Environmental Impact Study

Part of Lot 27, Concession 10,
Township of Otonabee-South
Monaghan County of Peterborough,
Ontario

D.M. Wills Project Number 19-10874

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

February 2022

Prepared for:
Life at the Woodland Inc.,
c/o Rubal Kundra

WILLS

Summary of Revisions

Submission No.	Submission Title	Date of Release	Submissions Summary
0	Draft Environmental Impact Study	April 16, 2021	Initial Draft Submission to Client
1	Final Environmental Impact Study	February 7, 2022	Final Submission to Client

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

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Executive Summary

D.M. Wills Associates Limited (Wills) was retained by Rubal Kundra of Life at the Woodland Inc. (Client) to undertake an Environmental Impact Study (EIS) to address potential impacts in support of a Draft Plan of Subdivision for Part of Lot 27, Concession 10, within the Township of Otonabee-South Monaghan (Subject Property).

This EIS is subsequent to the *Species at Risk Assessment and Wetland Delineation Report,* completed by Consulting Biologist Ed Reid (field work completed in 2014), and Wills' addendum to that report titled *Addendum to Species at Risk (SAR) Assessment and Wetland Delineation Report,* dated August 2019.

Due to the presence of a wetland and drainage feature within 120 m of the proposed subdivision, an EIS is required under Otonabee Region Conservation Authority (ORCA) regulations.

Potential impacts of the Plan of Subdivision on existing natural heritage features and associated wildlife, including Species at Risk (SAR), were evaluated based on a review of publicly available resources, agency consultation (Ministry of Natural Resources and Forestry [MNRF], Ministry of the Environment, Conservation and Parks [MECP]), as well as on-site field investigations.

Field investigations consisted of an evaluation of Significant Wildlife Habitat (SWH), SAR habitat, wetland evaluation and delineation using Ontario Wetland Evaluation System (OWES) methodology, Ecological Land Classification (ELC), drainage feature assessment, amphibian call surveys, and breeding bird surveys.

The area of the proposed Plan of Subdivision encroaches on the boundary of a wetland feature and therefore an evaluation of wetland significance was completed. Through background review and site investigations, it was determined that the impacted wetland is not considered Provincially Significant. However, encroachment into the wetland requires that habitat be compensated. Three (3) wetland compensation options have been proposed, each at a rate of 3:1 to offset for the loss of 404.9 m^2 of wetland habitat. Additional buffer enhancements are proposed for 1,567.3 m^2 of buffer encroachment in order to facility an access road to the site.

Should future development occur, a number of mitigation measures including wetland compensation, wetland buffers of 15 m and 30 m, a vegetation removal timing window (**April 15th to August 31st**) and the erection of erosion and sediment control measures are proposed to ensure adjacent significant natural heritage features are not impacted by development.

In summary, Wills does not anticipate any significant negative environmental impacts associated with the proposed plan of subdivision provided the environmental mitigation measures described in this report are implemented effectively throughout the construction period.

1.0 Introduction

D.M. Wills Associates Limited (Wills) was retained by Rubal Kundra of Life at the Woodland Inc. (Client) to complete an Environmental Impact Study (EIS) in support of a Draft Plan of Subdivision for Part of Lot 27, Concession 10, within the Township of Otonabee-South Monaghan (Subject Property). See **Appendix A** for Statement of Limitation details.

Under the *Planning Act, R.S.O. 1990*, and in accordance with the *2020 Provincial Policy Statement* (PPS), Otonabee Region Conservation Authority (ORCA) can request an EIS to help guide recommendations for applications for development within, or adjacent to natural heritage features or areas.

The Subject Property contains a wetland and drainage feature that requires disturbance to access the site, which prompted the need for an EIS.

The EIS must demonstrate that there will be no negative ecological or hydrological impacts on the natural heritage system, connectivity, and linkages associated with the site and surrounding area. It should identify environmental constraints, develop appropriate setbacks, consult with regulatory agencies, and identify the activities required to address project compliance with 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 Growth Plan for the Greater Golden Horseshoe (2019), and the *Provincial Policy Statement* (2020).

This EIS is subsequent to the *Species at Risk Assessment and Wetland Delineation Report,* completed by Consulting Biologist Ed Reid (field work completed in 2014), and Wills' addendum to that report titled *Addendum to Species at Risk (SAR) Assessment and Wetland Delineation Report,* dated August 2019.

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 site visits, describes the potential impacts of the proposed severance, and recommends measures to mitigate impacts of the Project.

1.1 Subject Property

The Subject Property encompasses 16 ha of land. The Subject Property is currently designated as Hamlet and Hamlet Special Policy Area, the Municipal zoning is described as Future Development and Hamlet Residential. Surrounding land uses are rural to the north, environmental protection to the east, commercial to the south, and recreational/conservation to the west. Burnham Line borders the Subject Property to the west.

Wills understands that the proposed development will include severing twenty-seven (27) lots (of varying sizes), as well as, developing a road network and access road on the Subject Property. See **Figure 1** for the Site Location and **Figure 2** for the Subject Property.

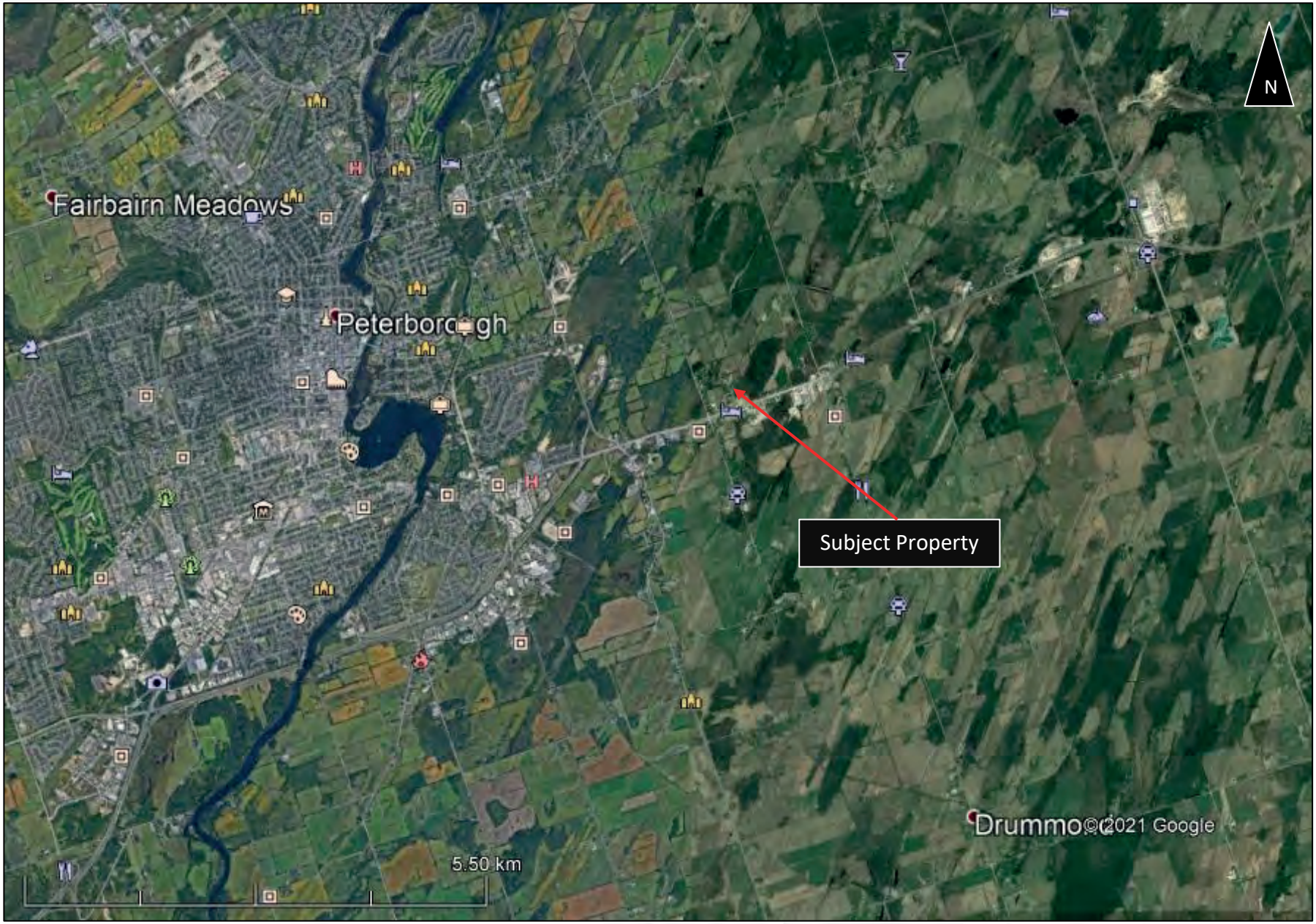

Figure 1 - Site Location
Environmental Impact Study
Part of Lot 27, Concession 10, Township of Otonabee-South Monaghan

WILLS
D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9
P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com

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Legend

Study Area

Figure 2 - Subject Property
Environmental Impact Study
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D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9

P. 705.742.2297
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2.0 Existing Conditions

2.1 Background Review

2.1.1 Surrounding Land Use

The Subject Property is bound to the north by rural land, to the east by a woodland and wetland areas, to the south by rural residential and institutional properties, and to the west by rural residential properties and Burnham Line. Portions of the surrounding areas are active agricultural lands. The wetland on the Subject Property continues to the southwest through Burnham Provincial Park.

2.1.2 Designated Areas

A review of the Ministry of Natural Resources and Forestry (MNRF) natural heritage/resources data obtained through the Natural Heritage Information Centre (NHIC) database was completed to identify the presence or absence of any Valued Ecosystem Components (VECs) such as local, provincial, and federally Designated Areas (DAs). DAs include lands covered under the Provincial Policy Statement (2020), as well as, other natural heritage features of local or federal interest including Federal Parks, Environmental Sensitive Landscapes or Areas (ESAs, ESLs), such as significant woodlands, locally significant wetlands or otherwise natural heritage features identified for conservation. A copy of the NHIC data map is located in **Appendix B**.

Furthermore, Wills sent out a formal information request to MECP to obtain additional data records with reference to restricted SAR, Significant Wildlife Habitat (SWH), and other data records on file concerning lands and watercourses within the Subject Property. See **Appendix C** for details. To date, no response has been received.

A summary of the results of the database searches is outlined below with reference to DAs.

Areas of Natural and Scientific Interest

No Areas of Natural and Scientific Interest (ANSI) were identified on the Subject Property. One (1) ANSI, (Meade Creek Drumlin) was identified to the north of the Subject Property. The ANSI is approximately 780 m to the north of the proposed Plan of Subdivision.

Significant Wildlife Habitat

No Significant Wildlife Habitat (SWH) records were identified through background review.

Provincially Significant Wetlands

No Provincially Significant Wetlands (PSWs) were identified on or within 120 m of the Subject Property based on a background review. The nearest PSW (Downer's Corner) is located approximately 0.8 km west of the Subject Property.

Woodlands

NHIC mapping indicates woodlands as being associated with wetland features on the Subject Property.

Other Wetlands

An unevaluated wetland (Burnham Woods) is located 400 m west of the Subject Property, and a second PSW (Woodview Swamp) is located approximately 1 km east of the Subject Property. Four (4) wetland units were identified within the Subject Property. Because of the proposed impacts, a wetland evaluation was completed for the western most wetland unit on the Subject Property. Results of the evaluation are identified in **Section 2.2.5**, below.

2.1.3 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). Surficial geology mapped by the Ontario Geological Survey (OGS, 2017) indicates that the Subject Property contains soils comprised of Pleistocene age, stone poor, sandy silt to silty sand textured till on Paleozoic terrain. OGS mapping suggests that coarse-textured glaciolacustrine outwash deposits of sand and gravel with minor traces of silt and clay sourced from foreshore or basinal deposits are present on the eastern side of the Subject Property, and may be associated with the off-site wetland to the east.

2.1.4 Hydrology

Wills completed a *Wetland Hydrology Shallow Groundwater Investigation Report* (Hydrology Report), dated September of 2020. Wills' investigation included a review of available hydrogeological and water resources reports and maps, a subsurface investigation including test pits, hand augers, and monitoring well installations, topographic interpretation, data analysis, and reporting.

Based on existing survey data and Wills' topographic contours, a topographic high point (approximately 207 masl) was observed in the northern portion of the Subject Wetland, approximately 150 m southwest from the northern Subject Property Boundary. The approximate 207 masl elevation is relatively consistent over an approximately length of 50 m and separates lower elevation areas to the northeast and southwest. This topographic divide suggests that surface water run-off entering the western wetland unit as overland flows will migrate away from this high point in a northeast and southwest direction

2.1.5 Fish Habitat

No fish habitat was identified on the Subject Property through review of the Fish-Online database.

