Subject Property ('adjacent lands'; herein referred to as the 'Study Area') from the following sources:

- Government of Canada SARA Registry (2020),
- MNRF Make A Map: Natural Heritage Areas online mapping (MNRF 2014b),
- GRCA – Grand River Conservation Network: Interactive Mapping Tool (2020),
- Ministry of Natural Resources and Forestry (MNRF) Species at Risk List for Wellington County (2018),
- Mapping of a Natural Heritage System in the County of Wellington (GRCA 2018)
- Clythe Creek Subwatershed Study (Ecologistics 1998),
- Clythe Creek, Guelph, Ontario 2007 Temperature Report - Trout Unlimited Canada Technical Report No. ON-03 (Trout Unlimited Canada 2007),
- Significant Plant List for Wellington County (Dougan and Associates. 2009),
- Ontario Breeding Bird Atlas (Cadman et al. 2007),
- Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature 2019),
- Atlas of the Mammals of Ontario (Dobbyn 1994),
- Ontario Butterfly Atlas (MacNaughton et al. 2020),
- Ontario Odonata Atlas (2020),
- Species at Risk fish data (DFO 2019).

In addition, fish data was requested from the Ministry of Natural Resources and Forestry (MNRF), Guelph District for the Study Area.

Species at Risk Screening

Initial wildlife species lists for the area were developed using these background sources and informed a screening exercise to determine the potential for Species at Risk (SAR)

or Species of Conservation Concern (SCC) to occur within or adjacent to the Subject Property. The full results of the SWH screening exercise are included in Appendix I.

SAR are those listed on the Species at Risk in Ontario (SARO) list (MNRF 2020), and include species identified by the Committee on the Status of Species at Risk in Ontario (COSSARO) as provincially Endangered, Threatened, or Special Concern. Regulated SAR refer to species listed as Endangered or Threatened, due to the protection afforded to the species and their habitat under the *Endangered Species Act* (ESA) (Government of Ontario 2007).

SCC includes species that are:

- Designated provincially as Special Concern (MNRF 2020),
- Assigned a conservation status (S-Rank) of S1 to S3 or SH (i.e. critically imperiled, imperiled, vulnerable, or historical) (MNRF 20120),
- Designated federally as Threatened or Endangered by the Committee for the Status of Endangered Wildlife in Canada (COSEWIC) (Government of Canada 2019), but not provincially by the COSSARO. These species are protected by the federal Species at Risk Act (SARA) but not provincially by the ESA.

Significant Wildlife Habitat Screening

A Significant Wildlife Habitat (SWH) screening exercise was completed based on available background information to identify a preliminary list of candidate SWH types which may be present on the Subject Property, and will be assessed through the proposed field program. This review compared site conditions with criteria set in the SWH Ecoregion 6E Criterion Schedule (MNRF 2015) to determine the presence of any candidate SWH. The full results of the SWH screening exercise are included in Appendix II. The results of the SWH screening will inform the surveys required to confirm such habitat. Where surveys to confirm SWH habitat are not being completed (i.e. the candidate SWH is off-property, or outside the proposed development area), the SWH type will be considered candidate SWH in the EIS. All candidate and confirmed SWH will be carried forward into the EIS.

Field Surveys

A two-season (spring and summer) field inventory program was developed to include assessment of on-site and adjacent species and habitats. Inventories of wildlife and vegetation on the Subject Property and adjacent habitats will include the following specific surveys:

- Vegetation Community Mapping
  Vegetation communities including soils on-site will be characterized and mapped following the standardized Ecological Land Classification (ELC) system for southern Ontario (Lee et al. 1998). Details on the vegetation communities will be recorded including species composition, dominance, uncommon species or features.

- Vascular Flora Survey
  A two-season vascular flora survey (spring, and summer) will be conducted within each ELC community. Any rare species identified and their locations will be recorded with a handheld GPS unit.

- Breeding Bird Surveys
  Two breeding bird surveys will be conducted during the peak breeding season (between May 24 and July 10) in accordance with OBBA methods (BSC et al. 2001). Ten-minute point counts and area surveys will be conducted within all habitat types within the Subject Property. NRSI biologists will also look specifically for evidence of nesting by significant bird species (e.g. Barn Swallow). Species will be documented by ELC vegetation community. Standard breeding evidence will be recorded during both early morning surveys. These surveys, along with habitat characterization, will allow for the identification of any SWH present within or adjacent to the Subject Property.

- Snake Surveys
  Old foundations and rock piles on the property have the potential to provide hibernacula for snakes. Early spring surveys, consisting of artificial cover object checks and visual encounter surveys, during the snake emergence period will occur to document use of these areas by local snakes.

- Mammal Surveys
  An assessment of trees ≥10cm DBH, trees or snags within the proposed development area will be undertaken during the leaf-off period to identify suitable maternity roosting habitat for Little Brown Myotis (*Myotis lucifugus*) and Northern Myotis (*Myotis septentrionalis*). If potentially suitable tree species are present, then one more bat habitat survey for Tri-colored Bat (*Perimyotis subflavus*) will be undertaken during the leaf-on period. Bat habitat assessments will follow MNRF protocols (2014a, 2017). All standing live or dead trees ≥10 cm diameter at breast height (DBH) with cracks, crevices, hollows, cavities, and/or loose or naturally exfoliating bark will be documented. The following information will be collected for each identified suitable maternity roost tree:
    - Species;
    - DBH (m);
    - Decay class (Watt & Caceres 1999);
    - Canopy cover (%);
    - Approximate tree height (m); and
    - Roost tree attributes:
        - Number, type, and height of cavities;
        - Presence of loose bark; and
        - Evidence of use by predators or other species.

  If potentially suitable cavities for bat maternity roosting habitat are observed within the development area, then the Ministry of Environment, Conservation and

Parks (MECP) will be consulted to determine what additional surveys, if any, will be required.

The SAR screening identified the potential for American Badger (*Taxidea taxus jacksoni*) to occur in the area. Surveys for badger burrows will be conducted in during site visits in the spring and summer in all representative habitats (fields, woodland edges, hedgerows, and roadsides). If burrows are found, photographs will be taken of the den entrance, den walls, mounds, tracks and scat. Hairs from around den entrances or mounds will also be collected for identification purposes. If a potential den is found, surveys for groundhog burrows within 850 m will also be conducted.

- Aquatic Habitat Characterization
  An Aquatic Biologist from NRSI will complete a habitat characterization in the Clythe Creek tributary in July or August, 2020. This will involve walking upstream through the creek, and recording the following information:

  - Substrate type,
  - Channel geometry including, depth, wetted width, bankfull width, etc.,
  - Water temperature,
  - Dissolved oxygen,
  - pH, conductivity and total dissolved solids,
  - General bank stability,
  - Riparian and aquatic vegetation,
  - Cover type and quality, and
  - Flow conditions.

  Detailed sketches of the assessed reaches will also be made and site photos will be taken.

  In addition, to better characterize the aquatic habitat in the Clythe Creek tributary, NRSI staff will record water temperatures and ambient air temperature, during each site visit.

- Fish Community Assessment
  Electrofishing will also be conducted by NRSI's aquatic biologists in the Clythe Creek tributary to document the fish community that is present. NRSI will apply for a Licence to Collect Fish for Scientific Purposes from the MNRF Guelph District. This permit is required before fish community sampling can be conducted. The Ontario Stream Assessment Protocol (OSAP) (Stanfield 2017) standard single pass method will be utilized.

- Incidental Wildlife

In addition to the targeted surveys noted above, all wildlife species observations will be recorded during field surveys. This includes direct observations, as well as signs such as dens, tracks, scats, etc.

Phase 2. Data Analysis

The findings of the background information collection and review will be compiled with the data collected during the field program to provide a characterization of the existing natural environment conditions. This will be presented in report form which will include text, mapping, and relevant appendices (e.g. wildlife species lists & ELC data cards).

Significant biological features will be identified based on current species and habitat status listings. This includes national, provincial, regional and local rarity. As well, the significance of species and habitats will be documented based on current ecological trends, research and professional experience/expertise, and the SWH Criteria Schedules for Ecoregion 6E (MNR 2000, MNRF 2015) as well as input from local agency staff.

The integrated database and mapping of natural features and functions within the area will form the basis of the analysis of opportunities and constraints and will identify the limit of development from a natural heritage perspective.

Implications of natural features based on current Policies and regulations will be identified, including the County of Wellington Official Plan (2019), GRCA Regulation 150/06 (GRCA 2015), the Provincial Policy Statement (MMAH 2005) and the *Endangered Species Act* (2007). The targets and recommendations provided in the Clythe Creek Subwatershed Study (Ecologistics 1998) will also be considered.

Phase 3. Impact Analysis and EIS Report

The proposed development, including details related to the layout of lots, roads, servicing, stormwater management, grading and any other components of the development, will be reviewed and compared to the existing conditions within and adjacent to the Subject Property.

NRSI will work closely with the project team to develop a detailed layout for the proposed development that minimizes the impacts on significant and sensitive natural features in the Subject Property and adjacent lands. A buffer analysis will be included within the impact assessment.

Utilizing information from the background review and findings from other relevant original field studies, NRSI will discuss the following impacts as a result of the proposed development:

- Direct impacts associated with disruption or displacement caused by the actual proposed 'footprint' of the undertaking.

- Indirect impacts associated with changes in site conditions such as drainage and water quantity/quality.
- Induced impacts associated with impacts after the development is constructed such as subsequent demand on the resources created by habitation/use of the area and vicinity.

Each of these impact types will be considered during and after construction and are described further below:

Direct Impacts

The approach to identifying and delineating constraint areas, discussed above, will be used to avoid direct impacts from the development on important natural features. The delineation of natural features, with buffers will be provided to the study team to assist in determining the layout of the proposed development. Any overlaps will be identified and addressed.

Indirect Impacts

The approach to assessing the potential for indirect impacts will include an integrated analysis of proposed management of the natural features on the Subject Property in conjunction with neighbouring lands. For the purposes of identifying potential indirect impacts, the analysis will be divided into the following:

- Sediment and erosion

  This section will focus on examining potential impacts associated with stormwater management. Sediment control measures will be identified to protect natural habitats during development.

- Changes to groundwater and surface water flow patterns

  This section of the impact analysis will focus on the potential changes to the flow patterns and quantity of groundwater and surface water flows that currently supply the watercourses and wetlands in the Study Area. This analysis will be based on a water balance produced by hydrogeologists on the study team.

- Changes to groundwater and surface water quality

  This section of the impact analysis will focus on examining potential impacts associated with stormwater management, particularly water quality. Recommendations for a salt management plan will be provided.

- Indirect Impacts to Wildlife

  Indirect impacts to wildlife will focus on the construction phase of the project (e.g. dust, noise, vegetation removal, etc.).

Induced Impacts

Induced impacts are described as those that are not directly related to the construction or operation of the facilities in question, but rather arise as a result of the use of the natural areas as a result of the development. In this case, potential induced impacts

could include increased use of natural areas by residents, the introduction of domestic wildlife to natural areas, unauthorized trail/pathway construction, etc.

Reporting

The findings of the characterization and the impact analysis will be prepared in a written EIS report. The report will be formatted to be consistent with County and GRCA guidelines and will include appendices, such as species lists and figures including the location of the project area, existing natural environment conditions and proposed undertaking. The final EIS report will also include a comprehensive review of relevant natural heritage policies and how these apply to the proposed development. The report will be submitted to the authorities for review.

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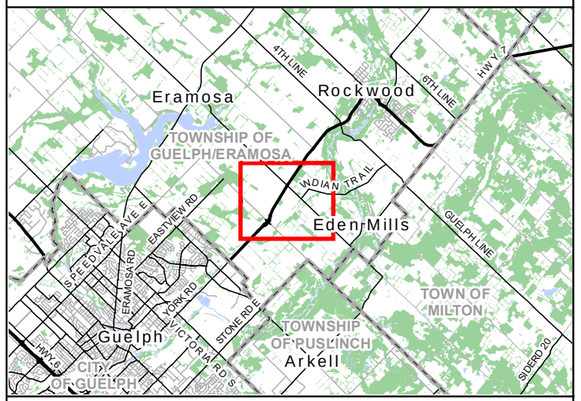
Map 1

Eramosa Farms EIS

Background Information



565000 565500 566000 566500 567000 567500

4827000 4826500 4826000 4825500 4825000

Eramosa River Blue Springs Creek Wetland Complex

ERAMOSA RIVER

HWY 7

INDIAN TRAIL

70714139

JONES BASELINE

Guelph Northeast Wetland Complex

70714136

Clythe Creek Wetland Complex

Clythe Creek

WELLINGTON ROAD 29

Legend

- Subject Property
- Highway
- Primary Road
- Secondary Road
- Resource / Recreation / Other
- Railway
- Intermittent Watercourse
- Permanent Watercourse
- Water Body
- Provincially Significant Wetland (PSW)
- Unevaluated Wetland
- Floodplain (GRCA)
- Regulation Limit (GRCA)
- Wooded Area
- Deer Wintering Area (Stratum 2)
- Natural Heritate System

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 2409
Date: April 27, 2020

NAD83 - UTM Zone 17
Size: 11x17"
1:10,000

0 200 400 600 Metres

N

Path: X:\2409_EramosaFarms_EIS\NRSI_2409_Map1_BackgroundInformation_10K_2020_04_27_KEF.mxd

Appendix I
Species at Risk Screening Table

Species at Risk and Species of Conservation Concern Screening

Scientific Name	Common Name	S-Rank[1]	COSSARO[2]	COSEWIC[3]	SARA[4]	Background Source	Habitat Preference [2,3,5,6,7,8,9,10,11,12]	Suitable Habitat Present within Study Area: Rationale	Suitable Habitat Within Study Area
Plants									
Castanea dentata	American Chestnut	S1S2	END	E	Schedule 1	MNRF 2018	Moist to well drained forests on sand, occasionally heavy soils.	There are no forests within the Study Area which may provide suitable habitat for this species.	No
Juglans cinerea	Butternut	S2?	END	E	Schedule 1	MNRF 2018	Generally grows in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows.	The Study Area may provide suitable habitat for this species.	Yes
Panax quinquefolius	American Ginseng	S2	END	E	Schdule 1	MNRF 2018	Deep leaf litter in rich, moist deciduous woods, especially on rocky, shaded cool slopes in sweet soil.	There are no forests within the Study Area which may provide suitable habitat for this species.	No
Potamogeton hillii	Hill's Pondweed	S2	SC	SC	Schedule 1	MNRF 2018	Hill's Pondweed is found in slow-moving streams, ditches, ponds, lakes and wetlands. It grows in clear, cold alkaline waters.	This species could be present within the adjacent tributary of Clythe Creek.	Yes
Birds									
Empidonax virescens	Acadian Flycatcher	S2S3B	END	E	Schedule 1	MNRF 2018	Mature, shady, deciduous forests; heavily wooded ravines; creek bottoms or river swamps; availability of good quality habitat is limiting factor; needs at least 30 ha of forest.	There are no forests within the Study Area which may provide suitable habitat for this species.	No
Haliaeetus leucocephalus	Bald Eagle	S2N, S4B	SC	NAR	-	MNRF 2018	Require large continuous area of deciduous or mixed woods around large lakes, rivers; require area of 255 ha for nesting, shelter, feeding, roosting; prefer open woods with 30 to 50% canopy cover; nest in tall trees 50 to 200 m from shore; require tall, dead, partially dead trees within 400 m of nest for perching. Bald Eagles nest in a variety of habitats and forest types, almost always near a major lake or river where they do most of their hunting.They usually nest in large trees such as pine and poplar.	The Study Area is not within proximity of a large lake or river and there are no large areas of deciduous or mixed woods.	No
Riparia riparia	Bank Swallow	S4B	THR	T	Schedule 1	Cadman et al. 2007, MNRF 2018	Sand, clay or gravel river banks or steep riverbank cliffs; lakeshore bluffs of easily crumbled sand or gravel; gravel pits, road-cuts, grassland or cultivated fields that are close to water; nesting sites are limiting factor for species presence.	There are no sand, clay or gravel river banks or steep riverbank cliffs within the Study Area.	No
Tyto alba	Barn Owl	S1	END	E	Schedule 1	MNRF 2018	Open areas such as fields, agricultural lands with scattered woodlots, buildings and/or orchards; grasslands, sedge meadows, marshes; snow-cover limits ability to catch prey; species has intolerance to severe cold; nests in hollow trees and live trees >46 cm dbh; also nests in barns, abandoned buildings.	Although, the open fields could provide suitable foraging habitat, while treed area may provide suitable nesting habitat, there are only a handful of breeding pairs in Ontario, none of which are in Wellington County. The presence of this species within the subject property is therefore considered very unlikely.	No
Hirundo rustica	Barn Swallow	S4B	THR	T	Schedule 1	Cadman et al. 2007, MNRF 2018	Farmlands or rural areas; cliffs, caves, rock niches; buildings or other man-made structures for nesting; open country near body of water.	Suitable habitat for this species may be present within the Study Area.	Yes
Chlidonias niger	Black Tern	S3B	SC	NAR	-	MNRF 2018	Black Terns build floating nests in loose colonies in shallow marshes, coastal or inland marshes; large cattail marshes, marshy edges of rivers, lakes or ponds, wet open fens, wet meadows; returns to same area to nest each year in loose colonies; must have shallow (0.5 to 1 m deep) water and areas of open water near nests; requires marshes >20 ha in size; feeds over adjacent grasslands for insects; also feeds on fish, crayfish and frogs.	There are no marshes large enough within the Study Area to provide suitable habitat for this species.	No
Dolichonyx oryzivorus	Bobolink	S4B	THR	T	Schedule 1	Cadman et al. 2007, MNRF 2018	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 ha.	There are no large, open, expansive grasslands within the Study Area suitable for this species.	No

Scientific Name	Common Name	S-Rank[1]	COSSARO[2]	COSEWIC[3]	SARA[4]	Background Source	Habitat Preference [2,3,5,6,7,8,9,10,11,12]	Suitable Habitat Present within Study Area: Rationale	Suitable Habitat Within Study Area
Cardellina canadensis	Canada Warbler	S4B	SC	T	Schedule 1	MNRF 2018	Canada Warblers breed in mixed conifer and deciduous forest with a shrubby and mossy understory often near water. They frequent aspen and popular forests in Canada, and forested wetlands in the central part of their range. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest.	Suitable forest habitat, with a shrubby and mossy understory is not present within the Study Area.	No
Setophaga cerulea	Cerulean Warbler	S3B	THR	E	Schedule 1	MNRF 2018	Mature deciduous woodland of Great Lakes- St. Lawrence and Carolinian forests, sometimes coniferous; swamps or bottomlands with large trees; area sensitive species needing extensive areas of forest (>100 ha)	There are no forests within the Study Area which may provide suitable habitat for this species.	No
Chaetura pelagica	Chimney Swift	S4B,S4N	THR	T	Schedule 1	Cadman et al. 2007, MNRF 2018	Nest on cave walls and in hollow trees or tree cavities in old growth forests. Also likely to be found in and around urban settlements where they nest and roost (rest or sleep) in chimneys and other manmade structures. They also tend to stay close to water as this is where the flying insects they eat congregate.	There are no structures with suitable chimneys for nesting by this species within the Study Area.	No
Chordeiles minor	Common Nighthawk	S4B	SC	T	Schedule 1	MNRF 2018	Generally prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops).	There is no suitable vegetation-free habitat within the Study Area suitable for this species. There is one gravel parking lot on the NW side of the Subject Property, however, as an active parking lot it is not suitable habitat.	No
Sturnella magna	Eastern Meadowlark	S4B	THR	T	Schedule 1	Cadman et al. 2007, MNRF 2018	Open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas >10 ha in size.	There are no large, open, expansive grasslands within the Study Area suitable for this species.	No
Caprimulgus vociferus	Eastern Whip-poor-will	S4B	THR	T	Schedule 1	MNRF 2018	Dry, open, deciduous woodlands of small to medium trees; oak or beech with lots of clearings and shaded leaflitter; wooded edges, forest clearings with little herbaceous growth; pine plantations; associated with >100 ha forests; may require 500 to 1000 ha to maintain population.	There are no forests within the Study Area which may provide suitable habitat for this species.	No
Contopus virens	Eastern Wood-Pewee	S4B	SC	SC	Schedule 1	Cadman et al. 2007, MNRF 2018	Lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age mature forest stands with little understory vegetation.	Forests within the Study Area, and hedgerows within the Subject Property, may provide suitable habitat for this species.	Yes
Vermivora chrysoptera	Golden-winged Warbler	S4B	SC	T	Schedule 1	MNRF 2018	Generally prefer areas of early successional vegetation, found primarily on field edges, hydro or utility right-of-ways, or recently logged areas.	Although there are field edges, there are no large areas of early sucessional vegetation within the Study Area.	No
Ammodramus savann	Grasshopper Sparrow	S4B	SC	SC	-	Cadman et al. 2007	Lives in open grassland areas with well-drained, sandy soil. It will also nest in hayfields and pasture, as well as alvars, prairies and occasionally grain crops such as barley. It prefers areas that are sparsely vegetated.	There are no large, open, expansive grasslands within the Study Area suitable for this species.	No
Ammodramus henslowii	Henslow's Sparrow	SHB	END	E	Schedule 1	MNRF 2018	It has been found in abandoned farm fields, pastures, and wet meadows. It tends to avoid fields that have been grazed or are crowded with trees and shrubs. It prefers extensive, dense, tall grasslands where it can more easily conceal its small ground nest.	There are no large, open, expansive pastures or wet meadows within the Study Area suitable for this species.	No
Ixobrychus exilis	Least Bittern	S4B	THR	T	Schedule 1	Cadman et al. 2007, MNRF 2018	Generally located near pools of open water in relatively large marshes and swamps that are dominated by cattail and other robust emergent plants.	The Clythe Creek PSW complex may provide suitable habitat for this species, however it is more than 120m away from the Subject Property.	No
Lanius ludovicianus	Loggerhead Shrike	S2B	END	E	Schedule 1	MNRF 2018	Prefers pasture or other grasslands with scattered low trees and shrubs. It lives in fields or alvars (areas of exposed bedrock) with short grass, which makes it easier to spot prey.	There are no large pastures or grasslands with scattered shrubs within the Study Area suitable for this species.	No
Parkesia motacilla	Louisiana Waterthrush	S3B	THR	T	Schedule 1	MNRF 2018	Prefers wooded ravines with running streams; also woodlands swamps; large tracts of mature deciduous or mixed forests; canopy cover is essential; has strong affinity to nest sites; nests on ground.	There are no wooded ravines along running streams, or woodland swamps within the Study Area suitable for this species.	No

