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February 2, 2026

Monika Farncombe
Planning and Corporate Services Coordinator
Township of Puslinch
7404 Wellington County Road 34
Puslinch, ON N0B 2J0

Re: Natural Heritage Assessment, 2809 Townline Road, Puslinch
Updated Report and Response to Peer Review Comments

Dear Ms. Farncombe,

Thank you for providing the peer review comments prepared by Natural Resource Solutions Inc. (NRSI), dated December 2, 2025, as they relate to the above-referenced Natural Heritage Assessment (NHA). GeoProcess Research Associates Inc. (GeoProcess) has reviewed the feedback and, in response, has revised the Natural Heritage Assessment to address comments related to Natural Heritage.

The following revisions have been made to the NHA field program and report:

- A second snag survey was performed during the leaf-off season to ensure consistency with the most recent guidance regarding bat habitat assessment provided by the MECP.
- A desktop screening was completed for Species at Risk and Significant Wildlife Habitat for the Subject Property and adjacent lands.
- Recommendations to apply timing windows for any vegetation clearing, covering the combined breeding bird and bat active season, have been included.
- Recommendations to apply timing windows for any alteration or demolition of the barn covering the breeding bird window have been included.

The scope of work performed for the NHA was determined based on feedback received from the Township of Puslinch through the Ecological Constraints Review completed by Aboud and Associates Inc, dated September 19, 2023. Accordingly, an assessment of potential for candidate bat habitat to occur on the Subject Property and potential for the adjacent Provincially Significant Wetland to be impacted by the proposed development was completed. Results of this assessment confirm that the proposed development will not result in a negative impact to either of these features or their functions.

PO Box 65506 Dundas
DUNDAS, ON, L9H 6Y6
905.466.6721
www.geoprocessresearch.com

If you have any questions regarding the above or the revised Natural Heritage Assessment for 2809 Townline Rd, Puslinch, please do not hesitate to contact the undersigned.

Regards,

GEOPROCESS RESEARCH ASSOCIATES INC

Kate Lillie
Senior Ecologist

Encl: Natural Heritage Assessment, October 22, 2025 (revised February 2, 2026) for 2809 Townline Rd, Puslinch.

Natural Heritage Assessment

2809 Townline Rd, Puslinch

Prepared for

Fieldgate Properties Limited

5400 Yonge Street, Suite 300
Toronto, Ontario M2N 5R5

October 22, 2025 (revised February 2, 2026)
Project No. P2025-1046

Prepared by

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

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1. Introduction

GeoProcess Research Associates Inc. (GeoProcess) has been retained by Fieldgate Properties Limited to complete a Natural Heritage Assessment (NHA) for lands located at 2809 Townline Road, Puslinch, Ontario (herein referred to as the "Subject Property"). Refer to **Map 1** for a review of the Subject Property boundary and location.

The Subject Property is a parcel of land approximately 34 hectares in size that has historically been used for agricultural purposes. The southwest corner of the Subject Property contains a barn, a silo, a residential building, and a small shed, with the balance of the Subject Property being fallow agricultural fields. The area surrounding the Subject Property is comprised of agricultural lands to the north, residential lands to the west, Highway 401 to the south, and the Puslinch Golf Club to the east. The Puslinch Lake-Irish Creek Wetland Complex is located north of the Subject Property on the north side of Ellis Road.

As per the Ecological Constraints Review completed by Aboud & Associates Inc. on September 19, 2023, there is potential for candidate bat habitat to occur in trees within the hedgerow features and surrounding the homestead. Additional comments from the Township of Puslinch requested confirmation that the section of the Puslinch Lake-Irish Creek Wetland Complex north of the Subject Property will not be adversely affected by the proposed development.

The following report examines the potential for the Subject Property to support maternity bat roosting habitat and reviews the potential for the development to impact the Puslinch Lake-Irish Creek Wetland Complex north of the site.

2. Existing Conditions

2.1. General Landscape Position

Located north of Highway 401 and east of Townline Road, the Subject Property is primarily agricultural lands surrounded by a mix of residential, agricultural, recreational, and natural lands. The Puslinch Golf Club neighbours the Subject Property to the east, with the two properties separated by a narrow hedgerow approximately 850 meters long. The Hespeler Village neighbourhood sits west of Townline Road, while Puslinch Lake and its surrounding wetlands sit south of Highway 401. To the north is Ellis Road, which separates the Subject Property from further agricultural lands as well as a swamp within the Provincially Significant Puslinch Lake-Irish Creek Wetland Complex. The Subject Property falls within the Upper Grand River subwatershed, which is part of the greater Grand River watershed, the largest watershed in Southern Ontario. In the 2023 Grand River Watershed Report Card provided by the Grand River Conservation Authority (GRCA), the Upper Grand River subwatershed received an 'A' grade (excellent) for wetland cover, indicating that this subwatershed has high wetland cover relative to the subwatershed's total surface area.

2.1.1. Puslinch Lake-Irish Creek Wetland Complex

The Puslinch Lake-Irish Creek Wetland Complex is a 370-hectare Provincially Significant Wetland (PSW) surrounding Puslinch Lake, a kettle lake basin fed by surface runoff and underwater springs. The complex is situated in two main areas relative to the Subject Property: 100 meters northeast (north of Ellis Road), through which Irish Creek flows to the lake; and 140 meters southeast (approximately 20 meters south of Highway 401). The complex contains four main wetland types: bog, fen, swamp, and marsh. While the majority of the wetland is swamp and marsh, the bog and fen types (which are uncommon in Southern Ontario) account for less than 5% of the total area. The wetland communities closest to the Subject Property are swamp wetlands, which make up nearly half of the complex's wetland type.

3. Methods

3.1. Desktop Background Screening

A high-level desktop screening was performed to determine potential for both Species at Risk and Significant Wildlife Habitat within the Subject Property. The results of the desktop screening can be found in Section 4.

3.2. Bat Survey Methods

Two snag surveys were completed for the hedgerow along the Subject Property's eastern boundary, on September 22, 2025, and January 20, 2026. The first survey was completed during the leaf-on period, which allowed for detailed observations of foliage characteristics, which can provide additional useful information when surveying for tri-coloured bat (*Perimyotis subflavus*). The second survey, which occurred during the leaf-off period, was completed to ensure accordance with the most recent guidance from the Ministry of Environment, Conservation, and Parks (MECP) provided in Maternity Roost Surveys (Forests/Woodlands) (MECP, 2022) and Species at Risk Bats Survey Note 2022 (MECP, 2022). Performing an additional survey during the leaf-off season ensured that the trees on site were observed within the recommended timing window as per MECP guidelines.