2.2 Field Investigations

The scope of work for the field investigations was discussed with ORCA based on comments received, see **Appendix C** for correspondence records. Field investigations took place on May 30, 31 of 2019, April 28, 29, 30, May 1, 19, June 17, 18, and July 2 of 2020 to evaluate existing ecological conditions within the Subject Property. The field investigations included the following surveys:

- Watercourse and wetland delineation and fish habitat assessment was completed May 30, 31, 2019.
- The headwater drainage feature was assessed on April 29, 2020.
- Amphibian call surveys took place on April 30, May 19, and June 18, 2020.
- Chorus Frog surveys were completed April 28, May 1, and May 19, 2020.
- A second evaluation of potential fish habitat was completed May 1, 2020.
- Breeding bird surveys took place on June 17 and July 2, 2020.
- Turtle basking surveys were completed on June 17 and July 2, 2020.
- Incidental wildlife and wildlife habitat observations were completed (auditory, visual, tracks, scat, burrows, nests, etc.) throughout the Subject Property after breeding bird surveys, with particular attention to any species of conservation concern noted to be present within the area.
- Evaluation of potential SWH within the Subject Property.
- Additional data to support the wetland evaluation was collected on October 23, 2019 and April 27, 2020.

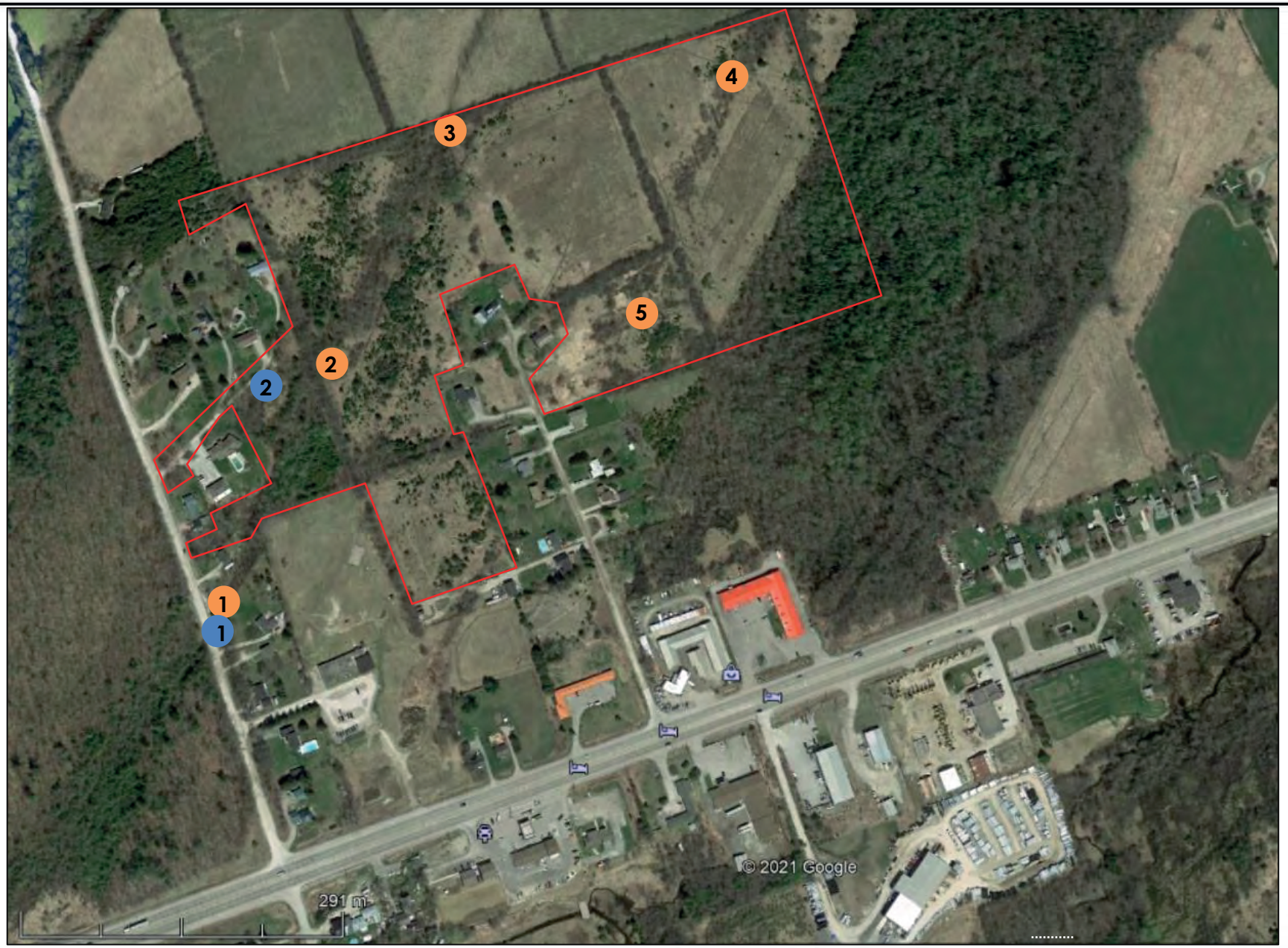
A photographic record to support field investigations is located in **Appendix D**.

2.2.1 Breeding Bird Surveys

Breeding bird surveys (Surveys) were completed on June 17 and July 02, 2020, in general accordance with OBBA standard procedures and protocols. Five (5) listening stations were determined prior to arriving at site, as noted in **Figure 3**, following OBBA protocols. Surveys on June 17, 2020 commenced at 7:45 a.m. and at 7:40 a.m. on July 2, 2020.

During the two (2) Surveys, a total of twenty-one (21) species were observed through auditory or visual cues. Eastern Wood-pewee and Wood Thrush were two (2) SAR observed during the surveys, both species are listed as Special Concern in Ontario. Bobolink (Threatened) and Eastern Meadowlark (Threatened) were heard in the fields north of the Subject Property. **Table 1** provides full details of species found during the Surveys.

Ed Reid, the Consulting Biologist, also completed breeding bird surveys on June 6, June 26, and July 3, 2004 using a point count survey methodology. Special attention was paid to probable SAR species including Bobolink, Barn Swallow and Eastern Meadowlark. Twenty-seven (27) species were identified through these efforts. Of the twenty-seven (27) species observed, one (1) Wood Thrush was identified as a SAR.



Legend

- Breeding Bird Survey Location
- Amphibian Listening Station
- Subject Property

Figure 3 - Amphibian and Breeding Bird Survey Locations

Environmental Impact Study

Part of Lot 27, Concession 10, Township of Otonabee-South Monaghan

WILLS

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

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com

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Table 1 – 2020 Breeding Bird Survey Results

Common Name	Scientific Name	BB01		BB02		BB03		BB04		BB05	
		Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
American Crow	*Corvus brachyrhynchos*			x							
American Goldfinch	*Spinus tristis*	x	x		x				x		x
American Robin	*Turdus migratorius*	x	x				x	x		x	
Black Capped Chickadee	*Poecile atricapillus*	x		x		x	x			x	
Blue Jay	*Cyanocitta cristata*	x		x	x		x	x			
Cedar Waxwing	*Bombycilla cedrorum*				x						
Common Grackle	*Quiscalus quiscula*	x								x	
Common Yellowthroat	*Geothlypis trichas*			x				x		x	x
Eastern Phoebe	*Sayornis phoebe*		x					x			
Eastern Wood Pewee	*Contopus virens*	x	x					x			
Field Sparrow	*Spizella pusilla*			x	x	x	x	x			x
Gray Catbird	*Dumetella carolinensis*	x	x			x					x
Northern Cardinal	*Cardinalis cardinalis*	x	x	x	x	x		x	x	x	
Northern Flicker	*Colaptes auratus*				x						
Ovenbird	*Seiurus aurocapilla*							x		x	
Red-winged Blackbird	*Agelaius phoeniceus*	x						x			
Rose Breasted Grosbeak	*Pheucticus ludovicianus*			x							
Song Sparrow	*Melospiza melodia*	x				x			x		x
Veery	*Catharus fuscescens*									x	
Woodthrush	*Hylocichla mustelina*							x			
Yellow Warbler	*Setophaga petechia*			x						x	

2.2.2 Amphibian Call Surveys

Amphibian Call Surveys were completed on April 30, May 19, and June 18, 2020 in general accordance with the Marsh Monitoring Program (MMP) standard procedures and protocols. The Amphibian Call Surveys took place at two (2) Listening Stations on the Subject Property and commenced after sunset. Listening stations were strategically chosen to optimize coverage while preventing overlap of species calls, see **Figure 3**. Amphibian Call Surveys were conducted based on auditory cues for mating purposes, with incidental visual observations noted as well. Spring Peeper (*Pseudacris crucifer*) were the only amphibian heard during the surveys, see **Appendix** E for full details of the surveys.

Additional Western Chorus Frog (Pseudacris triseriata) surveys were completed in the afternoon of April 28, May 1, and May 19. No visual or auditory observations were observed.

2.2.3 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 4** was created.

Six (6) ELC units were identified within the Subject Property:

1. **Black Ash Mineral Deciduous Swamp (SWD2-1)**

   This wetland unit was classified as a Black Ash Mineral Deciduous Swamp (SWD2-1).

   In the canopy and subcanopy layers, Trembling Aspen (*Populous tremuloides*) was the most prevalent species, followed by Black Ash (*Fraxinus nigra*), which were in much greater amounts than Willows (*Salix sp.*). These layers were approximately 30 to 40 feet high, with the canopy covering approximately 75%. The understorey layer was dominated by Red-osier Dogwood (*Cornus sericea*), and Willows standing approximately 6 to 10 feet high, covering about 50%. The groundcover consisted of Field Horsetail (*Equisetum arvense*), Asters (*Aster sp.*), Goldenrod (*Solidago sp.*), Sensitive Fern (*Onoclea sensibilis*), and Grasses (*Poaceae sp.*) in varying amounts.

2. **Willow Mineral Thicket Swamp Type (SWT2-2)**

   This wetland unit was classified as a Willow Mineral Thicket Swamp Type (SWT2-2).

   The canopy and subcanopy layers consisted of Willows and European Buckthorn standing about 10 to 15 feet high, covering approximately 20%. The understorey layer is the defining vegetation layer in this community. The understorey is comprised of Red-osier Dogwood, European Buckthorn, and Willows, which were approximately 6 feet high with a canopy coverage of 70%. The groundcover was comprised of Reed Canary Grass (*Phalaris arundinacea*), Goldenrod, and sphagnum mosses.

3. **Poplar – Conifer Organic Mixed Swamp Type (SWM6-2)**

   This wetland unit was classified as a Poplar – Conifer Organic Mixed Swamp Type (SWM6-2).

   The canopy and subcanopy layers consisted of Trembling Aspen and Black Ash standing about 30 to 40 feet high, covering approximately 50%. The understorey layer is comprised of American Elm, White Spruce, and European Buckthorn. The groundcover consisted of Sensitive Fern, various other fern species, Field Horsetail, and Black Ash.

4. **CUM (Cultural Meadow)**

   Wills confirmed the area identified by Clark Consulting Services to be a cultural meadow. This community is dominated broadleaf herbaceous species and less than 25% shrub or tree cover. The area has been historically cleared and farmed, but has remained fallowed and not managed in recent years (as indicated by the tree and shrub regeneration. Some more mature species in the area include thickets of willow, Grey Dogwood, White Ash, Green Ash, White Elm, Scots Pine, Eastern Red Cedar, Common Juniper, Chokecherry, and Wild Apple.

5. **Hedgerows**

   Wills confirmed the area identified by Clark Consulting Services to be Hedgerows. This area is not a true ELC community as it does not meet the minimum size requirement. The upland fields are bordered by old agricultural fencerows, predominantly over grown with shrub species including European Buckthorn and Gray Dogwood.

6. **Cultural Woodland (CUW)**

   This community classification applies to the eastern side of the property (outside of the wetland boundary). This area shows signs of advanced regeneration from historically cleared agricultural land. The area contains species such as Eastern White Cedar, European Buckthorn, Manitoba Maple, Poplar Sp., Sugar Maple, Basswood, White Ash, White Birch, White Elm, and Black Willow. Within this area, residential dwellings and manicured/mowed lawns exist.

2.2.4 Wetland Delineation

Wetland delineations determine boundaries of wetlands that are more accurate than aerial imagery. NHIC mapping indicated the presence of two (2) different unevaluated wetlands on the Subject Property. On May 30, 2019, Wills' Biologists attempted to delineate these wetlands in order to create a constraints map restricting development within these areas. At the time of field investigations two (2) additional wetlands units were identified, resulting in four (4) wetlands on the Subject Property. Wetland units are illustrated in **Figure 4**.

Legend

Study Area

Figure 4 – Ecological Land Classification Map

Environmental Impact Study

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WILLS

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

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Project No.: 10874	Drawing File No.: Figure 4

2.2.5 Wetland Evaluation

Wills completed a wetland evaluation of the western most wetland unit on site, which was submitted to MNRF for approval in October of 2020.