Scientific Name	Common Name	S-Rank[1]	COSSARO[2]	COSEWIC[3]	SARA[4]	Background Source	Habitat Preference [2,3,5,6,7,8,9,10,11,12]	Suitable Habitat Present within Study Area: Rationale	Suitable Habitat Within Study Area
Colinus virginianus	Northern Bobwhite	S1	END	E	Schedule 1	MNRF 2018	Grassland, prairie or hay fields with woody cover in form of thickets, tangles of vines, shrubs; fence rows or woodland edges; cropland growing corn, soybeans or small grains and clover or grass; well-drained sandy or loamy soil; pond edges.	The corn fields within the Study Area may provide suitable habitat for this species.	Yes
Contopus cooperi	Olive-sided Flycatcher	S4B	SC	T	Schedule 1	MNRF 2018	Semi-open, conifer forest, prefers spruce; near pond, lake or river	There is no suitable coniferous forest for this species within the Study Area.	No
Melanerpes erythrocephalus	Red-headed Woodpecker	S4B	SC	T	Schedule 1	Cadman et al. 2007, MNRF 2018	Open, deciduous forest with little understory; fields or pasture lands with scattered large trees; wooded swamps; orchards, small woodlots or forest edges; groves of dead or dying trees; requires cavity trees with at least 40 cm dbh; require about 4 ha for a territory.	Woodlots and woodlot edges within the Study Area may provide suitable habitat for this species.	Yes
Asio flammeus	Short-eared Owl	S2N, S4B	SC	SC	Schedule 1	MNRF 2018	Grasslands, open areas or meadows that are grassy or bushy; marshes, bogs or tundra; both diurnal and nocturnal habits; ground nester; destruction of wetlands by drainage for agriculture is an important factor in the decline of this species; home range 25 -125 ha; requires 75-100 ha of contiguous open habitat.	There are no suitable marsh and grasslands habitat for this species present within the Study Area.	No
Hylocichla mustelina	Wood Thrush	S4B	SC	T	Schedule 1	Cadman et al. 2007, MNRF 2018	Mature deciduous and mixed forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing perches. These birds prefer large forests, but will also use smaller stands of trees. They build their nests in living saplings, trees or shrubs, usually in sugar maple or American beech.	Woodlots and woodlot edges within the Study Area may provide suitable habitat for this species.	Yes
Icteria virens	Yellow-breasted Chat	S2B	END	E	Schedule 1	MNRF 2018	Dense thickets around wood edges, riparian areas, tall tangles of shrubbery beside streams, ponds; overgrown bushy clearings with deciduous thickets; nests above ground in bush, vines etc. The Ontario population is very dependent on successional habitats of thick shrubbery.	Dense thickets, and shrubbery beside ponds and wetlands are not present in the Study Area.	No
Herpetofauna									
Emydoidea blandingii	Blanding's Turtle (Great Lakes / St. Lawrence population)	S3	THR	END	Schedule 1	MNRF 2018, Ontario Nature 2019	Shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft muddy bottoms and aquatic vegetation; basks on logs, stumps, or banks; surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats; hibernates in bogs; not readily observed.	There are no wetlands within the Study Area may provide suitable habitat for this species. The Clythe Creek PSW complex may provide suitable habitat for this species, however it is more than 120m away from the Subject Property.	No
Thamnophis butleri	Butler's Gartersnake	S2	END	E	Schedule 1	MNRF 2018	Open, moist habitats, such as dense grasslands and old fields, with small wetlands where it can feed on leeches and earthworms. Burrows made by small mammals and even crayfish are sometimes used as hibernation sites, called hibernacula. This species is also commonly found in rock piles or old stonewalls.	Suitable habitat exists within the study area; however, there are no known occurrences of Butler's Gartersnake from the Guelph area (the closest observations are in Luther Marsh ~60km to the north).	No
Thamnophis sauritus	Northern Ribbonsnake (Great Lakes population)	S4	SC	SC	Schedule 1	MNRF 2018, Ontario Nature 2019	Sunny grassy areas with low dense vegetation near bodies of shallow permanent quiet water; wet meadows grassy marshes or sphagnum bogs; borders of ponds, lakes or streams; hibernates in groups.	There are no wetlands within the Study Area may provide suitable habitat for this species. The Clythe Creek PSW complex may provide suitable habitat for this species, however it is more than 120m away from the Subject Property.	No
Ambystoma jeffersonianum	Jefferson Salamander	S2	END	E	Schedule 1	MNRF 2018	Damp shady deciduous forest, swamps, moist pasture, lakeshores; temporary woodland pools for breeding; hides under leaf litter, stones or in decomposing logs.	The are no woodlands within the Study Area that would be suitable for this species.	No
Sistrurus catenatus catenatus pop. 1	Massasauga (*Great Lakes/St. Lawrence population*)	S3	THR	T	Schedule 1	MNRF 2018	Use upland, old field in summer; marsh, shrub swamp or bog; rivers and streams that provide sedge or low vegetative growth; in fall and winter; hibernate underground in mammal burrows, under rotting stumps, in rock crevices	There have been no recent (within the last 20 years) observations of Massasauga within Wellington County (the last observation recorded in Wellington County was in 1949).	No

Scientific Name	Common Name	S-Rank[1]	COSSARO[2]	COSEWIC[3]	SARA[4]	Background Source	Habitat Preference [2,3,5,6,7,8,9,10,11,12]	Suitable Habitat Present within Study Area: Rationale	Suitable Habitat Within Study Area
Graptemys geographica	Northern Map Turtle	S3	SC	SC	Schedule 1	Ontario Nature 2019	Rivers and lakeshores where it basks on emergent rocks and fallen trees throughout the spring and summer. In winter, the turtles hibernate on the bottom of deep, slow-moving sections of river. They require high-quality water that supports the female's mollusc prey. Their habitat must contain suitable basking sites, such as rocks and deadheads, with an unobstructed view from which a turtle can drop immediately into the water if startled.	There are no rivers or lakes suitable for this species within the Study Area.	No
Chelydra serpentina serpentina	Snapping Turtle	S3	SC	SC	Schedule 1	MNRF 2018, Ontario Nature 2019	Permanent or semi-permanent fresh water; marshes, swamps or bogs; rivers and streams with soft muddybanks or bottoms. The species often uses soft soil or clean dry sand on south-facing slopes for nest sites and may nest at some distance from water.	There are no wetlands within the Study Area may provide suitable habitat for this species. The Clythe Creek PSW complex may provide suitable habitat for this species, however it is more than 120m away from the Subject Property.	No
Ambystoma laterale - (2) *jeffersonianum*	Unisexual *Ambystoma* Jefferson dependent population	S2	END	E	Schedule 1	MNRF 2018	Damp shady deciduous forest, swamps, moist pasture, lakeshores; temporary woodland pools for breeding; hides under leaf litter, stones or in decomposing logs	The are no woodlands within the Study Area that would be suitable for this species.	No
Mammals									
Taxidea taxus jacksoni	American Badger	S1	END	E	Schedule 1	Dobbyn 1994	Open grasslands and oak savannahs; dens in new hole or enlarged existing hole; sometimes makes food caches.	Suitable habitat for this species may be present in fields and forest edges throughout the Study Area.	Yes
Myotis leibii	Eastern Small-footed Myotis	S2S3	END	-	-	Dobbyn 1994, MNRF 2018	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: primarily under loose rocks on exposed rock outcrops, crevices and cliffs, and occasionally in buildings, under bridges and highway overpasses and under tree bark.	Trees present within the subject property may provide suitable roosting habitat. No potential hibernation sites are present.	Yes
Urocyon cinereoargen	Gray Fox	S1	THR	T	Schedule 1	MNRF 2018	Deciduous forests with a mix of fields and woods; swamps; wooded, brushy or rocky habitats; woodland farmland edge; old fields with thickets; dens in hollow log or tree; individual has numerous winter dens throughout its range which is > 40 ha	This species is presently reported from only two locations in Ontario: one population is located near Pelee Island and one is near the Rainy River District west of Lake Superior. The presence of this species within the subject property is therefore considered very unlikely.	No
Myotis lucifungus	Little Brown Myotis	S4	END	E	Schedule 1	Dobbyn 1994, MNRF 2018	Caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges.	Trees present within the subject property may provide suitable roosting habitat. No potential hibernation sites are present.	Yes
Myotis septentrionalis	Northern Myotis	S3	END	E	Schedule 1	Dobbyn 1994, MNRF 2018	Northern Myotis roosts within tree crevices, hollows and under the bark of live and dead trees, particularly when trees are located within a forest gap.	Trees present within the subject property may provide suitable roosting habitat. No potential hibernation sites are present.	Yes
Perimyotis subflavus	Tri-coloured Bat	S3?	END	E	Schedule 1	Dobbyn 1994, MNRF 2018	Open woods near water; roosts in trees, cliff crevices, buildings or caves; hibernates in damp, draft-free, warm caves, mines or rock crevices.	Trees present within the subject property may provide suitable roosting habitat. No potential hibernation sites are present.	Yes
Microtus pinetorum	Woodland Vole	S3?	SC	SC	Schedule 1	Dobbyn 1994	Mature deciduous forest in the Carolinian forest zone, with loose sandy soil and deep humus; grasslands, meadows and orchards with groundcover of duff or grass	There are no deciduous forests, grasslands, meadows, or orchards within the Study Area suitable for this species.	No
Fish									
Moxostoma duquesnei	Black Redhorse	S2	THR	T	-	MNRF 2018	The Black Redhorse lives in pools and riffle areas of medium-sized rivers and streams that are usually less than two metres deep. These rivers usually have few aquatic plants, a moderate to fast current, and a sandy or gravel bottom. In the spring, it migrates to breeding habitat where eggs are laid on gravel in fast water. The winter is spent in deeper pools.	There are no medium-sized rivers or streams within the Study Area.	No
Clinostomus elongatus	Redside Dace	S2	END	E	Schedule 1	MNRF 2018	The Redside dace is found in pools and slow-moving areas of small streams and headwaters with a gravel bottom. They are generally found in areas with overhanging grasses and shrubs, and can leap up to 10 cm out of the water to catch insects. During spawning, they can be found in shallow parts of streams, which are also popular spawning areas for other minnow species.	There are no small streams present in the Study Area.	No

Scientific Name	Common Name	S-Rank[1]	COSSARO[2]	COSEWIC[3]	SARA[4]	Background Source	Habitat Preference [2,3,5,6,7,8,9,10,11,12]	Suitable Habitat Present within Study Area: Rationale	Suitable Habitat Within Study Area
Notropis photogenis	Silver Shiner	S2S3	THR	T	Schedule 3	MNRF 2018	Silver shiners prefer moderate to large size streams with swift currents that are free of weeds and have clean gravel or boulder bottoms. They live in schools and feed on crustaceans and adult flies that fall in the water or fly just above the surface. In June or July, they spawn by scattering their eggs over gravel riffles.	There are no large streams present in the Study Area.	No
Mussels									
Lampsilis fasciola	Wavy-rayed Lampmussel	S1	THR	SC	Schedule 1	MNRF 2018	The Wavy-rayed lampmussel is usually found in small to medium rivers with clear water. It lives in shallow riffle areas with clean gravel or sand bottoms. The Wavy-rayed lampmussel's fish hosts are the Largemouth bass and Smallmouth bass.	There are no small to meium rivers present in the Study Area.	No
Butterflies									
Danaus plexippus	Monarch Butterfly	S2N, S4B	SC	E	Schedule 1	MNRF 2018, MacNaughton et al 2020	Monarch caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers.	Open areas with milkweed may be present within Study Area.	Yes
Pieris virginiensis	West Virginia White	S3	SC	-	-	MNRF 2018, MacNaughton et al 2020	Generally prefer moist, deciduous woodlands. The larvae feed only on the leaves of the two-leaved toothwort (Cardamine diphylla), which is a small, spring-blooming plant of the forest floor. It avoids edges and open fields in fragmented landscapes.	The are no moist, deciduous woodlands within the Study Area may provide suitable habitat for this species.	No
Odonates									
Calopteryx aequabilis	River Jewelwing	S2	-	-	-	OOAD 2020	Found at clear streams of all sizes and rivers with moderate current. Can be common in places on rather tiny wooded streams, as long as there is some sun penetration. Also seen at rocky shores of large lakes in some areas.	There are no streams or rivers within the Study Area.	No
Aeshna clepsydra	Mottled Darner	S3	-	-	-	OOAD 2020	Found at shallow bays of large lakes, marshes and bogs with open water, and small, clear lakes with emergent vegetation, usually with water lilies.	There are no shallow bays, large lakes, marshes, bogs, etc. within the Study Area.	No
Phanogomphus descriptus	Harpoon Clubtail	S3	-	-	-	OOAD 2020	Clear or sandy-bottom streams with silt-bottomed pools.	There are no streams within the Study Area.	No
Helocordulia uhleri	Uhler's Sundragon	S3	-	-	-	OOAD 2020	Typically near small streams in forests, sometimes lakes.	There are no streams within the Study Area.	No
Somatochlora tenebrosa	Clamp-tipped Emerald	S2S3	-	-	-	OOAD 2020	Shaded streams.	There are no streams within the Study Area.	No
Libellula semifasciata	Painted Skimmer	S2	-	-	-	OOAD 2020	Marshy ponds near woodlands, most common in coastal plain.	There are no marshy ponds within the Study Area.	No
Other Insects									
Bombus affinis	Rusty-patched Bumble Bee	S1	END	E	Schedule 1	MNRF 2018	Open habitat such as mixed farmland, urban settings, savannah, open woods and sand dunes. The most recent sightings have been in oak savannah, which contains both woodland and grassland flora and fauna.	Some potentially suitable open habitat exists in the Study Area, however the only recent observations in Ontario were in the Pinery Provincial Park in 2002, so it is highly unlikely.	No

[1]MNRF 2016a, [2]MNRF 2017a, [3]Governnent of Canada 2017, [4]OMNR 2000, [5]Oldham and Brinker 2009, [6]Reznicek et al. 2011, [7]IUCN 2009, [8]Wisconsin Odonata Survey 2020, [9]Dunkle 2000, [10]Bugguide 2011

Appendix II
Significant Wildlife Habitat Screening Table

Significant Wildlife Habitat Assessment Tables

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Raptor Wintering Area					
Rational: Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Special Concern: Short-eared Owl Bald Eagle	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class: Forest: FOD, FOM, FOC Upland: CUM, CUT, CUS, CUW	The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Raptor wintering sites need to be > 20 ha[cxlviii, cxlix] with a combination of forest and upland.[xvi, xvii, xviii, xix, xx, xxi] Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands[cxlix] Field area of the habitat is to be wind swept with limited snow depth or accumulation. Eagle sites have open water, large trees and snags available for roosting Information Sources • OMNRF Ecologist or Biologist • Field Natural Clubs • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Reports and other information available from Conservation Authorities CAs.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two listed hawk/owl species • To be significant a site must be used regularly (3 in 5 years)[cxlix] for a minimum of 20 days by the above number of birds • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMiST[cxlix] Index #10 and #11 provides development effects and mitigation measures.	Suitably-sized areas (>20ha) with a combination of fields and woodlands are present within the Study Area. **Candidate SWH**
Wildlife Habitat: Bat Maternity Colonies					
Rationale: Known locations of forested bat maternity colonies is extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	Maternity colonies can be found in tree cavities, vegetation and often in buildings[xxii, xxv, xxvi, xxvii, xxxi] (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario[xxii] • Maternity colonies located in Mature deciduous or mixed forest stands[ccix, ccx] with >10/ha large diameter (>25cm dbh) wildlife trees[ccvii] • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3[ccxiv] or class 1 or 2[ccxii] • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred[ccx] Information Sources • OMNRF for possible locations and contact for local experts • University Biology Departments with bat experts.	• Maternity Colonies with confirmed use by: • >10 Big Brown Bats • >5 Adult Female Silver-haired Bats • The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for wind Power Projects[ccv] • SWHMiS T[cxlix] Index #12 provides development effects and mitigation measures.	Cavity trees that may provide suitable maternity habitat for bats could be present within the Study Area. **Candidate SWH**

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Turtle Wintering Area					
Rationale: Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant	Midland Painted Turtle Special Concern: Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles - ELC Community Classes: SW, MA, OA and SA; ELC Community Series: FEO and BOO Northern Map Turtle - Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	For most turtles, 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[cix, cx, cxi, cxviii]. • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. Information Sources • EIS studies carried out by Conservation Authorities. • Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • OMNRF ecologist or biologist • Natural Heritage Information Center (NHIC)	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May)[cvii] • Congregation of turtles is more common where wintering areas are limited and therefore significant[cix, cx, cxi, cxii]. • SWHMiST[cxlix] Index #28 provides development effects and mitigation measures for turtle	There is no suitable overwintering habitat for turtles within the Study Area. **Not SWH**
Wildlife Habitat: Snake Hibernaculum					
Rationale: Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant	Snakes: Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Special Concern: Eastern Ribbonsnake Lizard: Special Concern (Southern Shield population): Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats. Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations. The existence of features that go below the 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[xliv, l, li, lii, cxii]. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures cciii. Information Sources • In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). • Reports and other information from CAs. • Local Field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. clubs • Natural Heritage Information Center (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). • Note: If there are Special Concern Species present, then site is SWH • Note: Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population [i.e. strong hibernation site fidelity]. Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30m buffer is the SWH[l] • SWHMiST[cxlix] Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • SWHMiST[cxlix] Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	Suitable snake hibernaculum features, such as old foundations and rock piles, exist on the Subject Property. **Candidate SWH**

Significant Wildlife Habitat Assessment Tables

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

Rare Vegetation Community[1]	Candidate SWH			Confirmed SWH	Study Area
	ELC Ecosite Codes[1]	Habitat Description[1]	Detailed Information and Sources[1]	Defining Criteria[1]	Assessment Details
Cliff and Talus Slopes					
Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: 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. Information Sources • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF District • Natural Heritage Information Center (NHIC) has location information on their website • Local naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes[lxxviii] • SWHMiST[cxlix] Index #21 provides development effects and mitigation measures.	No cliff or talus slopes within the Study Area. **Not SWH**
Sand Barrens					
Rationale: Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry.	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always <60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. 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%.	Any sand barren area, >0.5ha in size. Information Sources • OMNRF Districts. • Natural Heritage Information Center (NHIC) has location information on their website • Field naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens[lxxviii] • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics)[l]. • SWHMiST[cxlix] Index #20 provides development effects and mitigation measures.	No sand barrens within the Study Area. **Not SWH**
Alvar					
Rationale: Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregion 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 Five Alvar Indicator Species: 1) Carex crawei 2) Panicum philadelphicum 3) Eleochairs compressa 4) Scutellaria parvula 5) Trichostema branchiatum These indicator species are very specific to Alvars within Ecoregion	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 plant. Undisturbed alvars can be phyto- and zoo geographically 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[lxxviii].	An Alvar site > 0.5 ha in size[lxxv]. Information Sources • Alvars of Ontario (2000), Federation of Ontario Naturalists[lxxvi]. • Ontario Nature – Conserving Great Lakes Alvars[ccviii]. • Natural Heritage Information Center (NHIC) has location information on their website • Field Naturalist clubs • Conservation Authorities	Field studies identify four of the five Alvar indicator species[lxxv, cxlix] at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotics sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses[lxxv]. • SWHMiST[cxlix] Index #17 provides development effects and mitigation measures.	No alvars within the Study Area. **Not SWH**

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

Rare Vegetation Community[1]	Candidate SWH			Confirmed SWH	Study Area
	ELC Ecosite Codes[1]	Habitat Description[1]	Detailed Information and Sources[1]	Defining Criteria[1]	Assessment Details
Old Growth Forest					
Rationale: Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Woodland Stands areas 30ha or greater in size or with at least 10 ha interior habitat assuming 100m buffer at edge of forest Í. Information Sources • OMNRF Forest Resource Inventory mapping • OMNRF Forester, Ecologist or Biologist • Field Local naturalist clubs • Conservation Authorities • Sustainable Forestry License (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species of the ecosite are >140 years old, then stand is Significant Wildlife Habitat[cxlviii] • The stand will have experienced no recognizable forestry activities[cxlviii] • The area of Forest Ecosites combined to make up the stand is the SWH. • Determine ELC Vegetation Type for forest stand[lxxviii] • SWHDSS[cxlix] Index #23 provides development effects and mitigation measures.	No large old growth woodlots within the Study Area. **Not SWH**
Savannah					
Rationale: Savannahs are extremely rare habitats in Ontario.	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. Information Sources • Natural Heritage Information Center (NHIC) has location information on their website • OMNRF Ecologists • Field naturalists clubs • Conservation Authorities	Field studies confirm one or more of the Savannah indicator species listed in[lxxv] Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used[cxlviii]. • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics sp.). • SWHMiST[cxlix] Index #18 provides development effects and mitigation measures.	No savannahs within the Study Area. **Not SWH**
Tallgrass Prairie					
Rationale: Tallgrass Prairies are extremely rare habitats in Ontario.	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. Information Sources • OMNR Districts • Natural Heritage Information Center (NHIC) has location information available on their website • Field naturalists clubs • Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in[lxxv] Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used[cxlviii]. • Area of the ELC Ecosite is the SWH • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • SWHMiST[cxlix] Index #19 provides development effects and mitigation measures.	No tallgrass prairie within the Study Area. **Not SWH**

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

Rare Vegetation Community[1]	Candidate SWH			Confirmed SWH	Study Area
	ELC Ecosite Codes[1]	Habitat Description[1]	Detailed Information and Sources[1]	Defining Criteria[1]	Assessment Details
Other Rare Vegetation Communities					
Rationale: Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG[cxlviii]. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M[cxlviii] The OMNR/NHIC will have up to date listing for rare vegetation communities. Information Sources • Natural Heritage Information Center (NHIC) has location information available on their website • OMNRF Districts • Field naturalists clubs • Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG[cxlviii]. • Area of the ELC Vegetation Type polygon is the SWH. • SWHMiST[cxlix] Index #37 provides development effects and mitigation measures.	Additional rare vegetation communities within the Study Area. are not anticipated; however, this will be confirmed when NRSI biologists conduct ELC and vegetation surveys within the Subject Property. **Not SWH**

[1]MNRF 2015b

Significant Wildlife Habitat Assessment Tables

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Waterfowl Nesting Area					
Rationale: Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 Note: includes adjacency to Provincially Significant Wetlands	A waterfowl nesting area extends 120m[cxlix] 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 120m of each individual wetland where waterfowl nesting is known to occur[cxlix]. • Upland areas should be at least 120m wide so that predators such as raccoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. Information Sources • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from CAs	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • 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 120m[cxlviii] from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiST[cxlix] Index #25 provides development effects and mitigation measures.	There is no suitable habitat for waterfowl nesting within the Study Area. **Not SWH**
Wildlife Habitat: Bald Eagle and Osprey Nesting, Foraging and Perching Habitat					
Rationale: Nest sites are fairly uncommon in Eco-region 6E are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey Special Concern: Bald Eagle	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. • 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. • Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms). Information Sources • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF Districts • Sustainable Forestry License (SFL) companies will identify additional nesting locations through field operations. • Check the Ontario Breeding Bird Atlas[ccv] or Rare Breeding Birds in Ontario for species documented • Reports and other information available from CAs. • Field naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area[cxlviii]. • 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 300m radius around the nest or the contiguous woodland stand is the SWHccvii, maintaining undisturbed shorelines with large trees within this area is important[cxlviii]. • For a Bald Eagle the active nest and a 400-800m radius around the nest is the SWH[cvi], ccvii. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat[cvi]. • 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[ccvii] • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMiST[cxlix] Index #26 provides development effects and mitigation measures	The Study Area is not within vicinity of a lake, pond, river or wetland. **Not SWH**

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Woodland Raptor Nesting Habitat					
Rationale: Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	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[lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii]. Interior habitat determined with a 200m buffer[cxlviii]. • 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 Cooper's hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. Information Sources • OMNRF • Check the Ontario Breeding Bird Atlas[ccv] or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada • Reports and other information available from CAs	Studies confirm: • Presence of 1 or more active nests from species list is considered significant[cxlviii]. • Red-shouldered Hawk and Northern Goshawk – a 400m radius around the nest or 28ha area of habitat is the SWH[ccvii]. • Barred Owl – a 200m radius around the nest is the SWH[ccvii]. • Broad-winged Hawk and Coopers Hawk – a 100m radius around the nest is the SWH[ccvii]. • Sharp-shinned Hawk – a 50m radius around the nest is the SWH[ccvii]. • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWHMiST[cxlix] Index #27 provides development effects and mitigation measures.	There are no large woodlands with interior habitat suitable for nesting woodland raptors. **Not SWH**
Wildlife Habitat: Turtle Nesting Area					
Rationale: These habitats are rare and when identified will often be the only breeding site for local populations of turtles	Midland Painted Turtle Special Concern: Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m)[cxlviii] or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. Information Sources • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • Field Naturalist clubs and landowners	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH[l] • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH[cxlviii]. • Travel routes from wetland to nesting area are to be considered within the SWH[cxlix]. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWHMiST[cxlix] Index #28 provides development effects and mitigation measures for turtle nesting habitat.	There are no nesting habitats for turtles within the Study Area. **Not SWH**

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Seeps and Springs					
Rationale: Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas 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[cxvii, cxlix]. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species[cxix, cxx, cxxi, cxxii, cxiii, cxiv] Information Sources • Topographical Map • Thermography • Hydrological surveys conducted by CAs and MOE • Field naturalists clubs and landowners • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat[cxlviii] • SWHMiST[cxlix] Index #30 provides development effects and mitigation measures	There are not seeps or springs within the Study Area. **Not SWH**
Wildlife Habitat: Amphibian Breeding Habitat (Woodland)					
Rationale: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	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) >500m^2 (about 25m diameter) [ccvii] within or adjacent (within 120m) to a woodland (no minimum size)[clxxxii, lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx] 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[cxlviii] Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF District • OMNRF wetland evaluations • Field naturalist clubs • Canadian Wildlife Service Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm: • 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)[lxxi] or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys[cviii] will be required during the spring March-June when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the woodland area plus a 230m radius of woodland area[lxiii,lxv, lxvi, lxvii, lxviii, lxix, lxx, lxxi] if a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is the be included in the habitat. • SWHMiST[cxlix] Index #14 provides development effects and mitigation measures.	There are no wetlands, ponds, or woodland pools within the Study Area. **Not SWH**

