Dickson Drive Extension & Multi-use Pathway

Township of Centre Wellington

Environmental Assessment – Environmental Impact Study

Prepared for:

Township of Centre Wellington

Prepared by:

Shannon Davison

Ecologist

Aboud & Associates Inc.

Reviewed by:

Cheryl-Anne Ross

Lead Ecologist

Aboud & Associates Inc.

Project Number:

AA21-085A

Date:

February 8, 2022

ABOUD & ASSOCIATES INC.

Consulting Arborists • Ecologists • Landscape Architects

190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudtng.com

Table of Contents

1.0 INTRODUCTION 1

1.1 Study Area 1
1.2 Existing Land Use 1
1.3 Existing Regulations 1
1.3.1 Provincial Policy Statement 1
1.3.2 Endangered Species Act, 2007 3
1.3.3 Fisheries Act, 1985 4
1.3.4 Growth Plan for the Greater Golden Horseshoe (2019) 4
1.3.5 Grand River Conservation Authority 5
1.3.6 Wellington County Official Plan (2021 Consolidation) 5
1.3.7 Township of Centre Wellington Official Plan (2013 Consolidation) 6
1.3.8 Township of Centre Wellington Zoning By-law 2009-045 (2018 Consolidation) 6
1.4 Terms of Reference 6

2.0 METHODS 8

2.1 Background Review 8
2.2 Wetland Boundary Delineation 8
2.2.1 Buffer Recommendations and Setbacks 9
2.3 Vegetation 9
2.3.1 Ecological Land Classification 9
2.3.2 Botanical Inventory 9
2.3.3 Tree Inventory 10
2.4 Wildlife 10
2.4.1 Amphibians (Anurans) 10
2.4.2 Breeding Birds 11
2.4.2.1 Grassland Breeding Bird Surveys 11
2.4.3 Incidental Wildlife Observations 11
2.5 Significant Wildlife Habitat 12
2.6 SAR Habitat Assessment 12

3.0 EXISTING CONDITIONS 13

3.1 Background Review 13
3.1.1 Natural Heritage Information Centre - Species at Risk 13
3.1.2 Ministry of Natural Resources and Forestry 13
3.1.3 Ministry of Environment, Conservation and Parks 14
3.1.4 Ontario Breeding Bird Atlas 14
3.1.5 Ontario Reptile and Amphibian Atlas 14
3.1.6 Atlas of the Mammals of Ontario 14
3.1.7 Ontario Butterfly Atlas 15
3.1.8 eBird 15
3.1.9 iNaturalist 15
3.2 Wetland Boundary Delineation 15
3.2.1 Boundary Survey 15
3.2.2 Wetland Characteristics 15
3.3 Vegetation 16
3.3.1 Ecological Land Classification & Botanical Inventory 16
3.3.1.1 Species at Risk, Regional and Local Significance 18
3.3.2 Tree Inventory 19
3.4 Wildlife 19

3.4.1 Amphibians (Anurans) 19
3.4.1.1 Amphibian Habitat A 20
3.4.1.2 Amphibian Habitat B 20
3.4.1.3 Amphibian Habitat C 20
3.4.1.4 SAR, Regional and Local Significance 20
3.4.2 Breeding Birds 21
3.4.2.1 Breeding Bird Species at Risk 24
3.4.2.2 Breeding Bird Regional and Local Significance 25
3.4.2.3 Breeding Bird Regional Priority Species 25
3.4.3 Grassland Breeding Bird Survey (Transects) 26
3.4.3.1 Species at Risk, Regional and Local Significance 27
3.4.4 Incidental Wildlife Observations 27
3.5 Significant Wildlife Habitat 30
3.5.1 Deer Winter Congregation Areas & Movement Corridors 30
3.5.2 Seeps and Springs 30
3.5.3 Special Concern & Rare Wildlife Species 31
3.5.4 Bat Maternity Colonies 31
3.6 SAR Habitat Assessment 33
3.6.1 Wetland Communities 33
3.6.2 Meadow and Agricultural Communities 33
3.6.2.1 Monarch 33
3.6.2.2 Bobolink and Eastern Meadowlark 34
3.6.3 Fencerow and Edge Habitat 34
3.7 Geology and Soils 35

4.0 IMPACT ANALYSIS, MITIGATION AND RESTORATION 36

4.1 Analysis and Comparison of Road Extension and Multi-use Pathway 36
4.1.1 Option 1 36
4.1.2 Option 2 36
4.1.3 Option 3 36
4.1.4 Option 4 37
4.1.5 Option 5 37
4.2 Generalized Impact Assessment and Mitigation 40
4.3 Buffers 50
4.3.1 Wetlands 50
4.3.2 Development Limit 50
4.4 Hydrological Function of the Wetland 51
4.5 Clean Equipment Protocol for Industry 51

5.0 LEGISLATION AND POLICY COMPLIANCE 52

5.1 Provincial Policy Statement 52
5.2 Endangered Species Act (2007) 52
5.3 GRCA Wetland Policies 53
5.4 Wellington County Official Plan (2021 Update) 54
5.5 Township of Centre Wellington Official Plan (2013 Consolidation) 55

6.0 SUMMARY AND CONCLUSION 56

6.1 Biological Studies and Site Constraints 56
6.2 Impact Assessment 57
6.3 Legislation and Policy Compliance 57

7.0 AVOIDANCE, MITIGATION AND COMPENSATION RECOMMENDATIONS 58

8.0 REFERENCES 61

List of Tables

Table 1. NHIC Species at Risk Records 13
Table 2. Ecological Land Classification 16
Table 3. Summary of Tree Impacts 19
Table 4. Amphibian Survey Results 20
Table 5. Point Count Surveys- Highest Breeding Evidence (HBE) 22
Table 6. Area Search Transects- Highest Breeding Evidence (HBE) 24
Table 7. Grassland Breeding Bird Survey Results 26
Table 8. Incidental Wildlife Observations 28
Table 9. Candidate Bat Maternity Habitat 32
Table 10. Comparison & Rating of Natural Feature Impacts by EA Alternative 38
Table 11. Impact Assessment, Mitigation and Recommendations 40

List of Figures

Figure 1a Proposed Site Plan- Option 1
Figure 1b Proposed Site Plan- Option 2
Figure 1c Proposed Site Plan- Option 3
Figure 1d Proposed Site Plan- Option 4
Figure 2 Existing Conditions
Figure 3 Survey Locations & Significant Wildlife Observations
Figure 4 Significant Wildlife Habitat

List of Appendices

Appendix 1 Terms of Reference and Agency Communication
Appendix 2 Background Wildlife List
Appendix 3 Ecologist Land Classification Forms
Appendix 4 Vascular Plant List
Appendix 5 Significant Wildlife Habitat Assessment
Appendix 6 Species at Risk Habitat Assessment
Appendix 7 Anuran Survey Results and Call Codes
Appendix 8 Breeding Bird Results and Evidence Codes

Appendix 9 Grassland Breeding Bird Survey Results
Appendix 10 Site Investigation Details
Appendix 11 MNRF & MECP Requests for Information
Appendix 12 Glossary of Terms and & Impacts
Appendix 13 Tree Preservation Plan

1.0 Introduction

Aboud & Associates Incorporated (AA) was retained by Triton Engineering Services Limited (Triton) on behalf of the Township of Centre Wellington to complete a Scoped Environmental Impact Study for a Schedule B Municipal Class Environmental Assessment (EA). The EA is being completed to extend the existing Dickson Drive to 1st line, with an option to connect the Fergus Dog Park to the Elora-Cataract Trail through the installation of a multi-use pathway, with due consideration for the natural environment, transportation, socio-economic impacts, constructability, and cost. The Scoped Environmental Impact Study focuses on characterizing the existing natural features within the study area, mapping significant natural features and identifying potential constraints.

1.1 Study Area

The study area is 51.79 ha and located in the Township of Centre Wellington-Wellington County (*Figure 2*). It consists of the area west of 1 Line and east of the current termination of Dickson Drive. The study area is entirely within the jurisdiction of the Grand River Conservation Authority (GRCA) and is partially within the GRCA Regulation Limit. Natural features within the study area include wetlands, meadows, forests and a watercourse.

1.2 Existing Land Use

The majority of the study area is agriculture, but also includes a portion of the Provincially Significant Irvine Creek Wetland Complex, Significant Woodlands, and a reach of an unnamed watercourse (*Figures 1a-1d*).

Within or adjacent the study area are several private residential properties comprised of dwellings, driveways and associated landscaping and yard maintenance. Residential areas were not included in the Ecological Land Classification (ELC) surveys and flora species within residential gardens and yards are not included in flora species lists.

1.3 Existing Regulations

1.3.1 Provincial Policy Statement

The *Provincial Policy Statement* ([PPS] OMMHA 2020) provides policy direction on matters of provincial interest related to land use planning and development.

The PPS states that:

"Natural features and areas shall be protected for the long term."

And that:
"The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features."

"Development and site alteration shall not be permitted in:
a) Significant wetlands in Ecoregions 5E, 6E and 7E; and
b) Significant coastal wetlands.

Development and site alteration shall not be permitted in:
a) Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
b) Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
c) Significant valley lands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
d) Significant wildlife habitat;
e) Significant areas of natural and scientific interest; and
f) Coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b)"

The PPS (2020) also states that:

- *"Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements."*
- *"Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements."*
- *"Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions."*
- *"Development and site alteration shall be restructured in or near sensitive surface water features and sensitive groundwater features such that these features and their related hydrologic functions will be protected, improved or restored. Mitigative measures and/or alternative development approached may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions."*

Under Section 1.6.8.6, these significant resources shall be given consideration in the planning of significant transportation infrastructure.

The proposed road extension and multi-use pathway are considered infrastructure and therefore, are not prohibited on lands containing significant resources. However, natural features must be documented and considered when evaluating potential impacts of the proposed works.

1.3.2 Endangered Species Act, 2007

The provincial Endangered Species Act, 2007 (ESA) provides protection to species designated as Threatened or Endangered on the Species at Risk in Ontario list (MNRF 2015a). The habitat of species at risk is also generally protected under the ESA. Protected habitat is habitat identified as essential for life processes including breeding, rearing, feeding, hibernation, and migration.

The ESA (Subsection 9(1)) states that:

"No person shall,

- *(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;*
- *(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,*
  - *(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,*
  - *(ii) any part of a living or dead member of a species referred to in subclause (i),*
  - *(iii) anything derived from a living or dead member of a species referred to in subclause (i); or*
- *(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).*

Clause 10(1)(a) of the ESA also states that:

"No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species."

An authorization or permit between the proponent and the Minister of Natural Resources and Forestry is required to authorize activities that would otherwise be prohibited by subsection 9(1) and 10(1) of the ESA.

1.3.3 Fisheries Act, 1985

The study area contains fish bearing waters in the form of an unnamed watercourse. This area and the fish within are protected under the Federal Fisheries Act, 1985. The Fisheries Act provides protection for the sustainability and ongoing productivity of Canada's recreational, commercial and Aboriginal fisheries.

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

The Fisheries Act requires that projects and activities avoid causing serious harm to fish and fish habitat unless authorized to do so by the Department of Fisheries and Oceans Canada (DFO). This applies to work conducted in or near waterbodies that support fish and fish habitat. Within the context of the Dickson Drive Municipal EA, any proposed actions that could impact fish or fish habitat would need to be assessed for compliance with the Fisheries Act. If it is determined that proposed actions will cause serious harm to fish that cannot be mitigated, then a Fisheries Act Authorization would be required.

1.3.4 Growth Plan for the Greater Golden Horseshoe (2019)

The Growth Plan for the Greater Golden Horseshoe (GPGGH) (2019) builds upon the policy foundation provided by the PPS and provides additional and more specific land use planning policies to address issues facing specific geographic areas in Ontario. The GPGGH states:

"Municipalities will incorporate the Natural Heritage System for the Growth Plan as an overlay in official plans, and will apply appropriate policies to maintain, restore, or enhance the diversity and connectivity of the system…"

Section 3.2.5 states:
"In planning for the development, optimization, or expansion of existing and planned corridors and supporting facilities, the Province, other public agencies and upper- and single-tier municipalities will:

> *…d) where applicable, demonstrate through an environmental assessment, that any impacts on key natural heritage features in the Natural Heritage System for the Growth Plan, key hydrologic features and key hydrologic areas have been avoided or, if avoidance is not possible, minimized and to the extent feasible mitigated."*

1.3.5 Grand River Conservation Authority

The study area contains portions of the Irvine Creek PSW and is within the allowances of this feature. Section 8.4 of the GRCA's *Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 150/06, 2015) identifies the area of interference of a PSW as being 120 metres. Section 8.4.9 states:

"Development within an area of interference less than or equal to 30 metres (100 feet) from a wetland may be permitted in accordance with the policies in Section 7.1.2-7.1.3-General Policies, and where an Environmental Impact Study demonstrates that:

a) there are no negative or adverse hydrological or ecological impacts on the wetland,
b) all development is located outside of the wetland and maintains as much setback as feasible,
c) development is located above the water table, except as specified in Section 8.4.11, and
d) septic systems are located a minimum of 15 metres (50 feet) from the wetland and 0.9 metres (3 feet) above the annual maximum water table."

1.3.6 Wellington County Official Plan (2021 Consolidation)

The Wellington County Official Plan (2021 consolidation) indicates that a portion of the subject lands are within the Natural Heritage System and contain Core Greenlands, which are identified as Provincially Significant Wetlands.

Section 5.6.1 states:

"Within the Core Greenlands designation, development and site alteration shall not be permitted within Provincially Significant Wetlands or in significant habitat of threatened or endangered species, except in accordance with provincial and federal requirements.

Where development is proposed in the Greenlands system or on adjacent lands, the County or local municipality shall require the developer to:

a) Identify the nature of the features potentially impacted by the development;
b) Prepare, where required, an environmental impact assessment to ensure that the requirements of this Plan will be met and consider enhancement of the natural area where appropriate and reasonable.
c) Address any other relevant requirements set out in Section 4.6.3 Environmental Impact Assessment."

1.3.7 Township of Centre Wellington Official Plan (2013 Consolidation)

The Township of Centre Wellington Official Plan mapping indicates the presence of Core Greenlands within the Study Area. Section D8.2 states:

"Upon lands designated Core Greenlands, no development or site alteration is permitted within Provincially Significant Wetlands, in provincially significant portions of the habitat of threatened or endangered species, or in the floodway. Uses shall be limited to conservation and resource management, open space and passive recreation…"

Section D8.4 states:

"The Core Greenlands designations on the schedules to this Plan are based on mapping provided by the County in consultation with the Grand River Conservation Authority. The limits of the Core Greenlands designated may need to be refined by more detailed mapping on individual sites, such as when an Environmental Impact Study is prepared regarding a proposed development within or abutting such lands. Where more detailed mapping is available, minor adjustments may be made within an amendment to this Plan and the land use policies of the adjacent designation will apply as determined by Council".

1.3.8 Township of Centre Wellington Zoning By-law 2009-045 (2018 Consolidation)

The Township of Centre Wellington Zoning By-law 2009-045 indicates that the lands are zoned as Industrial and Environmental Protection. Section 4.12.1 states:

"No buildings, structure, or private sewage treatment system shall be constructed closer than 30.0m (98.4 ft) from the limit of an EP Zone without the prior written approval of the Grand River Conservation Authority".

1.4 Terms of Reference

Based upon the above Acts, Policies and Regulations, Terms of Reference (ToR) for the Scoped EIS were developed and submitted to GRCA Resource Planner, Laura Warner, on May 4, 2021 and included submission to Meagan Ferris at the County of Wellington and Mariana Iglesias at the Township of Centre Wellington. The GRCA provided comments through email correspondence on May 20, 2021. The comments indicated that the ToR for the proposed scoped EIS were acceptable, however, a trail immediately adjacent to the PSW cannot be supported at this time. The GRCA recommended that the trail avoid the 30m buffer zone adjacent to the PSW and/or that the trail be shifted away from the wetland to the greatest extent possible.

Responses from Wellington County and the Township of Centre Wellington have not yet been received. The ToR and agency correspondence are provided in *Appendix 1*.

2.0 Methods

2.1 Background Review

A background information review was conducted of both biological and physical features within the vicinity of the study area. The following resources were consulted as part of this review:

- Dickson Drive Extension East of Gartshore Street to First Line (Triton Engineering Services Limited, July 2021).
- GRCA mapping (accessed September 8, 2021) of natural heritage features (e.g. regulation limit, GRCA and MNRF wetlands, ANSI's and MNRF woodlands),
- Grand River Information Network (GRCA, 2021),
- Wellington County Draft Natural Heritage System Mapping,
- Ontario Nature. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. 2019,
- Ontario Mammal Atlas (Dobbyn, 1994),
- eBird. Cornell Lab of Ornithology. Accessed May 2021,
- iNaturalist. Accessed May 2021,
- Ontario Butterfly Atlas Online. Toronto Entomologists' Association, 2011. Accessed May, 2021,
- Natural Heritage Information Centre (NHIC) database, 2021,
- Wellington County Official Plan, May 6, 1999 (2021 revision),
- Township of Wellington Zoning By-law 2009-045 (2018 consolidation),
- Wellington County Significant Species List (Dougan & Associates, 2009).

2.2 Wetland Boundary Delineation

The study area contains a portion of the Irvine Creek PSW near the northern limit of the study area as well as a smaller unevaluated GRCA wetland in the south-west corner of the study area. Shannon Davison, Certified Ontario Wetland Evaluator, AA, performed an initial staking of the boundaries of the two wetland communities on August 26, 2021, with verification by the GRCA completed the same day. Boundaries were determined using the vegetation species present and soil probes to depths of up to 60 cm for water and hydric soil detection, as per the *Ontario Wetland Evaluation System* (OWES, 2013). The wetland boundary was established where vegetation was comprised of 50% wetland and 50% upland species, and where soils displayed hydric conditions (e.g., presence of mottles and/or gleys), per the *Ontario Wetland Evaluation System* (OWES, 2013). Due to property access restrictions, it was not possible to confirm the accuracy of

the entire wetland boundary on adjacent lands outside of the study area. Detailed survey dates and weather information are provided in *Appendix 10*.

2.2.1 Buffer Recommendations and Setbacks

Recommended buffers and setbacks for wetland boundaries were determined through a variety of resources, including the GRCA's Wetland Policy Appendix – Interim Wetland Buffer Policy (2003); The City of London- Guidelines for Determining Setbacks and Ecological Buffers (2004); and the Ecological Buffer Guideline Review (Beacon, 2012).

2.3 Vegetation

2.3.1 Ecological Land Classification

Ecological Land Classification (ELC) field investigations were completed on May 18 & September 1, 2021. Detailed survey dates and weather information are provided in *Appendix 10*. Surveys were completed by qualified ecologists, Shannon Davison, OMNRF Certified in Ecological Land Classification and Kelly Skaug. Vegetation communities within the study area were characterized and delineated through field investigation, following the Ecological Land Classification (ELC) system for Southern Ontario 1st approximation; community codes used generally follow the 2nd approximation (Lee, et al., 1998, 2008). Boundaries of ELC communities were mapped using aerial images and field observations (*Figure 3*). Digitized ELC data sheets are provided in *Appendix 3*.

Identified ELC communities were cross-referenced with the NHIC Ontario Plant Community List (NHIC 2015) to determine the presence of rare plant communities (S1-S3). The Subnational, or Provincial, Ranks (S Rank) are assigned by the Ontario Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) in order to help assign protection priorities.

2.3.2 Botanical Inventory

The study area was inventoried where access was permitted, and from the property limits and roadside, to provide a comprehensive two season botanical inventory. Detailed survey dates and weather information are provided in *Appendix 10*.

Identified vascular plant species were compared to provincial and federal SAR lists (COSSARO, SARA), provincial ranks (NHIC 2021), global ranks, Wellington County Significant Plant List (Dougan & Associates, 2009), and the Distribution and Status of the Vascular Plants of Southwestern Ontario (Oldham, 1993) to assess federal, provincial, regional and local conservation status of each species. English colloquial

names and scientific binomials of plant species generally follow the Database of Vascular Plants of Canada (VASCAN) (VASCAN 2015).

Identification of environmentally sensitive plant species was completed based on the assignment of a coefficient of conservatism value (CC) for each native species (Oldham et al., 1995). The value of CC, ranging from 0 (low) to 10 (high), is based on a species' tolerance of disturbance and fidelity to specific natural habitat parameters. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters. These species may be more sensitive to environmental changes (Mortarello et al., 2010).

A list of all identified plant species is provided in *Appendix 4*. The list provides botanical name, common name, provincial rarity rank (S-Rank), global rarity rank (G-Rank), provincial SAR status, federal SAR status, coefficient of conservatism (CC) and coefficient of wetness (CW). Plant species that could only be identified to genus were not assigned the above information.

2.3.3 Tree Inventory

A total of 137 trees with a diameter at breast height (DBH) of 10cm of greater were inventoried in the study area by Dan Bechard, ISA Certified Arborist. DBH, species, overall condition and estimated crown reserve were collected for each tree. The locations of individual trees were surveyed by Dan Bechard on August 31, 2021.

2.4 Wildlife

2.4.1 Amphibians (Anurans)

Evening point count surveys to detect breeding calls of anurans (frogs and toads) were conducted by Shannon Davison, Ecologist, Kelly Skaug, Ecologist & Cheryl-Anne Ross, Wildlife Ecologist, Aboud & Associates, in accordance with the *Marsh Monitoring Program Participants Handbook for Surveying Amphibians* (Bird Studies Canada 2008). Three surveys were completed, in accordance with the recommended windows for the spring and early summer in order to maximize the chances of detecting all potential species. Surveys coincided with optimum weather conditions for anuran breeding activity and detection of calls, i.e., suitable temperature relative to each survey window, humid or damp but not raining, and low wind. Call Level Codes were applied to each species detected per area of suitable habitat, and numbers of individuals were counted or estimated, where applicable. The surveys took place on April 29, May 18 and June 24, 2021. The point count locations are illustrated on *Figure 3*; Survey results and call level code descriptions are provided in *Appendix 7.* Detailed survey dates and weather information are provided in *Appendix 10*.

2.4.2 Breeding Birds

Breeding Bird surveys were conducted in 2021 by Cheryl-Anne Ross, Wildlife Ecologist (AA), to determine if significant breeding bird habitat occurs within, or adjacent to, the study area. Two surveys were conducted, comprised of 10-minute point counts positioned at pre-determined locations. Surveys followed the Ontario Breeding Bird Atlas: Guide for Participants (Bird Studies Canada, 2001). The highest observed level of breeding evidence was used to assign breeding status (i.e., confirmed, possible, probably or observed) to each species.

Surveys were performed during the peak breeding season for the bulk of species in southern Ontario (last week of May through early July) and were spaced at least 10 days apart in order to determine presumed permanent territories through territorial singing males. The two surveys took place on the mornings of June 1 & June 22, 2021, between 30 minutes before dawn and 5 hours after dawn. The Point Count locations are illustrated on *Figure 3*; Survey results and breeding evidence code descriptions are provided in *Appendix 8*. Detailed survey dates and weather information are provided in *Appendix 10*.

2.4.2.1 Grassland Breeding Bird Surveys

Bobolink (*Dolichonyx oryzivorus*) and Eastern Meadowlark (*Sturnella magna*) are listed as Threatened provincially as a result of widespread population declines throughout Canada due to several factors, including habitat loss and mortality (McCracken et al., 2013). Bobolink, Eastern Meadowlark and their habitat are protected under the Endangered Species Act (2007).

On June 1 & June 22, 2021, a Grassland Breeding Bird study was completed by Cheryl-Anne Ross, Wildlife Ecologist (AA) following the MNRF grassland breeding bird survey protocols. A third survey was not completed per the protocols as the existing hay field was cut, and therefore the habitat was no longer suitable. The surveys completed included point count locations every 250m along transects set 250m apart throughout the candidate habitat. The locations of birds in candidate habitat, breeding evidence and probable nest locations were identified. All other species observed incidentally were also recorded. The Point Count and transect locations are illustrated on *Figure 3*. Detailed survey dates and weather information are provided in *Appendix 10*.

2.4.3 Incidental Wildlife Observations

Incidental observations of insects, mammals, birds, and reptiles were recorded during all visits. Detailed survey dates and weather information are provided in *Appendix 9*.

2.5 Significant Wildlife Habitat

With guidance from the *Significant Wildlife Habitat Technical Guide* (MNRF, 2000) and the SWH EcoRegion Criterion Schedule 6E (MNRF, 2015), the study area was considered for the presence of Significant Wildlife Habitat (e.g., specialized habitats for wildlife, and habitat for species of conservation concern). An assessment of the study area for all SWH is provided in *Appendix 5*.

2.6 SAR Habitat Assessment

A thorough review of all background documents was conducted to compile a master list of all Species at Risk, and species with conservation designation that may occur in the study area. A review of the site, along with habitat requirements for each species was conducted; the site was then evaluated for potential habitat using Ecological Land Classification, guidance from MNRF documents, and on-site knowledge acquired through field surveys. Detailed survey dates and weather information are provided in *Appendix 9*. An assessment of the study area of candidate habitat for SAR is provided in *Appendix 6.*

3.0 Existing Conditions

Information that characterizes the existing conditions of the study area came from several sources, including, but not limited to, background review of existing documents, public information sources, and field reconnaissance.

3.1 Background Review

3.1.1 Natural Heritage Information Centre - Species at Risk

Preliminary investigation through the Natural Heritage Information Centre (NHIC) identified three (3) provincial Species at Risk (SAR) records in the 1km x 1km squares (17NJ4942, 17NJ5141, 17NJ5140, 17NJ4941, 17NJ4940, 17NJ5042, 17NJ5041, 17NJ5040, 17NJ5142) containing the study area. Candidate habitat for Bobolink and Eastern Meadowlark was identified as occurring in the study area. Species and habitat requirements are summarized in *Table 1*.

Table 1. NHIC Species at Risk Records

Scientific Name	Common Name	(COSEWIC) Status[1]	(SARO) Status[2]	Habitat Requirements
Dolichonyx oryzivorus	Bobolink	Threatened	Threatened	Nest in grassland habitats, including hayfields and meadows with a mixture of grasses and broad-leaved forbs with a high litter cover. Area Sensitive, with increased density in grasslands greater than 10ha (Renfrew et. al. 2015)
Sturnella magna	Eastern Meadowlark	Threatened	Threatened	Nest in grassland habitats, including hayfields, pasture, savannahs, and other open areas. Preferential habitat includes areas with good grass and thatch (litter) cover (Jaster et. al. 2012).
Hirundo rustica	Barn Swallow	Threatened	Threatened	Occurs in farmland, along lake/river shorelines, in wooded clearings and in urban populated areas. Nesting may occur inside or outside buildings; under bridges and in road culverts (COSEWIC, 2011)

3.1.2 Ministry of Natural Resources and Forestry

A request for information was sent to the MNRF on May 10, 2021, to inquire whether any information is available pertaining to the natural features within the study area. A response was provided on June 21, 2021 that contained the wetland evaluation for the Irvine Creek PSW and also indicated that the watercourse within the study area is a warm water system with the restricted in-water timing window being from March 15 to June 30. The correspondence in its entirety is provided in *Appendix 11.*

3.1.3 Ministry of Environment, Conservation and Parks

A request for information was sent to the Ministry of Environment, Conservation and Parks (MECP) on May 10, 2021, to inquire whether there were any additional records of Species at Risk noted for the study area. A response was provided on May 26, 2021 and indicated that the MECP had records of Silver Shiner, Chimney Swift, Gypsy Cuckoo Bumble Bee and Redside Dace within or near the study area. The correspondence in its entirety is provided in *Appendix 11*.

3.1.4 Ontario Breeding Bird Atlas

A list of birds determined to be breeding (Possible, Probable or Confirmed) in the 10km x 10km squares containing the study area (17NJ54 & 17NJ44) during the 2001-2005 Ontario Breeding Bird Atlas was compiled. This list includes 120 species; nine are considered Species at Risk under the ESA and SARA, respectively (Northern Bobwhite (*Colinus virginianus*) (END, END), Eastern Wood-pewee (*Contopus virens*) (SC, SC), Bank Swallow (*Riparia riparia*) (THR, THR), Barn Swallow (*Hirundo rustica*) (THR, THR), Wood Thrush (*Hylocichla mustelina*) (SC, SC), Canada Warbler (*Wilsonia canadensis*) (SC, THR), Grasshopper Sparrow (*Ammodramus savannarum*) (SC, SC), Bobolink (*Dolichonyx orizivorus*) (THR, THR) and Eastern Meadowlark (*Sturnella magna*) (THR, THR). Potential breeding habitat was identified in the study area for three of these species (Eastern Wood-pewee (*Contopus virens*), Barn Swallow (*Hirundo rustica*), and Canada Warbler (*Cardellina Canadensis*)). Sixty-nine (69) of the species identified are considered Conservation Priority species by GRCA and sixty-three (63) are considered significant species in Wellington County (Dougan & Associates 2009). The findings of this review are presented in *Appendix 2*.

3.1.5 Ontario Reptile and Amphibian Atlas

Review of the Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019) identified 13 species that are known to occur within the 10km x 10km squares containing the study area. This list includes one species at risk under the ESA; Common Snapping Turtle ((*Chelydra serpentina*) (SC, SC)), with one federally listed Species at Risk. Western Chorus Frog ((*Pseudacris triseriata*) (THR)), and one species listed under COSEWIC, Midland Painted Turtle ((*Chrysemys picta marginata*) (SC)). Two (2) of the species known to occur in the squares containing the study area are considered significant in Wellington County (Dougan & Associates, 2009). The findings of this review are presented in *Appendix 2*.

3.1.6 Atlas of the Mammals of Ontario

Review of the Atlas of the Mammals of Ontario (Dobbyn, 1994) identified 19 species that are known to occur within the 10km x 10km squares containing of the study area.

This list does not include any Species at Risk under the ESA or SARA. The findings of this review are presented in *Appendix 2*.

3.1.7 Ontario Butterfly Atlas

Review of the Ontario Butterfly Atlas online database (Toronto Entomologists' Association, 2019) identified 24 species that are known to occur within the 10km x 10km squares containing the study area. This list includes one Species at Risk under the ESA and SARA, respectively (Monarch (*Danaus plexippus*) (SC, SC)). The findings of this review are presented in *Appendix 2*.

3.1.8 eBird

eBird is on online reporting system for birdwatchers managed by the Cornell Lab of Ornithology. The database was reviewed to see what bird species had been reported in the vicinity of the study area. The closest reporting station is the Fergus Dog Park which is within the western corner of the study area. Fifteen (15) species have been observed at this site, all of which were noted within the Ontario Breeding Bird Atlas observations. It should be noted that eBird observations occur year-round, and may include non-breeding, wintering and migratory individuals. This list includes one Species at Risk listed under the ESA and SARA, respectively (Barn Swallow (*Hirundo rustica*) (THR, THR)). The findings of this review are presented in *Appendix 2*.

3.1.9 iNaturalist

iNaturalist, another self-reporting system that is not limited by taxa, was also consulted. The search was limited to 1km from the study area and only research-grade reports, which are confirmed independently, were used to compile the list. Six research-grade reports were confirmed including three bird species, two vascular plant species and one insect species. One of the species observed is listed as a Species at Risk under the ESA, Bald Eagle ((*Haliaeetus leucocephalus*) (SC)). The findings of this review are presented in *Appendix 2.*

3.2 Wetland Boundary Delineation

3.2.1 Boundary Survey

Following confirmation of the PSW boundary by the GRCA on August 26, 2021, it was surveyed by Triton Engineering Services Limited (*Figure 1*).

3.2.2 Wetland Characteristics

The GRCA's online mapping (Grand River Information Network, 2021) shows part of the Provincially Significant Irvine Creek Wetland Complex, and an unevaluated GRCA wetland within the study area. A total of four wetland communities were identified within

the study area. The portion of the Irvine Creek PSW within the study area is comprised of a White Cedar- Conifer Mineral Swamp, a Conifer-Hardwood Mineral Mixed Swamp and a Mixed Mineral Meadow Marsh. The unevaluated GRCA wetland within the south-western corner of the study area consists of a Bebb's Willow Mineral Deciduous Thicket Swamp.

3.3 Vegetation

3.3.1 Ecological Land Classification & Botanical Inventory

The community polygons identified during the ELC survey are summarized in *Table 2* below. Field forms and a comprehensive vascular plant list for the entire study area are presented in *Appendices 3* and *4*, respectively.

Table 2. Ecological Land Classification

ELC Code	Vegetation Type	Community Description
Coniferous Swamp (SWC)		
SWCM 1-2	White Cedar- Conifer Mineral Swamp	This community occurs within the Irvine Creek PSW and is immediately adjacent existing agriculture. The Canopy and subcanopy are dominated by Eastern White Cedar (*Thuja occidentalis*) with Balsam Fir (*Abies balsamea*) and Yellow Birch (*Betula allegheniensis*) as secondary species. No understorey species are present however, the ground layer contains Common Oak Fern (*Gymnocarpium dryopteris*), Dewberry (*Rubus pubescens*), Sensitive Fern (*Onoclea sensibilis*) and Heart-leaved Foamflower (*Tiarella cordifolia*).
Mixed Swamp (SWM)		
SWMM 5	Conifer- Hardwood Mineral Mixed Swamp	This community occurs within the Irvine Creek PSW and continues north-west of the study area. The canopy contains Yellow Birch, Eastern White Cedar, Balsam Fir and Paper Birch (*Betula papyrifera*), with the subcanopy consisting of Eastern White Cedar and Balsam Fir. The understorey is comprised primarily of Smooth Gooseberry (Ri*bes hirtellum*), with the ground layer including Colt's-foot (*Tussilago farfara*), Horsetail species (*Equisetum sp.*), Sensitive Fern and Common Oak Fern.
Thicket Swamp (SWT)		
SWTM 3-2	Bebb's Willow Mineral Deciduous Thicket Swamp	This community comprises the portion of the unevaluated GRCA wetland present within the south-western corner of the study area. The canopy is comprised of Eastern White Cedar, Yellow Birch, Black Ash (*Fraxinus nigra*) and Sugar Maple, while the subcanopy is dominated by Bebb's Willow (*Salix bebbiana*) with Red-osier Dogwood and Eastern White Cedar as secondary species. The understorey includes Red-osier Dogwood, Common Buckthorn, Alternate-leaved Dogwood and Prickly Gooseberry (*Ribes cynosbati*) with the ground layer including Reed Canary Grass (*Phalaris arundinacea*), Sensitive Fern (*Onoclea sensibilis*), Lesser Clearweed (*Pilea fontana*) and Swamp Aster (*Symphyotrichum puniceum*).
Shallow Marsh (MAS)		
MASM 1-1	Cattail Mineral Shallow Marsh	This community is within the Irvine Creek PSW and is immediately adjacent existing agriculture and a footpath from the Fergus Dog Park. The canopy and subcanopy are present around the edges of the community and contain Trembling Aspen, a Willow species (*Salix sp.*) and Balsam Poplar (*Populus balsamifera*). The understorey is dominated by Narrow-leaved Cattail (*Typha angustifolia*) and is

		accompanied by Red-osier Dogwood. No ground layer is present in this community.
Meadow Marsh (MAM)		
MAMM 3-1	Mixed Mineral Meadow Marsh	This community is within the Irvine Creek PSW and borders two private properties, one being residential, with the other being recently developed with a religious establishment. The canopy and subcanopy layers are sparse and contain Balsam Poplar. The understorey includes Reed Canary Grass, Grass-leaved Goldenrod (*Euthamia graminifolia*), Common Boneset (*Eupatorium perfoliatum*) and Spotted Joe-pye-weed (*Eutrochium maculatum*), with the ground layer consisting of Colt's-foot, Common Timothy (*Phleum pratense*), Common Teasel (*Dipsacus fullonum*) and Devil's Beggarticks (*Bidens frondosa*).
Deciduous Forest (FOD)		
FODM 4	Dry- Fresh Upland Deciduous Forest	Two polygons classified as Dry- Fresh Upland Deciduous Forest occur within the Study Area. The first polygon (Polygon 3) is located between the eastern portion of the Fergus Dog Park and the Irvine Creek PSW. The canopy is comprised of Trembling Aspen (*Populus tremuloides*), Sugar Maple (*Acer saccharum*), Paper Birch and Balsam Fir, while the subcanopy includes Black Cherry (*Prunus serotina*), Red Maple (*Acer rubrum*), White Ash (*Fraxinus americana*) and Yellow Birch. The understorey consists of Red Raspberry (*Rubus idaeus*), Black Raspberry (*Rubus occidentalis*) and Alleghany Blackberry (*Rubus allegheniensis*), with the ground layer consisting of Wild Strawberry (*Fragaria virginiana*), Wild Lily-of-the-valley (*Maianthemum canadense*), Canada Goldenrod (*Solidago canadensis*) and Field Horsetail (*Equisetum arvense*). The second polygon (Polygon 8) is located between the Elora-Cataract Trail and existing agriculture. The canopy includes Trembling Aspen, Black Cherry, Sugar Maple and Silver Maple (*Acer saccharinum*) with the subcanopy containing White Ash, Alternate-leaved Dogwood (*Cornus alternifolia*), Common Buckthorn (*Rhamnus cathartica*) and Common Apple (*Malus pumila*). The understorey consists of Common Buckthorn, Riverbank Grape (*Vitis riparia*), Red Raspberry and Prickly Gooseberry (*Ribes cynosbati*), while the ground layer is comprised of Yellow Trout-lily (*Erythronium americanum*), Ostrich Fern (*Matteuccia struthiopteris*), Wild Strawberry and Violet species (*Viola sp.*)
Mixed Forest (FOM)		
FOMM 4-2	Dry- Fresh White Cedar-Poplar Mixed Forest	This community occurs in the south-west corner of the study area, immediately adjacent the unevaluated GRCA wetland. The canopy and subcanopy contain Eastern White Cedar and Trembling Aspen, with Yellow Birch, Sugar Maple and Basswood (*Tilia americana*) as secondary species. The understorey includes Common Buckthorn and Alternate-leaved Dogwood, with the ground layer consisting of Yellow Trout-lily, Wild Strawberry, Wild Lily-of-the-valley and Rough Avens (*Geum lacinatum*).
Deciduous Woodland (WOD)		
WODM 4	Dry- Fresh Deciduous Woodland	This community surrounds the majority of the Elora-Cataract Trail within the study area. The canopy and subcanopy consists of White Ash and Red Maple with White Spruce (*Picea glauca*), Black Cherry, Common Apple and American Elm (*Ulmus americana*) as secondary species. The understorey includes Red Raspberry, Riverbank Grape, Prickly Gooseberry and Tartarian Honeysuckle (*Lonicera tatarica*), while the ground layer is comprised of Garlic Mustard (*Alliaria petiolata*), Goldenrod species (*Solidago sp.*), Yellow Trout-lily and Smooth Bedstraw (*Galium mollugo*).

Forb Meadow (MEF)		
MEFM 1-1	Goldenrod Forb Meadow	Two polygons classified as Goldenrod Forb Meadow are present in the study area. One is located between the Irvine Creek PSW and existing agriculture, with the other adjacent the unevaluated GRCA wetland and light industrial development. The canopy is sparse but consists of Eastern White Pine (*Pinus strobus*). The understorey includes Red-osier Dogwood, Common Buckthorn, Staghorn Sumac (*Rhus typhina*) and Manitoba Maple, with the ground layer being comprised of Canada Goldenrod, Tall Goldenrod (*Solidago altissima*), Wild Strawberry and Wild Carrot (*Daucus carota*).
Treed Agriculture (TAG)		
TAGM 5	Fencerow	This community located between the Fergus Dog Park and the Light Industrial development along the south-western edge of the study area. It is evident that the majority of the species have been planted, with some additional herbaceous and shrub species establishing in the understorey and ground layers. The canopy consists of Black Cherry and Sugar Maple, with the subcanopy including Manitoba Maple (*Acer negundo*), White Ash, European Mountain-ash (*Sorbus aucuparia*) and Common Apple. The understorey includes Red-osier Dogwood (*Cornus sericea*), Riverbank Grape, Common Buckthorn and Red Raspberry with the ground layer being comprised of Wild Strawberry, Meadow Brome (*Bromus erectus*), Canada Thistle (*Cirsium arvense*) and Virginia Creeper (*Parthenocissus quinquefolia*).
Green Lands (CGL)		
CGL 4	Recreational	Two small polygons containing a portion of the Fergus Dog Park have been classified as Recreational communities.
Open Agriculture (OAG)		
OAGM 1	Annual Row Crops	A large portion of the study area consist of existing annual row crop agricultural communities. During field investigations these communities consisted of Cultivated Oats (*Avena sativa*) and Alfalfa (*Medicago sativa*).
Residential (CVR)		
CVR 4	Single Family Residential	Several private properties containing single-family residential dwellings are included within the Study Area. All of these properties front onto 1 Line.
Commercial and Institutional (CVC)		
CVC 2	Light Industry	The western edge of the study area contains light industrial and storage developments.

3.3.1.1 Species at Risk, Regional and Local Significance

No vegetation communities listed in *Table 2* are considered rare in the province.

Between the botanical inventories conducted in the spring and summer, 114 vascular plants were identified to species within the study area. Of the species identified, 80 species or 71% were native and 34 species or 29% were exotic. Most of the native species are ranked S5 (Secure in Ontario) or SNA (S-Rank not applicable) with four species, White Ash, Green Ash (*Fraxinus pennsylvanica*), Black Ash and Rough Avens ranking S4 (Apparently secure in Ontario), and one species, Virginia Creeper, ranked S4? indicating uncertainty in its ranking. No S1-S3 species were observed in the study area. Three species, Meadow Horsetail (*Equisetum pratense*), Rough Avens and Smooth Gooseberry, are considered significant in Wellington County (Dougan & Associates, 2009).

As of November 2018, Black Ash has been listed as Threatened by the COSEWIC. It is currently not listed under the ESA or SARA. No vascular plant species listed under the ESA or SARA were found.

3.3.2 Tree Inventory

The tree inventory collected information for 137 trees in the study area. The specific data for each individual tree is provided in *Appendix 13*, including overall condition, score and recommended actions based on condition and development. The locations and identification numbers of trees impacted are detailed in the Tree Protection Plan (*Appendix 13*). A total of 18 species were identified during the tree inventory, of those species Sugar Maple was the most abundant (25%), followed by Black Locust (19%) and Eastern Cottonwood (14%). Associate species include Norway Maple (6%), Manitoba Maple (5%) and Silver Maple (4%), with the remaining 27% comprised of eleven species with 1 to 4 individual trees.

A summary of each Option and the number of trees recommended to be preserved or removed based on the health and condition of trees or the development impact is detailed in *Table 3*. Further inventory may be required at the detailed design stage to ensure a thorough accounting of the trees that may be impacted.

Table 3. Summary of Tree Impacts

	Individual Trees				
Recommendation	Option 1	Option 2	Option 3	Option 4	Option 5
Remove (Development)	3	3	3	3	0
Remove (Development & Condition)	1	1	1	1	0
Total Preserved	130	130	130	130	137
Total Removed	4	4	4	4	0

3.4 Wildlife

3.4.1 Amphibians (Anurans)

The results of the Anuran Point Count Surveys are summarized in *Table 3*, and results are discussed below. The Point Count Locations are illustrated on *Figure 3*, and Call Level Code descriptions, along with the complete survey results, are provided in *Appendix 7*.

Table 4. Amphibian Survey Results

SPECIES	AMPHIBIAN HABITAT		
	A	**B**	**C**
American Bullfrog		1-1	
Spring Peeper	3*	3	
Green Frog		1-3	
Northern Leopard Frog			
Wood Frog		2-3	
American Toad	2-2*	1-1	
Significant Habitat*	***No***	***Yes***	***No***

*- Species identified outside of 100m radius
Significance: Y-Indicates Amphibian Habitat meets the criteria listed under the Ecoregion 6E SWH Criteria guide (2015). N-Indicates Amphibian Habitat did not meet the criteria listed under the Ecoregion 6E SWH Criteria guide (2015).

3.4.1.1 Amphibian Habitat A

Two anuran species were detected calling from Station A; however, they were outside of the 100m radius. This survey location targeted the western edge of the portion of the Irvine Creek PSW within the study area. Based on the Significant Wildlife Habitat Criteria Guide (MNRF, 2015), Amphibian Habitat A does not meet the criteria for Significant Wildlife Habitat- Amphibian Breeding Habitat (Wetland), as all species detected were outside of the 100m station radius.

3.4.1.2 Amphibian Habitat B

Five anuran species were detected calling from within Station B. This site targeted the Cattail Mineral Shallow Marsh and the edge of the White Cedar- Conifer Swamp. Based on the Significant Wildlife Habitat Criteria Guide (MNRF, 2015), Amphibian Habitat B does meet the criteria for Significant Wildlife Habitat- Amphibian Breeding Habitat (Wetland) as 20 or more individuals of the frog species listed were detected through all amphibian surveys.