There are eight bat species native to Ontario. According to the 2022 MECP document 'Maternity Roost Surveys (Forests/Woodlands)', field visits for all bat species that roost in trees are best conducted during the leaf-off period so that the view of tree attributes is not obscured by foliage. Four bat species are listed as 'endangered' under the federal Species at Risk Act (SARA): the little brown myotis (*Myotis lucifugus*), northern myotis (*Myotis septentrionalis*), and tri-colored bat. All three of these species are also listed as 'endangered' on the Species at Risk in Ontario (SARO) List, with an additional species, Eastern small-footed myotis (*Myotis leibii*), also being listed as 'endangered' under SARO.

The survey protocol provided by MNR for little brown myotis and northern myotis habitat required an assessment of any dead standing trees or live trees with a DBH (diameter at breast height) of 10 cm or greater with loose exfoliating bark, cavities, hollows, and/or cracks that could provide suitable maternity roosting habitat for these species. Decay Class, which indicates the severity of decay in a tree, was noted for each snag. Decay classes range between 1 and 6, with 1 indicating a healthy, live tree and 6 indicating an old, dead tree with a rotting trunk and an absence of branches. Snags in the early stages of decay (between 1

and 3 Decay Class) are preferred by little brown myotis and northern myotis; however, a snag in any stage of decay could serve as potential roosting habitat.

The survey protocol provided by MNR for tri-coloured bat required an assessment of any oak tree greater than 10 cm diameter at breast height (DBH) and any maple tree with a DBH greater than 25 cm. Following MNR protocol, any maple trees greater than 10 cm in DBH that also had dead or dying leaf clusters were also assessed.

According to the recovery strategy for Eastern small-footed myotis, the Eastern small-footed myotis typically uses rock features to roost, though occasionally uses buildings (Humphrey, 2017). Alongside the snag surveys performed for the hedgerow and trees on site, the barn and vacated home on the Property were inspected during both visits. No evidence of bat presence was observed on either visit.

4. Desktop Screening Results

4.1. Species At Risk Screening

A Long List of potential Species at Risk (SAR) was compiled for the Subject Property based on Provincial *Endangered Species Act* (ESA) Species at Risk in Ontario (SARO) list and Federal *Species at Risk Act* (SARA) status. Following the MECP Client's Guide to Preliminary SAR Screening (2019), this screening was based on a review of the Natural Heritage Information Centre (NHIC) database (Atlas ID: 17NJ5708, 17NJ5707, 17NJ5709, 17NJ5809, 17NJ5808, 17NJ5807), the regional species list, atlases (Ontario Breeding Bird, Butterfly, Moth, Reptile and Amphibian; Atlas Square: 17NJ50, citizen science databases (i.e. iNaturalist and eBird), and any additional sources provided by the MECP. Descriptions of the various data sources are included in Appendix C. Observations of SAR within these squares do not necessarily represent observations within the boundaries of the Subject Property. The SAR Long List is provided in Table 1 below for data sources acquired on January 15, 2026.

Subnational ranks (SRanks) of conservation statuses for Ontario are provided, and each species is also classified under one of the three following Ontario species at risk statuses:

- Endangered (END) lives in the wild in Ontario but is facing imminent extinction or extirpation.
- Threatened (THR) lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
- Special Concern (SC) lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

Table 1. Screening Results

Species		Status		
Common Name	Scientific Name	S_Rank	SARO	SARA
Birds				
Bank Swallow[4]	*Riparia riparia*	S4B	THR	THR
Barn Swallow[4]	*Hirundo rustica*	S4B	SC	THR
Bobolink[1,4]	*Dolichonyx oryzivorus*	S4B	THR	THR
Common Nighthawk[4]	*Chordeiles minor*	S4B	SC	SC
Chimney Swift[4]	*Chaetura pelagica*	S3B	THR	THR
Eastern Meadowlark[1,4]	*Sturnella magna*	S4B, S3N	THR	THR
Eastern Wood-pewee[1,4]	*Contopus virens*	S4B	SC	SC
Golden-winged Warbler[4]	*Vermivora chrysoptera*	S3B	SC	THR
Harris's Sparrow[2,3]	*Zonotrichia querula*	S2B	-	SC
Least Bittern[4]	*Botaurus exilis*	S4B	THR	THR
Peregrine Falcon[4]	*Falco peregrinus*	S4	SC	-
Red-headed Woodpecker[4]	*Melanerpes erythrocephalus*	S3	END	END
Wood Thrush[4]	*Hylocichla mustelina*	S4B	SC	THR
Amphibians and Reptiles				
Blanding's Turtle[6]	*Emydoidea blandingii*	S3	THR	-
Eastern Milksnake[6]	*Lampropeltis triangulum*	S4	NAR	SC
Eastern Ribbonsnake[1,6]	*Thamnophis saurita*	S4	SC	-
Midland Painted Turtle[1,6]	*Chrysemys picta marginata*	S4	-	SC
Queensnake[6]	*Regina septemvittata*	S2	END	END
Snapping Turtle[1,2,6]	*Chelydra serpentina*	S4	SC	SC
Western Chorus Frog – Great Lakes – St. Lawrence – Canadian Shield Population[1,6]	*Pseudacris triseriata pop. 1*	S4	NAR	THR
Insects				
Monarch[5]	*Danaus plexippus*	S4B,S2N	SC	END

4.1.1. Species at Risk Assessment

Based on the screening, in combination with the anthropogenic features observed during field work, the following species were identified as either potentially occurring or confirmed to occur within Subject Property:

Possibly Occurring:

- Snapping Turtle
- Species At Risk Bats

Confirmed Presence:

- Barn Swallow

4.1.1.1. Possibly Occurring

Snapping Turtle (*Chelydra serpentina*)

The snapping turtle is listed as Special Concern under SARO and ESA, as well as under the SARA. It is ranked 'S4' (apparently secure) in Ontario and is still present throughout much of Central and Southern Ontario. These animals spend most of their time in water, and travel overland most often during nesting season, often using gravelly roadsides for nest sites. This species is threatened by a combination of factors, including its slow maturity rate and road mortality. Predation, particularly of eggs, and habitat fragmentation are also large threats to the survival of the snapping turtle.

Species At Risk Bats

Four bat species are listed as Endangered in Ontario: the Eastern Small-Footed Myotis (*Myotis leibii*), the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*), and the Tri-colored Bat (*Perimyotis subflavus*). All four of these bat species are known to occur within and around the Wellington County region. Snag survey results showed four trees with features that would allow them to serve as bat roosting habitat within and adjacent to the Subject Property. However, no evidence of bat presence was found in the structures or in the individual trees or hedgerow features on site.