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Amphibian Breeding Habitat (Wetland)					
Rationale: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Tree frog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	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)[ccvii] 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[clxxxiv]. • 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. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations • Reports and other information available from CAs	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species and with at least 20 -individuals (adults or eggs masses)[lxxi, lxxiii], 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 combination of observational study and call count surveys[cviii] will be required during spring March to June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMiST[cxlix] Index #15 provides development effects and mitigation measures.	There are no wetlands or ponds within the Study Area. **Not SWH**
Woodland Area-Sensitive Bird Breeding Habitat					
Rationale: Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-Bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Special Concern: Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series: 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.[cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxv, cxxvi, cxxxvii, cxxxviii, cxxxix, cxl, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cl, cli, clii, cliii, cliv, clv, clvii, clviii, clix] • Interior forest habitats are at least 200m from forest edge habitat. Information Sources • Local bird clubs • Canadian Wildlife Service (CWS) for the location of forest bird monitoring. • Bird studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to greatest value to interior species • Reports and other information available from CAs	• Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMiST[cxlix] Index #34 provides development effects and mitigation measures.	There are no forests habitats suitable for interior forest breeding birds within the Study Area. **Not SWH**

[1]MNRF 2015b

Significant Wildlife Habitat Assessment Tables

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Marsh Bird Breeding Habitat					
Rationale: Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Gallinule American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan Special Concern: Black Tern Yellow Rail	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[cxciv]. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. Information Sources • Contact OMNRF, wetland evaluations are a good source of information. • Field naturalist clubs • Natural Heritage Information Center (NHIC) Records • Reports and other information available from CAs. • Ontario Breeding Bird Atlas[ccv]	Studies confirm: • 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[i]. • Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH[i]. • Area of the ELC ecosite is the SWH • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi]. • SWHMiST[cxdix] Index #35 provides development effects and mitigation	Suitable habitat for marsh birds is not present within the Study Area. **Not SWH**
Wildlife Habitat: Open Country Bird Breeding Habitat					
Rationale: This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Special Concern: Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha [clx, clxi, clxii, clxiii, clxiv, clxv, clxvi, clxvii, clxviii, clxix]. 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)[i]. 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. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Ask local birders • Ontario Breeding Bird Atlas[ccv] • Reports and other information available from CAs.	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owl is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi]. • SWHMiST[cxdix] Index #32 provides development effects and mitigation measures.	Large grasslands, meadows, or cultural fields of suitable size (>30 ha) are not present within the Study Area. **Not SWH**

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Shrub/Early Successional Bird Breeding Habitat					
Rationale: This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records cxcix.	Indicator spp.: Brown Thrasher Clay-coloured Sparrow Common spp.: Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher Special Concern: Yellow-breasted Chat Golden-winged Warbler	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[clxiv] in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years)[i]. Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species [clxxiii]. Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. Information Sources • Agricultural land classification maps Ministry of Agriculture Local bird clubs • Ontario Breeding Bird Atlas[ccv] • Reports and other information available from CAs	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species[i]. • A field with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMiST[cxlix] Index #33 provides development effects and mitigation measures.	Large early successional fields or large thicket habitats (>10 ha) are not present within the Study Area. **Not SWH**
Wildlife Habitat: Terrestrial Crayfish					
Rationale: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare. [ccii]	Chimney or Digger Crayfish: (*Fallicambarus fodiens*) Devil Crawfish or Meadow Crayfish: (*Cambarus Diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM	Wet meadow and edges of shallow marshes (no minimum size) identified should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. Information Sources • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable marsh meadow or terrestrial sites[cci] • Area of ELC Ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH • Surveys should be done April to August during in temporary or permanent water Note the presence of burrows or chemistry are often the only indicator of presence, observance or collection of individuals is very difficult[cci] • SWHMiST[cxlix] Index #36 provides development effects and mitigation measures.	Given that there are no wetlands within the Study Area, there is no suitable habitat for terrestrial crayfish. **Not SWH**

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Special Concern and Rare Wildlife Species					
Rationale: These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is 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[lxxviii]. Information Sources • Natural Heritage Information Centre (NHIC) will have the Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. • NHIC Website: "Get Information": http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas[ccv] • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: • 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 to be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat. • SWHMiST[cxlix] Index #37 provides development effects and mitigation measures	Several Species of Conservation Concern (Special Concern or S Ranks S1-S3) have been documented within the vicinity of the study area based on the background review, and may be present within the Study Area. For more details, refer to the Species at Risk screening table. **Candidate SWH**

[1]MNRF 2015b

Significant Wildlife Habitat Assessment Tables

Table 5. Characteristics of Animal Movement Corridors for Ecoregion 6E.

	Wildlife Species[1]	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes[1]	Habitat Criteria and Information Sources[1]	Defining Criteria[1]	Assessment Details
Wildlife Habitat: Amphibian Movement Corridors					
Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1.	Movement corridors between breeding habitat and summer habitat [clxxiv, clxxv, clxxvi, clxxvii, clxxviii, clxxix, clxxx, clxxxi]. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat – Wetland) of this Schedule[i]. Information Sources • MNRF District Office • Natural Heritage Information Center NHIC • Reports and other information available from CAs • Field Naturalist Clubs	• 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. Cooridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant[cxlix]. • Corridors should have at least 15m of vegetation on both sides of waterway [cxlix] or be up to 200m wide[cxlix] of woodland habitat and with gaps <20m [cxlix]. • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat[cxlix]. • SWHMiST[cxlix] Index #40 provides development effects and mitigation measures.	Presence of this SWH type is dependent on the confirmation of Amphibian Breeding Habitat (Wetland) within the Subject Property. Given that there's no candidate Amphibian Breeding Habitat within the Study Area, there is no Amphibian Movement Corridors. **No SWH**
Wildlife Habitat: Deer Movement Corridors					
Rationale: Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	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 from Table 1.1 of this schedule[i]. • A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion [clxxxii, clxxxiii, cxlix, cxciv]. • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). Information Sources • MNRF District Office • Natural Heritage Information Center (NHIC) • Reports and other information available from CAs • Field Naturalist Clubs	• 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 yard should be unbroken by roads and residential areas. • Corridors should be at least 200m wide[cxlix] with gaps <20m[cxlix] and if following riparian area with at least 15m of vegetation on both sides of waterway[cxlix]. Shorter corridors are more significant than longer corridors[cxlix] • SWHMiST[cxlix] Index #39 provides development effects and mitigation measures.	There is no MNRF-identified deer wintering habitat in the study area (and the woodlot adjacent to the Subject Property is not >100ha in size). Therefore, there is no potential for deer movement corridors. **Not SWH**

[1]MNRF 2015b

Subject: FW: Eramosa Farms - 8075 Highway #7, Guelph-Eramosa, EIS - TOR (proj2409)
From: Meagan Ferris <meaganf@wellington.ca>
Date: 6/1/2020, 11:39 AM
To: "jmccarter@nrsi.on.ca" <jmccarter@nrsi.on.ca>
CC: Ashley Rye <arye@grandriver.ca>, Gaetanne Kruse <gkruse@get.on.ca>, "jlinton@nrsi.on.ca" <jlinton@nrsi.on.ca>, Hugh Handy <hhandy@gspgroup.ca>, "lee@kieswetter.com" <lee@kieswetter.com>, Curtis Marshall <curtism@wellington.ca>

Hi Jen:

In terms of comments - the County would just request that the EIS address the County's Greenland policies within Section 5 of the Official Plan. The study should also appropriately evaluate and address provincial policies, including the Growth Plan.

Moving forward - please include myself as the County/planning contact and remove Curtis Marshall from the mailing list.

Thank you,

Meagan Ferris, RPP MCIP
Senior Planner
County of Wellington Planning & Development
74 Woolwich Street
Guelph ON N1H 3T9
T 519.837.2600 x 2120
E meaganf@wellington.ca

From: Gaetanne Kruse <gkruse@get.on.ca>
Sent: May 14, 2020 6:18 PM
To: Meagan Ferris <meaganf@wellington.ca>
Subject: FW: Eramosa Farms - 8075 Highway #7, Guelph-Eramosa, EIS - TOR (proj2409)

Hi Meagan,

Redirecting the email below.

Gaetanne Kruse

Gaetanne (*Gae*) Kruse, CPT
Planning Administrator
Township of Guelph/Eramosa
8348 Wellington Rd 124, PO Box 700
Rockwood, ON N0B 2K0
Email: gkruse@get.on.ca Phone: (519) 856-9596 Ext. 112
Fax: (519) 856-2240 Toll-Free: 1-800-267-1465 Website: www.get.on.ca

From: Jennifer McCarter [mailto:jmccarter@nrsi.on.ca]
Sent: Thursday, May 14, 2020 3:41 PM
To: arye@grandriver.ca; Gaetanne Kruse <gkruse@get.on.ca>; curtism@wellington.ca
Cc: Jessica Linton <jlinton@nrsi.on.ca>; hhandy@gspgroup.ca; lee@kieswetter.com
Subject: Eramosa Farms - 8075 Highway #7, Guelph-Eramosa, EIS - TOR (proj2409)

Good Afternoon,

On behalf of Eramosa Farms Limited, we are pleased to provide a Terms of Reference to prepare an Environmental Impact Study (EIS) in support of Zone Change Application for a proposed development of the property at 8075 Highway #7, in Guelph-Eramosa Township/ Wellington County, Ontario.

I have attached the Terms of Reference for your review.

Please let us know if you have any questions or comments about the proposed work program.

Kind regards,
Jen

Jennifer McCarter M.Sc.
Terrestrial and Wetland Biologist
Natural Resource Solutions Inc.
415 Phillip Street, Unit C
Waterloo, ON N2L 3X2
(p) 519-725-2227 Ext. 409 (f) 519-725-2575
(w) www.nrsi.on.ca (e) jmccarter@nrsi.on.ca
@nrsinews

Attachments:

NRSI_2409_Eramosa Farm EIS_TOR_2020_04_24_JEL_FINAL.pdf 27 bytes

400 Clyde Road, P.O. Box 729 Cambridge, ON N1R 5W6

Phone: 519.621.2761 **Toll free:** 866.900.4722 **Fax:** 519.621.4844 **Online:** www.grandriver.ca

September 10, 2020

Jessica Linton
Natural Resources Solutions Inc.
415 Phillip Street, Unit C
Waterloo, ON N2L 3X2

Dear Ms. Linton,

Re: Terms of Reference for a Scoped Environmental Impact Study
Eramosa Farms, 8075 Highway 7, Guelph-Eramosa

We have now had the opportunity to review the Terms of Reference for a Scoped Environmental Impact Study (EIS) dated April 24, 2020, prepared by NRSI. The Terms of Reference submitted are generally acceptable to the GRCA, below are comments which should be incorporated into the EIS.

Advisory Comments

1. The EIS should consider Stormwater Management for the site as well as a water balance. If a water balance cannot be achieved, additional assessments on downstream erosion concerns within the watercourse may be necessary.

2. The two points on Map 1 should be identified in the legend if they are relevant.

3. With respect to the legend on Map 1 the last category should read “Natural Heritage System”.

Should you have any questions or comments, please contact me at 519-621-2763 extension 2238.

Yours truly,

Ashley Rye
Resource Planner
Grand River Conservation Authority

cc. Meagan Ferris, County of Wellington (email)
Jennifer McCarter, NRSI (email)

Appendix V
Tree Preservation Plan

Eramosa Farms

Tree Preservation Plan

Prepared for:

Eramosa Farms Limited
PO Box 280
St. Clements, Ontario,
N0B 2M0

Project No. 2409 | May 2024

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Eramosa Farms

Tree Preservation Plan

Project Team

Jessica Linton	Senior Terrestrial & Wetland Biologist, Project Advisor
Sophia Munoz	Terrestrial & Wetland Biologist, Certified Arborist, Project Manager
Meagan Beck	Terrestrial & Wetland Biologist, Certified Arborist, Author
Jack Richard	Terrestrial Biologist, Registered Professional Forester
Danielle Heaven	GIS Specialist

Report submitted on May 3, 2024

Meagan Beck

Terrestrial and Wetland Biologist / Certified Arborist

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Maps

1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained by Eramosa Farms Limited (hereafter referred to as the "Client") to complete an Environmental Impact Study (EIS) in support of a Zone Change Application for the proposed development of a storage area on the property at 8075 Highway 7, in Guelph-Eramosa Township, Wellington County, Ontario (hereafter referred to as the "Subject Property") (**Error! Reference source not found.**).

The Subject Property is approximately 32.72 hectares in size and is primarily active row-crop agricultural land. The Subject Property contains a house with frontage on Wellington Road 29. A registered municipal drain, referred to as Highway No. 7 Drainage Works, borders the western portions of the property and drains into Clythe Creek, which is a cold-water system and provides habitat for fish.

The proposed development is a commercial storage site for transport truck trailers with a gate house, internal drive aisles, landscaped areas, and a stormwater management (SWM) pond. No buildings nor servicing is proposed as part of the development. The facility will be accessed from a gate located off Wellington Road 29. Details of the Concept Plan, prepared by MHBC, and grading plan, prepared by MTE, are shown on Map 1.

The County of Wellington Official Plan (2024) states that where there are any trees proposed to be removed as part of a proposed development, studies regarding tree preservation and replacement may be required. The County of Wellington Woodlands Conservation By-law 5115-09 (2009) regulates the removal of trees within woodlands and is intended to conserve the forest cover within the County. Although this by-law does is not applicable to isolated trees outside of woodlands, an inventory of trees within the potential to be impacted by the proposed development was completed to characterize these anticipated tree impacts and determine suitable compensation.

The report summarizes the following:

- Findings of the tree inventory;
- Assessment of overall health and potential for structural failure of inventoried trees;
- Tree retention analysis based on details of the concept and grading plans;
- Protection measures for trees to be retained; and,
- Recommended compensation considerations.

2.0 Tree Inventory and Methodology

An inventory of trees within and adjacent to the limits of disturbance, as identified in the Concept Plan (dated February 9 2024), was completed by a NRSI Certified Arborist on April 3, 2024. The majority of trees inventoried were tagged with pre-numbered aluminum forestry tags for identification and mapping purposes. Any trees located off-property were not tagged, but were assigned a unique letter identifier. The location of inventoried trees was surveyed using an SXBlue II GNSS GPS unit by the Certified Arborist.

Inventoried trees and delineated natural features are shown on Map 1. A complete list of the trees that were assessed and their overall health is included in Appendix I. The following information was recorded for inventoried trees:

- Tree location;
- Tag number/alphanumeric identifier;
- Species (common and scientific name);
- DBH (cm);
- Number of stems;
- Crown radius (metres);
- General health (excellent, good, fair, poor, very poor, snag);
- Potential for structural failure (Improbable, Possible, Probable, Imminent);
- Potential maternity roost habitat (i.e., cavities, loose bark, etc.) that could be used for Species at Risk (SAR) bats; and
- General comments (i.e., disease, aesthetic quality, development constraints, prune to reduce structural failure, sensitivity to development, etc.).

The overall health of each tree and potential for structural failure was assessed based on the criteria outlined in Appendix II (Dunster 2009, Dunster et al. 2013). In carrying out these assessments, NRSI has exercised a reasonable standard of care, skill and diligence as would be customarily and normally provided in carrying out these assessments. The assessments have been made using accepted arboricultural techniques. These include a visual examination of each tree for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of insect attack, the condition of any visible root structures, the degree and direction of lean (if any), the general condition of the tree(s) and the surrounding site, and the current or planned proximity of property and people. None of the trees examined were

dissected, cored, probed or climbed and detailed root examinations involving excavation were not undertaken. The conditions for this assessment, including restrictions, professional responsibility and third-party liability can be found in Appendix III.

3.0 Summary of Tree Inventory Findings

In total, 33 trees were inventoried, comprising of three species, the majority of which are located within the central portion of the Subject Property and along the southern property boundary. Of the trees inventoried and assessed, 32 (97%) are considered native to Ontario, and one (3%) is non-native.

None of the tree species observed are regionally significant or protected under the Species at Risk Act (2002) or Endangered Species Act (ESA; 2007).

A complete list of inventoried trees is provided in Appendix I and tree locations are shown on Map 1. Appendix IV includes both a list of tree species inventoried, their health, and whether they are native or non-native, as well as a summary of the overall health of the trees inventoried and their potential for structural failure.

4.0 Tree Retention Analysis and Compensation

4.1 Retention Analysis

The overall health and/or potential for structural failure of existing trees was compared to the proposed development layout to determine whether trees would be impacted by the proposed undertaking. Avoidance, mitigation, and protection measures for trees were examined to determine which trees would be impacted and which could be retained. The retention analysis presented below is based on the concept and grading plans (Map 1).

Table 1 provides a break-down of the retention/removal analysis and Appendix I includes a list of trees inventoried, their overall health and potential for structural failure, recommended action (retain, remove, etc.) and rationale for removal. Retention, pruning and removals are shown on Map 1.

Table 1. Retention and Removal Analysis

Proposed Action	**Total**
Retain	15
Remove	18
Overall Total	**33**

18 of the 33 inventoried trees are anticipated to require removal based on the extent of the proposed development. The trees proposed for removal are in good to poor health with the majority having an improbable potential for structural failure, and range in size from 18cm to 105cm DBH. Trees proposed for removal that require compensation have been identified in Appendix I.

4.2 Compensation

It is recommended that tree compensation for the removal of 18 trees located on the Subject Property, and Municipal ROW should follow the standards listed within the Public Forest Policy (Centre Wellington 2018). These standards state that replacement at a ratio of 2:1 be provided for every tree removed that is equal to, or larger than, 10cm DBH. The recommended replacement plantings summarized in Table 2 have been calculated to satisfy this requirement.

Table 2. Replacement Planting Summary

Number of Trees Designated for Removal	18
Replacement Ratio	2:1
Number of Replacement Trees Required	**36**

It is recommended that replacement plantings should be installed within the Subject Property, where possible. It is anticipated that a post-construction landscape plan may be required to further address replacement plantings and would include details such as the species, stock size, and location of replacement tree plantings. Invasive species such as Norway Maple (*Acer platanoides*), Tree-of-Heaven (*Ailanthus altissima*), White Mulberry (*Morus alba*) or Sweet Cherry (*Prunus avium*) should be avoided.

During development of the landscape plans to be prepared by an Ontario Landscape Architect (OALA), it is recommended that the following criteria be considered:

- Plantings limited to native, non-invasive tree and shrub species indigenous to Wellington County that compliment the surrounding natural features;
- A variety of species should be identified on the landscape plans so as to avoid a monoculture;
- Where applicable, the outer extents of any natural feature buffers or boundary between buffers and development area should be comprised of a mix of native tree and shrub species in an attempt to naturalize the area, increase presence of native species, provide wildlife habitat and protect from adjacent development encroachment (i.e., human foot traffic, dumping);
- Tree and shrub species to be situated in close proximity to roads should be salt and drought tolerant;
- Avoid Ash (*Fraxinus* spp.) species due to the risk of the Emerald Ash Borer (*Agrilus planipennis*);
- All plant material is to conform to the latest edition of the Canadian Nursery Trades Association Specifications and Standards;
- Plantings installed as per specifications outlined in planting plans to be prepared by an OALA, Certified Arborist, or Registered Professional Forester;
- Spacing of plant material should account for the ultimate size and form of the selected species and also the purpose of the planting, whether it be for screening, shade, naturalizing, rehabilitation, etc.;
- Special attention to location and height of trees in proximity to utilities and buildings, and;
- Ensure that there is sufficient soil volume for all plantings.

4.3 Municipally-Owned Trees

The removal of any boundary or off-property trees will require the permission of all owners involved. If the main stem of any tree is located on multiple properties, each owner must be consulted and written consent must be provided before any tree removal occurs. NRSI is not aware of receipt of approval for any boundary tree removals at this time, and our recommendation for removal should not be inferred to reflect any approval from any parties. As per the Guelph/Eramosa Township by-law website (Guelph/Eramosa Township 2024), the Client is prohibited from removing trees on municipally-owned property such as parks or road allowances. In order to seek approval to remove municipally owned trees (trees #C, #D), the Guelph/Eramosa Township Public Works Department must be contacted.

5.0 Protection Measures and Recommended Mitigation

5.1 Prior to Construction and Site Alteration

Temporary tree protection fencing (TPF) will be situated where trees are adjacent to the proposed development and planned areas of site alteration, as shown on Map 1. A combined sediment and erosion control fence (i.e. silt fence) and TPF is recommended where trees are situated adjacent to the limit of disturbance. This TPF is to take the form of plastic mesh fencing (such as snow fencing), t-bar stakes, heavy duty silt fencing, and topped with 2x4 beams.

Any maintenance required on any tree that is designated for retention should be completed prior to construction. This can include, but is not limited to, crown pruning, deep root fertilization, tree watering, and/or soil replacement. No maintenance is expected to be required at this time.

The TPF will be installed and maintained by the Client prior to any construction activities (rough grading, vegetation and tree removal). Prior to works commencing on-site, the TPF is to be inspected by a Certified Arborist. Signage indicating the purpose of protection fencing will be attached to the TPF every 100-150m.

Appendix 3 of the Public Forest Policy (Centre Wellington 2018) stipulates the minimum size of any Tree Protection Zone (TPZ) based on the size of DBH of the protected trees. The TPZs for trees designated for retention have been calculated consistent with the municipality's requirements and are shown on Map 1 and no TPZ encroachment is anticipated based on these plans.

5.1.1 Timing Windows

Migratory Birds Convention Act

The removal of trees has the potential to disrupt nesting birds. The *Migratory Birds Convention Act* (MBCA) directs that all tree removals occur outside of the core nesting period for migratory birds as established by the Canadian Wildlife Service (CWS) (Government of Canada 1994, Government of Canada 2022). This period extends from April 1 – August 31. All developers/consultants/contractors, etc. are legally obligated to carry out due diligence to protect migratory birds from harm during all construction projects. Despite this, certain circumstances may require tree and vegetation removals occur within the nesting period, such as those in which tree removals and construction is associated with the provision of public safety.

For any tree or vegetation removal which occurs during the nesting period, nest surveys must be conducted by a qualified biologist within small, simple habitat areas (i.e. individual isolated trees as found within the construction area) just prior to the removal activity (less than 48hrs prior to) to ensure that nesting birds are not present. Should a nest be identified within a tree(s) to be removed, there shall be no removal or construction activity until sign-off is obtained from the qualified biologist that the nest is no longer active. Trees identified as having no nesting activity can be removed; however, tree removal is to occur within 48 hours of the nest search. If tree removal does not occur within this time frame, additional nest searches are to be conducted. In the event a nest survey is conducted, a clearance memo will be prepared for your records. The memo will indicate that a qualified biologist undertook the surveys as proof of due diligence.

Bat Roosting Habitat

The destruction of Species at Risk (SAR) bats and their habitat is prohibited under the ESA (2007). Since tree removal has the potential to directly impact candidate bat roosting habitat, it is recommended that this activity occur outside of the active roosting season (April 1 – September 30), to avoid direct impacts to individuals of the species and associated contravention of the Act. Further details regarding the presence of SAR bats and associated habitats can be found in the EIS (NRSI 2024).

5.2 During Construction

The temporary TPF is to be maintained by the Client during the entire construction period to ensure that any trees prescribed for retention (including their root systems) are protected. Any minimal damage (i.e. damage to limbs or roots) to trees to be retained during construction must be pruned using proper arboricultural techniques. Should any of the trees intended to be retained be seriously damaged or die as a result of construction activities, consultation with the Municipality will be required.

5.3 Post-Construction

It is recommended that the TPF be removed upon completion of construction activities and adjacent areas be stabilized with a suitable vegetative cover to the satisfaction of the Environmental Inspector or qualified biologist. The removal of TPF and revegetation will permit increased root development for the remaining trees. It is recommended that a Certified Arborist inspect all retained trees and their rooting area following the completion of site alteration activities and recommend remediation work, if needed.

6.0 Conclusion

NRSI was retained by Eramosa Farms Limited to complete a tree inventory and Tree Preservation Plan, in support of an EIS, for the proposed development of a trailer storage area, located at 8075 Highway 7, in Guelph-Eramosa Township, Wellington County, Ontario (Map 1).

A NRSI Certified Arborist conducted a comprehensive inventory and assessment of trees within the Subject Property on April 3, 2024. Trees located at the boundary of the Subject Property and an adjacent property, as well as off-property trees adjacent to proposed development were also included in the inventory and assessment. A total of 33 trees belonging to three native species were inventoried and assessed for removal within the Subject Property and boundaries. Of the 33 trees inventoried, 18 are designated for removal including two publicly owned trees located along the Municipal ROW.

