

Environmental Impact Study

**Osaca Whitepine Subdivision
Part Lot 27, Concession 5
County Road 65, Osaca, Ontario**

D.M. Wills Project Number 22-11056



D.M. Wills Associates Limited
Partners in Engineering, Planning and
Environmental Services
Peterborough

February 2025

**Prepared for:
Hillstreet Developments Ltd.**



Submissions Summary

| Submission No. | Submission Title | Date of Release | Submissions Summary |
|----------------|----------------------------------|-------------------|---|
| 1 | Draft Environmental Impact Study | November 29, 2022 | Draft Submission to Client |
| 2 | Final Environmental Impact Study | November 30, 2022 | Final Submission to Client |
| 3 | Final Environmental Impact Study | December 13, 2022 | Updated Final Report |
| 4 | Final Environmental Impact Study | April 2, 2024 | Updated EIS Report to Address Peer Review Comments on the 1 st Submission and a New Draft Plan |
| 5 | Final Environmental Impact Study | February 27, 2025 | Consolidated EIS Addendum and previous EIS submission |

This report has been formatted considering the requirements of the Accessibility for Ontarians with Disabilities Act.

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1.0 Introduction

D.M. Wills Associates Limited (Wills) was retained by Hillstreet Developments Ltd. (Client) to undertake an Environmental Impact Study (EIS) to address potential impacts associated with a Plan of Subdivision (Project) at the lands located on Part of Lot 27, Concession 5 in the Village of Osaca (Subject Property). See **Appendix A** for Statement of Limitation details.

Under the *Municipality of Port Hope Official Plan (2017)*, the Municipality of Port Hope (Municipality) can request an EIS to help guide recommendations for applications for development within, or adjacent to, natural heritage features or areas. The area of the Plan of Subdivision is proximate to several natural features, including watercourses, unevaluated wetlands, woodlands, and a drainage feature, which prompted the need for the EIS.

The purpose of the EIS is to determine whether the development will result in negative impacts to the natural heritage features or their ecological function. In addition, the purpose of the EIS is to determine whether the development is appropriate and to recommend necessary mitigation measures in accordance with the policies outlined in the Municipality's Official Plan. It should identify environmental constraints, develop appropriate setbacks, consult with regulatory agencies and identify the activities required to address project compliance with Municipal, Provincial and Federal statutes and policies including, but not limited to: the *Planning Act* (R.S.O. 1995), the *Conservation Authorities Act* (R.S.O. 1990), the *Endangered Species Act* (R.O. 2007), the *Provincial Policy Statement* (2020), and Section 35 and 37 of the *Fisheries Act* (R.S.C. 1985).

To meet the requirements of the EIS, Wills' biologists undertook field investigations to collect information on existing conditions. This document provides an existing conditions background review, a summary of the observations made during the field investigations, describes the potential impacts of the proposed development, and recommends measures to mitigate impacts of the Project.

1.1 Subject Property/Project Details

The Subject Property encompasses approximately 25.4 ha of land with access from County Road 65. The Project includes a proposal for a 40-lot Rural Estate subdivision. The Subject Property currently consists of active agricultural land, unevaluated woodlands, and wetlands. There is also an existing residential dwelling situated on the eastern boundary of the Subject Property.

County Road 65 borders the Subject Property to the east, while forested lands are found to the west and south, and residential properties are also located to the north and south of the Subject Property.

To the northeast of the Subject Property lies the Osaca Provincially Significant Wetland (PSW), which is situated across County Road 65 approximately 35 m east of the Subject Property. See **Figure 1** for the Site Location and **Figure 2** for the Subject Property which includes adjacent lands within 120 m.

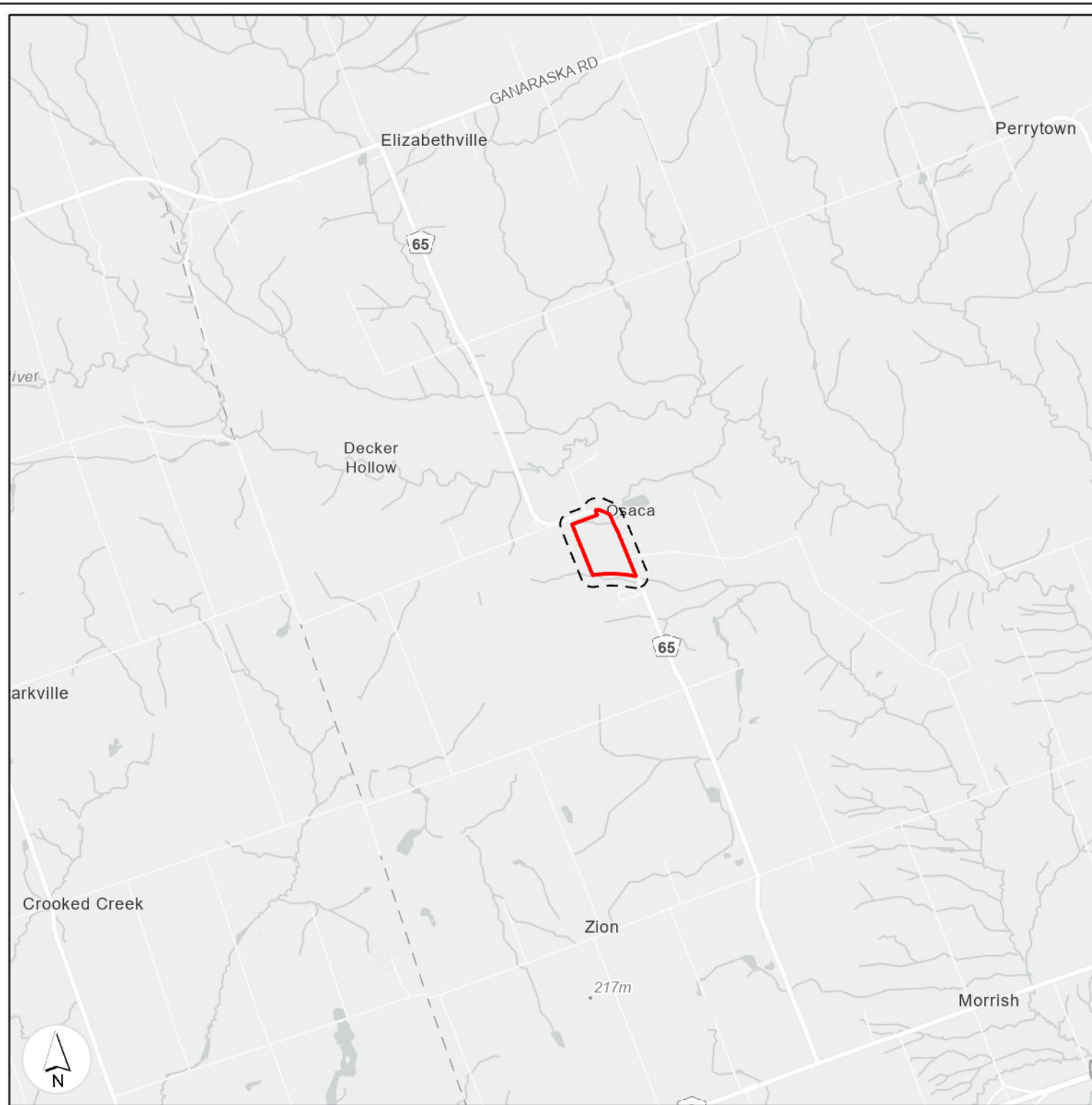




Figure 1 - Site Location

Environmental Impact Study

Part of Lot 27, Concession 5, County
Road 65, Osaca, Ontario

Legend

-  Study Area (120m)
-  Subject Property




PCS: NAD 1983 UTM Zone 17N Scale: 1:55,000

Data Sources

Province of Ontario, Esri Canada, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, EPA, NPS, USDA, NRCan, Parks Canada

| | |
|-----------------|------------|
| Created In: | ArcGIS Pro |
| Drawn By: | MW |
| Checked By: | BR |
| Map Date: | 12/05/23 |
| Project Number: | 11056 |



D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com
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Figure 2 - Subject Property

Environmental Impact Study

Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

Legend

-  Study Area (120m)
-  Subject Property



PCS: NAD 1983 UTM Zone 17N Scale: 1:5,000

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| Checked By: | BR |
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D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com
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2.0 Existing Conditions

2.1 Background Review

The following sources were reviewed prior to the field investigations to gain an understanding of the natural heritage features and known species occurrences on the Subject Property, as well as the surrounding land use and natural heritage features that may be found within 120 m (adjacent lands) of the Subject Property.

- The Natural Heritage Information Centre (NHIC) – Make A Map
- Fish ON-Line, the Ministry of Natural Resources and Forestry (MNRF) fisheries database
- The Ontario Breeding Bird Atlas
- eBird.org
- iNaturalist.org
- ontarioinsects.org
- Ontario Reptile and Amphibian Atlas
- Fish Activity Layer on Ontario Geohub

2.1.1 Natural Heritage Features and Areas

A review of the MNRF natural heritage/resources data obtained through the NHIC database was completed to identify the presence or absence of any natural heritage features and areas covered under the Provincial Policy Statement (2020). A copy of the NHIC data map is located in **Appendix B**.

Furthermore, Wills sent out a formal information request to the Ministry of the Environment, Conservation and Parks (MECP) and the MNRF to obtain additional records with reference to restricted SAR, Significant Wildlife Habitat (SWH) and other data on file concerning lands and the watercourse within the Subject Property; see **Appendix C** for details.

A summary of the results of the database searches is outlined below with reference to natural heritage features and areas.

Areas of Natural and Scientific Interest

No Areas of Natural and Scientific Interest (ANSI) were identified on the Subject Property. One ANSI, (Life Science, Osaca – Ganaraska River/Osaca Wetland) was identified approximately 50 m northeast of the Subject Property, across County Road 65.

Significant Wildlife Habitat

No SWH records were identified through background review.

Conservation Reserves

No Conservation Reserves are located within the Subject Property or adjacent lands.

Provincial Parks

No Provincial Parks are located on the Subject Property or adjacent lands.

Provincially Significant Wetlands

No Provincially Significant Wetlands (PSW) were identified on the Subject Property. However, the Osaca PSW is situated approximately 35 m to the northeast of the Subject Property.

Woodlands

NHIC mapping indicates woodlands as being present on the Subject Property.

Other Wetlands

NHIC mapping has identified one unevaluated wetland on the Subject Property. The wetland extends into the adjacent lot to the west and is hydrologically connected to the Osaca PSW through a watercourse which runs east across County Road 65.

2.1.2 Soils

The Subject Property falls within Ecoregion 6E (Lake Simcoe, Rideau), a region underlain by carbonate rich Paleozoic bedrock, and dominated by a wide variety of deep glacial deposits (Ecological Stratification Working Group, 1996).

2.1.3 Hydrology/Topography

NHIC mapping indicated the presence of one large unevaluated wetland on the Subject Property. Delineation by Wills' biologists determined there were two wetlands which were both found to be situated near the northwest corner of the Subject Property.

One drainage feature was observed within the Subject Property. This feature runs west to east and carries seasonal surface water runoff across the Subject Property connecting two wetlands. A Wills biologist delineated and assessed this feature in general accordance with Toronto Region Conservation Authority's *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* (2014) during site investigations.

Based on the Functional Servicing and Stormwater Management Report (Biddle, 2024), surface water on the Subject Property general flows north/south following the topography of the landscape. There is a high point in the middle of the property, where surface water on either side will flow north or south, eventually draining into one of the two watercourses that are on, or adjacent to the Subject Property. The intersection of

County Road 65 and the watercourse represents the lowest elevation point (161 masl) on the Subject Property.

Overall, the Subject Property is characterized by a relatively flat landscape with no major changes in elevation, with the exception of the watercourse which presents a gentle slope change resulting in an elevation difference of approximately 3 m. The second watercourse which flows west to east is situated immediately to the south of the Subject Property, within the adjacent lands.

2.1.4 Fish Habitat

Consultation with the MNRF identified two tributaries of the Ganaraska River within or adjacent to the Subject Property. The tributary that flows through the wetland at the north end of the Subject Property is identified as a tributary of the Ganaraska River and is a cold-water stream.

The tributary that is south of the Subject Property is identified as Port Britain Creek and is also a cold-water stream. MNRF identified several fish species that have the potential to be found within the two watercourses, see **Appendix C** for details.

The Fish Activity Layer on Ontario Geohub did not contain any records of fish for either watercourse.

2.1.5 Significant Wildlife Habitat (SWH)

In accordance with the Provincial Policy Statement (2020) and the MNRF's Significant Wildlife Habitat Technical Guide (2000), SWH is generally defined as areas where wild mammals, birds, reptiles, amphibians, fishes, invertebrates, plants, fungi, algae, bacteria and/or other wild organisms live, and find adequate amounts of food, water, shelter, and space needed to sustain their populations, and where areas are considered ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System. Specific wildlife habitats of concern may include:

- 1) Seasonal Concentration Areas of Animals.
- 2) Rare Vegetation Communities or Specialized Habitats.
- 3) Habitat of Species of Conservation Concern; and,
- 4) Animal Movement Corridors.

No SWH was identified through background review. An assessment on SWH is found in **Section 4.3**.

2.2 Field Investigations

Field investigations took place on May 5 and June 2, 6, 21, 23, 2022 and June 8, 2023, to evaluate existing ecological conditions within the Subject Property. The field investigations included the following surveys:

- Ecological Land Classification assessment and mapping on June 21, 2022. Commenced at 10:21 am and was completed at 2:54 pm. Weather was sunny and 24°C.
- Confirm presence/absence of hydrological features (wetlands, watercourses, seeps, springs) and delineate their boundaries on June 21, 2022. Weather was sunny and 24°C.
- Amphibian call surveys completed in general accordance with the Marsh Monitoring Program (MMP) standard procedures and protocols. Field investigations took place on May 5, June 2, and June 23, 2022.
 - May 5 survey commenced at 8:30 pm and was completed at 8:52 pm. Weather was partially overcast (5/10 cloud cover) and 7 °C.
 - June 2 survey commenced at 9:55 pm and was completed at 10:08 pm. Weather was clear (1/10 cloud cover) and 13 °C.
 - June 23 survey commenced at 10:27 pm and was completed at 10:48 pm. Weather was clear (0/10 cloud cover) and 19 °C.
- Breeding bird surveys, in general accordance with Ontario Breeding Bird Atlas (OBBA) standard procedures and protocols. Field investigations took place on June 6 and June 21, 2022.
 - June 6 survey commenced at 7:54 am and was completed at 8:15 am. Light drizzle occurred for approximately 2 minutes at the first listening station. Overcast conditions were present for the remaining listening stations. Temperature was 12 °C.
 - June 21 survey commenced at 8:57 am and was completed at 9:22 am. Weather conditions were sunny and 19 °C.
- Incidental wildlife and wildlife habitat observations were completed (auditory, visual, tracks, scat, burrows, nests, etc.) throughout the Subject Property concurrently during all field investigations, with particular attention to any species of conservation concern noted to be present within the area.
- Species at Risk Assessment was completed using the data collected from all field investigations.
- Evaluation of potential SWH within the Subject Property was completed using the data collected from all field investigations.
- Headwater Drainage Feature Assessment (HDFA) in general accordance with Toronto Region Conservation Authority's Evaluation, Classification and Management of Headwater Drainage Features Guidelines (2014). Field investigations took place on May 5 and June 21.
 - May 5 assessment was conducted prior to the Amphibian Call Survey and began at 7:55 pm and was completed at 8:28 pm. Weather was partially overcast (5/10 cloud cover) and 7 °C.
 - June 21 assessment commenced at 2:59 pm and was completed at 3:13 pm. Weather was sunny and 24 °C.

- Wetland boundary staking with Ganaraska Region Conservation Authority on June 8, 2023. Staking of the woodland's boundary was also completed at this time with Sal Spitale (North-South Environmental Inc.).

A photographic record to support field investigations is located in **Appendix D**.

2.2.1 Ecological Land Classification

Ecological Land Classification (ELC) mapping of the Subject Property was completed using the *Ecological Land Classification for Southern Ontario* (Lee, 1998). From this, **Figure 3** was created.

Soil sampling as part of the determination of ELC communities indicated moderately deep substrates that are predominantly comprised of sandy soils across the Subject Property. Auger refusal was primarily achieved due to the presence of hard packed sand. Moisture regimes and organic soils varied across the ecosites, with increased organic content and moisture regimes present within the wetland communities. Six ELC units were identified within the Subject Property:

1. Fresh – Moist Sugar Maple – White Elm Deciduous Forest (FOD6-4)

The canopy primarily consisted of Sugar Maple (*Acer sacharrum*) but also contained American Elm (*Ulmus Americana*). Vegetation species within the sub canopy and understory community were more varied and consisted of Sugar Maple, American Elm, White Birch (*Betula papyrifera*), Basswood (*Tilia americana*), Blue Beech (*Carpinus caroliniana*) Black Ash (*Fraxinus nigra*) and White Pine (*Pinus strobus*). The ground cover community consisted predominantly of Horsetails (*Equisetum spp.*) but Sensitive Fern (*Onoclea sensibilis*), Violets (*Viola spp.*), Virginia Creeper (*Parthenocissus quinquefolia*), Poison Ivy (*Toxicodendron radicans*), Bloodroot (*Sanguinaria canadensis*), Rose-twisted Stalk (*Streptopus lanceolatus*) and Canada Mayflower (*Maianthemum canadense*) were also present.

Soil Auger 1:

0 – 20 cm – Organic – Fresh
20 – 70 cm – Sand – Fresh
70 cm – Hard-packed sand refusal

2. Dry – Fresh Hardwood – Hemlock Mixed Forest (FOM3-1)

The dominant canopy species consist of large Eastern Hemlock (*Tsuga canadensis*) and Sugar Maple, but Red Oak (*Quercus rubra*) and White Pine are also present. The sub canopy contains American Beech (*Fagus grandifolia*), Basswood (*Tilia americana*), Ironwood (*Ostrya virginiana*), Black Cherry (*Prunus serotina*), Sugar Maple, and Yellow Birch (*Betula alleghaniensis*). The understory community is relatively thin and consists only of American Beech and Sugar Maple. Ground cover consisted of Red Trillium (*Trillium erectum*), False Solomon's seal (*Maianthemum racemosum*), Hairy Solomon's Seal (*polygonatum pubescens*), Starflower (*Lysimachia borealis*), Blue Cohosh (*Caulophyllum*

thalictroides), White Ash (*Fraxinus Americana*), Canada Mayflower, Bloodroot, Jack-in-the-pulpit (*Arisaema triphyllum*), Grasses (*Poaceae spp.*) and Currants (*Ribes spp.*).

Soil Auger 1:

0 – 10 cm – Organic – Dry
10 – 55 cm – Sand – Fresh
55 cm – Hard-packed sand refusal

3. Dry – Fresh – White Birch Deciduous Forest (FOD3-2)

This ecosite is representative of an early successional forest, with the canopy consisting exclusively of young White Birch, Trembling Aspen (*Populus tremuloides*) and Large-toothed Aspen (*Populus grandidentata*). The subcanopy and understory communities were largely absent, save for a few American Mountain Ash (*Sorbus Americana*) interspersed throughout the site. Ground cover was dominated by Raspberries (*Rubus spp.*), Goldenrods (*Solidago spp.*), Strawberries (*Fragaria spp.*), Common blackberry (*Rubus allegheniensis*), and Sugar Maple.