4.1.1.2. Confirmed Presence

Barn Swallow (*Hirundo rustica*)

The barn swallow is ranked 'S4B' (breeding population apparently secure) in Ontario and is listed as Threatened by SARA and SARO. The barn swallow is a migratory songbird with distinct shiny dark blue feathers on its back and upper wings, and reddish colouring on its forehead, breast, and throat, with colouring more vibrant on males. This species primarily builds its nests on manmade structures, including barns, bridges, and ledges, and as such tends to live in close association with humans. Although a common bird species, the barn swallow population has been in decline in Ontario in recent years. Barn swallows are aerial insectivores, and as such are threatened by practices such as pesticide use, which can diminish insect

populations. Additional threats to the species include habitat loss, predation, and loss of access to historic nesting sites.

During a field investigation performed on September 22, 2025, vacated barn swallow nests were observed in the lower level of the barn on site, confirming their presence on site.

4.2. Significant Wildlife Habitat Screening

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

Significant (and/or sensitive) Wildlife Habitat features and functions as described within the OMNRF Significant Wildlife Habitat Ecoregion Criteria Schedule for Region 7E (OMNRF, 2015) were reviewed and evaluated for the Study Area. The documented groups wildlife habitat into four main categories:

- Seasonal concentration areas of animals
- Rare vegetation communities or specialized habitats for wildlife
- Habitat for species of conservation concern
- Animal movement corridors

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

It should be noted that the screening provided is a high-level desktop screening due to the limited surveys performed for this site as a Natural Heritage Assessment.

4.2.1. Screening

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

- Seasonal Concentration Areas of Animals
    - Turtle Wintering Areas – Candidate
- Specialized Habitat for Wildlife
    - Turtle Nesting Areas – Candidate
- Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)
    - Field observation of Special Concern species (Barn Swallow) – Confirmed

4.2.1.1. Turtle Wintering Areas – Candidate

The golf course neighbouring the Property to the east contains several manmade ponds which, if deep enough, could serve as turtle wintering habitat. During the desktop SAR screening performed for the site, it was found that two citizen science (iNaturalist) observations of snapping turtle (*Chelydra serpentina*) on the neighbouring property have been posted within the last five years. The Subject Property itself does not provide any turtle wintering habitat.

4.2.1.2. Turtle Nesting Areas – Candidate

Due to the potential for turtle wintering habitat at the adjacent property to the east, as well as the presence of a Provincially Significant Wetland just beyond Ellis Road to the north, there is potential for turtles to nest within the Study Area. The Subject Property itself, being composed almost entirely of agricultural lands, does not contain appropriate conditions to support turtle nesting, such as areas of exposed mineral soils (sand and gravel) in open and sunny areas close to water. Although agricultural fields may provide nesting opportunities, agricultural practices (such as tilling and pesticide treatment) would render this area unsuitable.

4.2.1.3. Habitat for Species of Conservation Concern (Barn Swallow) – Candidate

Six vacated barn swallow (*Hirundo rustica*) nests were observed in the lower level of the barn on the Property during field investigations. These nests confirm previous barn swallow presence on site.

5. Field Investigation

On September 22, 2025, GeoProcess visited the Subject Property and investigated the anthropogenic structures on site (barn and house) for any evidence of bat presence or potential habitat. Additionally, a snag survey was conducted for the hedgerow along the eastern property boundary, assessing trees within the hedgerow for potential bat maternity roosting habitat. Individual trees and small groups of trees throughout the Subject Property were also investigated for evidence of potential bat habitat. An additional snag survey was performed on January 20, 2026, to ensure the trees on site were surveyed during the leaf-off period.

5.1. Anthropogenic Structure Habitat Assessment Results

The barn on the Subject Property had two levels and was approximately 330 square meters based on aerial imagery. The exterior of the barn showed numerous potential entry points for bats; however, there was no evidence of bat presence in either level of the barn. During the investigation, six barn swallow (*Hirundo rustica*) nests were observed along the ceiling beams of the lower level of the barn. These nests appeared to be vacated, given the absence of barn swallows during the site visit, as well as the time of year, with barn swallows typically migrating south and leaving Ontario in September. Photos of these nests and the potential bat entryways are provided below.

The uninhabited house on site was also investigated for potential bat habitat. Given the lack of obvious entry points in the building exterior and the clean interior of the house, which appeared to be only recently vacated, it did not appear to serve as a bat habitat. The barn was investigated once more on January 20, 2026, and continued to show no evidence of bat habitation.

Photos 1 and 2: Exterior of the barn showing gaps that could serve as entry points for bats.

Photos 3 and 4: Vacated barn swallow nests in the lower level of the barn.

5.2. Snag Survey Results

All trees with potential to provide bat roosting habitat were accessible for visual assessment during both snag survey visits. No trees on site showed evidence of distinct leaf roosts or use by bat species. Four trees were identified as potentially suitable bat roosting habitat (Table 2). Photos of these trees can be found in Appendix A and Appendix B. The locations of these trees can be found in **Map 2**.

Table 2. Snag survey results

Tree #	Species	Common Name	DBH (cm)	Notes
1	*Acer saccharum*	Sugar Maple	>50 cm	Decay Class 1 (healthy, live tree), with a small cavity roughly 20 meters above the ground, providing potential access point for roosting bats. Small dead leaf clusters on the branches also present.
2	*Populus deltoides*	Eastern Cottonwood	>50 cm	Decay Class 2 (declining live tree), with a cavity roughly one meter above the ground, providing potential access point for roosting bats.
3	*Acer rubrum*	Red Maple	>50 cm	Decay Class 2 (declining live tree), with one large cavity and multiple small cavities starting roughly 4 meters above the ground, providing potential access points for roosting bats.
4	*Acer sp.*	Maple	>50cm	Decay Class 2 (declining live tree) with many small cavities starting roughly 3 meters above the ground, providing potential access points for roosting bats.

6. Discussion

6.1. Potential Bat Maternity Roosting Habitat

During the field investigation, no evidence of bat presence was found in the structures or in the individual trees and hedgerow features on site. Four trees were identified as having the potential to support maternity roosting habitat. These trees have cavities which could serve as entry points for roosting bats and are in the preferred Decay Class range (1-3) for roosting habitat as outlined by the MNR. Although no bats were observed, mitigation measures should be taken given the potential for bats to use these trees, particularly due to the Subject Property's proximity to wooded areas and Lake Puslinch, which provide high-quality foraging habitat for SAR bat species.

The Species at Risk Bats Survey Note (MECP, 2022) describes the appropriate timing windows for any tree or vegetation clearing to mitigate potential impacts on bats: any tree removals should be completed outside of the bat active season, which falls between March 15 and November 30 in Southern Ontario.