It is recommended that all proposed tree removals occur with consideration to the protection and general timing windows for migratory birds and species at risk bats. It is required that written permission from impacted adjacent landowners be obtained in advance of any boundary tree removals. The recommended TPF is to be installed prior to any on-site work in order to provide adequate protection for trees to be retained and their root systems, following the specifications provided within this report.

Consistent with the compensation ratio specified in the Centre Wellington Public Forestry Policy (2018), the installation of 36 replacement trees is required to compensate for the removal of 18 trees. Replacement tree plantings should consist of site-appropriate native and/or approved street tree species. If the total number of required replacement trees cannot be accommodated within the Subject Property under the post-development scenario, consultation with the Municipality should be completed to determine if an off-site planting location or cash in-lieu compensation method may be accepted.

7.0 References

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Appendix I
Tree Inventory Data

Eramosa Farms; Tree Preservation Plan
Tree Inventory Data

Tree Number	Common Name	Scientific Name	Native/ Non-native	Stem Count	DBH 1 (cm)	DBH 2 (cm)	DBH 3 (cm)	Crown Radius (m)	Tree Protection Zone (m)	Potential for Structural Failure Rating	Overall Condition	Location	Proposed Action	Rationale for Removal	Compensation Required	Comments
419	Manitoba Maple	*Acer negundo*	Native	2	33	29		5.5	2.4	Improbable	Fair	Subject Property	Retain	N/A	N/A	Growing at base of rock pile and slope; crown asymmetrical to west; epicormic shoots; sheet of metal fused between codominant trunks.
420	Manitoba Maple	*Acer negundo*	Native	1	48			4.5	3.0	Improbable	Fair	Subject Property	Retain	N/A	N/A	Growing at base of rock pile and slope; crown asymmetrical to west; epicormic shoots; dead lower branches; small hanger.
421	Manitoba Maple	*Acer negundo*	Native	3	39	19	15	6.0	2.4	Improbable	Fair	Subject Property	Retain	N/A	N/A	Growing at top of rock pile and slope; crown asymmetrical to south; epicormic shoots; dead lower branches; minor twig dieback.
422	Manitoba Maple	*Acer negundo*	Native	3	28	20	15	6.0	1.8	Improbable	Fair	Subject Property	Retain	N/A	N/A	Growing at top of rock pile and slope; crown asymmetrical to east; epicormic shoots; dead lower branches; minor twig dieback.
423	Black Walnut	*Juglans nigra*	Native	1	27			4.0	1.8	Improbable	Good	Subject Property	Remove	Parking/grading	Yes	Good vigor; crown partially suppressed, asymmetrical to west.
424	Black Walnut	*Juglans nigra*	Native	1	29			4.0	1.8	Improbable	Good	Subject Property	Remove	Parking/grading	Yes	Good vigor; crown partially suppressed, asymmetrical to west; minor vines present.
425	Black Walnut	*Juglans nigra*	Native	3	23	21	20	4.5	1.8	Improbable	Fair	Subject Property	Remove	Parking/grading	Yes	Good vigor; lower crown partially suppressed; at base of rock pile; branch rub.
426	Black Walnut	*Juglans nigra*	Native	1	19			3.5	1.8	Improbable	Fair	Subject Property	Remove	Parking/grading	Yes	Crown partially suppressed, asymmetrical to west; frost crack.
427	Black Walnut	*Juglans nigra*	Native	1	21			3.0	1.8	Improbable	Fair	Subject Property	Remove	Parking/grading	Yes	Crown partially suppressed, asymmetrical to west; vine in lower crown.
428	Black Walnut	*Juglans nigra*	Native	2	29	23		3.5	1.8	Improbable	Fair	Subject Property	Remove	Parking/grading	Yes	Upright codominant trunks; trunk rub and conflict; vine in lower crown.
429	Black Walnut	*Juglans nigra*	Native	1	20			3.0	1.8	Improbable	Good	Subject Property	Remove	Parking/grading	Yes	Crown partially suppressed, asymmetrical to west; good vigor.
430	Black Walnut	*Juglans nigra*	Native	1	20			3.0	1.8	Improbable	Fair	Subject Property	Remove	Parking/grading	Yes	Crown slightly suppressed, asymmetrical to north; trunk base impeded by old foundation.
431	Black Walnut	*Juglans nigra*	Native	1	32			4.0	2.4	Improbable	Fair	Subject Property	Remove	Parking/grading	Yes	Old foundation along south of tree, impeding root zone; short full crown.
432	Manitoba Maple	*Acer negundo*	Native	1	24			3.5	1.8	Improbable	Good	Subject Property	Remove	Parking/grading	Yes	Erect form; full vigorous crown; epicormic shoots.
433	Black Walnut	*Juglans nigra*	Native	1	24			3.5	1.8	Possible	Poor	Subject Property	Remove	Parking/grading	Yes	Large canker at base, base bulging; relatively short stature.
434	Black Walnut	*Juglans nigra*	Native	1	100			6.0	6	Improbable	Fair	Subject Property	Retain	N/A	N/A	Two basal wounds approximately 20% of circumference; codominant leaders with intact seam, metal sign fused between them; 25% broken/deadwood in mid and lower crown; deadwood small, probable.
435	Black Walnut	*Juglans nigra*	Native	3	27	19	13	4.0	1.8	Improbable	Fair	Subject Property	Remove	Parking/grading	Yes	Decayed partial trunk of large trunk remain; good crown vigor; low spreading crown.
436	Black Walnut	*Juglans nigra*	Native	1	105			9.0	6.3	Probable	Poor	Subject Property	Remove	Parking/grading	Yes	Previous codominant trunk lost; large open wound with decay from base to 2.5m; 40% of circumference lost; 35% crown dieback.
437	Black Walnut	*Juglans nigra*	Native	1	75			4.0	4.8	Probable	Poor	Subject Property	Remove	Parking/grading	Yes	Longitudinal crack from base to 2m; old open wound with decay and response growth; 25% of crown intact; 10cm+ deadwood.
438	Black Walnut	*Juglans nigra*	Native	1	72			6.0	4.8	Improbable	Fair	Subject Property	Remove	Parking/grading	Yes	25% Deadwood <10cm throughout; minor crown competition; open basal wound 10% of circumference.
439	Black Walnut	*Juglans nigra*	Native	1	85			7.0	5.4	Possible	Fair	Subject Property	Remove	Parking/grading	Yes	Basal wound 30% of circumference, good response growth; decay on one side of codominant crotch; minor deadwood throughout; main leader girdled by cable.
440	Black Walnut	*Juglans nigra*	Native	1	12			1.5	1.8	Improbable	Good	Subject Property	Retain	N/A	N/A	Good erect form.
441	Black Walnut	*Juglans nigra*	Native	1	11			1.5	1.8	Improbable	Good	Subject Property	Retain	N/A	N/A	Good erect form.
442	Black Walnut	*Juglans nigra*	Native	1	10			1.5	1.8	Improbable	Good	Subject Property	Retain	N/A	N/A	Good erect form.
443	Black Walnut	*Juglans nigra*	Native	1	23			3.0	1.8	Improbable	Good	Subject Property	Retain	N/A	N/A	Good erect form; good vigor.
444	Black Walnut	*Juglans nigra*	Native	1	11			2.0	1.8	Improbable	Fair	Subject Property	Retain	N/A	N/A	Crown asymmetrical, suppressed to south; good vigor.
A	Black Walnut	*Juglans nigra*	Native	1	16			2.5	1.8	Improbable	Fair	County ROW	Retain	N/A	N/A	Lower trunk canker with good response growth; one broken limb.
B	Black Walnut	*Juglans nigra*	Native	1	22			3.0	1.8	Improbable	Good	County ROW	Retain	N/A	N/A	Good form and vigor.
C	Black Walnut	*Juglans nigra*	Native	1	29			3.5	1.8	Improbable	Good	County ROW	Remove	Site entrance	Yes	Good form and vigor; minor frost crack.
D	Black Walnut	*Juglans nigra*	Native	3	18	16	11	3.5	1.8	Improbable	Good	County ROW	Remove	Site entrance	Yes	Full dense crown; codominant leaders.
E	Black Walnut	*Juglans nigra*	Native	1	29			4.0	1.8	Improbable	Good	County ROW	Retain	N/A	N/A	Good form, full vigorous crown.
445	Manitoba Maple	*Acer negundo*	Native	3	34	29	11	6.0	2.4	Improbable	Fair	Subject Property	Retain	N/A	N/A	Dense crown, asymmetrical to northeast; crown conflicts with utility lines; branch rub; minor deadwood throughout.
446	Norway Maple	*Acer platanoides*	Non-native	1	38			3.5	2.4	Improbable	Fair	Subject Property	Retain	N/A	N/A	Dense crown; crown conflicts with utility lines; branch rub; 3 very upright codominant trunks, partially fused, DBH measured below.

Appendix II
Tree Health and Potential for Structural Failure Assessment Criteria

Tree Health Assessment Criteria

Assessment Criteria	Definition[1]
Excellent	Represents a tree in near perfect form, health, and vigour. This tree would exhibit no deadwood, no decline, and no visible defects.
Good	Represents a tree ranging from a generally healthy tree to a near perfect tree in terms of health, vigour and structure. This tree exhibits a complete, balanced crown structure with little to no deadwood and minimal defects as well as a properly formed root flare.
Fair	Represents a tree with minor health, balance or structural issues with minimal to moderate deadwood. Branching structure shows signs of included bark or minor rot within the branch connections or trunk wood. The root flare shows minimal signs of mechanical injury, decay, poor callusing, or girdling roots. Trees in the category require minor remedial actions to improve the vigour and structure of the tree.
Poor	Represents a tree that exhibits a poor vigour, reduced crown size (<30% of crown typical of species caused by overcrowding or decline), extreme crown imbalance, or extensive rot in the branching and trunk wood. Fungus could be seen from these rotting areas, suggesting further decay. These trees have extensive crown die back with a large amount of deadwood, and possibly dead sections. These weakened areas can lead to a potential failure of tree sections. Rooting zones show signs of extensive root decay or damage (fruiting bodies or mechanical damage) or girdling roots. Trees in this category require more extensive actions to prevent failure. A tree identified as poor would be a candidate for removal in the near future.
Very Poor	Represents a tree that exhibits major health and structural defects. Quite often the defects or diseases affecting this tree will be fatal. Large quantities of fungus, large dead sections with possible cavities and bark falling off all are signs that a tree is in a major state of decline and would be identified as very poor. These trees have a probable or imminent potential for structural failure. These trees should be identified for removal.
Dead	Represents a tree that exhibits no sign of new growth, including buds, foliage, or shoot growth. These trees have a probable or imminent potential for structural failure. These trees should be identified for removal.

[1] (Dunster 2009)

Potential for Structural Failure Assessment Criteria

Assessment Criteria*	Definition[1]
Improbable	The tree or branch is not likely to fail during normal weather conditions and may not fail in many severe weather conditions within the specified time frame.
Possible	Failure could occur, but it is unlikely during normal weather conditions within the specified time frame.
Probable	Failure may be expected under normal weather conditions within the specified time frame.
Imminent	Failure has started or is most likely to occur in the near future, even if there is no significant wind or increased load. This is a rare occurrence for an assessor to encounter, and it may require immediate action to protect people from harm.
*A specified time frame of 1 year will be used when assessing potential for structural failure.	

[1] (Dunster et al. 2013)

Appendix III
Conditions of Tree Assessment

Conditions of Tree Assessment

Limitations

This tree inventory and assessment is based on the circumstances and observations by Natural Resource Solutions Inc. (NRSI) as they existed at the time of the site inspection(s) at the subject property as described in this report (the “Property”) and the trees situated thereon, and upon information provided by the Client to NRSI. The opinions in this assessment are given based on observations made and using generally accepted professional judgment, however, because trees are living organisms and subject to change, damage and disease, the results, observations, recommendations, and analysis as set out in this assessment are valid only at the date any such observations and analysis took place. No guarantee, warranty, representation or opinion is offered or made by NRSI as to the length of the validity of the results, observations, recommendations and analysis contained within this assessment. As a result, the Client shall not rely upon this assessment, save and except for representing the circumstances and observations at the date of site inspection(s), and the analysis and recommendations made in relation to the proposed undertaking. It is recommended that the inventoried trees discussed in this assessment should be re-assessed periodically, where required (i.e. after 2 years).

Further Services

Neither NRSI, nor any assessor employed or retained by NRSI (the "Assessor") for the purpose of preparing or assisting in the preparation of this assessment shall be required to provide any further consultation or services to the Client including, without limitation, acting as an expert witness or witness in any court in any jurisdiction unless the Client has first made specific arrangements with respect to such further services, including providing payment of the Assessor’s regular hourly billing fees.

NRSI accepts no responsibility for the implementation of all or any part of this or associated reports, unless specifically requested to examine the implementation of such activities recommended herein. Any request for the inspection or supervision of all or part of the implementation shall be made in writing and the details agreed to in writing by both parties.

Assumptions

The Client is hereby notified that where any of the information set out and referenced in this assessment are based on assumptions, facts or information provided to NRSI, NRSI will in no way be responsible for the veracity or accuracy of any such information. Further, the Client acknowledges and agrees that NRSI has, for the purposes of preparing their assessment, assumed that the Property is in full compliance with all applicable federal, provincial, municipal and local statutes, regulations, by-laws, guidelines and other related laws. NRSI explicitly denies any legal liability for any and all issues with respect to non-compliance with any of the above-referenced statutes, regulations, by-laws, guidelines and laws as it may pertain to or affect the Property.

Restriction of Assessment

The assessment carried out was restricted to the areas as described in this report. NRSI is not legally liable for any other trees except those expressly discussed herein. The conclusions of this assessment do not apply to any areas, trees, or any other property not covered or referenced in this assessment.

Professional Responsibility

In carrying out this assessment, NRSI and any Assessor appointed for and on behalf of NRSI to perform and carry out the assessment has exercised a reasonable standard of care, skill and diligence. The assessment has been made using accepted arboricultural techniques. These include a visual examination of each tree for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of insect attack, discolored foliage (during the leaf-on period), the condition of any visible root structures, the degree and direction of lean (if any), the general condition of the tree(s) and the surrounding site, and the current or planned proximity of property and people. Except where specifically noted in the assessment, none of the trees examined on the property were dissected, cored, probed, or climbed, and detailed root crown examinations involving excavation were not undertaken.

No guarantees are offered, or implied, that trees recommended for retention, or all parts of them, will remain standing. It is professionally impossible to predict with absolute certainty the behaviour of any single tree or group of trees, or all their component parts, in all given circumstances. Inevitably, a standing tree will always pose some risk. Most

trees have the potential to fall, lean, or otherwise pose a danger to property and persons in the event of extreme weather conditions, and this risk can only be eliminated if the tree is removed.

Without limiting the foregoing, no liability is assumed by NRSI or its directors, officers, employers, contractors, agents or Assessors for:

a) any legal description provided with respect to the Property;
b) issues of title and/or ownership with respect to the Property;
c) the accuracy of the Property line locations or boundaries with respect to the Property; and
d) the accuracy of any other information provided to NRSI by the Client or third parties;
e) any consequential loss, injury or damages suffered by the Client or any third parties, including but not limited to replacement costs, loss of use, earnings and business interruption; and
f) the unauthorized distribution of the assessment.

Third Party Liability

This assessment was prepared by NRSI for the Client. The data collected reflect NRSI's best assessment of the inventoried trees situated on the Property with the information available at the time of observation. Data analysis and the assessment of potential impacts to inventoried trees is specific to the proposed undertaking as described in this report. NRSI accepts no responsibility for any damages or loss suffered by any third party or by the Client as a result of decisions made or actions based upon the use of this assessment for purposes unrelated to the proposed undertaking.

General

Any plans and/or illustrations in this assessment are included only to help the Client visualize the issues in this assessment and shall not be relied upon for any other purpose.

This report shall be considered as a whole, no sections are severable, and the assessment shall be considered incomplete if any pages are missing.

Appendix IV
Tree Data and Summary Tables

Summary of Inventoried Trees

Common Name	Scientific Name	Excellent	Good	Fair	Poor	Very Poor	Dead	Total
Native Species								
Manitoba Maple	*Acer negundo*	0	1	5	0	0	0	6
Black Walnut	*Juglans nigra*	0	11	12	3	0	0	26
Total		0	**12**	**17**	**3**	0	0	**32**
Non-Native Species								
Norway Maple	*Acer platanoides*	0	0	1	0	0	0	1
Total		0	0	**1**	0	0	0	**1**
Overall Total		**0**	**0**	**18**	**3**	**0**	**0**	**33**

Overall Health of Trees Inventoried

Potential for Structural Failure Rating	Overall Condition						Total
	Excellent	Good	Fair	Poor	Very Poor	Dead	
Improbable	0	12	17	0	0	0	29
Possible	0	0	1	1	0	0	2
Probable	0	0	0	2	0	0	2
Imminent	0	0	0	0	0	0	0
Total	0	12	18	3	0	0	33

Map

Map 1. Tree Inventory and Preservation Plan

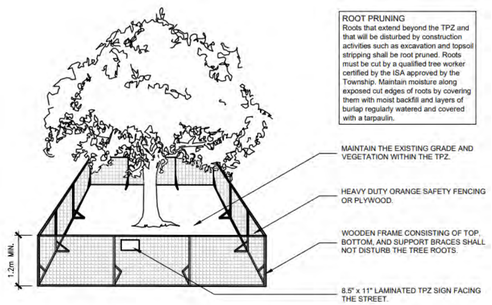
Migratory Birds Convention Act

1. The destruction of migratory birds and their nests is prohibited under the federal *Migratory Birds Convention Act*, 1994, which is regulated by the Canadian Wildlife Service (CWS).
2. Vegetation clearing has the potential to directly impact bird breeding activity through damage and destruction of nests, eggs and young, or avoidance of the area by breeding adults.
3. Vegetation clearing is recommended to occur outside the bird nesting season (April 1 – August 31) so as to limit disturbances to nesting activities of birds within the proposed work zone.
4. Specific to simple habitats*, if vegetation clearing cannot be avoided during the bird nesting season, a qualified biologist will be retained to carry out a nest search ahead of clearing activities within the work zone.
5. Nest areas will be identified in the field. There shall be no construction activity in identified nesting areas until sign-off is obtained from the biologist.
6. Areas identified as having no bird nesting activity can be cleared; however, clearing must occur within 48 hours of nest searching. If vegetation clearing is not performed within 48 hours, additional nest searches must be conducted.

*Simple habitats are characterized by the CWS as habitats consisting of urban parks with isolated trees, vacant lots with few possible nest sites, a previously cleared area, or a structure such as a bridge, tower, or building, and specifically excludes meadows. More information is available at (https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html).

Species at Risk (SAR) Bat Habitat

1. The destruction of SAR bats and their habitat is prohibited under the *Endangered Species Act (ESA)*, 2007.
2. Vegetation clearing has the potential to directly impact bat roosting habitat.
3. Tree removal should occur outside of the active roosting season (April 1 to September 30) to avoid destruction of potential bat habitat, and therefore contravention of the ESA.
4. Any vegetation removal that has the potential to impact SAR bat habitat requires prior correspondence with the Ministry of Environment, Conservation and Parks (MECP).



ROOT PRUNING
Roots that extend beyond the TPZ and that will be disturbed by construction activities such as excavation and topsoil stripping shall be root pruned. Roots must be cut by a qualified tree worker certified by the ISA approved by the Township. Maintain moisture along exposed cut edges of roots by covering them with moist backfill and layers of burlap regularly watered and covered with a tarpaulin.

MAINTAIN THE EXISTING GRADE AND VEGETATION WITHIN THE TPZ.

HEAVY DUTY ORANGE SAFETY FENCING OR PLYWOOD.

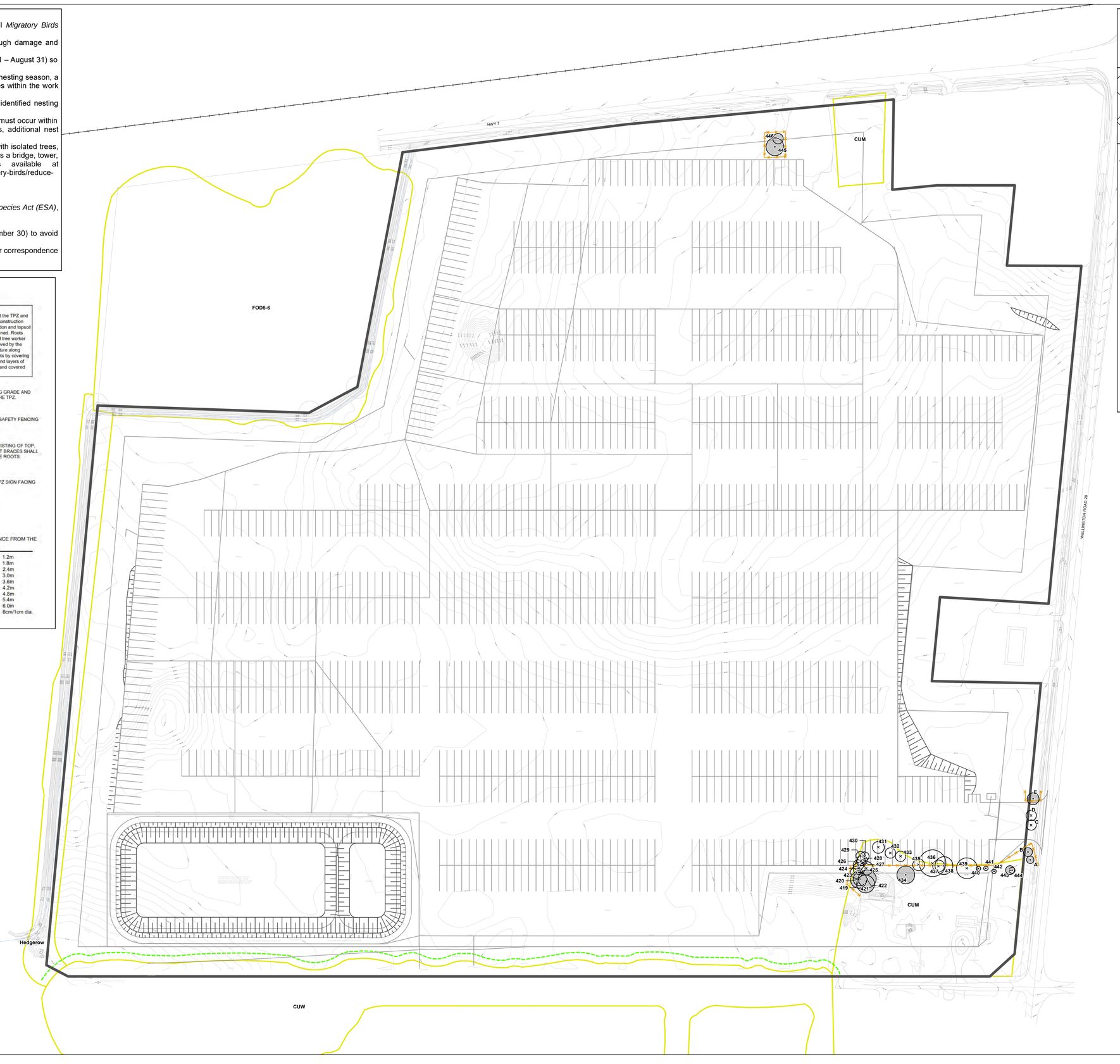
WOODEN FRAME CONSISTING OF TOP, BOTTOM, AND SUPPORT BRACES SHALL NOT DISTURB THE TREE ROOTS.

8.5" x 11" LAMINATED TPZ SIGN FACING THE STREET.

TREE PROTECTION BARRIER
1. Tree Protection Barriers constructed with a solid wood frame are required to define the Tree Protection Zone (TPZ).
2. No construction activity, grade changes, surface treatment or excavation of any kind is permitted within the TPZ.
3. All Tree Protection Barriers shall be in place and approved by the Township prior to construction access.
4. Tree Protection Barriers shall remain in place and in good condition until all construction is complete and approved by the Township.
5. During construction activities the TPZ will be inspected and monitored by and a certified arborist to monitor tree helath.
6. All arboriculture work such as pruning of both branches and roots, shall be done by a qualified tree worker certified by the International Society of Arboriculture (ISA) approved by the Township.
7. Sediment control fencing shall be installed as indicated in the Tree Protection Plan and approved by the Township.