Soil Auger 1:

0 – 5 cm – Organics – Dry
5 – 35 cm – Sand – Fresh
35 - 45 cm – Moist
45 cm - Rock Refusal

4. Mineral Cultural Meadow (CUM1)

This ecosite is characterised by active agriculture, with the vegetation community restricted to Soybean (*Glycine spp.*). A drainage feature is present towards the north end of the large field, which drains water from the SWM1-1 ecosite, across the field and into the SWM1-1 ecosite on the east side of the Subject Property. The CUM1 ecosite was not observed to provide any rare or valuable habitat features due to the active agricultural activities.

Soil Auger 1:

0 – 20 cm – Sand – Dry
20 – 50 cm – Sand – Fresh
50 cm – Hard-packed sand refusal

5. White Cedar - Hardwood Mineral Mixed Swamp Ecosite (SWM1-1)

This ecosite encompasses both wetlands delineated within the Subject Property. The canopy primarily consisted of Eastern White Cedar (*Thuja occidentalis*), but additionally contained Yellow Birch, White Birch, Trembling Aspen and Black Ash. The sub canopy consisted of Eastern White Cedar, Black Ash and Sugar Maple while the undergrowth community included Red-osier Dogwood (*Cornus*

sericea), Willows (*Salix spp.*), Black Ash and European Buckthorn (*Rhamnus cathartica*). Ground cover species and quantities varied throughout the ecosite, with areas of increased Eastern White Cedar mostly consisting of coniferous litter and few ground cover species. However, Sensitive Fern (*Onoclea sensibilis L.*), Ostrich Fern (*Matteuccia struthiopteris*), Spotted Jewelweed (*Impatiens capensis*), Mayapple (*Podophyllum peltatum*), Blue Cohosh (*Caulophyllum thalictroides*), Rough Bedstraw (*Galium asprellum*), Wild Mint (*Mentha arvensis*), Sweet Coltsfoot, Poison Ivy, Hairy Solomon Seal, Skunk Cabbage, Wild Red Raspberry and Virginia Creeper were observed within the ecosite.

Soil Auger 1:

0 – 30 cm – Organics – Moist
30 – 70 cm – Sand – Wet
70 - 80 cm – Sandy Clay – Wet
Depth to water table: 30 cm

Soil Auger 2:

0 – 20 cm – Organics – Moist
20 – 60 cm – Sand – Wet
Depth to water table: 30 cm

Soil Auger 3:

0 – 30 cm – Organics – Moist
30 – 45 cm – Sand – Moist
45 – 60 cm – Sand – Wet
Depth to water table: 45 cm

Soil Auger 4:

0 – 25 cm – Organics – Fresh
25 – 50 cm – Sand – Fresh
50 – 65 cm – Sand – Moist
65 cm – Hard-packed sand refusal

No gleys or mottles were observed within the soil cores.

6. Fresh – Moist White Cedar – Sugar Maple Mixed Forest (FOM7-1)

This ecosite primarily borders the wetland communities within the Subject Property, and therefore possessed similar canopy species, which consisted of Eastern White Cedar, Yellow Birch, White Birch and Trembling Aspen. The sub canopy consisted of Eastern White Cedar and Sugar Maple while the undergrowth community included Eastern White Cedar and European Buckthorn. Ground cover species included Ostrich Fern, Mayapple, Blue Cohosh, Poison Ivy, Hairy Solomon Seal and Virginia Creeper.

Soil Auger 1:

0 – 20 cm – Organics – Fresh
20 – 85 cm – Sand – Fresh
85 - 105 cm – Sand – Moist
105 cm – Hard-packed sand refusal

Soil Auger 2:

0 – 20 cm – Organics – Fresh
20 – 40 cm – Sand – Fresh
40 - 70 cm – Sand – Moist
70 cm – Hard-packed sand refusal

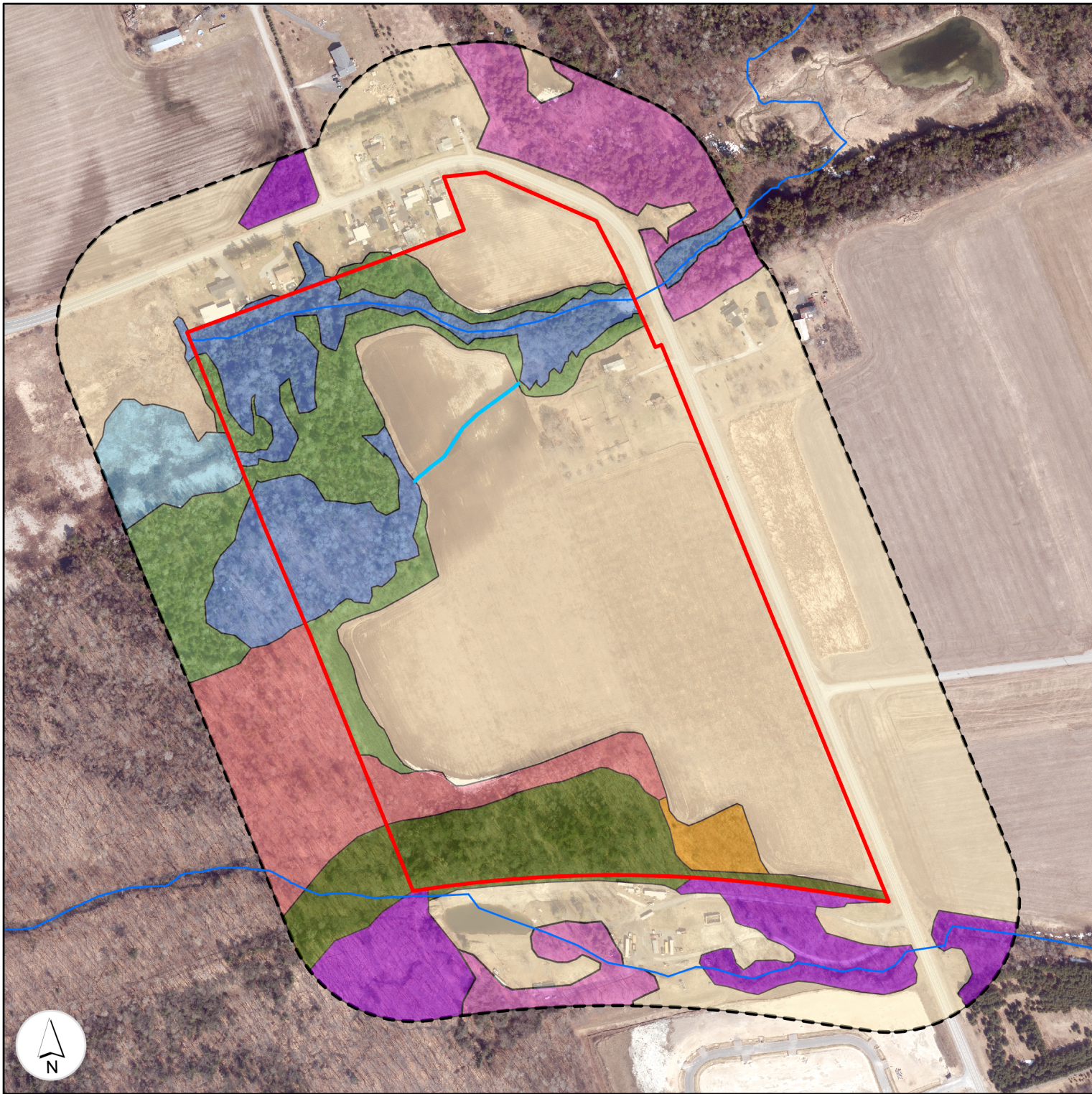


Figure 3 - Ecological Land Classification

Environmental Impact Study

Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

Legend

- | | |
|-------------|-----------------------------------|
| ELC Ecosite | Watercourse (Provincially Mapped) |
| SWM1-1 | Headwater Drainage Feature |
| MAM | Study Area (120m) |
| CUM1 | Subject Property |
| FOM3-1 | |
| FOD6-4 | |
| FOM | |
| FOD | |
| FOM7-1 | |
| FOD3-2 | |



PCS: NAD 1983 UTM Zone 17N Scale: 1:5,000

Data Sources
Northumberland County

| | |
|-----------------|------------|
| Created In: | ArcGIS Pro |
| Drawn By: | JG |
| Checked By: | SF |
| Map Date: | 2024-07-12 |
| Project Number: | 11056 |



D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com
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2.2.2 Breeding Bird Surveys

Breeding bird surveys (Surveys) were completed on June 6 and June 21, 2022, in general accordance with OBBA standard procedures and protocols. Three listening stations were determined prior to arriving at site, as noted in **Figure 4**, following OBBA protocols. Audio recordings were taken at each listening station.

During the two Surveys, a total of 24 species were observed through auditory or visual cues. Eastern Meadowlark (Threatened) was observed during the surveys. Two individuals were heard in the distance in tall grasses adjacent to County Road 65 on the eastern side of the Subject Property. **Table 1** provides full details of species found during the Surveys.

Table 1 – 2022 Breeding Bird Survey Results

| Common Name | Scientific Name | BB01 | | BB02 | | BB03 | |
|------------------------------|--------------------------------|---------|---------|---------|---------|---------|---------|
| | | Visit 1 | Visit 2 | Visit 1 | Visit 2 | Visit 1 | Visit 2 |
| Killdeer | <i>Charadrius vociferus</i> | | | | | x | |
| Yellow Warbler | <i>Setophaga petechia</i> | | | x | x | | x |
| American Crow | <i>Corvus brachyrhynchos</i> | x | x | x | x | x | x |
| Blue Jay | <i>Cyanocitta cristata</i> | x | x | | x | | |
| Great Crested Flycatcher | <i>Myiarchus crinitus</i> | | x | | x | | |
| Red-eyed Vireo | <i>Vireo olivaceus</i> | x | x | | | | |
| Eastern Meadowlark | <i>Sturnella magna</i> | | | x | | x | |
| Ovenbird | <i>Seiurus aurocapilla</i> | | | x | | x | |
| American Redstart | <i>Setophaga ruticilla</i> | | x | x | x | | x |
| American Goldfinch | <i>Spinus tristis</i> | x | x | x | | | x |
| American Robin | <i>Turdus migratorius</i> | x | x | x | x | x | |
| Wild Turkey | <i>Meleagris gallopavo</i> | | | | | | x |
| Eastern Wood Pewee | <i>Contopus virens</i> | | x | | x | | x |
| Eastern Phoebe | <i>Sayornis phoebe</i> | | x | | | x | |
| Red-winged Blackbird | <i>Agelaius phoeniceus</i> | x | x | x | x | | x |
| Mourning Dove | <i>Zenaida macroura</i> | | x | | | | |
| Song Sparrow | <i>Melospiza melodia</i> | | x | | x | | |
| Eastern Towhee | <i>Pipilo erythrophthalmus</i> | x | | x | | | |
| Gray Catbird | <i>Dumetella carolinensis</i> | | | x | x | x | |
| Osprey | <i>Pandion haliaetus</i> | | | | | x | x |
| Northern Cardinal | <i>Cardinalis cardinalis</i> | | | | | x | |
| Yellow-bellied Sapsucker | <i>Sphyrapicus varius</i> | | | | x | | x |
| Black-throated Green Warbler | <i>Setophaga virens</i> | | | | x | | |
| Pileated Woodpecker | <i>Dryocopus pileatus</i> | | | | | | x |

2.2.3 Amphibian Call Surveys

Amphibian Call Surveys were completed on May 5, June 2, and June 23, 2022, in general accordance with the MMP standard procedures and protocols. The Amphibian Call Surveys took place at three Listening Stations at the Subject Property and commenced after sunset. Listening stations were strategically chosen to optimize coverage while preventing overlap of species calls; see **Figure 4**. Amphibian Call Surveys were conducted based on auditory cues for mating purposes, with incidental visual observations noted as well. Spring Peeper (*Pseudacris crucifer*), Gray Tree Frog (*Hyla versicolor*) and American Toad (*Anaxyrus americanus*) were observed.

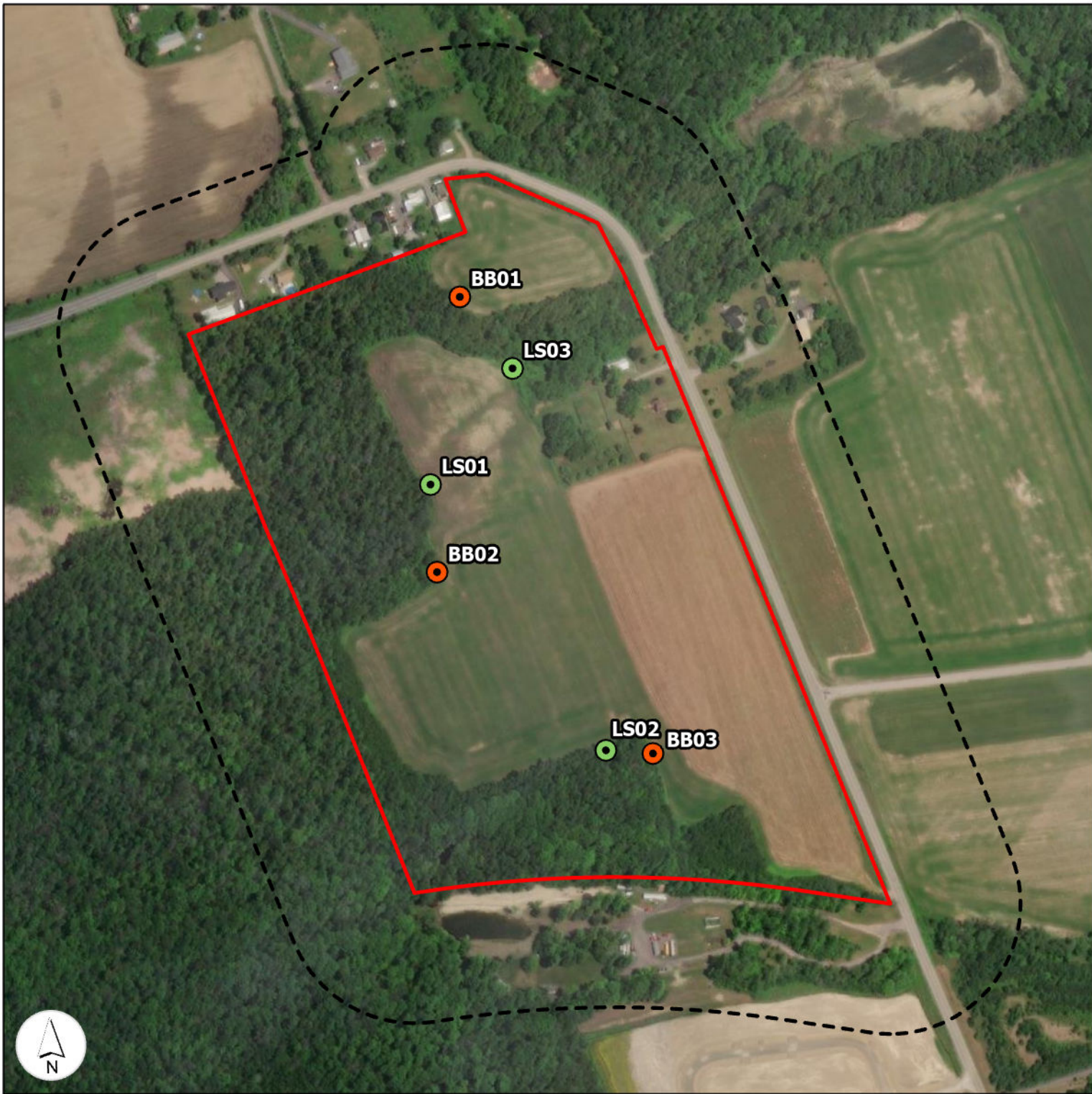


Figure 4 - Amphibian & Breeding Bird Surveys

Environmental Impact Study

Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

Legend

-  Study Area (120m)
-  Subject Property
-  Amphibian Call Survey
-  Breeding Bird Survey



PCS: NAD 1983 UTM Zone 17N Scale: 1:5,000

Data Sources
iMaxar

| | |
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D.J.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com
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2.2.4 Headwater Drainage Feature

Detailed Headwater Drainage Feature (HDF) investigations took place during two separate site visits: May 5 and June 21, 2022, following the Ontario Stream Assessment Protocol Section 4: Module 10 (OSAP S4: M10) for Headwater Drainage Features. Wills followed the Toronto Region Conservation Authority's (TRCA) Evaluations, Classification and Management of Headwater Drainage Features Guidelines (2014), to evaluate the drainage feature during field investigations.

Following the review of aerial imagery, one potential HDF was identified, and its presence was confirmed during the initial field investigation on May 5, 2022. See **Figure 3** for the location of the HDF.

Two field investigations were conducted instead of three since the HDF was dry at the time of the second field investigation on June 21, 2022. During the two field investigations for the upstream and downstream segments of the HDFs, the Feature Type, Feature Flow, Sediment Transport, Riparian Vegetation, Feature Width, Bankfull Depth, Wetted Width, Depth, and Hydraulic Head, were categorized and assessed. In addition, Site Features were also assessed which included Major Nutrient Sources Upstream, Potential Contaminant Sources Upstream, Channel Hardening, Dredging or Straightening, Barriers and/or Dams in Proximity, Online Ponds Upstream, Seeps or Springs at the Site, Evidence of Channel Scouring/Erosion, and BMPs or Restoration Activities. The HDF was observed to carry surface water flow originating from the wetland in the western portion of the Subject Property. The drainage feature was impacted by agricultural activities, mainly the active filling, which appeared to disrupt its morphology and restrict flow to some extent. The drainage feature flows in an eastern direction through the agricultural field into the wetland that borders County Road 65.

An assessment of the HDF using TRCA guidelines is included in **Section 4.2**. The drainage feature can be seen in **Figure 3**.

2.2.5 Wetland Delineation

Wills' biologists conducted a desktop review of aerial imagery within the Subject Property for wetlands using the Natural Heritage Information Centre mapping, prior to the field investigation. Mapping indicated that wetlands were present along the north, west and southern boundaries of the Subject Property as shown in **Appendix B**.

On June 21, 2022, Wills' biologists conducted a ground confirmation exercise by foot, within the Subject Property, following the Ontario Wetland Evaluation System, 2014 (OWES) standard methods for identifying wetland communities. Wills' biologists traversed the Subject Property, conducting an evaluation of wetland presence/absence in the wetland polygons indicated by NHIC mapping. When a wetland was found, the boundary was delineated using a handheld Garmin GPS, marking a waypoint approximately every 5 m.

The OWES methodology involves identifying vegetation species and determining the relative abundance or "cover" of wetland indicator species versus upland vegetation

species. If the vegetation community consists of greater than 50% wetland indicator species, this area is identified as a wetland. This is commonly known as the “50% wetland vegetation rule”. If the percent composition of wetland indicator species is equal to that of upland indicator species, that space represents the wetland boundary. Soil augers were taken at various locations to assist in confirming wetland communities/boundaries.