6.2. Puslinch Lake-Irish Creek Wetland Complex

The Puslinch Lake-Irish Creek Wetland Complex is located 100 meters northeast of the Subject Property at its closest point and belongs to the Core Greenlands system designated under Schedule B7 of the County of Wellington Official Plan. Additionally, Ellis Road is located between the wetland and the proposed development. The proposed development should not cause any direct physical impact to the form of the wetland complex.

Based on a review of the Functional Servicing and Stormwater Management Report (draft) prepared by Husson Engineering and Management, dated October 2025, stormwater from the impervious areas of the site will be collected and controlled for quality and quantity before being discharged to the environment. Currently, stormwater is proposed to be discharged into the roadside ditch on the south side of Ellis Road. No stormwater or surface water is proposed to be discharged directly into the wetland community. It is anticipated that stormwater discharged into the roadside ditch will flow to the east, across the frontage of the Puslinch Golf Club property, and eventually will discharge into Irish Creek. Water discharging from the site will need to match pre-development peak flows, to reduce the potential for erosion occurring within the receiving waterbody (the Ellis Road ditch and eventually Irish Creek). Increased impervious surface area will increase the overall volume of surface water runoff leaving the site. This larger volume is expected to discharge directly into Irish Creek and the wetland complex downstream of Ellis Road.

Due to the large size of the Puslinch Lake-Irish Creek Wetland Complex's catchment area, it is unlikely the increase in water volume entering the wetland complex will have any measurable impact on the feature. The small volumetric increase may provide a benefit to the wetland system, particularly during the summer, when water may be in shorter supply. There is no evidence that the proposed development will have any impact on groundwater movement towards the wetland. There is insufficient evidence available to draw any conclusions regarding changes to groundwater, the dependence of the wetland on groundwater, groundwater discharge locations within the wetland, and any connections to the Subject Property. The Puslinch Golf Club would likely have much higher groundwater demand through pumping for irrigation needs, which would overshadow any groundwater changes that may occur from the proposed development.

Based on the current understanding of surface water management and groundwater associated with the proposed development, it is unlikely that the proposed development will have a measurable impact on the Puslinch-Irish Creek Wetland Complex.

6.3. Barn Swallow Habitat

Six barn swallow nests were observed in the lower level of the barn on the Property. As per the *Migratory Birds Convention Act (1994)*, there should be no removal of nests during the breeding period between May 1 and August 31. As such, any demolition or alteration of the barn required to accommodate development should be done outside of this timing window.

7. Closing

This Natural Heritage Assessment included field investigations to investigate the potential for the Subject Property to provide bat maternity roosting habitat functions. Based on field observations, the structures do not show evidence of long-term, recent, or active bat usage. Four potential snags, which could provide maternity roosting habitat functions, were identified. It is concluded that the Subject Property provides an overall low maternity roosting habitat function due to the low number and density of trees with snag qualities present.

A review of the potential for the proposed development to have an impact on the Puslinch-Irish Creek Wetland Complex found that there was a low likelihood that the development would physically modify the wetland, and that it was unlikely to result in a negative impact on the hydrologic or hydrogeologic conditions of the wetland complex.

From a natural heritage perspective, this NHA addresses natural heritage concerns raised by the Township of Puslinch. With the implementation of mitigation measures described above, the development can proceed without negative impacts to bat maternity roost habitat or Puslinch Lake-Irish Creek Wetland Complex.

8. References

Husson Engineering and Management. (2025). Functional Servicing and Stormwater Management Report (draft).

MECP (2022). Maternity Roost Surveys (Forests/Woodlands)

MECP (2022). Species at Risk Bats Survey Note.

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

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

Ontario Ministry of Natural Resources. (2017). Survey protocol for species at risk bats within treed habitats: Little Brown Myotis, Northern Myotis & Tri-colored Bat. Guelph District.

Natural Heritage Assessment for 2809 Townline Road

Prepared for Fieldgate Properties Limited

February 2, 2026

Prepared by:

Trinity Synard, B.A.
Terrestrial Ecologist

Reviewed by:

Ken Glasbergen, M.Sc., ERPG
Principal, Senior Ecologist

Kate Lillie, HBSc, EP, ISA
Senior Ecologist

Disclaimer

We certify that the services performed by GeoProcess Research Associates were conducted in a manner consistent with the level of care, skill and diligence to be reasonably exercised by members of the engineering and science professions.

Information obtained during the site investigations or received from third parties does not exhaustively cover all possible environmental conditions or circumstances that may exist in the study area. If a service is not expressly indicated, it should not be assumed that it was provided. Any discussion of the environmental conditions is based upon information provided and available at the time the conclusions were formulated.

This report was prepared exclusively for Fieldgate Properties Limited by GeoProcess Research Associates. The report may not be relied upon by any other person or entity without our written consent and that of Fieldgate Properties Limited. Any uses of this report or its contents by a third party, or any reliance on decisions made based on it, are the sole responsibility of that party. GeoProcess Research Associates accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

Maps

GeoProcess RESEARCH ASSOCIATES

0 100 200 300 m

NAD83 / UTM Zone 17N (EPSG: 26917)

Notes:
[1] Satellite imagery from Google Earth.
[2] Contains information licensed under the Open Government License - Ontario.

Map 1.

Key Map

2809 Townline Rd, Puslinch, ON

Fieldgate Properties

CREATED BY: TS
CHECKED BY: DH
PROJECT NO.: P2025-1046
DATE: Oct 17, 2025

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GeoProcess RESEARCH ASSOCIATES

0 100 200 m

NAD83 / UTM Zone 17N (ESPG:26917)

Notes:
[1] Satellite imagery from Google Earth.
[2] Contains information licensed under the Open Government License - Ontario.

Map 2.