MINNIMUM TPZ DISTANCE FROM THE BASE OF THE TRUNK

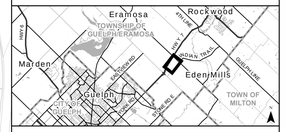
< 10cm DBH	1.2m
11 - 19cm DBH	1.8m
20 - 40cm DBH	2.4m
41 - 50cm DBH	3.0m
51 - 60cm DBH	3.6m
61 - 70cm DBH	4.2m
71 - 80cm DBH	4.8m
81 - 90cm DBH	5.4m
91 - 100cm DBH	6.0m
> 100cm DBH	6cm/1cm dia.



Map 1

Eramosa Farms EIS

Tree Preservation Plan



Legend

- Subject Property
- Tree to be Removed (Crown to Scale)
- Tree to be Retained (Crown to Scale)
- Tree Protection Fence (TPF)
- Proposed Development
- Grading
- Contours (0.25m)
- Existing Conditions
- Railway
- Intermittent Watercourse
- Woodland Buffer (5m)*
- Ecological Land Classification (ELC)

(CUM) Cultural Meadow
(CUW) Cultural Woodland
(FOD5-6) Dry - Fresh Sugar Maple - Basswood Deciduous Forest Type

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 2409
Date: May 2, 2024

NAD83 - UTM Zone 17
Size: 24x36"
1:1,200

0 10 20 30 40 50 60 70 80 90 Meters

Appendix VI
Photo Appendix of the Municipal Drain

NRSI Photo Appendix – June 29, 2020

Photo 1- Facing north from Railway

Photo 2- Facing north between two upstream culverts (Hwy 7 and Railway)

Photo 3- Downstream end of CSP Culvert under Hwy 7

Photo 4 – Facing east along Hwy 7

Photo 5 – Facing west along Hwy 7

Photo 6- Within Culvert under Hwy 7 – dry soil

Photo 7- Grass lined feature downstream of Hwy 7

Photo 8 – Drainage feature where runs north south downstream of Hwy 7

Photo 9 – Drainage feature where runs north south downstream of Hwy 7

Photo 10 – Drainage feature where runs east to west

Photo 11 – Drainage feature where runs east to west

Photo 12 – Drainage feature where runs east to west

Photo 12- Where feature head southerly from the east to west segment

Photo 15- Drainage feature where runs north to south toward the wetland

Photo 13- Drainage feature where runs north to south toward the wetland

Photo 16- Drainage feature close to edge of subject property

Photo 14- Drainage feature where runs north to south toward the wetland

Photo 17- At laneway

NRSI Photo Appendix – March 12, 2021

Photo 1- Facing north from Railway

Photo 2- Facing north between two upstream culverts (Hwy 7 and Railway)

Photo 3- Downstream end of CSP Culvert under Hwy 7

Photo 4 – Facing east along Hwy 7

Photo 5 – Facing west along Hwy 7

Photo 6 Grass lined feature downstream of Hwy 7

Photo 7 – Drainage feature where runs north south downstream of Hwy 7

Photo 10 – Drainage feature where runs east to west

Photo 8 – Drainage feature where runs north south downstream of Hwy 7

Photo 11 – Drainage feature where runs east to west

Photo 9– Drainage feature where runs east to west

Photo 12- Drainage feature where runs north to south toward the wetland

Photo 13- Drainage feature where runs north to south toward the wetland

Photo 14- Drainage feature where runs north to south toward the wetland

Photo 15- Drainage feature where runs north to south toward the wetland

Photo 16- Drainage feature at laneway. Pool of water present.

Photo 17- Downstream of laneway.

Photo 18 – Field along drain.

Appendix VII
Vascular Flora Species Observed within the Subject Property

Plant Species Reported from the Study Area - Eramosa Farm EIS (Project #2409)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Wellington County*	MNRF - Wellington County SAR List	NHIC Data*	NRSI Observed	NRSI Tree Inventory Data	FOD5-6	Hedgerow	CUW	CUM
		MNRF 2023a	MECP 2024	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	Dougan & Associates 2009	Citation	MNRF 2023b	NRSI Results From 2020					
Pteridophytes	**Ferns & Allies**														
Dryopteridaceae	**Wood Fern Family**														
Dryopteris carthusiana	Spinulose Wood Fern	S5								X		X			
Onoclea sensibilis	Sensitive Fern	S5								X		X			
Equisetaceae	**Horsetail Family**														
Equisetum arvense	Field Horsetail	S5								X		X			
Gymnosperms	**Conifers**														
Pinaceae	**Pine Family**														
Picea abies	Norway Spruce	SE3								X				X	
Picea glauca	White Spruce	S5								X		X			
Pinus strobus	Eastern White Pine	S5								X				X	
Pinus sylvestris	Scots Pine	SE5								X		X	X		
Dicotyledons	**Dicots**														
Aceraceae	**Maple Family**														
Acer negundo	Manitoba Maple	S5								X	X	X	X	X	
Acer nigrum	Black Maple	S4?					R-A			X		X			
Acer platanoides	Norway Maple	SE5								X	X	X	X		
Acer saccharum	Sugar Maple	S5								X		X		X	
Apiaceae	**Carrot or Parsley Family**														
Daucus carota	Wild Carrot	SE5								X		X	X	X	X
Araliaceae	**Ginseng Family**														
Panax quinquefolius	American Ginseng	S2	THR	E	E	Schedule 1	R	X							
Aristolochiaceae	**Duchman's-pipe Family**														
Asarum canadense	Canada Wild-ginger	S5								X		X			
Asclepiadaceae	**Milkweed Family**														
Asclepias syriaca	Common Milkweed	S5								X		X	X		X
Asteraceae	**Composite or Aster Family**														
Achillea millefolium	Common Yarrow	SE5?								X			X		
Ambrosia artemisiifolia	Common Ragweed	S5								X		X		X	X
Ambrosia trifida	Great Ragweed	S5								X			X		
Arctium minus	Common Burdock	SE5								X		X	X		X
Cichorium intybus	Chicory	SE5								X				X	
Cirsium arvense	Creeping Thistle	SE5								X			X		X
Erigeron philadelphicus	Philadelphia Fleabane	S5								X		X			
Erigeron strigosus	Rough Fleabane	S5								X		X	X	X	X
Euthamia graminifolia	Grass-leaved Goldenrod	S5								X		X			
Leucanthemum vulgare	Oxeye Daisy	SE5								X			X		X
Matricaria discoidea	Pineappleweed	SE5								X					X
Solidago altissima	Tall Goldenrod	S5								X		X	X	X	
Solidago canadensis	Canada Goldenrod	S5								X		X		X	
Solidago flexicaulis	Zigzag Goldenrod	S5								X				X	
Sonchus arvensis	Field Sow-thistle	SE5								X		X	X		X
Symphyotrichum novae-angliae	New England Aster	S5								X		X			
Tanacetum vulgare	Common Tansy	SE5								X		X			X
Taraxacum officinale	Common Dandelion	SE5								X		X	X	X	X
Tragopogon dubius	Yellow Goat's-beard	SE5								X			X	X	X
Berberidaceae	**Barberry Family**														
Podophyllum peltatum	May-apple	S5								X			X		
Betulaceae	**Birch Family**														
Ostrya virginiana	Eastern Hop-hornbeam	S5								X				X	
Boraginaceae	**Borage Family**														
Myosotis laxa	Small Forget-me-not	S5								X			X		
Brassicaceae	**Mustard Family**														
Brassicaceae sp.	Mustard Family sp.									X		X	X	X	
Brassica rapa	Field Mustard	SE5								X			X		
Erysimum cheiranthoides	Wormseed Wallflower	S5?								X		X			
Hesperis matronalis	Dame's Rocket	SE5								X		X	X		
Caprifoliaceae	**Honeysuckle Family**														
Lonicera tatarica	Tatarian Honeysuckle	SE5								X				X	

Caryophyllaceae	**Pink Family**														
Saponaria officinalis	Bouncing-bet	SE5								X				X	
Silene vulgaris	Bladder Campion	SE5								X			X		X
Chenopodiaceae	**Goosefoot Family**														
Chenopodium album	White Goosefoot	SE5								X					X
Clusiaceae	**St. John's-wort Family**														
Hypericum perforatum	Common St. John's-wort	SE5								X			X	X	
Convolvulaceae	**Morning-glory Family**														
Convolvulus arvensis	Field Bindweed	SE5								X			X		X
Cornaceae	**Dogwood Family**														
Cornus alternifolia	Alternate-leaved Dogwood	S5								X		X		X	
Cucurbitaceae	**Gourd Family**														
Echinocystis lobata	Wild Mock-cucumber	S5								X		X	X	X	X
Euphorbiaceae	**Spurge Family**														
Euphorbia virgata	Russian Leafy Spurge	SE5?								X					X
Fabaceae	**Pea Family**														
Lotus corniculatus	Garden Bird's-foot Trefoil	SE5								X		X	X		X
Medicago lupulina	Black Medic	SE5								X		X	X		X
Trifolium pratense	Red Clover	SE5								X			X		X
Vicia cracca	Tufted Vetch	SE5								X		X	X		X
Fagaceae	**Beech Family**														
Castanea dentata	American Chestnut	S1S2	END	E	E	Schedule 1	R	X							
Quercus macrocarpa	Bur Oak	S5								X		X		X	
Geraniaceae	**Geranium Family**														
Geranium robertianum	Herb-Robert	S5								X		X			
Grossulariaceae	**Currant Family**														
Ribes cynosbati	Prickly Gooseberry	S5								X				X	X
Hydrophyllaceae	**Water-leaf Family**														
Hydrophyllum virginianum	Virginia Waterleaf	S5								X			X	X	
Juglandaceae	**Walnut Family**														
Juglans cinerea	Butternut	S2?	END	E	E	Schedule 1	R	X							
Juglans nigra	Black Walnut	S4?								X	X	X	X	X	
Lamiaceae	**Mint Family**														
Leonurus cardiaca	Common Motherwort	SE5								X		X	X	X	X
Prunella vulgaris ssp. lanceolata	Lance-leaved Self-heal	S5								X		X			X
Oleaceae	**Olive Family**														
Fraxinus pennsylvanica	Green Ash	S4								X		X			
Onagraceae	**Evening-primrose Family**														
Circaea alpina	Small Enchanter's Nightshade	S5								X		X		X	
Oenothera biennis	Common Evening-primrose	S5								X			X		
Oxalidaceae	**Wood Sorrel Family**														
Oxalis stricta	Upright Yellow Wood-sorrel	SE5								X		X		X	
Plantaginaceae	**Plantain Family**														
Plantago lanceolata	English Plantain	SE5								X					X
Polygonaceae	**Smartweed Family**														
Rumex crispus	Curly Dock	SE5								X			X		
Ranunculaceae	**Buttercup Family**														
Ranunculus acris	Tall Buttercup	SE5								X		X	X	X	X
Rhamnaceae	**Buckthorn Family**														
Rhamnus cathartica	Common Buckthorn	SE5								X		X	X	X	
Rosaceae	**Rose Family**														
Crataegus sp.	Hawthorn sp.									X				X	
Fragaria vesca	Woodland Strawberry	S5								X		X			
Geum aleppicum	Yellow Avens	S5								X		X	X	X	
Malus pumila	Common Apple	SE4								X		X	X		
Potentilla recta	Sulphur Cinquefoil	SE5								X		X	X		
Potentilla simplex	Old-field Cinquefoil	S5								X		X	X	X	X
Prunus serotina	Black Cherry	S5								X		X	X	X	
Prunus virginiana	Choke Cherry	S5								X		X	X	X	
Rubus idaeus	Common Red Raspberry	S5								X		X	X	X	
Rubus nutkanus	Western Thimbleberry	S4								X		X	X		
Spiraea alba	White Meadowsweet	S5								X		X			
Rubiaceae	**Madder Family**														
Galium sp.	Bedstraw sp.									X		X			
Salicaceae	**Willow Family**														
Populus balsamifera	Balsam Poplar	S5								X			X		
Populus tremuloides	Trembling Aspen	S5								X		X			
Salix discolor	Pussy Willow	S5								X		X			

Scrophulariaceae	**Figwort Family**														
Linaria vulgaris	Butter-and-eggs	SE5								X		X	X	X	X
Verbascum thapsus	Common Mullein	SE5								X		X	X	X	X
Solanaceae	**Nightshade Family**														
Solanum dulcamara	Bittersweet Nightshade	SE5								X			X		X
Tiliaceae	**Linden Family**														
Tilia americana	American Basswood	S5								X		X	X	X	
Violaceae	**Violet Family**														
Viola labradorica	Labrador Violet	S5								X		X		X	
Vitaceae	**Grape Family**														
Parthenocissus vitacea	Thicket Creeper	S5								X		X	X	X	X
Vitis riparia	Riverbank Grape	S5								X		X	X	X	X
Monocotyledons	**Monocots**														
Liliaceae	**Lily Family**														
Erythronium americanum	Yellow Trout-lily	S5								X		X		X	
Maianthemum canadense	Wild Lily-of-the-valley	S5								X		X			X
Maianthemum racemosum	Large False Solomon's Seal	S5								X					X
Poaceae	**Grass Family**														
Bromus inermis	Smooth Brome	SE5								X		X	X	X	
Dactylis glomerata	Orchard Grass	SE5								X		X	X	X	
Poa pratensis	Kentucky Bluegrass	S5								X					X
Potamogetonaceae	**Pondweed Family**														
Potamogeton hillii	Hill's Pondweed	S2S3	SC	SC	SC	Schedule 1	R	X							
Total								**4**	**0**	**96**	**3**	**64**	**52**	**44**	**35**

*NHIC Atlas Squares: 17NJ6626, 17NJ6625

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Appendix VIII
Wildlife Species Lists for the Study Area

Bird Species Reported from the Study Area - Eramosa Farms EIS (Project #2409)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	MNRF Wellington County SAR List	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence	BMB-001	BMB-002	BMB-003	BMB-004	Other Observations
		MNRF 2023a	MECP 2024	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	Citation	BSC et al. 2006	MNRF 2023b	NRSI Results from 2020					
Anatidae	**Ducks, Geese & Swans**														
Aix sponsa	Wood Duck	S5B,S3N						CO							
Anas platyrhynchos	Mallard	S5						CO							
Branta canadensis	Canada Goose	S5						CO							
Mergus merganser	Common Merganser	S5						CO							
Odontophoridae	**New World Quails**														
Colinus virginianus	Northern Bobwhite	S1?	END	E	E	Schedule 1	X								
Phasianidae	**Partridges, Grouse & Turkeys**														
Bonasa umbellus	Ruffed Grouse	S5						PR							
Meleagris gallopavo	Wild Turkey	S5						PO							
Podicipediformes	**Grebes**														
Podilymbus podiceps	Pied-billed Grebe	S4B,S2N						CO							
Columbidae	**Pigeons & Doves**														
Columba livia	Rock Pigeon	SNA						CO		**OB**					OB
Zenaida macroura	Mourning Dove	S5						CO		**PO**			PO	PO	
Cuculiformes	**Cuckoos & Anis**														
Coccyzus erythropthalmus	Black-billed Cuckoo	S4S5B						PO							
Caprimulgidae	**Goatsuckers**														
Antrostomus vociferus	Eastern Whip-poor-will	S4B	THR	SC	T	Schedule 1	X								
Chordeiles minor	Common Nighthawk	S4B	SC	SC	SC	Schedule 1	X								
Apodidae	**Swifts**														
Chaetura pelagica	Chimney Swift	S3B	THR	T	T	Schedule 1	X	PR							
Trochilidae	**Hummingbirds**														
Archilochus colubris	Ruby-throated Hummingbird	S5B						PR							
Rallidae	**Rails, Gallinules & Coots**														
Porzana carolina	Sora	S5B						PR							
Rallus limicola	Virginia Rail	S4S5B						PR							
Charadriidae	**Plovers & Lapwings**														
Charadrius vociferus	Killdeer	S4B						CO		**OB**					OB
Scolopacidae	**Sandpipers & Allies**														
Actitis macularius	Spotted Sandpiper	S5B						CO							
Gallinago delicata	Wilson's Snipe	S5B						PO							
Scolopax minor	American Woodcock	S4B						PR							
Laridae	**Gulls, Terns & Skimmers**														
Chlidonias niger	Black Tern	S3B,S4M	SC	NAR	NS	No schedule	X								
Gaviidae	**Loons**														
Gavia immer	Common Loon	S5	NAR	NAR	NS	No schedule		PO							
Ardeidae	**Herons & Bitterns**														
Ardea herodias	Great Blue Heron	S4						PR							
Butorides virescens	Green Heron	S4B						CO							
Ixobrychus exilis	Least Bittern	S4B	THR	T	T	Schedule 1	X	PO							
Cathartidae	**Vultures**														
Cathartes aura	Turkey Vulture	S5B,S3N						PO		**OB**					OB
Pandionidae	**Osprey**														
Pandion haliaetus	Osprey	S5B						CO		**OB**					OB
Accipitridae	**Hawks, Kites, Eagles & Allies**														
Accipiter cooperii	Cooper's Hawk	S4	NAR	NAR	NS	No schedule		CO							
Accipiter striatus	Sharp-shinned Hawk	S5	NAR	NAR	NS	No schedule		PR							
Buteo jamaicensis	Red-tailed Hawk	S5	NAR	NAR	NS	No schedule		CO							
Buteo platypterus	Broad-winged Hawk	S5B						PO							
Circus hudsonius	Northern Harrier	S5B,S4N	NAR	NAR	NS	No schedule		PO							
Haliaeetus leucocephalus	Bald Eagle	S4	NAR	NAR	NS	No schedule	X								
Tytonidae	**Barn Owls**														
Tyto alba	Barn Owl	S1	END	E	E	Schedule 1	X								
Strigidae	**Typical Owls**														
Asio flammeus	Short-eared Owl	S4?B,S2S3N	THR	T	SC	Schedule 1	X								

Asio otus	Long-eared Owl	S4						CO							
Bubo virginianus	Great Horned Owl	S4						CO							
Megascops asio	Eastern Screech-Owl	S4	NAR	NAR	NS	No schedule		CO							
Alcedinidae	**Kingfishers**														
Megaceryle alcyon	Belted Kingfisher	S5B,S4N						CO							
Picidae	**Woodpeckers**														
Colaptes auratus	Northern Flicker	S5						CO		**PO**			PO		OB
Dryobates pubescens	Downy Woodpecker	S5						CO		**OB**					OB
Dryobates villosus	Hairy Woodpecker	S5						CO							
Dryocopus pileatus	Pileated Woodpecker	S5						PR							
Melanerpes erythrocephalus	Red-headed Woodpecker	S3	END	E	E	Schedule 1	X	PO							
Falconidae	**Caracaras & Falcons**														
Falco sparverius	American Kestrel	S4						PO							
Tyrannidae	**Tyrant Flycatchers**														
Contopus cooperi	Olive-sided Flycatcher	S4B	SC	SC	SC	Schedule 1	X								
Contopus virens	Eastern Wood-Pewee	S4B	SC	SC	SC	Schedule 1	X	PR		**PO**			PO		OB
Empidonax alnorum	Alder Flycatcher	S5B						PR							
Empidonax minimus	Least Flycatcher	S5B						PR							
Empidonax traillii	Willow Flycatcher	S4B						PO							
Empidonax virescens	Acadian Flycatcher	S1B	END	E	E	Schedule 1	X								
Myiarchus crinitus	Great Crested Flycatcher	S5B						CO		**PR**			PR		OB
Sayornis phoebe	Eastern Phoebe	S5B						CO		**PO**				PO	
Tyrannus tyrannus	Eastern Kingbird	S4B						CO							
Laniidae	**Shrikes**														
Lanius ludovicianus	Loggerhead Shrike	S1B	END	E	E	Schedule 1	X								
Vireonidae	**Vireos**														
Vireo gilvus	Warbling Vireo	S5B						CO							
Vireo olivaceus	Red-eyed Vireo	S5B						CO		**PO**			PO		OB
Corvidae	**Crows & Jays**														
Corvus brachyrhynchos	American Crow	S5						CO		**PO**			PO	PO	OB
Corvus corax	Common Raven	S5						PO							
Cyanocitta cristata	Blue Jay	S5						CO		**PO**		PO			
Alaudidae	**Larks**														
Eremophila alpestris	Horned Lark	S4						PR		**PR**	PR	PR			OB
Hirundinidae	**Swallows**														
Hirundo rustica	Barn Swallow	S4B	SC	SC	T	Schedule 1	X	CO	X	**OB**				OB	OB
Petrochelidon pyrrhonota	Cliff Swallow	S4S5B						CO							
Riparia riparia	Bank Swallow	S4B	THR	T	T	Schedule 1	X	CO							
Stelgidopteryx serripennis	Northern Rough-winged Swallow	S4B						CO							
Tachycineta bicolor	Tree Swallow	S4S5B						CO		**PR**				PR	
Paridae	**Chickadees & Titmice**														
Poecile atricapillus	Black-capped Chickadee	S5						CO		**PO**			PO	PO	OB
Sittidae	**Nuthatches**														
Sitta canadensis	Red-breasted Nuthatch	S5						CO							
Sitta carolinensis	White-breasted Nuthatch	S5						CO		**PR**			PO	PR	
Certhiidae	**Creepers**														
Certhia americana	Brown Creeper	S5						CO							
Troglodytidae	**Wrens**														
Cistothorus palustris	Marsh Wren	S4B,S3N						PO							
Thryothorus ludovicianus	Carolina Wren	S4						CO							
Troglodytes aedon	House Wren	S5B						CO		**PR**	PO		PR		OB
Troglodytes hiemalis	Winter Wren	S5B,S4N						PR							
Turdidae	**Thrushes**														
Catharus fuscescens	Veery	S5B						PR		**OB**					OB
Hylocichla mustelina	Wood Thrush	S4B	SC	T	T	Schedule 1	X	PR							
Sialia sialis	Eastern Bluebird	S5B,S4N	NAR	NAR	NS	No schedule		CO							
Turdus migratorius	American Robin	S5						CO		**PR**	PO		PO	PR	OB
Mimidae	**Mockingbirds, Thrashers & Allies**														
Dumetella carolinensis	Gray Catbird	S5B,S3N						PR		**PO**			PO		
Toxostoma rufum	Brown Thrasher	S4B						CO							
Sturnidae	**Starlings**														
Sturnus vulgaris	European Starling	SNA						CO		**PR**			PR		OB
Bombycillidae	**Waxwings**														
Bombycilla cedrorum	Cedar Waxwing	S5						CO		**PO**	PO		PO	PO	
Passeridae	**Old World Sparrows**														
Passer domesticus	House Sparrow	SNA						PR							
Fringillidae	**Finches & Allies**														
Haemorhous mexicanus	House Finch	SNA						CO							