Three (3) continuous wetland units comprised the Wetland Complex totaling approximately 76 ha in size. Within the wetland units, three (3) communities with dominant vegetation forms were identified. The total wetland area is characterized as 90% swamp, with 10% of the fractional area covered by marsh habitat. Soil composition was found to be 38% loam, and 62% humic/mesic. The wetland site type was determined to be 100% Palustrine.

Provincially significant species known to occur within the Wetland Complex included only Eastern Wood-Pewee (*Contopus virens*). Turtle basking surveys were completed with no observations reported.

Based on the results of the wetland evaluation, the Wetland Complex is classified as Evaluated Other, on the basis that a total score of more than 600 points was not achieved. Significance of the Wetland Complex was determined through all aspects of the wetland evaluation including biological, social, hydrological, and special features components. See **Appendix F**.

2.2.6 Fish Habitat Assessment

Fish sampling was completed directly below the downstream end of the culvert that crosses Burnham Line (not on the Subject Property) and consisted of one (1) baited minnow trap, set for approximately 41-hours. No fish were caught in the minnow trap nor were any observed during the watercourse delineation. This was the only location that could be sampled due to low flows that would not permit any other type of fish sampling method.

A visual survey in the upstream portion of the watercourse was completed and no fish were observed. The area surrounding the watercourse was examined for any seepage/springs that could be draining into the watercourse, however, none were found. The watercourse appears to be ephemeral with southerly drainage flowing from the agricultural fields in the north, through the wetland on the Subject Property then into the larger wetland to the west of Burnham Line. During the site investigation on May 30, 2019, the watercourse was dry upstream of the culvert. The pool at the downstream side of the culvert, which is not on the Subject Property, and was 12 cm deep. Directly upstream of the culvert, the water depth was approximately 5 cm deep and 0.25 m wide. Throughout the remainder of the north section of the watercourse, the max depth was 2.5 cm. There was no visible water flow anywhere throughout the watercourse aside from the culvert where water was flowing east to west. A narrow, not well-defined channel was present from Burnham Line to the north side of lot 1, at which point it turned into a wider braided channel. No undercut banks, deep pools, runs or riffles were found throughout the watercourse. Minimal sediment deposition consisting of organic matter, was found throughout the narrow channel section of the watercourse but not throughout the braided section. A fence restricted access to the area downstream of the culvert, however, the water depth did not appear to be greater

than 2 to 4 cm. Water quality measurements were taken at the culvert where temperature was 12.7 °C, dissolved oxygen was 86.1%, pH was 7.68, turbidity was 3.8 NTU, and conductivity was 670 µS/cm.

Wills determined that fish habitat is not present due to the low quality of the habitat throughout the watercourse and lack of a defined channel or seeps/springs that would provide consistent water flow throughout. In spring of 2019, precipitation/water levels were abnormally higher than usual and still the watercourse had very little water throughout. No fish were caught during the assessment and although extensive fish sampling was not completed, this was due to the low flows in the watercourse. Because of the low flows and lack of undercut banks and instream vegetation that would provide refuge for fish to hide, a visual survey was a good indicator for the absence of fish.

2.2.7 Drainage Feature Assessment

Detailed watercourse investigations were completed using the Ontario Stream Assessment Protocol Section 4: Module 10 for Headwater Drainage features. Wills used the Toronto Region Conservation Authority (TRCA) Evaluations, Classification and Management of Headwater Drainage Features Guidelines (2014), to classify the drainage feature.

OSAP S4: Module 10 observations:

It was determined that the headwater drainage feature type is defined as a wetland feature (FT 6). The presence of water has caused the formation of hydric soils and has favored the dominance of hydrophytic plants dominated by red osier dogwood and cattails. Due to the dominance of water tolerant species, the riparian vegetation was classified as 7 (wetland).

Flow conditions were classified as minimal surface flow (FC 2 or 1) at the time of site investigations on April 28, 2020. Surface flow may be impacted by the freshet in a small catchment area. The wetted width was 1.1 m and bankfull depth was 300 mm. Measurements obtained during field investigations included 30 mm, 40 mm, and 30 mm respectively across a single upstream cross section. At all three (3) locations, the hydraulic head was measured to be 0 mm, which indicated the absence of flow.

Within the watercourse, sediment deposition was classified as minimal (an average of less than 5 mm of new sediment deposits). Sediment, as well as, major nutrient and contaminant sources include ongoing upstream agricultural practices.

Two (2) contributing hydrological sources, in addition to the upstream catchment area and associated wetland, included roadside drainage channels from the north and south.

See **Appendix E** for field notes.

An assessment of the Headwater Drainage Feature using TRCA guidelines is included in **Section 5.3**.

A Flood Impact Assessment was also completed by Wills (Flood Impact Assessment – Wills 2021). It was determined that the proposed development including the crossing of the wetland feature to the north, will not increase flood potential to adjacent properties. The results of the Flood Impact Assessment can be found in **Appendix G**.

2.2.8 Incidental Wildlife Observations

The following wildlife species were observed by Clark Consulting Services or documented by Wills during field investigations:

- White-tailed deer (*Odocoileus virginianus*)
- Eastern Chipmunk (*Tamias striatus)*
- Red Squirrel (*Sciurus vulgaris*)
- Eastern Coyote (*Canis latrans x Canis lycaon*)
- Raccoon (*Procyon lotor*)
- Eastern Garter Snake (*Thamnophis sirtalis sirtalis*)
- Northern Leopard Frog (*Lithobates pipiens*)
- Green Frog (*Rana clamitans*)

3.0 Regulatory Context

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. A wetland (evaluated under this assignment) is present, proposed development will disturb a portion of the wetland.

> *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.*

A portion of unevaluated woodlands are located on and adjacent to the Subject Property. This feature will be protected as a wetland area with buffers applied.

The also PPS 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.
- 50 m from – significant woodlands; significant valley lands; significant wildlife habitat; significant portions of habitat for threatened or endangered species, significant ANSIs.
- 30 m from fish habitat.

The assessment to meet regulatory requirements is provided in Section 6.0.

3.2 Local Planning Context

3.2.1 County of Peterborough Official Plan

As outlined in the County of Peterborough Official Plan, the following policies apply to the Subject Property:

> Section 4.1.3.4 – Natural Heritage Features
>
> *Local plans will prohibit development and site alterations within the following types of significant natural heritage features:*
>
> - *Significant wetlands;*
> - *Significant portions of the habitat of endangered and threatened species;*
>
> *Local plans may permit development and site alteration in:*
>
> - *Significant woodlands south and east of the Canadian Shield;*
> - *Significant valleylands south and east of the Canadian Shield;*
> - *Significant wildlife habitat; and,*
> - *Significant areas of natural and scientific interest.*
>
> *Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas listed above unless the ecological function of the adjacent lands has been evaluated in accordance with an environmental impact assessment as described in Section 4.1.3.1 and it has been determined that there will be no new negative impacts on the natural features or on their ecological functions.*

3.2.2 Township of Otonabee-South Monaghan Official Plan

As outlined in the Township of Otonabee-South Monaghan (OSM) Official Plan, the following policy applies to the Subject Property:

Section 3.1A.1 General Growth Management Policy states:

> *The designated Hamlets on Schedule "A" shall be the focus of growth in the Township, particularly for new residential development.*
>
> *New development in Hamlets shall be undertaken in accordance with the policies of Section 5.2 of this Plan, and in particular, the pattern and form of new development in the Hamlet areas should comply with the policies of Section 5.2.3.*
>
> *The residential growth policies of this Plan encourage opportunities for intensification in Hamlet areas through the use of vacant and under-utilized lands. However, it is recognized that there may also be limited opportunities for new growth based on the re-use of developed lands and the expansion and conversion of existing buildings. Such development will be considered in accordance with the policies of Sections 3 and 5.2 of this Plan.*
>
> *Rural lands within the Township should retain their natural character and should be used primarily for a compatible mix of agricultural uses, the management or use of resources, resource-based recreational activities, limited residential development, and other rural land uses. Such development should be compatible with the rural landscape and be able to be sustained by rural service levels.*

As identified in Schedule A of the OSM Official Plan this Subject Property is designated as a Hamlet and zoned for future development.

An impact assessment has been completed in Section 6.0 to address this policy.

3.3 Growth Plan for the Greater Golden Horseshoe

*A Place to Grow: Growth Plan for the Greater Golden Horseshoe (*May 2019) was developed to ensure for growth and development within the Golden Horseshoe of Ontario, in a way that supports economic prosperity, protects the environment, and helps communities achieve a high quality of life.

Relative to the Subject Property, the following is applicable:

Section 4.2.2

1. *A Natural Heritage System for the Growth Plan has been mapped by the Province to support a comprehensive, integrated, and long-term approach to planning for the protection of the region's natural heritage and biodiversity. The Natural Heritage System for the Growth Plan excludes lands within settlement area boundaries that were approved and in effect as of July 1, 2017.*

4. *Provincial mapping of the Natural Heritage System for the Growth Plan does not apply until it has been implemented in the applicable upper-or single-tier official plan. Until that time, the policies in this Plan that refer the Natural Heritage System for the Growth Plan will apply outside settlement areas to the natural heritage systems identified in official plans that were approved and in effect as of July 1, 2017.*
6. *Beyond the Natural Heritage System for the Growth Plan, including within settlement areas, the municipality:*
    a) *will continue to protect any other natural heritage features and areas in a manner that is consistent with the PPS; and,*
    b) *may continue to protect any other natural heritage system or identify new systems in a manner that is consistent with the PPS.*

Section 3.1A.2 of the OSM Official Plan designated Future Growth in OSM as follows:

> *Based on the County of Peterborough Demographic Analysis Report: 2011 Census, the population of the Township is 6,887 persons, which represents approximately 12 percent of the population of the County of Peterborough (56,700).*
>
> *Under the Growth Plan for the Greater Golden Horseshoe the County of Peterborough Official Plan is responsible for allocating growth among the eight local municipalities in the County. A percentage distribution has been used by the County as an approach for allocation such growth. Using present trends and future growth factors in addition to directing growth to settlement areas with full municipal services (which are not available in the Township of Otonabee-South Monaghan), the County has allocated 11.2 percent of the new population growth in the County to the Township of Otonabee-South Monaghan.*
>
> *It is anticipated that this modest population increase will be accommodated primarily within the existing settlement areas in the Plan (the designated Hamlet areas), as well as the rural areas in accordance with the policies of this Plan.*

The Subject Property resides within a Hamlet designated for future development by OSM.

Natural heritage system mapping has not yet been implemented in the local Official Plan. Therefore, policies that refer to the key natural heritage features (KNHF) within Natural Heritage System do not yet apply. However, policies are applicable to key hydrologic features (KHF). An evaluation has therefore been provided in Section 5.0 to address the Growth Plan policies as they pertain to KHF.

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 (1) of four (4) categories of at risk status:

1. Extirpated: lives somewhere in the world, and at one (1) 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 (1), or more, species listed as threatened or endangered.

No threatened or endangered SAR were observed during site investigations. Two (2) species listed as Special Concern were identified including Eastern Wood-Pewee and Wood Thrush. A review of background information identifying known SAR occurrences within close range of the Subject Property was completed. Subsequently, a SAR Assessment was completed in Section 4.0 to determine the likelihood of SAR on the Subject Property.

4.0 Species at Risk

Information from the following sources was reviewed for all species of conservation concern to determine whether the Project will come into conflict with the ESA, 2007.

1. 2019 and 2020 field investigations;
2. Land Information Ontario Natural Heritage Areas database (formerly operated under the Natural Heritage Information Centre); and,
3. Other SAR species identified through other data sources (e.g. MECP correspondence).