Snag Locations

2809 Townline Road, Puslinch, ON

Fieldgate Properties

CREATED BY: TS
CHECKED BY: DH
PROJECT NO.: P2025-1046
DATE: Jan 25, 2026

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Appendix A

Potential Bat Roosting Habitat Photos: Leaf-on Survey


DIRECTION
56 deg(T)
43.42681°N
080.28032°W
ACCURACY 5 m
DATUM WGS84
P2025-1046
Puslinch
1
2025-09-22
14:37:38-04:00


DIRECTION
59 deg(T)
43.42684°N
080.28027°W
ACCURACY 10 m
DATUM WGS84
P2025-1046
Puslinch
1
2025-09-22
14:39:24-04:00


DIRECTION
30 deg(T)
43.42618°N
080.27998°W
ACCURACY 6 m
DATUM WGS84
P2025-1046
Puslinch
2
2025-09-22
14:27:40-04:00


DIRECTION
117 deg(T)
43.42630°N
080.27994°W
ACCURACY 4 m
DATUM WGS84
P2025-1046
Puslinch
2
2025-09-22
14:28:10-04:00

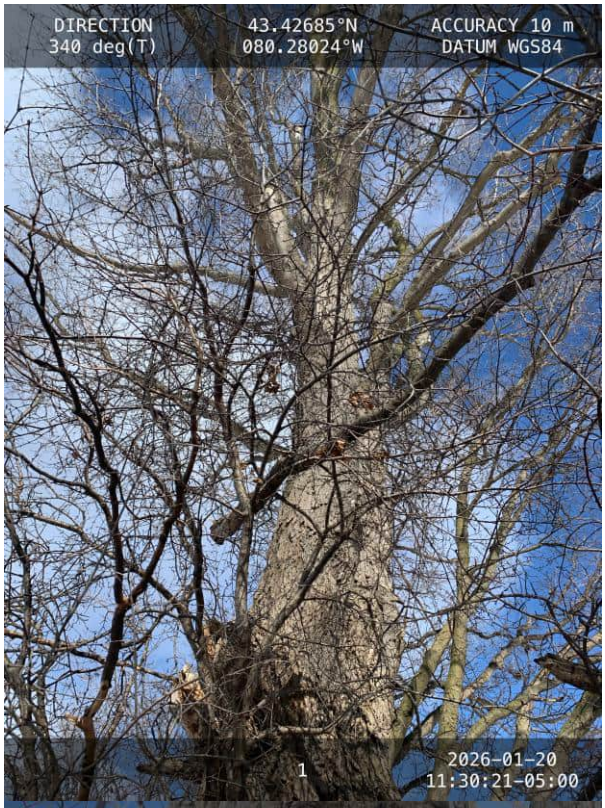

DIRECTION
358 deg(T)
43.42351°N
080.28305°W
ACCURACY 5 m
DATUM WGS84
P2025-1046
Puslinch
3
2025-09-22
15:28:47-04:00


DIRECTION
307 deg(T)
43.42359°N
080.28306°W
ACCURACY 4 m
DATUM WGS84
P2025-1046
Puslinch
3
2025-09-22
15:28:59-04:00

Appendix B

Potential Bat Roosting Habitat Photos: Leaf-off Survey


DIRECTION
344 deg(T)
43.42685°N
080.28025°W
ACCURACY 12 m
DATUM WGS84
1
2026-01-20
11:30:18-05:00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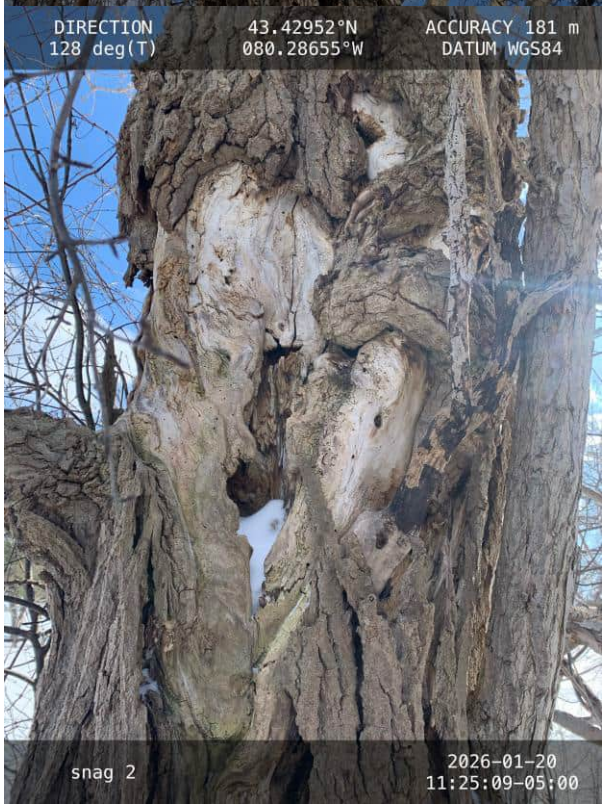
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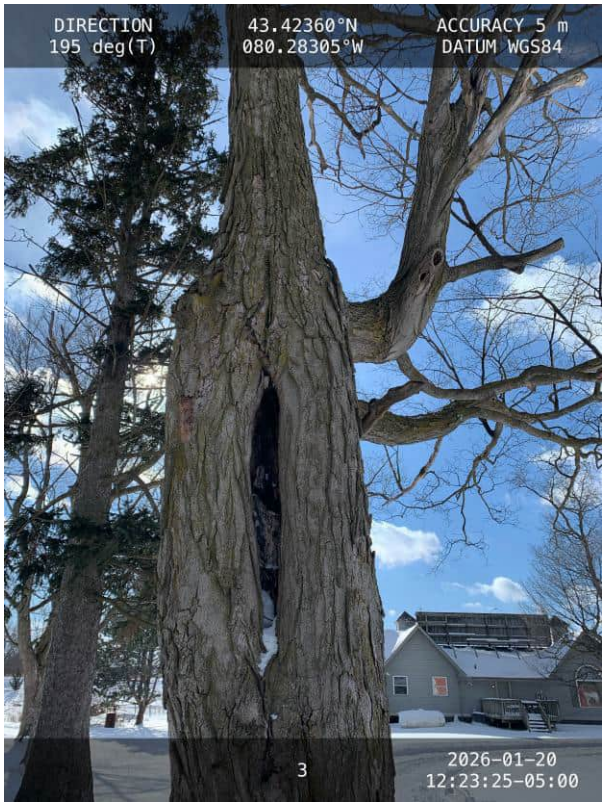
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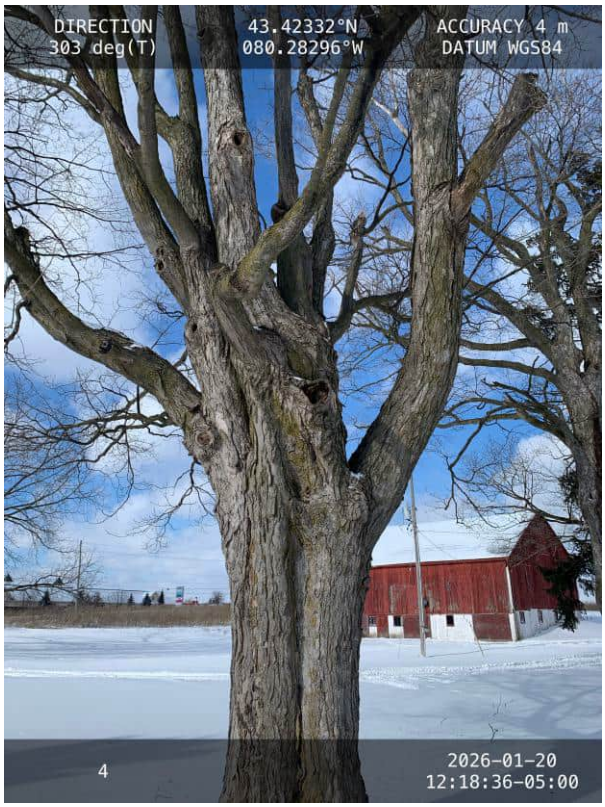
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Appendix C