3.4.1.3 Amphibian Habitat C

No anuran species were detected calling from within Station C. This site targeted the unevaluated GRCA wetland within the south-western corner of the study area. During field investigations it was noted that one of the industrial developments closest to the Station C location was quite noisy, which may have negatively impacted the potential for amphibian breeding. Based on the Significant Wildlife Habitat Criteria Guide (MNRF, 2015), Amphibian Habitat C does not meet the criteria for Significant Wildlife Habitat- Amphibian Breeding Habitat (Wetland) as no species were detected.

3.4.1.4 SAR, Regional and Local Significance

No species observed are considered federal or provincial Species at Risk. The subnational or provincial ranks (S-Rank) are assigned by the MNRF Natural Heritage Information Centre in order to help assign protection priorities. Most of the species

detected are ranked S5 (Secure in Ontario), with one species American Bullfrog (*Lithobates catesbeianus*) ranked S4 (Apparently Secure).

3.4.2 Breeding Birds

The results of the Breeding Bird Survey (BBS) are presented in *Tables 4 & 5*. During BBS visits, a total of 32 species were detected during point counts. During area search transects a total of 21 species were detected, three of which were not identified during point counts (Great Blue Heron (*Ardea herodias*), Ovenbird (*Seiurus aurocapilla*) and White-throated Sparrow (*Zonotrichia albicollis*).

Due to the contiguity with natural lands surrounding the study area, it is important to note that, despite high levels of breeding evidence, a given species may not have been breeding specifically in the area in which it was observed. This is particularly true where species were only detected during one of the Breeding Bird Surveys. These species may have been foraging in these areas or, may have been wandering post-breeding dispersal. Therefore, the following nine species are those that can be presumed to have been breeding within the study area: American Crow (*Corvus brachyrhynchos*), House Wren (*Troglodytes aedon*), American Robin (*Turdus migratorius*), European Starling (*Sturnus vulgaris*), Indigo Bunting (*Passerina cyanea*), Savannah Sparrow (*Passerculus sandwichensis*), Song Sparrow (*Melospiza melodia*), Red-winged Blackbird (*Agelaius phoeniceus*) and American Goldfinch (*Carduelis tristis*). The Breeding Bird survey results in their entirety can be found in *Appendix 8*.

Table 5. Point Count Surveys- Highest Breeding Evidence (HBE)

Common Name	Scientific Name	COSARO	COSEWIC	S-RANK	G-RANK	Area sensitive	Area required (ha)	PIF priority species	GRCA (date unk.)	Wellington County (2009)	A		B		C		D		E		F		FINAL HBE
											TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	
Canada Goose	*Branta canadensis*			S5	G5				CP				5	FO									FO
Ring-billed Gull	*Larus delawarensis*			S5B,S4N	G5					✓					1	FO					1	FO	FO
Herring Gull	*Larus argentatus*			S5B,S5N	G5					✓					1	FO							
Mourning Dove	*Zenaida macroura*			S5	G5						1	S									2	FO	
Eastern Wood-pewee	*Contopus virens*	SC	SC	S4B	G5			✓		✓	2	S			1	S							S
Eastern Phoebe	*Sayomis phoebe*			S5B	G5				CP						1	S*							S*
Great Crested Flycatcher	*Myiarchus crinitus*			S4B	G5														1	S		1	S
Blue Jay	*Cyanocitta cristata*			S5	G5						2	S											
American Crow	*Corvus brachyrhynchos*			S5B	G5												2	A	2	T	3	S	A
Black-capped Chickadee	*Poecile atricapillus*			S5	G5				CP						1	S*							S*
Red-breasted Nuthatch	*Sitta canadensis*			S5	G5	✓	>10ha		CP										1	S			S
House Wren	*Troglodytes aedon*			S5B	G5						2	S			1	S	1	S					S
American Robin	*Turdus migratorius*			S5B	G5						1	S	1	S			1	S					S
Gray Catbird	*Dumetella carolinensis*			S4B	G5				CP						1	S*							S*
Brown Thrasher	*Toxostoma rufum*			S4B	G5			✓	CP	✓					1	S*	1	S*					S*
Cedar Waxwing	*Bombycilla cedrorum*			S5B	G5						1	FO					2	S	2	H			H
European Starling	*Sturnus vulgaris*			SNA	G5										5	FY	1	S	1	FO	6	NY	FY
Warbling Vireo	*Vireo gilvus*			S5B	G5						1	S*	2	S									S
Red-eyed Vireo	*Vireo olivaceus*			S5B	G5						2	S	1	S	1	S*			1	S			S
Yellow Warbler	*Dendroica petechia*			S5B	G5														1	S			S

Table 5. Point Count Surveys- Highest Breeding Evidence (HBE)

Common Name	Scientific Name	COSARO	COSEWIC	S-RANK	G-RANK	Area sensitive	Area required (ha)	PIF priority species	GRCA (date unk.)	Wellington County (2009)	A		B		C		D		E		F		FINAL HBE
											TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	
American Redstart	*Setophaga ruticilla*			S5B	G5	✓	>100ha		CP	✓			2	S					1	S			S
Northern Cardinal	*Cardinalis cardinalis*			S5	G5								1	S			1	S*	1	S			S
Indigo Bunting	*Passerina cyanea*			S4B	G5						1	S			1	S*			2	S			S
Chipping Sparrow	*Spizella passerina*			S5B	G5										1	S							S
Savannah Sparrow	*Passerculus sandwichensis*			S4B	G5	✓	>50ha	✓	CP	✓					4	S	4	S	1	S*	2	S	S
Song Sparrow	*Melospiza melodia*			S5B	G5								1	A			2	S			2	S	A
Bobolink	*Dolichonyx oryzivorus*	THR	THR	S4B	G5	✓	>10ha	✓	CP	✓					1	S	1	D					D
Red-winged Blackbird	*Agelaius phoeniceus*			S4	G5								5	A	3	S	4	S	2	S	5	S	A
Eastern Meadowlark	*Sturnella magna*	THR	THR	S4B	G5	✓	>10ha	✓	CP	✓									1	S*			S*
Brown-headed Cowbird	*Molothrus ater*			S4B	G5										1	FO							
American Goldfinch	*Carduelis tristis*			S5B	G5				CP		1	S			1	H	1	S	1	H	1	H	S
House Sparrow	*Passer domesticus*			SNA	G5																1	S*	S*

Table 6. Area Search Transects- Highest Breeding Evidence (HBE)

Common name	Scientific name	COSARO	COSEWIC	S RANK	G RANK	Area Sensitive (MNRF 2000)	Area Required (Ha)	PIF priority Species (BCR 13)	GRCA(web)	Wellington County (2009)	HBE
Great Blue Heron	*Ardea herodias*			S4	G5					✓	X
Mourning Dove	*Zenaida macroura*			S5	G5						S
Eastern Wood-pewee	*Contopus virens*	SC	SC	S4B	G5			✓		✓	S
American Crow	*Corvus brachyrhynchos*			S5B	G5						H
Black-capped Chickadee	*Poecile atricapillus*			S5	G5				CP		S
House Wren	*Troglodytes aedon*			S5B	G5						S
American Robin	*Turdus migratorius*			S5B	G5						S
European Starling	*Sturnus vulgaris*			SNA	G5						S
Warbling Vireo	*Vireo gilvus*			S5B	G5						S
Red-eyed Vireo	*Vireo olivaceus*			S5B	G5						S
Yellow Warbler	*Dendroica petechia*			S5B	G5						S
American Redstart	*Setophaga ruticilla*			S5B	G5	✓	>100ha		CP	✓	S
Ovenbird	*Seiurus aurocapilla*			S4B	G5	✓	>70ha		CP	✓	S
Chipping Sparrow	*Spizella passerina*			S5B	G5						S
Savannah Sparrow	*Passerculus sandwhichensis*			S4B	G5	✓	>50ha	✓	CP	✓	S
White-throated Sparrow	*Zonotrichia albicollis*			S5B	G5				CP		S
Bobolink	*Dolichonyz oryzivorus*	THR	THR	S4B	G5	✓	>10ha	✓	CP	✓	S
Red-winged Blackbird	*Agelaius phoeniceus*			S4	G5						S
Eastern Meadowlark	*Sturnella magna*	THR	THR	S4B	G5	✓	>10ha	✓	CP	✓	S
American Goldfinch	*Carduelis tristis*			S5B	G5				CP		S

Legend (Table 4 and 5):
COSARO: Committee on the status of Species at Risk Ontario
COSEWIC: Committee on the status of Endangered Wildlife in Canada
SARA: Species at Risk Act
THR: Threatened SC: Special Concern
S-Rank:
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the province
G-Rank:
G5: Very common globally; demonstrably secure

Breeding Evidence:
Observed
FO-flyover
X- species observed In breeding season
Possible
H-suitable habitat
S-singing male
Probable
T- Presumed territory
A- Agitated behaviour
Confirmed
FY- Fledged Young

Grand River Conservation Authority:
CP: Conservation Priority

3.4.2.1 Breeding Bird Species at Risk

Three species observed are considered Species at Risk under the ESA. Eastern Meadowlark, and Bobolink are listed as Threatened provincially and federally and Eastern Wood-pewee is listed as Special Concern provincially and federally, locations of observations are shown on *Figure 3*.

Eastern Meadowlark and Bobolink are area sensitive, grassland species, often nesting in hay fields and pastures, as well as occasionally occurring in other types of grassed areas such as golf courses, and airfields. The grassland habitat requires a moderate thatch cover, low shrub and tree density, and moderate or limited forbs cover. Large tracts of grassland are typically preferred over smaller patches (McCracken et. al. 2013). A single male Eastern Meadowlark was observed singing from the agricultural community north-east of 1 Line during the first breeding bird survey (*Figure 3*). Three Bobolinks were observed singing within the agricultural community south-west of 1 Line during the first breeding bird survey (*Figure 3*). However, due to observations during only one of the surveys, the lack of confirmed breeding evidence, the total area of the agricultural fields (<30ha), and the high forb content, it was determined that the existing agricultural communities are not suitable habitat for Eastern Meadowlark or Bobolink.

Eastern Wood-pewee are associated with mid-age mixed and deciduous forest stands, often dominated by Maple (*Acer*), Elm (*Ulmus*) or Oak (*Quercus*), and include areas with clear-cuts, openings, or forest edges. Eastern Wood-pewee also prefers forest stands with little to no understory vegetation (COSEWIC 2012). Eastern Wood-pewee was observed singing during both breeding bird surveys in the Conifer- Hardwood Mineral Mixed Swamp, north of the study area, and along the edge of the Conifer-Hardwood Mineral Mixed Swamp and the Goldenrod Forb Meadow (*Figure 3*).

3.4.2.2 Breeding Bird Regional and Local Significance

All species detected in the study area are ranked as either S5 (Secure) or S4 (Apparently Secure) or in Ontario. The rank qualifier ‘B’ denotes the status of a migratory species during the breeding season.

The County of Wellington has identified a number of species considered significant (Dougan & Associates, 2009). Eleven regionally significant species were observed in the study area, one of which, Bobolink, showed probable breeding evidence.

3.4.2.3 Breeding Bird Regional Priority Species

The Ontario Landbird Conservation Plan (OLCP): Lower Great Lakes/St. Lawrence Plain, North American Bird Conservation Region 13 (Ontario Partners in Flight, 2008) has identified a number of species that are considered conservation priorities for the region. Five priority species were observed in the study area, including Eastern Wood-pewee, Brown Thrasher, Savannah Sparrow, Bobolink and Eastern Meadowlark. The OLCP does not provide legislative protection of species or their habitat, but rather identifies species that should be conservation priorities on a regional level that were not designated Species at Risk at the time of writing.

3.4.3 Grassland Breeding Bird Survey (Transects)

The results of the Grassland Breeding Bird Survey (GBBS) transects are presented in *Table 6*. During GBBS visits a total of nine species were detected over two transect area searches. Species breeding evidence observed included eight assigned 'Possible' and one assigned 'Probable'. All were detected within the study area.

Due to the contiguity with natural lands surrounding the study area, it is important to note that, despite high levels of breeding evidence, a given species may not have been breeding specifically in the area in which it was observed. This is particularly true where species were only detected during one of the surveys. These species may have been foraging in these areas or, may have been wandering during post-breeding dispersal. Therefore, the following species can be presumed to be breeding within or adjacent the grassland areas: Red-winged Blackbird (*Agelaius phoeniceus*). Grassland Breeding Bird survey results in their entirety can be found in *Appendix 9*.

Table 7. Grassland Breeding Bird Survey Results

Common name	Scientific name	COSARO	COSEWIC	S RANK	G RANK	Area Sensitive (MNRF 2000)	Area Required (Ha)	PIF priority Species (BCR 13)	GRCA(web)	Wellington County (2009)	June 1 HBE	June 22 HBE
Eastern Phoebe	*Sayomis phoebe*			S5B	G5				CP			S
American Robin	*Turdus migratorius*			S5B	G5						H	
European Starling	*Sturnus vulgaris*			SNA	G5						H	
American Crow	*Corvus brachyrhynchos*			S5B	G5							H
House Wren	*Troglodytes aedon*			S5B	G5							S
Song Sparrow	*Melospiza melodia*			S5B	G5							S
Savannah Sparrow	*Passerculus sandwhichensis*			S4B	G5	✓	>50ha	✓	CP	✓		S
Bobolink	*Dolichonyz oryzivorus*	THR	THR	S4B	G5	✓	>10ha	✓	CP	✓	H	
Red-winged Blackbird	*Agelaius phoeniceus*			S4	G5						S	S

Legend (Table 4 and 5):
COSARO: Committee on the status of Species at Risk Ontario
COSEWIC: Committee on the status of Endangered Wildlife in Canada
SARA: Species at Risk Act
THR: Threatened SC: Special Concern
S-Rank:
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the province
G-Rank:
G5: Very common globally; demonstrably secure

Breeding Evidence:
Possible
H-suitable habitat
S-singing male

Grand River Conservation Authority:
CP: Conservation Priority

3.4.3.1 Species at Risk, Regional and Local Significance

One species observed, Bobolink, is listed as Threatened under the ESA and SARA. It was detected during the first grassland breeding bird survey and was observed within the existing agricultural community.

The Subnational, or Provincial Ranks (SRank) are assigned by the Ontario Ministry of Natural Resources and Forestry Natural Heritage Information Centre in order to help assign protection priorities. All species detected during the GBBS within the study area are ranked as either S4 (common) or S5 (very common) in Ontario. The rank qualified 'B' denotes the status of a migratory species during the breeding season.

Within Wellington County, two species that are considered significant were observed during the GBBS. Savannah Sparrow and Bobolink both displayed 'Possible' breeding evidence in the form of a singing male or adult producing other sounds associated with breeding. Both species were observed from Transect 1.

3.4.4 Incidental Wildlife Observations

Incidental wildlife observations made outside of the above formal field surveys are presented in *Table 7*. All observations were of single individuals unless otherwise stated.

Table 8. Incidental Wildlife Observations

Common Name	Scientific Name	Taxa	Date	Location/Notes
Red-winged Blackbird	*Agelaius phoeniceus*	Bird	May 18, 2021	Calling within Cattail Shallow Marsh
Eastern Wood-pewee	*Contopus virens*	Bird	Sept. 1, 2021	Calling within the White Cedar- Conifer Swamp.
American Redstart	*Setophaga ruticilla*	Bird	May 18, 2021	Calling adjacent to the Bebb's Willow Thicket Swamp
Canada Goose	*Branta canadensis*	Bird	May 18, 2021	Flying over the Upland Deciduous Forest
Downy Woodpecker	*Picoides pubescens*	Bird	May 18, 2021	Observed within the Deciduous Woodland along the Elora Cataract Trail
Black-capped Chickadee	*Poecile atricapillus*	Bird	May 18 & Sept 1, 2021	Observed within the Deciduous Woodland along the Elora Cataract Trail. Heard calling during amphibian surveys.
Blue Jay	*Cyanocitta cristata*	Bird	May 18, 2021	Observed within the Deciduous Woodland along the Elora Cataract Trail
Northern Cardinal	*Cardinalis cardinalis*	Bird	May 18, 2021	Observed within the Deciduous Woodland along the Elora Cataract Trail
Baltimore Oriole	*Icterus galbula*	Bird	May 18, 2021	Observed within the Deciduous Woodland along the Elora Cataract Trail

Table 8. Incidental Wildlife Observations

Common Name	Scientific Name	Taxa	Date	Location/Notes
Ruby-throated Hummingbird	*Archilochus colubris*	Bird	Sept. 1, 2021	Observed within the Goldenrod Forb Meadow
Eastern Chipmunk	*Tamias striatus*	Mammal	May 18, 2021	Observed within the Upland Deciduous Forest
White-tailed Deer	*Odocoileus virginianus*	Mammal	June 22, 2021	Observed in agricultural field during Breeding Bird surveys
Bat sp.	*Myotis sp.*	Mammal	May 18, 2021	Multiple individuals observed flying overhead during amphibian surveys.
Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	Reptile	Sept. 1, 2021	Observed within the Conifer-Hardwood Mixed Swamp
American Toad	*Anaxyrus americanus*	Amphibian	Sept. 1, 2021	Observed within the Cattail Shallow Marsh.
Green Frog	*Lithobates clamitans*	Amphibian	June 22 & August 23, 2021	Observed within the Cattail Shallow Marsh during Breeding Bird survey and wetland delineation.
Northern Leopard Frog	*Lithobates pipiens*	Amphibian	August 23, 2021	Observed within the Cattail Shallow Marsh
Viceroy	*Limenitis archippus*	Insect	Sept. 1, 2021	Observed within the Goldenrod Forb Meadow.

3.5 Significant Wildlife Habitat

With guidance from the *Significant Wildlife Habitat Technical Guide* (2000) and the SWH EcoRegion Criterion Schedule 6E (2015), we have determined that Significant Wildlife Habitat in the form of Deer Winter Congregation Areas, Seeps and Springs, Special Concern & Rare Wildlife Species and Deer Movement Corridor is present within the study area. In addition, candidate Significant Wildlife Habitat in the form of Bat Maternity Colony is also present within the study area.

3.5.1 Deer Winter Congregation Areas & Movement Corridors

Deer Winter Congregation Areas are defined as large woodlands greater than 100ha in area in which deer maintain trails leading from the cover to areas of woody browse, mast-producing trees or other food sources (OMNRF, 2014). Movement corridors require specific habitat features such as coniferous forest habitat with dense understorey containing a wealthy supply of shrubs of various species (OMNRF, 2014). Often, with movement corridors, these features will also exhibit terrain features such as ridges and valleys (OMNRF, 2014). Both Deer Winter Congregation Areas and Movement Corridors are defined by the OMNRF through their Land Information Ontario database. The portion of the Irvine Creek PSW within the northern portion of the study area, including the Conifer-Hardwood Mixed Swamp and White Cedar-Conifer Coniferous Swamp communities are designated as being part of a Deer Winter Congregation Area and a Movement Corridor.

It is the opinion of AA that the SWH will not be negatively impacted as no removal of either vegetation community is being proposed, and it is unlikely that individuals would use the existing agricultural field as movement corridor as the feature to the south is smaller and isolated from other natural features.

3.5.2 Seeps and Springs

Seepage areas and springs are groundwater discharge areas which can often be found within the headwater areas of forested habitats (OMNRF, 2014). They may also provide valuable wildlife habitat and food sources as in early spring seeps are one of the first areas where vegetation grows (OMNRF, 2014). Through field investigations, multiple seeps were observed throughout the Conifer-Hardwood Mixed Swamp and White Cedar-Conifer Mixed Swamp communities within the study area. Per the SWH EcoRegion Criterion Schedule 6E (MNRF, 2015), the SWH consists of the area of ELC ecosite containing the seep/spring, therefore both the Conifer-Hardwood Mixed Swamp and White Cedar-Conifer Coniferous Swamp communities are classified as Significant

Wildlife Habitat for seeps and springs. It is the opinion of AA that the SWH will not be negatively impacted as no removal of either vegetation community is being proposed.

3.5.3 Special Concern & Rare Wildlife Species

Eastern Wood-pewee, listed as Special Concern under the ESA and SARA, was observed during field investigations. Per the SWH EcoRegion Criterion Schedule 6E (MNRF, 2015), the SWH consists of the area of the habitat to the finest ELC scale that protects the habitat form and function. Since Eastern Wood-pewee was observed within both the Conifer-Hardwood Mixed Swamp and the White Cedar-Conifer Coniferous Swamp, which provide suitable habitat, both vegetation communities have been classified as Significant Wildlife Habitat. It is the opinion of AA that the SWH will not be negatively impacted, as no removal of either vegetation community is being proposed.

Monarch, listed as Special Concern under the ESA and SARA, was observed during field investigations. Per the SWH EcoRegion Criterion Schedule 6E (MNRF, 2015), the SWH consists of the area of the habitat to the finest ELC scale that protects the habitat form and function. Since several Monarch individuals were observed within the Goldenrod Forb Meadow immediately adjacent the White Cedar-Conifer Coniferous Swamp, which provides suitable habitat, it has been classified as Significant Wildlife Habitat. It is the opinion of AA that the SWH will not be negatively impacted provided the mitigation and restoration recommendations provided in Sections 4.2 & 7.0, are implemented through all stages of construction.

3.5.4 Bat Maternity Colonies

Candidate Bat Maternity Colony habitat is present within the Fencerow communities, the Dry- Fresh Upland Forest and along the edge of the Agricultural community and the White Cedar-Conifer Coniferous Swamp. Investigations were completed to identify candidate maternity trees. A total of 24 trees that exhibited characteristics of potential colony trees were identified within the Study Area. All trees identified had a diameter at breast heigh greater than 10cm. The results of the candidate maternity tree investigations can be found in *Table 8*, with the locations of each tree being shown on *Figure 4*.

Table 9. Candidate Bat Maternity Habitat

Tree #	Tree Species	DBH (cm)	Height Class[1]	Snag Attributes						Easting	Northing
				Cavity [2]	Loose Bark	Crack	Knot Hole	Snag within 10m?	Decay Class 1-3[3]		
1	*Acer saccharinum*	84, 91	1	Y (15m)	Y	Y	Y	Y	2	550030.8	4841665.3
2	*Acer saccharinum*	72, 66.5	1	Y (10m)	Y	Y	Y	Y	2	550039.1	4841672.8
3	*Acer saccharinum*	74	1	Y (15m)	Y	N	Y	Y	2	550048.1	4841667.0
4	*Acer saccharinum*	62	2	Y (10m)	Y	Y	Y	Y	2	550052.0	4841662.5
5	*Acer saccharinum*	63	1	Y (10m)	Y	Y	Y	Y	2	550055.7	4841661.5
6	*Acer saccharinum*	81	1	Y (15m)	Y	Y	Y	Y	2	550061.6	4841651.9
7	*Acer saccharinum*	84	1	Y (15m)	Y	Y	Y	Y	2	550068.0	4841645.4
8	*Acer saccharinum*	68, 35	1	Y (10m)	Y	Y	Y	Y	2	550071.8	4841641.4
9	*Acer saccharum*	102	2	Y (15m)	N	Y	Y	Y	2	550076.7	4841640.1
10	*Acer saccharinum*	76, 52	1	Y (5m)	N	N	Y	Y	2	550081.7	4841637.0
11	*Prunus serotina*	41, 34	2	Y (10m)	Y	Y	N	Y	2	550155.2	4841576.3
12	*Prunus serotina*	60	3	Y (10m)	Y	Y	Y	Y	2	550173.7	4841556.4
13	*Acer saccharum*	97	1	Y (15m)	Y	Y	Y	Y	2	550292.7	4841442.6
14	*Acer saccharum*	79	1	Y (20m)	Y	N	Y	Y	2	550311.2	4841440.2
15	*Acer saccharum*	96	1	Y (15m)	Y	N	Y	Y	2	550342.6	4841449.6
16	*Acer saccharum*	92	2	Y (10m)	Y	Y	Y	Y	2	550355.5	4841453.9
17	*Prunus serotina*	57	1	Y (20m)	Y	Y	N	Y	2	550482.8	4841272.6
18	*Acer saccharum*	51, 52	1	Y (15m)	Y	N	Y	Y	2	550504.4	4841281.1
19	*Prunus serotina*	65	1	Y (15m)	Y	N	Y	Y	2	550506.9	4841278.6
20	*Prunus serotina*	49, 32	1	Y (10m)	Y	N	Y	Y	2	550513.7	4841285.9
21	*Prunus serotina*	32, 47	1	Y (15m)	Y	N	Y	Y	2	550513.4	4841292.9
22	*Prunus serotina*	59	2	Y (12m)	Y	N	Y	Y	2	550517.7	4841298.0
23	*Prunus serotina*	51, 72	1	Y (10m)	Y	N	Y	Y	2	550526.2	4841303.9
24	*Prunus serotina*	75	1	Y (10m)	Y	N	Y	N	2	550209.8	4841679.5

Studies to confirm Bat Maternity Habitat have not been completed in the study area. Following the MNRF Guelph District Protocol (2014), all Candidate Bat Maternity Habitat will be assumed significant. In the event that site activities will affect significant habitat, it is recommended that detailed studies of Candidate Bat Habitat which may be affected, occur pre-construction. As noted in the Tree Preservation Plan (*Appendix 13*) and per the alignments provided, none of the trees identified as candidate Bat Maternity Habitat are proposed for removal.

3.6 SAR Habitat Assessment

An assessment of all Species at Risk, and species with conservation designation, that have the potential to occur in the study area based on lists provided by several wildlife atlases, correspondence with MECP and MNRF Species Occurrence Mapping was completed and is provided in *Appendix 6*. Species assessed include all species with Provincial SARO status, Federal SARA status, or an S-rank of S1-S3. See *Appendix 6* for a detailed assessment of Species at Risk habitat.

3.6.1 Wetland Communities

Candidate habitat for Western Chorus Frog, West Virginia White, Canada Warbler and Blanding's Turtle was identified within the Mixed and Coniferous Swamp communities. No individuals were observed during field investigations. Candidate Species at Risk habitat within the Mixed and Coniferous swamp will not be negatively affected as all proposed development is located outside of these communities.

3.6.2 Meadow and Agricultural Communities

Candidate habitat for Gypsy Cuckoo Bumble Bee, Monarch, Rusty-patched Bumble Bee, Yellow-banded Bumble Bee, Bobolink and Eastern Meadowlark was identified within the Meadow and Agricultural communities. Monarch, Bobolink and Eastern Meadowlark were observed during field investigations.

3.6.2.1 Monarch

As noted in Section 3.5.3 several Monarch individuals were observed within the Goldenrod Forb Meadow immediately adjacent the White Cedar-Conifer Coniferous Swamp. Since Common Milkweed (*Ascelpias syriaca*) was noted as being present within this community, it contains suitable habitat for all Monarch life stages. Since Monarch is only listed as Special Concern, it does not receive general habitat protection through the ESA and SARA.

3.6.2.2 Bobolink and Eastern Meadowlark

As noted in Sections 3.4.2 and 3.4.3, Bobolink and Eastern Meadowlark were observed within the existing agricultural communities in the Study Area. Since Bobolink and Eastern Meadowlark are listed as Threatened provincially (ESA, 2007) and federally (Species at Risk Public Registry, 2021) individuals and their habitat are afforded protection under the ESA. Bobolink and Eastern Meadowlark have similar habitat requirements, although each species exhibits its own preferences for certain microhabitat characteristics. Generally, both species tend to occupy grassland >5 ha that contain a high grass to forb ration, with the presence of scattered woody shrubs or spalings, fence posts, poles or wires to be used as perches. On a microhabitat scale, Bobolink prefer larger fields (>10 ha), lower forb composition, tolerate wetter conditions, and are less tolerant of patches of bare ground. Meadowlark tolerate higher proportion of shrubs, bare ground, smaller field size and prefer drier sites (McCracken et al., 2013).

Although both species were observed during field investigations, neither Bobolink nor Eastern Meadowlark were confirmed to be breeding within the study area. Since observations of both species only occurred during the first Breeding Bird and Grassland Bird surveys, the high forb content within the agricultural communities and the lack of interior habitat (>200m from the edge), it is the opinion of AA that the study area does not contain suitable habitat for Bobolink or Eastern Meadowlark and that the individuals observed were scoping this location for suitability early in the breeding season. Therefore, the proposed road extension and multi-use path will not negatively impact the species or their habitat.

3.6.3 Fencerow and Edge Habitat

Candidate habitat for Milksnake, Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tri-coloured Bat was identified within the fencerow and edge habitat of existing woodlands and forest communities. Myotis species were observed during the May Amphibian surveys; however, the species could not be accurately identified, per the Wildlife Acoustics software utilized. As the majority of edge habitat within the study area will not be impacted by the proposed road extension and multi-use pathway it is the opinion of AA that candidate habitat for Milksnake will not be negatively impacted. However, tree removals may be necessary to accommodate the proposed multi-use pathway. As studies to confirm Bat Species at Risk within the study area were not completed as part of the EIS, it is recommended that if removal of candidate bat habitat is proposed, detailed studies occur pre-construction and all tree removals, if required, occur between October 1 and April 1.

3.7 Geology and Soils

Per the Soil Map and Survey of Wellington County (Hoffman et al., 1963), the study area is comprised of three different soil types. The soils within portions of the Irvine Creek PSW in the study area is classified as Muck. Soils that have been classified as Muck consist of organic deposits that have accumulated in wet undrained depressions and are most likely to develop in areas that are water-saturated for the entire year (Hoffman et al., 1963). These soils differ from others described as they are derived from decayed plant remains.

Within the agricultural communities of the study area, the soils are classified as being Harriston Loam. Harriston soils have a moderately to gently rolling topography and are well drained (Hoffman et al., 1963). The parent material is a glacial till that has been derived from the soft limestones that form the underlying rock strata (Hoffman et al., 1963). Harriston soils are among the best agricultural soils in Southern Ontario.
The soils within the southern corner of the study area containing the unevaluated wetland are classified as Parkhill Loam (Hoffman et al., 1963). Compared to upland soils, Parkhill soils have a much darker and thicker surface soil that are produced through a mixture of organic material from decaying matter and mineral soils (Hoffman et al., 1963).

4.0 Impact Analysis, Mitigation and Restoration

Based on the results of the field investigations, the proposed road extension and multi-use pathway will result in impacts to the existing natural features. *Tables 9* and *10* evaluate the EA alternatives and provide mitigation and restoration recommendations, respectively.

4.1 Analysis and Comparison of Road Extension and Multi-use Pathway

Five options (1, 2, 3, 4 & 5), provided by Triton Engineering Services Limited, were considered in the evaluation of impacts to the Natural Environment. Options 1 through 4 consist of the extension of Dickson Drive to First Line with an additional cul-de-sac extended south, each option differing in regard to stormwater infrastructure and the installation of a multi-use pathway. The options are provided in detail below and are shown on *Figures 1a-1d*.

4.1.1 Option 1

The road will be constructed as a typical urban section with curb and gutters. The option also includes the installation of a multi-use pathway connecting the existing Fergus Dog Park to the Elora Cataract Trail south-east of Dickson Drive. Stormwater management of this option will be provided by way of below grade infrastructure, including catchbasins, storm sewers, oil-grit separator(s), below grade run-off storage (chambers and/or super pipes) and a low slope polishing swale.

4.1.2 Option 2

Similar to Option 2, the road will be constructed as typical urban section with curb and gutters and includes the installation of a multi-use pathway connecting the existing Fergus Dog Park to the Elora Cataract Trail south-east of Dickson Drive. Stormwater management will be provided by way of both below and above grade infrastructure, including catchbasins, storm sewers, oil-grit separator(s) with above grade run-off storage (ponds) and a low slope polishing swale.

4.1.3 Option 3

The road will be constructed as a typical rural section with ditches. Similar to Options 1 and 2, this option proposes the installation of a multi-use pathway connecting the existing Fergus Dog Park to the Elora Cataract Trail south-east of Dickson Drive. Stormwater management will be provided by way of above grade infrastructure, including ditches, culverts, minimal catchbasins and storm sewers, above grade run-off storage (ponds) and a low slope polishing swale.

4.1.4 Option 4

Similar to Option 3 the road will be constructed as a typical rural section with ditches. Stormwater management will be provided by way of above grade infrastructure, including ditches, culverts, minimal catchbasins and storm sewers, above grade run-off storage (ponds) and a low slope polishing swale. Option 4 does not propose the installation of the multi-use pathway from the Fergus Dog Park to the Elora Cataract Trail south-east of Dickson Drive.

4.1.5 Option 5

Option 5 consists of doing nothing with the existing conditions remaining as they are presently.

In order to evaluate the EA Options provided, each option was assessed with respect to potential impacts to the significant features of the natural environment identified through background and field investigations. These are:

- Impacts to Trees;
- Impacts to Vegetation;
- Impacts to Significant Wildlife Habitat;
- Impacts to Species at Risk;
- Impacts to Wildlife & Wildlife Habitat, and;
- Impacts to Wetlands.

Table 10. Comparison & Rating of Natural Feature Impacts by EA Alternative

Factor/Criteria	Option 1	Option 2	Option 3	Option 4	Option 5
Trees	A total of 4 trees are recommended for removal. Three due to development and one due to development & condition.	A total of 4 trees are recommended for removal. Three due to development and one due to development & condition.	A total of 4 trees are recommended for removal. Three due to development and one due to development & condition.	A total of 4 trees are recommended for removal. Three due to development and one due to development & condition.	No trees will be affected.
Vegetation	Majority of vegetation impacted is within existing Agricultural communities. Small portions of the Goldenrod Forb Meadow, Dry-Fresh Deciduous Woodland and Upland Deciduous Woodland is proposed for removal.	Majority of vegetation impacted is within existing Agricultural communities. Small portions of the Goldenrod Forb Meadow, Dry-Fresh Deciduous Woodland and Upland Deciduous Woodland is proposed for removal.	Majority of vegetation impacted is within existing Agricultural communities. Small portions of the Goldenrod Forb Meadow, Dry-Fresh Deciduous Woodland and Upland Deciduous Woodland is proposed for removal.	Majority of vegetation impacted is within existing Agricultural communities. A small portion of the Goldenrod Forb Meadow will be altered to accommodate a proposed ditch.	Vegetation will not be removed. No restoration or enhancement will occur.
Significant Wildlife Habitat	Removal of a portion of SC & Rare Species SWH within Goldenrod Forb Meadow to accommodate MUP is proposed.	Removal of a portion of SC & Rare species SWH within the Goldenrod Forb Meadow to accommodate MUP and the drainage pond is proposed.	Removal of a portion of SC & Rare species SWH within the Goldenrod Forb Meadow to accommodate MUP and the drainage pond is proposed.	Alteration/removal of a portion of SC & Rare species SWH within the Goldenrod Forb Meadow to accommodate the proposed ditch and drainage pond.	No impacts to SWH
Species at Risk	Removal of Monarch habitat (Goldenrod Forb Meadow) proposed. Monarchs are listed as SC and are not afforded general habitat protection. No impacts to SAR anticipated outside of Breeding Bird window.	Removal of Monarch habitat (Goldenrod Forb Meadow) proposed. Monarchs are listed as SC and are not afforded general habitat protection. No impacts to SAR anticipated outside of Breeding Bird window.	Removal of Monarch habitat (Goldenrod Forb Meadow) proposed. Monarchs are listed as SC and are not afforded general habitat protection. No impacts to SAR anticipated outside of Breeding Bird window.	Removal of Monarch habitat (Goldenrod Forb Meadow) proposed. Monarchs are listed as SC and are not afforded general habitat protection. No impacts to SAR anticipated	No impacts to SAR.

	No removal of any candidate bat maternity trees is proposed for this Option.	No removal of any candidate bat maternity trees is proposed for this Option.	No removal of any candidate bat maternity trees is proposed for this Option.	outside of Breeding Bird window. No removal of any candidate bat maternity trees is proposed for this Option.	
Wildlife & Wildlife Habitat	Potential impacts to amphibian habitat within the Shallow Cattail Marsh. ESC, mitigation and restoration measures recommended to provide improvements to existing habitat and general biodiversity.	Potential impacts to amphibian habitat within the Shallow Cattail Marsh. ESC, mitigation and restoration measures recommended to provide improvements to existing habitat and general biodiversity.	Potential impacts to amphibian habitat within the Shallow Cattail Marsh. ESC, mitigation and restoration measures recommended to provide improvements to existing habitat and general biodiversity.	No potential impacts to wildlife & wildlife habitat. No improvements to existing habitat.	No impacts to wildlife or wildlife habitat. No improvements to existing habitat.
Wetlands	Proposed MUP and ditch are within the area of interference. Detailed ESC, mitigation and restoration measures are recommended to be implemented to minimize negative impacts to the White Cedar-Conifer Swamp and Cattail Mineral Shallow Marsh.	Proposed MUP and ditch are within the area of interference. Detailed ESC, mitigation and restoration measures are recommended to be implemented to minimize negative impacts to the White Cedar-Conifer Swamp and Cattail Mineral Shallow Marsh.	Proposed MUP and ditch are within the area of interference. Detailed ESC, mitigation and restoration measures are recommended to be implemented to minimize negative impacts to the White Cedar-Conifer Swamp and Cattail Mineral Shallow Marsh.	Proposed ditch is within the area of interference. Detailed ESC, mitigation and restoration measures are recommended to be implemented to minimize negative impacts to the White Cedar- Conifer Swamp.	No impacts to the surrounding wetlands.
Ranking	3	4	5	2	1

4.2 Generalized Impact Assessment and Mitigation

Options 1 through 4 will result in varying degrees of impact to the existing natural features. An assessment of the generalized impacts (potential and actual) and mitigation measures are provided in *Table 10*. A glossary of terms and impact ratings is found in *Appendix 12*.

Table 11. Impact Assessment, Mitigation and Recommendations

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing	Vegetation Removal – clearing & grubbing *upland areas*	· Loss of vegetation and wildlife habitat · Loss of rare plant species of communities	ST	P	SA	O	PD	H	N	Minor	· Avoid significant wildlife habitat · Design to avoid or minimize loss of vegetation and edge habitat · Revegetate areas with native species after works are completed · Establish and maintain buffers around wetland.	None	· Install native plantings suitable to existing soil and moisture conditions between MUP and wetland. Monitor appropriately to ensure proper establishment.
		· Disturbance of wildlife species	ST	P	SA	O	PD	M	N	Minor	· Avoid removal or destruction of animal movement corridors · Time activities to avoid wildlife disturbance during important life stages	None	

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing (cont.)	Vegetation Removal – clearing & grubbing *upland areas (cont.)*	· Impacts to Nesting Birds Protected under the Migratory Bird Convention Act	ST	P	SA	O	PD	M	N	Severe	· Complete all vegetation removals outside the Environment Canada breeding bird nesting window (April 1- August 31). · If removals take place during the nesting window, conduct a bird nest survey to determine locations of active nests prior to construction works including installation of Erosion and Sediment Control (ESC) fence and any site clearing. · Create nest protection zones where active bird nests are found.	None	· Monitor nests (as needed, e.g. weekly) until inactive
	Grading	· Increased erosion	ST	P	SA	O	PD	M	Y	Moderate	· Develop & implement an ESC Plan per GGH Erosion and Sediment Guidelines (TRCA, 2019) · Maintain or restore vegetative buffers	Minor-None	· Monitor ESC fence weekly, and after a major storm event for any breaks, and repair.

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing (cont.)	Grading (cont.)	• Increase nutrient inputs and contaminants to wetlands	LT	P	SA	O	PD /U	M	Y	Moderate	• Develop & implement ESC plan • Designate area for safe equipment storage as far as possible from existing features. • Implement Clean Equipment protocols (Section 4.5)	Minor-None	• Monitor ESC fence weekly, and after major storm events for any breaks, and repair.
		• Increased soil compaction	LT	P	SA	O	PD	H	N	Moderate	• Control access and movement of equipment and people	Minor	
		• Changes to drainage • Changes to surface runoff	LT	P	AA	O	PD	M	Y	Minor	• Schedule grading to avoid high runoff volumes • Minimize changes to land contours and natural drainage	Minor-None	
		• Changes in soil moisture, tree cover and vegetation	LT	R	SA	O	PD	M	Y	Minor	• Minimize the area and duration of soil exposure • Install native plantings suitable for the moisture and soil conditions where disturbance occurs	Minor-None	• Monitor plantings to ensure proper establishment.

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing (cont.)	Grading (cont.)	· Disturbance to wildlife · Alteration or destruction of wildlife Habitat	ST	R	SA	O	PD	L	N	Minor	· Time activities to avoid sensitive periods (Breeding birds) · Identify sensitive species prior to work and design grading to avoid disturbing sensitive species · Conduct work outside timing windows of sensitive species	None	
		· Wildlife Entering Construction Areas	ST	R	SA	O	PD	L	N	Minor	· Develop & implement ESC plan per GGH erosion and sediment guidelines to exclude wildlife.	None	· Monitor ESC fence weekly, and after major storm events for any breaks, and repair.
	Installation of Services and utilities (sewer, hydro)	· Increased erosion	ST	P	SA	O	PD	L	N	Minor	· Maintain vegetated buffers · Develop and implement ESC plan per GGH erosion and sediment guidelines.	Minor-None	· Monitor ESC fence weekly, and after major storm events for any breaks, and repair.
		· Disturbance to wildlife including sensitive species	ST	P	SA	O	PD	M	N	Minor	· Conduct work outside timing windows of sensitive species	None	

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing (cont.)	Installation of Services and utilities (sewer, hydro, infrastructure, stormwater management facilities) (cont.)	· Hydrological changes	LT	P	SA	O	PD	L	Y	Minor	· Conduct appropriate studies to determine how to maintain existing hydrology · Design underground facilities to minimize impacts to groundwater	None	
		· Wildlife Entering Construction Areas	ST	P	SA	O	PD	M	N	Minor	· Develop & implement ESC Plan per erosion and sediment guidelines to exclude wildlife.	None	· Monitor ESC fence weekly, and after major storm events for any breaks, and repair.
Construction	Multi-use Path Construction	· Increased erosion	ST	P	SA	O	PD	M	N	Moderate	· Install native plantings suitable to the soil and moisture conditions between MUP and wetland limit. · Develop and implement ESC plan per GGH erosion and sediment guidelines.	Minor-None	· Monitor plantings to ensure proper establishment.

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Construction (cont.)	Multi-use Pathway Construction (cont.)	▪ Water contamination by oils, gasoline, grease and other materials	LT	P	SA	O	PD	M	Y	Moderate	▪ Control water contamination through good housekeeping practices, such as designating an equipment storage area as far as possible from existing wetland communities, and ensuring all materials are stored in appropriate containers.	Minor-None	
		▪ Increased impervious surfaces causing, Increased runoff, reduced infiltration and groundwater discharge	ST	P	SA	O	PD	L	N	Minor	▪ Maintain or provide vegetative buffers ▪ Implement infiltration techniques ▪ Control quantity and quality of stormwater discharge ▪ Select semi-pervious materials (i.e., limestone screening, gravel)	Minor-None	
		▪ Loss of vegetation at forest/wetland edges and removal of dead trees for public safety	ST	P	SA	O	PD	L	N	Minor	▪ Install native plantings suitable to soil and moisture conditions to maintain sufficient buffer between multi-use pathway and wetland limit.	Minor-None	▪ Monitor plantings to ensure proper establishment.