A SAR Screening Assessment was completed comparing known occurrences within the area for sixteen (16) species, against specific local habitat features identified on the Subject Property, 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
Barn Swallow (*Hirundo rustica*)	Threatened	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	Negligible	Habitat requirements not present. No Barn Swallows were observed or heard during Breeding Bird Surveys.
Blanding's Turtle (*Emydoidea blandingii*)	Threatened	Endangered	Threatened	Blanding's Turtles live in shallow water, usually in large wetlands and shallow lakes with lots of water plants. It is not unusual, though, to find them hundreds of metres from the nearest water body, especially while they are searching for a mate or traveling to a nesting site. Blanding's Turtles hibernate in the mud at the bottom of permanent water bodies from late October until the end of April (MNRF, 2018).	ORAA	Negligible	Aquatic habitat requirements are not present. No Blanding's Turtles were observed at the time of any site investigations.
Bobolink (*Dolichonyx oryzivorus*)	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	Low	Bobolink were heard north of the Subject Property however suitable habitat does not exist on site and no Eastern Meadowlark were observed or heard during Breeding Bird Surveys.
Butternut (*Juglans cinerea)*	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. This species does not do well in the shade, and often grows in sunny openings and near forest edges (MNRF, 2018)	Ontario SAR List	Negligible	Suitable habitat is present within the Subject Property. However, no Butternuts were found during site investigations.
Common Five-lined Skink (*Plestiodon fasciatus*)	Special Concern	Special Concern	Special Concern	Common Five-lined Skinks like to bask on sunny rocks and logs to maintain a preferred body temperature (28-36°C). During the winter, they hibernate in crevices among rocks or buried in the soil. There are two populations of Common Five-lined Skink in Ontario and they each occupy different types of habitat. The Southern Shield population can be found underneath rocks on open bedrock in forests. The Carolinian population can be found under woody debris in clearings with sand dunes, open forested areas, and wetlands (MNRF, 2018).	ORAA	Negligible	Habitat requirements not present. No Common Five-lined Skinks were observed during site investigations.
Common Nighthawk (*Chordeiles minor*)	Special Concern	Special Concern	Threatened	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 (MNRF, 2018).	OBBA	Negligible	Habitat requirements not present. No Common Nighthawks were observed or heard during Breeding Bird Surveys or Amphibian Call Surveys.
Chimney Swift (*Chaetura pelagica*)	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 congregate (MNRF, 2018).	OBBA	Negligible	Habitat requirements not present. No Chimney Swifts 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
Eastern Meadowlark (*Sturnella magna*)	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	Low	Eastern Meadowlark were heard north of the Subject Property, however suitable habitat does not exist on site and no Eastern Meadowlark were observed or heard during Breeding Bird Surveys.
Eastern Milksnake (*Lampropeltis triangulum*)	Not at Risk	Special Concern	Special Concern	Eastern Milksnakes are habitat generalists but prefer open habitats, including rock outcrops and meadows. They require suitable microhabitats for egg laying, hibernation and thermoregulation. Eastern Milksnakes are well known for occupying barns, sheds and houses in rural landscapes. At the landscape scale, the abundance of Eastern Milksnakes appears to correlate with regions where forest cover is relatively high. Eastern Milksnake habitat in portions of southwestern Ontario and parts of southwestern Quebec (e.g. urban regions and areas subject to intensive agriculture) is fragmented and consists of relatively small, natural areas.	Ontario SAR List	Low	Habitat requirements exist around the Subject Property but no hibernacula areas were identified and no Eastern Milksnake were observed during site investigations. It is possible that neighboring foundations and outbuilding could provide habitat for Eastern Milksnake
Eastern Whip-poor-will (*Caprimulgus vociferus*)	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	Marginal habitat exists on site, however, no Eastern Whip-poor-will were observed on site.
Eastern Wood-pewee (*Contopus virens*)	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 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	High	Habitat requirements exist on the Subject Property. One (1) Eastern Wood-pewee was heard during Breeding Bird Surveys. Section 6.0 provides mitigation to ensure no impacts to Eastern Wood-pewee.
Grasshopper Sparrow (*Ammodramus savannarum*)	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	Low	A small amount of suitable habitat exists in the cultural meadow however, no Grasshopper Sparrows were observed or heard during Breeding Bird Surveys.
Least Bittern (*Ixobrychus exilis*)	Threatened	Threatened	Threatened	In Ontario, the Least bittern is found in a variety of wetland habitats, but strongly prefers cattail marshes with a mix of open pools and channels. This bird builds its nest above the marsh water in stands of dense vegetation, hidden among the cattails. The nests are almost always built near open water, which is needed for foraging. This species eats mostly frogs, small fish, and aquatic insects (MNRF, 2018).	OBBA	Negligible	Habitat requirements not present. No Least Bitterns 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
Little Brown Myotis *(Myotis lucifugus)*	Endangered	Endangered	Endangered	During the day they 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.	OBBA	Low	Trees within the wetland could be utilized as roosting habitat however no individuals were observed during field investigations. An abundance of suitable habitat is available within wetland features east and west of the Subject Property.
Snapping Turtle (*Chelydra serpentina*)	Special Concern	Special Concern	Special Concern	Slow-moving water with a soft mud bottom and dense aquatic vegetation. Established populations are most often located in ponds, sloughs, shallow bays or river edges and slow streams, or areas combining several types of wetland habitat (Harding 1997).	ORAA	Negligible	Habitat requirements not present. No Snapping Turtles were observed during site investigations.
Wood Thrush (Hylocichla mustelina)	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	High	Habitat requirements exist in Subject Property. One (1) Wood Thrush was heard during Breeding Bird Surveys.

5.0 Determination of Significance

Valued Ecosystem Components (VECs) are broadly defined as any part of the environment that is considered important by the proponent, public, scientists, and government involved in the assessment process. Importance may be determined on the basis of cultural values or scientific concern. For the purposes of the EIS, VECs will be limited to define any part of the biophysical environment that is considered important by the proponent, public, scientists and government involved in the assessment process.

5.1 Significant Wildlife Habitat (SWH)

In accordance with the Provincial Policy Statement (2020) and the MNRF's Significant Wildlife Habitat Technical Guide (2000), Significant Wildlife Habitat (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 or field investigations.

5.2 Wetland Evaluation

Based on the results of the wetland evaluation, the Wetland is classified as Evaluated Other, on the basis that a total score of more than 600 points was not achieved. Significance of the Wetland Complex was determined through the OWES scoring included biological, social, hydrological, and special features components. See **Appendix F** for a copy of the wetland data scoring record.

The evaluated wetland feature is proposed to be impacted on the north end of the Subject Property by the construction of a site access road. Mitigation measures including a proposed compensation are identified in **Section 6.2**.

5.3 Drainage Feature Assessment

Using the results from the OSAP S4:10 assessment of headwater drainage features, the TRCA guidelines for Evaluations, Classification and Management of Headwater Drainage Features was used to define the feature as indicated below.

Step 1 – Hydrological Classification

Flow conditions were classified as FC2 or 1 indicating standing water in the spring and no surface water in the summer. The feature type code was defined as 6 (wetland).

Because of the wetland feature classification, the hydrological classification of the feature is, **Contributing Functions – Ephemeral.**

Step 2 – Riparian Classification

The OSAP Riparian Code observed was 7. As this is a wetland feature type, the Riparian classification for the watercourse is **Important Functions.**

Step 3 – Fish and Fish Habitat Classification

The watercourse is not considered to provide fish habitat. The Fish and Fish Habitat Classification is **Contributing Function** as the watercourse may contribute allochthonous transport through the feature to downstream habitat.

Step 4 – Terrestrial Habitat Classification

The terrestrial habitat classification is considered to provide **Valued Functions** based on the OSAP feature code of 6 (wetland).

Because the feature contributes to downstream wetland habitat, and surrounding riparian habitat, mitigation measures to ensure the continued function of this feature are described in **Section 6.3**.

Mitigation measures to protect this feature are identified in **Section 6.3**.

6.0 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 other VEC's. Locally specific mitigation measures are implemented to prevent or mitigate impacts to the VECs identified.

Of particular concern for the proposed Plan of Subdivision is encroachment into the 15 m wetland buffer in two (2) areas totaling 1567.3 m^2, and disturbance of 404.9 m^2 of wetland habitat.

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

6.1 General Recommendations

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

- A response plan should be developed that will be implemented immediately in the event of a sediment release or spill of a deleterious substance.
- An emergency spill response kit, including the appropriate absorbency materials, will be on site at all times. Proper containment, clean up and reporting, in accordance with provincial requirements, is required.
- 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. A log is to be maintained.
- All equipment should arrive on site clean and well maintained to prevent the spread of invasive species and contaminants.
- Upon project completion, all construction materials must be removed off-site.
- Refueling of equipment should take place in designated areas a minimum of 30 m from wetland features.

6.2 Natural Heritage Features

The location of the proposed Plan of Subdivision will not negatively impact any linkages, nor create any fragmentation of wetland or woodland habitat. The existing western wetland unit will be impacted in order to facilitate an access road, therefore a wetland compensation of 3:1 has been proposed. Detailed aspects of the wetland compensation are available in the *Wetland Compensation Concept Plan (Wills 2021)*. See **Appendix H** for details.

As four (4) wetlands have been confirmed on the Subject Property and appropriate setbacks have been recommended for each, including a 30 m buffer from wetlands on the east side of the property and a 15 m buffer from the wetland unit on the west side of the Subject Property.

The existing western wetland feature is buffered by relatively steep slopes creating a well-defined transition from wetland to upload. Because of the well-defined transitions, historical disturbance of the site through farming practices, and the lack of important biological indicators reviewed through the wetland evaluation, Wills has proposed a 15 m buffer to protect this feature. Other unevaluated wetland units on site have been afforded a 30 m buffer for protection because of a more moderate transition from wetland to upland and less detailed biological investigations.

Additional mitigation measures recommended for the protection of the wetland features and unevaluated woodlands associated with the wetland include:

- All buffer areas should be well defined and sediment fencing installed to prevent encroachment/ deposition into wetland and wetland buffer areas.

- Vegetation removal within the woodlands should be limited to the area of construction, and the disturbed area (buildings/structures) should not exceed 25% of the total developable area.
- Any future development should limit the number of impermeable surfaces of the total developable area.
- It is recommended that construction activities aim to retain as much native vegetative cover as possible. Following any development, native tree species that are representative of the overall woodland community should be planted in as much of the disturbed area as possible.
- The current Site Plan shows that the removal of a number of trees will take place. In order to offset impacts as a result of the removal of trees, it is recommended that tree compensation take place at a rate of 2:1. Plantings should consist of native species found on the Subject Property, as identified in **Section 2.2.3**.
- To compensate for two areas of 15 m wetland buffer encroachment as identified in the Site Plan drawing (**Appendix I**), enhanced buffer plantings are recommended to ensure maximum protection of the wetland feature in these areas. Wills recommends planting a row of Eastern White Cedar in these areas.

6.3 Drainage Feature

The existing drainage feature is considered to provide valued hydrological functions such as riparian wetland habitat and downstream fish habitat as well as wildlife habitat. As a result, the following recommendations from Part 3 of the TRCA guidelines for headwater drainage features should be addressed to conserve the feature. Implementation of these recommendations will ensure the area continues to function effectively as a wetland area and contribute to associated habitat:

- Maintain, relocate, and/or enhance drainage feature and its riparian zone corridor.
- If catchment drainage has been previously removed or will be removed due to diversion of stormwater flows, restore lost functions through enhanced lot level controls (i.e. restore original catchment using clean roof drainage), as feasible.
- Maintain or replace on-site flows using mitigation measures and/or wetland creation, if necessary.
- Maintain or replace external flows.
- Use natural channel design techniques to maintain or enhance overall productivity of the reach.
- Drainage feature must connect to downstream.
- Ensure any future lot levelling and the construction of the roadway to the north maintain the natural drainage pattern into the wetland feature. Measures may include well-vegetated swales, bioswales, etc.
- Where drainage into the wetland cannot be maintained, Low Impact Development features are encouraged (i.e. grassed swales, rain gardens).

- It is recommended that eaves trough downspouts be directed towards vegetated areas to increase infiltration to groundwater and ensure the continued function of this feature through clean roof drainage.
- The Flood Impact Assessment (Wills, 2021), confirmed that the proposed development will not increase flood potential to adjacent properties and that safe access will be provided from the site for emergency vehicles. It is recommended that the grading plan consider the flood limits identified in the report and seek to minimize disturbance within the floodplain.

6.4 Erosion and Sediment Control

Because development is proposed within 30 m of the wetland feature, it is recommended that an Erosion and Sediment Control Plan (ESCP) be developed and implemented to minimize the risk of sedimentation into the drainage feature and/or wetland during all phases of development.

The ESCP should include:

- Installation of erosion and sediment control measures (e.g. sediment fences) before construction activities commence to prevent soil deposition into the drainage feature and wetland.
- Waste material should be contained and stabilized outside of the wetland buffer area. Alternatively, waste materials should be removed off-site.
- Inspection and maintenance of erosion and sediment control measures and structures should take place during the course of construction.
- Erosion and sediment control measures and structures should be repaired, if damage occurs.
- Non-biodegradable erosion and sediment control materials are to be removed after all disturbed ground has been permanently stabilized.
- Site isolation measures for containing stockpiled material should be implemented.
- Upon project completion, all construction materials must be removed off-site.

6.5 Species at Risk

Background review determined sixteen (16) species of conservation concern had recent or historically confirmed presence in the area surrounding the Subject Property. The SAR Screening Assessment (**Table 2**), identified suitable habitat on the Subject Property for eight (8) of those species, of which two (2) were determined two (2) have a high probability of using available habitat. Both species are listed as Special Concern in Ontario.

All suitable SAR habitat was found to occur in the woodland and wetlands on the Subject Property. A small area in the northern portion of the wetland is proposed for development. Compensation for this area and the preservation of the core wetland area along with large available treed areas east and west of the property are not

anticipated to impact the habitat of the two (2) Special Concern SAR species identified. It is of the opinion of Wills that site development outside the proposed areas would not impact existing SAR habitat.