Species at Risk Screening Resources

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

Appendix D

Significant Wildlife Habitat Screening (Ecoregion 7E)

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
Seasonal Concentration Areas of Animals						
Waterfowl Stopover and Staging Areas (Terrestrial)	American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan	CUM CUT1 Plus, evidence of annual spring flooding within these ecosites *Fields with seasonal flooding and waste grains in certain areas are specific to Tundra Swan	• Fields with sheet water during Spring (mid-March to May). • Agricultural fields with waste grain are not SWH unless they have spring sheet water available.	No	• Only fields on site are agricultural. • No indication of sheet water in spring based on historical aerial imagery.	• Any mixed species aggregations of 100+ individuals. • The flooded field plus 100-300m radius, dependant on localized site and adjacent land use. • Annual use of habitat is documented from information sources or field studies. • Specific evaluation methods required.
Waterfowl Stopover and Staging Areas (Aquatic)	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 Ruddy Duck	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. • Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify.	No	• No aquatic ecosites on the Property.	• Aggregations of 100+ of species listed for 7 days, results in >700 waterfowl use days. • Areas with annual staging for ruddy ducks, canvasbacks and redheads. • The combined area of the ELC ecosites and a 100m radius area. • Wetland area and shorelines associated with sites identified within the SWHTG, Appendix K, are significant wildlife habitat. • Annual use of habitat is documented from information sources or field studies. • Specific evaluation methods required.

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
Shorebird Migratory Stopover Area	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	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers, and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores in May to mid-June and early July to October. • No sewage treatment ponds.	No	• No shoreline within the Study Area.	• Presence of 3 or more of listed species and >1000 shorebird use days during spring or fall migration period. • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area. • Annual use of habitat is documented from information sources or field studies • Specific evaluation methods required.
Raptor Wintering Area	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Special Concern: Short-eared Owl, Bald Eagle	Combo of one of each Community Series from: Forest (FOD FOM FOC) and Upland (CUM CUT CUS CUW) Bald Eagle: Forest on shoreline area adjacent to large rivers and lakes FOD FOM FOC SWM SWC	A combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Need to be >20ha with a combo of forest and upland. • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water and large trees and snags available for roosting.	No	• No combination of forest and upland communities.	• One or more Short-eared Owls, OR one of more Bald Eagles, OR at least 10 individuals and two of the listed hawk/owl species. • To be significant, a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • For an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Specific evaluation methods required.

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
Bat Hibernacula	Big Brown Bat Tri-coloured Bat	CCR1 CCR2 CCA1 CCA2 *Buildings are not to be considered SWH	May be found in caves, mine shafts, underground foundations, and Karsts. • Active mine sites are not considered SWH.	No	• No caves, mine shafts, underground foundations, or karts observed. • No evidence of bats in the buildings on site.	• All sites with confirmed hibernating bats are SWH. • Area includes 200m radius around the entrance of the hibernaculum for most development types and 1000m for wind farms. • Studies are to be conducted during the peak swarming period (Aug.-Sept.). • Specific survey methods required.
Bat Maternity Colonies	Big Brown Bat Silver-haired Bat	All Ecosites in: FOD FOM SWD SWM	• Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered SWH). • Not found in caves or mines in ON. • Located in mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees. • Prefer snags in early stages of decay (class 1-3 or class 1 or class 2). • Silver-haired Bats prefer older mixed or deciduous forests with at least 21 snags/ha.	No	• No forest or swamp ecosites on the property, only a hedgerow and a few single trees. • A few snags present on site, but no evidence of bats observed using them and the snag trees do not meet the density criteria. •The hedgerow is narrow, bordering farmland on one side and a golf course on the other and does not appear to provide quality habitat.	• 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"
Turtle Wintering Areas	Midland Painted Turtle Special Concern: Northern Map Turtle, Snapping Turtle	Snapping and Midland Painted: SW MA OA SA and FEO/BOO Series. Northern Map:	• 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	**Yes - candidate**	• No potential for turtle wintering areas within the Subject Property; however, the golf course adjacent to the Property contains several ponds that may	• 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

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
		Open water areas such as deeper rivers or streams and lakes.	wetlands, and bogs or fens with adequate Dissolved Oxygen. • Manmade ponds such as sewage lagoons or storm water ponds should not be considered SWH.		provide wintering habitat.	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. • Search for congregations in Basking Areas in spring and fall.
Reptile Hibernaculum	Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Special Concern: Milksnake Eastern Ribbonsnake	Any ecosite other than very wet. Talus, Rock Barren, Crevice, Cave, Alvar may be directly related. Observations of congregations in spring or fall is good indicator.	• Sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line, such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover.	No	• No potential snake hibernacula features were observed. • No candidate habitat for snake hibernacula.	• Presence of snake hibernacula used by a minimum of 5 individuals of a snake sp. or individuals of 2 or more snake spp. • Congregations of a minimum of 5 individuals of a snake sp. Or individuals of 2 or more snake spp. near potential hibernacula (e.g. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). • If there are Special Concern Species present, then site is SWH. • The feature in which the hibernacula is located, plus a 30m radius area, is the SWH. • Hibernacula are used annually, often by the same individuals (strong site fidelity), and other life processes often take place nearby.
Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)	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. CUM1 CUS1 BLS1 CLO1 CLT1 CUT1 BLO1 BLT1 CLS1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding, that is not a licensed/permitted aggregate area. • Does not include manmade structures or licenced Mineral Aggregate Operation.	No	• No bank or cliff swallow nesting habitat was observed. • No candidate habitat for colonial-nesting birds.	• Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests. • Field surveys to observe and

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
						count swallow nests are to be completed during the breeding season. • Specific evaluation methods required.
Colonially-Nesting Bird Breeding Habitat (Tree/Shrub)	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 11-15m from ground, near the top of the tree.	No	• No groups of large stick nests were observed during field investigations. • No candidate habitat for tree/shrub colonial nesting birds.	• Presence of 2 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony, or any island <15.0ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April-Aug) or by evidence such as the presence of fresh guano, dead young and/or eggshells.
Colonially-Nesting Bird Breeding Habitat (Ground)	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 on islands or peninsulas associated with open water or in marshy areas. Brewers Blackbird colonies found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands.	No	•No rocky islands or peninsulas are present within the Study Area. • No Brewer's blackbirds encountered (in southern Ontario, Brewer's Blackbird known occurrences are primarily restricted to the Bruce Peninsula; none are known to occur in London Area) • No candidate habitat for ground colonial nesting birds was identified.	• Presence of >25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony, or any island <3.0ha with a colony is the SWH. • Studies would be done during May/June when actively nesting.