Haemorhous purpureus	Purple Finch	S5						CO							
Spinus pinus	Pine Siskin	S5						PR							
Spinus tristis	American Goldfinch	S5						CO		**PR**	PO	PO	PR	PR	OB
Passerellidae	**New World Sparrows & Allies**														
Ammodramus savannarum	Grasshopper Sparrow	S4B	SC	SC	SC	Schedule 1		PR							
Centronyx henslowii	Henslow's Sparrow	S1B	END	E	E	Schedule 1	X								
Melospiza georgiana	Swamp Sparrow	S5B,S4N						CO							
Melospiza melodia	Song Sparrow	S5						CO		**PR**	PR	PO	PR	PR	OB
Passerculus sandwichensis	Savannah Sparrow	S5B,S3N						CO		**PO**			PO		
Pipilo erythrophthalmus	Eastern Towhee	S4B,S3N						CO							
Pooecetes gramineus	Vesper Sparrow	S4B								**OB**					OB
Spizella pallida	Clay-colored Sparrow	S4B						CO							
Spizella passerina	Chipping Sparrow	S5B,S3N						CO		**PR**	PO			PR	OB
Spizella pusilla	Field Sparrow	S4B,S3N						CO		**OB**					OB
Zonotrichia albicollis	White-throated Sparrow	S5						PR							
Icteriidae	**Chats**														
Icteria virens	Yellow-breasted Chat	S1B	END	E	E	Schedule 1	X								
Icteridae	**Troupials & Allies**														
Agelaius phoeniceus	Red-winged Blackbird	S5						CO		**PO**			PO	PO	OB
Dolichonyx oryzivorus	Bobolink	S4B	THR	SC	T	Schedule 1	X	PR							
Icterus galbula	Baltimore Oriole	S4B						CO		**OB**					OB
Molothrus ater	Brown-headed Cowbird	S5						CO							
Quiscalus quiscula	Common Grackle	S5						CO		**PO**			PO		
Sturnella magna	Eastern Meadowlark	S4B,S3N	THR	T	T	Schedule 1	X	PR	X						
Parulidae	**Wood Warblers**														
Cardellina canadensis	Canada Warbler	S5B	SC	SC	T	Schedule 1	X								
Geothlypis philadelphia	Mourning Warbler	S5B						PR							
Geothlypis trichas	Common Yellowthroat	S5B,S3N						CO							
Leiothlypis ruficapilla	Nashville Warbler	S5B						PR							
Mniotilta varia	Black-and-white Warbler	S5B						CO							
Parkesia motacilla	Louisiana Waterthrush	S2B	THR	T	T	Schedule 1	X								
Parkesia noveboracensis	Northern Waterthrush	S5B						CO							
Seiurus aurocapilla	Ovenbird	S5B						CO							
Setophaga cerulea	Cerulean Warbler	S2B	THR	E	E	Schedule 1	X								
Setophaga coronata	Yellow-rumped Warbler	S5B,S4N						PR							
Setophaga fusca	Blackburnian Warbler	S5B						PO							
Setophaga magnolia	Magnolia Warbler	S5B						PO							
Setophaga pensylvanica	Chestnut-sided Warbler	S5B						PO							
Setophaga petechia	Yellow Warbler	S5B						CO		**PO**			PO		
Setophaga pinus	Pine Warbler	S5B,S3N						PR		**OB**					OB
Setophaga ruticilla	American Redstart	S5B						PR		**PO**			PO		
Setophaga virens	Black-throated Green Warbler	S5B						PR							
Vermivora chrysoptera	Golden-winged Warbler	S3B	SC	T	T	Schedule 1	X								
Vermivora cyanoptera	Blue-winged Warbler	S4B						PO							
Cardinalidae	**Cardinals, Grosbeaks & Allies**														
Cardinalis cardinalis	Northern Cardinal	S5						CO		**PR**				PR	OB
Passerina cyanea	Indigo Bunting	S5B						PR		**PR**	PO		PR	PR	OB
Pheucticus ludovicianus	Rose-breasted Grosbeak	S5B						PR		**PO**				PO	
Piranga olivacea	Scarlet Tanager	S5B						PO							
Total							**25**	**112**	**2**	**39**	**8**	**4**	**21**	**16**	**27**

*OBBA Atlas Square: 17NJ62

**NHIC Atlas Squares: 17NJ6626, 17NJ6625

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Ministry of Natural Resources and Forestry (MNRF). 2023a. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2023-09-19. Available: https://www.ontario.ca/page/get-natural-heritage-information

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Reptile and Amphibian Species Reported from the Study Area - Eramosa Farms EIS (Project #2409)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	MNRF Wellington County SAR List	ORAA*	NHIC Data**
		MNRF 2023a	MECP 2024	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	Citation	Ontario Nature 2019	MNRF 2023b
Turtles									
Chelydra serpentina	Snapping Turtle	S4	SC	SC	SC	Schedule 1	**X**	X	X
Chrysemys picta marginata	Midland Painted Turtle	S4		SC	SC	Schedule 1		X	
Emydoidea blandingii	Blanding's Turtle (Great Lakes / St. Lawre	S3	THR	E	E	Schedule 1	**X**	X	
Graptemys geographica	Northern Map Turtle	S3	SC	SC	SC	Schedule 1		X	
Trachemys scripta	Pond Slider	SNA						X	
Snakes									
Lampropeltis triangulum	Eastern Milksnake	S4	NAR	SC	SC	Schedule 1		X	
Opheodrys vernalis	Smooth Greensnake	S4						X	
Nerodia sipedon sipedon	Northern Watersnake	S5	NAR	NAR	NS	No schedule		X	
Sistrurus catenatus pop. 1	Massasauga (Great Lakes / St. Lawrence	S3	THR	T	T	Schedule 1	**X**		
Storeria dekayi	Dekay's Brownsnake	S5	NAR	NAR	NS	No schedule		X	
Storeria occipitomaculata	Red-bellied Snake	S5						X	
Thamnophis butleri	Butler's Gartersnake	S2	END	E	E	Schedule 1	**X**		
Thamnophis saurita septentrionalis	Northern Ribbonsnake	S4	SC	SC	SC	Schedule 1	**X**	X	
Thamnophis sirtalis sirtalis	Eastern Gartersnake	S5						X	
Salamanders									
Ambystoma jeffersonianum	Jefferson Salamander	S2	END	E	E	Schedule 1	**X**		
Ambystoma laterale - (2) jeffersonianum	Unisexual Ambystoma (Jefferson Salamar	S2	END	E	E	Schedule 1	**X**		
Ambystoma laterale	Blue-spotted Salamander	S4						X	
Ambystoma maculatum	Spotted Salamander	S4						X	
Necturus maculosus	Mudpuppy	S4	NAR	N-A	NS	No schedule		X	
Notophthalmus viridescens viridescens	Red-spotted Newt	S5						X	
Plethodon cinereus	Eastern Red-backed Salamander	S5						X	
Frogs and Toads									
Anaxyrus americanus	American Toad	S5						X	
Dryophytes versicolor	Gray Treefrog	S5						X	
Pseudacris triseriata pop. 2	Western Chorus Frog (Great Lakes / St. L	S4	NAR	T	T	Schedule 1		X	
Pseudacris crucifer	Spring Peeper	S5						X	
Lithobates catesbeianus	American Bullfrog	S4						X	
Lithobates clamitans	Green Frog	S5						X	
Lithobates palustris	Pickerel Frog	S4	NAR	NAR	NS	No schedule		X	
Lithobates pipiens	Northern Leopard Frog	S5	NAR	NAR	NS	No schedule		X	
Lithobates septentrionalis	Mink Frog	S5						X	
Lithobates sylvaticus	Wood Frog	S5						X	
Total							**7**	**27**	**1**

*ORAA Atlas Square: 17NJ62
**NHIC Atlas Squares: 17NJ6626, 17NJ6625

References

Ministry of Natural Resources and Forestry (MNRF). 2023a. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2023-09-19. Available: https://www.ontario.ca/page/get-natural-heritage-information
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Mammal Species Reported from the Study Area - Eramosa Farm EIS (Project #2409)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Wellington County Status	MNRF Wellington County SAR List	Ontario Mammal Atlas	NHIC Data**	NRSI Observed
		MNRF 2023a	MECP 2024	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	Dougan & Associates 2009	Citation	Dobbyn 1994	MNRF 2023b	NRSI Results from 2020
Didelphimorphia	**Opossums**										
Didelphis virginiana	Virginia Opossum	S4					X		X		
Eulipotyphla	**Shrews, Moles, Hedgehogs, and Allies**										
Blarina brevicauda	Northern Short-tailed Shrew	S5					X		X		
Condylura cristata	Star-nosed Mole	S5					X		X		
Parascalops breweri	Hairy-tailed Mole	S4					R		X		
Sorex cinereus	Masked Shrew	S5					X		X		
Sorex fumeus	Smoky Shrew	S5					X		X		
Sorex palustris	Water Shrew	S5					R		X		
Chiroptera	**Bats**										
Eptesicus fuscus	Big Brown Bat	S4					X		X		
Lasionycteris noctivagans	Silver-haired Bat	S4		E	NS	No schedule	X		X		
Lasiurus borealis	Eastern Red Bat	S4		E	NS	No schedule	X		X		
Lasiurus cinereus	Hoary Bat	S4		E	NS	No schedule	X		X		
Myotis leibii	Eastern Small-footed Myotis	S2S3	END				R	X	X		
Myotis lucifugus	Little Brown Myotis	S3	END	E	E	Schedule 1	X	X	X		
Myotis septentrionalis	Northern Myotis	S3	END	E	E	Schedule 1	R	X	X		
Perimyotis subflavus	Tri-colored Bat	S3?	END	E	E	Schedule 1	R	X	X		
Lagomorpha	**Rabbits and Hares**										
Lepus americanus	Snowshoe Hare	S5					R		X		
Lepus europaeus	European Hare	SNA					X		X		
Sylvilagus floridanus	Eastern Cottontail	S5					X		X		X
Rodentia	**Rodents**										
Castor canadensis	Beaver	S5					X		X		
Erethizon dorsatum	Porcupine	S5					X		X		
Glaucomys sabrinus	Northern Flying Squirrel	S5					R		X		
Marmota monax	Woodchuck	S5					X		X		
Microtus pennsylvanicus	Meadow Vole	S5					X		X		
Microtus pinetorum	Woodland Vole	S3?	SC	SC	SC	Schedule 1	R		X		
Mus musculus	House Mouse	SNA					X		X		
Napaeozapus insignis	Woodland Jumping Mouse	S5					R		X		
Ondatra zibethicus	Muskrat	S5					X		X		
Peromyscus leucopus	White-footed Mouse	S5					X		X		
Peromyscus maniculatus	Deer Mouse	S5					X		X		
Rattus norvegicus	Norway Rat	SNA					X		X		
Sciurus carolinensis	Eastern Gray Squirrel	S5					X		X		X
Synaptomys cooperi	Southern Bog Lemming	S4					R		X		
Tamias striatus	Eastern Chipmunk	S5					X		X		X
Tamiasciurus hudsonicus	Red Squirrel	S5					X		X		X
Zapus hudsonius	Meadow Jumping Mouse	S5					X		X		
Canidae	**Canines**										
Canis latrans	Coyote	S5					X		X		
Urocyon cinereoargenteus	Gray Fox	S1	THR	T	T	Schedule 1	R	X			
Vulpes vulpes	Red Fox	S5					X		X		
Felidae	**Felines**										
Lynx rufus	Bobcat	S4					R		X		
Mephitidae	**Skunks and Stink Badgers**										
Mephitis mephitis	Striped Skunk	S5					X		X		
Mustelidae	**Weasels and Allies**										
Mustela richardsonii	American Ermine	S5					X		X		
Neogale frenata	Long-tailed Weasel	S4					R		X		
Neogale vison	American Mink	S4					X		X		
Taxidea taxus jacksoni	American Badger (Southwestern Ontario	S1	END	E	E	Schedule 1	R		X		
Procyonidae	**Raccoons and Allies**										
Procyon lotor	Northern Raccoon	S5					X		X		
Ursidae	**Bears**										
Ursus americanus	American Black Bear	S5	NAR	NAR	NS	No schedule	R		X		
Artiodactyla	**Deer and Bison**										
Odocoileus virginianus	White-tailed Deer	S5					X		X		
Total								**5**	**46**	**0**	**4**

*Mammal Atlas Square Number: NU
**NHIC Atlas Squares: 17NJ6626, 17NJ6625

References

Ministry of Natural Resources and Forestry (MNRF). 2023a. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2023-09-19. Available: https://www.ontario.ca/page/get-natural-heritage-information
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Government of Canada. 2023. Species at Risk Public Registry: Species Search. COSEWIC Last Assessment Date: 2023-05-05. Available: https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10
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Ministry of Natural Resources and Forestry (MNRF). 2023b. Natural Heritage Information Centre (NHIC): Make a Natural Heritage Area Map Application. Published: 2014-07-17. Updated 2023-03-03. Available: https://www.ontario.ca/page/make-natural-heritage-area-map

Butterfly Species Reported from the Study Area - Eramosa Farms EIS (Project #2409)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Wellington County Status	MNRF Wellington County SAR List	Ontario Butterfly Atlas*	NHIC Data**	NRSI Observed
		MNRF 2023a	MECP 2024	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	Dougan & Associates 2009	Citation	Macnaughton et al. 2023	MNRF 2023b	NRSI Results from 2020
Hesperiidae	**Skippers**										
Anatrytone logan	Delaware Skipper	S4					X		X		
Ancyloxypha numitor	Least Skipper	S5							X		
Carterocephalus palaemon	Arctic Skipper	S5							X		
Epargyreus clarus	Silver-spotted Skipper	S4							X		
Erynnis baptisiae	Wild Indigo Duskywing	S4					X		X		
Erynnis icelus	Dreamy Duskywing	S5							X		
Erynnis juvenalis	Juvenal's Duskywing	S5							X		
Euphyes conspicua	Black Dash	S3					X		X		
Euphyes vestris	Dun Skipper	S5							X		
Hylephila phyleus	Fiery Skipper	SNA							X		
Poanes hobomok	Hobomok Skipper	S5							X		
Poanes viator	Broad-winged Skipper	S4							X		
Polites mystic	Long Dash Skipper	S5							X		
Polites origenes	Crossline Skipper	S4							X		
Polites peckius	Peck's Skipper	S5							X		
Polites themistocles	Tawny-edged Skipper	S5							X		
Pompeius verna	Little Glassywing	S4					X		X		
Thorybes pylades	Northern Cloudywing	S5							X		
Thymelicus lineola	European Skipper	SNA							X		
Wallengrenia egeremet	Northern Broken Dash	S5							X		
Papilionidae	**Swallowtails**										
Heraclides cresphontes	Giant Swallowtail	S4					X		X		
Papilio glaucus	Eastern Tiger Swallowtail	S5							X		
Papilio polyxenes	Black Swallowtail	S5							X		
Pieridae	**Whites and Sulphurs**										
Colias eurytheme	Orange Sulphur	S5							X		
Colias interior	Pink-edged Sulphur	S5							X		
Colias philodice	Clouded Sulphur	S5							X		
Pieris oleracea	Mustard White	S4							X		
Pieris rapae	Cabbage White	SNA							X		X
Pieris virginiensis	West Virginia White	S3	SC				X	X	X		
Lycaenidae	**Harvesters, Coppers, Hairstreaks, Blues**										
Callophrys niphon	Eastern Pine Elfin	S5							X		
Celastrina lucia	Northern Spring Azure	S5							X		
Celastrina neglecta	Summer Azure	S5							X		
Celastrina sp.	Azure species	SNA							X		
Cupido comyntas	Eastern Tailed Blue	S5							X		
Feniseca tarquinius	Harvester	S4							X		
Glaucopsyche lygdamus	Silvery Blue	S5							X		
Lycaena hyllus	Bronze Copper	S5							X		
Satyrium acadica	Acadian Hairstreak	S4							X		
Satyrium calanus	Banded Hairstreak	S4							X		
Satyrium liparops	Striped Hairstreak	S5							X		
Satyrium titus	Coral Hairstreak	S5							X		
Nymphalidae	**Brush-footed Butterflies**										
Aglais milberti	Milbert's Tortoiseshell	S5							X		
Asterocampa celtis	Hackberry Emperor	S3					X		X		
Asterocampa clyton	Tawny Emperor	S3					X		X		
Boloria bellona	Meadow Fritillary	S5							X		
Boloria selene	Silver-bordered Fritillary	S5							X		
Cercyonis pegala	Common Wood-Nymph	S5							X		
Coenonympha california	Common Ringlet	S5							X		
Danaus plexippus	Monarch	S2N,S4B	SC	E	E	Schedule 1	X*	X	X		X
Euphydryas phaeton	Baltimore Checkerspot	S4							X		
Euptoieta claudia	Variegated Fritillary	SNA					R		X		
Junonia coenia	Common Buckeye	SNA							X		

Lethe anthedon	Northern Pearly-Eye	S5							X		
Lethe appalachia	Appalachian Brown	S4							X		
Lethe eurydice	Eyed Brown	S5							X		
Libytheana carinenta	American Snout	SNA							X		
Limenitis archippus	Viceroy	S5							X		
Limenitis arthemis arthemis	White Admiral	S5							X		
Limenitis arthemis astyanax	Red-spotted Purple	S5							X		X
Megisto cymela	Little Wood-Satyr	S5							X		X
Nymphalis antiopa	Mourning Cloak	S5							X		
Nymphalis l-album	Compton Tortoiseshell	S5							X		
Phyciodes cocyta	Northern Crescent	S5							X		
Phyciodes tharos	Pearl Crescent	S4							X		
Polygonia comma	Eastern Comma	S5							X		
Polygonia interrogationis	Question Mark	S5							X		
Polygonia progne	Gray Comma	S5							X		
Speyeria aphrodite	Aphrodite Fritillary	S5							X		
Vanessa atalanta	Red Admiral	S5B							X		
Vanessa cardui	Painted Lady	S5B							X		
Vanessa virginiensis	American Lady	S5							X		
Total								**2**	**71**	**0**	**4**

*TEA Atlas Square: Square #
**NHIC Atlas Square: Square #

References

Ministry of Natural Resources and Forestry (MNRF). 2023a. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2023-09-19. Available: https://www.ontario.ca/page/get-natural-heritage-information
Ministry of the Environment, Conservation, and Parks (MECP). 2024. Species at Risk in Ontario. Published: 2018-07-12. Updated: 2024-01-31. Available: https://www.ontario.ca/page/species-risk-ontario
Government of Canada. 2023. Species at Risk Public Registry: Species Search. COSEWIC Last Assessment Date: 2023-05-05. Available: https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10
Dougan and Associates. 2009. City of Guelph Natural Heritage Strategy: Phase 2: Terrestrial Inventory & Natural Heritage System: Volume 2: Technical Appendices. Available: https://guelph.ca/wp-content/uploads/NaturalHeritageStrategyPhase2_finalReport.pdf

Odonate Species Reported from the Study Area - Eramosa Farms EIS (Project #2409)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Wellington County Status	MNRF Wellington County SAR List	Odonate Atlas*	NHIC Data**
		MNRF 2023a	MECP 2024	Government of Canada 2023	Government of Canada 2023	Government of Canada 2023	Dougan and Associates 2009	MNRF 2018	OOAD 2023	MNRF 2023b
Calopterygidae	**Broadwinged Damselflies**									
Calopteryx aequabilis	River Jewelwing	S5							X	
Calopteryx maculata	Ebony Jewelwing	S5							X	
Hetaerina americana	American Rubyspot	S4							X	
Lestidae	**Spreadwings**									
Lestes congener	Spotted Spreadwing	S5							X	
Lestes disjunctus	Northern Spreadwing	S5							X	
Lestes dryas	Emerald Spreadwing	S5							X	
Lestes rectangularis	Slender Spreadwing	S5							X	
Lestes unguiculatus	Lyre-tipped Spreadwing	S5							X	
Coenagrionidae	**Narrow-winged Damselflies**									
Amphiagrion saucium	Eastern Red Damsel	S4					X		X	
Argia fumipennis violacea	Violet Dancer	S5							X	
Argia moesta	Powdered Dancer	S5							X	
Coenagrion resolutum	Taiga Bluet	S5					X		X	
Enallagma antennatum	Rainbow Bluet	S4							X	
Enallagma boreale	Boreal Bluet	S5							X	
Enallagma carunculatum	Tule Bluet	S5							X	
Enallagma ebrium	Marsh Bluet	S5							X	
Enallagma exsulans	Stream Bluet	S5							X	
Enallagma signatum	Orange Bluet	S4							X	
Enallagma vernale	Vernal Bluet	S4							X	
Ischnura verticalis	Eastern Forktail	S5							X	
Nehalennia irene	Sedge Sprite	S5							X	
Aeshnidae	**Darners**									
Aeshna canadensis	Canada Darner	S5							X	
Aeshna clepsydra	Mottled Darner	S4					X		X	
Aeshna constricta	Lance-tipped Darner	S5							X	
Aeshna interrupta interrupta	Variable (Interrupted) Darner	S5					X		X	
Aeshna umbrosa	Shadow Darner	S5							X	
Anax junius	Common Green Darner	S5							X	
Basiaeschna janata	Springtime Darner	S5					X		X	
Boyeria vinosa	Fawn Darner	S5							X	
Gomphidae	**Clubtails**									
Dromogomphus spinosus	Black-shouldered Spinyleg	S5					X		X	
Hagenius brevistylus	Dragonhunter	S5					X		X	
Ophiogomphus rupinsulensis	Rusty Snaketail	S4					X		X	
Phanogomphus descriptus	Harpoon Clubtail	S3					X		X	
Phanogomphus lividus	Ashy Clubtail	S4					X		X	
Stylogomphus albistylus	Eastern Least Clubtail	S4					P		X	
Corduliidae	**Emeralds**									
Epitheca canis	Beaverpond Baskettail	S5							X	
Helocordulia uhleri	Uhler's Sundragon	S3							X	
Somatochlora tenebrosa	Clamp-tipped Emerald	S3					X		X	
Somatochlora walshii	Brush-tipped Emerald	S4					X		X	
Somatochlora williamsoni	Williamson's Emerald	S4					X		X	
Libellulidae	**Skimmers**									
Celithemis elisa	Calico Pennant	S5							X	
Celithemis eponina	Halloween Pennant	S4					X		X	
Ladona julia	Chalk-fronted Corporal	S5					X		X	
Leucorrhinia intacta	Dot-tailed Whiteface	S5							X	
Libellula luctuosa	Widow Skimmer	S5							X	
Libellula pulchella	Twelve-spotted Skimmer	S5							X	
Libellula quadrimaculata	Four-spotted Skimmer	S5							X	
Libellula semifasciata	Painted Skimmer	S3					X		X	
Pachydiplax longipennis	Blue Dasher	S5							X	
Pantala flavescens	Wandering Glider	S4							X	

Perithemis tenera	Eastern Amberwing	S4					X		X	
Plathemis lydia	Common Whitetail	S5							X	
Sympetrum internum	Cherry-faced Meadowhawk	S5							X	
Sympetrum obtrusum	White-faced Meadowhawk	S5							X	
Sympetrum rubicundulum	Ruby Meadowhawk	S5							X	
Sympetrum semicinctum	Band-winged Meadowhawk	S4							X	
Sympetrum vicinum	Autumn Meadowhawk	S5							X	
Tramea lacerata	Black Saddlebags	S4							X	
Total								**0**	**58**	**0**

**Odonate Atlas Square Numbers: 17NJ62*

References

Ministry of Natural Resources and Forestry (MNRF). 2023a. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2023-09-19. Available: https://www.ontario.ca/page/get-natural-heritage-information

Ministry of the Environment, Conservation, and Parks (MECP). 2023. Species at Risk in Ontario. Published: 2018-07-12. Updated: 2024-01-31. Available: https://www.ontario.ca/page/species-risk-ontario

Government of Canada. 2023. Species at Risk Public Registry: Species Search. COSEWIC Last Assessment Date: 2023-05-05. Available: https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10

Dougan and Associates. 2009. City of Guelph Natural Heritage Strategy: Phase 2: Terrestrial Inventory & Natural Heritage System: Volume 2: Technical Appendices. Available: https://guelph.ca/wp-content/uploads/NaturalHeritageStrategyPhase2_finalReport.pdf

Appendix IX
Drain Memo

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Memo

Project No. 2409A

To:	**Julian Attree, Minus Forty**
	Hugh Handy, GSP Group Inc.
From:	**Gina MacVeigh, Natural Resource Solutions Inc.**
Date:	**March 11, 2021**
Re:	**5063 Jones Baseline, Scoped EIS**
	Characterization – Drainage Feature

The following summary report outlines the conditions of the drainage feature identified within the subject property. The purpose of this memo is to provide additional information to the Township of Guelph-Eramosa, County of Wellington, Grand River Conservation Authority (GRCA), and the Department of Fisheries and Oceans (DFO) to rectify discrepancies regarding the drain classification and to have the feature appropriately classified (i.e. as a municipal drain, class of drain, thermal code).

Background Information

Background Information was reviewed and a Municipal Drain Report from 1980 (Appendix I) was identified, which indicated the feature within the subject property, shown on Map 1, is considered an open drain having its outlet into the Clythe Creek (Wetland). The Drain Report indicates that the feature is approximately 930m in length and that it originates on the north side of the Canadian National Railway right-of-way (ROW). The report states that once the drain was constructed, the intent was to carry water off approximately 2/3 of the drainage area to an outlet into the Clythe Creek and would benefit the lands surrounding the former natural course, where flooding had occurred prior to 1980.

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) drainage layer does not currently identify the system as being a Municipal Drain and the DFO does not have the drain classified.

The GRCA's mapping, which utilizes the Ontario Ministry of Natural Resources and Forestry (OMNRF) Aquatic Resource Line GIS layer, currently identifies the watercourse thermal code as cold water. The GRCA indicated that to update this designation as a cold-water watercourse, an aquatic assessment of the watercourse and its associated fish community would need to be completed to demonstrate that the flows are intermittent and that it does not have a resident community.

Field Methods

The DFO has developed a guidance document, "Guide to Classifying Ontario Municipal Drains" (Kavanagh et al. 2017), which outlines the required information needed for DFO to classify or update a drain class. The data required to support a drain classification process includes the drain location/extent, flow characteristics, and the fish species present. As field surveys

occurred prior to the knowledge that the feature was a municipal drain, the classification process was not followed, although the information collected should provide a good understanding of what is occurring within the feature.