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Construction (cont.)		· Disturbance to Wildlife from sounds and activity associated with public use.	ST	P	SA	S	PD	M	N	Minor	· Restrict access and buffer natural areas to discourage public encroachment and improper use · Provide appropriate signage at trail entrances.	None	
	Dickson Drive Extension & Street A Cul-de-sac	· Increased impervious surfaces	LT	P	SA	O	PD	H	N	Minor	· Minimize areas of paved surfaces	None	
		· Increased runoff	LT	P	SA	O	PD	H	N	Minor	· Control quantity and quality of stormwater using best management practices	Minor-None	
		· Reduced infiltration · Increased nutrient and contaminant inputs	LT	P	SA	O	PD	M	N	Moderate	· Design roads without curbs, gutters and sidewalks to promote infiltration galleries and other infiltration devices	Minor-None	
		· Increased erosion	ST	P	SA	O	PD	L	N	Minor	· Maintain or provide vegetative buffers	None	

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Construction (cont.)	Dickson Drive Extension & Street A Cul-de-sac	· Loss of wildlife habitat	ST	P	SA	O	PD	L	N	Minor	· Identify species sensitive to disturbance and time paving periods to avoid periods of wildlife habitat use · Ensure important corridors are not lost, develop alternate corridors and cover where possible	None	
		· Wildlife mortality on roads	LT	P	SA	S	PD	M	N	Moderate	· Design to reduce / prevent mortality	Minor	
		· Barriers to wildlife movement	LT	P	SA	O	PD	M	N	Moderate	· Avoid intersecting most likely wildlife migration routes wherever possible · Provide low barrier fencing or vertical walls to reduce amphibian mortality · Provide dry wildlife passage culverts under the roadway · Use traffic slowing/calming measures in areas with high wildlife use	Minor-None	

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Post-Construction	Recreation activities (e.g. use of all-terrain vehicles, walking, hunting, fishing, swimming)	· Trail development impacts including vegetation trampling, damage to root mat, soil disturbance	LT	P	SA	S	PD /U	H	N	Moderate	· Choose designs and materials that will minimize impacts	Minor-None	
		· Introduction of invasive & non-native plant species	LT	P	SA	C	PD /U	H	Y	Moderate	· Provide opportunities for people to report on natural areas · Educate the public through signage	Minor-None	
		· Trampling of vegetation and chasing of wildlife by off-leash dogs	LT	P	SA	S	PD /U	H	N	Moderate	· Enforce proper trail use · Provide off-leash areas, and enforce leash laws in sensitive areas · Close and install natural barriers to all unsanctioned trail entrances · Install signage identifying that the area is no longer an off-leash trail	Minor	
		· Disturbance to wildlife during critical life stages	LT	P	SA	S	PD /U	M	Y	Moderate	· Locate development away from sensitive features · Educate the public through signage	Minor-None	

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Post-Construction (cont.)	Recreation activities (e.g., use of all-terrain vehicles, walking, hunting, fishing, swimming) (cont.)	▪ Attraction of some wildlife species and scavengers due to human activities, including garbage causing increased human wildlife interactions	LT	P	SA	S	PD /U	M	N	Moderate	▪ Educate the public about attracting nuisance species ▪ Provide appropriate garbage receptacles and service	Minor	
		▪ Increased access to sensitive sites, and destruction of sensitive features from trampling	LT	P	SA	S	PD /U	M	Y	Moderate	▪ Develop trails for walking and cycling that avoid sensitive habitat ▪ Enforce proper trail use ▪ Install buffer plantings to deter public from entering wetland communities. ▪ Close and install natural barriers on all un-sanctioned trail entrances into the sensitive feature.	Minor-None	▪ Monitor plantings to ensure proper establishment.

4.3 Buffers

4.3.1 Wetlands

A variable buffer ranging between 1m and 17m has been applied between the Irvine Creek PSW and proposed multi-use pathway for Options 1 through 3 (*Figures 1a-1c*). The total area of the variable buffer is 0.85ha, with an equidistant 10m buffer from the verified wetland limit also providing a total of 0.85ha. The alignment of the multi-use pathway is being proposed within the buffer to the Irvine Creek PSW to allow for potential development of the agricultural lands to the south-east. Per the GRCA's *Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* Section 8.4.9, development is permitted within an area of interference less than or equal to 30 metres provided there are no negative or adverse hydrological or ecological impacts on the wetland and that all development is located outside of the wetland and maintains as much setback as feasible.

To avoid negative impacts to the PSW, it is recommended that a planting plan detailing restoration and enhancement within the variable buffer is provided at detailed design, which utilizes native trees, shrubs and seed mix that is suitable for the existing soil and moisture condition. This plan should include thorny native species, such as raspberry, to reduce and impede encroachment and the creation of side trails into the wetland. It is also recommended that the MUP be adjusted to provide as much distance as possible from the existing pond feature, to reduce the potential for encroachment into the pond by dog park users. Implementation of an appropriate planting plan will reduce potential impacts caused by increased run-off from the proposed multi-use path and public encroachment into the PSW feature.

A 30m buffer has been applied to the unevaluated wetland in the southern corner of the study area. No development is to occur within the 30m buffer to the unevaluated wetland. Since Option 4 does not include the multi-use pathway, a 30m buffer has been applied to the Irvine Creek PSW within the study area limits.

4.3.2 Development Limit

The entirety of the Dickson Drive Extension and Cul-de-sac are proposed within the existing agriculture and rural property communities. The multi-use path is primarily located within the existing agricultural communities; however, removal of portions of the Goldenrod Forb Meadow (Polygon 9), Upland Deciduous Forest (Polygon 3) and Deciduous Woodland (Polygon 13) in *Figure 2* are being proposed to accommodate the connection to the Dickson Drive extension and the existing Elora Cataract Trail.

4.4 Hydrological Function of the Wetland

A detailed hydrological study was not completed as part of the EIS. However, a general assessment of hydrological function and potential impacts to the wetland was completed using field observations and background resources. The lands in the study area north of the rural property that bisects the existing agricultural community gently slope towards the Irvine Creek PSW, while the lands south of the rural property gently slope south towards the Elora Cataract Trail, with surface run-off draining towards both features (Grand River Information Network, 2021).

Seeps were identified within the Conifer-Hardwood Mixed Swamp and White Cedar-Conifer Coniferous Swamp communities.

Based on the current topography of the study area, it is anticipated that minimal grading will be required to complete site preparation and construction of the Dickson Drive extension, Cul-de-sac and multi-use pathway.

It is the opinion of AA that although the multi-use pathway is within 30m of the Irvine Creek PSW limit, minimal impact to the wetland hydrology is anticipated, provided the existing drainage pattern can be maintained with minimal grading and that the buffer area is enhanced with native plantings suitable for the soil and moisture conditions following completion of all works to help dissipate any increased run-off due to changes in surface materials. Additionally, closing any unsanctioned trails within and adjacent the PSW would limit public and canine encroachment providing an overall benefit to the wetland feature.

4.5 Clean Equipment Protocol for Industry

Due to the presence of the Irvine Creek PSW immediately adjacent the potential multi-use pathway alignment, and the nature of the proposed construction, the area of works will encroach within the existing area of interference of the Irvine Creek PSW. As the proposed works are in close proximity to the limit of the Irvine Creek PSW, it is recommended that the protocols presented within the Clean Equipment Protocol for Industry (Halloran et al., 2013) are followed to minimize the potential of any invasive species being brought into the PSW throughout the duration of site works. Based on field investigations completed, the existing PSW communities within the study area consist primarily of native species, therefore the implementation of the Clean Equipment Protocol is important for maintaining the existing species composition and ratio of native to exotic species. In addition, the implementation of buffer enhancements consisting of native species in the form of trees and shrubs as well as an herbaceous seed mix will help in preserving the existing conditions of the PSW and deter public encroachment.

5.0 Legislation and Policy Compliance

5.1 Provincial Policy Statement

The *Provincial Policy Statement* ([PPS] OMMHA, 2020) provides policy direction on matters of provincial interest related to land use planning and development. Section 2.1.5 of the PPS states that *"Development and site alteration shall not be permitted in: Significant Wetlands, south and east of the Canadian Shield; Significant Woodlands, Significant Valleylands, Significant Wildlife Habitat… unless it has been demonstrated that there will be no negative impacts on the natural features of their ecological function.".*

Section 1.6.8.6 states that "*When planning for corridors and rights-of-way for significant transportation, electricity transmission, and infrastructure facilities, consideration will be given to the significant resources in Section 2: Wise Use and Management of Resources."*

The proposed Dickson Drive extension, cul-de-sac and potential multi-use pathway are considered essential transportation infrastructure and are, therefore, exempt from the constraints applied to development. It was determined that based on the proposed layout of the Dickson Drive extension and cul-de-sac, it would not negatively impact any of the existing natural features within the study area. The existing Irvine Creek PSW and unevaluated wetland feature are greater than 30m from the proposed extension, and all Significant Wildlife Habitat occurs outside of the existing Agricultural communities within which the extension is proposed.

The Multi-use Pathway is partially within the area of interference of the Irvine Creek PSW and may require removal of trees where the connection to the Elora Cataract Trail is proposed. Where the proposed multi-use pathway is adjacent to the Irvine Creek PSW, a variable buffer, equivalent to 10m, has been applied. It is the opinion of AA that provided an intensive restoration and planting plan, as well as the mitigation recommendations within Sections 4.2 & 7.0, are implemented between the proposed pathway and the PSW, the installation of the pathway will not negatively impact the portion of the Irvine Creek PSW within the study area.

Therefore, the proposed Dickson Drive extension, cul-de-sac and potential Multi-use Pathway comply with the Provincial Policy Statement (OMMHA, 2020).

5.2 Endangered Species Act (2007)

The provincial Endangered Species Act, 2007 (ESA) provides protection to species designated as Threatened or Endangered on the Species at Risk in Ontario list (MNRF,

2021). Bobolink and Eastern Meadowlark, both listed as Threatened under the ESA (2007) were observed within the study area, however, it was determined that breeding was not occurring and suitable habitat was not present due to the high forb content and lack of interior habitat.

Eastern Wood-pewee and Monarch were also observed within the study area; however, they are listed as Special Concern and are not afforded habitat protection under the ESA (2007).

Thus, the proposed Dickson Drive extension, cul-de-sac and potential multi-use pathway are in compliance with the Endangered Species Act (2007).

5.3 GRCA Wetland Policies

Section 8.4 of the GRCA's *Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 150/06, 2015) identifies the area of interference of a Provincially Significant Wetland and an unevaluated wetland as being 120m and 30m, respectively.

Section 8.4.9 states:
"Development within an area of interference less than or equal to 30 metres (100 feet) from a wetland may be permitted in accordance with the policies in Section 7.1.2-7.1.3-General Policies, and where an Environmental Impact Study demonstrates that:

a) There are no negative or adverse hydrological or ecological impacts on the wetland,
b) All development is located outside of the wetland and maintains as much setback as feasible,
c) Development is located above the water table, except as specified in Section 8.4.11, and
d) Septic systems are located a minimum of 15 metres (50 feet) from the wetlands and 0.9 metres (3 feet) above the annual maximum water table."

The proposed Dickson Drive extension, cul-de-sac and portion of the potential multi-use pathway east of the Dickson Drive extension are greater than 30m from unevaluated wetland in the southern corner of the study area. The potential multi-use path west of the Dickson Drive extension is located within 30m of the limit of the Irvine Creek PSW. As noted in Section 4.3.1 a variable buffer between the PSW limit and the proposed multi-use pathway has been applied. Due to the proximity of the pathway to the PSW, it is recommended that a planting and restoration plan be developed and implemented within the buffer area to minimize any negative impacts from the development of the pathway and impacts of public use and encroachment.

It is the opinion of AA that the proposed Dickson Drive extension and multi-use pathway will not negatively impact the Irvine Creek PSW provided a planting plan suitable to the existing soil and moisture conditions and the mitigation recommendations detailed in Sections 4.2 & 7.0 are implemented. Post-construction measures including public education signage and the closure of unsanctioned trails to reduce public encroachment within the PSW. Therefore, the proposed Dickson Drive extension, cul-de-sac and potential multi-use pathway comply with the GRCA wetland policies.

5.4 Wellington County Official Plan (2021 Update)

The Wellington County Official Plan indicates that a portion of the study area is designated as Core Greenlands, in the form of Provincially Significant Wetlands. Section 5.6.1 states:

"Within the Core Greenlands designation, development and site alteration shall not be permitted within Provincially Significant Wetlands or in significant habitat of threatened or endangered species, except in accordance with provincial and federal requirements.

Where development is proposed in the Greenlands system or on adjacent lands, the County or local municipality shall require the developer to:

a) *Identify the nature of the features potentially impacted by the development;*
b) *Prepare, where required, an environmental impact assessment to ensure that the requirements of this Plan will be met and consider enhancement of the natural area where appropriate and reasonable;*
c) *Address any other relevant requirements set out in Section 4.6.3 Environmental Impact Assessment."*

As shown in *Figure 1*, the proposed Dickson Drive extension, cul-de-sac and potential Multi-use Pathway are located outside of the Irvine Creek PSW. The western portion of the multi-use pathway is located adjacent to the limit of the PSW; however, a variable buffer has been applied to help minimize negative impacts to the wetland.

It is recommended that a planting plan with native species suitable to the existing moisture and soil conditions be implemented within the variable buffer to aid in dissipation of runoff from the multi-use pathway as well as limit public encroachment into the feature. Provided a planting plan is implemented along with the mitigation recommendations detailed in Sections 4.2 & 7.0, it is the opinion of AA that the proposed Dickson Drive extension and Multi-use Pathway will not result in negative impacts to the Irvine Creek PSW. Additionally, habitat of threatened or endangered species was determined not to be present within the study area. Therefore, the

proposed Dickson Drive extension and multi-use pathway comply with the Wellington County Official Plan (2021 update).

5.5 Township of Centre Wellington Official Plan (2013 Consolidation)

The Township of Centre Wellington Official Plan mapping indicates the presence of Core Greenlands in the form of the Irvine Creek PSW. Section D8.2 states:

"Upon lands designated Core Greenlands, no development or site alteration is permitted within Provincially Significant Wetlands, in provincially significant portions of the habitat of threatened or endangered species, or in the floodway. Uses shall be limited to conservation and resource management, open space and passive recreation. Such uses shall only be permitted where it can be demonstrated that:

1. *There are no negative impacts on provincially significant features and functions and no significant negative impacts on other natural heritage features and functions;*
2. *Any natural hazards present can be safely overcome;*
3. *The development confirms to policies of the applicable or underlying designation.*

Agriculture and other existing uses are permitted to continue"

As noted in Section 5.4, all proposed development is located outside of the limits of the Irvine Creek PSW. Due to a portion of the multi-use pathway being proposed within 30m of the limits of the Irvine Creek PSW, a variable buffer, within which a planting plan suitable to the existing moisture and soil conditions is recommended, has been applied. The installation of native species between the proposed multi-use pathway and the PSW will help to dissipate any increased run-off due to the installation of the trail as well as limit public and canine encroachment within the PSW. Additionally, habitat of threatened or endangered species was determined not to be present within the study area.

Provided a suitable planting plan is implemented along with the mitigation recommendations detailed in Section 4.2 & 7.0, it is the opinion of AA that the proposed Dickson Drive extension, cul-de-sac and potential multi-use pathway will result in no negative impacts to the Irvine Creek PSW. Thus, the proposed development complies with the Township of Centre Wellington Official Plan (2013 Consolidation).

6.0 Summary and Conclusion

It is the opinion of AA that by implementing the mitigation measures identified in Section 4.0, the proposed Dickson Drive extension, cul-de-sac and potential Multi-use Pathway will not result in any significant long-term negative impacts to the existing natural features identified, including the Irvine Creek Provincially Significant Wetland complex. The natural features within the study area will be protected and enhanced through mitigation measures. This will result in long-term positive effects on the natural heritage features within the study area. Below is a summary of the affected natural heritage features, constraints and impacts. Recommendations for associated mitigation and/or protection measures are also identified in Section 4.0.

6.1 Biological Studies and Site Constraints

1. Surveys were conducted for Ecological Land Classification and Vegetation Communities (ELC and Vascular Plant List), Breeding birds, amphibian breeding, Significant Wildlife Habitat and Species at Risk Habitat.

2. Species at Risk including, Bobolink, Eastern Meadowlark, Eastern Wood-pewee and Monarch were observed within the study area.
    a. No suitable habitat was determined to be present for Bobolink and Eastern Meadowlark due to the high forb content and lack of interior grassland habitat.
    b. Suitable habitat for Eastern Wood-pewee was identified within the Conifer-Hardwood Mixed Swamp and the White Cedar-Conifer Swamp, while suitable habitat for Monarch was identified within the Goldenrod Forb Meadow communities, respectively.

3. Significant Wildlife Habitat in the form of Deer Winter Congregation Areas & Movement Corridors, Seeps & Springs and Rare & Special Concern Species was identified within the study area. Candidate Bat Maternity habitat was also identified.
    a. Studies to confirm Bat Maternity Habitat have not been completed in the study area. In the event that site activities will affect significant habitat, it is recommended that detailed studies of Candidate Bat Habitat which may be affected, occur pre-construction.

4. The study area includes a portion of the Irvine Creek PSW, a reach of an unnamed watercourse, and a small unevaluated wetland as identified by the GRCA.

6.2 Impact Assessment

1. Generalized impacts due to the proposed Dickson Drive extension and Multi-use Pathway were assessed to determine their extent, and mitigation guidelines have been provided (*Section 4.0*).

2. Potential impacts primarily involve vegetation removal, site grading, impacts to the PSW through erosion, sedimentation and contamination, and wildlife disturbance.

3. There are opportunities in the study area for restoration through the implementation of a restoration planting plan which would involve planting native tree and shrub species and spreading native seed mix through the variable buffer and area of disturbance to enhance and restore the area between the PSW and multi-use pathway and disturbed areas.

4. There are opportunities to limit public encroachment into the existing natural features through the installation of educational signage, enforcement of proper trail use and the closure of unsanctioned trails.

6.3 Legislation and Policy Compliance

1. The proposed Dickson Drive extension, cul-de-sac and potential Multi-use Pathway can occur in accordance with the GRCA's *Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario 150/06) because it has been demonstrated that any impacts to the hydrologic or ecological functions can be minimized through the recommended mitigation measures and implementation of an appropriate planting plan. The mitigation measures and implementation of an appropriate planting plan will ensure restoration and enhancement of the variable buffer and disturbed areas.

2. The proposed Dickson Drive extension, cul-de-sac and potential Multi-use Pathway can occur in accordance with the Wellington County Official Plan and Township of Centre Wellington Official Plan as the findings of the EIS concluded that the proposed development will not negatively impact the existing features or their ecological and hydrologic functions provided the recommended mitigation measures and appropriate planting plan are implemented.

7.0 Avoidance, Mitigation and Compensation Recommendations

The following recommendations are provided to ensure protection and maintenance of the natural heritage features and functions adjacent the proposed Dickson Drive extension, cul-de-sac and potential Multi-use Pathway. Through the implementation of the proposed mitigation, restoration, and compensation, no negative impacts to the natural heritage features are expected.

1. Re-align the portion of the multi-use pathway adjacent the Cattail Mineral Shallow Marsh (Polygon 6, Figure 2) closer to the existing hedgerow to allow the variable buffer to be expanded and restoration plantings to be installed between the multi-use path and PSW.
    a. If tree removals within the hedgerow are required as a result of re-alignment, MECP communication should occur regarding potential bat maternity habitat.

2. If a multi-use pathway is not established, it is recommended that any unsanctioned access east of the Fergus Dog Park be closed, and that restoration of the 30m buffer to the Irvine Creek PSW be implemented to prevent public encroachment.

3. Prepare and implement an Erosion and Sediment Control Plan (ESC), per GGH Erosion and Sediment Guidelines, as part of detailed design, for protection of the Irvine Creek PSW.

4. Install and monitor a silt and sediment control barrier
    a. Silt fencing to be inspected weekly during construction and following a storm event of 25mm within 24 hours;

5. ESC measures to be kept in place until all works are completed, and disturbed soils have been vegetated;

6. The area of construction disturbance shall be kept to a minimum;

7. Control the access and movement of equipment and people;
    a. Implement appropriate protocols outlined in the Clean Equipment Protocol for Industry (Halloran et al., 2013);

8. Minimize the use of heavy equipment within close proximity to the Irvine Creek PSW

a. Equipment is to be limited to the construction allowance area and is not to encroach within the adjacent natural communities;

9. Works and equipment storage are to be located as far as possible from the existing natural features as possible;

10. Accumulated sediment and debris to be removed prior to the removal of the silt fence;

11. All disturbed areas should be re-vegetated or restored with site appropriate indigenous plants.
    a. Implementation of an appropriate planting plan within the variable buffer between the multi-use pathway and Irvine Creek PSW is recommended. Plantings should be monitored to ensure proper establishment.
    b. The planting plan should include species that are a deterrent to encroachment, such as raspberries, due to the current level of encroachment and off trail use within the PSW.

12. Time activities to avoid wildlife disturbance during critical life stages;
    a. Avoid removal of trees and vegetation during the generalized breeding bird nesting period from April 1 to August 31. If removal of vegetation is to occur during the general nesting period, a nest search should be completed by a skilled and experience Biologist.

    b. In the event that site activities require removal of an identified Candidate Bat Habitat tree, it is recommended that detailed studies occur pre-construction.

13. Choose designs and materials that will minimize impacts.

14. Establish educational signage pertaining to encroachment within the Irvine Creek PSW along the proposed multi-use pathway.

15. Close all unsanctioned trail entrances within and adjacent the Irvine Creek PSW.

Prepared by:

ABOUD & ASSOCIATES INC.



Shannon Davison, B. Env., Eco. Rest. Cert.
Ecologist
Certified Ecological Restoration Practitioner In-training #0499
MNRF Certified Ecological Land Classification
MNRF Certified Wetland Evaluation

Reviewed By:



Cheryl-Anne Ross, B.Sc. F.W.T.
Ecology Lead & Wildlife Ecologist

8.0 References

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

Colin Jones, Ross Layberry, and Alan Macnaughton. Ontario Butterfly Atlas Online. 2015. Toronto Entomologists' Association: 2021. Available at: http://www.ontarioinsects.org/atlas_online.htm

COSEWIC. 2011. COSEWIC assessment and status report on the Barn Swallow *Hirundo rustica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 37 pp. Available at: www.sararegistry.gc.ca/status/status_e.cfm

County of Wellington. 2021. Wellington County Official Plan. May 6, 1999 (Last Revision January 8, 2021).

Dobbyn, John. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists, viii + 120pp.

Dougan & Associates, with Sneil & Cecile Environmental Research. 2009. List of Significant Wildlife in Wellington County; In City of Guelph Natural Heritage Strategy - Phase 2: Terrestrial Inventory & Natural Heritage System (VOL. 2 – APPENDICES). Final Report March 2009.

Endangered Species Act, 2007, S.O. 2007, c. 6

Fisheries Act, 1985. R.S.C., 1985, c. F-14

GRCA. 2021. Grand River Conservation Authority. *Grand River Information Network*. Available at: http://www.grandriver.ca/index/document.cfm?sec=63&sub1=0&sub2=0

Jaster, Levi A., William E. Jensen and Wesley E. Lanyon. (2012). Eastern Meadowlark (*Sturnella magna*), The Birds of North America (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: https://birdsna.org/Species-Account/bna/species/easmea

Lee, H.T., W.D. Bakowsky, J.L. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurry. 1998. Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Science Section. Science Development and Transfer Branch. SCSS Field Guide FG-02

Lee H.T. 2008. Southern Ontario Ecological Land Classification – Vegetation Type List Ontario Ministry of Natural Resources.

MNRF. 2000. Ontario Ministry of Natural Resources. *Significant Wildlife Habitat Technical Guide.* October 2000.

MNRF. 2015. Significant Wildlife Habitat Ecoregion 6E Criteria Guide. Ministry of Natural Resources and Forestry. Regional Operations Division, Peterborough Ontario, January, 2015.

MNRF. 2017. Bat and Bat Habitat Surveys of Treed Habitats – MNRF Guelph District, April, 2017.

MNRF. 2021. Ontario Ministry of Natural Resources. Ontario Species at Risk website. Available at: http://www.mnr.gov.on.ca/en/Business/Species/index.html

Mortarello, S., Mike Barry, M., Gann G., Zahina, J., Channon, S., Hilsenbeck, C., Scofield, D., Wilder, G., and Wilhelm, G. 2012. Coefficients of Conservatism Values and the Floristic Quality Index for the Vascular Plants of South Florida. Southeastern Naturalist. Volume 11(Monograph 3):1–62.

NHIC. 2021. Natural Heritage Information Centre. *NHIC online database and mapping.* Ontario Ministry of Natural Resources. Available at: https://www.ontario.ca/environment-and-energy/natural-heritage-information-centre

OMMHA. 2020. Ontario Ministry of Municipal Affairs and Housing. *Ontario Provincial Policy Statement.* May 1, 2020.

Ontario Nature. 2019. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. Ontario Nature, Ontario. Available at: http://www.ontarionature.org/atlas

Ontario Partners in Flight. 2008. *Ontario Landbird Conservation Plan: Lower Great Lakes/St. Lawrence Plain, North American Bird Conservation Region 13.* Ontario Ministry of Natural Resources, Bird Studies Canada, Environment Canada. Draft Version 2.0

OWES. 2013. Ontario Ministry of Natural Resources. *Ontario Wetland Evaluation System: Southern Manual.* 3rd Edition.

Renfrew, Rosalind, Allan M. Strong, Noah G. Perlut, Stephen G. Martin and Thomas A. Gavin. 2015. Bobolink (*Dolichonyx oryzivorus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Available at: http://bna.birds.cornell.edu/bna/species/176

SARA. 2021. Federal Species at Risk Registry. Government of Canada. Available at: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

Township of Centre Wellington. 2005. Township of Centre Wellington Official Plan. May 31, 2005 (January 2013 Consolidation)

Township of Centre Wellington. 2013. Township of Centre Wellington Comprehensive Zoning By-law 2009-045. February 2018 Consolidation.

VASCAN. 2015. Database of Vascular Plants of Canada (VASCAN). Université de Montréal Biodiversity Centre. Version 36. Published September 24, 2015.

Agency Correspondence

Ferris, Meagan. Senior Planner. Wellington County. Email correspondence.

Iglesias, Mariana. Senior Planner. Township of Centre Wellington. Email correspondence.

McShane, Lisa. Management Biologist. Ministry of Environment, Conservation & Parks. Email correspondence.

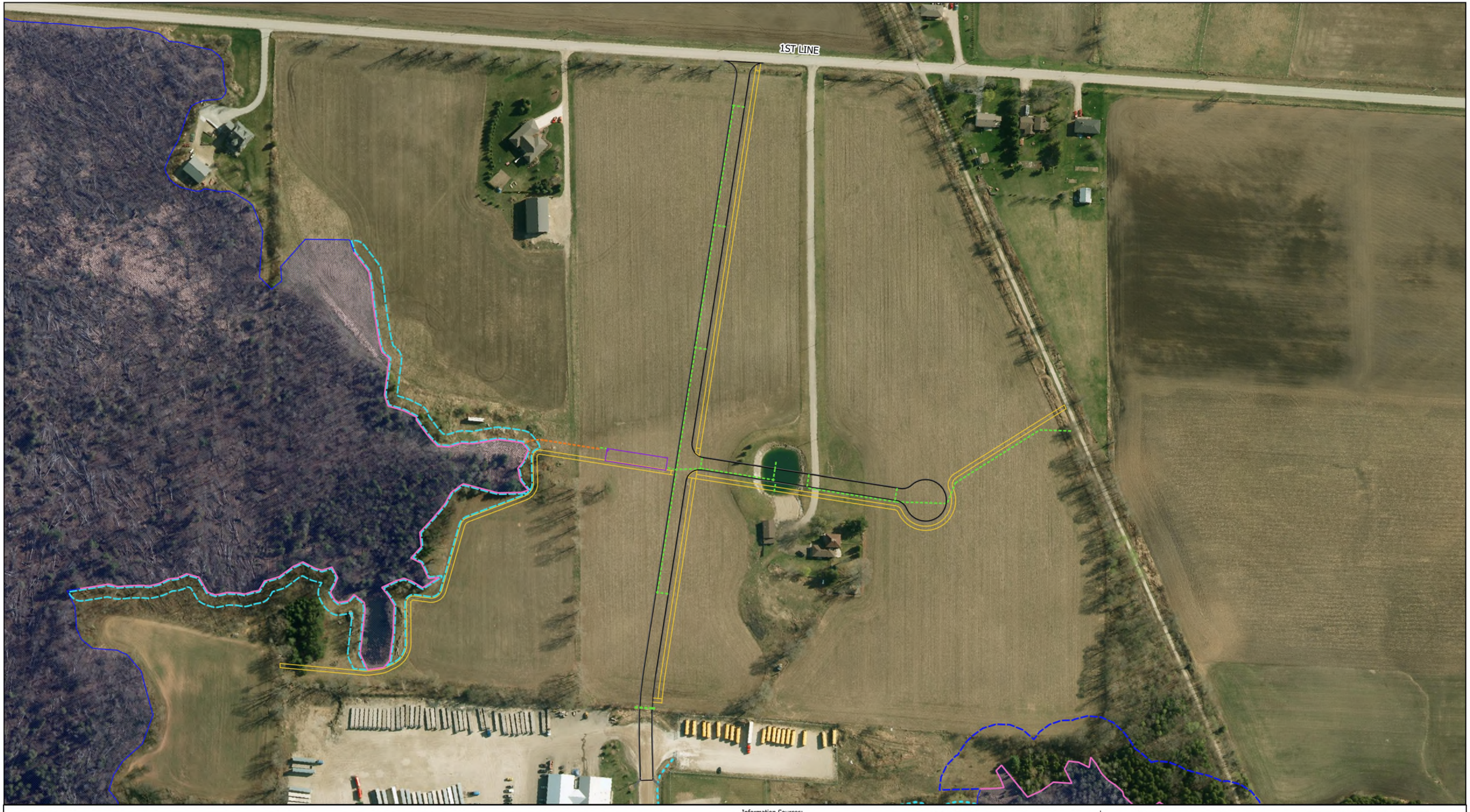
Ungar, Darren. Management Biologist. Ministry of Natural Resources & Forestry, Guelph District. Email correspondence.

Warner, Laura. Resource Planner. Grand River Conservation Authority. Email correspondence.

- Urban Forestry
- Ecological Restoration
- Landscape Architecture
- Environmental Studies
- Expert Opinion

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudtng.com

FIGURES



LEGEND

- VERIFIED WETLAND LIMIT
- WETLAND
- VARIABLE WETLAND BUFFER
- 30M WETLAND BUFFER
- WATERCOURSE
- PROPOSED ROAD
- PROPOSED DITCH
- PROPOSED MULTI-USE PATH
- PROPOSED STORMTECH CHAMBER
- PROPOSED STORM SEWER

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed January, 2022.
2. Wetlands and watercourse provided by Grand River Conservation Authority
3. Verified Wetland limit provided by Triton Engineering Services Limited, September 2021
4. Proposed site plan provided by Triton Engineering Services Limited, dated October, 2021

*Proposed site plan provided for context only. Please refer to Triton Engineering Services Limited Drawing M6468 Option 1 October, 2021

Title:

PROPOSED SITE PLAN
OPTION 1

Project:

DICKSON DRIVE
FERGUS ON

Date: FEBRUARY 2022

Project: AA21-085A

Scale: 1 : 2500

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudng.com

Figure No: 1a



LEGEND

- VERIFIED WETLAND LIMIT
- WETLAND
- VARIABLE WETLAND BUFFER
- 30M WETLAND BUFFER
- WATERCOURSE
- PROPOSED ROAD
- PROPOSED DITCH
- PROPOSED DRAINAGE POND
- PROPOSED MULTI-USE PATH
- PROPOSED STORM SEWER

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed January, 2022.
2. Wetlands and watercourse provided by Grand River Conservation Authority
3. Verified Wetland liimt provided by Triton Engineering Services Limited, September 2021
4. Proposed site plan provided by Triton Engineering Services Limited, dated October, 2021

*Proposed site plan provided for context only. Please refer to Triton Engineering Services Limited Drawing M6468 Option 2 October, 2021

Title:

PROPOSED SITE PLAN
OPTION 2

Project:

DICKSON DRIVE
FERGUS ON

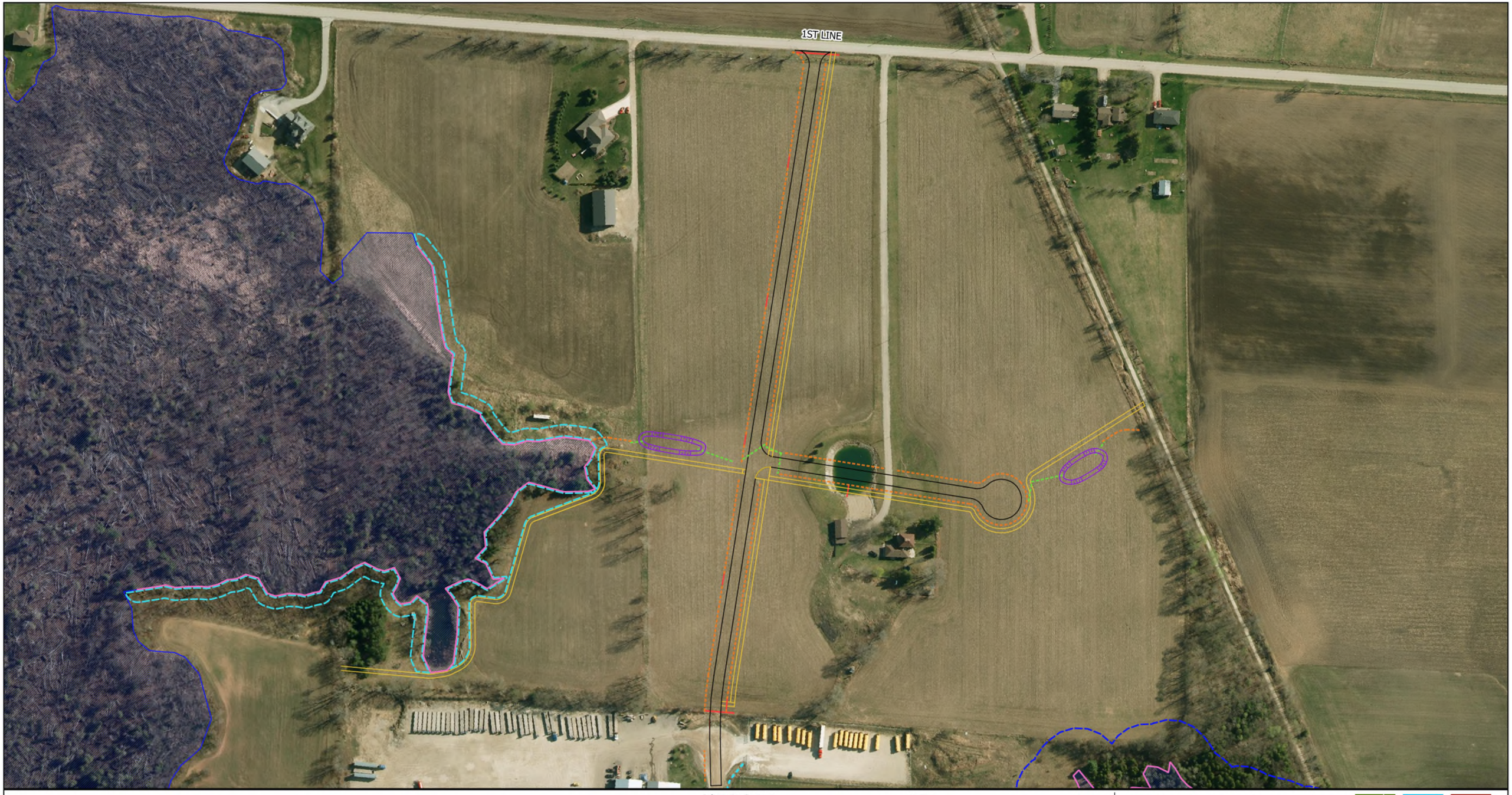
Date: FEBRUARY 2022

Project: AA21-085A

Scale: 1 : 2500

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudtng.com

Figure No: 1b



LEGEND

- VERIFIED WETLAND LIMIT
- WETLAND
- VARIABLE WETLAND BUFFER
- 30M WETLAND BUFFER
- WATERCOURSE
- PROPOSED DITCH
- PROPOSED DRAINAGE CULVERT
- PROPOSED DRAINAGE POND
- PROPOSED ROAD
- PROPOSED MULTI-USE PATH
- PROPOSED STORM SEWER

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed January, 2022.
2. Wetlands and watercourse provided by Grand River Conservation Authority
3. Verified Wetland limit provided by Triton Engineering Services Limited, September 2021
4. Proposed site plan provided by Triton Engineering Services Limited, dated October, 2021

*Proposed site plan provided for context only. Please refer to Triton Engineering Services Limited Drawing M6468 Option 3 October, 2021

Title:

PROPOSED SITE PLAN
OPTION 3

Project:

DICKSON DRIVE
FERGUS ON

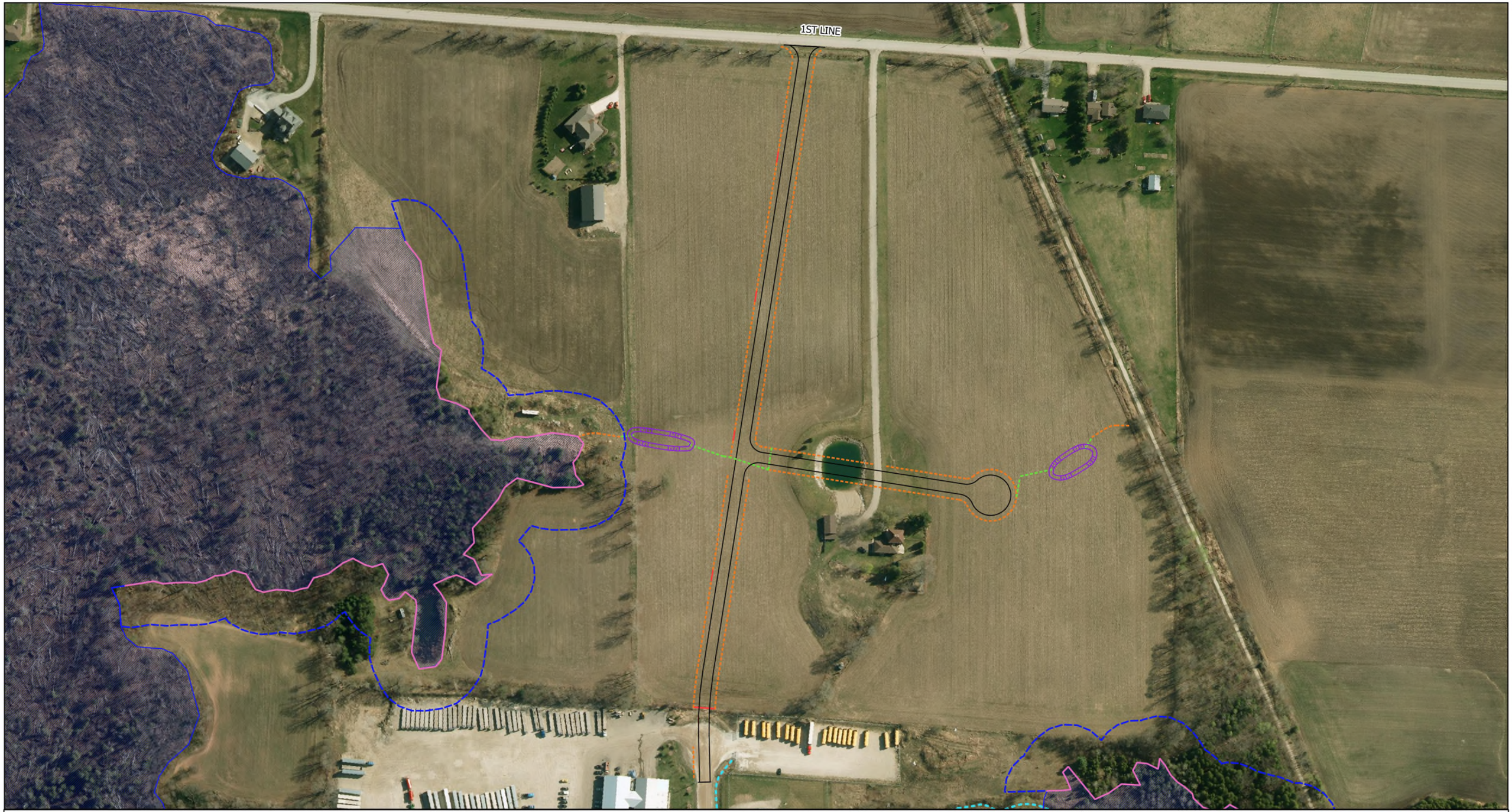
Date: FEBRUARY 2022

Project: AA21-085A

Scale: 1 : 2500

ABOUD & ASSOCIATES INC.
Consulting Arborists•Ecologists•Landscape Architects
190 Nicklin Road .Guelph .Ontario .N1H 7L5 .519.822.6839 .www.aboudtng.com

Figure No: 1c



LEGEND

- VERIFIED WETLAND LIMIT
- 30M WETLAND BUFFER
- WATERCOURSE
- WETLAND
- PROPOSED DITCH
- PROPOSED DRAINAGE CULVERT
- PROPOSED DRAINAGE POND
- PROPOSED ROAD
- PROPOSED STORM SEWER

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed January, 2022.
2. Wetlands and watercourse provided by Grand River Conservation Authority
3. Verified Wetland limit provided by Triton Engineering Services Limited, September 2021
4. Proposed site plan provided by Triton Engineering Services Limited, dated October, 2021

*Proposed site plan provided for context only. Please refer to Triton Engineering Services Limited Drawing M6468 Option 4 October, 2021

Title:

PROPOSED SITE PLAN
OPTION 4

Project:

DICKSON DRIVE
FERGUS ON

Date: FEBRUARY 2022

Project: AA21-085A

Scale: 1 : 2500

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudtng.com

Figure No:

1d

POLYGON	ELC CODE	COMMUNITY DESCRIPTION
1	SWCM 1-2	White Cedar- Conifer Mineral Coniferous Swamp
2	SWMM 5	Conifer- Hardwood Mineral Mixed Swamp
3	FODM 4	Dry- Fresh Upland Deciduous Forest
4	TAGM 5	Fencerow
5	FOMM 4-2	Dry- Fresh White Cedar- Poplar Mixed Forest
6	MASM 1-1	Cattail Mineral Shallow Marsh
7	SWTM 3-2	Bebb's Willow Mineral Deciduous Thicket Swamp
8	FODM 4	Dry- Fresh Upland Deciduous Forest
9	MEFM 1-1	Goldenrod Forb Meadow
10	CVC 2	Light Industry
11	OAGM 1	Annual Row Crops
12	CVR 4	Single Family Residential
13	WODM 4	Dry- Fresh Deciduous Woodland
14	CGL 4	Recreational
15	MAMM 3-1	Mixed Mineral Meadow Marsh

1ST LINE

LEGEND

STUDY AREA

ECOLOGICAL LAND CLASSIFICATION

WETLAND

WATERCOURSE

Information Sources:
1. Orthophotography provided by First Base Solutions Accessed September, 2021.
2. Ecological Land Classification provided by Aboud & Associates, 2021
3. Watercourse and wetlands provided by Grand River Conservation Authority, verified on site with AA

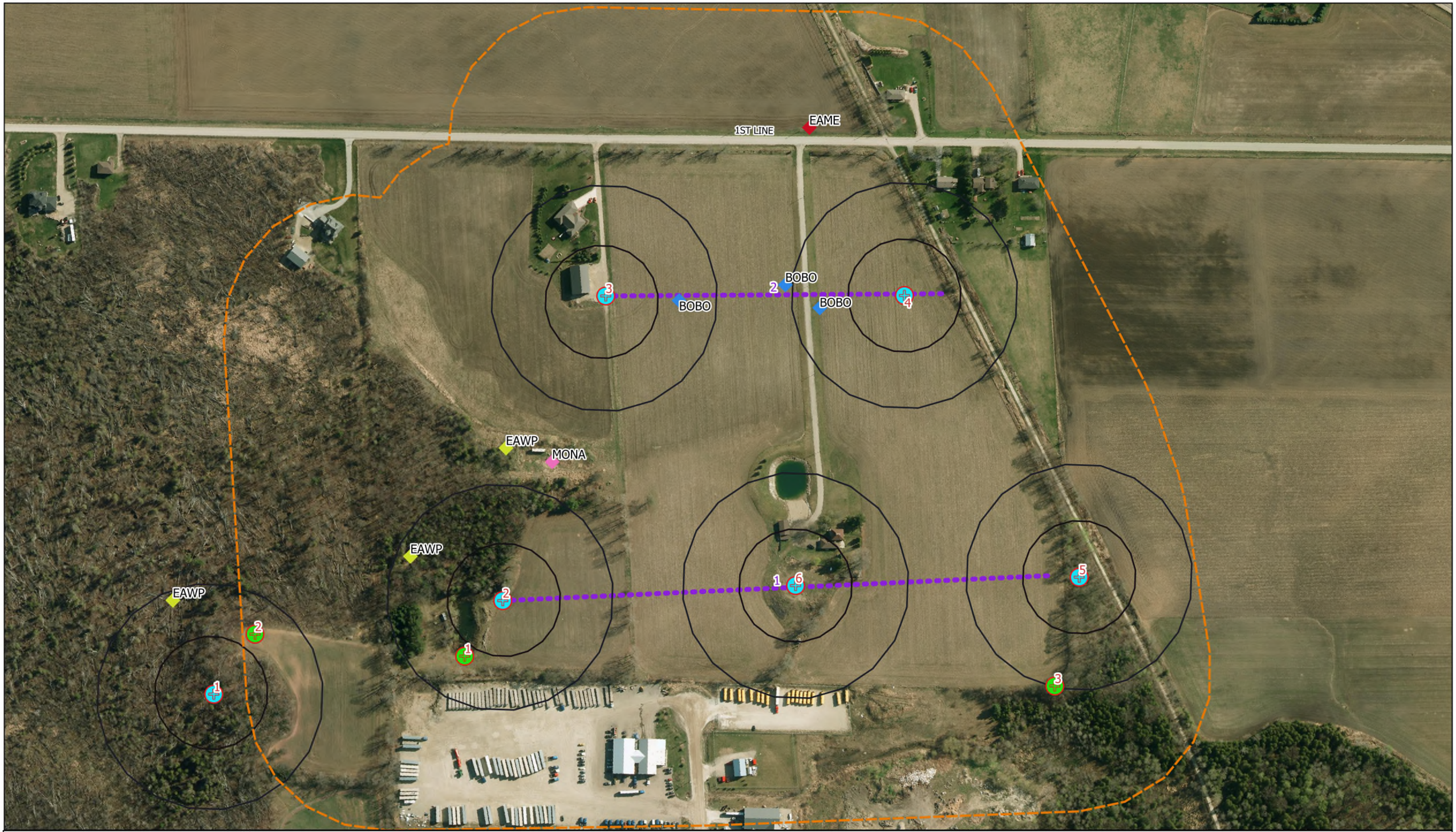
Title: EXISTING CONDITIONS

Project: DICKSON DRIVE FERGUS ON

Date: SEPTEMBER 2021
Project: AA21-085A
Scale: 1 : 3000

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudng.com

Figure No: 2



LEGEND

- STUDY AREA
- BREEDING BIRD SURVEY LOCATION
- AMPHIBIAN SURVEY LOCATION
- GRASSLAND BIRD TRANSECT
- BOBOLINK
- EASTERN MEADOWLARK
- EASTERN WOOD-PEWEE
- MONARCH

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed September, 2021.
2. Locations of significant species provided by Aboud & Associates, 2021

Title:

SURVEY LOCATIONS & SIGNIFICANT SPECIES OBSERVATIONS

Project:

DICKSON DRIVE
FERGUS ON

Date: SEPTEMBER 2021
Project: AA21-085A
Scale: 1 : 3000

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5, 519.822.6839, www.aboudinc.com

Figure No: 3

1ST LINE

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

LEGEND

- STUDY AREA
- DEER WINTERING AREA
- CANDIDATE BAT MATERNITY TREES
- SPECIAL CONCERN & RARE SPECIES HABITAT
- SEEPS & SPRINGS HABITAT

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed September, 2021.
2. Locations of Significant Wildlife Habitat provided by Aboud & Associates, 2021

Title:
SIGNIFICANT WILDIFE HABITAT

Project:
DICKSON DRIVE
FERGUS ON

Date: SEPTEMBER 2021
Project: AA21-085A
Scale: 1 : 3000

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudinc.com

Figure No: 4

APPENDIX 1
Terms of Reference & Agency Communication

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects

190 Nicklin Road
Guelph . Ontario
N1H 7L5

T: 519.822.6839
F: 519.822.4052
info@aboudtng.com
www.aboudtng.com

URBAN FORESTRY
ARBORIST REPORTS
MANAGEMENT PLANS
TREE PRESERVATION PLANS
TREE RISK ASSESSMENT
GIS TREE INVENTORIES
TREE APPRAISALS
MONITORING

ECOLOGICAL RESTORATION
NATURAL SYSTEMS DESIGN
HABITAT RESTORATION
EDGE MANAGEMENT PLANS
RAVINE STEWARDSHIP PLANS
NATURALIZATION PLANS
INTERPRETIVE DESIGN
MONITORING
CONTRACT ADMINISTRATION

ENVIRONMENTAL STUDIES
SUBWATERSHED STUDIES
ENVIRONMENTAL IMPACT STATEMENTS
ECOLOGICAL LAND CLASSIFICATION
WETLAND EVALUATION
VEGETATION ASSESSMENT
BOTANICAL INVENTORIES
WILDLIFE SURVEYS
MONITORING

LANDSCAPE ARCHITECTURE
MASTER PLANNING
RESIDENTIAL COMMUNITIES
COMMERCIAL/INDUSTRIAL
HEALTHCARE AND EDUCATION
STREETSCAPES
PARKS AND OPEN SPACES
TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

May 4, 2021

Our Project No.: AA21-085A
Sent by Email: lwarner@grandriver.ca

Laura Warner
Resource Planner
Grand River Conservation Authority
400 Clyde Road PO Box 729
Cambridge, Ontario N1R 5W6

Re: Dickson Drive Extension Municipal Class EA
Township of Centre Wellington, Wellington County
Terms of Reference - Scoped Environmental Impact Study

Dear Ms. Warner:

This document outlines the Terms of Reference (ToR) of the scoped Environmental Impact Study (EIS) for a proposed road extension of Dickson Drive and Multi-use Pathway connecting the Fergus dog park to the Elora Cataract Trailway. Please review the terms and circulate to GRCA staff for discussion and approval.