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
						• Specific evaluation methods required
Migratory Butterfly Stopover Areas	Painted Lady Red Admiral Special Concern: Monarch	Combo of one of each: Field (CUM CUT CUS) and Forest (FOC FOD FOM CUP)	• Minimum 10ha in size with combo of field and forest located within 5km of Lake Erie or Lake Ontario. • Should not be disturbed. • Field/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. • Should provide protection from the elements, often spits of land or areas with the shortest distance to cross the Great Lakes.	No		• Presence of Monarch Use Days (MUD) during Fall migration (Aug/Oct) • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. •MUD of >5000 **or** >3000 with the presence of Painted Ladies or Red Admirals is to be considered significant.
Landbird Migratory Stopover Areas	All migratory songbirds	All Ecosites within: FOC FOM FOD SWC SWM SWD	• Woodlots >5ha in size and within 5km of Lake Erie and Lake Ontario. • If woodlands are rare in area, smaller size can be considered. • If multiple woodlands located along shoreline, those 2km from shoreline are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes. • The largest sites are more significant. • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Erie and Lake Ontario, are Candidate SWH.	No	• No woodlots on the Property beyond the narrow hedgerow along the Property boundary line. • Not within 5km of Lake Ontario. • No candidate habitat for migratory landbird stopover areas.	• Use of the habitat by >200 birds/day and with >35 spp. with at least 10 bird spp. recorded on at least 5 different survey dates. • Studies should be completed during spring (Mar-May) and fall (Aug-Oct) migration using standardized assessment techniques. • Specific evaluation methods required.

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
Deer Winter Congregation Areas	White-tailed deer	All forested ecosites within: FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may be used.	• Woodlots >100 ha in size, or if large woodlots are rare in a planning area woodlots >50ha. • Large woodlots >100ha and up to 1500ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant.	No	• No large woodlots present; only wooded area on site is the narrow hedgerow along the Property boundary. • No candidate habitat for deer winter congregation areas.	• Will be mapped by MNRF. • All woodlots exceeding the criteria are significant unless determined to be not by the MNRF. • Studies to be completed during winter when >20cm of snow is on the ground, using aerial survey or pellet count.
Rare Vegetation Communities						
Cliffs and Talus Slopes	N/A	Any Ecosite within: TAO TAS TAT CLO CLS CLT	• A Cliff is vertical to near vertical bedrock >3m in height. • A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris. Most cliff and talus slopes occur along the Niagara Escarpment.	No	• No cliffs or talus slopes were identified. • No candidate habitat for cliffs or talus slopes.	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes
Sand Barren	N/A	SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicketlike (SBS1), or more closed and treed (SBT1). Tree cover always < 60%	• A sand barren area >0.5ha in size. • Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat, such as forest or savannah. • Vegetation can vary from patchy and barren to tree covered, but less than 60%.	No	• No sand barrens were observed on site. • No candidate habitat for sand barrens.	• Confirm any ELC Vegetation Type for Sand Barrens. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.).
Alvar	N/A	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 *Five Alvar Indicator Species:*	• An Alvar site >0.5ha in size, only known sites are found in the western islands of Lake Erie. • An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock	No	• No alvars were observed on site. • No candidate habitat for alvars.	• Studies that identify four of the five ***Alvar Indicator Species*** at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.).

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
		1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum	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 several characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. • Vegetation cover varies from patchy to barren, with a less than 60% tree cover.			• The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.
Old Growth Forest	N/A	FOD FOC FOM SWD SWC SWM	• Woodland area is >0.5ha • Characterized by heavy mortality or turnover of overstorey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	No	• No old growth forests were identified. • No candidate habitat for old growth forests.	• If dominant trees species of the area are >140 years old, then the area containing these trees is SWH. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities. • The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest area containing the old growth characteristics.

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
Savannah	N/A	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. • Remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario).	No	• No savannahs were identified. • No candidate habitat for savannahs.	• Field studies confirm one or more of the Savannah indicator species found in Appendix N, Ecoregion 7E of the SWHTG, OMNR (2000). • Entire area of the ELC Ecosite is SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic species).
Tallgrass Prairie	N/A	TPO1 TPO2	• A Tallgrass Prairie has ground cover dominated by prairie grasses. • An open Tallgrass Prairie habitat has <25% tree cover. • No minimum size to site. • Site must be restored or a natural site. *Remnant sites such as railway right of ways are not considered to be SWH.	No	• No tallgrass prairies were identified. • No candidate habitat for tall grass prairies.	• Field studies confirm one or more of the Prairie indicator species in Appendix N, Ecoregion 7E of the SWHTG, OMNR (2000). • Area of the ELC Ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.)
Other Rare Vegetation Communities	N/A	Provincially Rare S1, S2 and S3 ELC Vegetation Types.	May include beaches, fens, forest, marsh, barrens, dunes, and swamps. See OMNRF/NHIC for up-to-date list of rare vegetation communities.	No	• No rare vegetation communities were identified. • No candidate habitat for rare vegetation communities.	• Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG, OMNR (2000). • Area of the ELC Vegetation Type polygon is the SWH.

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
Specialized Habitat for Wildlife						
Waterfowl Nesting Area	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 PSWs	• A waterfowl nesting area extends 120m from a wetland (>0.5ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5ha) wetlands within 120m of each individual wetland where waterfowl nesting is known to occur. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. • Upland areas should be at least 120m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests.	No	• Property is adjacent to a wetland, which sits to the north, but the only lands on the Property are agricultural fields and hedgerow. • No candidate habitat for waterfowl nesting areas.	• Presence of 3 or more nesting pairs for listed species excluding Mallards OR presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April-June). • Specific evaluation methods required. • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120m from the wetland and will provide enough habitat for waterfowl to successfully nest.
Bald Eagle and Osprey Nesting, Foraging and Perching 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. • Nests located on manmade objects are not to be included as SWH. • Osprey nests are usually at the top of a tree, whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy.	No	• No large stick nests were observed. • No candidate habitat for Osprey or Bald Eagle habitat.	• One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area, and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300m radius around the nest or the contiguous woodland stand is the SWH with additional requirements. • For a Bald Eagle, the active nest and a 400-800m radius around the nest is the SWH with additional requirements.