To ensure the protection of these and other avian species a vegetation removal timing window (**April 15th to August 31st**) is recommended.

Environmental constraints associated with the proposed 15 m and 30 m buffers are identified in the Site Plan, **Appendix I**.

6.6 Wildlife

- Any vegetation clearing must occur outside of the breeding bird season of **April 15 to August 31**. If this time period is unavoidable, alternatively, a nest sweep must be conducted by a qualified biologist, prior to any clearing of vegetation on-site.
- If, during a nest sweep, any breeding birds and/or nests are encountered, all construction activities should cease and a buffer should be placed around the nest until after **August 31,** or as soon as the young have permanently left the nest. The size of the buffer will be dependent on the species and should be consulted with the MNRF and/or MECP.
- The MECP and/or MNRF must be contacted in the case that any rare or SAR species are identified during pre-construction or throughout the construction phases.

7.0 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 Plan of Subdivision and eventual development, provided that the environmental protection/mitigation measures outlined herein are implemented. Appropriate implementation of the mitigation measures outlined herein will ensure that proposed activities do not conflict with the natural heritage policies set out by the County of Peterborough, the Township of Otonabee South- Monaghan, the Province of Ontario (Provincial Policy Statement, 2020), or other relevant environmental legislation.

The establishment of the 15 m buffer for development will protect the remaining evaluated wetland feature and recommended 30 m buffer will protect the unevaluated wetland features. The proposed compensation at a rate of 3:1 will ensure the available habitat is protected and remains functional. The limit of grading, and construction will be clearly delineated in the field (e.g. with heavy duty sediment fence) to prevent encroachment beyond the approved area. Prior to the installation of heavy-duty sediment fence, the wetland buffer will be staked on the ground for easy recognition. In areas were the wetland buffer will be impacted, an effort to enhance the buffer will be implemented.

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

Respectfully Submitted,

Prepared by:

Tyler Jones, B.Sc.
Senior Biologist

Reviewed &
Approved by:

Shawn Filteau, B.Sc.
Natural Sciences Lead

TJ/SF/avg

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- Toronto and Region Conservation Authority. Evaluation, Classification and Management of Headwater Drainage Features: Interim Guidelines, Updated January 2014. Accessed Online https://cvc.ca/wp-content/uploads/2014/02/HDFA-final.pdf

Appendix A

Statement of Limitations

Statement of Limitations

This report is provided solely for the benefit of Rubal Kundra 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 Rubal Kundra 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

NHIC Map

Part of Lot 27, Concession 10, Township of Otonabee-South Monaghan County of Peterborough, ON

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	TJ	Scale	See Scale Bar
Checked	SF	Date	March 2021
Project No.	10874	Drawing File No.	

Appendix C

Records of Correspondence

Tyler Jones

From: Ben Radford
Sent: Wednesday, March 10, 2021 1:07 PM
To: 'Species at Risk (MECP)'
Subject: Burnham Line, Peterborough - SAR Information Request
Attachments: 10874 - Compensation Plan.pdf

Good afternoon,

My name is Ben Radford from D.M. Wills Associates in Peterborough. We have been contracted to complete an Environmental Impact Study (EIS) for a parcel of land located adjacent to Burnham Line in Peterborough (see the attached figure for details on the Subject Property). As such, we are requesting SAR information that is to be used in the EIS for a SAR Screening Assessment. Through preliminary background research (i.e. NHIC, OBBA, eBird, iNaturalist, etc.), the following SAR have the potential to be found near or on the Subject Property:

- Eastern Meadowlark (Threatened)
- Bobolink (Threatened)
- Wood Thrush (Special Concern)
- Eastern Wood-pewee (Special Concern)
- Least Bittern (Threatened)
- Common Nighthawk (Special Concern)
- Chimney Swift (Threatened)
- Barn Swallow (Threatened)
- Bank Swallow (Threatened)
- Grasshopper Sparrow (Special Concern)
- Evening Grosbeak (Special Concern)
- Snapping Turtle (Special Concern)
- Blanding's Turtle (Threatened)

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

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

copying of this email is strictly prohibited. If you have received this email in error, please notify me immediately by telephone.

From:	Jasmine Gibson
To:	Shawn Filteau
Cc:	Alex Bradburn
Subject:	Follow-up, re: Woodlands/Demonte Subdivision
Date:	July 4, 2019 12:33:13 PM
Attachments:	image001.png image002.jpg

Hi Shawn,

Re: Woodlands/Demonte Subdivision

As a follow-up to our conversation yesterday regarding wetland compensation, I have summarized key points below:

- The property is located within the hamlet land use designation, provided this is considered a settlement area the Growth Plan policies will not apply with respect to key hydrological features. IF it is not a settlement area, these policies will apply including a minimum 30m vegetation protection zone around the outer boundary of all hydrological features (wetlands, watercourses, seeps, etc.),
- The property has several linear wetland pockets with flowing water; the existing access point was constrained by these features. As such, the proponent was advised to consider bridges to accommodate access from the municipally-owned roads. The proponent also discussed purchasing lands to the north to accommodate access.
- You asked about wetland compensation. As per PPS policy 2.2.1 and Authority policies 7.1(1), 7.2(2) and 8.4(1), development and site alteration is not permitted in wetlands or watercourse – realignment is discouraged. Generally, compensation is considered for development on existing lots of record or redevelopment on already developed lots, and the lands must have the space to accommodate compensation.
- Based on these policies, a minimum 30m vegetated buffer is recommended. Lesser buffers would have to demonstrate that it is not feasible for the subject lands to accommodate 30m buffers. Given the provincially-significant features surrounding the property, direct impacts of climate change and the dynamic nature of hydrological systems, larger buffers are always recommended. With respect to the EIS, rationale must be provided for deviations from these policies.
- The wetlands on site look like headwater drainage features. As such, it is recommended that you apply OSAP Module S.4.M.10/S4.M.11 to assess these features and refer to the 'Evaluation, Classification and Management of Headwater Drainage Features Guidelines' (TRCA and CVC, 2014) to triage the proposed work in consideration of hydrology classification.
- The goal of the swm design should be maintaining infiltration on site in keeping with the principle of feature-based water balance.
- If upgrades to Woodview Drive and bridgework is proposed, as discussed, an Environmental Assessment approach may be considered by the municipality – approvals under the EA process are exempted from natural heritage policies in the PPS. If not, the EIS should speak to development options, similar to the EA process, given the constraints on site.
- Please refer to our EIS terms of reference on line and keep us in the loop if you have any questions or concerns.

I have copied Alex on this email so that she has a record of our conversation; thanks.

Regards,
Jasmine

Jasmine Gibson
Planning Ecologist
Otonabee Region Conservation Authority
250 Milroy Drive, Peterborough, ON K9H 7M9
Tel: 705-745-5791, ext. 233
jgibson@otonabeeconservation.com
www.otonabeeconservation.com
Facebook

Please consider the environment before printing this message.

From: Shawn Filteau (SFilteau@dmwills.com) <SFilteau@dmwills.com>
Sent: Friday, June 28, 2019 10:40 AM
To: Jasmine Gibson <jgibson@otonabeeconservation.com>
Subject: RE: follow-up

Hi Jasmine,

Thanks for the email. That would be great if we could chat next week. I will give you a call on Tuesday afternoon. The Roll # for the Woodlands/Demonte Acres Subdivision is 1506 010 005 08301 if you want to look into it prior to our discussion. If not, I can fill you in next week.

Thanks and have a good weekend,

Shawn

From: Jasmine Gibson <jgibson@otonabeeconservation.com>
Sent: June 28, 2019 8:35 AM
To: Shawn Filteau <SFilteau@dmwills.com>
Subject: follow-up

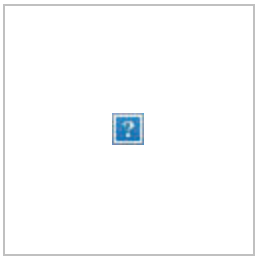
Good morning Shawn,

I got your message. I am out of the office again today but will be in next week if you want to chat, and then I am on vacation.

The Woodland Subdivision doesn't ring any bells but you can bring me up to speed.

Enjoy the long weekend.

Regards,
Jasmine



Jasmine Gibson
Planning Ecologist
Otonabee Region Conservation Authority
250 Milroy Drive, Peterborough, ON K9H 7M9
Tel: 705-745-5791, ext. 233
jgibson@otonabeeconservation.com
www.otonabeeconservation.com
Facebook

 *Please consider the environment before printing this message.*

otonabeeca@otonabee.com. We thank you in advance for your cooperation and assistance.

September 9, 2019

Ms. Caitlin Robinson
Planner
County of Peterborough
470 Water St.
Peterborough, Ontario
K9H 3M3

Ms. Diana Keay
Senior Planner
D.M Wills Associates
150 Jameson Dr.
Peterborough, Ontario
K9J 0B9

Dear Ms. Robinson & Ms. Keay:

RE: Woodland Memo Response- Woodland Subdivision – Environmental Impact Statement and Provincial Conformity (circulated August 26, 2019)

The Otonabee Region Conservation Authority (Otonabee Conservation) has received the above noted memo and briefly reviewed the response to our earlier comments and the appendices included in support of the policy discussion (Addendum to the Species at Risk (SAR) Assessment and Wetland Delineation Report, Residential Development –Pat of Lot 27 Concession 10, Township of Otonabee South Monaghan, County of Peterborough, ON, Project No. 19-10874). ORCA staff has reviewed the available information in accordance with our mandate and policies and now offer the following comments, acknowledging that this circulation is not considered a formal application circulated through the planning authority (The County of Peterborough).

Otonabee Conservation's role and interest in this application is four-fold:

1. *Otonabee Conservation will review the application through our delegated authority from the Province to represent provincial interests regarding natural hazards identified in Section 3.1 of the Provincial Policy Statement (PPS).*

The Otonabee Region Conservation Authority
250 Milroy Drive, Peterborough, ON K9H 7M9
Phone: 705-745-5791 Fax: 705-745-7488
Email: otonabeeca@otonabeeconservation.com www.otonabeeconservation.com

Section 3.1 of the PPS prohibits development (including lot creation and site alteration) within a flooding hazard, erosion hazard, dynamic beach hazard or hazardous site. The Wetland Delineation Report recommends a floodplain survey be completed to determine the extent of flooding onsite, Otonabee Conservation staff concurs with this recommendation especially as it relates to the proposed access to the site off of Burnham Line. Floodplain delineation will be crucial in establishing the development envelope at this property.

2. *Otonabee Conservation will be reviewing the formal application as a service provider to the Peterborough County and the Township of Otonabee South Monaghan in that we provide technical advice on natural heritage matters through a Memorandum of Understanding.*

As noted in the Woodland Subdivision Memo, the property is traversed by four (4) wetland units (as demonstrated by the mapping "Key Plan, Life at the Woodland April 24, 2019 D. M Wills"), one of which (the westernmost feature) also contains an ephemeral watercourse. As such, any Planning Act applications required at this property are subject to Section 2.1 and 2.2 of the Provincial Policy Statement.

In order to demonstrate consistency with section 2.1 of the PPS an Environmental Impact Study including an evaluation of the wetland as per OWES protocol must be provided in support of this proposal. This agency does not generally support development or the creation of lots within wetlands or the negotiation of buffer areas less than 30 metres without the provision of a complete rationale (see Otonabee Conservation Watershed Planning & Regulations Policy Manual, Sections 2.3.2, 2.3.5, 2.3.7, 2.3.8 and 2.3.9- all demonstrating Otonabee Conservation's position in relation to the PPS). The PPS clearly dictates that development and site alteration are prohibited in significant wetlands or the areas identified as "adjacent lands" in association to the wetland features.

The memo proposes opportunity for 2:1 wetland compensation, but does not indicate where on the site this compensation will take place. It is recommended that the consultant take steps to assess the presence and significance of the natural heritage and hydrologic features prior to providing a revised site layout, and that the new proposed layout reflect the applicable policy requirements.

3. *ORCA is reviewing the application through a regulatory lens under Ontario Regulation 167/06, this Authority's 'Development, Interference with Wetlands and Alterations to Shorelines and Watercourses' regulation under Section 28 of the Conservation Authorities Act.*

The flooding hazard, the watercourse, the wetlands and their adjacent lands on this site are subject to Ontario Regulation 167/06. Development in these areas will require a permit from this authority. The proposed development will be subject to policies 4.1 and 7.1 and 7.2 laid out in Otonabee Conservation 'Watershed Planning and Regulation Policy Manual'. As the current configuration has not yet demonstrated safe access off of Burnham Line, and there are numerous lots proposed within the wetland features, Otonabee Conservation would not be able to issue permits on those lots that are predominantly noted as wetland or within the 15 metre buffer area suggested, regardless of the

previous planning approvals that have been granted. It is recommended that the proponent complete the floodplain study to determine if there is safe access to the site and scale the development to respect the developable envelope

4. *ORCA is reviewing the application in consideration of the Trent Source Protection Plan (SPP) which was prepared under the Clean Water Act. The SPP, intended to protect Ontario's drinking water at its source from existing and future land use activities came into effect on January 1, 2015.*

It was determined that the subject property is not located within an area that is subject to the policies contained in the SPP.