BACKGROUND

The preparation of an EIS is required as part of a Municipal Class EA for a proposed road extension of Dickson Drive and Multi-use Pathway connecting the Fergus dog park to the Elora Cataract Trailway. The site is entirely within the urban boundary of Fergus, and includes provincially significant wetlands, woodlands, agriculture and residential lands.

The subject lands include Core Greenlands as designated by the County of Wellington Official Plan. Core Greenlands on the subject lands consist of Provincially Significant Wetlands (PSW).

The subject lands are mapped within the urban boundary of the Township of Centre Wellington and are identified as Industrial and Environmental Protection under Schedule A-1 Land Use Plan of the Municipal Official Plan of the Township of Centre Wellington.

In preparing the Terms of Reference, the following sources were reviewed for background information:

- Aerial photography of the subject site,
- Dickson Drive Extension- Road Layout Figures (provided by Triton Engineering Services Limited, April 13, 2021)
- Wellington County Official Plan (2021) and Schedules,
- Wellington County GIS mapping (Explore Wellington, accessed April 14, 2021) of natural heritage features (e.g., wooded areas, MNRF wetlands, watercourses).
- GRCA mapping (accessed April 14, 2021) of natural heritage features (e.g., regulation limit, GRCA and OMNR wetlands, ANSI's, and MNR Woodlands),
- Natural Heritage Information Center, Make-a-map, accessed April 14, 2021.
- Ontario Nature. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. Accessed April 15, 2021.
- Ontario Breeding Bird Atlas. Bird Studies Canada, 2008.
- Atlas of the Mammals of Ontario. Dobbyn, 1994.
- iNaturalist. Accessed April 15, 2021
- eBird. Cornell Lab of Ornithology. Accessed April 15, 2021.
- Ontario Butterfly Atlas. Toronto Entomologists' Association. Accessed April 26, 2021.

STUDY AREA

The study area includes the subject lands and up to 120m beyond the proposed development, where permission to access property is granted (*Figure 1*).

As needed, the lands adjacent to the proposed development may require further access to assist with understanding the characteristics and functions of natural heritage features. Where access is restricted, information will be acquired through existing background information and what can be observed from the edge of the accessible lands.

Lands outside of the field study area, or where access is not provided, will be reviewed from existing background information (e.g., Wellington County Official Plan).

PLANNING CONTEXT

Growth Plan for the Greater Golden Horseshoe (2019)

The Growth Plan for the Greater Golden Horseshoe (GPGGH) (2019) builds upon the policy foundation provided by the PPS and provides additional and more specific land

use planning policies to address issues facing specific geographic areas in Ontario. The GPGGH states:

"*Municipalities will incorporate the Natural Heritage System for the Growth Plan as an overlay in official plans, and will apply appropriate policies to maintain, restore, or enhance the diversity and connectivity of the system…"*

Section 3.2.5 states:
"In planning for the development, optimization, or expansion of existing and planned corridors and supporting facilities, the Province, other public agencies and upper- and single-tier municipalities will:

… d) Where applicable, demonstrate through an environmental assessment, that any impacts on key natural heritage features in the Natural Heritage System for the Growth Plan, key hydrologic features and key hydrologic areas have been avoided or, if avoidance is not possible, minimized and to the extent feasible mitigated"

Grand River Conservation Authority
The subject lands contain portions of a PSW and GRCA wetlands and are within the allowances of these features. Section 8.4 of the GRCA's *Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 150/06, 2015) identifies the area of interferences of a PSW as being 120 metres. Section 8.4.9 states:

"Development within an area of interference less than or equal to 30 metres (100 feet) from a wetland may be permitted in accordance with the policies in Section 7.1.2-7.1.3-General Policies, and where an Environmental Impact Study demonstrates that:

a) *There are no negative or adverse hydrological or ecological impacts on the wetland,*
b) *All development is located outside of the wetland and maintains as much setback as feasible,*
c) *Development is located above the water table, except as specified in Section 8.4.11, and*
d) *Septic systems are located a minimum of 15 metres (50 feet) from the wetlands and 0.9 metres (3 feet) above the annual maximum water table."*

Wellington County Official Plan (2021 Consolidation)
The Wellington County Official Plan indicates that a portion of the subject lands are within the Natural Heritage System and contain Core Greenlands, which are identified as Provincially Significant Wetlands. Section 5.6.1 states:

"Within the Core Greenlands designation, development and site alteration shall not be permitted within Provincially Significant Wetlands or in significant habitat of threatened or endangered species, except in accordance with provincial and federal requirements.

Where development is proposed in the Greenlands system or on adjacent lands, the County or local municipality shall require the developer to:

a) *Identify the nature of the features potentially impacted by the development;*
b) *Prepare, where required, an environmental impact assessment to ensure that the requirements of this Plan will be met and consider enhancement of the natural area where appropriate and reasonable.*
c) *Address any other relevant requirements set out in Section 4.6.3 Environmental Impact Assessment."*

Township of Centre Wellington Official Plan (2013 Consolidation)

The Township of Centre Wellington Official Plan mapping indicates the presence of Core Greenlands on the subject lands. Section D8.2 states:

"Upon lands designated Core Greenlands, no development or site alteration is permitted within Provincially Significant Wetlands, in provincially significant portions of the habitat of threatened or endangered species, or in the floodway. Uses shall be limited to conservation and resource management, open space and passive recreation…"

Section D8.4 states:
"The Core Greenlands designations on the schedules to this Plan are based on mapping provided by the County in consultation with the Grand River Conservation Authority. The limits of the Core Greenlands designated may need to be refined by more detailed mapping on individual sites, such as when an Environmental Impact Study is prepared regarding a proposed development within or abutting such lands. Where more detailed mapping is available, minor adjustments may be made within an amendment to this Plan and the land use policies of the adjacent designation will apply as determined by Council."

The policies and land use plans of the County Official Plan apply to those lands within the Urban Boundary, as it relates to the Greenlands System.

Township of Centre Wellington Zoning By-law 2009-045 (2018 Consolidation)

The Township of Centre Wellington Zoning By-law indicates that the lands are zoned as Industrial and Environmental Protection. Section 4.12.1 states:

"No buildings, structure, or private sewage treatment system shall be constructed closer than 30.0m (98.4 ft) from the limit of an EP zone within the prior written approval of the Grand River Conservation Authority."

BACKGROUND REVIEW

Additional background natural heritage information related to the subject lands and adjacent lands identified the following information:

1. The Ontario Reptile and Amphibian Atlas shows within the two 10 km squares containing the subject lands, the recent and historical presence of 13 species (including complexes) of reptiles and amphibians (accessed April 15, 2021), including three species of Conservation Concern (Snapping Turtle, Western Chorus Frog and Midland Painted Turtle).

2. The Natural Heritage Information Center indicates the presence of Eastern Meadowlark, Barn Swallow and Bobolink within the nine 1km squares containing the subject lands. It also identifies that portions of the Irvine Creek Wetland Complex and a colonial waterbird nesting area are present in the vicinity of the study area.

3. The Ontario Breeding Bird Atlas shows within the two 10 km squares containing the subject lands, the recent and historical presence of 120 species of birds, including eight species of Conservation Concern (Northern Bobwhite, Eastern Wood-pewee, Bank Swallow, Barn Swallow, Wood Thrush, Canada Warbler, Grasshopper Sparrow, Bobolink and Eastern Meadowlark).

4. The Ontario Mammal Atlas indicates the presence of 21 species within the two 10km squares containing the subject lands. No species of Conservation Concern were indicated.

5. eBird records from the nearby Fergus Dog Park (~350 m from the subject lands) indicates the recent and historical presence of 15 species, including one species of Conservation Concern (Barn Swallow).

6. iNaturalist research-grade observations within 1km of the subject lands indicate the recent presence of two vascular plant species, one insect species and three bird species. One of the species observed, Bald Eagle, is considered a species of Conservation Concern.

7. The Ontario Butterfly Atlas shows within the two 10 km squares containing the subject lands, the recent and historical presence of 24 species of butterflies, including one species of Conservation Concern (Monarch).

This information indicates that there is a potential presence of additional natural heritage features and constraints that may require investigation and/or comment.

PROPOSED TERMS OF REFERENCE

To fulfill the requirements of this study, we will:

1. Review background information, (e.g. proposed activity, relevant sections of natural heritage system components of the Wellington County OP, Township of Centre Wellington Zoning By-law, investigation of wildlife atlases and NHIC).
2. Complete a MECP Information Request, to determine the potential presence of SAR or other significant natural features in the study area.
3. Complete an MNRF Request for Information to acquire information pertaining to the adjacent wetlands.
4. Conduct two site visits to characterize vegetation communities using the ELC system (MNRF) and complete a two-season (spring and late-summer) botanical inventory of the Study Area. During this study, we will look for informal trails in the forest and opportunities/constraints for placement of the trail.
5. Conduct an amphibian (frogs and toads) call survey as pe the Marsh Monitoring Program (2003), by Bird Studies Canada. This requires 3 surveys conducted between 0.5 hours after sunset and before midnight within specific periods and minimum temperatures: 15-30 April, 15-30 May, and 15-30 June.
6. Woodland Limit: Pre-stake the woodland dripline within the Study Area, and coordinate with the County to field-verify the woodland limit.
7. Conduct a breeding bird survey of the Study Area, following the protocol of the Ontario Breeding Bird Atlas (Bird Studies Canada, 2004), and including both points counts and area searches. The breeding bird survey requires two, focused, early morning site visit during the period between late May and early July. Should grassland bird habitat occur on site, a 3rd site visit will be completed, and the MNRF grassland bird protocol will be employed for any candidate habitat on site.
8. Bat Habitat Assessment, as the wetland features within 30m of any proposed work have the potential for suitable bat maternity trees. All trees greater than 10cm DBH,

exhibiting characteristics that would provide suitable habitat, will be marked with a GPS and recorded in the field.

9. Investigate the study area for the presence of Significant Wildlife Habitat.

10. Investigate the study area for presence of Species at Risk and Species at Risk habitat.

11. Record observations of incidental wildlife during site visits.

12. Analyze findings and prepare a map that shows:

    a. Identified natural heritage features, and functions and landscape level features (e.g., linkages, wetlands).
    b. The proposed development.
    c. ELC vegetation communities.
    d. Wetland boundary delineation.
    e. Woodland dripline.
    f. Locations of amphibian surveys
    g. Locations of Breeding Bird surveys
    h. Locations of significant species.
    i. Other noteworthy features as needed.
    j. Locations of other natural heritage features from background literature searches (e.g., mammal atlas, herpetofaunal atlas, Wellington County OP, Township Zoning Bylaw.

13. Conduct an impact assessment by reviewing the proposed development's direct, indirect, and induced (i.e., residual, ongoing) impacts on the natural features. Provide an opinion about the location and options of the proposed infrastructure to reduce/avoid impacts to natural heritage features. Show the configuration of the proposed infrastructure and assess for minimizing impacts to ecological features and functions. This will involve discussions with the Township, project engineers and AA.

14. Provide policy rationale for expected impacts to natural heritage features (e.g. removal of trees and grading to accommodate the proposed development).

15. Edge Management Guidelines and Compensation: Provide general recommendations of where and why naturalization treatments may be needed to protect vegetation features (e.g., woodlands, wetlands) adjacent to the development activity. Provide rationale and recommendations for tree compensation (e.g., where, why and how much).

16. Prepare a report of the EIS that includes background information, methods, existing conditions, proposed development, impact assessment and mitigation measures, and appendices of field studies (e.g., flora and ELC data sheets).

Yours truly,

ABOUD & ASSOCIATES INC.



Shannon Davison B. Env., Eco. Rest. Cert.
Ecologist
MNRF Certified Ecological Land Classification
MNRF Certified Wetland Evaluation
CERPIT #0499

Cc: Meagan Ferris, Wellington County (email)
Mariana Iglesias, Township of Centre Wellington (email)
Dustin Lyttle, Triton Engineering Services Limited (email)

S:\A+A Projects\2021\Proposals\21-085A Dickson Drive Extension & Muti-use Path Municipal Class EA\Approvals, Comments\AA21-085A Dickson Drive Extension Municipal Class EA Terms of Reference.docx

LEGEND

- PROPERTY ACCESS
- STUDY AREA
- DEER WINTERING AREA
- GRCA WATERCOURSE
- GRCA WETLAND
- LIO WOODLANDS
- GRCA REGULATION LIMIT
- PROPOSED ROAD
- PROPOSED SECONDARY ROAD
- PROPOSED TRAIL ALIGNMENT

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed April, 2021.
2. Woodlands and Wetland provided by Land Information Ontario

Title:

ENVIRONMENTAL STUDY AREA & CONSTRAINTS

Project:

DICKSON ROAD
FERGUS ON

Date: APRIL 2021

Project: AA21-085A

Scale: 1 : 5000

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudtng.com

Figure No: 1

Shannon Davison

From: Laura Warner <lwarner@grandriver.ca>
Sent: May-20-21 10:11 AM
To: Shannon Davison
Cc: dlyttle@tritoneng.on.ca; Cheryl-Anne Ross; Meagan Ferris; miglesias@centrewellington.ca
Subject: RE: AA21-085 Dickson Drive Extension Municipal Class EA Scoped EIS Terms of Reference

External

HI Shannon,

The terms of reference for the proposed Scoped EIS are acceptable. It appears that a municipal trail is proposed between a section of the Irvine Creek PSW Complex and the GRCA's Elora-Cataract Trail. A trail immediately adjacent to the PSW cannot be supported at this time. We would recommend that the trail avoid the 30 m buffer zone adjacent to the PSW and/or that the trail be shifted away from the wetland to the greatest possible extent.

We also note that the ToR makes reference to Dickson Road throughout but the legal name of this road is in fact Dickson Drive.

Kind regards,
Laura

Laura Warner | Resource Planner
Grand River Conservation Authority
400 Clyde Road, Cambridge ON N1R 5W6
P: (519) 621-2763 x 2231 | F: (519) 621-4844
lwarner@grandriver.ca | www.grandriver.ca

From: Shannon Davison <sdavison@aboudtng.com>
Sent: Tuesday, May 4, 2021 11:32 AM
To: Laura Warner <lwarner@grandriver.ca>
Cc: dlyttle@tritoneng.on.ca; Cheryl-Anne Ross <Cheryl@aboudtng.com>; Meagan Ferris <meaganf@wellington.ca>; miglesias@centrewellington.ca
Subject: AA21-085 Dickson Drive Extension Municipal Class EA Scoped EIS Terms of Reference

Good morning Laura,

Please find attached the proposed Terms of Reference for the scoped Environmental Impact Study for the Dickson Drive Extension Municipal Class EA. If you could please circulate to GRCA staff and provide comments at your earliest convenience that would be appreciated.

Regards,

Shannon Davison B.Env. Eco. Rest. Cert.
Ecologist
Certified Ecological Restoration Practitioner- In Training #0499
MNRF Certified Wetland Evaluation . MNRF Certified Ecological Land Classification
ABOUD & ASSOCIATES INC. 190 Nicklin Road . Guelph . Ontario . N1H 7L5

C : 226.581.0707 www.aboudtng.com sdavison@aboudtng.com

APPENDIX 2
Background Wildlife List

SOURCE	COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	NRANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES (BCR 13)	GRCA (date unk.)	Wellington County (Dougan & Associates,2009)
	BUTTERFLIES & MOTHS												
OBA (1968)	Dreamy Duskywing	Erynnis icelus				S5	G5	N5					
OBA (1980)	Arctic Skipper	Carterocephalus palaemon				S5	G5	N5					
OBA (1968)	Hobomok Skipper	Poanes hobomok				S5	G5	N5					
OBA (1981)	Dun Skipper	Euphyes vestris		THR	THR	S5	G5	N5					
OBA (1981)	Black Swallowtail	Papilio polyxenes				S5	G5	N5					
OBA (2017)	Cabbage White	Pieris rapae				SNA	G5	NNA					
OBA (2017)	Clouded Sulphur	Colias philodice				S5	G5	N5					
OBA (1970)	Bronze Copper	Lycaena hyllus				S5	G4G5	N5					
OBA (1973)	Acadian Hairstreak	Satyrium acadica				S4	G5	N5					
OBA (1973)	Banded Hairstreak	Satyrium calanus				S4	G5	N5					
OBA (1981)	Striped Hairstreak	Satyrium liparops				S5	G5	N5					
OBA (2015)	Eastern Tailed Blue	Cupido (Everes) comyntas				S5	G5	N5					
OBA (1981)	Great Spangled Fritillary	Speyeria cybele				S5	G5	N5					
OBA (1968)	Northern Crescent	Phyciodes cocyta				S5	G5	N5					
OBA (1973)	Baltimore Checkerspot	Euphydryas phaeton				S4	G4	N4					
OBA (1981)	Question Mark	Polygonia interrogationis				S5	G5	N5B					
OBA (1981)	Mourning Cloak	Nymphalis antiopa				S5	G5	N5					
OBA (2019)	American Lady	Vanessa virginiensis				S5	G5	N5					
OBA (2017)	Painted Lady	Vanessa cardui				S5	G5	N5					
OBA (1981)	Viceroy	Limenitis archippus				S5	G5	N5					
OBA (1959)	Eyed Brown	Lethe eurydice				S5	G4	N5					
OBA (1981)	Appalachian Brown	Lethe appalachia				S4	G4	N4					
OBA (1980)	Little Wood-Satyr	Megisto cymela				S5	G5	N5					
OBA (2019)	Monarch	Danaus plexippus	SC	END	SC	S2N,S4B	G5	N5B					

	DRAGONFLIES & DAMSELFLIES												
iNat (2020)	Lake Darner	Aeshna eremita				S5	G5	N5					
	AMPHIBANS												
ORAA (2018)	Red-spotted Newt	Notophthalmus viridescens viridescens				S5	G5						x
ORAA (1990)	American Toad	Anaxyrus americanus				S5	G5						
ORAA (2018)	Gray Treefrog	Hyla versicolor				S5	G5						
ORAA (2012)	Spring Peeper	Pseudacris crucifer				S5	G5						
ORAA (2008)	Western Chorus Frog - Great Lakes / St. Lawrence - Canadian Shield Population	Pseudacris triseriata pop. 2	NAR	THR	THR	S3	G5TNR						
ORAA (2004)	Green Frog	Lithobates clamitans				S5	G5						
ORAA (2017)	Northern Leopard Frog	Lithobates pipiens	NAR	NAR		S5	G5						
ORAA (2013)	Wood Frog	Lithobates sylvaticus				S5	G5						
	SNAKES AND LIZARDS												
ORAA (2013)	Ring-necked Snake	Diadophis punctatus				S4	G5T5						
ORAA (2017)	Northern Red-bellied Snake	Storeria occipitomaculata occipitomaculata				S5	G5						x
ORAA (2019)	Eastern Gartersnake	Thamnophis sirtalis sirtalis				S5	G5T5						
	TURTLES												
ORAA (2019)	Snapping Turtle	Chelydra serpentina	SC	SC	SC	S3	G5T5						
ORAA (2013)	Midland Painted Turtle	Chrysemys picta marginata		SC		S5	G5T5						
	BIRDS												
OBBA (2007)	Common Loon	Gavia immer	NAR	NAR		S5B,S5N	G5	N5B,N5N	✓			CP	x
OBBA (2007)	Pied-billed Grebe	Podilymbus podiceps				S4B,S4N	G5	N5B				CP	x
OBBA (2007)	Double-crested Cormorant	Phalacrocorax auritus	NAR	NAR		S5B	G5	N5B					x
OBBA (2007)	American Bittern	Botaurus lentiginosus				S4B	G5	N5B, N3N	✓			CP	x
OBBA (2007)	Great Blue Heron	Ardea herodias				S4	G5	N5B					x
OBBA (2007)	Green Heron	Butorides virescens				S4B	G5	N4B				CP	x
OBBA (2007)	Canada Goose	Branta canadensis				S5	G5	N5B,N5N				CP	
OBBA (2007)	Wood Duck	Aix sponsa				S5	G5	N5B,N5N					
OBBA (2007)	Green-winged Teal	Anas crecca				S4	G5	N5B,N5N					x
OBBA (2007)	Mallard	Anas platyrhynchos				S5	G5	N5B,N5N					
OBBA (2007)	Blue-winged Teal	Anas discors				S4	G5	N5B				CP	x
iNat (2018)	American Wigeon	Anas americana				S4	G5	N5B,N5N				CP	x
OBBA (2007)	Hooded Merganser	Lophodytes cucullatus				S5B,S5N	G5	N5B				CP	x

OBBA (2007)	Common Merganser	Mergus merganser				S5B,S5N	G5	N5B,N5N	✓				x
eBird (2018) OBBA (2007)	Turkey Vulture	Cathartes aura				S5B	G5	N5B				CP	x
OBBA (2007)	Osprey	Pandion haliaetus				S5B	G5	N5B				CP	x
iNat (2020)	Bald Eagle	Haliaeetus leucocephalus	SC	NAR		S2N,S4B	G5	N5B,N5N	✓		✓		x
OBBA (2007)	Northern Harrier	Circus cyaneus	NAR	NAR		S4B	G5	N5B,N4N	✓	>30ha	✓	CP	x
OBBA (2007)	Sharp-shinned Hawk	Accipiter striatus	NAR			S5	G5	N5B,N5N	✓	>30ha		CP	x
OBBA (2007)	Cooper's Hawk	Accipiter cooperii	NAR	NAR		S4	G5	N5B,N4N	✓	>10ha		CP	x
OBBA (2007)	Northern Goshawk	Accipiter gentilis	NAR	NAR		S4	G5	N5	✓	>100ha		CP	x
OBBA (2007)	Red-shouldered Hawk	Buteo lineatus	NAR	NAR		S4B	G5	N4B	✓	>100ha	✓	CP	x
OBBA (2007)	Broad-winged Hawk	Buteo platypterus				S5B	G5	N5B	✓	>100ha		CP	x
eBird (2021) OBBA (2007)	Red-tailed Hawk	Buteo jamaicensis	NAR	NAR		S5	G5	N5B					
iNat (2020)	Rough-legged Hawk	Buteo lagopus	NAR	NAR		S1B,S4N	G5	N5B,N5N					
OBBA (2007)	American Kestrel	Falco sparverius				S4	G5	N5B			✓	CP	x
eBird (2021) OBBA (2007)	Ruffed Grouse	Bonasa umbellus				S4	G5	N5				CP	
OBBA (2007)	Wild Turkey	Meleagris gallopavo				S5	G5	N5					
OBBA (2007)	Northern Bobwhite	Colinus virginianus	END	END	END	S1	G4G5	N1			✓	CP	x
OBBA (2007)	Virginia Rail	Rallus limicola				S5B	G5	N5B				CP	
OBBA (2007)	Sora	Porzana carolina				S4B	G5	N5B				CP	x
OBBA (2007)	Killdeer	Charadrius vociferus				S5B,S5N	G5	N5B					
OBBA (2007)	Spotted Sandpiper	Actitis macularius				S5	G5	N5B				CP	
OBBA (2007)	Wilson's Snipe	Gallinago delicata				S5B	G5	N5B				CP	
OBBA (2007)	American Woodcock	Scolopax minor				S4B	G5	N5B				CP	
eBird (2018) OBBA (2007)	Ring-billed Gull	Larus delawarensis				S5B,S4N	G5	N5B,N5N					x
OBBA (2007)	Herring Gull	Larus argentatus				S5B,S5N	G5	N5B,N5N					x
eBird (2018) OBBA (2007)	Rock Pigeon	Columba livia				SNA	G5	NNA					
OBBA (2007)	Mourning Dove	Zenaida macroura				S5	G5	N5					
OBBA (2007)	Black-billed Cuckoo	Coccyzus erythropthalmus				S5B	G5	N5B			✓	CP	x
OBBA (2007)	Eastern Screech-Owl	Megascops asio	NAR	NAR		S4	G5	N4N5					
OBBA (2007)	Great Horned Owl	Bubo virginianus				S4	G5	N5					
OBBA (2007)	Ruby-throated Hummingbird	Archilochus colubris				S5B	G5	N5B				CP	
OBBA (2007)	Belted Kingfisher	Megaceryle alcyon				S4B	G5	N5B			✓		x
OBBA (2007)	Yellow-bellied Sapsucker	Sphyrapicus varius				S5B	G5	N5B	✓	2-5ha		CP	x

eBird (2021) OBBA (2007)	Downy Woodpecker	Picoides pubescens				S5	G5	N5					
OBBA (2007)	Hairy Woodpecker	Picoides villosus				S5	G5	N5	✓	4-8ha			x
OBBA (2007)	Northern Flicker	Colaptes auratus				S4B	G5	N5			✓		x
OBBA (2007)	Pileated Woodpecker	Dryocopus pileatus				S5	G5	N5	✓	>40ha		CP	x
OBBA (2007)	Eastern Wood-pewee	Contopus virens	SC	SC		S4B	G5	N4N5B			✓		x
OBBA (2007)	Alder Flycatcher	Empidonax alnorum				S5B	G5	N5B				CP	
OBBA (2007)	Willow Flycatcher	Empidonax traillii				S5B	G5	N5B			✓		x
OBBA (2007)	Least Flycatcher	Empidonax minimus				S4B	G5	N5B	✓	>100ha		CP	x
OBBA (2007)	Eastern Phoebe	Sayornis phoebe				S5B	G5	N5B				CP	
OBBA (2007)	Great Crested Flycatcher	Myiarchus crinitus				S4B	G5	N5B					
OBBA (2007)	Eastern Kingbird	Tyrannus tyrannus				S4B	G5	N5B			✓	CP	x
OBBA (2007)	Horned Lark	Eremophila alpestris				S5B	G5	N5B,N5N				CP	
OBBA (2007)	Purple Martin	Progne subis				S3S4B	G5	N5B				CP	x
OBBA (2007)	Tree Swallow	Tachycineta bicolor				S4B	G5	N5B					
OBBA (2007)	Northern Rough-winged Swallow	Stelgidopteryx serripennis				S4B	G5	N5B				CP	
OBBA (2007)	Bank Swallow	Riparia riparia	THR	THR	THT	S4B	G5	N5B			✓	CP	x
OBBA (2007)	Cliff Swallow	Petrochelidon pyrrhonota				S4B	G5	N5B				CP	x
eBird (2018) OBBA (2007) NHIC (n.d)	Barn Swallow	Hirundo rustica	THR	THR	THR	S4B	G5	N4N5B				CP	
eBird (2021) OBBA (2007)	Blue Jay	Cyanocitta cristata				S5	G5	N5					
eBird (2021) OBBA (2007)	American Crow	Corvus brachyrhynchos				S5B	G5	N5B,N5N					
eBird (2021) OBBA (2007)	Black-capped Chickadee	Poecile atricapillus				S5	G5	N5				CP	
OBBA (2007)	Red-breasted Nuthatch	Sitta canadensis				S5	G5	N5	✓	>10ha		CP	x
eBird (2018) OBBA (2007)	White-breasted Nuthatch	Sitta carolinensis				S5	G5	N5	✓	>10ha			
OBBA (2007)	Brown Creeper	Certhia americana				S5B	G5	N5B	✓	>30ha		CP	x
OBBA (2007)	House Wren	Troglodytes aedon				S5B	G5	N5B					
OBBA (2007)	Winter Wren	Troglodytes troglodytes				S5B	G5	N5B	✓	>30ha			x
OBBA (2007)	Marsh Wren	Cistothorus palustris				S4B	G5	N5B				CP	x
OBBA (2007)	Golden-crowned Kinglet	Regulus satrapa				S5B	G5	N5				CP	x
OBBA (2007)	Eastern Bluebird	Sialia sialis	NAR	NAR		S5B	G5	N5B				CP	
OBBA (2007)	Veery	Catharus fuscescens				S4B	G5	N5B	✓	>10ha		CP	x
OBBA (2007)	Wood Thrush	Hylocichla mustelina	SC	THR	THR	S4B	G4	N4B			✓		x

eBird (2018) OBBA (2007)	American Robin	Turdus migratorius				S5B	G5	N5B,N5N					
OBBA (2007)	Gray Catbird	Dumetella carolinensis				S4B	G5	N5B				CP	
OBBA (2007)	Brown Thrasher	Toxostoma rufum				S4B	G5	N5B			✓	CP	x
OBBA (2007)	Cedar Waxwing	Bombycilla cedrorum				S5B	G5	N5					
OBBA (2007)	European Starling	Sturnus vulgaris				SNA	G5	NNA					
OBBA (2007)	Blue-headed Vireo	Vireo solitarius				S5B	G5	N5B	✓	>100ha		CP	x
OBBA (2007)	Warbling Vireo	Vireo gilvus				S5B	G5	N5B					
OBBA (2007)	Red-eyed Vireo	Vireo olivaceus				S5B	G5	N5B					
OBBA (2007)	Nashville Warbler	Vermivora ruficapilla				S5B	G5	N5B				CP	
OBBA (2007)	Yellow Warbler	Dendroica petechia				S5B	G5	N5B					
OBBA (2007)	Chestnut-sided Warbler	Dendroica pensylvanica				S5B	G5	N5B				CP	
OBBA (2007)	Magnolia Warbler	Dendroica magnolia				S5B	G5	N5B	✓	>30ha		CP	x
OBBA (2007)	Yellow-rumped Warbler	Dendroica coronata				S5B	G5	N5B				CP	
OBBA (2007)	Black-throated Green Warbler	Dendroica virens				S5B	G5	N5B	✓	>30ha			x
OBBA (2007)	Pine Warbler	Dendroica pinus				S5B	G5	N5B	✓	15-30ha		CP	x
OBBA (2007)	Black-and-white Warbler	Mniotilta varia				S5B	G5	N5B	✓	>100ha		CP	x
OBBA (2007)	American Redstart	Setophaga ruticilla				S5B	G5	N5B	✓	>100ha		CP	x
OBBA (2007)	Ovenbird	Seiurus aurocapilla				S4B	G5	N5B	✓	>70ha		CP	x
OBBA (2007)	Northern Waterthrush	Seiurus noveboracensis				S5B	G5	N5B					
OBBA (2007)	Mourning Warbler	Oporornis philadelphia				S4B	G5	N5B				CP	
OBBA (2007)	Common Yellowthroat	Geothlypis trichas				S5B	G5	N5B					
OBBA (2007)	Canada Warbler	Wilsonia canadensis	SC	THR	THR	S4B	G5	N5B	✓	>30ha			x
OBBA (2007)	Scarlet Tanager	Piranga olivacea				S4B	G5	N5B	✓	>20ha		CP	x
OBBA (2007)	Northern Cardinal	Cardinalis cardinalis				S5	G5	N5					
OBBA (2007)	Rose-breasted Grosbeak	Pheucticus ludovicianus				S4B	G5	N5B			✓		x
OBBA (2007)	Indigo Bunting	Passerina cyanea				S4B	G5	N5B					
OBBA (2007)	Eastern Towhee	Pipilo erythrophthalmus				S4B	G5	N4N5B			✓	CP	x
OBBA (2007)	Chipping Sparrow	Spizella passerina				S5B	G5	N5B					
OBBA (2007)	Clay-colored Sparrow	Spizella pallida				S4B	G5	N5B				CP	x
OBBA (2007)	Field Sparrow	Spizella pusilla				S4B	G5	N4B			✓	CP	x
OBBA (2007)	Vesper Sparrow	Pooecetes gramineus				S4B	G5	N5B			✓	CP	x
OBBA (2007)	Savannah Sparrow	Passerculus sandwichensis				S4B	G5	N5B	✓	>50ha	✓	CP	x
OBBA (2007)	Grasshopper Sparrow	Ammodramus savannarum	SC	SC	SC	S4B	G5	N4B	✓	>10ha	✓	CP	x
eBird (2018) OBBA (2007)	Song Sparrow	Melospiza melodia				S5B	G5	N5B,N5N					
OBBA (2007)	Swamp Sparrow	Melospiza georgiana				S5B	G5	N5B				CP	
OBBA (2007)	White-throated Sparrow	Zonotrichia albicollis				S5B	G5	N5B				CP	

OBBA (2007) NHIC (n.d)	Bobolink	Dolichonyx oryzivorus	THR	THR	THR	S4B	G5	N4N5B	✓	>10ha	✓	CP	x
OBBA (2007)	Red-winged Blackbird	Agelaius phoeniceus				S4	G5	N5B,N5N					
OBBA (2007) NHIC (n.d)	Eastern Meadowlark	Sturnella magna	THR	THR	THR	S4B	G5	N4B	✓	>10ha	✓	CP	x
OBBA (2007)	Common Grackle	Quiscalus quiscula				S5B	G5	N5B					
OBBA (2007)	Brown-headed Cowbird	Molothrus ater				S4B	G5	N5B					
OBBA (2007)	Baltimore Oriole	Icterus galbula				S4B	G5	N5B			✓		x
OBBA (2007)	Purple Finch	Carpodacus purpureus				S4B	G5	N5B,N5N				CP	
OBBA (2007)	House Finch	Carpodacus mexicanus				SNA	G5	N5					
OBBA (2007)	Pine Siskin	Carduelis pinus				S4B	G5	N5					
eBird (2018) OBBA (2007)	American Goldfinch	Carduelis tristis				S5B	G5	N5B,N5N				CP	
eBird (2018) OBBA (2007)	House Sparrow	Passer domesticus				SNA	G5	NNA					
	MAMMALS												
OMA (1994)	Virginia Opossum	Didelphis virginiana				S4	G5	N4					
OMA (1994)	Big Brown Bat	Eptesicus fuscus				S5	G5	N5					
OMA (1994)	Hoary Bat	Lasiurus cinereus				S4	G4	N4					x
OMA (1994)	Eastern Cottontail	Sylvilagus floridanus				S5	G5	N5					
OMA (1994)	Snowshoe Hare	Lepus americanus				S5	G5	N5					x
OMA (1994)	Eastern Chipmunk	Tamias striatus				S5	G5	N5					
OMA (1994)	Woodchuck	Marmota monax				S5	G5	N5					
OMA (1994)	Eastern Gray Squirrel	Sciurus carolinensis				S5	G5	N5					
OMA (1994)	Beaver	Castor canadensis				S5	G5	N5					
OMA (1994)	Muskrat	Ondatra zibethicus				S5	G5	N5					
OMA (1994)	Norway Rat	Rattus norvegicus				SNA	G5	NNA					
OMA (1994)	Porcupine	Erethizon dorsatum				S5	G5	N5					
OMA (1994)	Red Fox	Vulpes vulpes				S5	G5	N5					
OMA (1994)	Northern Raccoon	Procyon lotor				S5	G5	N5					
OMA (1994)	Ermine	Mustela erminea				S5	G5	N5					
OMA (1994)	Long-tailed Weasel	Mustela frenata				S4	G5	N4					x
OMA (1994)	American Mink	Mustela vison				S4	G5	N4					
OMA (1994)	Striped Skunk	Mephitis mephitis				S5	G5	N5					
OMA (1994)	White-tailed Deer	Odocoileus virginianus				S5	G5	N5					
	VASCULAR PLANTS												

iNat (2020)	Winterberry Holly	Ilex verticillata											
iNat (2019)	Tansy	Tanacetum vulgare											

Legend:
COSARO: Committee on Species at Risk Ontario
COSEWIC: Committee on the status of endangered wildlife in Canada
SARA: Species at Risk Act
ESA: Endangered Species Act
END: Endangered
THR: Threatened
SC: special Concern
NAR: Not At Risk
NL: Not listed
DD: Data Deficient

S-Rank:
S1: Critically Imperiled—Critically imperiled in the province (often 5 or fewer occurrences)
S2: Imperiled—Imperiled in the province, very few populations (often 20 or fewer),
S3: Vulnerable—Vulnerable in the province, relatively few populations (often 80 or fewer)
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the province
SX: Presumed extirpated
SH: Possibly Extirpated (Historical)
SNR: Unranked
SU: Unrankable—Currently unrankable due to lack of information
SNA: Not applicable—A conservation status rank is not applicable because the species is not a suitable target for conservation activities
S#S#: Range Rank—A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species
S#B- Breeding status rank
S#N- Non Breeding status rank
?: Indicates uncertainty in the assigned rank

G-Rank:
G1: Extremely rare globally
G1G2: Extremely rare to very rare globally
G2: Very rare globally
G2G3: Very rare to uncommon globally
G3: Rare to uncommon globally
G3G4: Rare to common globally
G4: Common globally
G4G5: Common to very common globally
G5: Very common globally; demonstrably secure
T: Denotes that the rank applies to a subspecies or variety

Grand River Conservation Authority:
CP=Conservation Priority

Source codes
OBA: Ontario butterfly Atlas Online
ORAA: Ontario Reptile and Amphibian Atlas
OMA: Ontario Mammal Atlas
OBBA: Ontario Breeding Bird Atlas
iNat: iNaturalist

References:

1.Ontario Partners in Flight (PIF). 2008. Ontario Landbird Conservation Plan: Lower Great Lakes/St. Lawrence Plain (North American Bird Conservation Region 13), Priorities, Objectives and Recommended Actions. Environment Canada (Ontario Region) and Ontario Ministry of Natural Resources. Final Draft, November, 2008.
2.COSSARO Status Endangered Species Act, 2007 (Bill 184). Schedules 1- 5. June 30 2008.
3.COSEWIC Status COSEWIC. 2014. Canadian Species at Risk. Committee on the Status of Endangered Wildlife in Canada.
4.Endangered Species Act, 2007 (Bill 184). Schedules 1- 5. April 21, 2015
5. Grand River Conservation Authority, date unk., A checklist of Birds Within the Grand River Watershed

6.Dougan & Associates, with Sneil & Cecile Environmental Research. 2009. List of Significant Wildlife in Wellington County; In City of Guelph Natural Heritage Strategy - Phase 2: Terrestrial Inventory & Natural Heritage System (VOL. 2 – APPENDICES). Final Report March 2009.

Sources:

1.Colin Jones, Ross Layberry, and Alan Macnaughton. Ontario Butterfly Atlas Online.
(Available online here: Toronto Entomologists' Association: http://www.ontarioinsects.org/atlas_online.htm)
2.Ontario Nature. 2019. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. Ontario Nature, Ontario. (Available onlnie here: http://www.ontarionature.org/atlas)
3.Dobbyn,J. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists, Altona Manitoba, Canada.

4.Cadman, M.D.,D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier. 2007. The Atlas of the Breeding Birds Ontario 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto,xxii + 706pp. (Available online here: http://www.birdsontario.org/atlas/datasummaries.jsp)
5.NHIC, 2021. MNRF Make a map: Natural Heritage Areas.
(Available online: http://www.ontario.ca/environment-and-energy/make-natural-heritage-area-map)
6. Cornell Lab of Ornithology. 2021. eBird (Available online here: https://ebird.org/home)
7. iNaturalist. 2021. (Available online here: https://www.inaturalist.org/)

APPENDIX 3
Ecological Land Classification Forms

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		**POLYGON:** 1
SURVEYOR(S): SD, KS	**DATE:** MAY 18, 2021	**PHOTO #:**
START: 17:50	**END:** 21:05	**ZONE & UTM:**

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
■ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		GRAMINOID	☐ STREAM
	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE		☐ FORB	☐ MARSH
		■ TABLELAND		☐ LICHEN	■ SWAMP
	☐ BASIC BEDRK.	☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☐ DECIDUOUS	☐ BOG
	☐ CARB BEDRK.	☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		■ MIXED	☐ MEADOW
		☐ ALVAR		☐	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☐ SHRUB
■ SURFICIAL DEP.	■ TREED
☐ BEDROCK	

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	THUJA OCCIDENTALIS >> BETULA ALLEGHENIENSIS
2	SUBCANOPY	3	3	THUJA OCCIDENTALIS >> ABIES BALSAMEA
3	UNDERSTOREY			
4	GRD. LAYER	7	4	GYMNOCARPIUM DRYOPTERIS > RUBUS PUBESCENS > ONOCLEA SENSIBILIS > TIARELLA CORDIFOLIA

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	O	<10	A	10-24	O	25-50	R	>50
STANDING SNAGS:	O	<10	O	10-24	N	25-50	N	>50
DEADFALL/LOGS:	A	<10	O	10-24	R	25-50	N	>50
COMM. AGE.	MID-AGED							

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE: SILTY CLAY LOAM	**DEPTH TO MOTTLES/GLEY**	**g=** 15	**G=** 15
MOISTURE: MOIST- WET	**DEPTH OF ORGANICS:**	10	(cm)
HOMOGENOUS/VARIABLE	**DEPTH TO BEDROCK**	>100	(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS: SWAMP		**CODE:** SW
COMMUNITY SERIES: CONIFEROUS SWAMP		**CODE:** SWC
ECOSITE: WHITE CEDAR MINERAL CONIFEROUS SWAMP		**CODE:** SWCM 1
VEGETATION TYPE: WHITE CEDAR - CONIFER MINERAL CONIFEROUS SWAMP		**CODE:** SWCM 1-2
INCLUSION		**CODE:**
COMPLEX		**CODE:**

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER			
	C	SC	U	GL
BETULA ALLEGHENIENSIS	O			
THUJA OCCIDENTALIS	D	D		
ABIES BALSAMEA	O	O		

SPECIES	LAYER			
	C	SC	U	GL
RUBUS PUBESCENS				O-R
MAIANTHEMUM CANADENSE				R
GYMNOCARPIUM DRYOPTERIS				A-O
ATHYRIUM FILIX-FEMINA				R
ARISAEMA TRIPHYLLUM				R
TARAXACUM OFFICINALE				R
OXALIS MONTANA				R
TIARELLA CORDIFOLIA				R
ONOCLEA SENSIBILIS				O-R
TRILLIUM ERECTUM				R
CARDAMINE DIPHYLLA				R
TRIENTALIS BOREALIS				R:

NOTES:

LITTLE TO NO DISTURBANCE

SEEPS PRESENT.