NRSI completed an aquatic habitat characterization on the drainage feature on June 29, 2020. In order to characterize the aquatic habitats, the entire drainage feature from Highway 7 to the property extent downstream (approximately 800m), the following information was recorded at multiple locations, where possible:

- substrate type,
- water temperature,
- dissolved oxygen,
- riparian and aquatic vegetation,
- cover type and quality, and,
- flow conditions.

Representative photographs of the site and drain conditions were taken and have been appended to this memo. Photographs were not taken at each site visit, although field notes were taken on the condition of the drain (i.e. if it was dry). No fish community sampling was completed due to the lack of water during all the site assessments.

NRSI completed a follow-up survey on March 12, 2021, after there had been numerous days of above zero temperatures, to document melt conditions within the drainage feature.

Additional dates where the drain was assessed have been identified below in Table 1.

Aquatic Habitat Characterization

As the feature was dry during all site assessments (Table 1), the information able to be collected was limited (i.e. no water temperature or water quality parameters).

Table 1. Summary of Drain Assessments and Flow Conditions

Date	Firm	Flow Conditions	Photos Taken?
April 24, 2020	NRSI	Drain was dry	No- notes taken during a terrestrial field survey
June 2, 2020	NRSI	Drain was dry	No- notes taken during a terrestrial field survey
June 29, 2020	NRSI	Drain was dry	Yes – photographs taken during aquatic assessment (Appendix II)
July 29, 2020	NRSI	Drain was dry	No- notes taken during a terrestrial field survey
January 2021	Chung & Vander Doelen Engineering Ltd.	Snow within drain, no flow, no evidence of flow	No – notes taken

February 2, 2021	Chung & Vander Doelen Engineering Ltd	Snow within drain, no flow, no evidence of flow	Yes (Appendix III)
March 3, 2021	Chung & Vander Doelen Engineering Ltd	Snow within drain, no flow, no evidence of flow	Yes (Appendix III)
March 12, 2021	NRSI	Very limited snow present within drain. Dry with no evidence of flow. Small pool of water at laneway but no connection.	Yes (Appendix IV)

June 29, 2021 Results

During the aquatic habitat assessment completed by NRSI, the soils within the feature were dry, with no indication of pooling or flow. The drainage feature was uniform in size and there was no defined channel within the feature, and terrestrial vegetation (grasses, shrubs) were present within the confines of the drain. The feature had a low gradient, was straight and had stable banks. Bank vegetation was high in density and comprised of grasses and shrubs. The drainage feature had a limited riparian zone, although what was present did provide good shading to the drain. The adjacent lands are primarily agricultural, with several residential properties near Highway 7. There was no evidence of substrate sorting within the feature, and dry soil and detritus was present.

An approximately 1.0m-diameter CSP culvert was present north of Highway 7 under the railway. A very small amount of water was present on the upstream side (north) but there was no flow (and not enough water to collect any water quality data). An agricultural field is present to the north of the railway as well.

At Highway 7, a 1.75 m corrugated steel pipe (CSP) is present under the road. At the time of the assessment there was no water present, and slumping of the bank has occurred at the downstream end of the CSP. This slumping would cause any water from upstream to pool within the culvert. The drainage feature was grass lined at this location, and the grass continued to within the CSP.

At the downstream extent of the subject property, no culvert was located under the laneway at the southwest corner. It is uncertain when the laneway was created, but as no culvert was installed, and there is no evidence of erosion, this would indicate the feature is primarily dry. Downstream of the laneway, the drainage feature was dry.

No fish or fish habitat was identified within the drainage feature. No evidence of groundwater or groundwater indicators were found within the feature.

March 12, 2021 Results

An aquatic biologist visited the site on March 12, 2021, during melt conditions to document flow conditions within the drainage feature. The feature was assessed from the Railway, all the way to the laneway at the edge of the subject property. Photographs from the assessment are attached in Appendix IV.

At the CSP culvert under the railway, there was a small amount of water within the culvert, but no evidence of flow from this culvert to the culvert under Hwy 7. Snow had primarily melted off the agricultural field to the north, but there was still a small amount of snow in the right-of-way at the culvert.

No water was present within the downstream end of the culvert under Hwy 7, and the slumping that was identified during the characterization on June 29, 2020 was still present (which would cause a barrier to flow if any was present).

Throughout the straightened segments of the feature, the detritus soils were damp from the snow melt, but there was no evidence that flow is ever present. The surrounding agricultural fields were primarily clear of snow, having melted the past week due to the warmer air temperatures.

At the laneway, at the downstream extent, a pool of water was present. This pool of water is likely formed as this is a low point for the surrounding area and spring melt has caused the pool. There was no flow, and no culvert under the laneway, and immediately downstream of the laneway the drainage feature had dry conditions (i.e. no flow, no water present).

Summary

Based on the results of the background review, the aquatic habitat characterizations during multiple seasons, and the additional surveys of the drainage feature indicating it was dry, it is likely that this currently unrated drain, would be classified as an F drain. An F Drain is the lowest drain classification and is based on having an intermittent flow, spring spawning period, no sensitive species, and an Authorization would not be required if work could be done when the drain is dry, frozen, or there is no flow.

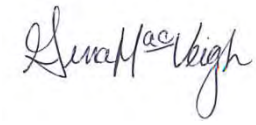
Further to this classification, based on the results of the field assessments this feature should be considered ephemeral and would only convey water during high rain events or significant melt events (if at all).

Based on our assessment, the feature does not provide fish habitat, either direct or indirect as it does not have any connection past the laneway, and was dry for at least the majority of a year.

As no groundwater or groundwater indicator species were identified within the drain, and the drain was consistently dry, it is our opinion that the feature should be re-classified from cool-cold water thermal regime to a warm water regime.

Sincerely

Natural Resource Solutions Inc.



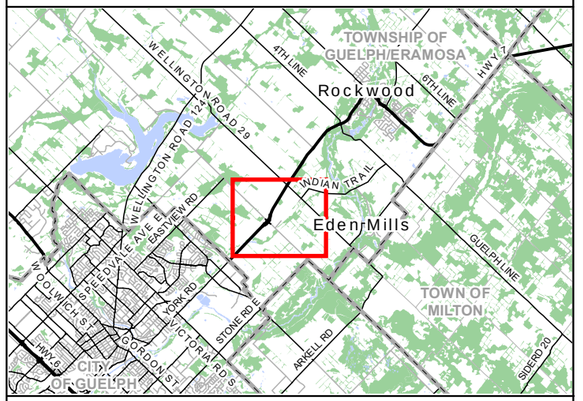
Gina MacVeigh, F.W.T
Aquatic Biologist

Reference

Kavanagh R.J., L. Wren, C.T. Hoggarth. 2017. Guidance for Maintaining and Repairing Municipal Drains in Ontario. Central and Arctic Region Fisheries and Oceans Canada.

Map 1

5063 Jones Baseline
Scoped EIS
Study Area



Legend

- Study Area
- Subject Property
- Aquatic Resource Area (ARA) Survey Point
- Utility Line
- Railway
- Permanent Watercourse
- Intermittent Watercourse
- Water Body
- Provincially Significant Wetland (PSW)
- Unevaluated Wetland
- Floodplain (GRCA)
- Regulation Limit (GRCA)
- Wooded Area
- Natural Heritate System

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 2409A
Date: November 6, 2020

NAD83 - UTM Zone 17
Size: 11x17"
1:10,000

0 100 200 300 400 500 600 Metres

N

Path: X:\2409_EramosaFarms_EIS\NRSI_2409A_Map1_StudyArea_3K_2020_11_06_KEF.mxd

Appendix I
Municipal Drain Report (1980)

LAND SURVEYORS
MUNICIPAL DRAINAGE CONSULTANTS
PRINCIPAL - E. H. UDERSTADT O.L.S.

E. H. UDERSTADT INC.

162 BROADWAY
ORANGEVILLE, ONT. L9W 1K3
TELEPHONE (519) 941-1161

#14
E.H.U.

Dated: 1980 06 18

File No: D-ER-109

The Reeve and Council,
Township of Eramosa.

Gentlemen:

HIGHWAY NO. 7 DRAINAGE WORKS

Under the provisions of the Drainage Act 1975 Section 4 and in accordance with our appointment, pursuant to a petition signed by E. J. McCabe, Regional Director, Ministry of Transportation and Communications, describing part of Highway No. 7 as the area requiring drainage, we held an on-site meeting, made an examination and survey of the area and submitted a preliminary report dated 1980 02 12.

The drainage area comprises approximately 255 hectares.

On April 3, 1980 the said preliminary report was considered at a meeting called for that purpose and after a lengthly discussion it was agreed to proceed with the final report for a drain through Lot 5 Con. 1, Township of Eramosa.

We have now made the necessary additional survey, had discussions with several owners not present at the above mentioned meeting and found, by digging test holes, that at least one rock ledge, as shown on the profile, will have to be removed.

This report provides for an open drain having its outlet into the Clythe Creek in Lot W½ 4 Con. 1, Township of Eramosa, thence following in a northerly direction to and across Side Road 4-5, thence along the half concession line to a point approximately 200 metres short of Highway No. 7, thence easterly and northerly following the contours of the existing bush land to and across Highway No. 7 and the Canadian National Railway right-of-way. A new culvert construction is proposed for the crossing of Highway No. 7 and a culvert replacement for the railway. The total length of the drain is 930 metres. When constructed, this drain will carry the water off approximately 2/3 of the drainage area in a shorter and more direct route to an outlet into the Clythe Creek and will greatly benefit the lands along its former natural course, where flooding problems had occurred frequently.

It is further recommended that the authority in charge of the Eramosa - Guelph Townline Road clean-out the concrete culvert just south of the intersection with Highway No. 7, to the top of the footings. Excavate the drain and remove all obstructions for a distance of about 50 metres. The said drain is located on Highway No. 7 right-of-way.

The plan shows the location of the work and the lands affected by it; the profile and specifications show the dimensions, grades, disposal of material and other particulars of the work.

It is considered equitable to make an allowance for Severance under Section 33 instead of providing for the construction, enlargement or other improvement of farm crossings rendered necessary by the work.

Attention is drawn to Section 80 and Section 83 regarding responsibilities of owners with respect to obstructions and pollution.

The amounts to be paid in allowances to owners entitled thereto under Section 29-33 where applicable, which shall become due in accordance with Section 62 (3) & (4) are determined as follows:

ALLOWANCES TO OWNERS:

Con.	Lot or Part	Owner	Land Used Sec.29	Damage to Lands, Crops, etc. Sec.30	Severance Sec.33
1	Pt.W½ 4	J. & W. Nesbitt	500.00	350.00	2000.00
	Pt.W½ 5	W. & K. Edwards	1000.00	550.00	
	Pt.W½ 5	E. Facchini	300.00	200.00	
	Pt.E½ 5	M. Robertson	750.00	800.00	2000.00
Totals			2550.00	1900.00	4000.00

TOTAL ALLOWANCES: HIGHWAY NO. 7 DRAINAGE WORKS: $ 8,450.00

RECOMMENDED FARM CULVERT SIZES

Con.	Lot or Part	Owner	Recommended Size
1	Pt.W½ 4	J. & W. Nesbitt	1800 mm dia. or equivelant
	Pt.E½ 5	M. Robertson	1800 mm dia. or equivelant

THE ESTIMATE OF THE COST of the work is as follows:

Approximately 3400 Cubic Metres of Earth Excavation, Including Silt Traps, Spreading and Levelling excavated Material, Including Fill into low area at Station ±500, Clearing Brush, Trees etc., Approximately 350 Cubic Metres of Rock Excavation, Removal and Disposal of excavated Rock, Fence Repair, General Clean-up, Etc.,	17,000.00
Township Road Culvert, Side Road 4-5 12 m 2130mm x 1400mm 10 GA. C.S.P. Arch, Delivered, Installation of Pipe Arch with Granular Bedding and Compacted Backfill to 500 mm above Culvert, Restoration of Road Surface (150 mm Granular "A"), Removal and Disposal of Excess Material, All to Manufacturers' Specification and Under the Supervision of the Road Authority,	5,000.00
Highway No. 7 Culvert 22 m 1800 mm Dia. 10 GA. C.S.P., Delivered, Installation of Pipe by Open Cut, Granular Bedding and Compacted Backfill, Restoration of Asphalt Pavement, Restoration of Gravel Shoulders, Granular "A", Removal and Disposal of Excess Material, All to Specifications and Under the Supervision of Road Authority.	10,000.00
Canadian National Railway Culvert ~~Removal of Existing 1050 mm Dia. C.S.P.,~~ ~~15 m 1800 mm Dia. 8 GA.~~ C.S.P., Delivered, Installation of Pipe by Open Cut, Granular Bedding and Compacted Subgrade, Restoration of Rail Bed, Removal and Disposal of Excess Material, All to Specifications and Under the Supervision of the Canadian National Railway Authority,	7,000.00
Allowances to Owners,	8,450.00
OVERHEAD COSTS: On-site Meeting, Investigations, Survey, Preliminary Report, Attending Meeting to Consider Same, Additional Survey, Final Calculations, Design, Plan, Profile, Report and Disbursements, Digging Test Holes for Rock, Assistance on Procedure, Advertising, Letting Contract, Superintendence of Construction, Interest and Other Contingencies,	10,550.00
TOTAL ESTIMATED COST, HIGHWAY NO. 7 DRAINAGE WORKS	$ 58,000.00

14 m 1070 mm DIA. 12 GA.

SEE ORDER BY ONTARIO DRAINAGE TRIBUNAL 1981 09 18 ADDITIONAL 42" DIA. C.S.P. (= 1070 mm DIA.)

This sum of $ 58,000.00 is assessed as benefit, outlet and injuring liability against the lands and roads affected according to the following assessment schedule.

In addition to the work included in the above estimate, should repairs, replacements, underpinning or other alterations be required for existing bridges, culverts, overflow culverts or any other structure necessary to conduct overflow water, or water in open channels under or across a highway, road or road allowance, or railway right-of-way as affected by this drainage works, the work and cost thereof, including any necessary expenses incidental thereto, and if not determined otherwise, shall be the responsibility of and shall be assessed against the authority having control of such highway, road or road allowance, or railway right-of-way. Under Section 69 a Public Utility or Road Authority has the option to construct, improve or repair, a drainage works upon, along, adjoining, under or across the lands, permanent way etc. or other permanent property of a Public Utility or Road Authority.

Whether or not the Road Authority of the Township of Eramosa elects to do the work on its property, supplying and installing 12 m 2130 mm x 1400 mm 10 GA. C.S.P. Arch culvert under Side Road 4-5 as specified, under its own contract or directs the work to be done under different design or specifications, it shall be assessed the increased cost of the work (Section 26) estimated as $ 5,000.00 and shown as Special Benefit, plus the amounts stated in the benefit, outlet, and injuring columns. The authority in charge is requested to inform the clerk of the initiating municipality of its preferred construction method and to issue detailed design and specifications to be included in the tender call, if it so decides. The Authority in charge may give instruction that the work be included in the tender call as a separate item.

If excess material has to be removed and disposed of elsewhere, the cost shall be assessed under Section 26 against the authority having jurisdiction.

Whether or not the Ministry of Transportation and Communications District Authority elects to do the work on its property, supplying and installing 22 m 1800 mm Dia. 10 GA. C.S.P. under Highway No. 7 as specified, under its own contract or directs the work to be done under different design or specifications, it shall be assessed the increased cost of the work (Section 26) estimated as $ 10,000.00 and shown as Special Benefit, plus the amounts stated in the benefit, outlet, and injuring columns. The Authority in charge is requested to inform the clerk of the initiating municipality of its preferred construction method and to issue detailed design and specifications to be included in the tender call, if it so decides. The Authority in charge may give instruction that the work be included in the tender call as a separate item.

If excess material has to be removed and disposed of elsewhere, the cost shall be assessed under Section 26 against the authority having jurisdiction.

Whether or not the Canadian National Railway elects to do the work on its property, supplying and installing 15 m 1800 mm Dia. 8 GA. C.S.P. under its railway tracks as specified, under its own contract or directs the work to be done under different design or specifications, it shall be assessed the increased cost of the work (Section 26) estimated as $ 7,000.00 and shown as Special Benefit, plus the amounts stated in the benefit, outlet, and injuring columns. The authority in charge is requested to inform the clerk of the initiating municipality of its preferred construction method and to issue detailed design and specifications to be included in the tender call, if it so decides. The authority in charge may give instruction that the work be included in the tender call as a separate item.

If excess material has to be removed and disposed of elsewhere, the cost shall be assessed under Section 26 against the authority having jurisdiction.

In addition, the Canadian National Railway will lift and replace its tracks with its own work force.

ASSESSMENT SCHEDULE, TOWNSHIP OF GUELPH

Con.	Lot or Part	Approx. Hectares Affected	Owner	Benefit $
2	Pt. 9	2	P. Hannam	300.00
	No. 5	0.23 *	C. & J. Muller	100.00
	No. 6	0.81 *	K. Weber	300.00
	No. 7	0.81 *	S. D. Berruti	300.00
	No. 8	0.39 *	F. Ferris	25.00
	No. 9	0.38 *	E. & F. Romanello	25.00
	No.10	0.15 *	H. & L. Falkington	25.00
	No.11	0.12 *	B. & D. Bard	25.00
	No.12	0.19 *	H. & I. Geir	25.00
	No.13	0.19 *	L. Cole	25.00
	Pt.10	3.4	F. & M. Fantin	800.00
Pt.10,	Pt.11	8.5	M. Harvey	1500.00
	No.14	0.81 *	V. & M. Carere	300.00
	No.15	0.24 *	A. & A. Piccin	25.00
	No.16	0.57 *	M. Glazier	25.00
Total Lands				3800.00
½ Townline, Township of Guelph				1500.00
Total Lands and Roads				5300.00
TOTAL ASSESSMENT, TOWNSHIP OF GUELPH:				$ 5,300.00

ASSESSMENT SCHEDULE (Cont'd.), TOWNSHIP OF ERAMOSA

Con.	Lot or Part	Approx. Hectares Affected	Owner	Special Benefit $	Benefit $	Outlet Liability $	Injuring Liability $
1	Pt. 4	2	J. & W. Nesbitt		300.00		
	Pt.W½ 5	10.9	W. & K. Edwards		600.00	25.00	
	No.17	1.21*	C. Monkhouse		350.00		
	No.18	0.40*	R. & M. Okrafka		600.00		
	No.19	0.16*	C. & L. Stachniak		125.00		
	No.20	2.36*	D. & A. Trimble		1000.00		
	No.21	1.85*	W. & H. Shantz		1000.00		
	No.22	0.20*	E. Christensen		25.00		
	No.23	0.81*	R. & M. Peart		300.00		
	No.24	3.93*	J. Ustrzycki		800.00		
	No.25	3.24*	E. Facchini		600.00	25.00	
	No. 1	0.52*	W. & A. Pueschel		500.00		
	No. 2	0.81*	B. & M. Dolmer		500.00		
	No. 3	0.31*	G. & E. Dolmer		500.00		
	No. 4	1.12*	Elva Holdings Ltd.		500.00		
	Pt.W½ 5	5.5 *	R. & E. Hawkes		200.00		
	Pt.E½ 5	24.3	M. Robertson	2000.00	800.00	462.00	307.00
	No.26	0.20*	A. & M. Duffield			15.00	10.00
	No.27	0.40*	P. Loggan			15.00	10.00
	No.28	0.33*	M.T.C. Ontario			15.00	10.00
	Pt.W½ 6	11.7	V. Boles		100.00		
	Pt.E½ 6	34.1	R. & B. Osborne		500.00	1294.00	862.00
	E½ 7	25.6	R. & B. Osborne			971.00	647.00
	E½ 8	6.5	Sterling Packers Ltd.			247.00	164.00
2	W½ 5	0.4	E. & E. Ariss			15.00	10.00
	Pt.W½ 6	24.3	H. & T. Pritchard			922.00	614.00
	Pt.E½ 6	10	D. Duncan & D. Furness			380.00	252.00
	Pt.W½ 7	0.19*	J. & M. Orr			15.00	10.00
	Pt.W½ 7	4.73*	B. Kingscots			179.00	120.00
	Pt.W½ 7	37.4	R. & B. Osborne			1418.00	946.00
	E½ 7	5.3	Sterling Packers Ltd.			201.00	134.00
	W½ 8	5.3	K. & K. Winter			201.00	134.00
Total Lands				2000.00	9300.00	6400.00	4230.00
½ Townline, Township of Eramosa					1500.00		
Con. Road 1-2, ~~Township of Eramosa~~ County of Wellington						277.00	186.00
Side Road 4-5, Township of Eramosa				5000.00	800.00	15.00	10.00
Highway No. 7, M.T.C. Ontario				10000.00	4000.00	504.00	337.00
Railway, Canadian National				7000.00	800.00	204.00	137.00
Total Roads				22000.00	7100.00	1000.00	670.00
Total Lands and Roads				24000.00	16400.00	7400.00	4900.00

TOTAL ASSESSMENT, TOWNSHIP OF ERAMOSA: $ 52,700.00

TOTAL ASSESSMENT, HIGHWAY NO. 7 DRAINAGE WORKS $ 58,000.00

NOTE: For the purpose of Section 85 all lands assessed are agricultural, unless marked thus, *. Extracted from the 1979 Taxation Rolls.

After construction, the drainage works shall be maintained by the Municipality of the Township of Eramosa at the expense of lands and roads assessed herein and in the same relative proportion until said assessment shall be varied according to the provisions of the Drainage Act 1975, with the exception that the special benefit shall not be considered in proportioning the cost of repair and maintenance of the open work.

PROVINCIAL GRANTS

Where applicable, the provincial grant reduces the assessments by 33-1/3%.

Section 85: Grants may be in respect of,

a) assessments made under this Act upon lands used for agricultural purposes.

EHU:jvb

ASSOCIATION OF ONTARIO LAND SURVEYORS
E. H. UDERSTADT
1131

Signed: E. H. Uderstadt, O.L.S.

E. H. UDERSTADT INC.

Ontario Land Surveyors
Municipal Drainage Consultants

162 Broadway
Orangeville, Ontario
L9W 1K3

DRAINAGE SPECIFICATIONS

One complete set of plan, profile and specifications shall be kept by the operator at the construction site at all times.

These specifications, including report, plan and profile of the same date apply to and govern, where applicable, the construction of the

HIGHWAY NO. 7 DRAINAGE WORKS

Township of Eramosa

EXTENT OF WORK (Excavation, Tile, Pipe, Catch Basins, Etc.)