To conclude, this agency holds the same position that was communicated at the meeting held at the Otonabee South Monaghan Township offices on July 23rd, 2019, and in the email correspondence following that meeting on July 29th, 2019. It is Otonabee Conservation staff opinion that in order to move forward in a manner consistent with relevant policies, a complete EIS that fully assesses the significance of the wetland(s) using OWES protocol, and a floodplain study will be required in support of the proposed development.

If you have any further questions or concerns at this stage, please do not hesitate to call.

Yours truly,

Alex Bradburn
Planner
Otonabee Conservation

cc: Iain Mudd, Manager of Planning County of Peterborough
Jennifer Clinesmith, Manager Plan Review and Permitting Services, Otonabee Conservation
Barbara Waldron, Director of Building and Planning, Chief Building Official, Otonabee South Monaghan

Appendix D

Photographic Log

Client Name: Rubal Kundra	**Site Location:** Part of Lot 27 Con. 10 Township of Otonabee-South Monaghan

Photo Number: 1
Date: May 30, 2019
Direction Photo Taken: East
Description: View of SWD2-1.

Photo Number: 2
Date: May 30, 2019
Direction Photo Taken: East
Description: West wetland Unit (Polygon 1 as identified in the OWES eval.)

D.M. Wills Associates Limited
150 Jameson Drive, Peterborough, Ontario, Canada K9J 0B9
P. 705.742.2297 **F.** 705.748.9944 **E.** wills@dmwills.com

Photo Number: 3
Date: May 30, 2019
Direction Photo Taken: East
Description: View of CUW.

Photo Number: 4
Date: May 30, 2019
Direction Photo Taken: Southeast
Description: View of SWM6-2.

D.M. Wills Associates Limited
150 Jameson Drive, Peterborough, Ontario, Canada K9J 0B9
P. 705.742.2297 **F.** 705.748.9944 **E.** wills@dmwills.com

Photo Number: 5
Date: June 17, 2020
Direction Photo Taken: East
Description: View of CUW.

Photo Number: 6
Date: July 02, 2020
Direction Photo Taken: South
Description: View of CUM.

D.M. Wills Associates Limited
150 Jameson Drive, Peterborough, Ontario, Canada K9J 0B9
P. 705.742.2297 **F.** 705.748.9944 **E.** wills@dmwills.com

Photo Number: 7
Date: May 30, 2019
Direction Photo Taken: East
Description: View of SWT2-2.

D.M. Wills Associates Limited
150 Jameson Drive, Peterborough, Ontario, Canada K9J 0B9
P. 705.742.2297 **F.** 705.748.9944 **E.** wills@dmwills.com

Appendix E

Field Notes

April 30/20
10874

Amphibian Species Codes

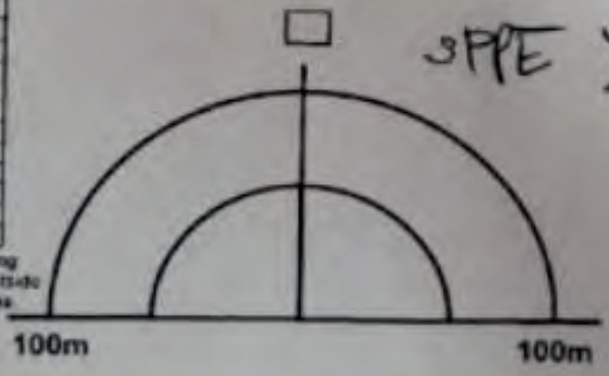
Species	Code
American Toad	AMTO
Blanchard's Cricket Frog	BCFR
Bullfrog	BULL
Chorus Frog	CHFR
Cope's Gray Treefrog	CGTR
Fowler's Toad	FOTO
Gray Treefrog	GRTR
Green Frog	GRFR
Mink Frog	MIFR
Northern Leopard Frog	NLFR
Pickerel Frog	PIFR
Spring Peeper	SPPE
Wood Frog	WOFR

LS1

Station A

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

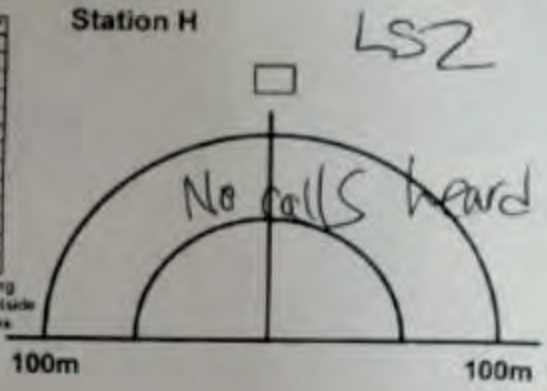
* Check if species calling from inside and/or outside 100-meter station area



SPPE > 300 m away

Species	In*	Out*
AMTO		
BGFR		
BULL		
CHFR		
CGFR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species calling from inside and/or outside 100-metre station area



Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly (in pen).

Observer: SF + TD	
Route name:	

Date (dd mm yr): April 30	Visit No.: 1	Start time (24 hr clock): 930
Beaufort Wind Scale No.: 0	Cloud Cover (10ths): 10	Air Temp (°C or °F): 11
Precipitation (check one): None/dry ____	Damp/Haze/Fog ✓	Drizzle ____ Rain ____
Has the habitat on your route changed from previous years: Yes ____	No ____	Not applicable: ✓
Remarks:		

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately **counted**
Code 2: Some calls simultaneous, number of individuals can be reliably **estimated**
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

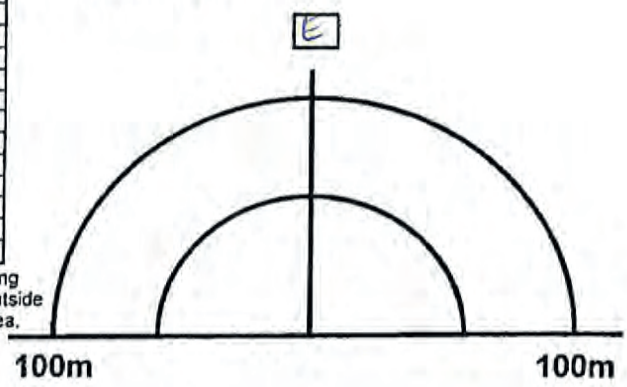
10874 ~~LS2~~ LS1

19 MAY 2020

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species calling from inside and/or outside 100-metre station area.

Station H



background noise - car traffic 2/4
white tailed deer

Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly (in pen).

Observer: R. Barrington, B. Radford		
Route name: LS1		
Date (dd-mm-yr): 19-05-20	Visit No.: 2	Start time (24 hr clock): 21:20
Beaufort Wind Scale No.: 1	Cloud Cover (10ths): 1	Air Temp (°C) or °F): 14
Precipitation (check one): None/dry: ✓	Damp/Haze/Fog:____	Drizzle:____ Rain:____
Has the habitat on your route changed from previous years: Yes:____	No:____	Not applicable:____
Remarks: road noise		

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately **counted**
Code 2: Some calls simultaneous, number of individuals can be reliably **estimated**
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

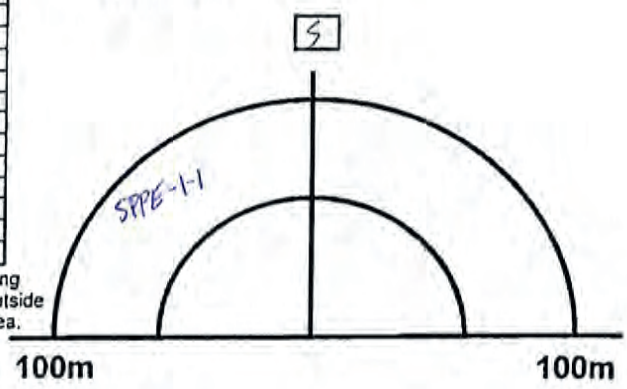
10874 - L52

19 MAY 2020

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	
WOFR		

* Check if species calling from inside and/or outside 100-metre station area.

Station H



bat

background noise - road traffic - 2/4

Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly (in pen).

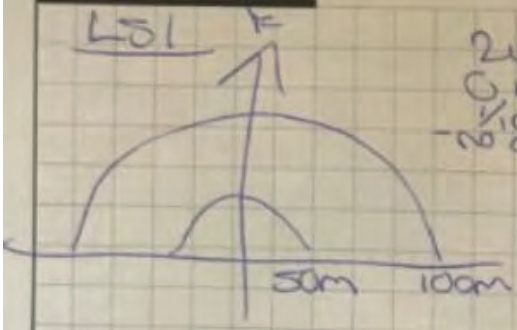
Observer: R. Barrington, B. Radford		
Route name:		
Date (dd-mm-yr): 19-05-20	Visit No.: 2	Start time (24 hr clock): 21:33
Beaufort Wind Scale No.: 2	Cloud Cover (10ths): 1	Air Temp (°C or °F): 14
Precipitation (check one): None/dry: ✓	Damp/Haze/Fog:____	Drizzle:____ Rain:____
Has the habitat on your route changed from previous years: Yes:____	No:____	Not applicable:____
Remarks:		

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately **counted**
Code 2: Some calls simultaneous, number of individuals can be reliably **estimated**
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

WILLS
PARTNERS IN ENGINEERING

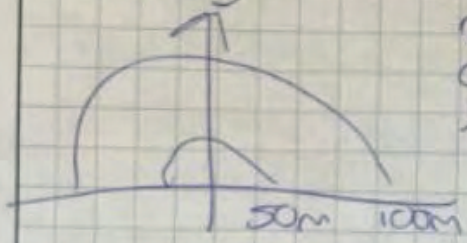
Project No. 1087A Sheet 1 of 1
Project Title Woodlands
Author B. Radford, T. Jones
Subject ACJ#3
Date June 15, 2020

LS1



24°C
Gwind
1/10 cloud
-no observations

LS2



24°C
Gwind
1/10 cloud
-no observations

WILLS
PARTNERS IN ENGINEERING

Project No. 0874 Sheet 1 of 1
Project Title Woodcock
Author B. Ford
Subject BBS # and Turtle Basking Survey
Date June 17, 2020

BBS1
-Am. Rob.n -Song Sparrow -RwBB -Northern Cardinal
-Blue Jay -Am. Goldfinch -Gray Catbird -Eastern Wood-pewee
-Common Grackle -BCC

-no turtle observations -no standing water

BBS2 8:01am
-BCC -Am. Crow -Common Yellowthroat -Rose-breasted Grosbeak
-Blue Jay -Northern Cardinal -Yellow Warbler -Field Sparrow

-no turtle observations -no standing water

BBS3 8:10am
-Field Sparrow -BCC -Northern Cardinal -Song Sparrow
-Gray Catbird -Eastern Meadowlark infield to north
-Ring-billed Gull infield to north

-no turtle observations -no standing water

BBS4 8:20am
-Common Yellowthroat -Eastern Phoebe -Wood Thrush (big wetland to east)
-Ovenbird -RwBB Am. Robin Northern Cardinal
-Field Sparrow -Blue Jay ~~Eastern~~ Wood-pewee (big reforested area)

-no turtle observations -no standing water

BBS5 8:33am
-Veery -Ovenbird -Common Yellowthroat -Yellow Warbler -Am. Robin
-BCC -white-tailed deer -common grackle -northern cardinal

-no turtle observations -no standing water

WILLS
PARTNERS IN ENGINEERING

Project No. 10874 Sheet 1 of 1
Project Title Woodlands CWES
Author B. Radford
Subject BBS # & Turtle Basking Survey
Date July 2, 2020.

BBS1

-Am. Robin -Northern Cardinal -Am. Goldfinch -Eastern Wood-pewee
-Eastern Phoebe -Gray Catbird

-no turtles -no standing water

BBS2

-Blue Jay -Field Sparrow -Northern Flicker -Am. Goldfinch
-Northern Cardinal -Cedar Waxwing

-no standing water -no turtles

BBS3

-BCC -Blue Jay -Am. Robin -Field Sparrow
-Bobolink in field to the north
-no standing water -no turtles

BBS4

-Northern Cardinal -Song Sparrow -Am. Goldfinch

-no standing water -no turtles

BBS5

-Song Sparrow -Field Sparrow -Common Yellowthroat
-Am. Goldfinch -Gray Catbird

-no standing water -no turtles

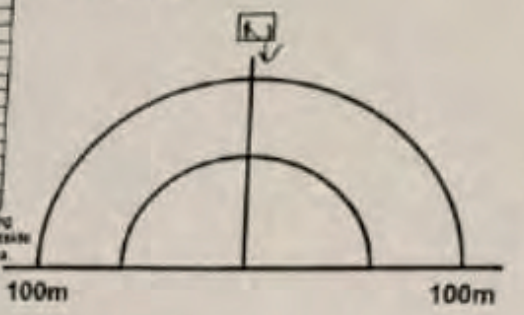
D.M. Wills Associates Limited
150 Jameson Drive, Peterborough, Ontario, Canada K9J 0B9
P. 705.742.2297 F. 705.741.3568 E. wills@dmwills.com

LPT 5-5 Chorus Frog LS1

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
GRYR		
PATO		
GRYR		
GRFR		
MFR		
NLFR		
PFR		
SPFR		
WOFR		

* Check if species calling from inside and/or outside 100-metre station area

Station H



-no observations

Background Noise
1/5
-birds

Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly in pen.