As part of the wetland delineation on June 21, 2022, the watercourse that flows through the wetland at the north end of the Subject Property was assessed. At the time of the wetland delineation, the watercourse was observed to have no flow, and minimal standing water (<5 cm), defined channel or cover. Substrates consisted of 100% muck/detritus with high vegetation content within the watercourse. Without fish sampling during the appropriate seasons, the presence of fish could not be confirmed.

The wetland boundary as delineated by Wills' biologists is shown in **Figure 3**.

On June 6, 2023, the boundaries of the wetlands directly adjacent to the development were staked by Wills' biologists and the Ganaraska River Conservation Authority (GRCA).

2.2.6 Incidental Wildlife Observations

The following wildlife species were observed or heard during field investigations:

- Red Squirrel (*Tamiasciurus hudsonicus*)
- Ruffed Grouse (*Bonansa umbellus*)
- Coyote (*Canis latrans*)
- Common Nighthawk (*Chordeiles minor*)
- Broad-winged Hawk (*Buteo platypterus*)

2.2.7 Species at Risk Assessment

Information from the following sources was reviewed for all species of conservation concern prior to completing the field investigation to assist in assessing the Subject Property for SAR.

1. Land Information Ontario Natural Heritage Areas database
2. Other SAR species identified through other data sources (OBBA, iNaturalist)

A SAR Screening Assessment was completed comparing known SAR occurrences within the area against specific local habitat features identified during the field investigations. See **Table 2** for details.

Table 2 – Species at Risk Screening Assessment

| Species | Provincial ESA Status | COSEWIC Status | Federal SARA Status | Habitat Requirements | Source | Likelihood of Occurrence | Site Area Suitability/Observations |
|---|-----------------------|----------------|---------------------|--|-----------|--------------------------|---|
| Bald Eagle (<i>Haliaeetus leucocephalus</i>) | Special Concern | Not at Risk | Not at Risk | 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. While fish are their main source of food, Bald Eagles can easily catch prey up to the size of ducks, and frequently feed on dead animals, including White-tailed Deer. They usually nest in large trees such as pine and poplar. During the winter, Bald Eagles sometimes congregate near open water such as the St. Lawrence River, or in places with a high deer population where carcasses might be found (MNRF, 2019). | eBird | Low | No Bald Eagles were observed or heard during the Breeding Bird Surveys. Furthermore, no evidence of stick nests was observed during site visits. Therefore, it is unlikely that Bald Eagles are utilizing the Subject Property. |
| Bank Swallow (<i>Riparia riparia</i>) | Threatened | Threatened | Threatened | Bank Swallows' nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. Many nests are on banks of rivers and lakes, but they are also found in active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs. | OBBA | Low | Habitat requirements not present. No Bank Swallows were observed or heard during Breeding Bird Surveys. |
| Barn Swallow (<i>Hirundo rustica</i>) | Special Concern | Threatened | Threatened | Terrestrial open and man-made structures. Barn Swallow nesting sites include the use of a variety of artificial structures (e.g., beams, posts, light fixtures, ledges over windows and doors) that provide either a horizontal nesting surface or a vertical face, often with some sort of overhang that provides shelter. Often nesting sites are associated with open barns, sheds, garages, and docks. | OBBA | Low | There is an existing barn situated on the northeastern portion of the Subject Property, near County Road 65, which may potentially serve as suitable habitat for this species. While no species-specific surveys were conducted within the structure, no Barn Swallows were observed or heard during the Breeding Bird Surveys. |
| Black Ash (<i>Fraxinus nigra</i>) | Endangered | Threatened | Not Listed | Black Ash is predominantly a wetland species found in swamps, floodplains and fens. Black Ash occurs from western Newfoundland to southeastern Manitoba and North Dakota, ranging southward to Iowa, Illinois, Virginia and Delaware. Black Ash's range extends farther north than any other ash and approximately 51% of the species' global range is within Canada (MECP, 2023). | MECP | Confirmed | Black Ash trees were identified in the southern portions of the FOD6-4 community, as well as in the SWM1-1 communities on the Subject Property. |
| Bobolink (<i>Dolichonyx oryzivorus</i>) | Threatened | Threatened | Threatened | Bobolink prefers tall grass prairies but is also known to nest in forage crops (e.g., hayfields and pastures dominated by a variety of species such as clover, Timothy, Kentucky Bluegrass, and broadleaved plants). | OBBA/NHIC | Low | Due to the active agricultural activities within ecosite CUM1, the habitat requirements for this species are not present. |

| Species | Provincial ESA Status | COSEWIC Status | Federal SARA Status | Habitat Requirements | Source | Likelihood of Occurrence | Site Area Suitability/Observations |
|--|-----------------------|----------------|---------------------|--|--------------------------------|--------------------------|---|
| | | | | | | | No Bobolink were observed or heard during Breeding Bird Surveys. |
| Butternut (<i>Juglans cinerea</i>) | Endangered | Endangered | Endangered | In Ontario, Butternut usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found along streams. It is also found on well-drained gravel sites and rarely on dry rocky soil. In Ontario, this species is found throughout the southwest, north to the Bruce Peninsula, and south of the Canadian Shield (MNRF, 2019). | Kuntz Forestry Consulting Inc. | Low | Two Butternut trees were observed by Kuntz Forestry Consulting Inc. Their locations are depicted in Figure 5 . |
| Canada Warbler (<i>Cardellina canadensis</i>) | Special Concern | Threatened | Threatened | The Canada Warbler breeds in a range of deciduous and coniferous, usually wet forest types, all with a well-developed, dense shrub layer. Dense shrub and understory vegetation help conceal Canada Warbler nests that are usually located on or near the ground on mossy logs or roots, along stream banks or on hummocks. It winters in South America. | eBird/NHIC | Low | No Canada Warbler were observed or heard during the Breeding Bird Surveys. However, surveys were completed along the forest edge, so it is possible Canada Warbler are present within the larger woodland. While ecosite SWM1-1 does present a suitable wet forest type, it did not possess a well-developed shrub layer due to the dense Eastern White Cedar canopy overhead. Therefore, habitat requirements are not present. |
| Chimney Swift (<i>Chaetura pelagica</i>) | Threatened | Threatened | Threatened | Before European settlement, Chimney Swifts mainly nested on cave walls and in hollow trees or tree cavities in old growth forests. Today, they are more 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, and congregate. | OBBA | Low | Large, mature Eastern Hemlocks, Red Oaks and Sugar Maples were present within ecosite FOM3-1, which could potentially support suitable habitat for this species. However, no cavities were observed on suitable trees. There is also an existing barn as well as a residential dwelling situated on the northeastern portion of the Subject Property, near County Road 65, which may potentially serve as suitable habitat for this species. While no species- |

| Species | Provincial ESA Status | COSEWIC Status | Federal SARA Status | Habitat Requirements | Source | Likelihood of Occurrence | Site Area Suitability/Observations |
|--|-----------------------|-----------------|---------------------|--|----------------------------|--------------------------|---|
| | | | | | | | specific surveys were conducted within the structure, no Chimney Swift were observed or heard during Breeding Bird Surveys. |
| Common Nighthawk (<i>Chordeiles minor</i>) | Special Concern | Special Concern | Special Concern | Traditional Common Nighthawk habitat consists of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. Although the species also nests in cultivated fields, orchards, urban parks, mine tailings and along gravel roads and railways, they tend to occupy natural sites (MECP, 2023). | Wills Field Investigations | Low | One Common Nighthawk was heard in the agricultural field located across County Road 65 (to the east) during the June 2, 2022, Amphibian Call Survey. However, no Common Nighthawks were observed on the Subject Property or any other Amphibian Call Surveys. Habitat exists on the adjacent property to the east, but the Subject Property does not contain ideal habitat for Common Nighthawks. |
| Eastern Meadowlark (<i>Sturnella magna</i>) | Threatened | Threatened | Threatened | Native grasslands, pastures and savannahs. Eastern meadowlark also uses a wide variety of other anthropogenic grassland habitats, including hayfields, weedy meadows, young orchards, golf courses, restored surface mines, grassy roadside verges, young oak plantations, grain fields, herbaceous fencerows, and grassy airfields. Eastern Meadowlarks occasionally nest in crop fields such as corn and soybean, but these crops are considered low-quality habitat. | OBBA/NHIC | Low | While 2 Eastern Meadowlark were observed on a thin stretch of long grass adjacent to County Road 65 during the June 6, 2022, breeding bird survey, no Eastern Meadowlark were observed during the subsequent survey. Due to the active agricultural uses of the field, permanent Eastern Meadowlark habitat is not anticipated to be found on the Subject Property, and it is likely that the two individuals observed on June 6 did not nest in the field. |
| Eastern Small-footed Myotis (<i>Myotis leibii</i>) | Endangered | Not at Risk | Not at Risk | In the spring and summer, eastern small-footed bats will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. These bats often change their roosting locations every day. At night, they hunt for insects to eat, including beetles, mosquitos, moths, and flies. In the winter, these bats hibernate, most often in caves and abandoned mines. They seem to choose colder and drier | iNaturalist | Low | Large, mature Eastern Hemlocks, Red Oaks and Sugar Maples were present within ecosite FOM3-1, which could potentially support suitable habitat for this species. There is also an existing barn as well as a |

| Species | Provincial ESA Status | COSEWIC Status | Federal SARA Status | Habitat Requirements | Source | Likelihood of Occurrence | Site Area Suitability/Observations |
|--|-----------------------|-----------------|---------------------|--|-----------|--------------------------|---|
| | | | | sites than similar bats and will return to the same spot each year (MNRF, 2019). | | | residential dwelling situated on the northeastern portion of the Subject Property, near County Road 65, which may potentially serve as suitable habitat for this species. Furthermore, an unidentified bat species was observed flying overhead at listening station LS3 during the Amphibian Call Survey conducted on May 4, 2022. While no Eastern small-footed myotis were observed during site investigations, it must be noted that no species-specific surveys were carried out within the scope of this project. |
| Eastern Whip-poor-will (<i>Caprimulgus vociferus</i>) | Threatened | Threatened | Threatened | The Eastern Whip-poor-will is usually found in areas with a mix of open and forested areas, such as savannahs, open woodlands or openings in more mature, deciduous, coniferous and mixed forests. It forages in these open areas and uses forested areas for roosting (resting and sleeping) and nesting. It lays its eggs directly on the forest floor, where its colouring means it will easily remain undetected by visual predators (MNRF, 2018). | OBBA | Low | Habitat requirements not present. No Eastern Whip-poor-will were observed or heard during Breeding Bird or Amphibian Surveys. |
| Eastern Wood-pewee (<i>Contopus virens</i>) | Special Concern | Special Concern | Special Concern | In Canada, the Eastern Wood-pewee is mostly associated with the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in forest stands of intermediate age and in mature stands with little understory vegetation. During migration, a variety of habitats are used, including forest edges, early successional clearings, and primary and secondary lowland (and submontane) tropical forest, as well as cloud forest. In South America in the winter, the species primarily uses open forest, shrubby habitats, and edges of primary forest. It also occurs in interior forests where tree-fall gaps are present (COSEWIC, 2012). | OBBA/NHIC | Confirmed | Multiple Eastern Wood-pewee were observed/heard in the wooded communities on the Subject Property from all three listening stations during the Breeding Bird Survey conducted on June 21, 2022. |
| Evening Grosbeak (<i>Coccothraustes vespertinus</i>) | Special Concern | Special Concern | Special Concern | During the breeding season, the Evening Grosbeak is generally found in open, mature mixed-wood forests dominated by fir species, White Spruce and/or Trembling Aspen. Its abundance is strongly linked to the cycle of its primary prey, the Spruce Budworm. Outside the breeding season, the species depends mostly on seed crops from tree species in the boreal forest such as | eBird | Low | Habitat requirements not present. No Evening Grosbeak were observed or heard during Breeding Bird Surveys. |

| Species | Provincial ESA Status | COSEWIC Status | Federal SARA Status | Habitat Requirements | Source | Likelihood of Occurrence | Site Area Suitability/Observations |
|--|-----------------------|-----------------|---------------------|--|-------------|--------------------------|---|
| | | | | firs and spruces. It is also attracted to ornamental trees that have seeds or fruit, and may visit bird feeders (MNRF, 2019). | | | |
| Grasshopper Sparrow (<i>Ammodramus savannarum</i>) | Special Concern | Special Concern | Special Concern | It 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. Its nests are well-hidden in the field and woven from grasses in a small cup-like shape. The Grasshopper Sparrow is a short-distance migrant and leaves Ontario in the fall to migrate to the southeastern United States and Central America for the winter (MNRF, 2018). | OBBA/NHIC | Low | Due to the active agricultural activities within ecosite CUM1, the habitat requirements for this species are not present. No Grasshopper Sparrow were observed or heard during Breeding Bird Surveys. |
| Little Brown Myotis (<i>Myotis lucifugus</i>) | Endangered | Endangered | Endangered | During the day Little Brown Myotis roost in trees and buildings. They often select attics, abandoned buildings and barns for summer colonies where they can raise their young. Little brown bats hibernate from October or November to March or April, most often in caves or abandoned mines that are humid and remain above freezing (MNRF, 2019). | iNaturalist | Low | Large, mature Eastern Hemlocks, Red Oaks and Sugar Maples were present within ecosite FOM3-1, which could potentially support suitable habitat for this species. There is also an existing barn as well as a residential dwelling situated on the northeastern portion of the Subject Property, near County Road 65, which may potentially serve as suitable habitat for this species. Furthermore, an unidentified bat species was observed flying overhead at listening station LS3 during the Amphibian Call Survey conducted on May 4, 2022. While, no Little Brown Myotis were observed or recorded during site investigations, it must be noted that no species-specific surveys were carried out within the scope of this project. |
| Northern Myotis (<i>Myotis septentrionalis</i>) | Endangered | Endangered | Endangered | Northern long-eared bats are associated with boreal forests, choosing to roost under loose bark and in the cavities of trees. These bats hibernate from October or November to March or April, most often in caves or abandoned mines. The northern long-eared bat is found throughout forested areas in southern Ontario, | iNaturalist | Low | Large, mature Eastern Hemlocks, Red Oaks and Sugar Maples were present within ecosite FOM3-1, which could potentially support suitable habitat for this |

| Species | Provincial ESA Status | COSEWIC Status | Federal SARA Status | Habitat Requirements | Source | Likelihood of Occurrence | Site Area Suitability/Observations |
|---|-----------------------|-----------------|---------------------|---|------------------|--------------------------|---|
| | | | | to the north shore of Lake Superior and occasionally as far north as Moosonee, and west to Lake Nipigon (MNRF, 2019). | | | species. Furthermore, an unidentified bat species was observed flying overhead at listening station LS3 during the Amphibian Call Survey conducted on May 4, 2022. While, no Northern Myotis were observed or recorded during site investigations, it must be noted that no species-specific surveys were carried out within the scope of this project. |
| Red-headed Woodpecker (<i>Melanerpes erythrocephalus</i>) | Endangered | Endangered | Threatened | The Red-headed Woodpecker lives in open woodland and woodland edges, and is often found in parks, golf courses and cemeteries. These areas typically have many dead trees, which the bird uses for nesting and perching. The Red-headed Woodpecker is found across southern Ontario, where it is widespread but rare (MNRF, 2019). | eBird/NHIC | Low | While the border of the forested ecosites found within the Subject Property may provide suitable edge habitat for this species, these communities were not observed to have a high density of dead trees. Furthermore, no Red-headed Woodpecker were observed or heard during Breeding Bird Surveys. |
| Snapping Turtle (<i>Chelydra serpentina</i>) | Special Concern | Special Concern | Special Concern | Snapping Turtles spend most of their lives in water. They prefer shallow waters so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. During the nesting season, from early to mid-summer, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits (MNRF, 2019). | iNaturalist/NHIC | Moderate | No Snapping Turtles were observed during site investigations. While no species-specific surveys were carried out within the scope of this project, it was observed that the area lacked sufficient standing water within any of the wetland ecosites that would support the life processes of this species. However, there may still be potential for Snapping Turtles to use the wetlands within the Subject Property as a travel corridor to access other wetlands. |
| Tri-colored Bat (<i>Perimyotis subflavus</i>) | Endangered | Endangered | Endangered | During the summer, the Tri-colored Bat is found in a variety of forested habitats. It forms day roosts and maternity colonies in | iNaturalist | Low | There is an existing barn as well as a residential dwelling |

| Species | Provincial ESA Status | COSEWIC Status | Federal SARA Status | Habitat Requirements | Source | Likelihood of Occurrence | Site Area Suitability/Observations |
|--|-----------------------|----------------|---------------------|--|-----------|--------------------------|--|
| | | | | older forests and occasionally in barns or other structures. They forage over water and along streams in the forest. Tri-colored Bats eat flying insects and spiders gleaned from webs. At the end of the summer, they travel to a location where they swarm; it is generally near the cave or underground location where they will overwinter. They overwinter in caves where they typically roost by themselves rather than part of a group (MNRF, 2019). | | | situated on the northeastern portion of the Subject Property, near County Road 65, which may potentially serve as suitable habitat for this species. Furthermore, an unidentified bat species was observed flying overhead at listening station LS3 during the Amphibian Call Survey conducted on May 4, 2022. While, no Tri-colored Bats were observed or recorded during site investigations, it must be noted that no species-specific surveys were carried out within the scope of this project. |
| Wood Thrush (<i>Hylocichla mustelina</i>) | Special Concern | Threatened | Threatened | During the breeding season, the Wood Thrush is found in moist, deciduous hardwood or mixed stands, often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches (Gauthier and Aubry 1995; Friesen et al. 1999; Holmes and Sherry 2001; Friesen 2007; Evans et al. 2011; Suarez-Rubio et al. 2011). It is noted that in southern Ontario, the Wood Thrush prefers second-growth over mature forests (Peck and James, 1987). | OBBA/NHIC | Low | While ecosite SWM1-1 does present a suitable wet forest type, no Wood Thrush were observed or heard during Breeding Bird Surveys completed by Wills' biologists. However, surveys were completed along the forest edge and NSE staff identified Wood Thrush during the June 8, 2023, site visit in the forested communities on the Subject Property. |

3.0 Regulatory Context

According to the Northumberland County Public GIS tool, the Subject Property is designated as a rural settlement area.

3.1 Provincial Policy Context

The *Provincial Policy Statement 2020* (PPS) is a consolidated statement of the government's policies on land use planning. The PPS was issued under section 3 of the Planning Act and came into effect May 1, 2020. It replaces the PPS issued April 30, 2014.

The PPS states:

Section 2.1.4: Development and site alteration shall not be permitted in:

- a) *significant wetlands in Ecoregions 5E, 6E and 7E*

The Subject Property is located in Ecoregion 6E.

There is no evaluated PSW located on the Subject Property. However, the wetland at the north end of the Subject Property is connected to the Osaca PSW by a watercourse that crosses County Road 65 through a culvert. In the absence of a formal evaluation to determine whether the wetlands on the Subject Property are Provincially Significant, they should be treated as part of the Osaca PSW.

Section 2.1.5: Development and site alteration shall not be permitted in:

- b) *significant woodlands in Ecoregions 6E and 7E unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*
- d) *significant wildlife habitat*

unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

A portion of unevaluated woodlands are located within, and adjacent to the Subject Property. An assessment on the significance of the woodlands is provided in Section 4.1.