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5 519.822.6839 www.aboudinc.com

Representative Photographs of Vegetation Community:



ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 2
	SURVEYOR(S): SD, KS	DATE: MAY 18, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
■ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
SITE	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE	COVER	☐ FORB	☐ MARSH
☐ OPEN WATER		■ TABLELAND	☐ OPEN	☐ LICHEN	■ SWAMP
☐ SHALLOW WATER	☐ BASIC BEDRK.	☐ ROLL. UPLAND	☐ SHRUB	☐ BRYOPHYTE	☐ FEN
■ SURFICIAL DEP.		☐ CLIFF	■ TREED	☐ DECIDUOUS	☐ BOG
☐ BEDROCK	☐ CARB BEDRK.	☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR		■	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	3	BETULA ALLEGHENIENSIS > THUJA OCCIDENTALIS > ABIES BALSAMEA > BETULA PAPYRIFERA
2	SUBCANOPY	3	3	THUJA OCCIDENTALIS > ABIES BALSAMEA
3	UNDERSTOREY	5	2	RIBES HIRTELLUM
4	GRD. LAYER	7	4	TUSSILAGO FARFARA> EQUISETUM SP. > ONOCLEA SENSIBILIS >GYMNOCARPIUM DRYOPTERIS

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	A	<10	A	10-24	O	25-50	R	>50
STANDING SNAGS:	O	<10	O	10-24	N	25-50	N	>50
DEADFALL/LOGS:	A	<10	O	10-24	R	25-50	N	>50
COMM. AGE.	MATURE							

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE: SILTY CLAY LOAM	DEPTH TO MOTTLES/GLEY	g= 20	G= 20
MOISTURE: MOIST	DEPTH OF ORGANICS:	5	(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK	>100	(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS: SWAMP		CODE: SW
COMMUNITY SERIES: MIXED SWAMP		CODE: SWM
ECOSITE: CONIFER- HARDWOOD MINERAL MIXED SWAMP		CODE: SWMM 5
VEGETATION TYPE:		CODE:
INCLUSION		CODE:
COMPLEX		CODE:

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
THUJA OCCIDENTALIS	R	O		
ABIES BALSAMEA	R	O-R		
BETULA ALLEGHENIENSIS	O			
BETULA PAPYRIFERA	R			
ACER SACCHARUM				R
FRAXINUS SP.				R
PRUNUS VIRGINIANA				R
RIBES HIRTEULLUM			R	

SPECIES	LAYER C	SC	U	GL
MAIANTHEMUM CANADENSE				R
TIARELLA CORDIFOLIA				O-R
GYMNOCARPIUM DRYOPTERIS				O
GALIUM PALUSTRE				R
EQUISETUM SP.				O
TRILLIUM ERECTUM				R
RANUNCULUS RECURVATUS				R
CARDAMINE DIPHYLLA				R
ONOCLEA SENSIBILIS				O
TARAXACUM OFFICINALE				R
FRAGARIA VIRGINIANA				R
TUSSILAGO FARFARA				A-O
ALLIARIA PETIOLATA				R
GERANIUM ROBERTIANUM				R
SOLIDAGO SP.				R

NOTES:

ALIEN SPECIES- OCCASIONAL, LOCAL
TRACKS/TRAILS- FAINT TRAILS (ATV), LOCAL

SEEPS PRESENT

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5 519.822.6839 www.aboudinc.com

Representative Photographs of Vegetation Community:



ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		**POLYGON:** 3
SURVEYOR(S): SD, KS	**DATE:** MAY 18, 2021	**PHOTO #:**
START: 17:50	**END:** 21:05	**ZONE & UTM:**

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
■ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE		☐ FORB	☐ MARSH
		■ TABLELAND		☐ LICHEN	☐ SWAMP
	☐ BASIC BEDRK.	☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		■ DECIDUOUS	☐ BOG
	☐ CARB BEDRK.	☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			■ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☐ SHRUB
■ SURFICIAL DEP.	■ TREED
☐ BEDROCK	

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	POPULUS TREMULOIDES > ACER SACCHARUM > BETULA PAPYRIFERA > ABIES BALSAMEA
2	SUBCANOPY	3	3	PRUNUS SEROTINA > ACER RUBRUM > FRAXINUS AMERICANA > BETULA ALLEGHENIENSIS
3	UNDERSTOREY	4	3	RUBUS IDAEUS > RUBUS OCCIDENTALIS = RUBUS ALLEGHENIENSIS
4	GRD. LAYER	6	3	FRAGARIA VIRGINIANA > MAIANTHEMUM CANADENSE > SOLIDAGO CANADENSIS > EQUISETUM ARVENSE

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	A	<10	A	10-24	O	25-50	R	>50
STANDING SNAGS:	O	<10	O	10-24	R	25-50	N	>50
DEADFALL/LOGS:	A	<10	O	10-24	R	25-50	R	>50
COMM. AGE.	MID-AGED							

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	**DEPTH TO MOTTLES/GLEY**	**g=**	**G=**
MOISTURE:	**DEPTH OF ORGANICS:**	(cm)	
HOMOGENOUS/VARIABLE	**DEPTH TO BEDROCK**	(cm)	

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	FOREST	**CODE:** FO
COMMUNITY SERIES:	DECIDUOUS FOREST	**CODE:** FOD
ECOSITE:	DRY- FRESH UPLAND DECIDUOUS FOREST	**CODE:** FODM 4
VEGETATION TYPE:		**CODE:**
INCLUSION		**CODE:**
COMPLEX		**CODE:**

NOTES:

LAYERS: 1 = CANOPY 2= SUBCANOPY 3= UNDERSTOREY 4= GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES CODE	LAYER 1	2	3	4
POPULUS TREMULOIDES	O			
ACER RUBRUM		O-R		O-R
ABIES BALSAMEA	R			
ACER SACCHARUM	O-R			O-R
PRUNUS SEROTINA		O		
FRAXINUS AMERICANA		O-R		
BETULA PAPYRIFERA	O-R			
BETULA ALLEGHENIENSIS		R		
RUBUS IDAEUS			O-R	
PARTHENOCISSUS QUINQUEFOLIA				O
RUBUS OCCIDENTALIS			R	
RUBUS ALLEGHENIENSIS			R	

SPECIES CODE	LAYER 1	2	3	4
SOLIDAGO CANADENSIS				O-R
DAUCUS CAROTA				R
FRAGARIA VIRGINIANA				O
MENTHA CANADENSIS				R
MAIANTHEMUM CANADENSE				O-R
EQUISETUM ARVENSE				R
VERONICA OFFICINALIS				R

NOTES:

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5 519.822.6839 www.aboudinc.com

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 4
	SURVEYOR(S): SD, KS	DATE: MAY 18, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
■ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	■ MINERAL	☐ RIVERINE	■ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE		☐ FORB	☐ MARSH
		■ TABLELAND		☐ LICHEN	☐ SWAMP
	☐ BASIC BEDRK.	☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☐ DECIDUOUS	☐ BOG
	☐ CARB BEDRK.	☐ TALUS		■ CONIFEROUS	☐ BARREN
SITE		☐ CREVICE/CAVE	COVER	☐ MIXED	☐ MEADOW
☐ OPEN WATER		☐ ALVAR	☐ OPEN	☐	☐ PRAIRIE
☐ SHALLOW WATER		☐ ROCKLAND	☐ SHRUB		☐ THICKET
■ SURFICIAL DEP.		☐ BEACH/BAR	■ TREED		☐ SAVANNAH
☐ BEDROCK		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					■ PLANTATION

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	3	PRUNUS SEROTINA > ACER SACCHARUM
2	SUBCANOPY	3	3	ACER NEGUNDO > FRAXINUS AMERICANA > SORBUS AUCUPARIA > MALUS PUMILA
3	UNDERSTOREY	4	3	CORNUS SERICEA > VITIS RIPARIA > RHAMNUS CATHARTICA > RUBUS IDAEUS
4	GRD. LAYER	6	3	FRAGARIA VIRGINIANA > BROMUS ERECTUS > CIRSIUM ARVENSE > PARTHENOCISSUS QUINQUEFOLIA

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	O	<10	A	10-24	O	25-50	R	>50
STANDING SNAGS:	R	<10	R	10-24	N	25-50	N	>50
DEADFALL/LOGS:	R	<10	N	10-24	N	25-50	N	>50
COMM. AGE.	MID-AGED							

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES/GLEY	g=	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK		(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	AGRICULTURE	CODE: AG
COMMUNITY SERIES:	TREED AGRICULTURE	CODE: TAG
ECOSITE:	FENCEROW	CODE: TAGM 5
VEGETATION TYPE:		CODE:
INCLUSION		CODE:
COMPLEX		CODE:

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
ACER NEGUNDO		O		
PRUNUS SEROTINA	O			
SORBUS AUCUPARIA		R		
MALUS PUMILA		R		
PRUNUS PENSYLVANICA		R		
FRAXINUS AMERICANA		O-R		
ACER SACCHARUM	O			
CORNUS SERICEA			O	
RUBUS IDAEUS			R	
PARTHENOCISSUS QUINQUEFOLIA				O-R
RHAMNUS CATHARTICA			O-R	
VITIS RIPARIA			O	

SPECIES	LAYER C	SC	U	GL
BROMUS ERECTUS				O-R
OXALIS STRICTA				R
SOLIDAGO CANADENSIS				R
CIRSIUM ARVENSE				O-R
TANACETUM VULGARE				R
FRAGARIA VIRGINIANA				O
ASCLEPIAS SYRIACA				R
TARAXACUM OFFICINALE				R

NOTES:

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5 519.822.6839 www.aboudinc.com

ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		**POLYGON:** 5
SURVEYOR(S): SD, KS	**DATE:** MAY 18, 2021	**PHOTO #:**
START: 17:50	**END:** 21:05	**ZONE & UTM:**

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
■ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
		☐ VALLEYSLOPE		☐ FORB	☐ MARSH
		■ TABLELAND		☐ LICHEN	☐ SWAMP
		☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
	☐ ACIDIC BEDRK.	☐ CLIFF		☐ DECIDUOUS	☐ BOG
		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR		■	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
	☐ BASIC BEDRK.	☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			■ FOREST
	☐ CARB BEDRK.				☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☐ SHRUB
■ SURFICIAL DEP.	■ TREED
☐ BEDROCK	

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	THUJA OCCIDENTALIS = POPULUS TREMULOIDES > BETULA ALLEGHENIENSIS
2	SUBCANOPY	3	3	THUJA OCCIDENTALIS = POPULUS TREMULOIDES > ACER SACCHARUM > TILIA AMERICANA
3	UNDERSTOREY	4	2	RHAMNUS CATHARTICA > CORNUS ALTERNIFOLIA
4	GRD. LAYER	6	3	ERYTHRONIUM AMERICANUM > FRAGARIA VIRGINIANA > MAIANTHEMUM CANADENSE > GEUM LACINATUM

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	A	<10	A	10-24	O	25-50	R	>50
STANDING SNAGS:	R	<10	R	10-24	N	25-50	N	>50
DEADFALL/LOGS:	R	<10	R	10-24	R	25-50	N	>50
COMM. AGE.								

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	**DEPTH TO MOTTLES/GLEY**	**g=**	**G=**
MOISTURE:	**DEPTH OF ORGANICS:**	(cm)	
HOMOGENOUS/VARIABLE	**DEPTH TO BEDROCK**	(cm)	

COMMUNITY CLASSIFICATION

COMMUNITY CLASS: FOREST		**CODE:** FO
COMMUNITY SERIES: MIXED FOREST		**CODE:** FOM
ECOSITE: DRY- FRESH WHITE CEDAR MIXED FOREST		**CODE:** FOMM 4
VEGETATION TYPE: DRY- FRESH WHITE CEDAR- POPLAR MIXED FOREST		**CODE:** FOMM 4-2
INCLUSION		**CODE:**
COMPLEX		**CODE:**

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
THUJA OCCIDENTALIS	A-O	O	R	
ACER SACCHARUM		R		
TILIA AMERICANA		R		
FRAXINUS AMERICANA			O-R	
POPULUS TREMULOIDES	A-O	O		
BETULA ALLEGHENIENSIS	O-R			
RHAMNUS CATHARTICA			O	
CORNUS ALTERNIFOLIA			O	

SPECIES	LAYER C	SC	U	GL
MAIANTHEMUM RACEMOSUM				R
ERYTHRONIUM AMERICANUM				A-O
MAIANTHEMUM CANADENSE				O
FRAGARIA VIRGINIANA				O
PARTHENOCISSUS QUINQUEFOLIA				R
ARALIA NUDICAULIS				R
GEUM LACINIATUM				O-R
ACTAEA PACHYPODA				R
CAREX SP.				R
EQUISETUM ARVENSE				R

NOTES:
ALIEN SPECIES- OCCASIONAL, WIDESPREAD
TRACKS/TRAILS- FAINT TRAILS, LOCAL
RECREATION- LIGHT, LOCAL, PUBLIC USING ADJACENT TRAIL
NOISE- SLIGHT, LOCAL

CANDIDATE BAT HABITAT PRESENT

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5 519.822.6839 www.aboudinc.com

Representative Photographs of Vegetation Community:



ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 6
	SURVEYOR(S): SD, KS	DATE: MAY 18, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
■ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		■ GRAMINOID	☐ STREAM
	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE		☐ FORB	■ MARSH
		■ TABLELAND		☐ LICHEN	☐ SWAMP
	☐ BASIC BEDRK.	☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☐ DECIDUOUS	☐ BOG
	☐ CARB BEDRK.	☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR		☐	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	■ OPEN
■ SHALLOW WATER	☐ SHRUB
☐ SURFICIAL DEP.	☐ TREED
☐ BEDROCK	

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	1	POPULUS TREMULOIDES
2	SUBCANOPY	3	1	SALIX SP. > POPULUS BALSAMIFERA
3	UNDERSTOREY	4	4	TYPHA ANGUSTIFOLIA >> CORNUS SERICEA
4	GRD. LAYER			

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:		<10		10-24		25-50		>50
STANDING SNAGS:		<10		10-24		25-50		>50
DEADFALL/LOGS:		<10		10-24		25-50		>50
COMM. AGE.								

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES/GLEY	g=	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK		(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	MARSH	CODE:	MA
COMMUNITY SERIES:	SHALLOW MARSH	CODE:	MAS
ECOSITE:	GRAMINOID MINERAL SHALLOW MARSH	CODE:	MASM 1
VEGETATION TYPE:	CATTAIL MINERAL SHALLOW MARSH	CODE:	MASM 1-1
INCLUSION		CODE:	
COMPLEX		CODE:	

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
SALIX SP.		O-R		
POPULUS TREMULOIDES	R			
POPULUS BALSAMIFERA		R		
CORNUS SERICEA			R	

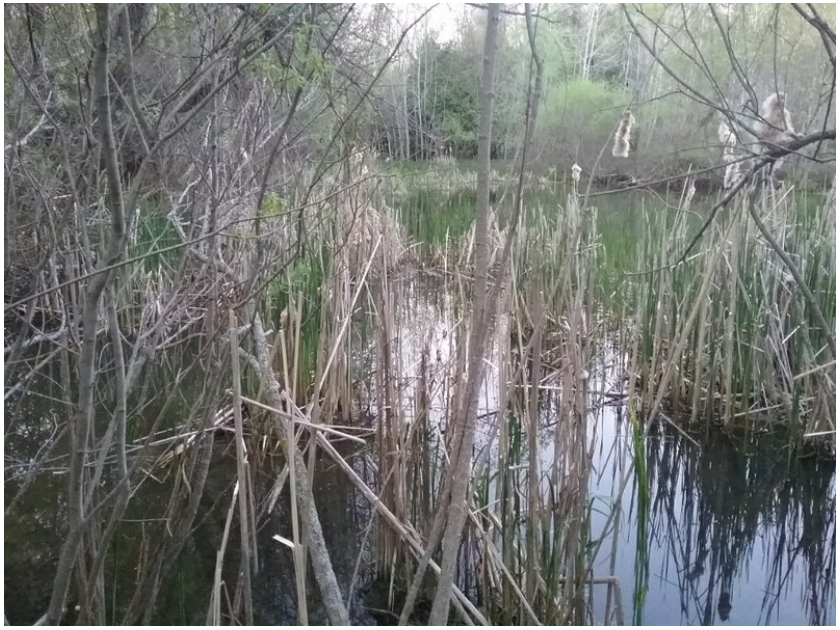
SPECIES	LAYER C	SC	U	GL
TYPHA ANGUSTIFOLIA			A-O	

NOTES: TRACKS/TRAILS- FAINT TRAILS, LOCAL
RECREATION- MODERATE, LOCAL- CHAIRS OUT BESIDE POND, DOGS FROM DOG PARK SWIM IN POND

RWBB

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5 519.822.6839 www.aboudinc.com

Representative Photographs of Vegetation Community:



ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		**POLYGON:** 7
SURVEYOR(S): SD, KS	**DATE:** MAY 18 & SEPT 1, 2021	**PHOTO #:**
START: 17:50	**END:** 21:05	**ZONE & UTM:**

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
■ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	■ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
SITE	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE	COVER	☐ FORB	☐ MARSH
☐ OPEN WATER		☐ TABLELAND	☐ OPEN	☐ LICHEN	■ SWAMP
☐ SHALLOW WATER	☐ BASIC BEDRK.	☐ ROLL. UPLAND	■ SHRUB	☐ BRYOPHYTE	☐ FEN
■ SURFICIAL DEP.		☐ CLIFF	☐ TREED	☐ DECIDUOUS	☐ BOG
☐ BEDROCK	☐ CARB BEDRK.	☐ TALUS		■ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR		☐	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	2	THUJA OCCIDENTALIS > BETULA ALLEGHENIENSIS > FRAXINUS NIGRA > ACER SACCHARUM
2	SUBCANOPY	3	3	SALIX BEBBIANA >> CORNUS SERICEA > THUJA OCCIDENTALIS
3	UNDERSTOREY	4	3	CORNUS SERICEA > RHAMNUS CATHARTICA > CORNUS ALTERNIFOLIA > RIBES CYNOSBATI
4	GRD. LAYER	6	4	PHALARIS ARUNDINACEA > ONOCLEA SENSIBILIS > PILEA FONTANA > SYMPHYOTRICHUM PUNICEUM

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	A	<10	O	10-24	R	25-50	N	>50
STANDING SNAGS:	R	<10	R	10-24	N	25-50	N	>50
DEADFALL/LOGS:	O	<10	R	10-24	N	25-50	N	>50
COMM. AGE.								

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE: SANDY CLAY LOAM	**DEPTH TO MOTTLES/GLEY**	**g=** 20	**G=** 20
MOISTURE: MOIST	**DEPTH OF ORGANICS:**	3	(cm)
HOMOGENOUS/VARIABLE	**DEPTH TO BEDROCK**	>100	(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS: SWAMP		**CODE:** SW
COMMUNITY SERIES: THICKET SWAMP		**CODE:** SWT
ECOSITE: WILLOW MINERAL DECIDUOUS THICKET SWAMP		**CODE:** SWTM 3
VEGETATION TYPE: BEBB'S WILLOW MINERAL DECIDUOUS THICKET SWAMP		**CODE:** SWTM 3-2
INCLUSION		**CODE:**
COMPLEX		**CODE:**

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
ACER SACCHARUM	R			
THUJA OCCIDENTALIS	O	R		
SALIX BEBBIANA		A		
BETULA ALLEGHENIENSIS	R			
FRAXINUS NIGRA	R			
CORNUS SERICEA		O-R	A-O	
CORNUS ALTERIFOLIA			O-R	
RHAMNUS CATHARTICA			O-R	
RIBES HIRTELLUM			R	
RIBES CYNOSBATI			R	

SPECIES	LAYER C	SC	U	GL
ERYTHRONIUM AMERICANUM				R
PHALARIS ARUNDINACEA				A
PILEA FONTANA				O-R
TUSSILAGO FARFARA				R
ONOCLEA SENSIBILIS				O
RUBUS PUBESCENS				R
SOLIDAGO SP.				R
THALICTRUM DIOICUM				R
GALIUM ASPRELLUM				R
VIOLA SP.				R
GERANIUM ROBERTIANUM				R
GERANIUM MACULATUM				R
SYMPHYOTRICHUM PUNICEUM				O-R

NOTES:
ALIEN SPECIES- OCCASIONAL, LOCAL
NOISE- SLIGHT, LOCAL

AMRE

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5 519.822.6839 www.aboudng.com

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 8
	SURVEYOR(S): SD, KS	DATE: MAY 18, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☐ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE		☐ FORB	☐ MARSH
		☐ TABLELAND		☐ LICHEN	☐ SWAMP
	☐ BASIC BEDRK.	☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☐ DECIDUOUS	☐ BOG
	☐ CARB BEDRK.	☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR		☐	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☐ SHRUB
☐ SURFICIAL DEP.	☐ TREED
☐ BEDROCK	

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	POPULUS TREMULOIDES > PRUNUS SEROTINA > ACER SACCHARUM = ACER SACCHARINUM
2	SUBCANOPY	3	3	FRAXINUS AMERICANA > CORNUS ALTERNIFOLIA >RHAMNUS CATHARTICA > MALUS PUMILA
3	UNDERSTOREY	4	3	RHAMNUS CATHARTICA > VITIS RIPARIA > RUBUS IDAEUS > RIBES CYNOSBATI
4	GRD. LAYER	6	4	ERYTHRONIUM AMERICANUM > MATTEUCCIA STRUTHIOPTERIS > FRAGARIA VIRGINIANA > VIOLA SP

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	A	<10	A	10-24	O	25-50	N	>50
STANDING SNAGS:	O	<10	R	10-24	N	25-50	N	>50
DEADFALL/LOGS:	O	<10	R	10-24	N	25-50	N	>50
COMM. AGE.	MID-AGED							

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES/GLEY	g=	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK		(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	FOREST	CODE: FO
COMMUNITY SERIES:	DECIDUOUS FOREST	CODE: FOD
ECOSITE:	DRY- FRESH UPLAND DECIDUOUS FOREST	CODE: FODM 4
VEGETATION TYPE:		CODE:
INCLUSION		CODE:
COMPLEX		CODE:

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
POPULUS TREMULOIDES	A			
FRAXINUS AMERICANA		O-R		
ACER SACCHARUM	R			
MALUS PUMILA		R		
ACER SACCHARINUM	R			
PRUNUS SEROTINA	O			
RUBUS IDAEUS			R	
RHAMNUS CATHARTICA		R	O	
CORNUS ALTERNIFOLIA		O-R		
VITIS RIPARIA			O	
LONICERA TATARICA			R	
RIBES CYNOSBATI			R	

SPECIES	LAYER C	SC	U	GL
FRAGARIA VIRGINIANA				O-R
ACTAEA PACHYPODA				R
ERYTHRONIUM AMERICANUM				A
MATTEUCCIA STRUTHIOPTERIS				A-O
VIOLA SP.				R
TARAXACUM OFFICINALE				R
GALIUM MOLLUGO				R

NOTES:

ALIEN SPECIES- OCCASIONAL, WIDESPREAD
GAPS IN CANOPY- SMALL, LOCAL
NOISE- SLIGHT, LOCAL
DEATH/DISEASE OF TREES- LIGHT, LOCAL
RECREATION- PEOPLE USING TRAIL

EACH, CAGO

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5 519.822.6839 www.aboudinc.com

Representative Photographs of Vegetation Community:



ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 9
	SURVEYOR(S): SD, KS	DATE: MAY 18 & SEPT 1, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
■ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
		☐ VALLEYSLOPE		■ FORB	☐ MARSH
		■ TABLELAND		☐ LICHEN	☐ SWAMP
		☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
	☐ ACIDIC BEDRK.	☐ CLIFF		☐ DECIDUOUS	☐ BOG
		☐ TALUS		☐ CONIFEROUS	☐ BARREN
SITE		☐ CREVICE/CAVE	COVER	☐ MIXED	■ MEADOW
☐ OPEN WATER	☐ BASIC BEDRK.	☐ ALVAR	■ OPEN		☐ PRAIRIE
☐ SHALLOW WATER		☐ ROCKLAND	☐ SHRUB		☐ THICKET
■ SURFICIAL DEP.		☐ BEACH/BAR	☐ TREED		☐ SAVANNAH
☐ BEDROCK	☐ CARB BEDRK.	☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION

LAYER		HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	1	PINUS STROBUS
2	SUBCANOPY			
3	UNDERSTOREY	4	2	CORNUS SERICEA > RHAMNUS CATHARTICA > RHUS TYPHINA > ACER NEGUNDO
4	GRD. LAYER	6	4	SOLIDAGO CANADENSIS > SOLIDAGO ALTISSIMA > FRAGARIA VIRGINIANA > DAUCUS CAROTA

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:		<10		10-24		25-50		>50
STANDING SNAGS:		<10		10-24		25-50		>50
DEADFALL/LOGS:		<10		10-24		25-50		>50
COMM. AGE.								

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES/GLEY	g=	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK		(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	MEADOW	CODE:	ME
COMMUNITY SERIES:	FORB MEADOW	CODE:	MEF
ECOSITE:	DRY- FRESH FORB MEADOW	CODE:	MEFM 1
VEGETATION TYPE:	GOLDENROD FORB MEADOW	CODE:	MEFM 1-1
INCLUSION		CODE:	
COMPLEX		CODE:	

NOTES:

LAYERS: 1 = CANOPY 2= SUBCANOPY 3= UNDERSTOREY 4= GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES CODE	LAYER 1	2	3	4
PINUS STROBUS	R			
ACER NEGUNDO			R	
PRUNUS SP.			R	
RHAMNUS CATHARTICA			O-R	
PARTHENOCISSUS QUINQUEFOLIA				O
VITIS RIPARIA				R
RHUS TYPHINA			R	
CORNUS SERICEA			O	

SPECIES CODE	LAYER 1	2	3	4
SOLIDAGO CANADENSIS				A-O
DAUCUS CAROTA				O
MEDICAGO SATIVA				O-R
VERBASCUM THAPSUS				R
TANACETUM VULGARE				O-R
ACHILLEA MILLEFOLIUM				O-R
ASCLEPIAS SYRIACA				O-R
PHLEUM PRATENSE				R
THYMUS PRAECOX				O
FRAGARIA VIRGINIANA				O
PLANTAGO MAJOR				R
SOLIDAGO ALTISSIMA				O

NOTES:

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5 519.822.6839 www.aboudinc.com

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 13
	SURVEYOR(S): SD, KS	DATE: MAY 18 & SEPT 1, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
■ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		GRAMINOID	☐ STREAM
	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE		☐ FORB	☐ MARSH
		■ TABLELAND		☐ LICHEN	☐ SWAMP
	☐ BASIC BEDRK.	☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☐ DECIDUOUS	☐ BOG
	☐ CARB BEDRK.	☐ TALUS		■ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR		☐	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			■ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☐ SHRUB
■ SURFICIAL DEP.	■ TREED
☐ BEDROCK	

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	3	FRAXINUS AMERICANA > ACER RUBRUM > PICEA GLAUCA > PRUNUS SEROTINA
2	SUBCANOPY	3	3	FRAXINUS AMERICANA = ACER RUBRUM > MALUS PUMILA > ULMUS AMERICANA
3	UNDERSTOREY	4	3	RUBUS IDAEUS > VITIS RIPARIA > RIBES CYNOSBATI > LONICERA TATARICA
4	GRD. LAYER	6	4	ALLIARIA PETIOLATA > SOLIDAGO SP. >ERYTHRONIUM AMERICANUM > GALIUM MOLLUGO

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	A	<10	A	10-24	O	25-50	R	>50
STANDING SNAGS:	O	<10	R	10-24	N	25-50	N	>50
DEADFALL/LOGS:	O	<10	R	10-24	N	25-50	N	>50
COMM. AGE.	MID-AGED							

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES/GLEY	g=	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK		(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	WOODLAND	CODE:	WO
COMMUNITY SERIES:	DECIDUOUS WOODLAND	CODE:	WOD
ECOSITE:	DRY- FRESH DECIDUOUS WOODLAND	CODE:	WODM 4
VEGETATION TYPE:		CODE:	
INCLUSION		CODE:	
COMPLEX		CODE:	

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
PICEA GLAUCA	O			
FRAXINUS AMERICANA	A-O	O	R	
ACER RUBRUM	O	O		
THUJA OCCIDENTALIS		R		
PINUS STROBUS		R		
ULMUS AMERICANA		R		
PRUNUS SEROTINA	R			
MALUS PUMILA		O-R		
LONICERA TATARICA			R	
RIBES CYNOSBATI			O-R	
RUBUS IDAEUS			O	
SICYOS ANGULATUS			R	
ROSA SP.			R	
RHAMNUS CATHARTICA			R	
VITIS RIPARIA			O-R	
PRUNUS VIRGINIANA			R	
CORNUS SERICEA			O-R	
RHUS TYPHINA			R	

SPECIES	LAYER C	SC	U	GL
TARAXACUM OFFICINALE				O-R
ALLIARIA PETIOLATA				A-O
GERANIUM ROBERTIANUM				R
LAMIUM PURPUREUM				O-R
SOLIDAGO SP.				O
HEMEROCALLIS FULVA				R
AEGOPODIUM PODAGRARIA				R
GALIUM MOLLUGO				O
FRAGARIA VIRGINIANA				R
RANUNCULUS ACRIS				R
EQUISETUM ARVENSE				R
ERYTHRONIUM AMERICANUM				O

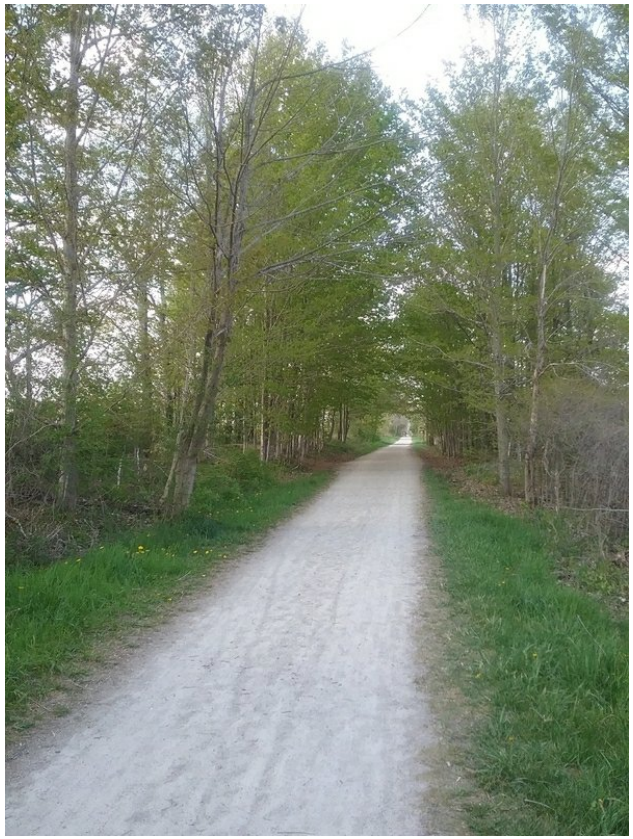
NOTES:

ALIEN SPECIES- OCCASIONAL, WIDESPREAD
PLANTINGS/PLANTATIONS- GARDEN VARIETY SPECIES PLANTED CLOSEST TO 1ST LINE, SOME SPECIES UNABLE TO BE IDENTIFIED.
NOISE- SLIGHT, WIDESPREAD
RECREATION- SEVERAL PEOPLE USING THE TRAIL (WALKING, BIKING ETC.)

DOWO, BCCH, BLJA, NOCA, RWBB, BAOR

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5 519.822.6839 www.aboudinc.com

Representative Photographs of Vegetation Community:



ELC
COMMUNITY DESCRIPTION & CLASSIFICATION

PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		**POLYGON:** 15
SURVEYOR(S): SD, KS	**DATE:** MAY 18 & SEPT 1, 2021	**PHOTO #:**
START: 17:50	**END:** 21:05	**ZONE & UTM:**

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
■ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE		☐ FORB	■ MARSH
		■ TABLELAND		☐ LICHEN	☐ SWAMP
		☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☐ DECIDUOUS	☐ BOG
		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		■ MIXED	☐ MEADOW
	☐ BASIC BEDRK.	☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
	☐ CARB BEDRK.	☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	■ OPEN
☐ SHALLOW WATER	☐ SHRUB
■ SURFICIAL DEP.	☐ TREED
☐ BEDROCK	

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	1	POPULUS BALSAMIFERA
2	SUBCANOPY	4	1	POPULUS BALSAMIFERA
3	UNDERSTOREY	5	4	PHALARIS ARUNDINACEA > EUTHAMIA GRAMINIFOLIA > EUPATORIUM PERFOLIATUM = EUTROCHIUM MACULATUM
4	GRD. LAYER	6	3	TUSSILAGO FARFARA > PHLEUM PRATENSE > DIPSACUS FULLONUM > BIDENS FRONDOSA

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:		<10		10-24		25-50		>50
STANDING SNAGS:		<10		10-24		25-50		>50
DEADFALL/LOGS:		<10		10-24		25-50		>50
COMM. AGE.								

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	**DEPTH TO MOTTLES/GLEY**	**g=**	**G=**
MOISTURE:	**DEPTH OF ORGANICS:**	(cm)	
HOMOGENOUS/VARIABLE	**DEPTH TO BEDROCK**	(cm)	

COMMUNITY CLASSIFICATION

COMMUNITY CLASS: MARSH		**CODE:** MA
COMMUNITY SERIES: MEADOW MARSH		**CODE:** MAM
ECOSITE: MIXED MINERAL MEADOW MARSH		**CODE:** MAMM 3
VEGETATION TYPE: MIXED MINERAL MEADOW MARSH		**CODE:** MAMM 3-1
INCLUSION		**CODE:**
COMPLEX		**CODE:**

NOTES:

LAYERS: 1 = CANOPY 2= SUBCANOPY 3= UNDERSTOREY 4= GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES CODE	LAYER 1	2	3	4
POPULUS BALSAMIFERA	R	R		

SPECIES CODE	LAYER 1	2	3	4
PHALARIS ARUNDINACEA			A	
EUPATORIUM PERFOLIATUM			O	
EUTROCHIUM MACULATUM			O	
EUTHAMIA GRAMINIFOLIA			A-O	
PHLEUM PRATENSE				R
TRIFOLIUM PRATENSE				R
PHRAGMITES AUSTRALIS			O	
DIPSACUS FULLONUM				R
TUSSILAGO FARFARA				O
ASCLEPIAS SYRIACA				R
DAUCUS CAROTA				R
BIDENS FRONDOSA				R

NOTES:

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5 519.822.6839 www.aboudinc.com

APPENDIX 4
Vascular Plant List

Season		Plant [1] Type	Scientific Name	Common Name	CC [2]	CW [3]	SARO [4] Status	SARA [5] Status	Global [6] Rank	Prov. [7] Rank	Wellington County (2009)
Spring	Summer										
✓	✓	TR	Abies balsamifera	Balsam Fir	5	-3	NL	NL	G5	S5	
	✓	TR	Acer negundo	Manitoba Maple	0	0	NL	NL	G5	S5	
✓	✓	TR	Acer rubrum	Red Maple	4	0	NL	NL	G5	S5	
✓	✓	TR	Acer saccharinum	Silver Maple	5	-3	NL	NL	G5	S5	
✓	✓	TR	Acer saccharum	Sugar Maple	4	3	NL	NL	G5	S5	
	✓	FO	Achillea millefolium	Common Yarrow	0	3	NL	NL	G5	SNA	
✓		FO	Actaea pachypoda	White Baneberry	6	5	NL	NL	G5	S5	
	✓	FO	Actaea rubra	Red Baneberry	6	3	NL	NL	G5	S5	
✓		FO	Aegopodium podagraria	Goutweed	*	0	NL	NL	GNR	SNA	
✓		FO	Alliaria petiolata	Garlic Mustard	*	0	NL	NL	GNR	SNA	
✓	✓	FO	Aralia nudicaulis	Wild Sarsasparilla	4	3	NL	NL	G5	S5	
✓	✓	FO	Arisaema triphyllum	Jack-in-the-Pulpit	5	-3	NL	NL	G5	S5	
	✓	FO	Asclepias syriaca	Common Milkweed	0	5	NL	NL	G5	S5	
✓	✓	FE	Athyrium filix-femina	Lady Fern	4	0	NL	NL	G5T5	S5	
✓		GR	Avena sativa	Cultivated Oats	*	5	NL	NL	GNR	SNA	
✓	✓	TR	Betula allegheniensis	Yellow Birch	6	0	NL	NL	G5	S5	
✓	✓	TR	Betula papyrifera	Paper Birch	2	3	NL	NL	G5	S5	
	✓	FO	Bidens frondosa	Devil's Beggarticks	3	-3	NL	NL	G5	S5	
	✓	GR	Bromus erectus	Meadow Brome	*	5	NL	NL	GNR	SNA	
	✓	GR	Bromus inermis	Awnless Brome	*	5	NL	NL	G5	SNA	
✓		FO	Cardamine diphylla	Two-leaved Toothwort	7	3	NL	NL	G5	S5	
	✓	FO	Circaea canadensis	Broad-leaved Enchanter's Nightshade	2	3	NL	NL	GNR	S5	
	✓	FO	Cirsium arvense	Canada Thistle	*	3	NL	NL	G5	SNA	
✓	✓	SH	Cornus alternifolia	Alternate-leaved Dogwood	6	3	NL	NL	G5	S5	
✓		SH	Cornus sericea	Red-osier Dogwood	2	-3	NL	NL	G5	S5	
	✓	FO	Daucus carota	Wild Carrot	*	5	NL	NL	GNR	SNA	
	✓	FO	Dipsacus fullonum	Common Teasel		3	NL	NL	GNR	SNA	

	✓	FE	Dryopteris intermedia	Evergreen Wood Fern	5	0	NL	NL	G5	S5	
	✓	VI	Echinocystis lobata	Wild Mock-cucumber	3	-3	NL	NL	G5	S5	
	✓	FO	Epipactis helleborine	Eastern Helleborine	*	3	NL	NL	GNR	SNA	
✓	✓	FE	Equisetum arvense	Field Horsetail	0	0	NL	NL	G5	S5	
	✓	FE	Equisetum pratense	Meadow Horsetail	8	-3	NL	NL	G5	S5	✓
✓		FO	Erythronium americanum	Yellow Trout-lily	5	5	NL	NL	G5	S5	
	✓	FO	Eupatorium perfoliatum	Common Boneset	2	-3	NL	NL	G5	S5	
	✓	FO	Euthamia graminifolia	Grass-leaved Goldenrod	2	0	NL	NL	G5	S5	
	✓	FO	Eutrochium maculatum	Spotted Joe-pye-weed	3	-5	NL	NL	G5T5	S5	
✓	✓	FO	Fragaria virginiana	Wild Strawberry	2	3	NL	NL	G5	S5	
✓	✓	TR	Fraxinus americana	White Ash	4	3	NL	NL	G5	S4	
✓		TR	Fraxinus nigra	Black Ash	7	-3	NL	NL	G5	S4	
	✓	TR	Fraxinus pennsyvanica	Green Ash	3	-3	NL	NL	G5	S4	
✓	✓	FO	Galium asprellum	Rough Bedstraw	6	-5	NL	NL	G5	S5	
✓	✓	FO	Galium mollugo	Smooth Bedstraw	*	5	NL	NL	GNR	SNA	
✓		FO	Galium palustre	Marsh Bedstraw	5	-5	NL	NL	G5	S5	
✓		FO	Geranium maculatum	Spotted Geranium	6	3	NL	NL	G5	S5	
✓	✓	FO	Geranium robertianum	Herb-robert	2	3	NL	NL	G5	S5	
✓		FO	Geum lacinatum	Rough Avens	4	-3	NL	NL	G5	S4	✓
✓	✓	FE	Gymnocarpium dryopteris	Common Oak Fern	7	3	NL	NL	G5	S5	
✓		FO	Hemercallis fulva	Orange Daylily	*	5	NL	NL	G5	S5	
✓	✓	FO	Impatiens capensis	Spotted Jewelweed	4	-3	NL	NL	G5	S5	
✓		FO	Lamium purpureum	Purple Deadnettle	*	5	NL	NL	GNR	SNA	
✓	✓	SH	Lonicera tatarica	Tartarian Honeysuckle	*	3	NL	NL	GNR	SNA	
	✓	FO	Medicago sativa	Alfalfa	*	5	NL	NL	GNR	SNA	
	✓	FO	Mentha arvensis	Field Mint	3	-3	NL	NL	G5T5	S5	
✓	✓	FO	Maianthemum canadense	Wild- Lily-of-the-valley	5	3	NL	NL	G5	S5	
✓	✓	FO	Maianthemum racemosum	Large False Solomon's Seal	4	3	NL	NL	G5	S5	
✓	✓	TR	Malus pumila	Common Apple	*	5	NL	NL	G5	SNA	
✓	✓	FE	Matteuccia struthiopteris	Ostrich Fern	5	0	NL	NL	G5T5	S5	
✓	✓	FE	Onoclea sensibilis	Sensitive Fern	4	-3	NL	NL	G5	S5	
✓	✓	FO	Oxalis stricta	Upright Yellow Wood-sorrel	0	3	NL	NL	G5	S5	
✓	✓	VW	Parthenocissus quinquefolia	Virginia Creeper	6	3	NL	NL	G5	S4?	
	✓	FO	Persicaria maculosa	Spotted Lady's-thumb	*	-3	NL	NL	G3G5	SNA	

	✓	GR	Phalaris arundinacea	Reed Canary Grass	0	-3	NL	NL	G5	S5	
	✓	GR	Phleum pratense	Common Timothy	*	3	NL	NL	GNR	SNA	
	✓	GR	Phragmites austrails	European Reed		-3	NL	NL	G5T5	SNA	
	✓	SH	Physocarpus opulifolius	Eastern Ninebark		-3	NL	NL	G3G5	SU	
✓	✓	TR	Picea glauca	White Spruce	6	3	NL	NL	G5	S5	
	✓	TR	Picea pungens	Blue Spruce		3	NL	NL	G5	SNA	
✓		FO	Pilea fontana	Lesser Clearweed	5	-3	NL	NL	G5	S4	
✓	✓	TR	Pinus strobus	Eastern White Pine	4	3	NL	NL	G5	S5	
	✓	FO	Plantago major	Common Plantain	*	3	NL	NL	G5	S5	
✓	✓	TR	Populus balsamifera	Balsam Poplar	4	-3	NL	NL	G5	S5	
✓	✓	TR	Populus tremuloides	Trembling Aspen	2	0	NL	NL	G5	S5	
	✓	TR	Prunus pensylvanica	Pin Cherry	3	3	NL	NL	G5	S5	
✓	✓	TR	Prunus serotina	Black Cherry	3	3	NL	NL	G5	S5	
✓	✓	SH	Prunus virginiana	Choke Cherry	2	3	NL	NL	G5	S5	
	✓	TR	Quercus rubra	Northern Red Oak	6	3	NL	NL	G5	S5	
✓		FO	Ranunculus acris	Tall Buttercup	*	0	NL	NL	G5	SNA	
✓		FO	Ranunculus recurvatus	Hooked Buttercup	4	-3	NL	NL	G5T5	S5	
✓	✓	SH	Rhamnus cathartica	Common Buckthorn	*	0	NL	NL	GNR	SNA	
✓	✓	SH	Rhus typhina	Staghorn Sumac	1	3	NL	NL	G5	S5	
✓	✓	SH	Ribes cynosbati	Prickly Gooseberry	4	3	NL	NL	G5	S5	
✓	✓	SH	Ribes hirtellum	Smooth Gooseberry	6	-3	NL	NL	G5	S5	✓
	✓	SH	Rubus allegheniensis	Alleghany Blackberry	2	3	NL	NL	G5	S5	
✓	✓	SH	Rubus idaeus ssp. strigosus	Wild Red Raspberry	2	3	NL	NL	G5T5	S5	
	✓	SH	Rubus occidentalis	Black Raspberry	2	5	NL	NL	G5	S5	
✓	✓	FO	Rubus pubescens	Dewberry	4	-3	NL	NL	G5	S5	
✓		SH	Salix bebbiana	Bebb's Willow	4	-3	NL	NL	G5	S5	
	✓	SH	Sambucus nigra	Black Elderberry		-3	NL	NL	G5	SNA	
	✓	SE	Schoenoplectus tabernaemontani	Soft-stemmed Bulrush	5	-5	NL	NL	G5	S5	
✓		VI	Sicyos angulatus	One-seeded Bur-cucumber	2	-3	NL	NL	G5	S4S5	
	✓	VI	Solanum dulcamara	Bittersweet Nightshade	*	0	NL	NL	GNR	SNA	
	✓	FO	Solidago altissima	Tall Goldenrod	1	3	NL	NL	G-T5	S5	
	✓	FO	Solidago canadensis	Canada Goldenrod	1	3	NL	NL	G5T5	S5	
✓	✓	TR	Sorbus aucuparia	European Mountain-ash	*	5	NL	NL	G5	SNA	