Observer: B. Radford, T. Jones

Route name: LS1

Date (dd-mm-yr): 28-04-2010 | Visit No.: 1 | Start time (24 hr clock): 1116

Beaufort Wind Scale No.: 1 | Cloud Cover (10ths): 10/10 | Air Temp (°C or °F): 7°C

Precipitation (check one): None/dry: X Damp/Haze/Fog: ____ Drizzle: ____ Rain: ____

Has the habitat on your route changed from previous years: Yes: ____ No: ____ Not applicable: X

Remarks:

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately counted
Code 2: Some calls simultaneous, number of individuals can be reliably estimated
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

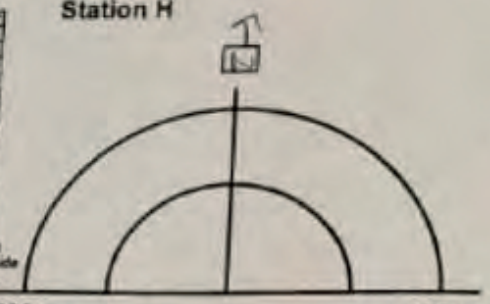
Chorus Frog

LS2

Species	In*	Out*
AMTO		
BOFR		
BLAL		
CHFR		
COTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIPE		
SPPE		
WOFR		

* Check if species calling from inside and/or outside 100 metre station area.

Station H



-no observations

Background Noise:
1/4
-birds

Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly (in pen).

Observer: B. Redford, T. Jones	
Route name: LS2	

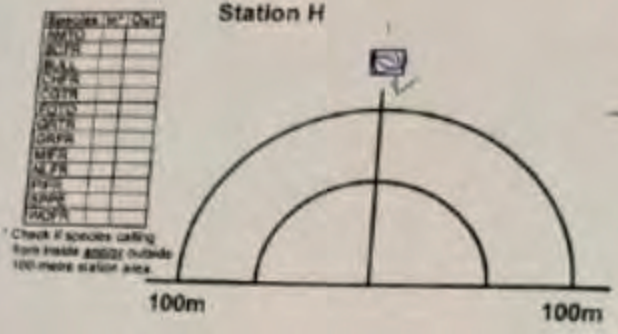
Date (dd-mm-yr): 28-04-2010	Visit No.: 1	Start time (24 hr clock): 1147
Beaufort Wind Scale No.: 1	Cloud Cover (10ths): 10/10	Air Temp (°C or °F): 8°C
Precipitation (check one): None/dry X	Damp/Haze/Fog ____	Drizzle ____ Rain ____
Has the habitat on your route changed from previous years: Yes: ____	No ____	Not applicable X
Remarks:		

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately counted
Code 2: Some calls simultaneous, number of individuals can be reliably estimated
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

10677

Chorus Frog ~~[illegible]~~ LS3

Station H



- no observations

Background noise: 1/2 birds

Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly in pen.

Observer: B. Radford, T. Jones

Route name: LS3

Date (dd-mm-yy): 28-05-'10 | Visit No.: 1 | Start time (24 hr clock): 1216

Beaufort Wind Scale No.: 1 | Cloud Cover (10ths): 10/10 | Air Temp (°C or °F): 9°C

Precipitation (check one): None/dry X Damp/Haze/Fog:___ Drizzle:___ Rain:___

Has the habitat on your route changed from previous years: Yes:___ No:___ Not applicable: X

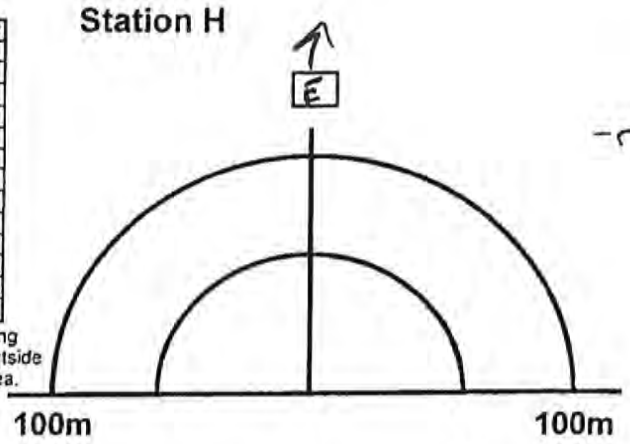
Remarks:

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately counted
Code 2: Some calls simultaneous, number of individuals can be reliably estimated
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

10874 Burtons Line Culvert Chorus Frog Survey

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species calling from inside and/or outside 100-metre station area.



-no observations

Background Noise: 1/4

- cars

Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly (in pen).

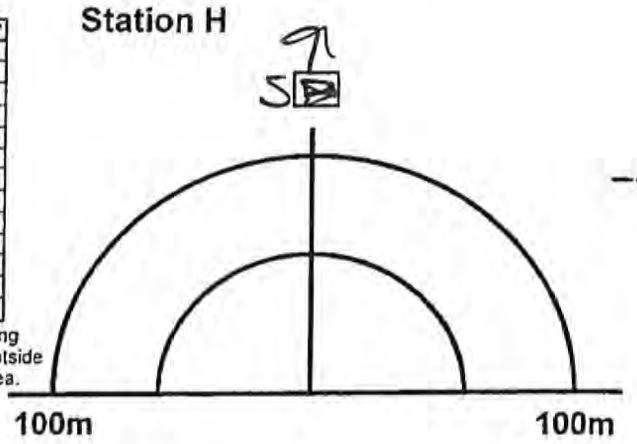
Observer: B. Rodford		
Route name: LS1		
Date (dd-mm-yr): 01-05-2020	Visit No.: 1	Start time (24 hr clock): 1130
Beaufort Wind Scale No.: 1	Cloud Cover (10ths): 9/10	Air Temp (°C or °F): 9°C
Precipitation (check one): None/dry: X	Damp/Haze/Fog:____	Drizzle:____ Rain:____
Has the habitat on your route changed from previous years: Yes:____	No:____	Not applicable: X
Remarks:		

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately **counted**
Code 2: Some calls simultaneous, number of individuals can be reliably **estimated**
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

10874 Woodview Drive Chorus Frog Survey

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species calling from inside and/or outside 100-metre station area.



-no observations

Background Noise: 1/4
-cars

Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

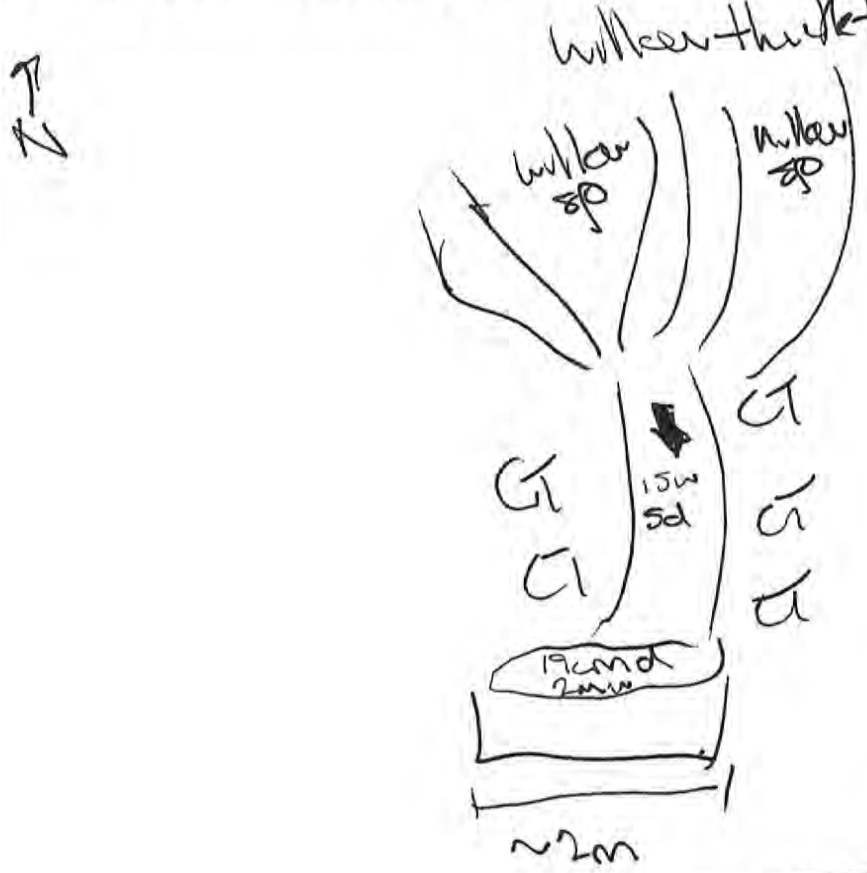
Please write legibly (in pen).

Observer: B. Radford		
Route name: L52		
Date (dd-mm-yr): 01-05-2015	Visit No.: 1	Start time (24 hr clock): 1140
Beaufort Wind Scale No.: 1	Cloud Cover (10ths): 4/10	Air Temp (°C or °F): 9°C
Precipitation (check one): None/dry: X	Damp/Haze/Fog: ____	Drizzle: ____ Rain: ____
Has the habitat on your route changed from previous years: Yes: ____	No: ____	Not applicable: X
Remarks:		

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately **counted**
Code 2: Some calls simultaneous, number of individuals can be reliably **estimated**
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

- depth @ mouth = 19cm
- width @ mouth = 2m

- gravel and sand 50/50



- fish observed inside culvert
- channel braids through willow thicket and cattail marsh
- unlikely fish hab. U/S

Hwy 7

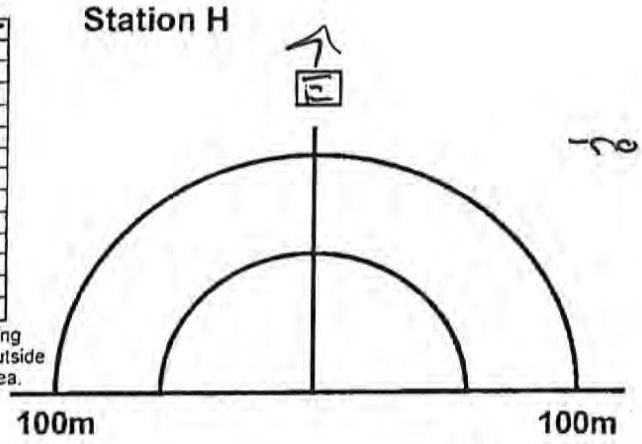
1088+4

Chorus Frog Survey #3

LS1

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species calling from inside and/or outside 100-metre station area.



-no observations

Background Noise
1/4
-cool, slight wind

Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly (in pen).

Observer: B. Radford	
Route name: LS1	

Date (dd-mm-yr): 19-05-2020	Visit No.: 3	Start time (24 hr clock): 1853
Beaufort Wind Scale No.: 2	Cloud Cover (10ths): 5/10	Air Temp (°C or °F): 9°C
Precipitation (check one): None/dry: X Damp/Haze/Fog: ____ Drizzle: ____ Rain: ____		
Has the habitat on your route changed from previous years: Yes: ____ No: ____ Not applicable: X		
Remarks:		

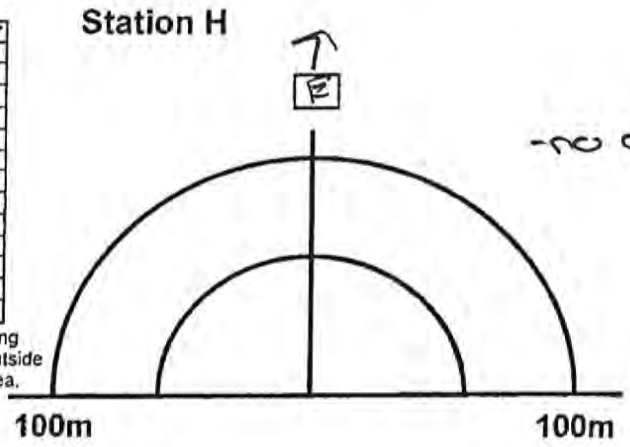
-rained earlier today

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately **counted**
Code 2: Some calls simultaneous, number of individuals can be reliably **estimated**
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

Chorus Frog Survey #3 LS2 10874

Species	In*	Out*
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species calling from inside and/or outside 100-metre station area.