Confirmed Special Concern and Rare Wildlife Species – Eastern Wood-pewee and Wood Thrush, as well as Woodland Area-Sensitive Bird Breeding Habitat SWH has been identified in the woodlands on the Subject Property. Additional Candidate SWH is present on the Subject Property and adjacent lands.

The PPS also states:

Section 2.1.8: Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, 2.1.6 and 2.1.7, 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 the ecological functions.

The Ontario Natural Heritage Reference Manual for the Provincial Policy Statement defines adjacent lands as:

- 120 m from PSW; significant woodlands; significant valley lands; significant wildlife habitat; significant portions of habitat for threatened or endangered species, significant ANSI – Life Science.
- 50 m from significant ANSI – Earth Science.
- 300 m from fish habitat on an inland at capacity Lake Trout lake on the Canadian Shield.
- 30 m from all other fish habitat.

3.2 Northumberland County Official Plan

The following are the applicable natural heritage policies for the Subject Property from the Northumberland County Official Plan (2016).

Section D1.5 Development and Site Alteration

- a. *Development and site alteration shall not be permitted in significant wetlands and significant coastal wetlands.*

There is no evaluated PSW located on the Subject Property. However, the wetland at the north end of the Subject Property is connected to the Osaca PSW by a watercourse that crosses County Road 65 through a culvert. In the absence of a formal evaluation to determine whether the wetlands on the Subject Property are Provincially Significant, they should be treated as part of the Osaca PSW.

- b. *Development and site alteration shall not be permitted in the following features unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions:*
 - i. *Significant woodlands.*
 - ii. *Significant valleylands.*
 - iii. *Non-significant coastal wetlands.*
 - iv. *Significant wildlife habitat.*
 - v. *Significant Areas of Natural and Scientific interest.*

A portion of unevaluated woodlands are located within, and adjacent to the Subject Property. An assessment on the significance of the woodlands is provided in Section 4.1.

Confirmed Special Concern and Rare Wildlife Species – Eastern Wood-pewee and Wood Thrush, as well as Woodland Area-Sensitive Bird Breeding Habitat SWH has been identified in the woodlands on the Subject Property. Additional Candidate SWH is present on the Subject Property and adjacent lands.

- c. *Development and site alteration shall not be permitted in fish habitat except in accordance with Provincial and Federal requirements.*
- d. *Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.*

Section D1.12.2 Protection of Watercourses

- a) *New development in the form of buildings and structures and septic systems shall be located a minimum of 30 metres from the stable top of the bank of a watercourse. This setback requirement must be met by all development unless more appropriate setbacks are recommended in accordance with an approved Sub Watershed study, Environmental Impact Study or Geotechnical study in consultation with the appropriate Conservation Authority.*

A watercourse is located in the wetland that flows across the north end of the Subject Property.

The wetland boundary incorporates the stable top of bank on the south side of the wetland.

3.3 Municipality of Port Hope

The following are the applicable natural heritage policies for the Subject Property from the Municipality of Port Hope Official Plan (2017).

Section C5.2.2 Policies

- a) *Council shall protect lands classified as Natural Heritage from incompatible development. No development or site alteration will be permitted within a provincially significant wetland. Provincially significant and evaluated wetlands, as identified on Schedule B, will be similarly designated in the implementing zoning by-law as no development zones. Further, development or site alteration shall not be permitted in fish habitat or the habitat of endangered and threatened species except in accordance with provincial and federal requirements. Existing uses, including agricultural operations will be permitted to continue. Development within natural heritage features shall meet the requirements laid out in Table 1.*

Section C5.2.3: Surface and Groundwater Policies

- e) *Within the Municipality there are a number of warm and cold-water creeks. In order to protect these watercourses, a 30 metres setback shall be maintained within which natural vegetation with no disturbance of soil will be permitted.*

There is no evaluated PSW located on the Subject Property. However, the wetland at the north end of the Subject Property is connected to the Osaca PSW by a watercourse that crosses County Road 65 through a culvert. In the absence of a formal evaluation to determine whether the wetlands on the Subject Property are Provincially Significant, they should be treated as part of the Osaca PSW.

It should be noted that the Municipality of Port Hope protects Significant Woodlands and SWH.

A cold-water creek is located in the wetland that flows across the north end of the Subject Property. The wetland boundary incorporates the stable top of bank on the south side of the wetland.

3.4 Endangered Species Act, 2007

The *Endangered Species Act, 2007* (ESA) was implemented to protect SAR in Ontario. An independent body, the Committee on the Status of Species at Risk in Ontario (COSSARO), was developed to classify native plants or animals into one of four categories of at-risk status:

1. Extirpated: lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.
2. Endangered: lives in the wild in Ontario but is facing imminent extinction or extirpation.
3. Threatened: 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.
4. Special Concern: 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.

Species at Risk in Ontario (SARO) are provided by MECP, who administer the ESA regulations for SAR in Ontario. The ESA applies to native species that have been proven to be in danger of becoming extinct or extirpated from Ontario. The ESA provides protection of both the species and their habitat, as well as provides a recovery strategy and stewardship program for those SAR.

Section 9(1) of the ESA prohibits a person from killing, harming, harassing, capturing, or taking a member of a species listed as endangered, threatened or extirpated on the SARO list. In addition, Section 10(1) of the ESA prohibits the damage or destruction of habitat of a species listed as threatened, endangered or extirpated on the SARO list.

A permit from MECP is required under Section 17(2)(c) of the ESA for any proposed work to be completed within the habitat of one, or more, species listed as threatened or endangered.

Two Eastern Meadowlark (Threatened) were heard singing in the southeastern portion of ecosite CUM1, east of BB02 from a strip of tall grasses bordering County Road 65. Only two individuals were observed during the first Breeding Bird Survey, while none were observed during the second. The narrow strip of tall grasses adjacent to County Road 65 did not provide high quality habitat. Therefore, no Eastern Meadowlark nesting habitat is found on the Subject Property.

Black Ash trees (Endangered) were observed within the wetland and FOD-6-4 communities on the Subject Property.

Two Butternut trees (Endangered) were observed on the Subject Property by Kuntz Forestry Consulting Inc. Their location is provided in Figure 5.

3.5 Ontario Regulation 832/21

1. **Ontario Regulation 832/21 is amended by adding the following section:**

Black Ash habitat

5.1 (1) For the purpose of clause (a) of the definition of "habitat" in subsection 2 (1) of the Act, the areas described in subsection (2) of this section that are located in a municipality set out in Schedule 1 to Ontario Regulation 6/24 (LIMITATIONS ON SECTION 9 PROHIBITIONS) made under the Act are prescribed as the habitat of Black Ash.

(2) Subsection (1) applies to the areas within a radial distance of 30 metres from the stem of every Black Ash to which the prohibitions in clause 9 (1) (a) of the Act apply in accordance with Ontario Regulation 6/24.

Black Ash trees were observed in the wetlands and FOD6-4 community on the Subject Property. The Black Ash trees in the FOD6-4 community are located further south where the topography is lower lying.

3.6 Ganaraska Region Conservation Authority

The following portions of Ontario Regulation 168/06 apply for the Subject Property.

3.6.1 Watercourses

Ontario Regulation 168/06 provides the following with respect to watercourses:

Section 3.0 - Alteration Prohibited

5. *Subject to Section 6, no person shall straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse or change or interfere in any way with a wetland.*

Permission to Alter

6. (1) *The Authority may grant a person permission to straighten, change, divert or interfere with the existing channel of a river, creek, stream or watercourse or to change or interfere with a wetland.*

(2) The permission of the Authority shall be given in writing, with or without conditions.

Section 3.1 Interference with a watercourse

In general, interference with a watercourse shall not be permitted except in accordance with the policies of 3.1.1 – 3.1.6:

- 3.1.1 *Infrastructure (e.g., roads, sewers, flood and erosion control works) and various utilities (e.g., pipelines) may be permitted within a watercourse subject to the activity being approved through a satisfactory Environmental Assessment process or through other studies deemed necessary by the Conservation Authority and/ or if the interference on the natural features and hydrologic and ecological functions of the watercourse has been deemed to be acceptable by the Conservation Authority;*
- 3.1.2 *Stream, bank, and channel stabilization to protect existing development or conservation or restoration projects may be permitted within a watercourse if the interference on the natural features and hydrologic and ecological functions of the watercourse has been deemed to be acceptable by the Conservation Authority.*
- 3.1.3 *Any works that are to be located below the bed of the river within a watercourse shall be located below the long-term scour depth to the satisfaction of the Conservation Authority.*
- 3.1.4 *Minor interference and/or alteration (e.g., tile outlet) may be permitted within a watercourse if it has been demonstrated to the satisfaction of the Conservation Authority that the interference is acceptable on the natural features and hydrologic and ecological functions of the watercourse.*
- 3.1.5 *Major interference (e.g., realignment, dredging, dam, enclosure, pond) with a watercourse may be permitted where supported by the recommendations of an Environmental Assessment and if it has been demonstrated to the satisfaction of the Conservation Authority that the interference is acceptable for the natural features and hydrologic, ecological functions of the watercourse.*
- 3.1.6 *Watercourse crossings may be permitted if it has been demonstrated to the satisfaction of the Conservation Authority that the interference on the natural features and hydrologic and ecological functions of the watercourse has been deemed to be acceptable by the Conservation Authority. At a minimum, the submitted plans should demonstrate the following based on morphological characteristics of the watercourse system.*
 - a) *Culverts have an open bottom where it is feasible, or where it is not feasible, the culverts should be appropriately embedded into the watercourse.*
 - b) *Crossing location, width, and alignment should be compatible with stream morphology, which typically requires location of the crossing on a straight and shallow/riffle reach of the watercourse with the crossing situated at right angles to the watercourse.*
 - c) *The crossing is sized and located such that there is no increase in upstream or downstream erosion or flooding.*

- d) *The design should consider fish and wildlife passage.*
- e) *Consideration for upstream and downstream effects when installing/ replacing a culvert.*

A cold-water creek is located in the wetland that flows across the north end of the Subject Property. The wetland boundary incorporates the stable top of bank on the south side of the wetland.

3.5.2 Wetlands

Ontario Regulation 168/06 contains the following sections dealing with wetlands.

Section 4.0 - Development Prohibited

2. (1) *Subject to section 3, no person shall undertake development or permit another person to undertake development in or on areas within the jurisdiction of the Authority that are:*

- (d) *Wetlands.*
- (e) *Other areas where development could interfere with the hydrologic function of a wetland, including areas within 120 metres of all provincially significant wetlands and wetlands greater than 2 hectares in size, and areas within 30 metres of wetlands less than 2 hectares.*

Permission to Develop

3. (1) *The Authority may grant permission for development in or on the areas described in subsection 2 (1) if, in its opinion, the control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development.*

Alterations Prohibited

5. *Subject to Section 6, no person shall... change or interfere in any way with a wetland.*

Permission to Alter

- 6. (1) *The Authority may grant a person permission...to change or interfere with a wetland.*
- (2) *The permission of the Authority shall be given in writing, with or without conditions.*

Section 4.2 - Development within other areas (areas of interference/adjacent lands within which development may interfere with the hydrologic function of the wetland)

4.2.1 *Ontario Regulation 168/06 defines other areas as areas where development could interfere with the hydrologic function of a wetland, including areas within 120 metres of all provincially significant wetlands and wetlands greater than 2 hectares in size, and areas within 30 metres of wetlands less than 2 hectares in size.*

The proposed development is within 120 m of unevaluated wetlands (to be treated as a PSW) that total more than 2 ha in size.

Section 4.3 Area within 30 metres of the wetland

In general, development shall not be permitted within 30 metres of the boundary of the wetland except in accordance with the policies of 4.3.1 – 4.3.4;

- 4.3.1 *Infrastructure (e.g., roads, sewers, flood and erosion control works) and various utilities (e.g., pipelines) may be permitted within 30 metres of a wetland if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority.*
- 4.3.2 *Conservation or restoration projects may be permitted within 30 metres of a wetland if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority.*
- 4.3.3 *Development associated with public parks (e.g., passive or low intensity outdoor recreation and education, trail system) may be permitted within 30 meters of a wetland if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority.*
- 4.3.4 *Single family buildings or structures may be permitted within 30 metres of a wetland on vacant lots of record if the interference on the hydrologic function of the wetland has been deemed to be acceptable by the Conservation Authority. An Environmental Impact Study to assess the hydrologic impact shall be required if the submitted plans do not demonstrate the following:*
 - a) *All development (including grading) is located so as to maintain as much setback from the wetland as is feasible.*
 - b) *Disturbances to natural vegetation communities contributing to the hydrologic function of the wetland are avoided.*
 - c) *The overall existing drainage patterns for the lot will be maintained.*
 - d) *Disturbed area and soil compaction is minimized.*
 - e) *Development is located above the high-water table.*
 - f) *All septic systems are located a minimum of 15 metres from the wetland and a minimum of 0.9 m above the water table.*
 - g) *Impervious areas are minimized.*
 - h) *Best management practices are used to:*
 - (i) Maintain water balance.*
 - (ii) Control sediment and erosion.*
 - (iii) Buffer wetlands.*

Unevaluated wetlands (to be treated as a PSW) are present on the Subject Property.

Section 4.4 Area between 30 metres to 120 metres of the wetland

In general, development may be permitted in the area between 30 metres to 120 metres of a wetland if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority except in accordance with the policies of 4.4.1 – 4.4.5:

- 4.4.1 Infrastructure (e.g., roads, sewers, flood and erosion control works) and various utilities (e.g., pipelines) may be permitted in the area between 30 metres to 120 metres of a wetland subject to the activity being approved through a satisfactory Environmental Assessment process and/or if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority.*
- 4.4.2 Conservation or restoration projects may be permitted in the area between 30 metres to 120 metres of a wetland if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority.*
- 4.4.3 Development associated with public parks (e.g., passive or low intensity outdoor recreation and education, trail system) may be permitted in the area between 30 metres to 120 metres of a wetland if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority.*
- 4.4.4 Single family buildings or structures may be permitted in the area between 30 metres to 120 metres of a wetland on vacant lots of record if the interference on the hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority. An Environmental Impact Study to assess the hydrologic impact shall be required if the submitted plans do not demonstrate the following:*
 - a) Disturbances to natural vegetation communities contributing to the hydrologic function of the wetland are avoided.*
 - b) The overall existing drainage patterns for the lot will be maintained.*
 - c) Disturbed area and soil compaction is minimized.*
 - d) Development is located above the high-water table.*
 - e) All septic systems are located at a minimum 0.9 metres above the water table.*
 - f) Impervious areas are minimized.*
 - g) Best management practices are used to:*
 - (i) Maintain water balance.*
 - (ii) Control erosion and sediment.*
 - (iii) Buffer wetlands.*
- 4.4.5 Larger scale development associated with large commercial uses, industrial uses, multiple residential uses (condominiums, apartments,*

townhouses, etc.) and/or development into the water table may be permitted in the area between 30 metres to 120 metres of a wetland if the interference on hydrologic functions of the wetland has been deemed to be acceptable by the Conservation Authority. An Environmental Impact Study to assess the hydrologic impact shall be required.

Unevaluated wetlands (to be treated as a PSW) are present on the Subject Property.

3.7 Fisheries Act (R.S.C., 1985)

The following portions of the Fisheries Act (R.S.C., 1985) apply to the proposed development:

Death of fish

34.4(1) No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish.

Harmful alteration, disruption, or destruction of fish habitat

35(1) No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption, or destruction of fish habitat.

Minister may require plans and specifications:

37(1) If a person carries on or proposes to carry on any work, undertaking or activity that results or is likely to result in the death of fish, in the harmful alteration, disruption or destruction of fish habitat or in the deposit of a deleterious substance in water frequented by fish or in any place under any conditions where that deleterious substance or any other deleterious substance that results from the deposit of that deleterious substance may enter any such waters, the person shall, on the request of the Minister — or without request in the manner and circumstances prescribed by regulations made under paragraph (3)(a) — provide him or her with any documents — plans, specifications, studies, procedures, schedules, analyses, samples, evaluations — and any other information relating to the work, undertaking or activity, or to the water, place, fish or fish habitat that is or is likely to be affected by the work, undertaking or activity, that will enable the Minister to determine

(a) Whether the work, undertaking or activity results or is likely to result in the death of fish that constitutes or would constitute an offence under subsection 40(1) and what measures, if any, would prevent that death or mitigate the extent of death.

(a.1) whether the work, undertaking or activity results or is likely to result in the harmful alteration, disruption or destruction of fish habitat that constitutes or would constitute an offence under subsection 40(1) and what measures, if any, would prevent that result or mitigate its effects; or

(b) whether there is or is likely to be a deposit of a deleterious substance by reason of the work, undertaking or activity that constitutes or would constitute an offence under subsection 40(2) and what measures, if any, would prevent that deposit or mitigate its effects.

A cold-water creek is located in the wetland that flows across the north end of the Subject Property and has the potential to provide habitat for fish. However, no fisheries sampling was conducted as part of this EIS.

3.8 Migratory Birds Convention Act, 1994

The *Migratory Birds Convention Act, 1994* (MBCA) was developed to protect migratory birds, their nests and eggs anywhere they are found in Canada. Relative to the proposed development, the following is applicable:

Prohibitions

5(1) A person must not engage in any of the following activities unless they have a permit that authorizes them to do so, or they are authorized by these Regulations to do so:

- (a) Capture, kill, take, injure, or harass a migratory bird or attempt to do so.
- (b) Destroy, take or disturb and egg/nd.
- (c) Damage, destroy, remove, or disturb a nest, nest shelter, eider duck shelter or duck box

Exceptions

(2) However, the following may be damaged, destroyed, removed or disturbed without a permit:

- (a) A nest shelter, eider duck shelter or duck box that does not contain a live bird or a viable egg.
- (b) A nest that was built by a species that is not listed in a Table to Schedule 1 if that nest does not contain live bird or a viable egg/nd.
- (c) A nest that was built by a species that is listed in a Table to Schedule 1 if the following conditions are met:
 - (i) The person who damages, destroys, removes, or disturbs that nest provided a written notice Minister a number of months beforehand that corresponds to the number of months set out in column 3 of the relevant Table to that Schedule for the species, and
 - (ii) The nest has not been used by migratory birds since the notice was received by the Minister.

It is anticipated that migratory birds are nesting on Subject Property, including birds listed on Schedule 1 of the MBR.

3.9 Species at Risk Act, 2002

The purposes of this Act are to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened.

Killing, harming, etc., listed wildlife species

32 (1) No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species.

Possession, collection, etc.

(2) No person shall possess, collect, buy, sell or trade an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species, or any part or derivative of such an individual.

Deeming

(3) For the purposes of subsection (2), any animal, plant or thing that is represented to be an individual, or a part or derivative of an individual, of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species is deemed, in the absence of evidence to the contrary, to be such an individual or a part or derivative of such an individual.

Damage or destruction of residence

33 No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species, or that is listed as an extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.

Application — certain species in provinces

34 (1) With respect to individuals of a listed wildlife species that is not an aquatic species or a species of birds that are migratory birds protected by the Migratory Birds Convention Act, 1994, sections 32 and 33 do not apply in lands in a province that are not federal lands unless an order is made under subsection (2) to provide that they apply.

No Federally protected SAR are present on the Subject Property.