	✓	FO	Symphyotrichum ericoides	White Heath Aster	4	3	NL	NL	G5T5	S5	
	✓	FO	Symphyotrichum novae-angliae	New England Aster	2	-3	NL	NL	G5	S5	
	✓	FO	Symphyotrichum puniceum	Swamp Aster	6	-5	NL	NL	G5	S5	
	✓	FO	Tanacetum vulgare	Common Tansy	*	5	NL	NL	GNR	SNA	
✓	✓	FO	Taraxacum officinale	Common Dandelion	*	3	NL	NL	G5	SNA	
✓		FO	Thalictrum dioicum	Early Meadow-rue	6	3	NL	NL	G5	S5	
✓	✓	TR	Thuja occidentalis	Eastern White Cedar	4	-3	NL	NL	G5	S5	
	✓	FO	Thymus praecox	Creeping Thyme		5	NL	NL	GNR	SNA	
✓		FO	Tiarella cordifolia	Heart-leaved Foam-flower	6	3	NL	NL	G5	S5	
✓	✓	TR	Tilia americana	Basswood	4	3	NL	NL	G5	S5	
✓		FO	Trientalis borealis	Northern Starflower	6	0	NL	NL	G5	S5	
	✓	FO	Trifolium pratense	Red Clover	*	3	NL	NL	GNR	SNA	
✓	✓	FO	Trillium erectum	Red Trillium	6	3	NL	NL	G5	S5	
	✓	TR	Tsuga canadensis	Eastern Hemlock	7	3	NL	NL	G5	S5	
✓	✓	FO	Tussilago farfara	Colt's-foot	*	3	NL	NL	GNR	SNA	
✓		FO	Typha angustifolia	Narrow-leaved Cattail		-5	NL	NL	G5	SNA	
✓	✓	TR	Ulmus americana	American Elm	3	-3	NL	NL	G5	S5	
	✓	FO	Verbascum thapsus	Common Mullein	*	5	NL	NL	GNR	SNA	
	✓	FO	Veronica officinalis	Common Speedwell	*	5	NL	NL	G5	SNA	
✓	✓	VW	Vitis riparia	Riverbank Grape	0	0	NL	NL	G5	S5	

1.	Plant Types: AL = Algae; FE = Fern; FO = Forb; GR = Grass; LC = Lichen; LV = Liverwort; MO = Moss; RU = Rush; SE = Sedge; SH = Shrub; TR = Tree; VI = Herbaceous vine; VW = Woody Vine
2.	CC: Coefficient of Conservatism reflects a species' fidelity to a specific habitat. Range from 0 to 10; 10 = very conservative, not likely in disturbed habitats, 1 = least conservative, likely found in a broad range of habitat. * = value not assigned because they are non-native
3.	CW: Coefficient of Wetness reflects a species' affinity for wet soil conditions. Range from -5 to 5; -5 = obligate wetland species, 5 = obligate upland species.
4.	SARO: Status under the Provincial Endangered Species Act, listed on the Species at Risk in Ontario (SARO) list. In order of severity, statuses include: EXP = Extirpated; END = Endangered; THR = Threatened; SC = Special Concern
5.	SARA: Status under the National Species at Risk Act (SARA), assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). In order of severity, statuses include: EXP = Extirpated; END = Endangered; THR = Threatened; SC = Special Concern
6.	Global rarity rank. Range from G1 to G5; G1 = Extremely rare, G5 = Very Common. NR = Unranked; U = Unrankable.
7.	Provincial rarity rank. Range from S1 to S5; S1 = Extremely rare, S5 = Very Common. NR = Unranked; U = Unrankable.
8.	Significant Plants of Wellington County (Dougan & Associates, 2009)

APPENDIX 5
Significant Wildlife Habitat Assessment

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
SEASONAL CONCENTRATION AREAS OF ANIMALS								
1	Waterfowl stopover and Staging Areas (terrestrial)	- Fields with Sheet water in spring (incl. agricultural)	- Mixed species aggregations of 100 or more individuals confirms SWH	flooded field ecosite and 100-300m radius is the SWH	No habitat matching criteria identified in Study Area	No	None required.	No
2	Waterfowl Stopover and Staging (Aquatic)	- Ponds, marshes, lakes, bays, coastal inlets and watercourses and reservoirs - SWTP & SWMP are not SWH	- Aggregations of 100 or more listed species for 7 days (ie. >700 waterfowl use days) confirms SWH	Aquatic ecosite and 100m radius is the SWH	No habitat matching criteria identified in Study Area	No	None required.	No
3	Shorebird Migratory stopover	- Shorelines of Lakes, rivers, wetlands, beaches, bars; seasonally flooded, muddy and un-vegetated shoreline habitat	- 3 or more listed species and >1000 shorebird use days, or >100 whimbrel, confirms SWH	Shoreline ecosite and 100m radius is the SWH	No habitat matching criteria identified in Study Area, >5km from any Lake Ontario	No	None required.	No
4	Raptor Wintering Area	- Combination of upland field and woodland habitat >20ha total (includes,>15ha upland field) - least disturbed sites, idle, fallow or lightly grazed field/meadow best	- 1 or more Short-eared Owl, or, at least 10 individuals and 2 listed species for a minimum of 20 days, and 3 of 5 years, confirms SWH	Ecosite communities (field and woodland) is the SWH	No habitat matching criteria identified in Study Area. Fields in study area are primarily agricultural (Cultivated Oats)	No	None required.	No
5	Bat Hibernacula	- Caves, mine shafts, underground foundations, karsts - buildings are not SWH	- All sites with confirmed hibernating bats, confirms SWH	Ecosite and 200m radius is the SWH	No habitat matching criteria identified in Study Area	No	None required	No
6	Bat Maternity Colony	- All forested ecosites, FOD, FOC, FOM, SWD, SWM, SWC with >10/ha trees (>25cm DBH) in early stages of decay (class 1-3) - buildings are not SWH	- >10 Big Brown Bats, >20 Little Brown Myotis, >5 adult female Silver-haired Bats confirms SWH	Entire woodland or forest stand ELC ecosite containing colony is the SWH	Forested ecosites present in Study area with trees >10cm DBH.	Yes	Studies recommended pre-construction in areas where tree removal/damage to occur in candidate habitat.	unknown

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
7	Turtle Wintering Area	- Areas with permanent water deep enough not to freeze, with mud/soft substrates	- 5 over-wintering Midland Painted Turtles, 1 or more Northern Map Turtle or Snapping Turtle confirms SWH	Mapped ELC ecosite, or deep pool element where turtles overwinter is the SWH	No habitat matching criteria identified in Study Area	No	None required.	No
8	Reptile Hibernaculum	- Sites below the frost line; rock barren, crevice and cave, talus, alvar, rock piles, slopes, stone fences and crumbling foundations	- Presence of hibernacula with minimum 5 individuals of 1 snake species/ individuals of 2 or more species confirms SWH - Congregations of a minimum of 5 snakes of 1 species/ individuals of 2 or more snake species, near potential hibernacula on sunny warm days in spring and fall confirms SWH	Feature hibernacula is located in, and 30m radius is the SWH	No habitat matching criteria identified in Study Area	No	None required.	No
9	Colonially-nesting Bird Habitat (cliff/bank)	- Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns	- 1 or more nest sites with 8 or more Cliff Swallow or, 50 Bank Swallow and Rough-winged Swallow pairs during the breeding season.	Colony and 50m radius around peripheral nest is the SWH	No habitat matching criteria identified in Study Area	No	Breeding Bird surveys completed.	No
10	Colonially-nesting Bird Habitat (Tree/shrub)	- Live or dead standing trees in wetlands, lakes, islands and peninsulas, occasionally shrubby and emergent vegetation	- 5 or more active Great-blue Heron or other listed species nests	Edge of the colony plus minimum 300m radius, or extent of the forest ecosite, or entire island <15ha is the SWH	No habitat matching criteria identified in Study Area	No	Breeding Bird surveys completed.	No
11	Colonially-nesting Bird Habitat (Ground)	- Rocky islands or peninsulas within a lake or large river(natural or artificial)	- >25 active nests of Herring Gull, Ring-billed Gull, >5 active nests of Common Tern, or >2 active nests of Caspian Tern. 5 or more pairs of Brewer's Blackbird. Any active nesting colony of Little Gull, Great Black-backed Gull.	Edge of colony plus min 150m radius or extent of ELC ecosite, or island <3ha is the SWH	No habitat matching criteria identified in Study Area	No	Breeding Bird surveys completed.	No
12	Migratory Butterfly Stopover Area	- At least 10ha, with undisturbed field/meadow and forest or woodland edge habitat present, within 5km of Lake Ontario.	- Presence of Monarch use days >5000 or >3000 where there is a mix of Monarch with Painted Ladies or White Admirals	Field/meadow and forest/woodland is the SWH	No habitat matching criteria identified in Study Area, >5km from Lake Ontario	No	None required.	No

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
13	Land bird Migratory Stopover Area	- Woodlots >5ha in size - within 5km of lake Ontario	- Use by >200 birds/day, with >35species, with at least 10sp recorded on 5 different survey dates.	Woodlot is the SWH	No habitat matching criteria identified in Study Area, >5km from Lake Ontario	No	None required.	No
14	Deer Yarding Areas	- ELC communities providing Thermal cover (FOM,FOC,SWM,SWC, CUP2, CUP3, FOD3, CUT)	- Deer yards are managed by MNRF, available through district offices and LIO.	LIO mapping	No Deer yarding areas identified on LIO Mapping	No	None required.	No
15	Deer Winter Congregation Areas	- All forested ecosites >100ha - Conifer Plantations <50ha may be used	- Deer management is the responsibility of the MNRF - Contact MNRF or LIO for known deer winter areas.	LIO mapping	Deer Wintering Area (Stratum 2) present within the Conifer-Hardwood and White Cedar-Conifer Swamp communities within and adjacent the northern portion of the Study Area.	Yes	None required.	Yes.
RARE VEGETATION COMMUNITIES								
16	Cliffs & Talus Slopes	- Cliff: vertical to near vertical bedrock >3m in height - Talus slope: rock rubble at the base of a cliff made up of coarse rocky debris	- Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	Area of ELC sites: TAO, TAS, TAT, CLO, CLS, CLT	No habitat matching criteria identified in Study Area	No	Ecological Land Classification completed.	No
17	Sand Barren	- Exposed, sparsely vegetated & caused by lack of moisture, fires and erosion.	- area >0.5ha in size - Confirm any ELC vegetation Type for Sand Barren - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	Ecological Land Classification completed.	No
18	Alvar	- Level, mostly un-fractured calcareous bedrock feature, overlain by a thin veneer or soil	- area >0.5ha in size - Field Studies that identify four of the five Alvar Indicator Species - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	Ecological Land Classification completed.	No
19	Old Growth Forest	- >30ha forests with at least 10ha interior habitat and multi-layered canopy	- Dominant Tree Species >140 years old - No recognizable signs forestry practices (old stumps)	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	Ecological Land Classification completed.	No

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
20	Savannah	- Tall Grass Prairie Habitat with 25%-60% Tree cover - Remnant sites such as Railway Right of ways are not SWH	- No minimum size, and must be restored to a natural state. - Confirm one or more savannah indicator species - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	Ecological Land Classification completed.	No
21	Tallgrass Prairie	- Ground cover dominated by prairie grasses with <25% tree cover - Remnant sites such as Railway Right of ways are not SWH	- No minimum size, and must be restored to a natural state. - Confirm one or more prairie indicator species - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	Ecological Land Classification completed.	No
22	Other Rare Vegetation Communities	- All Provincially Rare S1, S2, S3 Vegetation Communities (Appendix M of SWHTG)	- Field Studies Confirming ELC vegetation type is a rare vegetation community	Area of ELC ecosite is the SWH	No communities identified on site are S1-S3 communities	No	None required	No
SPECIALIZED HABITAT FOR WILDLIFE								
23	Waterfowl Nesting Areas	- Upland Habitat, adjacent to Wetland ELC ecosites (except SWC, SWM) - Extends 120m from a wetland (>0.5ha) and any small wetlands (<0.5ha) within a cluster of at least 3 - Upland area at least 120m wide	- Presence of 3 or more nesting pairs of listed species excluding Mallards - Presence of 10 or more nesting pairs including mallards - Any active Black Duck nesting site	SWH may be greater than or less than 120m from the wetland edge and must provide enough habitat for waterfowl to successfully nest	No habitat matching criteria identified in Study Area. Wetland communities within the Study Area classified as Coniferous and Mixed swamps.	No	None required	No
24	Bald Eagle or Osprey Nesting, Foraging and Perching Habitat	- Forest communities, adjacent to riparian areas - Osprey nests usually at top of tree - Bald Eagle nest usually in super canopy tree in a notch within canopy	- Studies confirm one or more active Bald Eagle or Osprey nest - Alternate nests included in SWH - Nests must be used annually, if found inactive, must be known inactive at least 3 years, or suspected unused for 5 years if unknown	Active nest plus 300m for Osprey Active nest plus 400-800m for Bald Eagle	No habitat matching criteria identified in Study Area	No	None required	No

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
25	Woodland Raptor Nesting Habitat	- Forested communities, forested swamp communities and cultural Plantations - Natural Forested/conifer plantations >30ha with >10ha interior habitat (200m buffer)	- One or more active nest of listed species	Nest protection radius: - Red-Shouldered Hawk, Northern Goshawk 400m - Barred Owl 200m - Broad-winged Hawk, Coopers Hawk 100m - Sharp-shinned Hawk 50	The forested habitat containing the Conifer-Hardwood mixed swamp and White Cedar-Conifer coniferous swamp may provide suitable habitat.	No	No stick nests observed during SWH or Winter Wildlife Surveys	No
26	Turtle Nesting Areas	- Exposed Mineral soil (sand or gravel) adjacent (<100m) or within shallow marsh, shallow submerged, shallow floating, bog or fen communities - Located in open sunny areas, away from roads and less prone to predation - Municipal and provincial road shoulders are not SWH.	- Confirm 5 or more nesting Midland Painted Turtles, 1 or more nesting Northern Map Turtle or Snapping Turtle	Area or sites with exposed mineral soils, plus a radius of 30-100m around the nesting area is the SWH.	No habitat matching criteria identified in Study Area	No	None required	No
27	Seeps and Springs	- Areas where ground water comes to the surface - Any forested area within the headwaters of a stream or river system	- Confirm site with 2 or more seeps/springs. -	Area of ELC forest ecosite containing seep/spring is the SWH	Seeps and springs possible within forested and wetland communities	Yes	ELC complete	Seeps present in White Cedar-Hardwood Mixed Swamp and White Cedar-Conifer Coniferous Swamp communities.
28	Amphibian Breeding Habitat (woodland)	- Breeding pools within woodlands - Wetland, pond or pool >500m^2 within or adjacent (<120m) to a woodland. - Woodlands with permanent ponds, or those with water until mid-July more likely to be used.	- Confirm Breeding population of 1 or more listed newt/salamander species, 2 or more of the listed frog species with at least 20 individuals (adults or egg masses), 2 or more of the listed frog species with call code levels of 3. - Wetland adjacent to woodlands includes travel corridor connecting features as SWH.	Wetland area, plus 230m radius of woodland is the SWH.	Swamp communities within the Study Area may provide suitable habitat	Yes	Amphibian surveys completed.	Yes. Over 20 individuals of a combination of the listed species were detected over the course of Amphibian Surveys.

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
29	Amphibian Breeding Habitat (Wetland)	- Swamp, marsh, fen, bog, open aquatic and shallow aquatic ELC communities. - Typically isolated from woodlands (>120m), but includes larger wetlands with primarily aquatic species (bull frogs) that are adjacent to woodlands. - Wetlands >500m2 - Presence of shrubs & logs - Bullfrogs require permanent water bodies and abundant emergent vegetation.	- Confirm Breeding populations of 1 or more listed newt/salamander species, or 2 or more listed frog/toad species with at least 20 individuals (adults or egg masses), or 2 or more listed frog/toad species with a call code level of 3 - Or any wetland with confirmed breeding Bullfrog.	ELC ecosite and shoreline is the SWH Movement corridors (SWH) must be considered if this habitat is significant	Swamp communities within the Study Area may provide suitable habitat.	No	Amphibian surveys complete	No.
30	Area-sensitive Breeding Bird Habitat	- Habitats where interior breeding birds are breeding - Large mature(>60 years) forest stands or woodlots >30ha - Forest and swamp ELC communities - Interior habitat at least 200m from edge	- Presence of nesting or breeding pairs of 3 or more of the listed species - Any site with Cerulean Warbler or Canada Warbler is SWH -	ELC ecosite is the SWH	No interior habitat (>200m) identified in study area	No	Breeding Bird surveys completed.	No
HABITATS OF SPECIES OF CONSERVATION CONCERN CONSIDERED SWH								

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
31	Marsh Bird Breeding Habitat	- Some meadow marsh, shallows submerged, shallow floating, mixed shallow floating, fen and bog communities (see SWH Ecoregion guide for specifics) - Nesting occurs in wetlands, all wetland habitat is considered with presence of shallow water with emergent aquatic vegetation - Green heron at edge of water sheltered by shrubs and trees.	- 5 or more nesting pairs of Sedge Wren or Marsh Wren, 1 pair of Sandhill Crane, or breeding by any combination of 5 or more of the listed species - Any Wetland with 1 or more breeding pair Black Tern, Trumpeter Swan, Green Heron or Yellow Rail	ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	Breeding Bird surveys completed.	No
32	Open Country Bird Breeding Habitat	- Grassland area >30ha (natural & cultural fields and meadows) - Grasslands not class 1 or 2 agriculture (no row crops or intensive hay or livestock pasturing) - Mature hayfields or pasture at least 5 years old	- Nesting or breeding of 2 or more of the listed species - Field with 1 or more Short-eared Owls	Contiguous ELC ecosite is the SWH	No habitat matching criteria identified in Study Area. Open communities within study area primarily agricultural (Cultivated Oats)	No	Breeding Bird Surveys completed.	No
33	Shrub/Early Successional Bird Breeding Habitat	- Cultural thickets, savannah and woodland habitat - Large field area succeeding to shrub and thicket habitat >10ha in size - Patches of shrub ecosite may be complexed into larger old field ecosites for some species	- Confirm nesting or breeding of 1 of the listed indicator species and at least 2 of the common species - Habitat with Yellow-breasted Chat Or Golden-winged Warbler is SWH	SWH is contiguous ELC ecosite field/thicket area	No habitat matching criteria identified in Study Area	No	Breeding Bird surveys completed.	No

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
34	Terrestrial Crayfish	- Meadow marsh, shallow marsh, swamp thicket, deciduous swamp and mixed swamp communities - Cultural meadow with inclusions of meadow marsh may be used - Wet edges of marshes and wet meadows should be surveyed for crayfish	- Presence of 1 or more individuals of listed species or their chimneys in suitable habitat	Area of ELC ecosite or Eco element area of meadow marsh or swamp within the larger ecosite area is the SWH	Candidate habitat identified in study area.	Yes	Incidental observation during ELC conducted	No
35	Special Concern & Rare Wildlife Species	- All Special concern and Provincially Rare plant and animal species - Where an element occurrence is identified within a 1 or 10km grid for a species listed, linking candidate habitat on the site must be completed to ELC ecosites	- Assessment/inventory of site for identified special concern or rare species completed during time of year when species is present or easily identifiable - Habitat must be easily mapped and cover an important life stage component (specific nesting habitat, foraging)	SWH is the finest ELC scale that protects the form and function of the habitat	No element occurrences for Special Concern or rare Wildlife Species identified within 1km of the study area Background Atlas review identified 7 Special concern species within 10km of the Study Area - Monarch (OBA) - Snapping Turtle (ORAA) - Bald Eagle (eBird) - Eastern Wood-pewee (OBBA) - Wood Thrush (OBBA) - Canada Warbler (OBBA) - Grasshopper Sparrow (OBBA)	Yes- The coniferous and mixed swamp communities may provide habitat for Canada Warbler and Eastern Wood-pewee. Goldenrod Forb meadows may provide suitable habitat for Monarch.	Two season Botanical Survey Breeding Bird Survey Amphibian survey Incidental wildlife	Yes Eastern Wood-pewee identified within the Conifer-Hardwood Mixed swamp and the White-Cedar Conifer Coniferous swamp communities. Several Monarchs observed within the meadow community adjacent the White Cedar-Conifer Swamp.
ANIMAL MOVEMENT CORRIDORS								

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
36	Amphibian Movement Corridor	- Corridors may occur in all ecosites associated with water - Presence of significant amphibian breeding indicates the requirement for identifying corridors - Movement corridors between breeding habitat and summer habitat	- Corridors typically include areas with native vegetation, with several layers of vegetation, unbroken by roads, waterways or waterbodies are most significant - At least 15 of vegetation on both sides of the waterway or up to 200m wide of woodland habitat with gaps of <20m - Shorter corridors are more significant than longer, but amphibians must be able to get to and from their summer breeding habitat	Corridor is the SWH	The existing Irvine Creek PSW north-west of the proposed development may provide suitable habitat for an amphibian movement corridor.	Yes	None required	No
37	Deer Movement Corridor	- May occur in all forested ecosites - Determined when deer wintering habitat is confirmed as SWH	- Corridors at least 200m wide with gaps <20m leading to wintering habitat - Unbroken by roads and residential areas - Shorter corridors are more significant	Corridor is the SWH	Deer Wintering Area (Stratum 2) confirmed within the Conifer-Hardwood and White Cedar-Conifer Swamp Communities.	Yes	None required	Yes

APPENDIX 6
Species at Risk Habitat Assessment

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Amphibians										
Jefferson Salamander	*Ambystoma jeffersonianum*	END	END	S2	MNRF Species Occurrence Mapping	Adults are found within upland deciduous or mixed forest habitat with suitable breeding ponds, such as kettle ponds, natural basins and limestone sink holes, which can be permanent or ephemeral, and include appropriate egg attachment sites and lack of predatory fish (COSEWIC 2010).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Jefferson Salamander *Ambystoma jeffersonianum* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 38 pp.
'Unisexual Ambystoma, Jefferson dependent population	*'Ambystoma laterale - (2) jeffersonianum*	END	END	S2	MNRF Species Occurrence Mapping	Unisexual ambystoma share the same habitat requirements as Jefferson salamander, as they rely on Jefferson salamander for sperm donation in order to breed (COSEWIC 2016).	No habitat matching criteria identified in Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2016. COSEWIC assessment and status report on the unisexual Ambystoma, Ambystoma laterale, Small-mouthed Salamander–dependent population, Jefferson Salamander–dependent population and the Blue-spotted Salamander–dependent population, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxii + 61 pp.
Western Chorus Frog – Great Lakes / St. Lawrence - Canadian Shield Population	*Pseudacris triseriata pop. 2*	NAR	THR	S4	ORAA (2008) MNRF Species Occurrence Mapping	Generally found in lowland communities, such as swamps, inhabiting lowland shrubs and grasses in the community, near breeding habitat. Breeding occurs in lowland, ephemeral ponds, devoid of predatory fish species (COSEWIC 2008a)	The swamp and thicket communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Amphibian surveys completed.	None observed.	COSEWIC. 2008. COSEWIC assessment and update status report on the Western Chorus Frog Pseudacris triseriata Carolinian population and Great Lakes/St. Lawrence – Canadian Shield population in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp.
Butterflies, Bees, Damselflies, Dragonflies & Insects										
Gypsy Cuckoo Bumble Bee	*Bombus bohemicus*	END	END	S4	MECP (2021)	Occurs in diverse habitats, including open meadows, mixed farmlands, urban areas, boreal forest and montane meadows. Feeds on pollen and nectar from a variety of plant genera.	Meadow communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2014. COSEWIC assessment and status report on the Gypsy Cuckoo Bumble Bee *Bombus bohemicus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 56 pp.
Monarch	*Danaus plexippus*	SC	SC	S2N, S4B	OBA (2019)	Requires milkweed for larval feeding, other wildflower species are also important for adult feeding when milkweed is not in flower; often found in abandoned farmland, along roadsides, and other open spaces (COSEWIC 2010b)	Meadow communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	Approximately 8 individuals observed within the Meadow community north of the White Cedar Mineral Coniferous Swamp.	COSEWIC. 2010. COSEWIC assessment and status report on the Monarch Danaus plexippus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 43 pp.
Rusty-patched Bumble Bee	*Bombus affinis*	END	END	S1	MNRF Species Occurrence Mapping	Uses a variety of open or semi-open habitat, including meadows, agricultural land and savannah habitat for foraging. Nests are often found underground, in old rodent burrows (COSEWIC 2010c).	Meadow communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Rusty-patched Bumble Bee Bombus affinis in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 34 pp.

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
West Virginia White	*Pieris virginenisis*	SC	NAR	S3	MNRF Species Occurrence Mapping	Found in rich deciduous and mixed forests and swamps with a poorly vegetated shrub layer. The larvae feed only on the leaves of a few host plants, including the Two-leaved Toothwort (*Cardamine diphylla*) and cut-leaved toothwort (Burke 2013).	Cardamine diphylla observed within the White cedar Mineral Coniferous Swamp	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	Peter S. Burke. 2013. Management Plan for the West Virginia White (Pieris virginiensis) in Ontario. Ontario Management Plan Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. v + 44 pp.
Yellow-banded Bumble Bee	*Bombus terricola*	SC	SC	S3S5	MNRF Species Occurrence Mapping	Occur in a diverse range of habitat, including mixed woodlands, farmlands, urban areas, montane meadows, prairie grasslands and boreal habitats. Queens overwinter underground and in decomposing organic material such as rotting lots (COSEWIC 2015)	Meadow communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2015. COSEWIC assessment and status report on the Yellow-banded Bumble Bee *Bombus terricola* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 60 pp. *rank considered out of date
Birds										
Bald Eagle	*Haliaeetus leucocephalus*	SC	NAR	S2N, S4B	iNat (2020) MNRF Species Occurrence Mapping	Prefers deciduous and mixed-deciduous mature forest habitat close to water bodies including lakes and rivers; nests in super canopy trees including Pine (Armstrong 2014).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	Armstrong, Ted (E.R.). 2014. Management Plan for the Bald Eagle (Haliaeetus leucocephalus) in Ontario. Ontario Management Plan Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 53 pp.
Bank Swallow	*Riparia riparia*	THR	THR	S4B	OBBA (2007) MNRF Species Occurrence Mapping	Breeds in a variety of natural and artificial bank type habitat, such as bluffs, stream and river banks, sand and gravel pits, piles of sand, topsoil and other material. Nests are typically in vertical or near-vertical surfaces (COSEWIC 2013b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2013. COSEWIC assessment and status report on the Bank Swallow Riparia riparia in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 48 pp.
Barn Swallow	*Hirundo rustica*	THR	THR	S5B	OBBA (2007) MNRF Species Occurrence Mapping	Occurs in farmland, along lake/river shorelines, in wooded clearings and in urban populated areas. Nesting may occur inside or outside buildings; under bridges and in road culverts (COSEWIC 2011a).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2011. COSEWIC assessment and status report on the Barn Swallow *Hirundo rustica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 37 pp.
Bobolink	*Dolichonyx oryzivorus*	THR	THR	S4B	OBBA (2007 NHIC (n.d) MNRF Species Occurrence Mapping	Nest in grassland habitats, including hayfields and meadows with a mixture of grasses and broad-leaved forbs with a high litter cover. Area Sensitive, with increased density in grasslands greater than 10ha (Renfrew et. al. 2015)	Agricultural and Meadow communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	Three individuals observed within the Agricultural communities.	Renfrew, R., A.M. Strong, N.G. Perlut, S.G. Martin and T.A. Gavin. 2015. Bobolink (Dolichonyx oryzivorus), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Birds of North America Online: http://bna.birds.cornell.edu/bna/species/176
Canada Warbler	*Wilsonia canadensis*	SC	THR	S4B	OBBA (2007) MNRF Species Occurrence Mapping	Prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer (COSEWIC 2008b).	The mixed and coniferous swamp communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2008. COSEWIC assessment and status report on the Canada Warbler Wilsonia Canadensis in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 35 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Cerulean Warbler	*Setophaga cerulea*	THR	END	S3B	MNRF Species Occurrence Mapping	Occur in older, mature, deciduous forests, preferentially oak-maple composition, with a full, to partially open canopy, and little to no understory cover. Often in bottomland forests, or adjacent to treed swamplands (COSEWIC 2010f).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Cerulean Warbler Dendroica cerulea in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 40 pp.
Chimney Swift	*Chaetura pelagica*	THR	THR	S4B, S4N	MECP (2021) MNRF Species Occurrence Mapping	Typically nests in traditional chimneys of older buildings, which also provide roosting sites for many individuals during spring and fall migration (MNRF 2013).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	MNRF, 2013. General Habitat Description for the Chimney Swift *(Chaeture pelagica)*. Ontario Ministry of Natural Resources and Forestry. July 2, 2013.
Common Nighthawk	*Chordeiles minor*	SC	THR	S4B	MNRF Species Occurrence Mapping	Breeds in open habitat, on the ground, in areas with no vegetation, including sand dunes, burned areas, open forests, railways, and gravel rooftops. Eggs are laid directly on the ground (COSEWIC 2007b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC 2007. COSEWIC assessment and status report on the Common Nighthawk *Chordeiles minor* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 25 pp.
Eastern Meadowlark	*Sturnella magna*	THR	THR	S4B	OBBA (2007) NHIC (n.d) MNRF Species Occurrence Mapping	Nest in grassland habitats, including hayfields, pasture, savannahs, and other open areas. Preferential habitat includes areas with good grass and thatch (litter) cover (Jaster et. al. 2012).	Agricultural and Meadow communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	One individual observed within the Agricultural community north of 1st Line.	Jaster, Levi A., William E. Jensen and Wesley E. Lanyon. (2012). Eastern Meadowlark (*Sturnella magna*), The Birds of North America (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: https://birdsna.org/Species-Account/bna/species/easmea
Eastern Whip-poor-will	*Caprimulgus vociferus*	THR	THR	S4B	MNRF Species Occurrence Mapping	Often found breeding in semi-open habitats, with little ground cover, and canopy openings allowing light to penetrate the forest floor, often associated with pine or oak, savannahs and barrens, early-successional poplar stands and open conifer plantations (COSEWIC 2009a)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2009. COSEWIC assessment and status report on the Whip-poor-will Caprimulgus vociferus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 28 pp.
Eastern Wood-pewee	*Contopus virens*	SC	SC	S4B	OBBA (2007) MNRF Species Occurrence Mapping	Associated with mid-age mixed and deciduous forest stands, often dominated by Maple (Acer), Elm (Ulmus) or Oak (Quercus), and include areas with clear-cuts, openings or forest edges. Also prefers forest stands with little to no understory vegetation (COSEWIC 2012a).	Wooded communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	Two individuals observed within the Conifer-Hardwood Mixed Swamp community.	COSEWIC. 2012. COSEWIC assessment and status report on the Eastern Wood-pewee Contopus virens in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
Evening Grosbeak	*Coccothraustes vespertinus*	SC	SC	S4B	MNRF Species Occurrence Mapping	Breeding habitat includes open, mature mixedwood forests, where fir species and/or White Spruce are dominant, and Spruce Budworm is abundant (COSEWIC 2016)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2016. COSEWIC assessment and status report on the Evening Grosbeak *Coccothraustes vespertinus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 64 pp.
Grasshopper Sparrow	*Ammodramus savannarum*	SC	SC	S4B	OBBA (2007) MNRF Species Occurrence Mapping	Prefers moderately open grasslands and prairies with patchy bare ground; avoids grasslands with extensive shrub cover (Vickery 1996).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	Vickery, Peter D. 1996. Grasshopper Sparrow (*Ammodramus savannarum*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/239\

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Henslow's Sparrow	*Ammodramus henslowii*	END	END	SHB	MNRF Species Occurrence Mapping	Breeds in grassland habitat, and is area sensitive. Grasslands with tall, dense cover a thick thatch layer, and are greater than 30ha, but preferentially larger than 100ha are preferred (COSEWIC 2011b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2011. COSEWIC assessment and status report on the Henslow's Sparrow *Ammodramus henslowii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 37 pp.
Least Bittern	*Ixobrychus exilis*	THR	THR	S4B	MNRF Species Occurrence Mapping	Breeds in large marshes (>5ha) with emergent vegetation, typically cattails, with at least 50% open water, and relatively stable water levels (COSEWIC 2009b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2009. COSEWIC assessment and update status report on the Least Bittern Ixobrychus exilis in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 36 pp.
Loggerhead Shrike	*Lanius ludovicianus*	END	END	S2B	MNRF Species Occurrence Mapping	Nests in open, low, grassy habitat with scattered shrubs. Presence of thorny shrubs, such as hawthorn, or barbwire fencing required for impaling prey. Only two recent areas of breeding in the province (Carden Plain and Napanee Plain) (Environment Canada 2015).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	Environment Canada. 2015. Recovery Strategy for the Loggerhead Shrike, migrans subspecies (Lanius ludovicianus migrans), in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. vii + 35 pp.
Louisiana Waterthrush	*Seirus motacilla*	SC	THR	S3B	MNRF Species Occurrence Mapping	Nests along headwater streams and associated wetlands which occur within large tracts of mature forest especially mixed wood forests with a component of hemlock. Nests are located in stream bank niches, under mossy logs, and within the roots of fallen trees (COSEWIC 2006b)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC 2006. COSEWIC assessment and update status report on the Louisiana Waterthrush Seiurus motacilla in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 26 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
Northern Bobwhite	*Colinus virginianus*	END	END	S1	OBBA (2007)	Requires early successional habitat with a mix of croplands, dense brush cover and grassland in close proximity for feeding, dusting, roosting, escaping predators and nesting. Only known self-sustaining population found on Walpole Island (COEWSIC 2003).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC 2003. COSEWIC assessment and update status report on the Northern Bobwhite Colinus virginianus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 20 pp.
Olive-sided Flycatcher	*Contopus cooperi*	SC	THR	S4B	MNRF Species Occurrence Mapping	Associated with natural forest openings (usually conifer or mixed), and edges of forests adjacent wetlands or watercourses, will also use open and semi-open forests and clear-cuts. Presence of tall snags and residual live trees required for nesting and foraging (COSEWIC 2007c).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2007. COSEWIC assessment and status report on the Olive-sided Flycatcher Contopus cooperi in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 25 pp.
Prothonotary Warbler	*Protonotaria citrea*	END	END	S1B	MNRF Species Occurrence Mapping	Occupies large, mature and semi-mature, deciduous swamp forest and riparian floodplains. Permanent and semi-permanent pools of open water are characteristics, and nests are typically situated over standing or slow-moving water (COSEWIC 2007)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2007. COSEWIC assessment and update status report on the Prothonotary Warbler *Prothonotaria citrea* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 31 pp.
Red-headed Woodpecker	*Melanerpes erythrocephalus*	SC	THR	S4B	MNRF Species Occurrence Mapping	Found in a variety of open areas, with a high density of dead or dying trees, particularly forests dominated by oak or beech (COSEWIC 2007d).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC 2007. COSEWIC assessment and update status report on the Red-headed Woodpecker *Melanerpes erythrocephalus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp.

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Short-eared Owl	*Asio flammeus*	SC	SC	S2N, S4B	MNRF Species Occurrence Mapping	Breeds in open habitats, including grasslands, old pasture marshes, bogs, and sand-sage. Nests are scrapes, located on the ground (COSEWIC 2008c).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2008. COSEWIC assessment and update status report on the Short-eared Owl Asio flammeus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 24 pp.
Wood Thrush	*Hylocichla mustelina*	SC	THR	S4B	OBBA (2007) MNRF Species Occurrence Mapping	Prefers second growth moist deciduous forests, with tall trees, and a dense understory of low saplings and an open forest floor with decaying leaf litter. Often nests in saplings, shrubs or occasionally dead stumps (COSEWIC 2012b).	Wooded communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2012. COSEWIC assessment and status report on the Wood Thrush Hylocichla mustelina in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 46 pp.
Yellow-breasted Chat	*Icteria virens*	END	END	S1B	MNRF Species Occurrence Mapping	Shrub specialist, nesting in early successional, dense, low-shrub habitat, including old fields, hydro-cutovers and forest edges experiencing regeneration (COSEWIC 2011c).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2011. COSEWIC assessment and status report on the Yellow-breasted Chat auricollis subspecies Icteria virens auricollis and the Yellow-breasted Chat virens subspecies Icteria virens virens in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xvi + 51 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
Fish										
Black Redhorse	*Moxostoma duquesnei*	THR	THR	S2	MNRF Species Occurrence Mapping	Associated with cool, clear streams of moderate size with substrates of rocky, cobble, sand or silt. Found in the Lake Erie and Grand River Watersheds (COSEWIC, 2005a).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2005. COSEWIC assessment and update status report on the black redhorse Moxostoma duquesnei in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 21 pp.
Northern Sunfish (Great Lakes- Upper St. Lawrence Population)	*Lepomis peltastes*	SC	SC	S3	MNRF Species Occurrence Mapping	Prefers shallow, vegetated areas of warm lakes, ponds, and slowly flowing watercourses. Usually occurs in clear waters and is considered intolerant of siltation. Substrate usually consists of sand and gravel, as in the Thames River (COSEWIC 2016)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2016. COSEWIC assessment and status report on the Northern Sunfish *Lepomis peltastes*, Saskatchewan- Nelson River populations and the Great Lakes- Upper St. Lawrence populations, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xv + 51 pp.
Redside Dace	*Clinostomus elongatus*	END	END	S1	MECP (2021) MNRF Species Occurrence Mapping	Associated with small, clear, head water streams and creeks with abundant overhanging vegetation and both pool and riffle habitat, often with gravel substrates and cool water temperature regimes (COSEWIC, 2007e).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2007. COSEWIC assessment and update status report on the Redside Dace clinostomus elongatus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. Vii + 59pp.
Silver Shiner	*Notropis photogenis*	THR	THR	S2S3	MECP (2021)	Associated with large, wide streams (usually >20m) in deep riffles and pools, with substrates of gravel, boulder, rubble and sand (COSEWIC, 2011d).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2011. COSEWIC assessment and status report on the Silver Shiner in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 45 pp.
Molluscs										
Fawnsfoot	*Truncilla donaciformis*	END	END	S2	MNRF Species Occurrence Mapping	Occurs in areas of moderate to low flows in medium and large rivers at depths ranging from less than 1m to greater than 5m, although they can adapt to low flow environments such as lakes and reservoirs. Associated with substrates of sand or mud (COSEWIC 2008)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2008. COSEWIC assessment and status report on the Fawnsfoot *Truncilla donaciformis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 39 pp.

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Rainbow	*Villosa iris*	SC	SC	S2S3	MNRF Species Occurrence Mapping	Most abundant in small to medium-sized rivers, but can also be found in inland lakes. Usually found in or near riffles and along the edges of emergent vegetation in moderate to strong current. Occupies substrate mixtures of cobble, gravel, sandy and occasionally mud or boulder (COSEWIC 2015)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2015. COSEWIC assessment and status report on the Rainbow *Villosa iris* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 82 pp.
Mammals										
Eastern Small-footed Myotis	*Myotis leibii*	END	NA	S2S3	MNRF Species Occurrence Mapping	Associated with hilly or mountainous terrain, in or near coniferous or deciduous forest habitat. Maternity roosts located in cracks and crevices of talus slopes and rocky outcrops, or, occasionally in bridges, old buildings, hollow trees (or loose bark) and caves and mines during the maternity season. Hibernate singly or in small clusters in mines and caves (NatureServe, 2015).	Trees within the wooded communities and fencerows in the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis Myotis lucifugus, Northern Myotis Myotis septentrionalis and Tri-colored Bat Perimyotis subflavus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
Little Brown Myotis	*Myotis lucifugus*	END	END	S3	MNRF Species Occurrence Mapping	Hibernate in Caves; maternity colonies located in warm sites, often associated with human habitation; including attics, old buildings, under bridges, rock crevices and cavities in canopy trees in wooded areas (COSEWIC, 2013c).	Trees within the wooded communities and fencerows in the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2013a COSEWIC assessment and status report on the Little Brown Myotis Myotis lucifugus, Northern Myotis Myotis septentrionalis and Tri-colored Bat Perimyotis subflavus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
Northern Myotis	*Myotis septentrionalis*	END	END	S3	MNRF Species Occurrence Mapping	Hibernate in Caves; maternity colonies usually located in trees, and are closely associated with specific tree characteristics and density of suitable trees. Characterized by tall, large diameter trees in early stages of decay, located in openings in mature forest canopies (COSEWIC, 2013c).	Trees within the wooded communities and fencerows in the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis Myotis lucifugus, Northern Myotis Myotis septentrionalis and Tri-colored Bat Perimyotis subflavus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Tri-colored Bat	*Perimyotis subflavus*	END	END	S3?	MNRF Species Occurrence Mapping	Hibernate in caves, abandoned mines, wells and tunnels. Summer roosts include clumps of dead foliage and lichens, typically found in forested habitat close to water sources. May also use anthropogenic structures such as barns for maternity roosts. Foraging habitat includes forested riparian areas over water in relatively open areas (Environment Canada.2015).	Trees within the wooded communities and fencerows in the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	Environment Canada. 2015. Recovery Strategy for Little Brown Myotis (Myotis lucifugus), Northern Myotis (Myotis septentrionalis), and Tri-colored Bat (Perimyotis subflavus) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. ix + 110 pp
Reptiles										
Blanding's Turtle	*Emydoidea blandingii*	THR	THR	S3	MNRF Species Occurrence Mapping	Use a variety of eutrophic wetland habitat types, including lakes, ponds, watercourses, marshes, man-made channels, farm fields, coastal areas and bays. Seasonal overland terrestrial movements up to 2.5 km occur to reach nesting and overwintering areas, generally through wooded coniferous or mixed forest habitat. Nests are usually laid in loose sand or organic soil (COSEWIC 2005b).	Wetland communities and existing Agriculture within the Study Area may provide suitable habitat for terrestrial movement.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2005. COSEWIC assessment and update status report on the Blanding's Turtle Emydoidea blandingii in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii + 40 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
Northern Map Turtle	*Graptemys geographica*	SC	SC	S3	MNRF Species Occurrence Mapping	Highly aquatic species, found in deep, large waterbodies, including Lakes and large rivers, with abundant basking sites. Emerge onto land only during nesting, which occurs in soft sand or soil. Waterbodies with slow currents, soft mud bottoms and abundant aquatic vegetation are preferred (COSEWIC, 2002b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2002. COSEWIC assessment and status report on the northern map turtle Graptemys geographica in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 34 pp.
Snapping Turtle	*Chelydra serpentina*	SC	SC	S4	ORAA (2019) MNRF Species Occurrence Mapping	Inhabit slow-moving waters with soft, muck bottom and dense aquatic vegetation. Ponds, sloughs and shallow bays are all often used as summering and overwintering habitat (COSEWIC 2008d).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC. 2008. COSEWIC assessment and status report on the Snapping Turtle Chelydra serpentina in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
Spotted Turtle	*Clemmys guttata*	END	END	S2	MNRF Species Occurrence Mapping	Found in wetlands with high organic content, including bogs, fens, marshes, woodland streams, sedge meadows, and shallow bays. Only one population is known from Wellington County, in Luther Marsh. Preferential to unpolluted shallow water with aquatic vegetation and soft substrates. Presence of Sphagnum moss, sedge tussocks, cattails and water lilies, may be important to Canadian populations (COSEWIC, 2002b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2004. COSEWIC assessment and update status report on the spotted turtle Clemmys guttata in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Wood Turtle	*Glyptemys insculpta*	END	THR	S2	MNRF Species Occurrence Mapping	Generally found in forested landscapes, associated with clear freshwater streams and associated floodplains. Preferential to streams with year-round current, with sandy or gravelly-sandy bottoms. Streams used are typically meandering with frequent oxbows. Overwintering associated with stable, high concentration dissolved oxygen in pools, under mud or under overhanging banks. Nesting occurs in open areas with high sun exposure, typically within 10 to 50m of aquatic habitat. Home ranges are typically linear, following streams (Environment Canada, 2016).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	Environment Canada. 2016. Recovery Strategy for the Wood Turtle (Glyptemys insculpta) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. v + 48 pp.
Butler's Gartersnake	*Thamnophis butleri*	END	END	S2	MNRF Species Occurrence Mapping	Occupies open areas with dense grass and thatch cover, including tall grass prairie, old fields, abandoned sites in urban areas, drainage swales and seasonally dry marshes. only one population is known from Wellington County, in Luther Marsh. Artificial cover features such as plywood, concrete, shingles, metal sheets etc., increases probability of encounters, but is not essential (COSEWIC, 2010h).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Butler's Gartersnake Thamnophis butler in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 51 pp.
Eastern Ribbonsnake	*Thamnophis sauritus*	SC	SC	S4	MNRF Species Occurrence Mapping	A semi-aquatic species that inhabits dense, low- vegetation, edges of ponds, streams, marshes, fens and bogs, with open sunlit areas for basking (COSEWIC 2002c).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2002. COSEWIC assessment and status report on the eastern ribbonsnake Thamnophis sauritus. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 24 pp.
Milksnake	*Lampropeltis triangulum*	SC	SC	S4	MNRF Species Occurrence Mapping	Habitat generalists often associated with edge habitat, meadows, prairies, pastures, rocky outcrops and human disturbances such as hydro corridors and railway embankments. Habitat is usually close to a water source. Hibernation occurs in a variety of natural and man-made features, including rotting logs, old foundations, basements and burrows (COSEWIC 2014).	Edges of forested communities as well as meadows and fencerows may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC. 2014. COSEWIC assessment and status report on the Eastern Milksnake Lampropeltis triangulum in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 61 pp.
Massassauga Rattlesnake	*Sistrurus catenatus*	SC	THR	S3	MNRF Species Occurrence Mapping	Only historic observations of Masassauga in the north western portion of Wellington County. Found in wet prairies, old fields, peatlands, rock barrens and coniferous forests, with open-areas, and areas of dense shrub cover. Hibernate in damp areas below the frost line (COSEWIC, 2012b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC. 2012. COSEWIC assessment and status report on the Massasauga Sistrurus catenatus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 84 pp.
Vascular Plants										
American Ginseng	*Panax quinquefolius*	END	END	S2	MNRF Species Occurrence Mapping	Occur in moist, rich, undisturbed, mature Sugar Maple dominated deciduous woodlands. Often, colonies are located at the bottom of south facing slopes (COSEWIC, 2000).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2000. COSEWIC assessment and update status report on the American ginseng Panax quinquefolius in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 17 pp.