930 m of open drain (3400 m^3 of earth excavation)
(350 m^3 of rock excavation)

1 Township Road Culvert

1 Highway Culvert

1 Railway Culvert

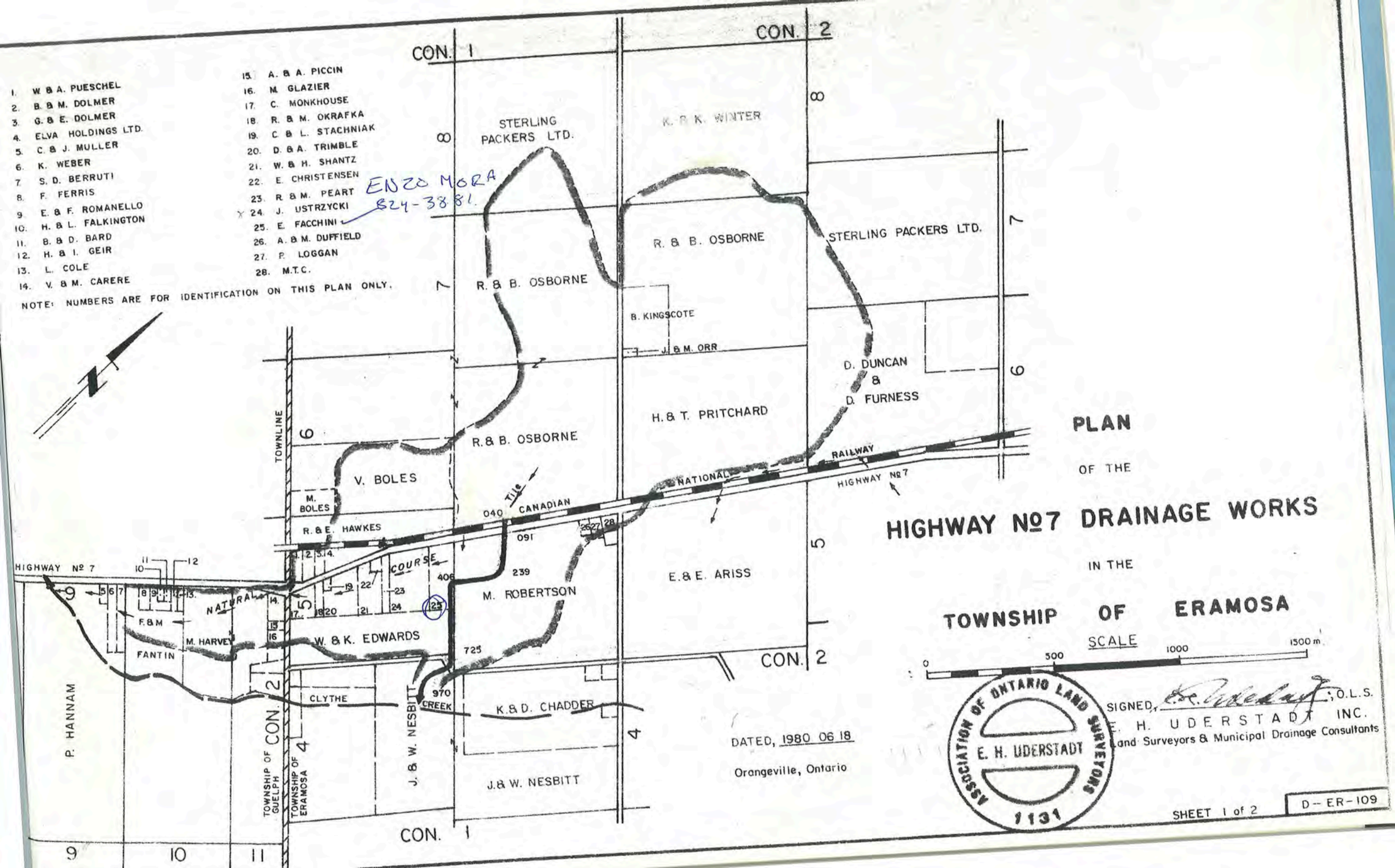
In Addition:

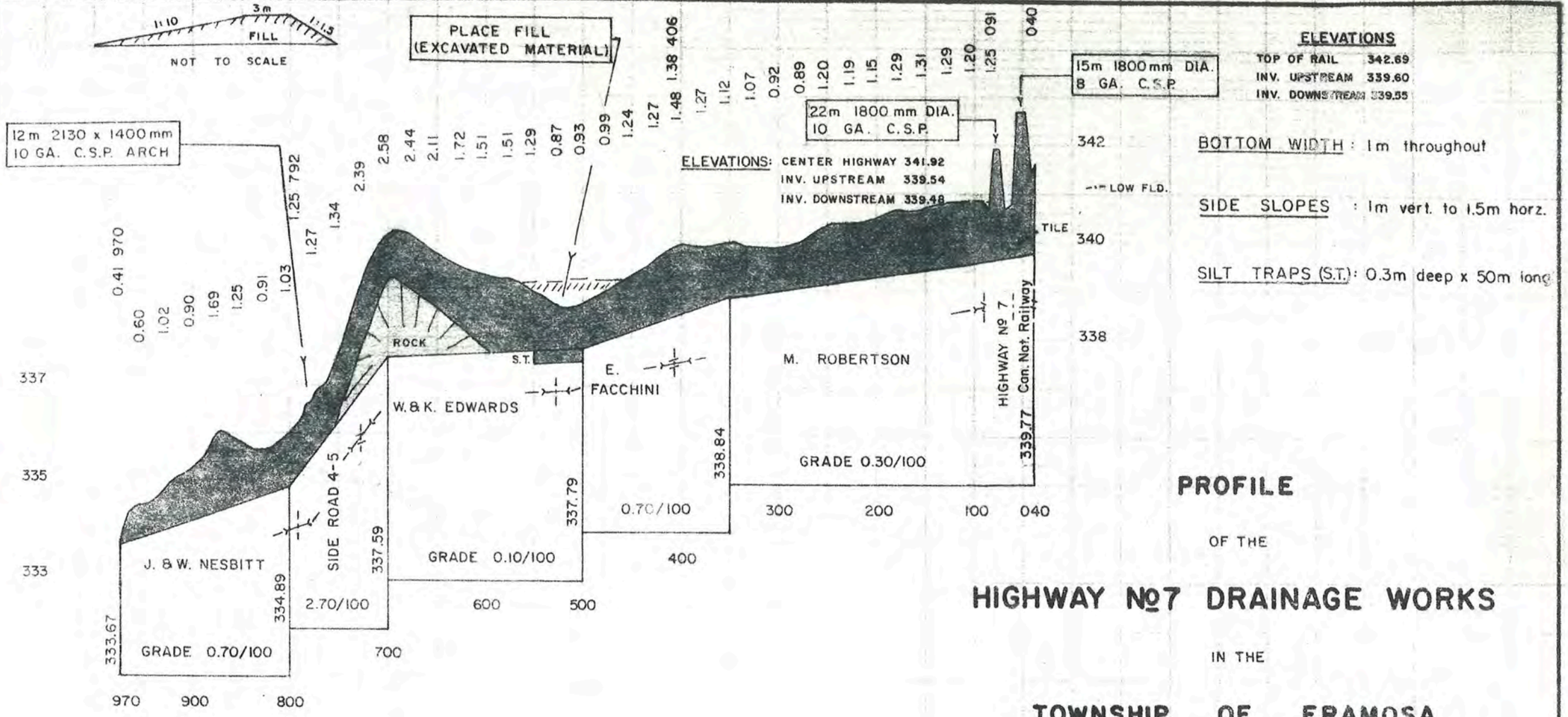
The rock after being excavated, shall be hauled away to a dump site on the same property, if the owner so desires, otherwise the municipality shall designate a site for disposal.

From about Station 550 to 450 excavated material shall be placed in the low area as shown to prevent the water from leaving the drain and following a westerly course.

At Station ±065 and after the installation of the Railway and Highway culverts, excess material shall be used to block the north side Highway ditch for a minimum length of 20 metres or as directed by the authority having jurisdiction, in order to prevent the water to follow its former course. No other material shall be placed, spread or levelled on Highway or Railway Right-of-way without special permission.

Hauling excess material shall be tendered on a unit price of m^3 per km.


1. W. & A. PUESCHEL
2. B. & M. DOLMER
3. G. & E. DOLMER
4. ELVA HOLDINGS LTD.
5. C. & J. MULLER
6. K. WEBER
7. S. D. BERRUTI
8. F. FERRIS
9. E. & F. ROMANELLO
10. H. & L. FALKINGTON
11. B. & D. BARD
12. H. & I. GEIR
13. L. COLE
14. V. & M. CARERE
15. A. & A. PICCIN
16. M. GLAZIER
17. C. MONKHOUSE
18. R. & M. OKRAFKA
19. C. & L. STACHNIAK
20. D. & A. TRIMBLE
21. W. & H. SHANTZ
22. E. CHRISTENSEN
23. R. & M. PEART
24. J. USTRZYCKI
25. E. FACCHINI
26. A. & M. DUFFIELD
27. P. LOGGAN
28. M.T.C.
NOTE: NUMBERS ARE FOR IDENTIFICATION ON THIS PLAN ONLY.
ENZO MORA 824-3881.
CON. 1
CON. 2
STERLING PACKERS LTD.
K. & K. WINTER
R. & B. OSBORNE
B. KINGSCOTE
J. & M. ORR
D. DUNCAN & D. FURNESS
H. & T. PRITCHARD
V. BOLES
M. BOLES
R. & E. HAWKES
E. & E. ARISS
M. ROBERTSON
W. & K. EDWARDS
F. & M. FANTIN
M. HARVEY
K. & D. CHADDER
J. & W. NESBITT
P. HANNAM
TOWNLINE
TOWNSHIP OF GUELPH
TOWNSHIP OF ERAMOSA
HIGHWAY No 7
NATURAL COURSE
CLYTHE CREEK
TILE
040
091
239
406
725
970
CANADIAN NATIONAL RAILWAY
HIGHWAY No 7
PLAN
OF THE
HIGHWAY No 7 DRAINAGE WORKS
IN THE
TOWNSHIP OF ERAMOSA
SCALE
0
500
1000
1500 m
DATED, 1980 06 18
Orangeville, Ontario
SIGNED, E. H. Uderstadt, O.L.S.
E. H. UDERSTADT INC.
Land Surveyors & Municipal Drainage Consultants
ASSOCIATION OF ONTARIO LAND SURVEYORS
E. H. UDERSTADT
1131
SHEET 1 of 2
D-ER-109



ELEVATIONS

TOP OF RAIL 342.69
INV. UPSTREAM 339.60
INV. DOWNSTREAM 339.55

BOTTOM WIDTH : 1m throughout

SIDE SLOPES : 1m vert. to 1.5m horz.

SILT TRAPS (S.T.): 0.3m deep x 50m long

BENCH MARKS

090	SPIKE IN HYDRO POLE	150 m W.	340.41
750	SPIKE IN FENCE POST	37m S.	337.34

PROFILE

OF THE

HIGHWAY Nº7 DRAINAGE WORKS

IN THE

TOWNSHIP OF ERAMOSA

SCALE

VERT. 0 2 4 6 8 m
HORZ. 0 100 200 300 400 m

DATED, 1980 06 18

SIGNED, E. H. UDERSTADT, O.L.S.

Orangeville, Ontario

H. UDERSTADT INC.
Land Surveyors & Municipal Drainage Consultants

SHEET 2 of 2

D-ER-109

NRSI Photo Appendix – June 29, 2020

Photo 1- Facing north from Railway

Photo 2- Facing north between two upstream culverts (Hwy 7 and Railway)

Photo 3- Downstream end of CSP Culvert under Hwy 7

Photo 4 – Facing east along Hwy 7

Photo 5 – Facing west along Hwy 7

Photo 6- Within Culvert under Hwy 7 – dry soil

Photo 7- Grass lined feature downstream of Hwy 7

Photo 8 – Drainage feature where runs north south downstream of Hwy 7

Photo 9 – Drainage feature where runs north south downstream of Hwy 7

Photo 10 – Drainage feature where runs east to west

Photo 11 – Drainage feature where runs east to west

Photo 12 – Drainage feature where runs east to west

Photo 12- Where feature head southerly from the east to west segment

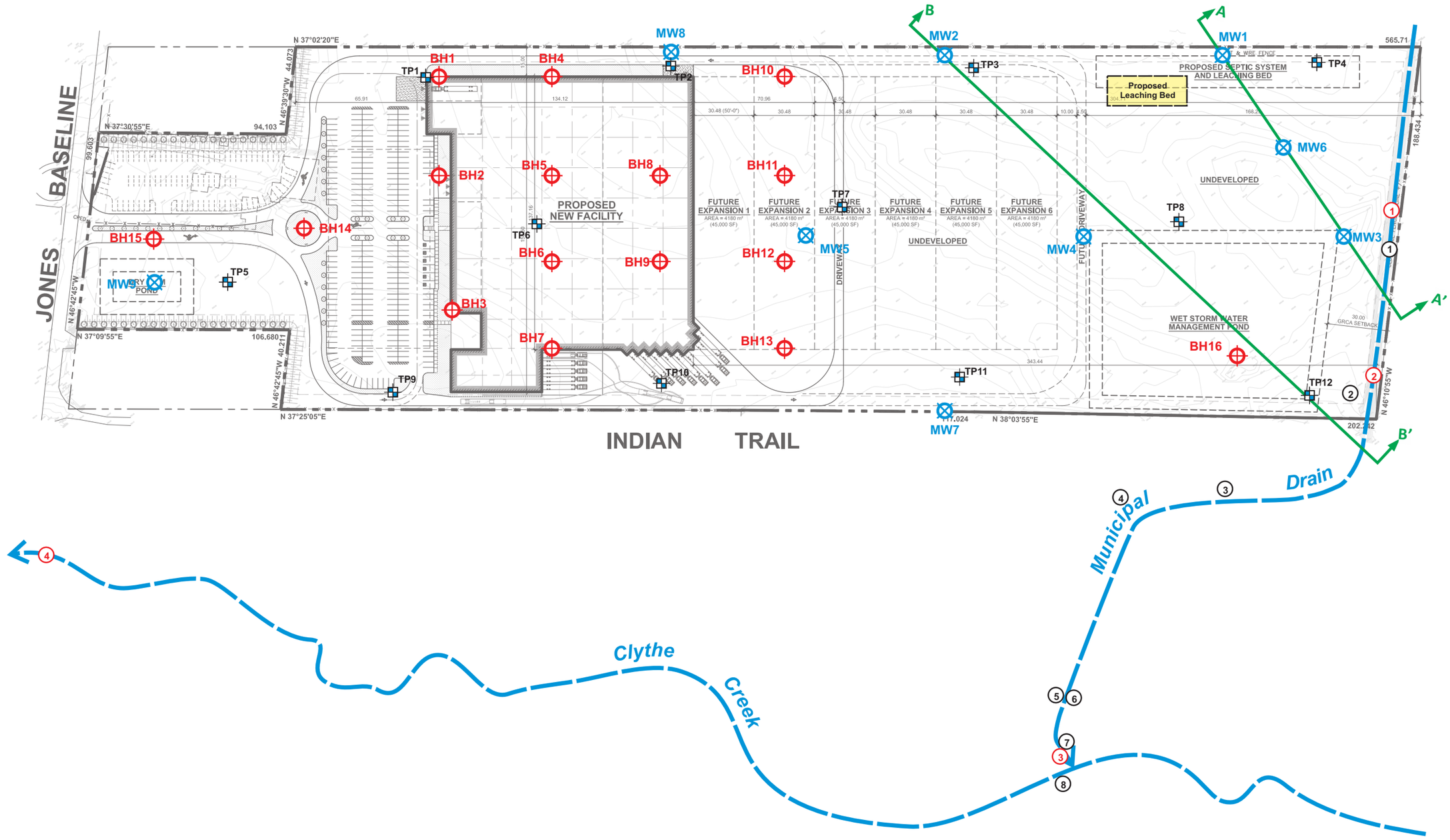
Photo 15- Drainage feature where runs north to south toward the wetland

Photo 13- Drainage feature where runs north to south toward the wetland

Photo 16- Drainage feature close to edge of subject property

Photo 14- Drainage feature where runs north to south toward the wetland

Photo 17- At laneway



LEGEND

- TP1 — Jan 2020 Geotech Test Pits
- BH15 — Jan 2021 Geotech Boreholes
- MW9 — Bedrock Monitoring Wells
- ① ③ — February 2 and March 3, 2021 Photo Locations
- Hydrogeologic Cross-Section
- Proposed Leaching Bed (15m x 40m)

CHUNG & VANDER DOELEN ENGINEERING LTD.
311 VICTORIA STREET NORTH
KITCHENER / ONTARIO / N2H 2E1 / 519-742-8979

0 50 100 m

Scale 1:2000

Figure 1
Site Plan & Test Locations

Hydrogeological Investigation
5063 Jones Baseline, Guelph-Eramosa Twp

Drawn By: SA	Date: March 3, 2021	File No.: H20149

1) Drain near MW3 (looking southeast) CVD – Feb 2, 2021

2) Drain before leaving site (looking northwest) CVD – Feb 2, 2021

3) Drain before entering Clythe Wetland (looking northwest) CVD – Feb 2, 2021

4) Clythe Wetland at Jones Baseline (looking northeast) CVD – Feb 2, 2021

1) Drain near MW3 (looking southeast) CVD – March 3, 2021

2) Drain where it leaves Site and first bend (looking southeast) CVD – March 3, 2021

3) Drain between first and second bend (looking southwest) CVD – March 3, 2021

4) Drain at second bend (looking southeast) CVD – March 3, 2021

5) Drain entering main Cedar Treed Area (looking northwest) CVD – March 3, 2021

6) Drain entering main Cedar Treed Area (looking southeast) CVD – March 3, 2021

7) Drain before entry to Clythe Wetland (looking southeast) CVD – March 3, 2021

8) Clythe Wetland near drain entry – water not from Drain (looking southeast) CVD – March 3, 2021

NRSI Photo Appendix – March 12, 2021

Photo 1- Facing north from Railway

Photo 2- Facing north between two upstream culverts (Hwy 7 and Railway)

Photo 3- Downstream end of CSP Culvert under Hwy 7

Photo 4 – Facing east along Hwy 7

Photo 5 – Facing west along Hwy 7

Photo 6 Grass lined feature downstream of Hwy 7

Photo 7 – Drainage feature where runs north south downstream of Hwy 7

Photo 10 – Drainage feature where runs east to west

Photo 8 – Drainage feature where runs north south downstream of Hwy 7

Photo 11 – Drainage feature where runs east to west

Photo 9– Drainage feature where runs east to west

Photo 12- Drainage feature where runs north to south toward the wetland

Photo 13- Drainage feature where runs north to south toward the wetland

Photo 14- Drainage feature where runs north to south toward the wetland

Photo 15- Drainage feature where runs north to south toward the wetland

Photo 16- Drainage feature at laneway. Pool of water present.

Photo 17- Downstream of laneway.

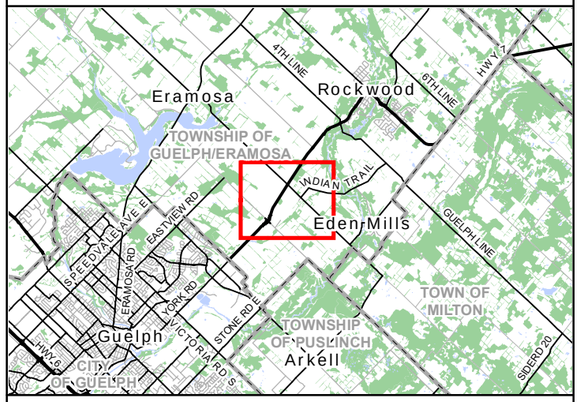
Photo 18 – Field along drain.

Maps

Map 1

Eramosa Farms EIS

Study Area and Designated Natural Features



Legend

- Study Area (120m)
- Subject Property
- Highway
- Primary Road
- Secondary Road
- Resource / Recreation / Other
- Railway
- Permanent Watercourse
- Intermittent Watercourse
- Water Body
- Provincially Significant Wetland (PSW)
- Unevaluated Wetland
- Floodplain (GRCA)
- Regulation Limit (GRCA)
- Wooded Area
- Deer Wintering Area (Stratum 2)
- Growth Plan for the Greater Golden Horseshoe NHS

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 2409 Date: May 2, 2024	NAD83 - UTM Zone 17 Size: 11x17" **1:10,000**

0 200 400 600 Metres

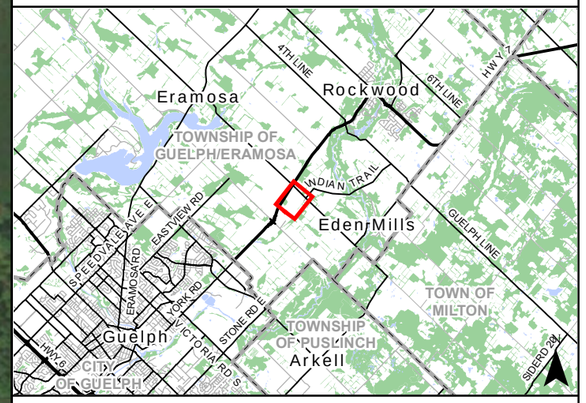
N

Path: X:\2409_EramosaFarms_EIS\NRSI_2409_Map1_StudyArea_DesignatedNatFeatures_10K_2024_05_02_KEF.mxd

Map 2

Eramosa Farms EIS

Monitoring Station Locations & Vegetation Communities



Legend

- Subject Property
- Candidate Snake Hibernaculum
- (B) Breeding Bird Station (BMB)
- (S) Artificial Snake Coverboard (SNK)
- Aquatic Habitat Assessment
- Railway
- Intermittent Watercourse
- Provincially Significant Wetland (PSW)
- Reptile Visual Encounter Survey Area
- Ecological Land Classification (ELC)

(Ag) Agricultural
(CUM) Cultural Meadow
(CUW) Cultural Woodland
(FOD5-6) Dry - Fresh Sugar Maple - Basswood Deciduous Forest Type

** Driplines have not been surveyed.*

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 2409 Date: May 2, 2024	NAD83 - UTM Zone 17 Size: 11x17" **1:3,000**

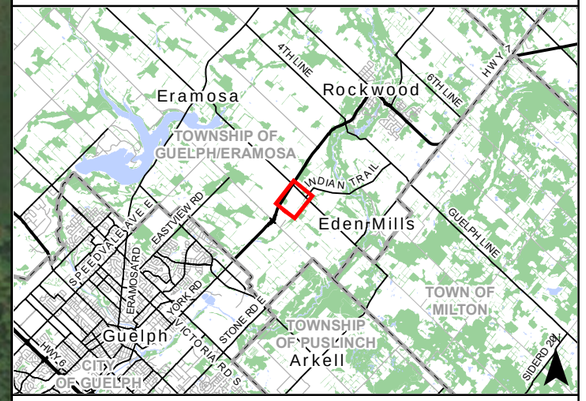
0 50 100 150 200 Metres

Path: X:\2409_EramosaFarms_EIS\NRSI_2409_Map2_MonitoringStations_ELC_3K_204_05_02_KEF.mxd

Map 3

Eramosa Farms EIS

Significant Natural Features



HWY 7
CUM
M
BMB-001
B
FOD5-6
BM
Ag
BMB-003
B
BMB-002
B
Hedgerow
WELLINGTON ROAD 29
BMB-004
B
CUM
INDIAN TRAIL
E
CUW
Clythe Creek Wetland Complex
Clythe Creek

Legend

- Subject Property
- Bat Roost Tree
- Candidate Snake Hibernaculum
- Breeding Bird Station (BMB)
- Railway
- Woodland Buffer (5m)*
- Intermittent Watercourse
- Provincially Significant Wetland (PSW)
- Floodplain (GRCA)
- Regulation Limit (GRCA)
- Ecological Land Classification (ELC)

(Ag) Agricultural

(CUM) Cultural Meadow

(CUW) Cultural Woodland

(FOD5-6) Dry - Fresh Sugar Maple - Basswood Deciduous Forest Type

Species of Conservation Concern

- E — Eastern Wood-pewee
- M — Monarch (Flyover)

Locally Significant Species

- BM — Black Maple

Confirmed Significant Wildlife Habitat

- Special Concern and Rare Wildlife Species - Eastern Wood-pewee

Candidate Significant Wildlife Habitat

- Seasonal Concentration: Bat Maternity Colonies

** Driplines have not been surveyed.*

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 2409 Date: May 2, 2024	NAD83 - UTM Zone 17 Size: 11x17" **1:3,000**

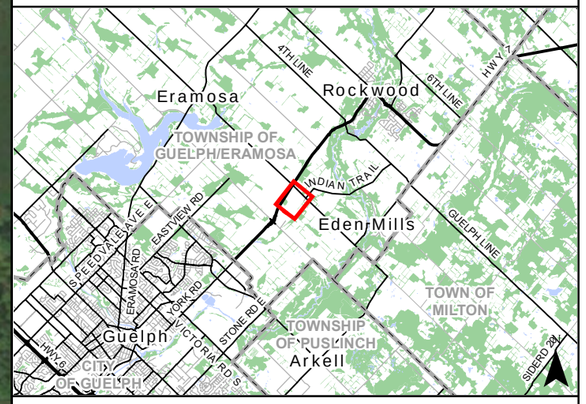
0 50 100 150 200 Metres

Path: X:\2409_EramosaFarms_EIS\NRSI_2409_Map3_SignificantNaturalFeatures_3K_2024_05_02_REF.mxd

Map 4

Eramosa Farms EIS

Significant Natural Features and Proposed Concept Plan



Legend

- Subject Property
- Bat Roost Tree
- Breeding Bird Station (BMB)
- Proposed Development
- Grading
- Railway
- Woodland Buffer (5m)*
- Intermittent Watercourse
- Provincially Significant Wetland (PSW)
- Floodplain (GRCA)
- Regulation Limit (GRCA)
- Ecological Land Classification (ELC)

(Ag)

(CUM) Cultural Meadow

(CUW) Cultural Woodland

(FOD5-6) Dry - Fresh Sugar Maple - Basswood Deciduous Forest Type

Species of Conservation Concern

- E — Eastern Wood-pewee
- M — Monarch (Flyover)

Locally Significant Species

- BM — Black Maple

Confirmed Significant Wildlife Habitat

- Special Concern and Rare Wildlife Species - Eastern Wood-pewee

Candidate Significant Wildlife Habitat

- Seasonal Concentration: Bat Maternity Colonies

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