4.0 Determination of Significance

Natural Heritage Features and Areas are broadly defined as features and areas, including significant wetlands, significant coastal wetlands, other coastal wetlands in Ecoregions 5E, 6E and 7E, fish habitat, significant woodlands and significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River), habitat of endangered species and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest, which are important for their environmental and social values as a legacy of the natural landscapes of an area. The sections below summarize the assessment of significance for various Natural Heritage Features and Areas on the Subject Property that have the potential to be significant.

4.1 Significant Woodlands

Woodlands are located on the northern, southern, and western portions of the Subject Property as indicated by a background review of NHIC. The *Natural Heritage Reference Manual* (MNRF, 2010) suggests using the criteria below for determining Significant Woodlands. In order to be deemed significant, woodlands must meet at least one of the following criteria:

- 1) Woodland Size – must have an area of at least 50 ha;

Where municipality woodlands cover approximately 30-60% land cover (Municipality of Port Hope: 32.5%) woodlands 50 ha in size or larger are considered significant.

- **The woodland complex that the Subject Property adjoins to, is larger than 50 ha and therefore they should be considered significant.**

- 2) Ecological Functions Criteria:

- a) Woodland Interior – Based on woodlands cover (30-60%), woodlands with 8 ha or more of interior habitat (habitat that is 100 m or more from the woodland edge) are considered significant:

- **There is greater than 8 ha of woodland interior in the complex that the Subject Property is associated with. Therefore, the woodlands meet this criterion.**

- b) Proximity to other woodlands or other habitats must be within 30 m of a significant natural feature or fish habitat and be at least 10 ha.

- **The woodlands on the Subject Property are within 30 m of the Lake Iroquois Archipelago ANSI and the Graham Creek Headwater Wetland Complex (PSW, located approximately 1.3 km west of the Subject Property). Therefore the woodlands meet this criterion. In addition, a watercourse that is anticipated to provide habitat for fish is located approximately 5 m south of the Subject Property and flows through the woodland complex.**

- c) Linkages – must be located between two other significant features each of which are not greater than 120 m apart and at least 10 ha.

- **The woodlands on the Subject Property meet this criterion. The woodlands are between the Lake Iroquois Archipelago and the Graham Creek Headwater Wetland Complex.**

- d) Water Protection – Must be located within 50 m of a sensitive groundwater discharge/recharge area, headwater, watercourse or fish habitat and be at least 5 ha.

- **The woodlands on the Subject Property meet this criterion. Multiple watercourses that provide fish habitat are present within the woodland.**

- e) Woodland Diversity Representation – Must have a naturally occurring composition of native forest species that have declined significantly south and east of the Canadian Shield.

OR

A high native diversity through a combination of composition and terrain and meet minimum area thresholds.

- **The woodlands on the Subject Property meet this criterion. The woodlands were confirmed to contain a significant amount of Sugar Maple, Eastern Hemlock, Eastern White Cedar, Yellow Birch, and White Birch, all of which are native to Southern Ontario.**

- 3) Uncommon Characteristics – Must have rare vegetation community and be more than 4 ha in size OR habitat of a rare, uncommon, or restricted woodland plant species with 10 individual stems or 100 m of leaf coverage and be more than 4 ha in size, OR characteristics of older woodlands with larger tree size structure in native species and be more than 4 ha in size.

- **While the majority of the woodlands on the Subject Property do not meet this criterion, the FOM3-1 ecosite is an older woodland that contains large native tree species. No formal studies were completed to determine the number or frequency of large trees.**

- 4) Economic and Social Functional Values Criteria - Woodlands that have high economic value or social values.

- **The woodlands on the Subject Property do not meet this criterion.**

Through the formal assessment completed for the woodlands on the Subject Property, it was determined that the woodlands on and adjacent to the Subject Property met three Significant Woodland criteria:

- Woodland Size – the woodlands are greater than 50 ha.
- Ecological Functions – The woodlands met categories a), b), c), d) and e).
- Uncommon Characteristics – the FOM3-1 ecosite contains large native tree species.

Therefore, the woodlands on the Subject Property are deemed to be **significant**.

4.2 Headwater Drainage Feature Classification

Using results from the OSAP S4:M10 assessment of HDFs, the TRCA Guidelines were used to classify the feature as indicated below.

Step 1 – Hydrological Classification

Flow Conditions on May 5, 2022, were classified as FC 4 (surface flow minimal i.e., <0.5 L/second), and the Feature Type was identified to be FT 3 (multi-thread) in the upstream section, indicating minimal surface water flow in the late April-May sampling period. During the June 21, 2022, field investigation, the HDF was dry (FC 1).

These values, along with the presence of a wetland upstream of the HDF, indicates that the hydrological classification of the HDF is **Contributing Functions – Ephemeral**.

It should be noted that a field investigation could not occur prior to the agricultural field being tilled. The tilling and tire tracks caused pooling of water to occur where it normally would not be present, slightly altering the HDF's typical flow path. However, it is not anticipated that the tilling of the agricultural field would have changed the outcome of the Hydrological Classification, as the HDF was dry in late June.

Due to the conditions observed on May 5, 2022, a minor increase in flow during the spring freshet are anticipated to have occurred as evidenced by the form of a shallow channel through the agricultural field. A site visit during the spring freshet did not take place because Wills did not obtain approval from the Client until after the spring freshet had occurred. However, a field investigation taking place during spring freshet would not have altered the outcome of this assessment. Regardless of the flow conditions at freshet, the HDF had minimal flow at the May 5 site visit, and it was dry at the June 21 site visit, indicating an ephemeral hydroperiod. As defined in the TRCA Guidelines, a HDF with a Contributing Function – Ephemeral hydrological classification is when a HDF “provides ephemeral flow or water storage functions during and (for a short time) after spring freshet and following large rain events only. These features are typically dry or surface-damp by mid-May”. The definition provided in the TRCA Guidelines matches the site conditions that were observed in the HDF.

Step 2 – Riparian Classification

The Riparian Classification was determined to be 1 (no vegetation) and 3 (cropped land), as the moist land immediately surrounding the HDF did not have vegetation growth. As the riparian corridor was characterized by either no vegetation or cropped land, the Riparian Classification for the HDF is **Limited Functions**.

Step 3 – Fish and Fish Habitat Classification

The HDF is not considered to provide fish habitat. The Fish and Fish Habitat Classification is **Contributing Functions** as the HDF may contribute allochthonous transport through the feature to downstream fish habitat that is potentially located within that watercourse that is located within the downstream wetland.

Step 4 – Terrestrial Habitat Classification

Due to the presence of a wetland downstream with breeding amphibians, the Terrestrial Habitat Classification of the HDF is **Important Functions**.

The determination of the Management Option and mitigation measures based on the sensitivity of the HDF and the downstream habitat are outlined in **Section 5.2.2**.

4.3 Significant Wildlife Habitat

To further investigate the potential occurrence of SWH, mapped ELC communities were cross-referenced with a database of significant wildlife habitats to determine potential

for any seasonal concentration areas (SCA), rare vegetation communities and specialized habitats for wildlife (SHW), habitat for species of conservation concern (HSCC), and animal movement corridors to be present within the Area of Assessment. The Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E were used to identify potential significant wildlife habitat. See **Table 3** below for details on Candidate SWH that may be applicable to the Subject Property.

Table 3 – Significant Wildlife Habitat Screening

| SWH Type | Associated Species | Associated ELC Ecosites | Habitat Criteria | Candidate SWH | Confirmed SWH | Additional Notes |
|---|--|--|---|---------------|---------------|---|
| Seasonal Concentration Areas of Animals | | | | | | |
| Waterfowl Stopover and Staging Areas (Terrestrial) | Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall | CUM1 CUT1 Evidence of annual flooding. | Fields with standing/pooling water in the spring from melt water. | No | N/A | The agricultural field did not contain pooling water. The HDF did not contain enough pooling water to support a waterfowl staging area, it was limited to a small, undefined channel that was approximately 30 cm wide. Furthermore, no waterfowl were observed during any of the site visits. |
| Raptor Wintering Area | Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Short-eared Owl Bald Eagle | Hawks/Owls: One community series from each land class: Forest: FOD, FOM, FOC Upland: CUM, CUT, CUS, CUW Bald Eagle: FOD, FOM, FOC, SWD, SWM, or SWC on shoreline areas adjacent to large waterbodies. | Hawks/Owls: >20 ha with a combination of with a combination of forest and upland habitat for Hawks/Owls. Idle/Fallow/Meadow (>15 ha) with adjacent woodlands. Bald Eagle: Large trees and snags adjacent to open water. | No | N/A | The portion of CUM1 that represents the agricultural fields makes up approximately 14 ha, not meeting the minimum size requirement of 15 ha. The forested communities are not adjacent to open water. |
| Bat Maternity Colonies | Big Brown Bat Silver-haired Bat | FOD FOM SWD SWM | Maternity Colonies located in mature deciduous or mixed forests with >10/ha large diameter (>25 cm dbh) wildlife trees | Yes | Undetermined | No acoustic surveys or snag density surveys were completed. Therefore, lands adjacent to the development have the potential to contain this SWH. A 15 m buffer will be applied to all woodlands, except for the FOD3-2 community, where a 10 m buffer is applied to minimize impacts to any potential Bat Maternity Colonies. |
| Turtle Wintering Areas | Midland Painted Turtle Northern Map Turtle Snapping Turtle | Classes: SW, MA, OA, SA Community Series: FEO, BOO | Water has to be deep enough to not freeze and have soft mud substrates and have adequate dissolved oxygen. | No | N/A | There are no areas on the Subject Property that have pools of water that are deep enough to not freeze during the winter months. |
| Colonially – Nesting Bird Breeding Habitat (Ground) | Herring Gull Great Black-backed Gull Littler Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird | MAM 1-6 MAS1-3 CUM CUT CUS | Any rocky island or peninsula within a large lake or river. Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird). | No | N/A | The CUM1 community does not represent a pasture or open field. |

| SWH Type | Associated Species | Associated ELC Ecosites | Habitat Criteria | Candidate SWH | Confirmed SWH | Additional Notes |
|------------------------------------|--|---|---|---------------|---------------|---|
| Migratory Butterfly Stopover Areas | Painted Lady Red Admiral Monarch | One Community Series from each landclass: Field: CUM CUT CUS Forest: FOC FOD FOM CUP | Minimum 10 ha in size with a combination of forest and field habitats and is located within 5 km of Lake Ontario. | No | N/A | While the minimum size criteria is met, the Subject Property is located >5 km from Lake Ontario. |
| Landbird Migratory Stopover Areas | All migratory songbirds | FOC FOM FOD SWC SWM SWD | Woodlots need to be >10 ha in size and within 5 km of Lake Ontario. | No | N/A | While the minimum size criteria is met, the Subject property is located >5 km from Lake Ontario. |
| Deer Yarding Areas | White-tailed Deer | FOM FOC SWM SWC CUP2 CUP3 FOD3 CUT | MNRF to determine this habitat through correspondence. | No | N/A | MNRF did not identify Deer Yarding Areas on the Subject Property through correspondence (see Appendix C). |
| Deer Winter Congregation Areas | White-tailed Deer | FOC FOM FOD SWC SWM SWD | Woodlots >100 ha in size. Woodlots <100 ha may be significant based on MNRF assessment. MNRF to determine this habitat. | No | N/A | MNRF did not identify Deer Yarding Areas on the Subject Property through correspondence (see Appendix C). |

| SWH Type | Associated Species | Associated ELC Ecosites | Habitat Criteria | Candidate SWH | Confirmed SWH | Additional Notes |
|--|---|---|--|---------------|---------------|---|
| | | Conifer plantation much smaller than 50 ha may also be used. | | | | |
| Rare Vegetation Communities or Specialized Habitat for Wildlife | | | | | | |
| Old Growth Forest | N/A | FOD FOC FOM SWD SWC SWM | Characterized by heavy mortality or turnover of overstory trees resulting in gaps that encourage a multi-layered canopy and an abundance of snags and downed woody debris. Woodlands >30 ha in size with at least 10 ha interior habitat, assuming 100 m buffer at edge of forest. Field studies confirm the dominant tree species are >140 years old. | Yes | Undetermined | While no field studies were completed to confirm the presence of Old Growth Forest, it is anticipated that the FOM3-1 community at the south end of the Subject Property meets the criteria for SWH. However, none of the associated ELC communities will be impacted by the proposed development. Therefore, no additional studies are required. A 15 m buffer will be applied to all woodlands, except for the FOD3-2 community, where a 10 m buffer is applied to ensure no direct impacts will occur from the proposed development. |
| Specialized Habitat for Wildlife | | | | | | |
| Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat | Osprey Bald Eagle | FOD, FOM, FOC, SWD, SWM, and SWC directly adjacent to riparian areas – rivers, lakes, ponds, and wetlands | Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. Nests located on man-made objects such as telephone poles and constructed nesting platforms are not considered SWH. | No | N/A | While an Osprey nest is present on a constructed nesting structure adjacent to County Road 65, this is not considered SWH. The forested communities on the Subject Property are not immediately adjacent to the large ponds associated with the Osaca PSW located on the opposite side of County Road 65, therefore Candidate SWH is not applicable. |
| Woodland Raptor Nesting Habitat | Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk | All forested ELC Ecosites. Additionally found in SWC, SWM, SWD, and CUP3. | All natural or conifer plantation woodland/forest stands >30 ha in size with >10 ha of interior habitat. Interior habitat determined with a 200 m buffer. | Yes | Undetermined | While a single Broad-winged Hawk was observed outside of the peak breeding bird time, none of the associated ELC communities will be impacted by the proposed development. Therefore, no additional studies are required. A 15 m buffer will be applied to all woodlands, except for the FOD3-2 community, where a 10 m buffer is applied to ensure no direct impacts will occur from the proposed development. |
| Amphibian Breeding Habitat (Woodland) | Eastern Newt Blue-spotted Salamander Spotted Salamander | FOC FOM FOD SWC | Presence of a wetland, pond, or woodland pool (including vernal pools) >500 m ² within or adjacent (within 120 m) to a woodland | Yes | Undetermined | No vernal pools that reached the minimum size criteria were found within the forested communities on the Subject Property. However, adjacent lands were not assessed, and amphibian call surveys may |

| SWH Type | Associated Species | Associated ELC Ecosites | Habitat Criteria | Candidate SWH | Confirmed SWH | Additional Notes |
|---|--|--|---|---------------|---------------|--|
| | Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog | SWM SWD | | | | have missed early breeding species such as Western Chorus Frogs and Wood Frogs. The SWM1-1 community which contained vernal pools, will be protected by the 30 m buffer. In addition, a 15 m buffer will be applied to all woodlands, except for the FOD3-2 community, where a 10 m buffer is applied to ensure no direct impacts will occur from the proposed development. |
| Amphibian Breeding Habitat (Wetlands) | Eastern Newt Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog | SW MA FE BO OA SA | Wetlands >500 m ² supporting high species diversity are significant. Presence of shrubs and logs increase significance. Bullfrogs require permanent waterbodies. | Yes | Undetermined | Only one of the associated frog species was heard during the Amphibian Call Surveys. However, adjacent lands were not assessed, and amphibian call surveys may have missed early breeding species such as Western Chorus Frogs and Wood Frogs. The SWM1-1 community will be protected from development by a 30 m buffer that is outlined in Figure 5 . Therefore, sufficiently mitigating any impacts to this SWH. |
| Woodland Area-Sensitive Bird Breeding Habitat | 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 | FOC FOM FOD SWC SWM SWD | Habitats where interior forest breeding birds are breeding, typically large mature (>60 years old) forest stands or woodlots >30 ha in size. Interior forest habitat is at least 200 m from forest edge habitat. | Yes | Confirmed | Multiple indicator species were observed in the woodlands during the field investigations conducted by Wills and NSE. A 15 m buffer will be applied to all woodlands, except for the FOD3-2 community, where a 10 m buffer is applied to ensure impacts from the proposed development are mitigated. The wooded wetlands are protected by a proposed 30 m buffer. Further details are provided in Section 5 . |

| SWH Type | Associated Species | Associated ELC Ecosites | Habitat Criteria | Candidate SWH | Confirmed SWH | Additional Notes |
|---|--|---|---|---------------|---------------|---|
| Habitat for Species of Conservation Concern (Not Including Endangered or Threatened Species) | | | | | | |
| Marsh Breeding Bird Habitat | American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan Black Tern Yellow Rail | MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 Green Heron: All SW, MA, and CUM1 sites | Nesting occurs in wetlands. All wetland habitat is to be considered as long as shallow standing water with emergent vegetation is present. For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. | Yes | No | None of the associated bird species, specifically Green Heron (due to the presence of the CUM1 and SWM1-1 ecosites and watercourse) were identified during the Breeding Bird Surveys. |
| Open Country Bird Breeding Habitat | Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Short-eared Owl | CUM1 CUM2 | Large grassland areas (includes natural and cultural fields and meadows) >30 ha. Grassland not Class 1 or 2 agricultural lands, and not actively used for farming (no row cropping or intensive hay or livestock pasturing in the last 5 years). | No | N/A | The CUM1 ecosite on the Subject Property is actively used for agricultural purposes, as the field was used to grow soy in 2022. |
| Shrub/Early Successional Bird Breeding Habitat | Brown Thrasher Clay-coloured Sparrow Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher 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 >10 ha in size. Shrub land or early successional fields, not Class 1 or 2 agricultural lands, not being actively for farming (no row-cropping, haying or live-stock in pasturing in the last 5 years). | No | N/A | Due to the active farming activities on the Subject Property, and a lack of Associated ELC ecosites, the Subject Property does not qualify for this Candidate SWH. |

| SWH Type | Associated Species | Associated ELC Ecosites | Habitat Criteria | Candidate SWH | Confirmed SWH | Additional Notes |
|---|---|--|--|---------------|---------------|--|
| Special Concern and Rare Wildlife Species | All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. These species are tracked by the NHIC. | All plant and animal element occurrences within a 1 or 10 km grid. | When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking Candidate SWH on the site needs to be completed to ELC Ecosites. | Yes | Confirmed | Eastern Wood-pewee was confirmed to be present within the forested communities on the Subject Property. However, a 15 and 10 m buffer has been proposed on the woodlands. Therefore, no direct impacts are anticipated to this SWH. |
| Animal Movement Corridors | | | | | | |
| Amphibian Movement Corridors | Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog 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. | Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH (Amphibian Breeding Habitat – Wetland). | Yes | Undetermined | Amphibian Breeding Habitat – Wetland was not confirmed. Therefore, this SWH cannot be determined. However, a 30 m buffer is being proposed on all wetlands and habitat adjacent to wetlands is not being impacted. This will mitigate any impacts to this potential SWH. |
| Deer Movement Corridors | 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. | No | N/A | Deer Wintering Habitat was confirmed to not be SWH on the Subject Property. |

5.0 Impact Assessment and Mitigation

Any future site development works including building erection, grading, and pavement development have the potential to incur adverse impacts on the surrounding environment including natural heritage features, sensitive species (e.g., SAR), and/or Significant Wildlife Habitat, particularly concerning works in undeveloped natural landscapes. Locally specific mitigation measures are implemented to prevent or mitigate impacts to the Natural Heritage Features and Areas identified.

The proposed 38 lot subdivision includes the following:

- Domestic water supply will be supplied by individual water wells.
- Stormwater runoff will be conveyed into a combination of open ditches, Low Impact Development (LID) features and two stormwater ponds located on site. Discharge of the north pond goes into the wetland buffer while the southern pond will discharge into a ditch which eventually drains into the watercourse to the south.
- Individual septic systems for each lot.