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Butternut	*Juglans cinerea*	END	END	S2?	MNRF Species Occurrence Mapping	Occur in rich moist sites, that are well-drained, often found along stream banks or gravelly sites. Butternut is shade intolerant (COSEWIC, 2003b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2003. COSEWIC assessment and status report on the butternut Juglans cinerea in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp. (www.sararegistry.gc.ca/status/status_e.cfm)
Hill's Pondweed	*Potamogeton hillii*	SC	SC	S2S3	MNRF Species Occurrence Mapping	Occur in cold clear calcareous streams, ponds and ditches, which are alkaline in nature (COSEWIC 2005c).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2005c COSEWIC assessment and update status report on the Hill's pondweed Potamogeton hillii in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 19 pp.
Tuberous Indian Plantain	*Arnoglossum plantagineum*	SC	SC	S2	MNRF Species Occurrence Mapping	Habitat includes open, sunny areas in wet calcareous soils, including wet meadows and shoreline fens (COSEWIC 2002).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2002. COSEWIC assessment and update status report on the tuberous Indian-plantain Arnoglossum plantagineum in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 11 pp.

References:

Cadman, M.D.,D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier. 2007. The Atlas of the Breeding Birds Ontario 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto,xxii + 706pp. (Available online here: http://www.birdsontario.org/atlas/datasummaries.jsp)

Colin Jones, Ross Layberry, and Alan Macnaughton. Ontario Butterfly Atlas Online. (Available online here: Toronto Entomologists' Association: http://www.ontarioinsects.org/atlas_online.htm)

eBird. 2021. Cornell Lab of Ornithology. (Available online here: https://ebird.org/home)

Dobbyn, J. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists, Altona Manitoba, Canada. (available online here: http://www.ontarionature.org/discover/resources/publications.php)

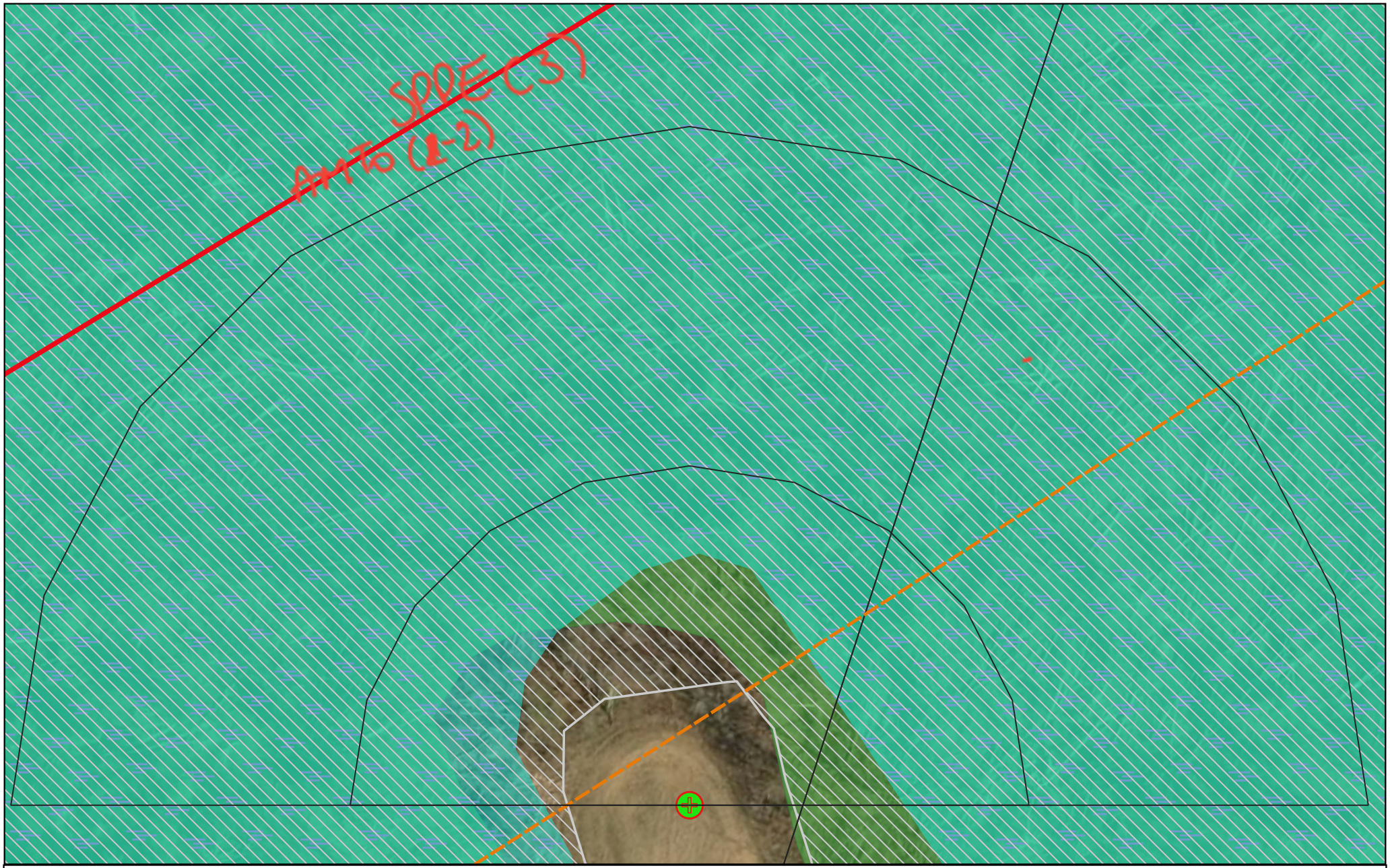
iNaturalist. 2021. (Available online here: https://www.inaturalist.org/)

MNRF. Species Occurrence Mapping. Ministry of Natural Resources and Forestry. (Available online here: https://www.ontario.ca/page/species-risk-ontario)

NHIC, 2021. MNRF Make a map: Natural Heritage Areas. (Available online: http://www.ontario.ca/environment-and-energy/make-natural-heritage-area-map)

Ontario Nature. 2019. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. Ontario Nature, Ontario. (Available online here: http://www.ontarionature.org/atlas)

APPENDIX 7
Anuran Survey Results & Call Codes



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
5	1	100	N	Y

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 11:10

End Time: 11:13

Bkgd Noise (1-4): 1

Water present (Y/N): N

Approx. depth: N/A

Date: April 29

Observer(s): SD CAR

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

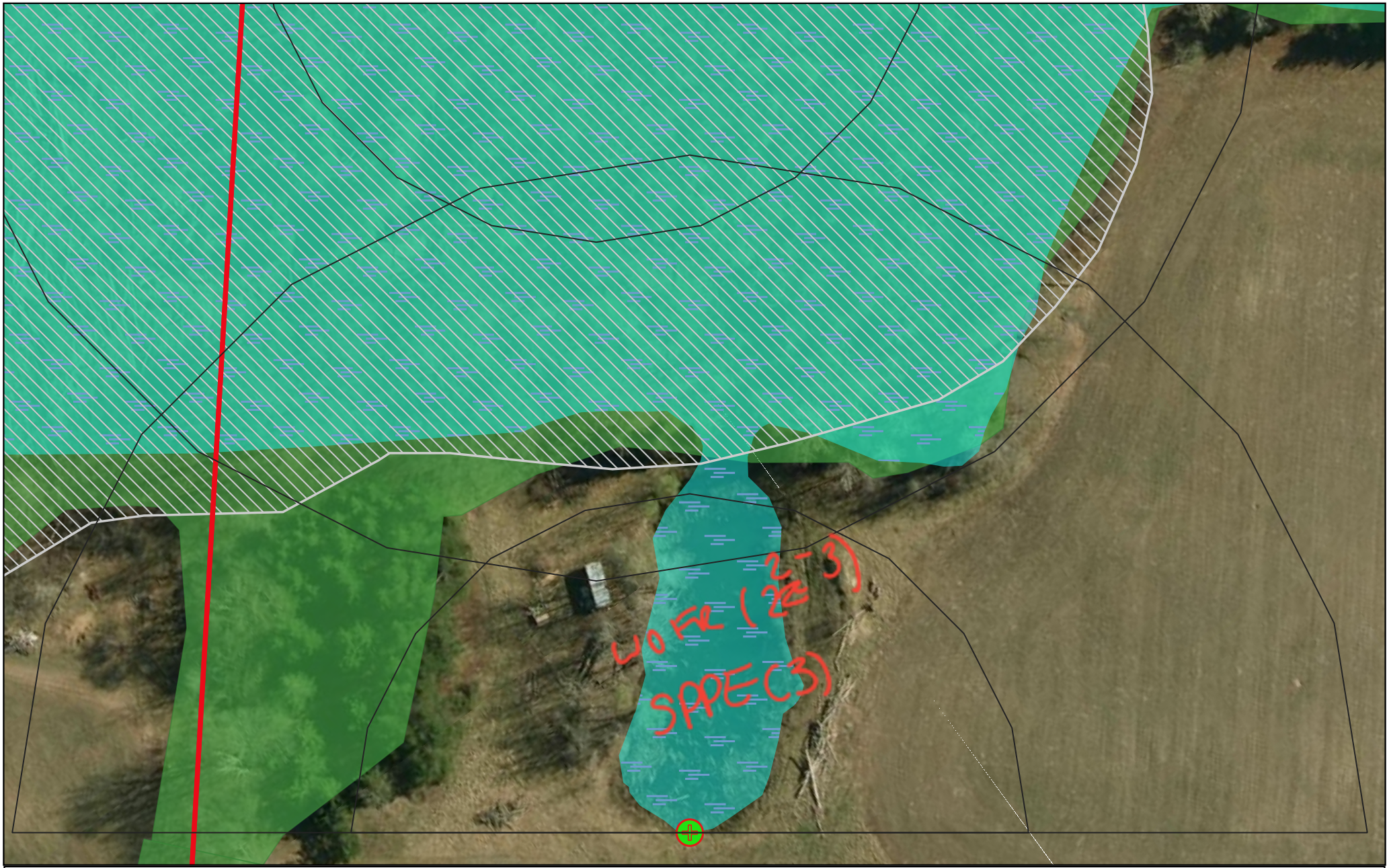
Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5, 519.822.6839, www.aboudtng.com

Title:
AMPHIBIAN SURVEY
STATION #1



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
5	1	100	N	Y

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 1115

End Time: 1118

Bkgd Noise (1-4): 1

Water present (Y/N): Y

Approx. depth: UNK

Date: 1st Apr 29

Observer(s): SD CAR

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

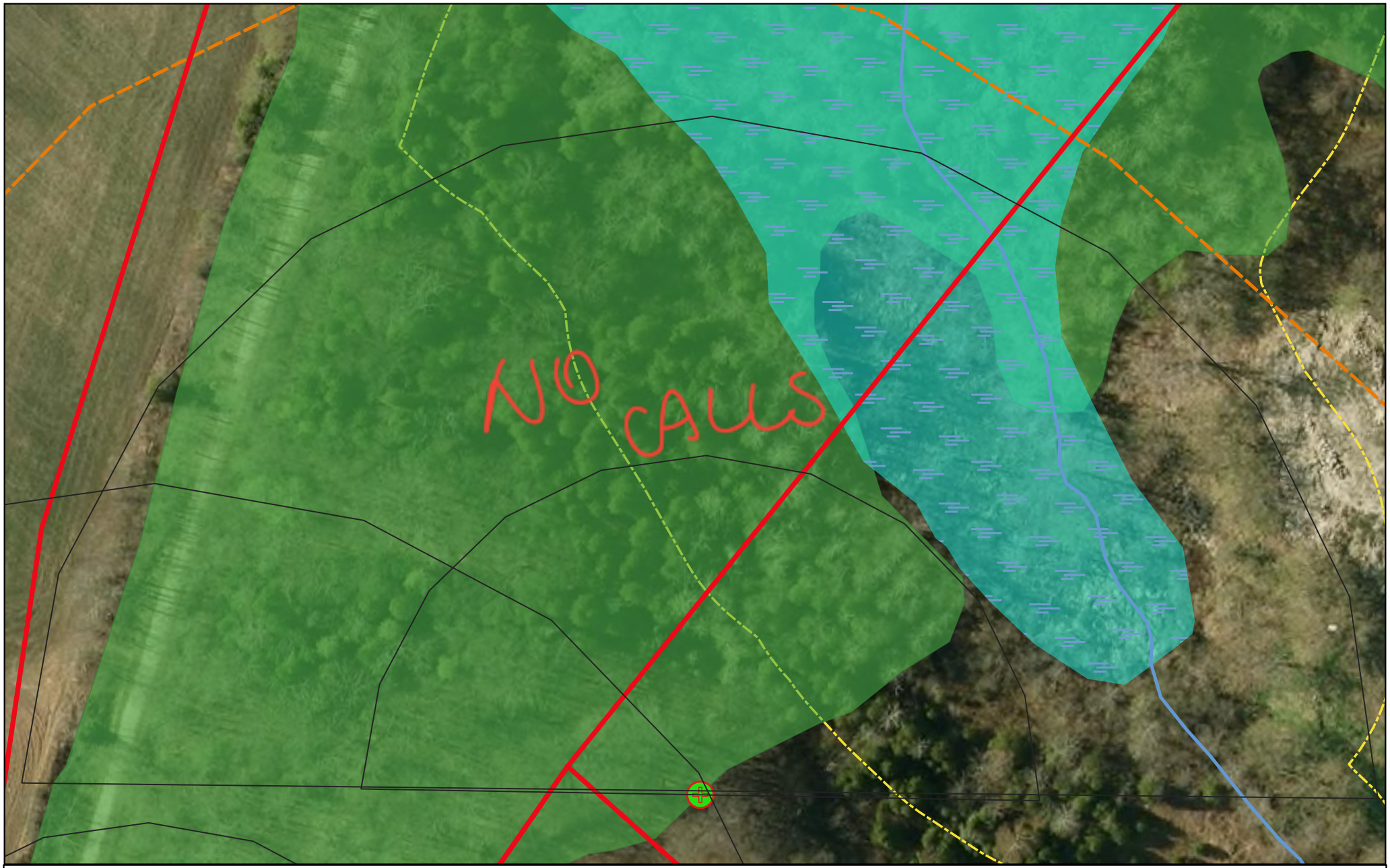
Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudtng.com

Title:
AMPHIBIAN SURVEY
STATION #2



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
5	2	100	N	4

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 1135

End Time: 1136

Bkgd Noise (1-4): 1

Water present (Y/N):

Approx. depth:

Date: APR 29

Observer(s): SD CAF

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

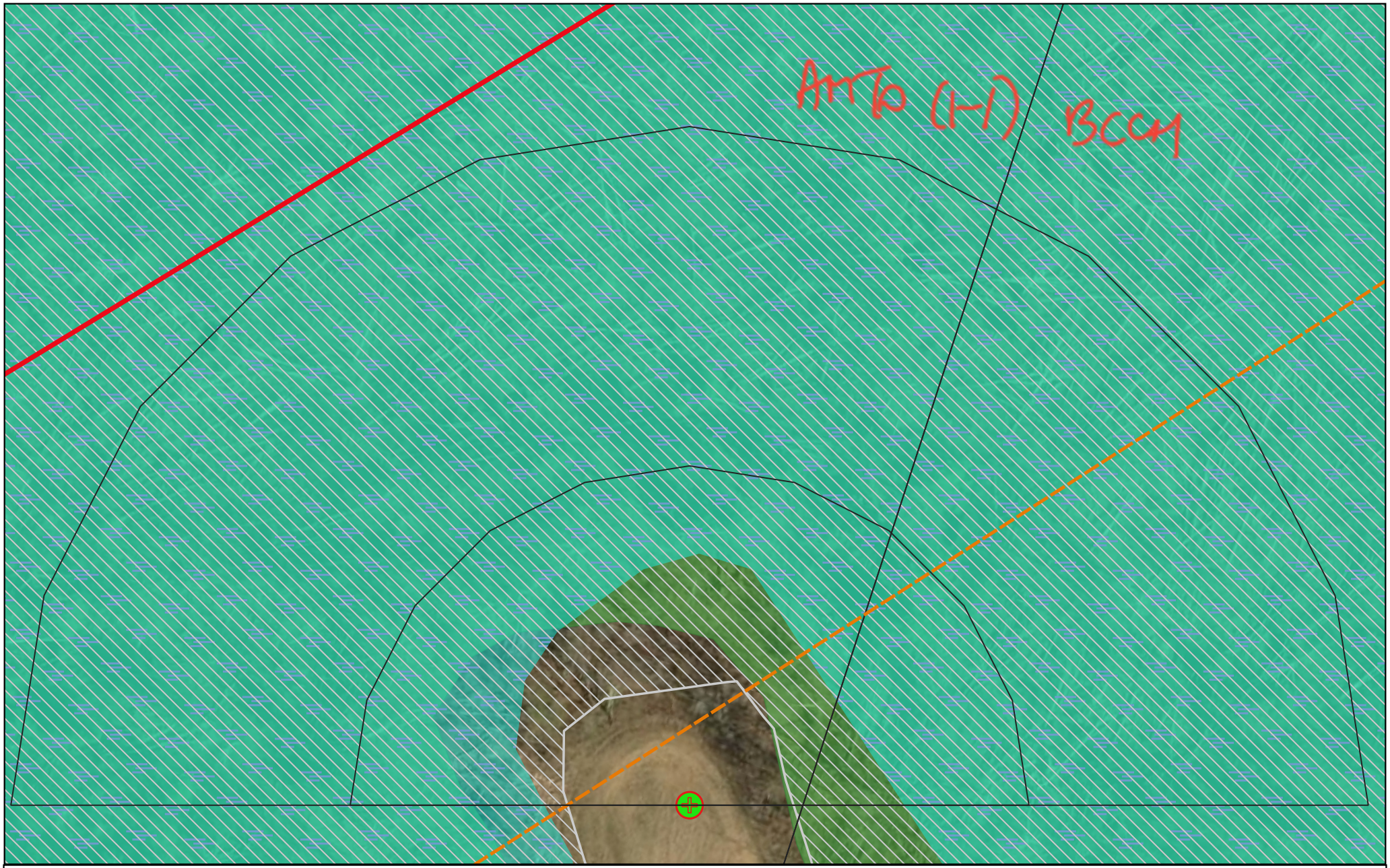
Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5, 519.822.6839, www.aboudtng.com

Title:
AMPHIBIAN SURVEY
STATION #3



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
20	1	0	N/A	N/A

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 915

End Time: 918

Bkgd Noise (1-4):

Water present (Y/N):

Approx. depth:

Date: May 18

Observer(s): SD KS

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5, 519.822.6839, www.aboudtng.com

Title:
AMPHIBIAN SURVEY
STATION #1



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
20	1	0	n/A	N/A

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 9:22 9:25

End Time:

Bkgd Noise (1-4): 1

Water present (Y/N): Y

Approx. depth: ~50cm

Date: May 18

Observer(s): SD SK

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

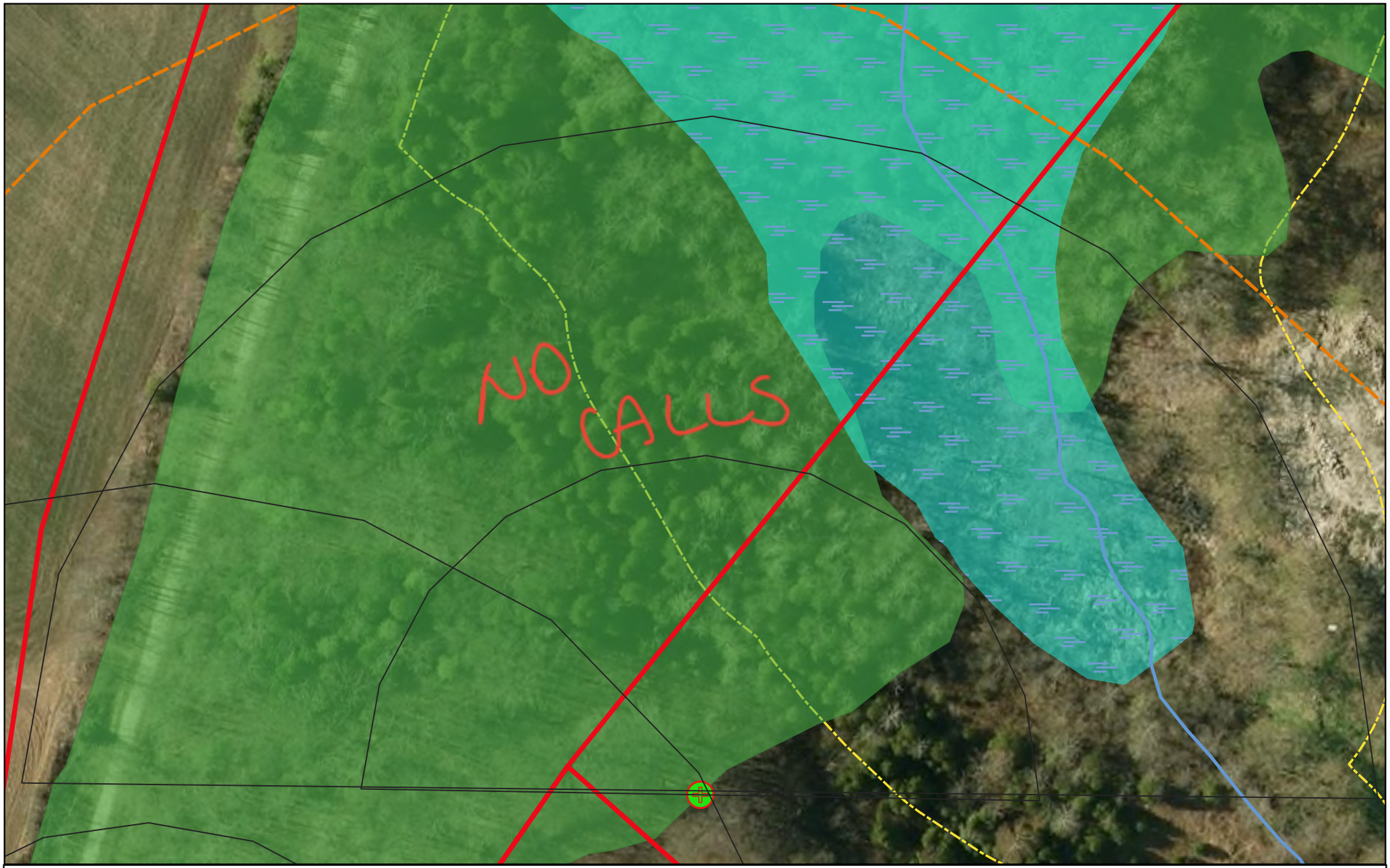
Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudtng.com

Title:
AMPHIBIAN SURVEY
STATION #2



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
20	1	0	N/A	N/A

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 935

End Time: 938

Bkgd Noise (1-4): 1

Water present (Y/N): Y

Approx. depth: ~10cm

Date: MAY 18

Observer(s): SDSK

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

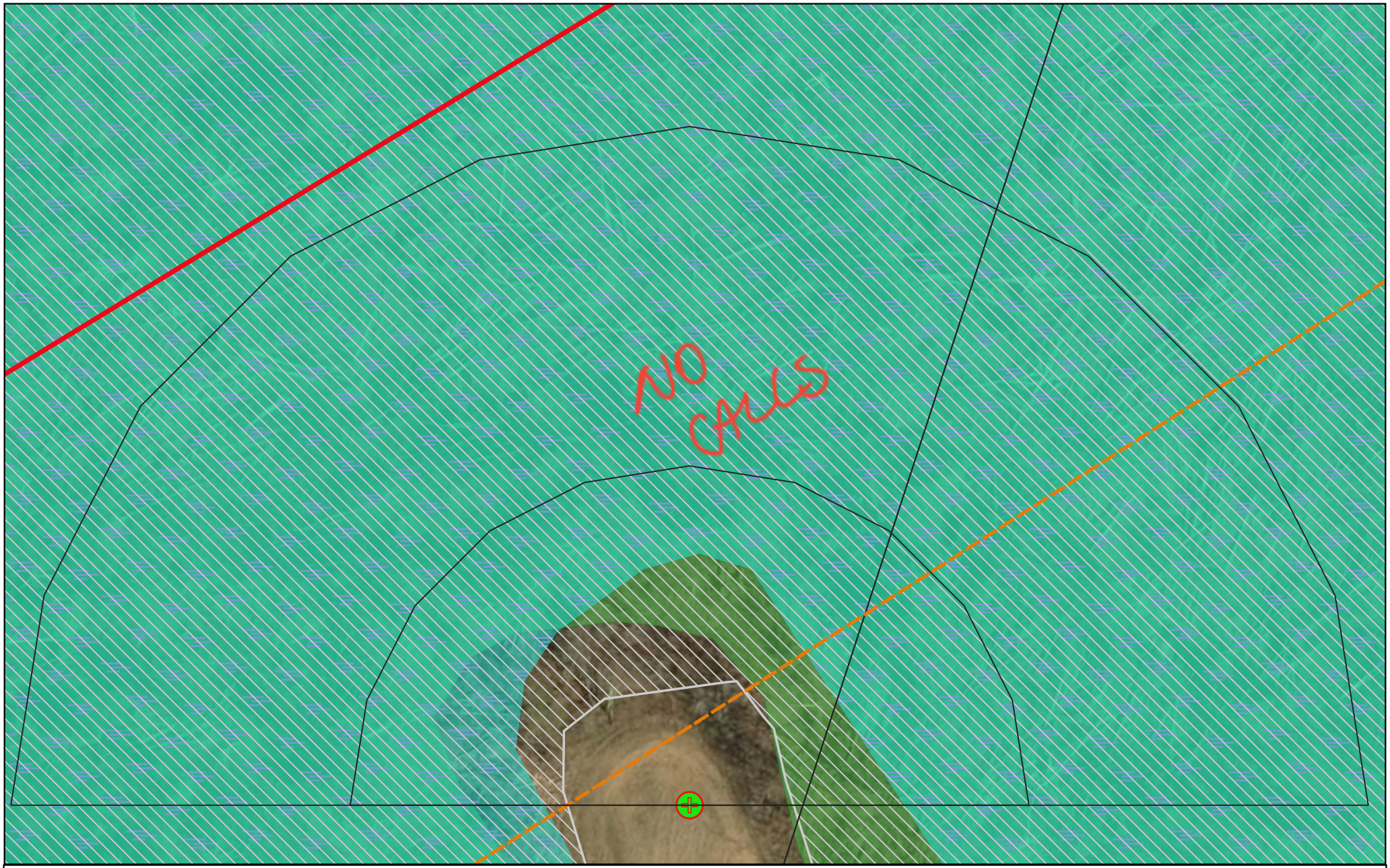
Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5, 519.822.6839, www.aboudtng.com

Title:
AMPHIBIAN SURVEY
STATION #3



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
22	1	90	N/A	N/A

Beaufort Scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 939

End Time: 942

Bkgd Noise (1-4): 2

Water present (Y/N): N

Approx. depth: N/A

Date: June 24

Observer(s): SDKS

Project: DICKSON DRIVE EXTENSION TOWNSHIP OF CENTRE WELLINGTON

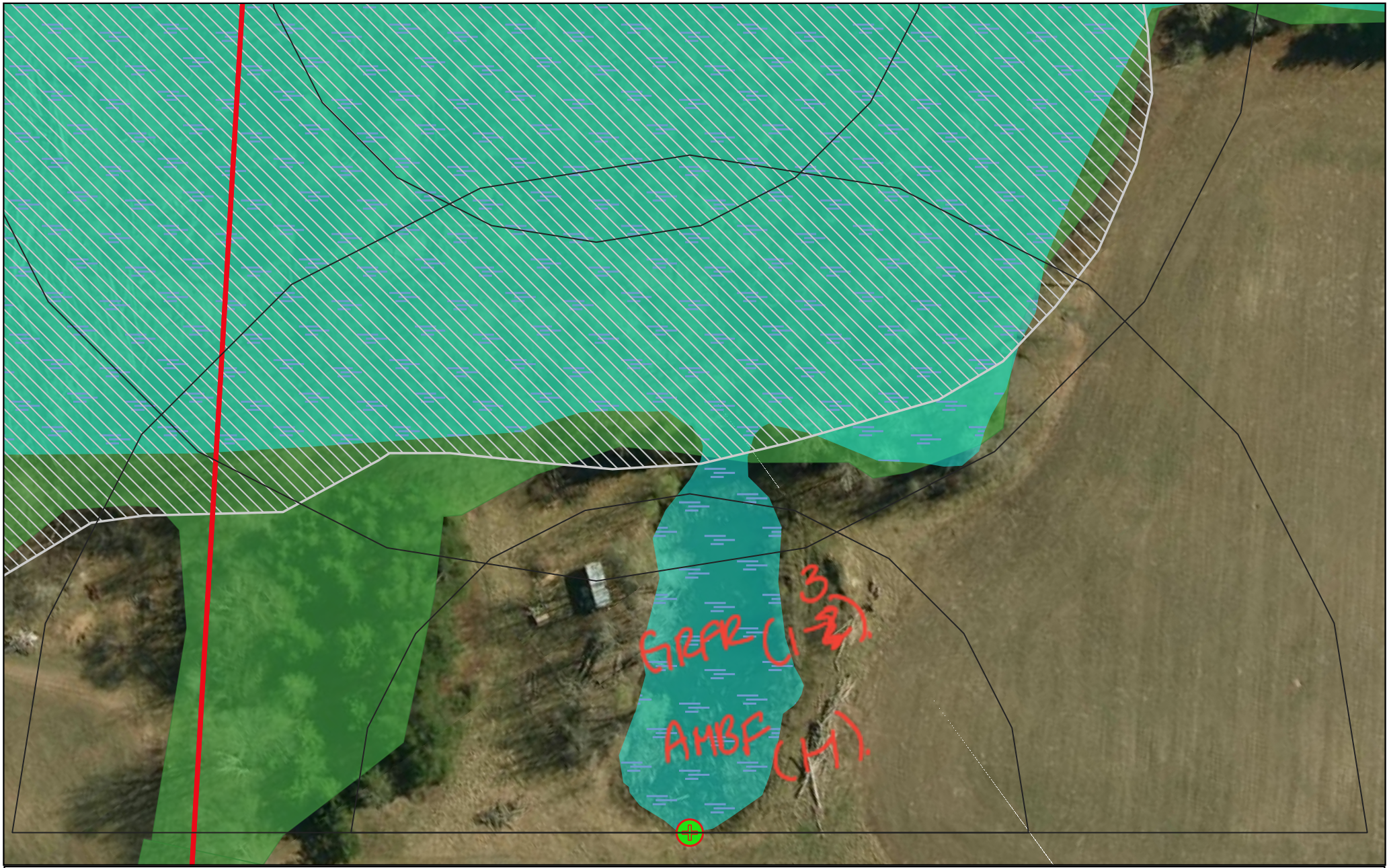
Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5, 519.822.6839, www.aboudtng.com

Title: AMPHIBIAN SURVEY STATION #1



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
22	1	90	NA	N/A

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 9445

End Time: 9457

Bkgd Noise (1-4):

Water present (Y/N): Y

Approx. depth: NO

Date: June 24

Observer(s): SO KS

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

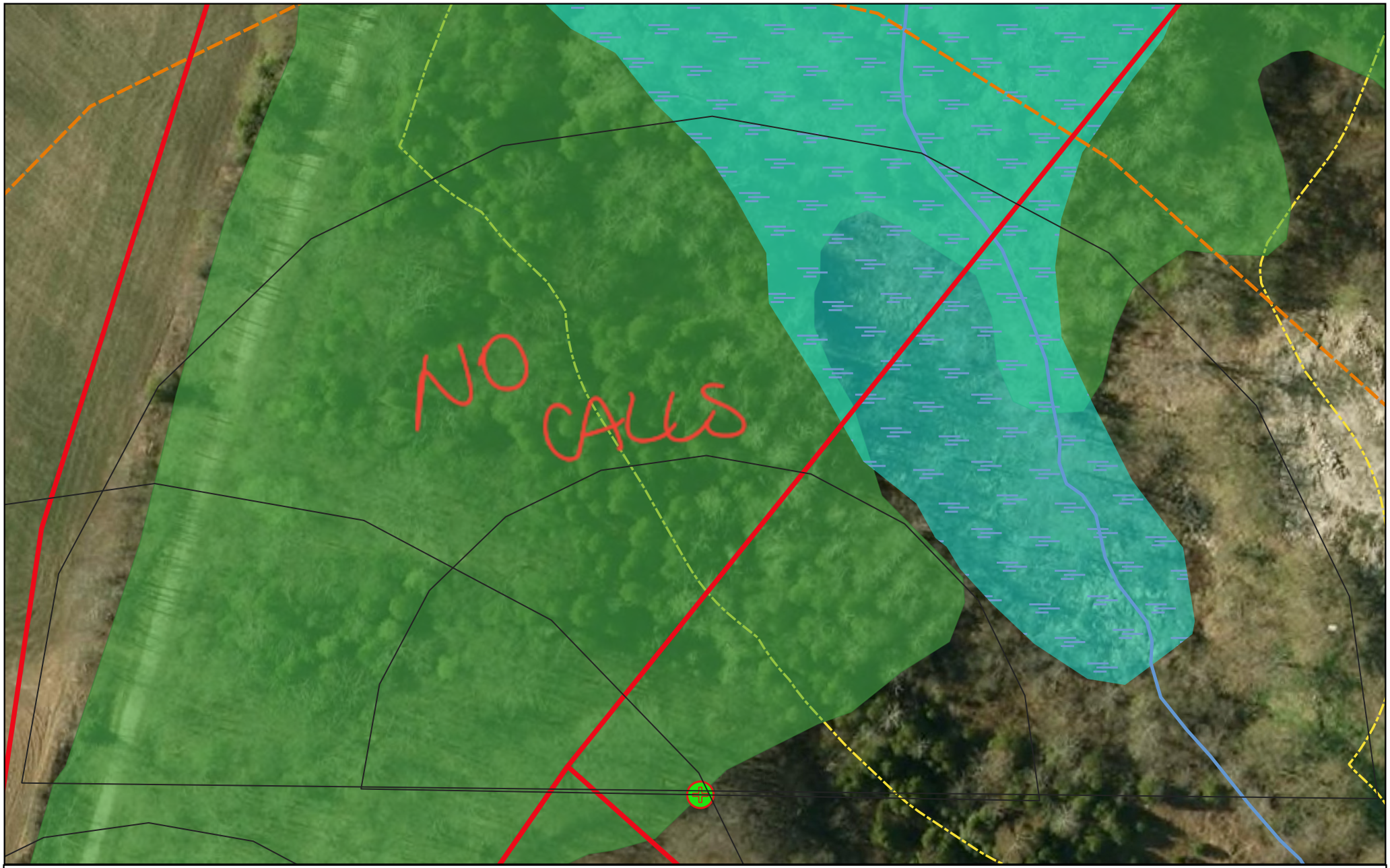
Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudlng.com

Title:
AMPHIBIAN SURVEY
STATION #2



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
22	1	90	N/A	N/A

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 955

End Time: 958

Bkgd Noise (1-4): 2

Water present (Y/N): Y

Approx. depth: ~10cm

Date: JUNE 24

Observer(s): SDKS

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road, Guelph, Ontario, N1H 7L5, 519.822.6839, www.aboudtng.com

Title:
AMPHIBIAN SURVEY
STATION #3

APPENDIX 8
Breeding Bird Survey Results & Call Codes

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES	GRCA(date unk.)	WELLINGTON COUNTY (2009)	PC 1	PC1												PC 2	PC2												PC 3	PC3											
												R1	date: June 1, 2021						R2	date: June 22, 2021						Max Sum		R1	date: June 1, 2021						R2	date: June 22, 2021						Max Sum		R1	date: June 1, 2021						R2	date: June 22, 2021						Max Sum	
												>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE
Canada Goose	Branta canadensis				S5	G5				CP						0	NA					0	NA	0	NA					5	0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
Ring-billed Gull	Larus delawarensis				S5B,S4N	G5					✓					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					1	0	NA					0	NA	0	NA
Herring Gull	Larus argentatus				S5B,S5N	G5					✓					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA				1	0	NA					0	NA	0	NA
Mourning Dove	Zenaida macroura				S5	G5										0	NA		1			1	S	1	S					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
Eastern Wood-pewee	Contopus virens	SC	SC		S4B	G5			✓							0	NA	1	1			2	S	2	S					0	NA					0	NA	0	NA		1			0	S					0	NA	0	S
Eastern Phoebe	Sayornis phoebe				S5B	G5				CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA			1		0	S	0	S
Great Crested Flycatcher	Myiarchus crinitus				S4B	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
Blue Jay	Cyanocitta cristata				S5	G5										0	NA		2			2	S	2	S					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
American Crow	Corvus brachyrhynchos				S5B	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
Black-capped Chickadee	Poecile atricapillus				S5	G5				CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					1	0	S					0	NA	0	S
Red-breasted Nuthatch	Sitta canadensis				S5	G5	✓	>10ha		CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
House Wren	Troglodytes aedon				S5B	G5						2				2	S	1	1			2	S	2	S					0	NA					0	NA	0	NA			1		0	S		1			1	S	1	S
American Robin	Turdus migratorius				S5B	G5							1			1	S	1				1	S	1	S			1		0	S					0	NA	0	S					0	NA					0	NA	0	NA
Gray Catbird	Dumetella carolinensis				S4B	G5				CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					1	0	S					0	NA	0	S
Brown Thrasher	Toxostoma rufum				S4B	G5			✓	CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					1	0	S					0	NA	0	S
Cedar Waxwing	Bombycilla cedrorum				S5B	G5									1	0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
European Starling	Sturnus vulgaris				SNA	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	4	1			5	FY	5	FY
Warbling Vireo	Vireo gilvus				S5B	G5								1		0	S					0	NA	0	S	1	1			2	S					0	NA	0	NA					0	NA					0	NA	0	NA
Red-eyed Vireo	Vireo olivaceus				S5B	G5						1	1			2	S					0	NA	2	S		1			1	S					0	NA	1	S			1		0	S			1		0	S	0	S
Yellow Warbler	Dendroica petechia				S5B	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
American Redstart	Setophaga ruticilla				S5B	G5	✓	>100ha		CP						0	NA					0	NA	0	NA	1	1			2	S					0	NA	2	S					0	NA					0	NA	0	NA
Northern Cardinal	Cardinalis cardinalis				S5	G5										0	NA					0	NA	0	NA		1			1	S					0	NA	1	S					0	NA					0	NA	0	NA
Indigo Bunting	Passerina cyanea				S4B	G5										0	NA		1			1	S	1	S					0	NA					0	NA	0	NA				1	0	S					0	NA	0	S
Chipping Sparrow	Spizella passerina				S5B	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	1				1	S	0	NA	1	S
Savannah Sparrow	Passerculus sandwichensis				S4B	G5	✓	>50ha	✓	CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	1	1			2	S	2	S
Song Sparrow	Melospiza melodia				S5B	G5										0	NA					0	NA	0	NA	1		1		1	A					0	NA	1	A					0	NA					0	NA	0	NA
Bobolink	Dolichonyx oryzivorus	THR	THR		S4B	G5	✓	>10ha	✓	CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA		1	1		1	S					0	NA	1	S
Red-winged Blackbird	Agelaius phoeniceus				S4	G5										0	NA					0	NA	0	NA	3	2			5	A					0	NA	5	A		1			1	S	2	1			3	S	3	S
Eastern Meadowlark	Sturnella magna	THR	THR		S4B	G5	✓	>10ha	✓	CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
Brown-headed Cowbird	Molothrus ater				S4B	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA				1	0	NA					0	NA	0	NA
American Goldfinch	Carduelis tristis				S5B	G5				CP						0	NA	1				1	S	1	S					0	NA					0	NA	0	NA					0	NA	1				1	H	1	H
House Sparrow	Passer domesticus				SNA	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES	GRCA(date unk.)	WELLINGTON COUNTY (2009)	PC 4	PC4													PC 5	PC5													PC 6	PC6													SITE	SUM
												R1	date: June 1 2021					R2	date: June 22, 2021					Max Sum		R1	date:June 1, 2021					R2	date: June 22, 2021					Max Sum		R1	date: June 1, 2021					R2	date: June 22, 2021					Max Sum			
												>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE		
Canada Goose	Branta canadensis				S5	G5				CP						0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	FO
Ring-billed Gull	Larus delawarensis				S5B,S	G5					✓					0	NA					0	NA	0	NA				1	0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	FO
Herring Gull	Larus argentatus				S5B,S	G5					✓					0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	FO
Mourning Dove	Zenaida macroura				S5	G5										0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA				2	0	NA	0	NA	1	S
Eastern Wood-pewee	Contopus virens	SC	SC		S4B	G5			✓							0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	2	S
Eastern Phoebe	Sayornis phoebe				S5B	G5				CP						0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	S > 100
Great Crested Flycatcher	Myiarchus crinitus				S4B	G5										0	NA					0	NA	0	NA		1			1	S					NA	1	S					0	NA					0	NA	0	NA	1	S
Blue Jay	Cyanocitta cristata				S5	G5										0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	2	S
American Crow	Corvus brachyrhynchos				S5B	G5						1	1			2	A					0	NA	2	A	1	1			2	T					NA	2	T					0	NA		3			3	S	3	S	7	A
Black-capped Chickadee	Poecile atricapillus				S5	G5				CP						0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	S >100
Red-breasted Nuthatch	Sitta canadensis				S5	G5	✓	>10ha		CP						0	NA					0	NA	0	NA		1			1	S					NA	1	S					0	NA					0	NA	0	NA	1	S
House Wren	Troglodytes aedon				S5B	G5										0	NA		1			1	S	1	S					0	NA					NA	0	NA					0	NA					0	NA	0	NA	4	S
American Robin	Turdus migratorius				S5B	G5										0	NA		1			1	S	1	S					0	NA					NA	0	NA					0	NA					0	NA	0	NA	2	S
Gray Catbird	Dumetella carolinensis				S4B	G5				CP						0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	S >100
Brown Thrasher	Toxostoma rufum				S4B	G5			✓	CP						0	NA			1		0	S	0	S					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	S >100
Cedar Waxwing	Bombycilla cedrorum				S5B	G5							2			2	S					0	NA	2	S					0	NA	2				H	2	H					0	NA					0	NA	0	NA	4	H >100
European Starling	Sturnus vulgaris				SNA	G5									6	0	NA		1			1	S	1	S				1	0	NA					NA	0	NA	5	1			6	NY					0	NA	6	NY	12	FY
Warbling Vireo	Vireo gilvus				S5B	G5										0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	2	S
Red-eyed Vireo	Vireo olivaceus				S5B	G5										0	NA					0	NA	0	NA		1			1	S					NA	1	S					0	NA					0	NA	0	NA	4	S
Yellow Warbler	Dendroica petechia				S5B	G5										0	NA					0	NA	0	NA		1			1	S					NA	1	S					0	NA					0	NA	0	NA	1	S
American Redstart	Setophaga ruticilla				S5B	G5	✓	>100ha		CP						0	NA					0	NA	0	NA					0	NA	1				S	1	S					0	NA					0	NA	0	NA	3	S
Northern Cardinal	Cardinalis cardinalis				S5	G5								1		0	S					0	NA	0	S		1			1	S					NA	1	S					0	NA					0	NA	0	NA	2	S
Indigo Bunting	Passerina cyanea				S4B	G5										0	NA					0	NA	0	NA	1				1	S	1				S	1	S					0	NA					0	NA	0	NA	2	S
Chipping Sparrow	Spizella passerina				S5B	G5										0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	1	S
Savannah Sparrow	Passerculus sandwichensis				S4B	G5	✓	>50	✓	CP			2	1		2	S	1	1			2	S	2	S			1		0	S					NA	0	S	1	1			2	S					0	NA	2	S	6	S
Song Sparrow	Melospiza melodia				S5B	G5						1				1	S	1	1			2	S	2	S					0	NA					NA	0	NA					0	NA	1	1			2	S	2	S	5	A
Bobolink	Dolichonyx oryzivorus	THR	THR		S4B	G5	✓	>10	✓	CP			1			1	D					0	NA	1	D					0	NA					NA	0	NA					0	NA					0	NA	0	NA	2	D
Red-winged Blackbird	Agelaius phoeniceus				S4	G5							1			1	S	2	2	1		4	S	4	S		1			1	S		2			S	2	S	2	1			3	S	2	3			5	S	5	S	19	A
Eastern Meadowlark	Sturnella magna	THR	THR		S4B	G5	✓	>10	✓	CP						0	NA					0	NA	0	NA			1		0	S					NA	0	S					0	NA					0	NA	0	NA	0	S >100
Brown-headed Cowbird	Molothrus ater				S4B	G5										0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	FO
American Goldfinch	Carduelis tristis				S5B	G5				CP			1	1		1	S		1			1	H	1	S					0	NA	1				H	1	H				1	0	NA		1			1	H	1	H	5	S
House Sparrow	Passer domesticus				SNA	G5										0	NA					0	NA	0	NA					0	NA					NA	0	NA			1		0	S					0	NA	0	S	0	FO