-no observations

Background noise: 1/4
- cars, slight wind

Amphibian Data Form

Return by 31 July to Aquatic Surveys Officer, Bird Studies Canada, P.O. Box 160, Port Rowan, Ontario, Canada, N0E 1M0

Please write legibly (in pen).

Observer: B. Radford		
Route name: LS2		
Date (dd-mm-yr): 14-05-2020	Visit No.: 3	Start time (24 hr clock): 1901
Beaufort Wind Scale No.: 2	Cloud Cover (10ths): 5/10	Air Temp (°C or °F): 9°C
Precipitation (check one): None/dry: X Damp/Haze/Fog: ____ Drizzle: ____ Rain: ____		
Has the habitat on your route changed from previous years: Yes: ____ No: ____ Not applicable: X		
Remarks:		

-rained earlier in the day

CALL LEVEL CODES
Code 1: Calls not simultaneous, number of individuals can be accurately **counted**
Code 2: Some calls simultaneous, number of individuals can be reliably **estimated**
Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

Date Apr 1 27 1 2020

Main Channel (upstream

Boundary - E of culvert

Type - main channel wetland

Flow - surface flow minimal.

wetland width -> 2 m

depth -> 30mm

bankfull width -> Approx - 10 m

Feature width -> Approx - 20 m

BF Depth -> 50mm

Entrenchment width -> 10 m

Feature Vegetation

6 (Wetland) -> Dominated by Red Osier Dogwood

-> Canopy -> Elm, Black Ash, Poplar SP.

-> ground cover -> cattail, moss sp, marsh marigold

Erosion -> none observed

Sediment -> not much.

Substrates -> Muck / Detritus silt - 80%

Boulders Cobble - 20%

Flow -> unable to do float test because of water depth + obstructions.

-> estimate 0.1 m/s

Hydraulic Head -> measurement taken 3m upstream of culvert.

0 or Not Applicable

Headwater Drainage Features - Up- and Down- Stream

Stream Code	Site Code	Zone	Easting	Northing	Date (YYYY)	(MM)	(DD)
	01	17	0718168	4908863	2020	28	04

Stream Name: Unnamed

Discharge Approximates Baseflow? ○ Baseflow ✓ Freshnet ○ Spate

Access Route: Bruce Line Approx 150m north of Hwy 7.

Site Description: Culvert conveying main flow → Roadside ditch Conf. Field Crew walked 500 m north + could not find additional contributions to the drainage feature.

Optional Features

Water Temp (C)	Air Temp (C)	pH	Conductivity (Ns)	Turbidity (NTV)	Dissolved O_2 (ppm)
8.4	9.0	8.48	0.56 mS	0.26 PPT	—

Number of upstream features: 2

Upstream Roughness	Photo #	Photo Name
	1	
	2	

Upstream Feature(s)

Feature Number	Distance (m)	Bearing	Type	Flow	Sediment Transport Adjacent	Sediment Transport Valley	Sediment Deposition	Width MT	Feature Width (m)	Bankful Width (m)	BF Depth (mm)	Entrenchment Width (m)	Feat Veg	Riparian Vegetation 0-1.5 m Left	0-1.5 m Right	1.5-10 m Left	1.5-10 m Right	10-30 m Left	10-30 m Right
- Primary Feature																			
1	1m	N	8	1	1	–	2	2	3m	3m	150	3.1m	7	7	7	1	6	2	1
2	1m	S	8	1	1	–	2	2	4m	2.3	50	3.2	7	2	7	1	6	2	1
3																			
4																			

Upstream Flow Measure(s)

Feature Number	Wetted Width (m)	Depth (mm) 1	2	3	Hydraulic Head (mm) 1	2	3	Volume (lt) 1	2	3	Distance (m) 1	2	3	1
		Record EITHER Hydraulic Head OR Volume OR Distance												
1	N/A	–	–	–	–	–	–	–	–	–	–	–	–	
2	N/A	–	–	–	–	–	–	–	–	–	–	–	–	

If more than 1 downstream feature, complete a second Headwater Drainage form

Photo #	Photo Name	Photo #	Photo Name
3		4	

Downstream Feature

Type	Flow	Sediment Transport: Adjacent	Sediment Transport: Valley	Sediment Deposition	Width MT	Approx Site Length (m)	Feature Width (m)	Bankful Width (m)	BFDepth (mm)	Entrenchment Width (m)	Perched Ht (mm)	Jumping Ht (mm)	Feature Roughness	Feat Veg
6	4	7		2	2		1	1.1	300	1.2	—	—		7

Downstream Flow Measure Taken 1m downstream

Record EITHER Hydraulic Head OR Volume OR Distance

Wetted Width (m)	Depth (mm) 1	Depth (mm) 2	Depth (mm) 3	Hydraulic Head (mm) 1	Hydraulic Head (mm) 2	Hydraulic Head (mm) 3	Volume (lt) 1	Volume (lt) 2	Volume (lt) 3	Distance (m) 1	Distance (m) 2
70mm	40	30	30	0	0	0					

Upstream and Downstream Site Features

	Category Value	Comments
Major Nutrient Sources Upstream	1.	Agriculture
Potential Contaminant Sources Upstream	1	Agriculture
Channel Hardening	~~5~~ 4	No evidence
Dredging or Straightening	4	No Evidence
Barriers and/or Dams in proximity	2	Low Flow minimal depth
On-line ponds upstream	4	No evidence
Springs or Seeps at the Site	4	No evidence
Evidence of channel scouring/erosion	1	some channel erosion (minimal)
BMPs or restoration activities	4	

CHANNEL

☑ Surface

Connected: A su...

Unconnected: A ...

Site Feature

1. Ongoing and
2. Historical evi
3. No evidence
4. No evidence
5. Unknown

Downstream Comments

Minimal Flow

Crew: Tyler Jones Dan Radford

Township of Otonabee-South Monaghan Official Plan Schedule "A" Land Use Plan

MAP No. 1

Scale 1:25,000

XI X IX VIII VII

32 31 30 29 28 27 26 25 24 23

DIVISION RD
OLD NORWOOD RD
SWEENY LINE
TELEVISION RD.
BURNHAM LINE
DRUMMOND LINE
PROVIDENCE LINE
C.P.R.
WOODVIEW DR
LANCASTER RD
LEANNE AVE.
FOREST RD.
O'BRIEN RD.
LANG-HASTINGS TRAIL
DILLON RD.
HENDERSON LINE

Refer to Section 5.2.13
Refer to Section 5.2.14
Refer to Section 5.9.14
Refer to Section 5.2.15
Refer to Section 5.9.13
Refer to Section 5.5.11
Refer to Section 5.5.12
Refer to Section 5.6.10

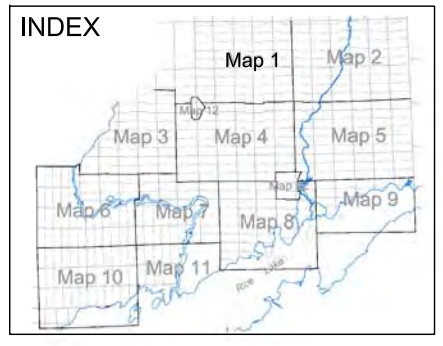
35 28 7

See Map 12

LEGEND

- Hamlet
- Existing Residential
- Shoreline
- Commercial
- Employment Areas
- Aggregate Resource
- Agricultural
- Rural
- Recreation/Conservation
- Environmental Protection
- Environmental Protection/ Provincially Significant Wetland
- First Nations
- Waste Disposal: C- Closed Landfill Site; A- Active Landfill Site
- Waste Disposal (Landfill) Area of Influence
- Urban Fringe Area (Refer to Section 5.1.2)
- Provincial Highway
- County Road
- Municipal Roads Assumed
- Municipal Roads Unassumed
- Private Road
- Other Roads

INDEX



EcoVue Consulting Services Inc.
311 George St. N., Suite 200
Peterborough Ontario K9J 3H3
Tel: 705-876-8340 Fax: 705-742-8343
www.ecovueconsulting.com

Plot Date: July 7 2015

Appendix F

Wetland Evaluation Data Scoring Record

WETLAND EVALUATION DATA AND SCORING RECORD

i) Wetland Name: Burnham Line Complex

ii) MNR Administrative Region: Southern Region
MNR District: Peterborough
MNR Area Office: Peterborough

iii) Conservation Authority Jurisdiction: Otonabee Region

iv) County of Regional Municipality: City of Peterborough

v) Township/Geographic Twp and/or Local Municipality: Otonabee

vi) Lots and Concessions: Otonabee Township: Lot 27 Con 10 and Con 11

vii) Ecodistrict/Ecoregion: 6E

viii) Map and Air Photo References: See Appendix B

a) Latitude: 44.303 Longitude: -78.263

b) UTM grid reference:
Zone: 17 Block: T E: 718315 N: 4909165

c) National Topographic Series:
Map name(s): Petersborough
Map number(s): 31-D-08
Edition:
Scale: 1:50,000

d) Aerial photographs:
Date(s) photo taken: Scale:
Flight & plate numbers:

e) Ontario Base Map numbers & scale:

ix) Wetland Size

(circle appropriate category, a or b)

a) Single contiguous wetland area

Total wetland size = 3.65 hectares

b) Wetland complexed comprised of 3 individual wetlands:

Wetland Unit No. 1 = 1.4 hectares
Wetland Unit No. 2 = 1.9 hectares
Wetland Unit No. 3 = 0.35 hectares
Wetland Unit No. 4 = _____ hectares
Wetland Unit No. 5 = _____ hectares
Wetland Unit No. 6 = _____ hectares
Wetland Unit No. 7 = _____ hectares
Wetland Unit No. 8 = _____ hectares
Wetland Unit No. 9 = _____ hectares
Wetland Unit No.10 = _____ hectares

(Attach additional sheet if necessary)

Total wetland size = 3.65 hectares *(add together size of each unit)*

Documentation requirements for evaluated wetland complexes (attach additional sheet if necessary):

- a statement of rationale for identifying a wetland complex;
- a statement of rationale for identifying any wetland complex less than 2 ha in total size;
- a statement of rationale for any vegetation community less than 0.5 ha in size;
- adherence to the wetland complexing rules (750 m; "watershed rule"; lacustrine wetlands); and
- written documentation of the reasons for including wetland units smaller than 2 ha.

The Wetland Complex consists of three (3) hydrologically connected wetland units separated by a

Vegetation Form	FA
h	0.52
c	
dh	
dc	
ts	0.38
ls	
ds	
gc	
m	
ne	
be	
re	0.10
ff	
f	
su	
u	

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

1.1.1 Growing Degree-Days/Soils *(max: 30 pts)*

Refer to page 43 of manual for further explanation.

1. Determine the correct GDD value for your wetland (use Figure 5).
2. Circle the appropriate GDD value from the evaluation table below.
3. Determine the Fractional Area (FA) of the wetland for each soil type.
4. Multiply the fractional area of each soil type by the applicable score-factor in the evaluation table.
5. Sum the scores for each soil type to obtain the final score (maximum score is 30 points).

NOTE: *In wetland complexes the evaluator should aim at determining the fractional area occupied by the categories for the complex as a whole.*

Growing Degree-Days	Clay-Loam	Silt-Marl	Lime-stone	Sand	Humic-Mesic	Fibric	Granite
<2800	15	13	11	9	8	7	5
2800-3200	18	15	13	11	9	8	7
3200-3600 ✓	22	18	15	13	11	9	7
3600-4000	26	21	18	15	13	10	8
>4000	30	25	20	18	15	12	8

Soil Type	FA of wetland in soil type		Enter appropriate score-factor from above table		
Clay/Loam	0.38	x	22	=	8.36
Silt/Marl:		x	18	=	
Limestone:		x	15	=	
Sand:		x	13	=	
Humic/Mesic:	0.62	x	11	=	6.82
Fibric:		x	9	=	
Granite:		x	7	=	
Total					15.18

GDD/Soils Score *(maximum 30 points)* 15

1.1.2 Wetland Type

(Fractional Areas = area of wetland type/total wetland area)

	Fractional Area		Score
Bog		x 3 =	
Fen		x 6 =	
Swamp	0.90	x 8 =	7.2
Marsh	0.10	x 15 =	1.5
Total	1	=	8.7

Wetland Type Score *(maximum 15 points)* 9

1.1.3 Site Type

(Fractional Area = area of site type/total wetland area)

	Fractional Area		Score
Isolated		x 1 =	
Palustrine (permanent or intermittent flow)	1.0	x 2 =	2.0
Riverine		x 4 =	
Riverine (at rivermouth)		x 5 =	
Lacustrine (at rivermouth)		x 5 =	
Lacustrine (with barrier beach)		x 3 =	
Lacustrine (exposed to lake)		x 2 =	
Total		=	

Site Type Score *(maximum 5 points)* 2