To address any potential impacts to the existing natural features or any potential wildlife species of conservation concern which may reside in the area, mitigation measures in the following sections should be implemented.

5.1 General Recommendations

The following general recommendations should be applied to any future development:

- All necessary precautions must be taken to prevent the accumulation of litter and construction debris within any natural areas outside of the construction limits. Daily inspections and clean-up must take place.
- Upon project completion, all construction materials must be removed off-site.
- In order to reduce the likelihood of the introduction of invasive species to the area during construction, all equipment should be cleaned free of any seeds or other deleterious substances prior to their arrival on the Subject Property.
- Street lighting should be directed away from woodlands and wetlands.

5.2 Natural Heritage Features

To prevent impacts to the natural heritage features on the Subject Property from the proposed development, a 15 m buffer has been proposed on the woodlands, except for the FOD3-2 ecosite, where a 10 m buffer has been applied. Additionally, a 30 m buffer has been proposed on the wetlands.

In addition, a chain-link fence (with no gates) is recommended to be installed along the 15 m, 10 m, and 30 m buffers around the entire property to limit human disturbance

in the woodlands and wetlands. The chain-link fence will also act as a barrier to help prevent predatory pets from entering the woodland which could impact local wildlife populations.

The establishment of the 10 m, 15 m, and 30 m buffers, in addition to the LID features that are proposed as part of the development, will increase surface water infiltration. This will limit direct surface water transport of fertilizers and pesticides from residential lawn care into the adjacent natural heritage features, such as the woodlands, wetlands and watercourses.

5.2.1 Woodlands

The woodlands on the Subject Property have been deemed significant based on the Woodlands Evaluation that was completed in **Section 4.1**.

No development is to occur within either 10 m or 15 m of the woodlands as identified in **Figure 5**. These buffers are sufficient to minimize impacts from development.

The 10 m or 15 m buffers should be vegetated with "Early Succession Dry Prairie Meadow Native Seed Mixture 8115" from OSC Seeds (or similar from another provider). The application of a seed base with native plant species will prevent the establishment of invasive and non-native plant species within the woodland buffer. This is an improvement compared to the existing site conditions where no buffer is present and agricultural activities are taking place.

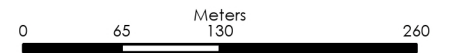
Figure 5 - Natural Heritage Constraints

Environmental Impact Study

Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

Legend

- Butternut
- Approximate Location of Eastern Meadowlark
- Approximate Location of Eastern Wood-pewee
- Approximate Location of Common Nighthawk
- Headwater Drainage Feature
- Watercourse (Provincially Mapped)
- Lot Boundaries
- Wetlands (Wills Delineated)
- Woodlands
- ANSI, Life Science
- Unevaluated Wetland
- Provincially Significant Wetland
- Natural Heritage Buffer
- Butternut Buffer (14m)
- Subject Property
- Adjacent Lands (120m)



PCS: NAD 1983 UTM Zone 17N Scale: 1:5,000

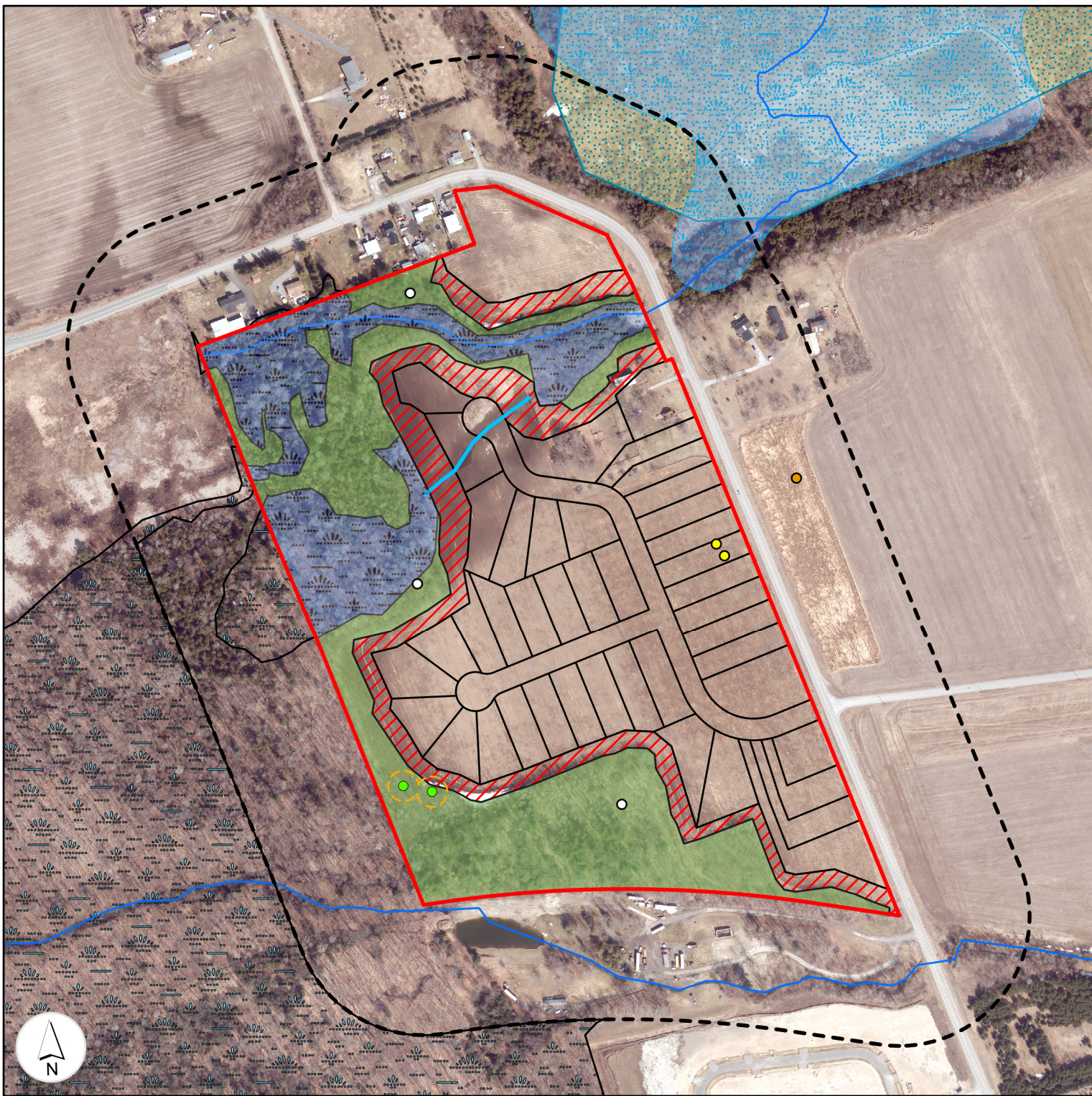
Data Sources

Northumberland County
Fieldwork: May-Jun 2022 & Jun 2023
Kuntz Forestry Consulting: Nov 2023

| | |
|-----------------|------------|
| Created In: | ArcGIS Pro |
| Drawn By: | JG |
| Checked By: | SF |
| Map Date: | 2024-07-12 |
| Project Number: | 11056 |

D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com
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5.2.2 Headwater Drainage Feature

Based on the Classification of the HDFA, the Management option of the HDFA is **Conservation – Valued Functions**.

Therefore, in alignment with TRCA guidelines, the hydrologic connection associated with the HDF will be maintained. This will be completed through a combination of lot grading and a natural channel design.

As shown in the Conceptual Grading and Servicing Plan (D.G. Biddle, 2024), water leaving the wetland at the top end of the drainage feature will pool at a low point to the west of Lot 37. Furthermore, raising the lot grades behind Lots 37 and 38 will add to the ponding of water at the back of Lot 37. This will push water flow around Lot 38 and into the wetland/creek. A natural channel design will need to be constructed to facilitate the connection of the drainage feature into the adjacent wetland/creek.

This will imitate the current drainage feature where a connection to the downstream wetland only exists when water ponds up to an elevation of 162.95 m (0.3 m depth) at which point it spills over and flows into the downstream wetland.

While the natural channel will discharge in a different location than it currently is, it will remain within the same wetland. The relocation of the drainage feature is in line with TRCA guidelines for management of a Conservation HDF.

The following is required with the relocation of the HDF:

- A natural channel design must be constructed to facilitate water flow around Lots 37 and 38 into the adjacent wetland as shown in **Appendix F**.
- The new channel must remain open.

Details of the natural channel design will be finalized following approval of the Plan of Subdivision. However, a cross-section and the location of the channel are shown in **Appendix F**.

5.2.3 Wetlands

A wetland evaluation has not been completed for the unevaluated wetlands on site. Therefore, they should be treated as a PSW due to the direct hydrologic connection to the Osaca PSW located on the east side of County Road 35, approximately 35 m away from the Subject Property. Water flows from the wetlands on the Subject Property, through a culvert under County Road 65, and then into the Osaca PSW in an eastern direction.

No development will occur within 30 m of the delineated wetland boundaries as shown in **Figure 5**. **Figure 5** and the Draft Plan have been developed using the staking completed with GRCA on June 6, 2023.

Buffer areas will be vegetated with “Early Succession Dry Prairie Meadow Native Seed Mixture 8115” from OSC Seeds (or similar from another provider). The application of a

seed base with native plant species will prevent the establishment of invasive and non-native plant species within the buffer. Given the prevalent use of pesticides and fertilizers in agricultural activities, the absence of a buffer intensifies the issue by permitting runoff to flow directly into the nearby wetlands and watercourses of the Subject Property. Allowing native plant species to regenerate the buffers will enhance infiltration capabilities, thereby mitigating the adverse impact of surface water runoff on the watercourse and wetlands.

5.2.3.1 Water Balance

To ensure that the proposed development will not negatively impact the surface water and groundwater contributions to the adjacent wetland and watercourses, a water balance analysis should be completed in accordance with the Conservation Authority Guidelines for Hydrological Assessments. A Water Balance analysis was included in the Hydrogeological Study Report (Wills, March 2024), which included a pre-development, post development and post development with mitigation scenarios based on the stormwater management design completed by D.G. Biddle and Associates Limited. The results of the water balance analysis for these three scenarios are summarized in **Table 4**.

A review of **Table 4** shows that both the average annual infiltration volume and average annual runoff volume will increase from the existing condition when accounting for the additional infiltration provided by the low impact development features. The quality of surface runoff will be controlled by the proposed low impact development features and stormwater management ponds. As such, adequate surface and groundwater flow will be maintained to the wetland.

Table 4 – Water Balance Summary

| Catchment Parameters | Existing | Proposed Without LID | Change Without LID | Proposed with LID | Change With LID |
|---|----------|----------------------|--------------------|-------------------|-----------------|
| Precipitation (mm/year) | 872 | | | | |
| Precipitation (m ³ /year) | 215,471 | 215,471 | 0.0% | 215,471 | 0.0% |
| Evapotranspiration (m ³ /year) | 150,056 | 145,518 | -3.0% | 145,518 | -3.0% |
| Infiltration (m ³ /year) | 52,561 | 48,948 | -6.9% | 57,828 | 10.0% |
| Runoff (m ³ /year) | 12,854 | 21,828 | 69.8% | 12,948 | 0.7% |

- Notes: 1. No infiltration has been calculated for LID features during months with a negative average temperature.
2. Water Balance Summary taken from Hydrogeology Study Report (Wills, March 2024)

5.2.4 Significant Wildlife Habitat

The following mitigation measures should be implemented to minimize impacts associated with the proposed development on SWH. **Figure 6** has been created to show candidate and confirmed SWH.

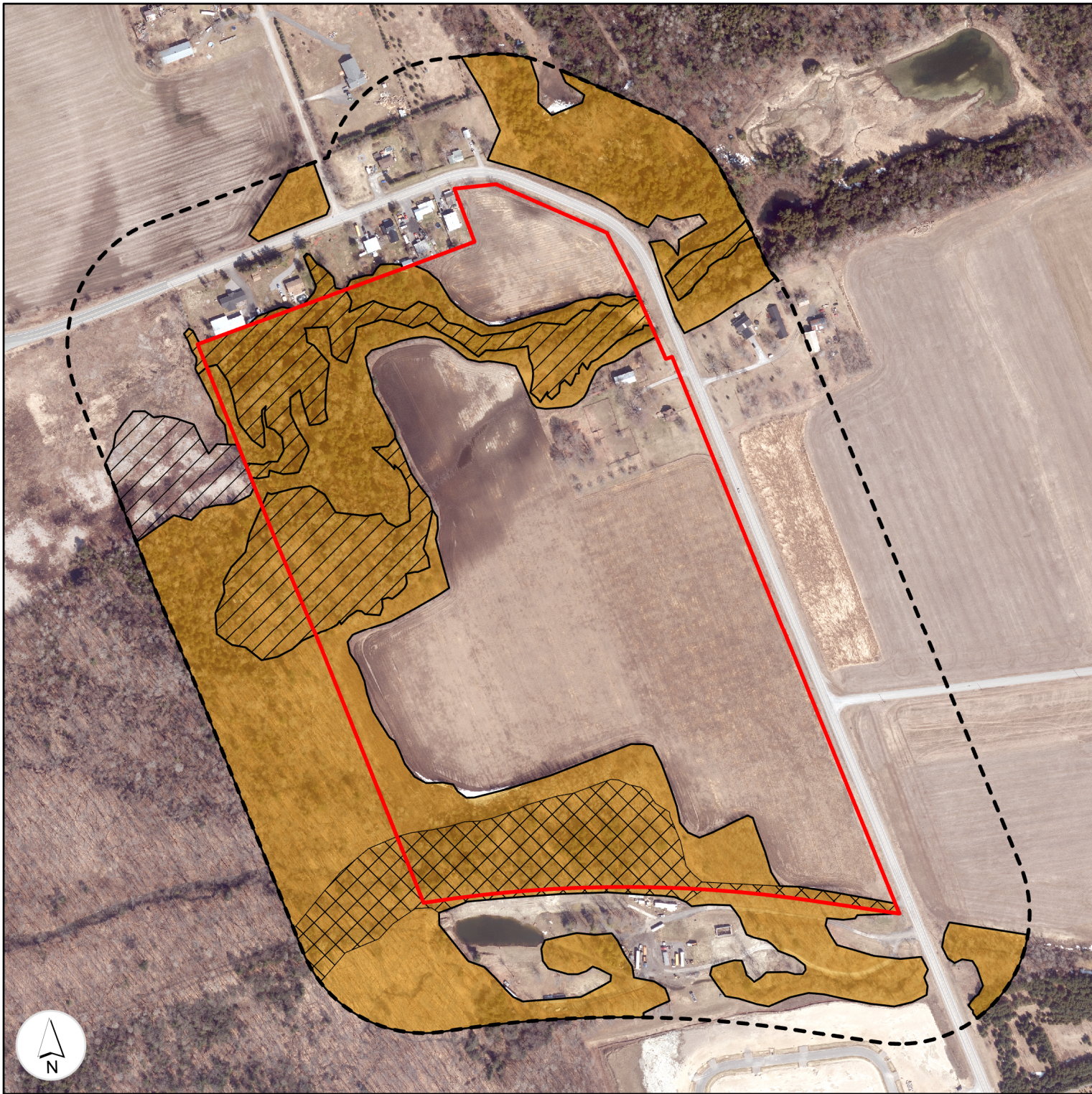











Figure 6 - Significant Wildlife Habitat

Environmental Impact Study

Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario

Legend


-  Candidate Old Growth Forest
-  Candidate Amphibian Breeding Habitat (Wetland)
-  Candidate Amphibian Breeding Habitat (Woodlands)
-  Candidate Bat Maternity Colonies
-  Confirmed Eastern Wood-pewee Habitat
-  Confirmed Woodland Area-Sensitive Bird Breeding Habitat
-  Candidate Woodland Raptor Nesting Habitat
-  Subject Property
-  Study Area (120m)



PCS: NAD 1983 UTM Zone 17N Scale: 1:5,000

Data Sources
Northumberland County

| | |
|-----------------|------------|
| Created In: | ArcGIS Pro |
| Drawn By: | JG |
| Checked By: | SF |
| Map Date: | 2024-07-12 |
| Project Number: | 11056 |



D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com
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5.2.4.1 Bat Maternity Colonies

The potential for Bat Maternity Colonies SWH exists within the forested ecosites on the Subject Property. As no specific field investigations were conducted to confirm the presence of Bat Maternity Colonies in the forested ecosites, avoidance of the potential habitat is required. As such, a 10 m and 15 m buffer has been proposed on the boundary of the forested communities where no development or site alteration can occur. In addition, a 30 m buffer has been proposed on the wetland communities on the Subject Property, which also have the potential for Bat Maternity Colonies.

- To minimize the risk of impact to bat species during important life stages, removal of trees identified in the TIPP should take place outside of the Bat Roosting Season of **April 1 to September 30**.

5.2.4.2 Woodland Area-Sensitive Bird Breeding Habitat

Woodland Area-Sensitive Bird Breeding Habitat was confirmed in the wooded communities on the Subject Property. In order to ensure that no impacts to this SWH occurs from the proposed development, a 10 m and 15 m buffer on the woodlands and a 30 m buffer on the wooded wetlands has been proposed, where no development can occur.

5.2.4.3 Old Growth Forest

The potential for the FOM3-1 ecosite on the Subject Property to be confirmed as Old Growth Forest SWH exists. To avoid impacts to this feature, no development is proposed within 15 m of the woodlands associated with this feature.

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

The Eastern Wood-pewee 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, as is found throughout the wooded communities on the Subject Property.

The Eastern Wood-pewee feeds on aerial insects and is thought to be impacted due to an overall decline in aerial insect abundance. Loss of habitat does not seem to be an issue that is causing population decline in Ontario for the Eastern Wood-pewee (COSSARO, 2013).

A 10 m and 15 m buffer is proposed on the edge of the woodlands where no development or site alteration can occur. The buffer will ensure that the woodland is protected from future development, preventing impacts to the aerial insect community that is present within the woodland. This in turn will ensure that no impacts to Eastern Wood-pewee will occur from the proposed development.

5.2.4.5 Special Concern and Rare Wildlife Species – Wood Thrush

Wood Thrush live in mature deciduous and mixed forests with well-developed undergrowth and tall trees. The majority of the woodlands on the Subject Property should be considered Wood Thrush habitat.

Forest fragmentation, urban, and suburban development in forested areas can have impacts on Wood Thrush breeding. To ensure no impacts to Wood Thrush occur from the proposed development, a 10 m and 15 m buffer has been proposed on the woodlands, and a 30 m buffer has been proposed on the wooded wetlands on the Subject Property.

5.2.5 Fish Habitat

There is the potential for impacts to water quality as a result of the development due to concentrated flows and sediment laden water with an increase in hard surfaces. This will be mitigated by the two stormwater management ponds and various infiltration galleries as shown in the Functional Servicing and Stormwater Management Report (Biddle, 2024). In addition, future stormwater pond designs will include enhanced fisheries protection in accordance with the GRCA and MECP requirements.

5.3 Erosion and Sediment Control

An Erosion and Sediment Control Plan (ESC Plan) (Biddle, 2024) has been developed to minimize the risk of sedimentation into the wetlands, watercourses, and woodlands during all phases of development.