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
						• To be significant, a site must be used annually. • When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from early March to mid-August. • Specific evaluation methods required.
Woodland Raptor Nesting Habitat	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 CUP3	• All natural or conifer plantation woodland/forest stands >30ha with >4ha of interior habitat. • Interior habitat determined with a 200m buffer. • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Cooper's hawk nest along forest edges, sometimes on peninsulas or small offshore islands. • In disturbed sites, nests may be used again, or a new nest will be near old nest.	No	• No forest interior habitat present on site, • No candidate habitat for woodland raptor nesting.	• Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28ha area of habitat is the SWH (the 28ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). • Barred Owl – A 200m radius around the nest is the SWH. • Broad-winged Hawk and Cooper's Hawk – A 100m radius around the nest is the SWH. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH. • Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area.

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
Turtle Nesting Areas	Midland Painted Turtle Special Concern: Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.	**Yes - candidate**	• Documented presence of snapping turtles on neighbouring property via civilian science site iNaturalist, including hatchlings, indicating that turtles may nest within the Study Area. • The Property itself, consisting almost entirely of agricultural fields, does not provide suitable nesting habitat.	• Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use, is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat. • Field investigations should be conducted in prime nesting season, typically late spring to early summer. • Observational studies observing the turtles nesting is a recommended method.
Seeps and Springs	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	• Where ground water comes to the surface. Often, they are found within headwater areas within forested habitats. • Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	• Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system.	No	• There were no seeps/springs observed on the Property. • No candidate wildlife habitat for seeps and springs.	• Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of an ELC forest ecosite or an eco-element within ecosite containing the seeps/springs is the SWH. • The protection of the recharge area, considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat.
Amphibian Breeding Habitat (Woodland)	Eastern Newt Blue-spotted Salamander Spotted Salamander	All Ecosites associated with	• Presence of a wetland, pond or woodland pool (including vernal pools) >500m^2 (about	No	• No formal amphibian surveys were proposed as there are no	• Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
	Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	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.	25m diameter) within or adjacent (within 120m) to a woodland (no minimum size). • Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.		woodland pools or wetlands on the Property. • No candidate wildlife habitat for amphibian breeding habitat (woodlands).	more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combo of observational and call count surveys required during the spring (March-June). • The habitat is the wetland area plus a 230m radius of woodland area. • If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat.
Amphibian Breeding Habitat (Wetlands)	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Northern Leopard Pickerel Frog Green Frog Mink Frog Bullfrog	SW MA FE BO OA 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 >500m^2 (about 25m diameter), supporting high species diversity, are significant. • Some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation.	No	• No formal amphibian surveys were proposed as there are no woodland pools or wetlands on the Property. • No candidate wildlife habitat for amphibian breeding habitat (wetlands).	• Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3 **or** Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combo of observational and call count surveys will be required during the spring (March-June). • If a SWH is determined for Amphibian Breeding Habitat (Wetlands), then Movement Corridors are to be considered.

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)						
Woodland Area-Sensitive Bird Breeding Habitat	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 Pileated Woodpecker Special Concern: Cerulean Warbler Canada warbler	FOC FOM FOD SWC SWM SWD	• Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30ha. • Interior forest habitat is at least 200m from forest edge habitat.	No	• No forest interior habitat was identified in the Study Area. • No candidate habitat for woodland area-sensitive breeding bird habitat.	• Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. *Any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer. • Specific evaluation methods required.
Marsh Bird Breeding Habitat	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Green Heron Trumpeter Swan Special Concern: Black Tern Yellow Rai	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. • For Green Heron, habitat is at the edge of water, such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water.	No	• No wetlands present on the Property. • No candidate habitat for marsh breeding birds.	• Presence of 5 or more nesting pairs of Sedge Wren **or** Marsh Wren or breeding by any combination of 4 or more of the listed species. • Any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June. • Specific evaluation methods required.

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
Open Country Bird Breeding Habitat	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) >30ha. • Grasslands not Class 1 or 2 agricultural lands and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. • The Indicator bird species are area sensitive, requiring larger grassland areas than the common grassland species.	No	• No meadows >30ha was identified. • No candidate habitat for open country breeding bird habitat.	• Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Specific evaluation methods required.
Shrub/Early Successional Bird Breeding Habitat	<u>Indicator Spp:</u> Brown Thrasher Clay-coloured Sparrow <u>Common Spp:</u> Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher <u>Special Concern:</u> 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 in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no rowcropping, haying or livestock pasturing in the last 5 years). • Shrub thicket habitats (>10ha) are most likely to support and sustain a diversity of these species. • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.	No	• No large field areas succeeding to shrub and thicket habitats. • No candidate shrub/early successional bird breeding habitat,	• Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as SWH. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Specific evaluation methods required

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
Terrestrial Crayfish	Chimney or Digger Crayfish (*Fallicambarus fodiens*); Devil Crayfish or Meadow Crayfish (*Cambarus diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish.	• Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. • Usually, the soil is not too moist, so that the tunnel is well formed. • Can often be found far from water.	No	• No wet meadows or cultural meadows adjacent to wet ecosites on the Property, • No candidate habitat for terrestrial crayfish.	• Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an eco-element area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. • Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult.
NHIC species element occurrences and field observations of Special Concern and rare wildlife species	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species.	All plant and animal element occurrences (EO) within a 1 or 10km grid.	Identified within a 1 or 10km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites.	**Yes - candidate**	• Vacant barn swallow nests observed in the barn on the Property, indicating past use of this structure.	• As determined based on species-specific surveys.
Animal Movement Corridors						
Amphibian Movement Corridors	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Northern Leopard 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.	Movement corridors between breeding habitat and summer habitat. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from this Schedule.	No	• No candidate amphibian breeding habitat (wetland) was identified in the Study Area. • No candidate habitat for amphibian movement corridors.	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. • Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m

Wildlife Habitat	Wildlife Species	Candidate SWH		Potential on Site	Rationale	Confirmed Defining Criteria
		ELC Ecosite Codes	Habitat Criteria			
						wide of woodland habitat and with gaps <20m. • Shorter corridors are more significant than longer corridors; however, amphibians must be able to get to and from their summer and breeding habitat.
Exceptions for EcoRegion 7E						
Bat Migratory Stopover Area	N/A	No specific ELC types.	Long-distance migratory bats typically migrate during late summer and early fall from summer breeding habitats throughout Ontario to southern wintering areas. Their annual fall migration may concentrate these species of bats at stopover areas.	No	No habitat features on site.	Only confirmed site is Long Point. Confirmation criteria and habitat areas are still being determined.