Wills' biologists have reviewed the ESC Plan and provided recommendations, where needed, to protect natural heritage features on, and adjacent to, the Subject Property.

5.4 Species at Risk/Wildlife

5.4.1 Turtles

No confirmed SAR turtle habitat was identified through background research and field investigations on the Subject Property. However, it is anticipated that the Osaca PSW found on the east side of County Road 65 provides habitat for turtles and the wetlands on the Subject Property could be used as a movement corridor. As such, the exclusionary fencing identified in the ESC Plan should be installed prior to the turtle nesting season (**May 15 to September 30**) and remain in place throughout construction, to prevent turtles from nesting in the area. Following project completion, exclusionary fencing must be removed from the site.

5.4.2 Birds and Bats

To ensure no roosting bats or breeding birds protected under the MBCA are impacted during the removal of trees identified in the TIP, the following mitigation measures are required:

- Any vegetation clearing must occur outside of the breeding bird and bat roosting season of **April 1 to September 30**.

MECP should be contacted to confirm that a timing window is sufficient to address potential impacts to SAR bats.

5.4.3 Butternuts

Butternut trees are classified as an Endangered species and require protection under both the provincial ESA and federal SARA. Field investigations conducted by Kuntz Forestry Consulting Inc. identified two Butternut trees on the Subject Property.

A BHA was conducted on both trees, and it was determined that they have a root harm prevention zone of 9 m, and an additional 5 m of protection is required beyond the root harm prevention zone. In total, a 14 m buffer has been applied to their location, where no development can occur in order to satisfy the requirements of the ESA. See **Figure 5** for the location of the Butternut trees and their associated 14 m buffer.

It should be noted that until the BHA has been submitted to MECP, no work can occur within 25 m of the Butternut trees.

6.0 Conclusions

Given the results of background review and on-site investigations, long-term adverse impacts to natural heritage features, associated habitat, and local wildlife populations are not anticipated to be resultant from the proposed development, provided that the environmental protection/mitigation measures outlined herein are implemented.

Woodlands, a watercourse and wetlands were identified adjacent to the proposed development as well as various Confirmed and Candidate SWH and SAR, including Butternut and Black Ash trees. Policies protecting these features in the Northumberland County Official Plan (OP), the Municipality of Port Hope OP and the Province of Ontario have been addressed through the implementation of a 10 m/15 m buffer on woodlands as well as a 30 m buffer on the wetland communities which encompass these features. Buffers will be vegetated using a native seed mix to ensure they do not become dominated by invasive or non-native plant species providing an improvement to present conditions.

Health assessments have been completed on Butternut trees and appropriate buffers are being adhered to. In addition, the 30 m buffer on wetland communities will ensure that any Black Ash trees within the wetlands have the required buffer as required under the ESA. Due to the location of Black Ash trees within the FOD6-4 community, which are found further south into the woodland, the 15 m buffer is sufficient to ensure that no impacts to Black Ash will occur and Ontario Regulation 832/21 is adhered to.

As such, appropriate implementation of the mitigation measures outlined herein will ensure that that the proposed development conforms with the PPS, Northumberland

County OP, Municipality of Port Hope OP, the ESA, Ontario Regulation 168/06, Fisheries Act, Migratory Birds Convention Act, and Species at Risk Act."

If you have any further questions, please do not hesitate to contact the undersigned.

Prepared by:



Ben Radford, B.Sc.
Project Biologist

Reviewed by:



Shawn Filteau, B.Sc.
Natural Sciences Lead

BR/SF/jh

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Appendix A

Statement of Limitations



Statement of Limitations

This report is provided solely for the benefit of Hillstreet Developments Ltd. and not for the benefit of any other party. No other party shall be entitled to rely on this report or any information, documents, records, data, interpretations, advice or opinions or other materials given to Hillstreet Developments Ltd. by D.M. Wills Associates Limited (Wills). The report relates solely to the specific project for which Wills has been retained and shall not be used or relied upon by any third party for any variation or extension of this project or any other purpose. Any unpermitted use by any third party shall be at such party's own risk.

The conclusions and recommendations outlined in the Environmental Impact Study are based on the results and findings associated with the scope of field investigations as outlined in **Section 2.2** of this report, as they relate to The Project, as described in **Section 1.0**.

Appendix B

NHIC Map

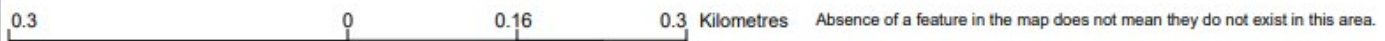




Legend

- Assessment Parcel
- ANSI**
- Earth Science Provincially Significant/sciences de la terre d'importance provinciale
- Earth Science Regionally Significant/sciences de la terre d'importance régionale
- Life Science Provincially Significant/sciences de la vie d'importance provinciale
- Life Science Regionally Significant/sciences de la vie d'importance régionale
- Evaluated Wetland
- Provincially Significant/considérée d'importance provinciale
- Non-Provincially Significant/non considérée d'importance provinciale
- Unevaluated Wetland
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System

Notes:



This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry(OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.
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NHIC Map

Environmental Impact Study

Part of Lot 27, Concession 5, County
Road 65, Osaca, Ontario



D.M. Wills Associates Limited
 150 Jameson Drive
 Peterborough, Ontario
 Canada K9J 0B9

P. 705.742.2297
 F. 705.741.3568
 E. wills@dmwills.com

| | | | |
|--------------------|-------|-------------------------|---------------|
| Drawn By | BR | Scale | See Scale Bar |
| Checked | | Date | Nov. 2022 |
| Project No. | 11056 | Drawing File No. | |

Appendix C

Records of Correspondence



From: [Ben Radford](#)
To: ["Species at Risk \(MECP\)"](#)
Subject: Part Lot 27, Concession 5, Village of Osaca - SAR Information Request
Date: May 2, 2022 3:55:00 PM
Attachments: [image001.jpg](#)
[Site Location.jpg](#)

Good afternoon,

My name is Ben Radford from D.M. Wills Associates Limited in Peterborough. We have been contracted to complete an EIS on a parcel of land located at Part Lot 27, Concession 5, in the Village of Osaca, see the attached map for details. The client is proposing to a Plan of Subdivision on their parcel of land. Through background research, we have identified the following Species at Risk (SAR) as having the potential to be present on the Subject Property:

- Bald Eagle (Special Concern)
- Bank Swallow (Threatened)
- Barn Swallow (Threatened)
- Bobolink (Threatened)
- Butternut (Endangered)
- Canada Warbler (Special Concern)
- Chimney Swift (Threatened)
- Eastern Meadowlark (Threatened)
- Eastern Small-footed Myotis (Endangered)
- Eastern Whip-poor-will (Threatened)
- Eastern Wood-pewee (Special Concern)
- Evening Grosbeak (Special Concern)
- Grasshopper Sparrow (Special Concern)
- Little Brown Myotis (Endangered)
- Northern Myotis (Endangered)
- Red-headed Woodpecker (Endangered)
- Snapping Turtle (Special Concern)
- Tri-coloured Bat (Endangered)
- Wood Thrush (Special Concern)

If you could please confirm and/or add/remove SAR from this list, that would be greatly appreciated.

In addition, could you please provide the Active Turtle Season and the Breeding Bird Season for the Subject Property.

Thanks,
Ben

Ben Radford, B.Sc. · Project Biologist

D.M. Wills Associates Limited

150 Jameson Drive · Peterborough, ON · K9J 0B9
Cell: 705-768-4296 · Fax: (705) 748-9944



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From: Cornacchia, Krystelle (MECP) <Krystelle.Cornacchia@ontario.ca>
Sent: January 30, 2023 3:32 PM
To: Ben Radford
Subject: RE: Part Lot 27, Concession 5, Village of Osaca - SAR Information Request

Hello Ben,

In addition to the species already provided in your list, there are known occurrences of the following SAR in the general area with potential to also occur at the project location:

- Black Ash (*Fraxinus nigra*) – Endangered

The ESA is proponent led and it remains the clients responsibility to:

- Carry out preliminary screening for their project,
- Obtain the best available information for all applicable information sources,
- Conduct necessary field studies or inventories to identify and confirm the presence of absence of species at risk or their habitat,
- Consider any potential impacts to species at risk that a proposed activity might cause, and
- Comply with the Endangered Species Act (ESA).

Because of this, we are unable to provide any specific information regarding SAR locations, observations, etc. This information will need to be obtained through proponent led research and SAR surveys carried out by a qualified professional. In order to gain access to more restricted SAR information, you may reach out to the Natural Heritage Information Centre (NHIC) to complete Data Sensitivity Training and get a Sensitive Data Use Licence, as NHIC is responsible for managing and distributing SAR data and information. Once completed you can gain further access to SAR data related to your site. Further details are located on the following website: <https://www.ontario.ca/page/get-natural-heritage-information>

The active season windows for SAR birds in southern Ontario, established by Environment and Climate Change Canada, spans from March 31 to August 31 and for turtles in southern Ontario, the active season window would last from April 1 to October 31.

Additionally, while this data represents MECP's best current available information, it is important to note that a lack of information for a site does not mean that species at risk or their habitat are not present. There are many areas where the Government of Ontario does not currently have information, especially in more remote parts of the province. On-site assessments can better verify site conditions, identify and confirm presence of species at risk and/or their habitats. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the activities carried out on the site. It is also the responsibility of the proponent to ensure that they meet the requirements of the exemption and operate within the specified conditions.

Please note that from the list of SAR you provided, the status of the following species has been changed as of January 25, 2023:

- Barn Swallow (*Hirundo rustica*): re-classified from threatened to special concern

You may refer to ERO posting #019-6107 for more information on amendments to the Species at Risk in Ontario List: <https://ero.ontario.ca/notice/019-6107>

The ministry's position is based on the information that has been provided by you on behalf of the proponent. Should information not have been made available and considered in our review, or new information comes to light, or if on-site conditions and circumstances change, please contact Species at Risk Branch as soon as possible (SAROntario@ontario.ca) to discuss next steps.

Kind regards,

Krystelle Cornacchia

Management Biologist

Permissions Section | Species at Risk Branch

Ontario Ministry of the Environment, Conservation and Parks (MECP)

Email: krystelle.cornacchia@ontario.ca



If you have any accommodation needs or require communication supports or alternate formats, please let me know. Si vous avez des besoins en matière d'adaptation, ou si vous nécessitez des aides à la communication ou des médias substitués, veuillez me le faire sa

From: Ben Radford <BRadford@dmwills.com>

Sent: May 2, 2022 3:56 PM

To: Species at Risk (MECP) <SAROntario@ontario.ca>

Subject: Part Lot 27, Concession 5, Village of Osaca - SAR Information Request

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Good afternoon,

My name is Ben Radford from D.M. Wills Associates Limited in Peterborough. We have been contracted to complete an EIS on a parcel of land located at Part Lot 27, Concession 5, in the Village of Osaca, see the attached map for details. The client is proposing to a Plan of Subdivision on their parcel of land. Through background research, we have identified the following Species at Risk (SAR) as having the potential to be present on the Subject Property:

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- Butternut (Endangered)

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- Evening Grosbeak (Special Concern)
- Grasshopper Sparrow (Special Concern)
- Little Brown Myotis (Endangered)
- Northern Myotis (Endangered)
- Red-headed Woodpecker (Endangered)
- Snapping Turtle (Special Concern)
- Tri-coloured Bat (Endangered)
- Wood Thrush (Special Concern)

If you could please confirm and/or add/remove SAR from this list, that would be greatly appreciated.

In addition, could you please provide the Active Turtle Season and the Breeding Bird Season for the Subject Property.

Thanks,
Ben



Ben Radford, B.Sc. · Project Biologist

D.M. Wills Associates Limited

150 Jameson Drive · Peterborough, ON · K9J 0B9
Cell: 705-768-4296 · Fax: (705) 748-9944

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From: [Ben Radford](#)
To: [Warren, Catherine \(NDMNR\)](#)
Subject: Part Lot 27 Concession 5 Village of Osaca - Natural Heritage Information Request
Date: May 3, 2022 10:40:00 AM
Attachments: [Image001.jpg](#)
[Site Location.jpg](#)
[Subject Property.jpg](#)

Good afternoon Catherine,

D.M. Wills Associates Ltd. (Wills) has been contracted to complete an EIS for a parcel of land located at Part Lot 27, Concession 5, Village of Osaca off of County Road 65. Please see the attached map for details on the Subject Property. Through background research, various natural heritage features have been identified. Multiple watercourses, unevaluated wetlands, woodlands, and the Osaca Wetland PSW are within 120 m of the Subject Property. In addition, a drainage feature appears to run through the northern portion of the Subject Property, just south of the watercourse.

Wills would like to request any additional information you may have on these natural heritage features, or others that were not identified through background research, as well as any fisheries information you may have for the watercourses (i.e. thermal regime/timing window for construction, historical fish species data, etc.). A review of Fish ON-Line did not provide any information. See the Fisheries Information Table below for more details. If this table could be completed with any fisheries information you may have these watercourses, that would be greatly appreciated. These watercourses appear to be tributaries of the Ganaraska River (which is not on the Subject Property), so I have included Fish On-Line information for the Ganaraska River.

If you have any questions, please do not hesitate to contact me.

| Location* | Waterbody Name* | Waterbody GPS* (Attach Google Earth map) | Watercourse Classification (i.e. warmwater, coldwater) | Habitat Information (Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data (Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species.) | MNRF Fisheries Management Objectives (If applicable, include details) | In-Water Timing Windows for Construction (Provide dates) |
|---|-----------------|---|---|--|---|--|---|
| Ganaraska River | Ganaraska River | 44.016570°, -78.418070° | | | Fish ON-Line: Brook Trout, Brown Trout, Coho Salmon, Lake Trout, Largemouth Bass, Mooneye, Northern Pike, Pumpkinseed, Rainbow Trout, Rock Bass, Smallmouth Bass, Walleye, White Bass, White Sucker, Chinook Salmon | | |
| South end of Subject Property – Watercourse 1 | Unknown | 44.002952°, -78.438051° | | | | | |
| North end of Subject Property – Watercourse 2 | Unknown | 44.007529°, -78.436758° | | | | | |

Thanks,



Ben Radford, B.Sc. · Project Biologist

D.M. Wills Associates Limited
 150 Jameson Drive · Peterborough, ON · K9J 0B9
 Cell: 705-768-4296 · Fax: (705) 748-9944

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From: [Higgins, Colin \(MNRF\)](#)
 To: [Ben Radford](#)
 Cc: [Warren, Catherine \(MNRF\)](#)
 Subject: Part Lot 27 Concession 5 Village of Osaca - Natural Heritage Information Request
 Date: October 27, 2022 11:46:42 AM
 Attachments: [image001.jpg](#)

Hi Ben,

Apologies for the delay in response. Here is the fisheries table filled out...

| Location* | Waterbody Name* | Waterbody GPS* (Attach Google Earth map) | Watercourse Classification (i.e. warmwater, coldwater) | Habitat Information (Include details/locations for fish passage barriers, known spawning habitats, groundwater upwellings, migratory corridors, etc.) | Historical Data (Include details on the historical fish species present, and if the waterbody is considered to support any vulnerable, threatened, or endangered aquatic species.) | MNRF Fisheries Management Objectives (If applicable, include details) | In-Water Timing Windows for Construction (Provide dates) |
|---|----------------------------------|--|--|---|---|---|--|
| Ganaraska River | Ganaraska River | 44.016570°, -78.418070° | Cold | No specific spawning locations or barriers known. Corbett's Dam in Port Hope has a fishway bypass | Fish ON-Line: Brook Trout, Brown Trout, Coho Salmon, Lake Trout, Largemouth Bass, Mooneye, Northern Pike, Pumpkinseed, Rainbow Trout, Rock Bass, Smallmouth Bass, Walleye, White Bass, White Sucker, Chinook Salmon. Fish species-ARA database; Atlantic Salmon, Blacknose Dace, Bluntnose Minnow, Brook Stickleback, Brook Trout, Brown Trout, Carps and Minnows, Catostomus sp., Central Mudminnow, Chinook Salmon, Coho Salmon, Common Shiner, Creek Chub, Fathead Minnow, Hornyhead Chub, Johnny Darter x Tesselated Darter, Largemouth Bass, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, Slimy Sculpin, White Sucker | See section 6 of the FMZ17 FMP. https://docs.ontario.ca/documents/2644/264321.pdf | No in-water works Oct. 1 to July 15 |
| South end of Subject Property – Watercourse 1 | Unknown Port Britain Creek | 44.002952°, -78.438051° | Cold | Lamprey barrier present near Lake Ontario confluence | Fish Species-ARA database; American Brook Lamprey, Blacknose Dace, Bluegill, Bluntnose Minnow, Brook Trout, Chinook Salmon, Coho Salmon, Common Shiner, Creek Chub, Fathead Minnow, Ictalurus sp., Iowa Darter, Johnny Darter, Johnny Darter x Tesselated Darter, Logperch, Longnose Dace, Mottled Sculpin, Northern Pike, Pumpkinseed, Rainbow Darter, Rainbow Trout, Round Goby, Sea Lamprey, Slimy Sculpin, White Sucker, Yellow Perch | See section 6 of the FMZ17 FMP. https://docs.ontario.ca/documents/2644/264321.pdf | No in-water works Oct. 1 to July 15 |
| North end of Subject Property – Watercourse 2 | Unknown Trib. of Ganaraska River | 44.007529°, -78.436758° | Cold | No specific spawning locations or barriers known. Corbett's Dam in Port Hope has a fishway bypass | Fish species-ARA database (same as Ganaraska River proper); Atlantic Salmon, Blacknose Dace, Bluntnose Minnow, Brook Stickleback, Brook Trout, Brown Trout, Carps and Minnows, Catostomus sp., Central Mudminnow, Chinook Salmon, Coho Salmon, Common Shiner, Creek Chub, Fathead Minnow, Hornyhead Chub, Johnny Darter x Tesselated Darter, Largemouth Bass, Longnose Dace, Mottled Sculpin, Northern Redbelly Dace, Pumpkinseed, Rainbow Trout, Rock Bass, Sculpins, Slimy | See section 6 of the FMZ17 FMP. https://docs.ontario.ca/documents/2644/264321.pdf | No in-water works Oct. 1 to July 15 |

From: Ben Radford <BRadford@dmwills.com>
Sent: May 3, 2022 10:40 AM
To: Warren, Catherine (NDMNRF) <Catherine.Warren@ontario.ca>
Subject: Part Lot 27 Concession 5 Village of Osaca - Natural Heritage Information Request

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon Catherine,

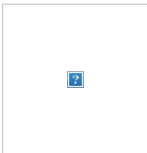
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| North end of Subject Property – Watercourse 2 | Unknown | 44.007529°, -78.436758° | | | | | |

Thanks,



Ben Radford, B.Sc. · Project Biologist

D.M. Wills Associates Limited
 150 Jameson Drive · Peterborough, ON · K9J 0B9
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Appendix D

Site Photographs

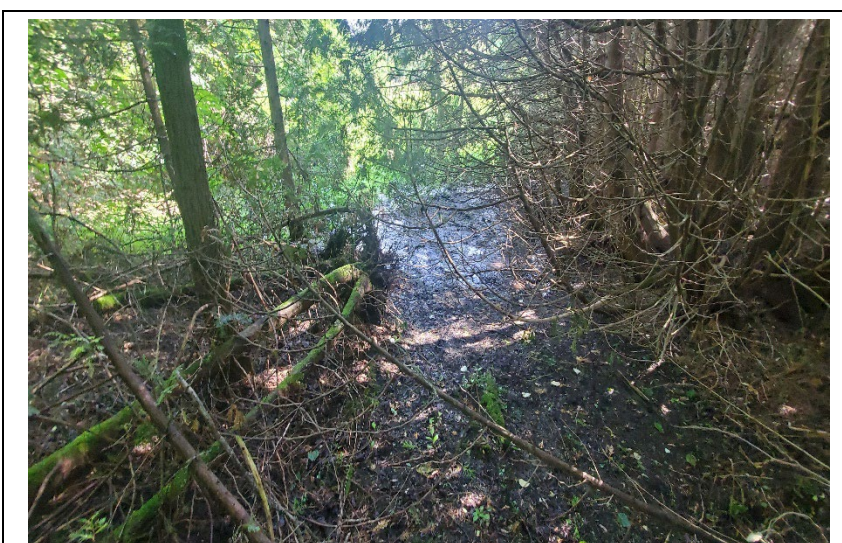


| | |
|--|--|
| Client Name: Hillstreet Developments Ltd. | Site Location: Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario |
|--|--|

| |
|--------------------------------|
| Photo Number: 1 |
| Date: June 21, 2022 |
| Direction Photo Taken: West |
| Description: View of SWM1. |



| |
|--------------------------------|
| Photo Number: 2 |
| Date: June 21, 2022 |
| Direction Photo Taken: East |
| Description: View of SWM1. |

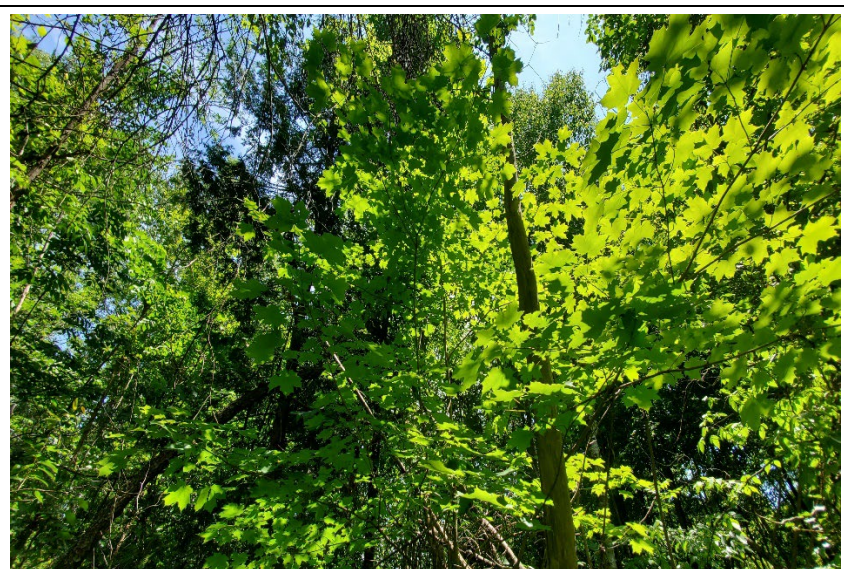


| | |
|--|--|
| Client Name: Hillstreet Developments Ltd. | Site Location: Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario |
|--|--|

| |
|--------------------------------|
| Photo Number: 3 |
| Date: June 21, 2022 |
| Direction Photo Taken: East |
| Description: View of SWM1. |



| |
|-------------------------------------|
| Photo Number: 4 |
| Date: June 21, 2022 |
| Direction Photo Taken: Southeast |
| Description: View of FOM7. |



| | |
|--|--|
| Client Name: Hillstreet Developments Ltd. | Site Location: Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario |
|--|--|

| |
|-------------------------------------|
| Photo Number: 5 |
| Date: June 21, 2022 |
| Direction Photo Taken: Southwest |
| Description: View of FOD6. |



| |
|-------------------------------------|
| Photo Number: 6 |
| Date: June 21, 2022 |
| Direction Photo Taken: Southeast |
| Description: View of FOD6. |



| | |
|--|--|
| Client Name: Hillstreet Developments Ltd. | Site Location: Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario |
|--|--|

| |
|--------------------------------|
| Photo Number: 7 |
| Date: June 21, 2022 |
| Direction Photo Taken: East |
| Description: View of FOM3. |



| |
|---|
| Photo Number: 8 |
| Date: June 21, 2022 |
| Direction Photo Taken: Southeast |
| Description: View of large, old Sugar Maple in FOM3. |



| | |
|--|--|
| Client Name: Hillstreet Developments Ltd. | Site Location: Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario |
|--|--|

| |
|---------------------------------|
| Photo Number: 9 |
| Date: June 21, 2022 |
| Direction Photo Taken: South |
| Description: View of FOD3. |



| |
|---------------------------------|
| Photo Number: 10 |
| Date: June 21, 2022 |
| Direction Photo Taken: South |
| Description: View of FOD3. |



| | |
|--|--|
| Client Name: Hillstreet Developments Ltd. | Site Location: Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario |
|--|--|

| |
|---------------------------------|
| Photo Number: 11 |
| Date: June 21, 2022 |
| Direction Photo Taken: North |
| Description: View of CUM1 |



| |
|--|
| Photo Number: 12 |
| Date: June 21, 2022 |
| Direction Photo Taken: Northeast |
| Description: View of CUM1 and the drainage feature. |



| | |
|--|--|
| Client Name: Hillstreet Developments Ltd. | Site Location: Part of Lot 27, Concession 5, County Road 65, Osaca, Ontario |
|--|--|

| |
|--|
| Photo Number: 13 |
| Date: May 5, 2022 |
| Direction Photo Taken: West |
| Description: Looking upstream at the HDF. Pooling is observed in tire tracks after tilling. |



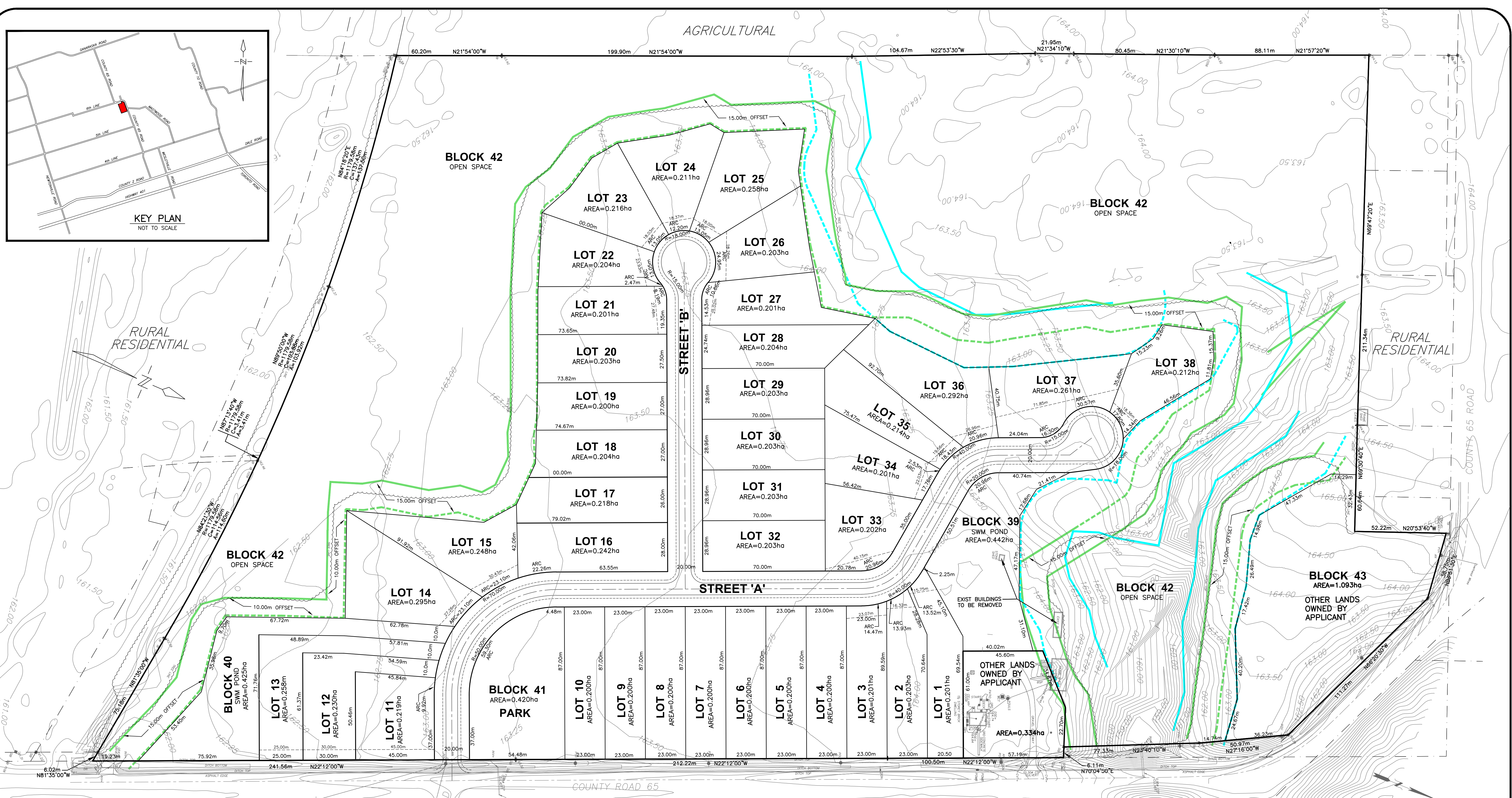
| |
|---|
| Photo Number: 14 |
| Date: May 05, 2022 |
| Direction Photo Taken: South |
| Description: HDF outlets into wetland. |



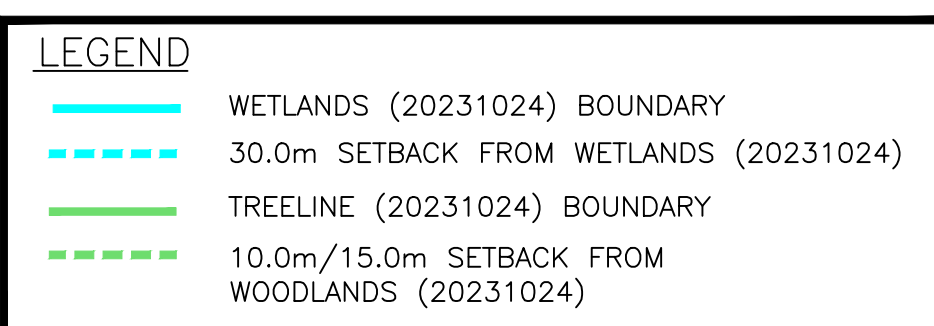
Appendix E

Site Plan





| LAND USE SCHEDULE | | | | |
|--|-------------|----------------|------------|---------------|
| PROPOSED USE | LOT/BLK # | # OF LOTS/BLKS | # OF UNITS | AREA (ha) |
| LOW DENSITY RESIDENTIAL SINGLE DETACHED | LOTS 1 - 38 | 38 | 38 | 8.214 |
| NON RESIDENTIAL | | | | |
| SWM PONDS | BLOCK 39,40 | 2 | | 0.867 |
| PARK | BLOCK 41 | 1 | | 0.420 |
| OPEN SPACE | BLOCK 42 | 1 | | 12.248 |
| OTHER LANDS OWNED BY APPLICANT | BLOCK 43 | 1 | | 1.093 |
| ROADS | 20.0m ROW | | | 1.447 |
| TOTALS | | 43 | 38 | 24.289 |



| ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT | | | | |
|--|-------------------------------|------|----|----------|
| a) AS SHOWN ON THE DRAFT PLAN | g) AS SHOWN ON THE DRAFT PLAN | | | |
| b) AS SHOWN ON THE DRAFT PLAN | h) WELL AND SEPTIC | | | |
| c) AS SHOWN ON THE DRAFT PLAN | i) SAND AND SANDY SILT | | | |
| d) SEE LAND USE SCHEDULE | j) AS SHOWN ON THE DRAFT PLAN | | | |
| e) AS SHOWN ON THE DRAFT PLAN | k) PRIVATE WELL | | | |
| f) AS SHOWN ON THE DRAFT PLAN | l) AS SHOWN ON THE DRAFT PLAN | | | |
| f.1) NOT APPLICABLE | | | | |
| No. | REVISION | DATE | BY | APPROVED |
| | REVISIONS | | | |

OWNER'S AUTHORIZATION

I/WE **LAND OWNER**
BEING THE REGISTERED OWNER OF THE SUBJECT LANDS HEREBY AUTHORIZE
D.G.BIDDLE AND ASSOC. LTD.
TO PREPARE AND SUBMIT A DRAFT PLAN OF SUBDIVISION FOR APPROVAL

SIGNED _____
TITLE _____
DATE _____

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARY OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN

ONTARIO LAND SURVEYOR
ONTARIO LAND SURVEYORS

SIGNED _____
O.L.S.
DATE _____

PRELIMINARY

DRAFT PLAN

PART OF LOT 27, CONCESSION 5
FORMERLY IN THE TOWNSHIP OF HOPE
NOW IN THE
MUNICIPALITY OF PORT HOPE
COUNTY OF NORTHUMBERLAND

SCALE: 1:1000

DRAWN BY: B.B.

DESIGN BY: M.F.

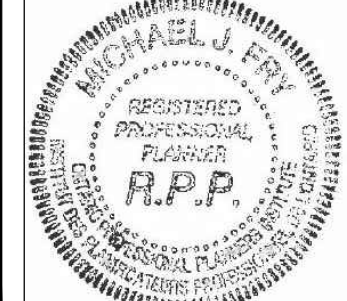
CHECKED BY: M.F.

PLOT DATE: 21/06/2024

122049

DP-1

D.G. Biddle & Associates Limited
consulting engineers and planners
96 KING STREET EAST • OSHAWA, ON L1H 1B6
PHONE (905) 576-8900 • FAX (905) 576-9730
Info@dgbiddle.com

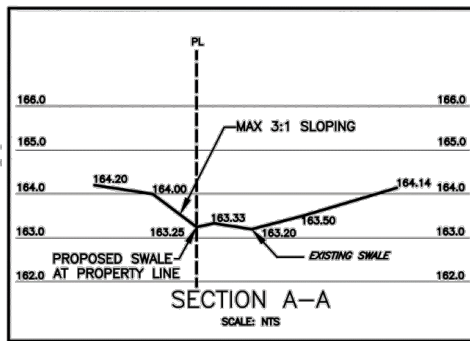
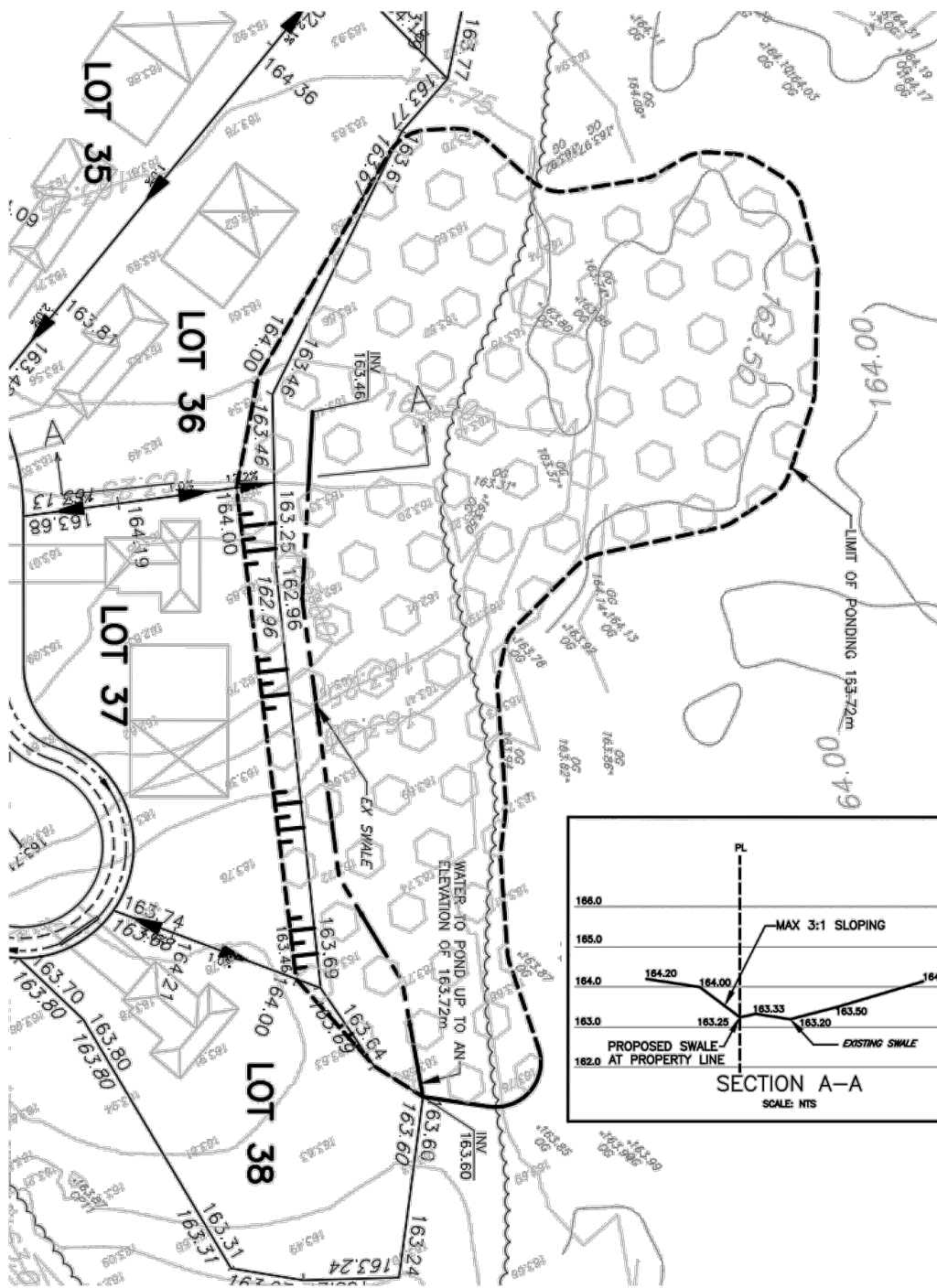


X:\STAFF\08 FILES\122049\122049 DRAWINGS\122049-20240618-DRAFT PLAN.DWG

Appendix F

Drainage Swale





5868 COUNTY ROAD 65, PORT HOPE

LOT 36 & 37 SWALE CROSS-SECTION



**D.G. BIDDLE
& ASSOCIATES**
CONSULTING ENGINEERS & PLANNERS

96 King Street East
Oshawa, Ontario, L1H 1B6
Phone: 905-576-8500
info@dgbidle.com
dgbidle.com

SCALE N.T.S.
DRAWN C.P.J.
DESIGN C.P.J.
CHECKED M.J.H.
DATE JULY 2024

PROJECT
122049

DWG

FIG 1