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES (BCR 13)	GRCA (date unk.)	WELLINGTON COUNTY (2009)	Polygon: A Date: June 1, 2021		Habitat: Dog Park/Pond Date: June 22, 2021		Totals		Polygon: B Date:June 1, 2021		Habitat: FOD/SWD Date: June 22, 2021		Totals		SITE SUMMARY	
												COUNT	HBE	COUNT	HBE	MAX	HBE	COUNT	HBE	COUNT	HBE	MAX	HBE	TOTAL	HBE
Great Blue Heron	Ardea herodias				S4	G5					✓			1	X	1	X							1	X
Mourning Dove	Zenaida macroura				S5	G5								1	S	1	S							1	S
Eastern Wood-pewee	Contopus virens	SC	SC		S4B	G5			✓		✓									1	S	1	S	1	S
American Crow	Corvus brachyrhynchos				S5B	G5								1	H	1	H							1	H
Black-capped Chickadee	Poecile atricapillus				S5	G5				CP				2	S	2	S							2	S
House Wren	Troglodytes aedon				S5B	G5						1	S	1	S	2	S	2	S			2	S	2	S
American Robin	Turdus migratorius				S5B	G5								1	S	1	S							1	S
European Starling	Sturnus vulgaris				SNA	G5								1	S	1	S							1	S
Warbling Vireo	Vireo gilvus				S5B	G5												1	S			1	S	1	S
Red-eyed Vireo	Vireo olivaceus				S5B	G5								3	S	3	S	2	S			2	S	5	S
Yellow Warbler	Dendroica petechia				S5B	G5								1	S	1	S							1	S
American Redstart	Setophaga ruticilla				S5B	G5	✓	>100ha		CP	✓			3	S	3	S	3	S			3	S	6	S
Ovenbird	Seiurus aurocapilla				S4B	G5	✓	>70ha		CP	✓			1	S	1	S							1	S
Chipping Sparrow	Spizella passerina				S5B	G5						1	S	1	S	2	S							2	S
Savannah Sparrow	Passerculus sandwichensis				S4B	G5	✓	>50ha	✓	CP	✓	1	S			1	S							1	S
White-throated Sparrow	Zonotrichia albicollis				S5B	G5				CP								1	S			1	S	1	S
Bobolink	Dolichonyx oryzivorus	THR	THR		S4B	G5	✓	>10ha	✓	CP	✓	1	S			1	S							1	S
Red-winged Blackbird	Agelaius phoeniceus				S4	G5								2	S	2	S							2	S
Eastern Meadowlark	Sturnella magna	THR	THR		S4B	G5	✓	>10ha	✓	CP	✓	1	S			1	S							1	S
American Goldfinch	Carduelis tristis				S5B	G5				CP				2	S	2	S							2	S

Breeding Evidence Codes

FO-Flyover

Possible

H- Observed in suitable habitat

S- Singing male or adult producing other sounds associated with breeding

Probable

D- Courtship or displays involving a male and female or antagonistic behaviour between two or more individuals

A- Agitated behaviour or alarm calls of an adult in suitable nesting habitat during breeding season

Confirmed

FY- Recently fledged young or downy young

APPENDIX 9
Grassland Breeding Bird Survey Results

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES	GRCA (date unk.)	WELLINGTON COUNTY (2009)	TRANSECT 1				TRANSECT 2				SUMMARY
												date:June 1, 2021		date: June 22, 2021		date:June 1, 2021		date: June 22, 2021		
												TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	**HBE**
American Robin	Turdus migratorius				S5B	G5										1	H			H
European Starling	Sturnus vulgaris				SNA	G5										1	H			H
Bobolink	Dolichonyx oryzivorus	THR	THR	THR	S4B	G5	✓	>10ha	✓	CP	✓	3	H							H
Red-winged Blackbird	Agelaius phoeniceus				S4B	G5						1	S	3	S			1	H	T
Song Sparrow	Melospiza melodia				S5B	G5								2	S			2	H	S
Savannah Sparrow	Passerculus sandwichensis				S4B	G5	✓	>50ha	✓	CP	✓			2	S					S
Eastern Phoebe	Sayomis phoebe				S5B	G5				CP								1	S	S
American Crow	Corvus brachyrhynchos				S5B	G5												1	H	H
House Wren	Troglodytes aedon				S5B	G5								1	S					S

Breeding Evidence Codes

Possible

H- Species observed in suitable habitat

S- Singing male or adult producing other sounds associated with breeding in suitable nesting habitat

Probable

T- Presumed territory based on presence of an adult bird in the same suitable nesting habitat patch on at least two visits.

APPENDIX 10
Site Investigation Details

Survey	Time	Date	Staff	Temp. (°C)	Wind (Beaufort)	Cloud Cover %	Precipitation	Past Precipitation
Amphibian Survey #1	23:10 - 23:30	29/04/2021	SD, CAR	5	1	100	None	Rain
Candidate Bat Maternity Habitat Survey	09:18-11:20	13/05/2021	CAR, KS	11	3	0	None	None
ELC/Spring Botanical	17:50-21:05	18-May-21	SD, KS	20	1	0	None	None
Amphibian Survey #2	21:15-21:30	18-May-21	SD, KS	20	1	0	None	None
Breeding Bird Survey #1	07:17-09:34	01-Jun-21	CAR	16	2	0	None	None
Grassland Breeding Bird Survey #1	7:37-8:14, 8:36-8:49	01-Jun-21	CAR	16	2	0	None	None
Breeding Bird Survey #2	07:02-09:30	22-Jun-21	CAR	13	2	70	None	Rain
Grassland Breeding Bird Survey #2	7:17-8:00, 8:29-8:56	22-Jun-21	CAR	13	2	70	None	Rain
Amphibian Survey #3	21:39-21:50	24-Jun-21	SD, KS	22	1	90	None	None
Wetland Delineation & Verification	08:30-15:30	23-Aug-21	SD, KS	29	1	0	None	None
Summer Botanical	11:15-15:30	01-Sep-21	SD, KS	23	1	0	None	None

APPENDIX 11
MNRF & MECP Requests for Information

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects

190 Nicklin Road
Guelph . Ontario
N1H 7L5

T: 519.822.6839
F: 519.822.4052
info@aboudtng.com
www.aboudtng.com

URBAN FORESTRY
ARBORIST REPORTS
MANAGEMENT PLANS
TREE PRESERVATION PLANS
TREE RISK ASSESSMENT
GIS TREE INVENTORIES
TREE APPRAISALS
MONITORING

ECOLOGICAL RESTORATION
NATURAL SYSTEMS DESIGN
HABITAT RESTORATION
EDGE MANAGEMENT PLANS
RAVINE STEWARDSHIP PLANS
NATURALIZATION PLANS
INTERPRETIVE DESIGN
MONITORING
CONTRACT ADMINISTRATION

ENVIRONMENTAL STUDIES
SUBWATERSHED STUDIES
ENVIRONMENTAL IMPACT STATEMENTS
ECOLOGICAL LAND CLASSIFICATION
WETLAND EVALUATION
VEGETATION ASSESSMENT
BOTANICAL INVENTORIES
WILDLIFE SURVEYS
MONITORING

LANDSCAPE ARCHITECTURE
MASTER PLANNING
RESIDENTIAL COMMUNITIES
COMMERCIAL/INDUSTRIAL
HEALTHCARE AND EDUCATION
STREETSCAPES
PARKS AND OPEN SPACES
TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

10/05/2021

Our Project #:AA21-085A
Sent by email: esa.guelph@ontario.ca

Ministry of Natural Resources and Forestry
Guelph District
Ontario Government Bldg, 1 Stone Road W.
Guelph, ON N1G 4Y2

Re: Dickson Drive Extension Municipal Class EA
Township of Centre Wellington, Wellington County
Request for Local Site Information

To whom it may concern,

Please accept this request for Information regarding:
☒ Wetland Mapping and/or Evaluation and Data Records
☐ Fish Dot Information
☐ ANSI Mapping and/or check-sheet
☒ Other:

Any other possible site constraints or information would also be greatly appreciated. As it applies to an Environmental Impact Study for a proposed road extension of Dickson Drive and multi-use pathway connecting the Fergus dog park to the Elora Cataract Trail (*Figure 1*). The information provided will be used to inform the Environmental Impact Study, which will be prepared in consultation with the Grand River Conservation Authority (GRCA), Wellington County and Township of Centre Wellington.

Township: Township of Centre Wellington

Lot: 9

Concession: 1

UTM Coordinates: 550326.40 E 4841589.59 N

Background Information
The preparation of an EIS is required as part of a Municipal Class EA for a proposed road extension of Dickson Drive and multi-use pathway connecting the Fergus Dog park to the Elora Cataract Trailway. The site is entirely within the urban boundary of Fergus, and includes a portion of the Irvine Creek Provincially Significant Wetland, woodlands, agriculture and residential lands.

The study area has not undergone any landscape changes in the recent past (within 5 years).

Please contact the undersigned should you require additional information of the above.

Yours truly,

ABOUD & ASSOCIATES INC.

Shannon Davison B. Env., Eco. Rest. Cert.
Ecologist
T:519.822.6839
C: 226.581.0707

Attachment: Figure 1

LEGEND

- PROPERTY ACCESS
- STUDY AREA
- DEER WINTERING AREA
- GRCA WATERCOURSE
- GRCA WETLAND
- LIO WOODLANDS
- GRCA REGULATION LIMIT
- PROPOSED ROAD
- PROPOSED SECONDARY ROAD
- PROPOSED TRAIL ALIGNMENT

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed April, 2021.
2. Woodlands and Wetland provided by Land Information Ontario

Title:

ENVIRONMENTAL STUDY AREA & CONSTRAINTS

Project:

DICKSON ROAD
FERGUS ON

Date: APRIL 2021

Project: AA21-085A

Scale: 1 : 5000

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudtng.com

Figure No: 1

Shannon Davison

From: Ungar, Darren (MNRF) <Darren.Ungar@ontario.ca>
Sent: June-21-21 10:46 AM
To: Shannon Davison
Subject: RE: AA21-085A MNRF Request for Information
Attachments: AA21-085A MNRF Information Request.pdf; Irvine_Creek_July2019_amendedFeb28_2020.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

External

Good morning Shannon,

Please see the attached wetland evaluation for Irvine Creek PSW. The stream on the property is a warm water system and the restricted in-water timing window is from March 15th to June 30th

All the best

Darren Ungar
Management Biologist
Ministry of Natural Resources & Forestry
Guelph District
226-962-6870

From: Shannon Davison <sdavison@aboudtng.com>
Sent: May 10, 2021 3:07 PM
To: ESA Guelph (MNRF) <ESAGUELPH@ontario.ca>
Subject: AA21-085A MNRF Request for Information

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

Good afternoon,

Please find attached a Request for Information as it relates to a Municipal Class EA for the Extension of Dickson Drive and a multi-use pathway connecting the Fergus dog park and Elora Cataract Trail.

Any information you can provide is greatly appreciated.

Regards,

Shannon Davison B.Env. Eco. Rest. Cert.
Ecologist
Certified Ecological Restoration Practitioner- In Training #0499
MNRF Certified Wetland Evaluation . MNRF Certified Ecological Land Classification
ABOUD & ASSOCIATES INC. 190 Nicklin Road . Guelph . Ontario . N1H 7L5

C : 226.581.0707 www.aboudtng.com sdavison@aboudtng.com

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects

190 Nicklin Road
Guelph . Ontario
N1H 7L5

T: 519.822.6839
info@aboudtng.com
www.aboudtng.com

URBAN FORESTRY
ARBORIST REPORTS
MANAGEMENT PLANS
TREE PRESERVATION PLANS
TREE RISK ASSESSMENT
GIS TREE INVENTORIES
TREE APPRAISALS
MONITORING

ECOLOGICAL RESTORATION
NATURAL SYSTEMS DESIGN
HABITAT RESTORATION
EDGE MANAGEMENT PLANS
RAVINE STEWARDSHIP PLANS
NATURALIZATION PLANS
INTERPRETIVE DESIGN
MONITORING
CONTRACT ADMINISTRATION

ENVIRONMENTAL STUDIES
SUBWATERSHED STUDIES
ENVIRONMENTAL IMPACT STATEMENTS
ECOLOGICAL LAND CLASSIFICATION
WETLAND EVALUATION
VEGETATION ASSESSMENT
BOTANICAL INVENTORIES
WILDLIFE SURVEYS
MONITORING

LANDSCAPE ARCHITECTURE
MASTER PLANNING
RESIDENTIAL COMMUNITIES
COMMERCIAL/INDUSTRIAL
HEALTHCARE AND EDUCATION
STREETSCAPES
PARKS AND OPEN SPACES
TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

10/05/2021

Our Project #:AA21-085A
Sent by email: SAROntario@ontario.ca

Ministry of the Environment, Conservation and Parks
Permissions and Compliance Section, Species at Risk Branch

Re: Dickson Drive Extension Municipal Class EA
Township of Centre Wellington, Wellington County
Request for Species at Risk and Local Site Information

To whom it may concern:

Please accept this request for Information regarding:
☒ Species at Risk

Any other possible site constraints or information would also be greatly appreciated. As it applies to an Environmental Impact Study for a proposed road extension of Dickson Drive and multi-use pathway connecting the Fergus dog park to the Elora Cataract Trailway.

Project Proponent and Location

Proponent: Township of Centre Wellington

Township: Township of Centre Wellington (Wellington County)

Lot: 9

Concession: 1

UTM Coordinates: 550326.40 E 4841589.59 N

Proposed Activity

The preparation of an EIS is required as part of a Municipal Class EA for a proposed road extension of Dickson Drive and multi-use pathway connecting the Fergus dog park to the Elora Cataract Trailway.

Existing Site Conditions

Per GRCA mapping, a portion of the study area is within the regulation limit. The site is entirely within the urban boundary of Fergus, and includes Provincially Significant Wetlands, woodlands, agriculture, and residential lands (*Figure 1*).

Background Information

A thorough background search has been completed; using available resources provided online related to the subject lands and adjacent lands and is listed below:

1. The Ontario Reptile and Amphibian Atlas shows within a 10 km square of the subject lands, the recent and historical presence of 13 species (including complexes) of reptiles and amphibians (accessed April 15, 2021). Including three species of Conservation Concern (Snapping Turtle, Western Chorus Frog and Midland Painted Turtle).

2. The Natural Heritage Information Center indicates the presence of Eastern Meadowlark, Barn Swallow and Bobolink within the nine 1km squares containing the subject lands. It also identifies that portion of the Irvine Creek Provincially Significant Wetland complex and a colonial waterbird nesting area are present in the vicinity of the Study Area.

3. The Ontario Breeding Bird Atlas shows within a 10 km square of the subject lands, the recent and historical presence of 120 species of birds, including eight species of Conservation Concern (Northern Bobwhite, Eastern Wood-pewee, Bank Swallow, Barn Swallow, Wood Thrush, Canada Warbler, Grasshopper Sparrow, Bobolink and Eastern Meadowlark).

4. The Ontario Mammal Atlas indicates the presence of 21 species within the two 10km squares containing the subject lands. No species of Conservation Concern where indicated.

5. eBird records from the nearby Fergus Dog Park (~350m from the subject lands) indicate the recent and historical presence of 15 species, including one species of Conservation Concern (Barn Swallow).

6. iNaturalist observations (research grade) within 1km of the subject lands indicate the recent presence of two vascular plant species, one insect species and three bird species. One of the species observed (Bald Eagle) is considered a species of Conservation Concern.

7. The Ontario Butterfly Atlas shows within the two 10km squares containing the subject lands, the recent and historical presence of 24 species of butterflies, including one species of Conservation Concern (Monarch)

Please contact the undersigned should you require additional information of the above.

Yours truly,

ABOUD & ASSOCIATES INC.



Shannon Davison B. Env., Eco. Rest. Cert.
Ecologist
T:519.822.6839
C: 226.581.0707

LEGEND

- PROPERTY ACCESS
- STUDY AREA
- DEER WINTERING AREA
- GRCA WATERCOURSE
- GRCA WETLAND
- LIO WOODLANDS
- GRCA REGULATION LIMIT
- PROPOSED ROAD
- PROPOSED SECONDARY ROAD
- PROPOSED TRAIL ALIGNMENT

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed April, 2021.
2. Woodlands and Wetland provided by Land Information Ontario

Title:

ENVIRONMENTAL STUDY AREA & CONSTRAINTS

Project:

DICKSON ROAD
FERGUS ON

Date: APRIL 2021

Project: AA21-085A

Scale: 1 : 5000

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudtng.com

Figure No: 1

Shannon Davison

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: May-26-21 2:08 PM
To: Shannon Davison
Subject: RE: AA21-085A Request for Information

External

Hi Shannon,

In addition to the species you list in your prescreening report the following Endangered/Threatened species should be added; silver shiner, chimney swift, gypsy cuckoo bumble bee and redside dace. The wood thrush which is a species of Special Concern should also be included.

Please note it remains the clients responsibility to:

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

It is important to note that a lack of information does not mean that species at risk or their habitat are not present. There are many areas where the Government of Ontario does not currently have information, especially in more remote parts of the province. On-site assessments can better verify site conditions, identify and confirm presence of species at risk and/or their habitats. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the activities carried out on the site.

The Ministry of Environment, Conservation and Parks is only responsible for species at risk and the Endangered Species Act. If you would like confirmation of fisheries or other natural heritage features outside of species at risk please contact the Ministry of Natural Resources and Forestry office.

Lisa

Ontario

Lisa McShane
Management Biologist
Permissions and Compliance Section, Species at Risk Branch
Ministry of Environment, Conservation and Parks
lisa.mcshane@ontario.ca
(226) 668-0527

From: Shannon Davison <sdavison@aboudtng.com>
Sent: Monday, May 10, 2021 2:54 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Subject: AA21-085A Request for Information

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

Good afternoon,

Please find attached a Request for Information as it related to an EIS for a Municipal Class EA for a road extension and multi-use pathway in the Township of Centre Wellington.

Any information you can provide is appreciated.

Regards,

Shannon Davison B.Env. Eco. Rest. Cert.
Ecologist
Certified Ecological Restoration Practitioner- In Training #0499
MNRF Certified Wetland Evaluation . MNRF Certified Ecological Land Classification
ABOUD & ASSOCIATES INC. 190 Nicklin Road . Guelph . Ontario . N1H 7L5
C : 226.581.0707 www.aboudtng.com sdavison@aboudtng.com

APPENDIX 12
Glossary of Terms and Impact Ratings

Glossary of Terms and Impacts

Duration of Impact
ST – Short-term (define based on project)
LT- Long-term (define based on project)

Reversibility
R- Reversible
P – Permanent

Geographic Extent of Influence
SA– Subject Area (physical disturbance area)
AA- Assessment Area (120m zone of influence)
LA – Landscape Area (Area outside AA that may be affected)

Frequency of Disturbance
O - Occurs once.
S - Occurs sporadically at irregular intervals.
R - Occurs on a regular basis and at regular intervals.
C – Continuous, ongoing and all the time.

Existing Ecological Site Context
U - Undisturbed: Area relatively or not adversely affected by human activity.
PD – Past Disturbance: Area Adversely affected by human activity in recent past, but regeneration has occurred.
D -Disturbed: Area has been substantially previously disturbed by human development or human development is still present.

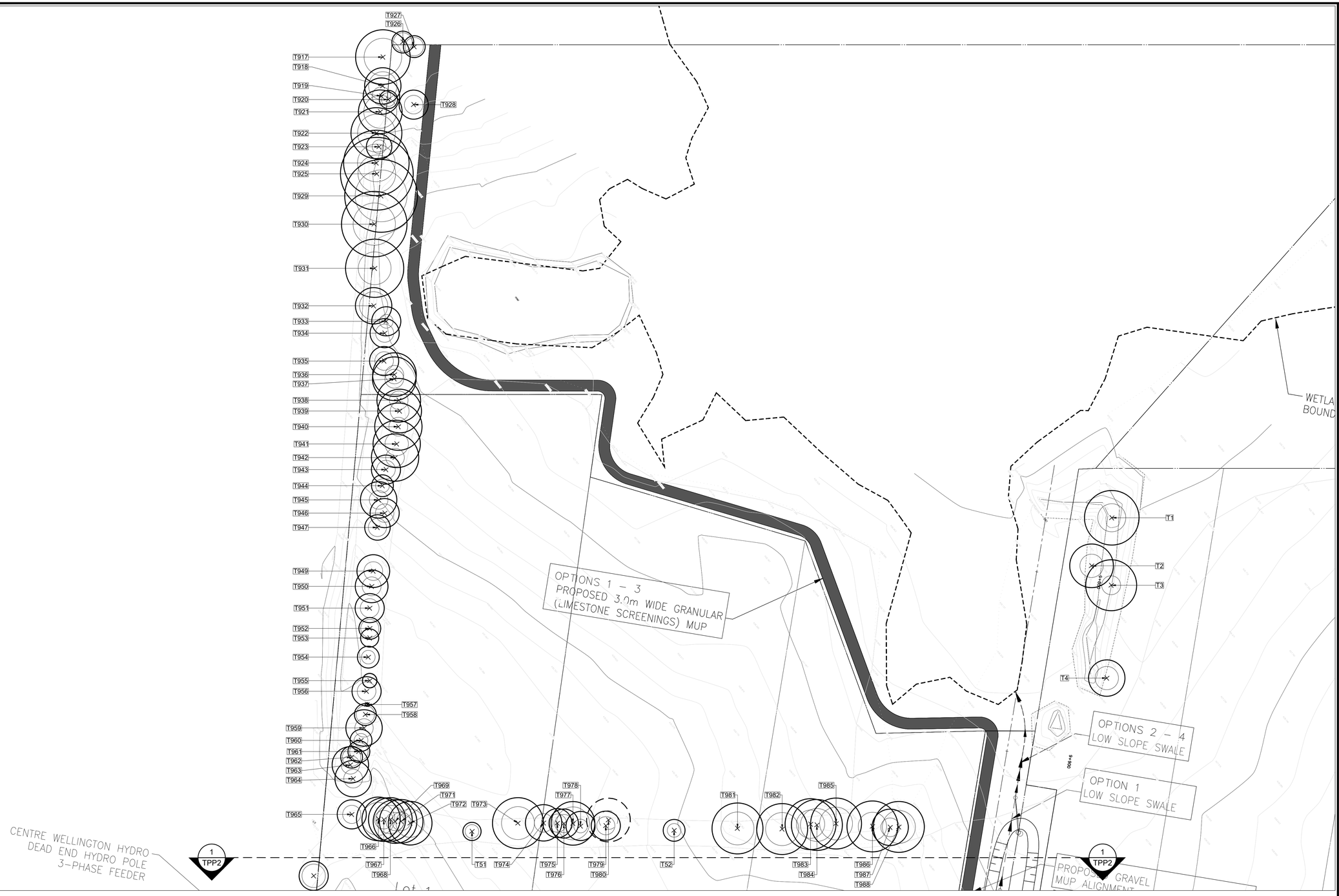
Likelihood of impact occurring
If the Proposed activity occurs, the likelihood of the impact occurring is:
L: Low probability of occurrence.
M: Medium probability of occurrence.
H: High probability of occurrence.

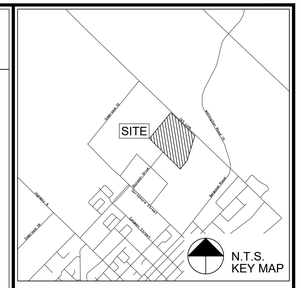
Cumulative Environmental Effects
Will the proposed activity interact with other impacts?
Y: Potential for environmental effect to interact with the environmental effects of other past, present or foreseeable future activities
N: Environmental effect will not or is not likely to interact with the environmental effects of other past, present or foreseeable future activities.

Impact Rating
None: An event that, if it occurs, will cause no foreseeable impact.
Minor: An event that, if it occurs, will cause small, reversible and geographically localized impact that can be easily mitigated.
Moderate: Significant but reversible, OR irreversible and geographically localized, impact that requires significant mitigation.
Severe: Significant AND irreversible impact on the environment, impacts cannot be fully mitigated.

Potential vs. Actual impact
[1] *Potential Impact* is a relative rating of the expected impact to occur in the absence of any mitigation measures.
[2] *Actual Impact* is the expected impact in consideration of implementation of mitigation measures or where potential impact may cause little to no actual impact.

APPENDIX 13
Tree Preservation Plan





LEGEND:

EXISTING TREE
ID NUMBER | THICK CIRCLE DENOTES CROWN DIAMETER (ESTIMATED). THIN CIRCLE DENOTES MINIMUM TREE PROTECTION ZONE (MTPZ). SINGLE THICK CIRCLE DENOTES BOTH CROWN DIAMETER AND MTPZ

PRESERVE TREE
TREE HAS MODERATE LOW TO HIGH BIOLOGICAL HEALTH AND MODERATE LOW TO HIGH STRUCTURAL CONDITION AND CAN BE INCORPORATED INTO THE PROPOSED DEVELOPMENT

REMOVE TREE
TREE HAS LOW BIOLOGICAL HEALTH AND/OR STRUCTURAL CONDITION

REMOVE TREE
TREE IS IN CONFLICT WITH PROPOSED DEVELOPMENT

REMOVE TREE
TREE HAS LOW BIOLOGICAL HEALTH AND/OR LOW STRUCTURAL CONDITION AND IS IN CONFLICT WITH PROPOSED DEVELOPMENT

INFORMATION SOURCES

1. Site Plans received from Triton Engineering Services Ltd. January 14, 2022.
2. Tree Inventory and Assessment conducted by Aboud & Associates Inc. August 31, 2021.

No.	Description	By	Date
1	ISSUED FOR REVIEW	JD	03 FEB-22
0	ISSUED FOR REVIEW	JD	21 SEP-21

REVISIONS: All previous issues of this drawing are superceded

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road , Guelph , Ontario , N1H 7L5 . 519.822.6839 . www.aboudtng.com

Title:

TREE PRESERVATION PLAN

Project:

DICKSON DRIVE EXTENSION & MULTI-USE PATH
TOWNSHIP OF CENTRE WELLINGTON

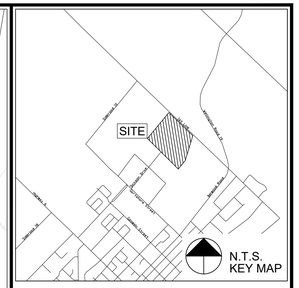
Date: FEBRUARY 2022	Designer: DB
Project: AA21-085A	Drawn: JGL
Scale: 1:500	Checked: JD

Drawing No:

TPP1

FILEPATH - I:\ABOUDFS01\COMPANY\AA PROJECTS\2021\APPROVED\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH MUNICIPAL CLASS EA\DRAWINGS\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH TPP 2022-01-31.DWG CTB: GMP Standard.ctb PLOTTED 3-Feb-22 4:00 PM





LEGEND:

EXISTING TREE
ID NUMBER | THICK CIRCLE DENOTES CROWN DIAMETER (ESTIMATED). THIN CIRCLE DENOTES MINIMUM TREE PROTECTION ZONE (MTPZ). SINGLE THICK CIRCLE DENOTES BOTH CROWN DIAMETER AND MTPZ

PRESERVE TREE
TREE HAS MODERATE LOW TO HIGH BIOLOGICAL HEALTH AND MODERATE LOW TO HIGH STRUCTURAL CONDITION AND CAN BE INCORPORATED INTO THE PROPOSED DEVELOPMENT

REMOVE TREE
TREE HAS LOW BIOLOGICAL HEALTH AND/OR STRUCTURAL CONDITION

REMOVE TREE
TREE IS IN CONFLICT WITH PROPOSED DEVELOPMENT

REMOVE TREE
TREE HAS LOW BIOLOGICAL HEALTH AND/OR LOW STRUCTURAL CONDITION AND IS IN CONFLICT WITH PROPOSED DEVELOPMENT

INFORMATION SOURCES

1. Site Plans received from Triton Engineering Services Ltd. January 14, 2022.
2. Tree Inventory and Assessment conducted by Aboud & Associates Inc. August 31, 2021.

No.	Description	By	Date
1	ISSUED FOR REVIEW	JD	03 FEB-22
0	ISSUED FOR REVIEW	JD	21 SEP-21

REVISIONS: All previous issues of this drawing are superceded

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road , Guelph , Ontario , N1H 7L5 . 519.822.6839 . www.aboudtng.com

Title:

TREE PRESERVATION PLAN

Project:

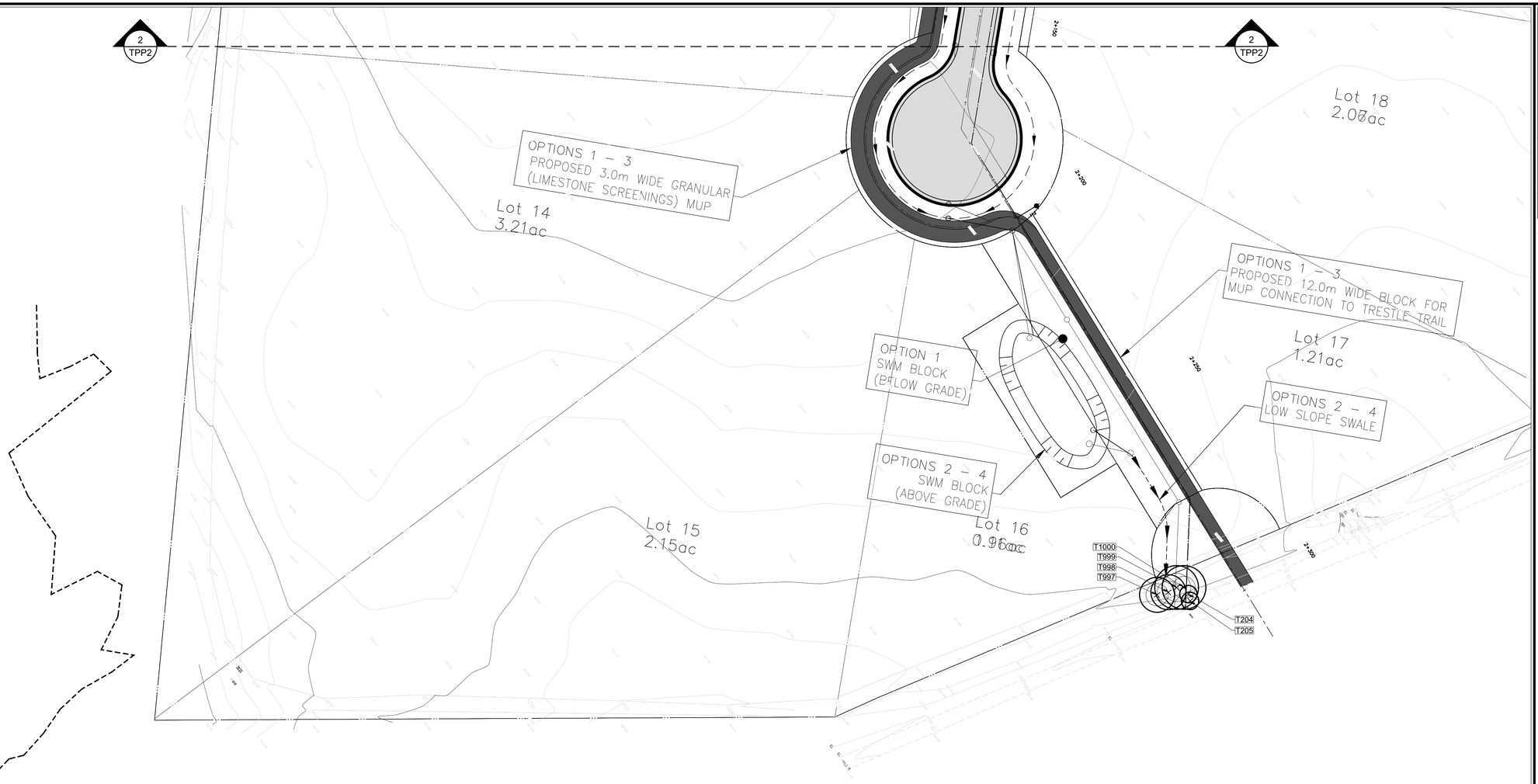
DICKSON DRIVE EXTENSION & MULTI-USE PATH
TOWNSHIP OF CENTRE WELLINGTON

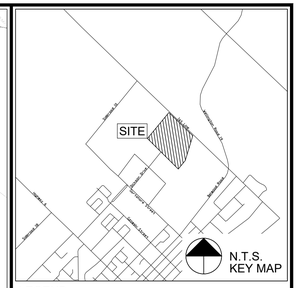
Date: FEBRUARY 2022	Designer: DB
Project: AA21-085A	Drawn: JGL
Scale: 1:500	Checked: JD

Drawing No:

TPP2

FILEPATH: \\ABOUDFS01\COMPANY\A-A PROJECTS\2021-A\APPROVED\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH MUNICIPAL CLASS EA\DRAWINGS\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH TPP 2022-01-31.DWG CTB: GMIP_Standard.ctb PLOTTED: 3-Feb-22 4:00 PM





LEGEND:

EXISTING TREE
ID NUMBER | THICK CIRCLE DENOTES CROWN DIAMETER (ESTIMATED). THIN CIRCLE DENOTES MINIMUM TREE PROTECTION ZONE (MTPZ). SINGLE THICK CIRCLE DENOTES BOTH CROWN DIAMETER AND MTPZ

PRESERVE TREE
TREE HAS MODERATE LOW TO HIGH BIOLOGICAL HEALTH AND MODERATE LOW TO HIGH STRUCTURAL CONDITION AND CAN BE INCORPORATED INTO THE PROPOSED DEVELOPMENT

REMOVE TREE
TREE HAS LOW BIOLOGICAL HEALTH AND/OR STRUCTURAL CONDITION

REMOVE TREE
TREE IS IN CONFLICT WITH PROPOSED DEVELOPMENT

REMOVE TREE
TREE HAS LOW BIOLOGICAL HEALTH AND/OR LOW STRUCTURAL CONDITION AND IS IN CONFLICT WITH PROPOSED DEVELOPMENT

INFORMATION SOURCES

1. Site Plans received from Triton Engineering Services Ltd. January 14, 2022.
2. Tree Inventory and Assessment conducted by Aboud & Associates Inc. August 31, 2021.

No.	Description	By	Date
1	ISSUED FOR REVIEW	JD	03 FEB-22
0	ISSUED FOR REVIEW	JD	21 SEP-21

REVISIONS: All previous issues of this drawing are superceded

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road , Guelph , Ontario , N1H 7L5 . 519.822.6839 . www.aboudtng.com

Title:

TREE PRESERVATION PLAN

Project:

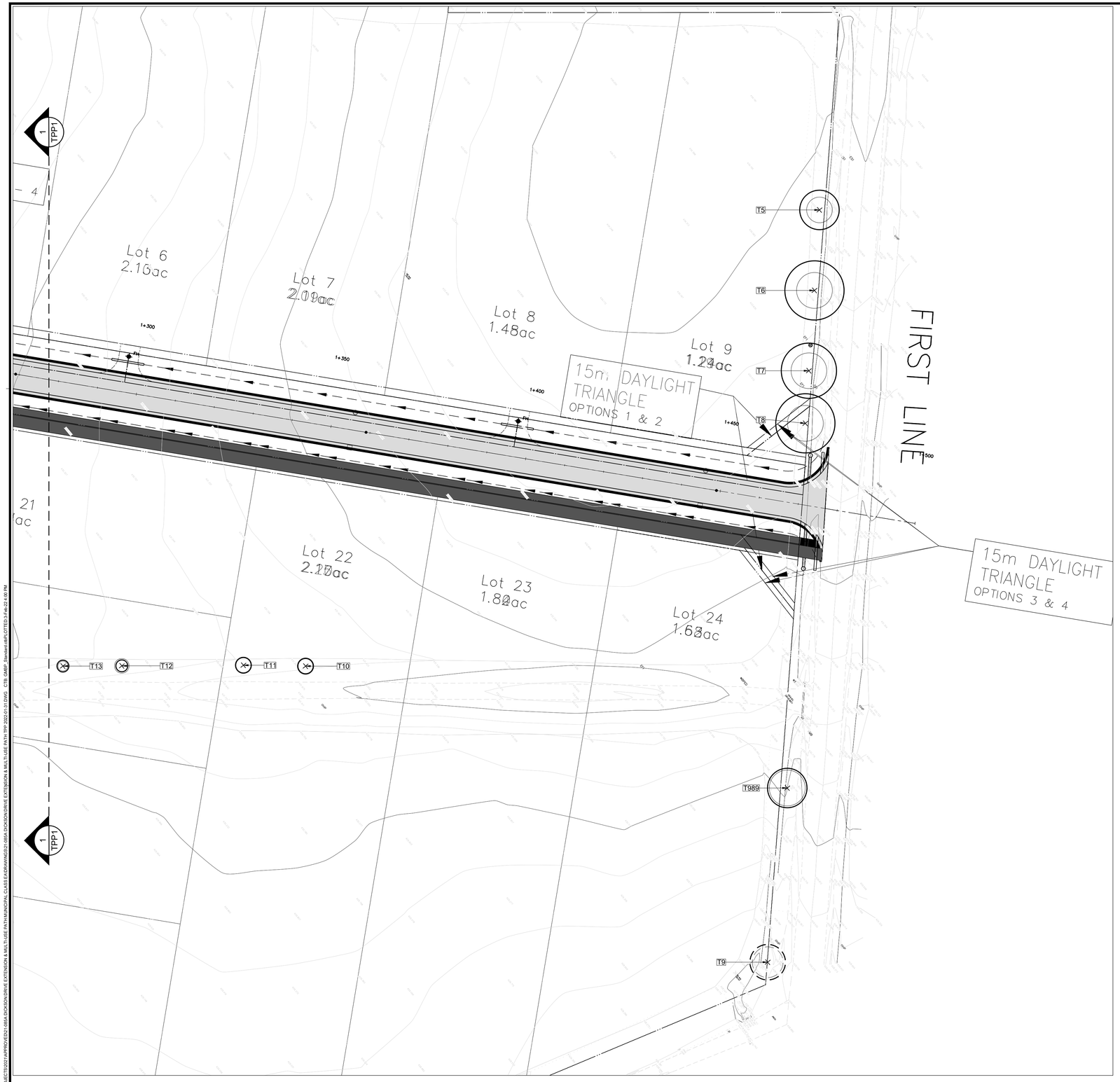
DICKSON DRIVE EXTENSION & MULTI-USE PATH
TOWNSHIP OF CENTRE WELLINGTON

Date: FEBRUARY 2022	Designer: DB
Project: AA21-085A	Drawn: JGL
Scale: 1:500	Checked: JD

Drawing No:

TPP3

FILEPATH: \\ABOUDFS01\COMPANY\A+A PROJECTS\2021\APPROVED\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH MUNICIPAL CLASS EA\DRAWINGS\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH TPP 2022-01-31.DWG CTB: GMBP_Standard.ctb PLOTTED:3-Feb-22 4:00 PM



GENERAL TREE NOTES

1. All arboricultural work performed on trees such as pruning of branches and roots shall be conducted by an ISA Certified Arborist.
2. Prune and mitigate limbs and roots damaged by construction work in accordance with ANSI A300 (Part 1) - 2008 Pruning and the Best Management Practices companion publication (revised 2008).
3. Tree Protection Fence to be erected prior to the commencement of any construction or grading, and maintained throughout the duration of the work.
4. Tree Protection Zone is delimited by Tree Protection Fence shown on the drawings.
5. No construction or activities including the following to occur within Tree Protection Zone: equipment parking or access, storage of supplies, topsoil or fill, and refueling.
6. Tree removals (if required) will be undertaken in compliance with the Migratory Birds Convention Act. Efforts will be made to remove vegetation outside the General Nesting period (April 1 - Aug 31) for regions C1 and C2 of Ontario. In the event vegetation must be removed within the General Nesting Period, a qualified avian biologist is to review the site prior to removal to ensure compliance with the Migratory Birds Convention Act.
7. Any soils and vegetation within tree protection zone damaged by the Contractor shall be restored to the satisfaction of the Municipality by the Contractor at no additional cost to the Owner.

CONSTRUCTION WITHIN MINIMUM TREE PROTECTION ZONE

1. An ISA Certified Arborist must be present on site during construction activities within MTPZ to confirm and/or modify mitigation measures for trees to be preserved.
2. Use trenchless methods (e.g. horizontal directional drilling) to install underground services (e.g. sanitary sewers and water lines) within Minimum Tree Protection Zones.

EXISTING UNDERGROUND SERVICES WITHIN TREE PROTECTION ZONES

1. Existing sanitary/storm sewers and watermains to be discontinued within tree protection zones will be filled (as needed) and abandoned.
2. Excavation and access for construction/removal of abandoned underground services will be conducted outside of tree protection zones.

FINISH GRADING WITHIN TREE PROTECTION ZONES

Where finish grading of cuts and fills, and including swales occurs within tree protection zones, the following steps are required.

Grade Cut:

1. Excavate by hand or Air-spade technology to a maximum depth of 100mm.
2. Roots encountered are to be assessed by the Project Arborist to determine the extent of roots to be pruned. Based on findings, other treatments may be required (e.g. crown reduction, tree removal), and which may require approval from the City.
3. Based on root findings, local, minor adjustments to grading within the tree protection zone may be required based on field consultation between the Project Arborist and Project Engineer.
4. No access by heavy equipment into tree protection zone is permitted. Fine grading to be carried out using light equipment and/or by hand.

Grade Fill:

5. Add topsoil to meet grade requirements to a maximum of 150mm.
6. No topsoil to be added onto trunk base or above-ground section of trunk base flare.
7. Maintain positive drainage away from trunk base.
8. Based on local conditions (e.g. surface drainage), local, minor adjustments to grading within the tree protection zone may be required based on field consultation between the Project Arborist and Project Engineer.

TREES OWNED BY OTHERS

1. Trees owned by others require permission (i.e. written consent) from the land owner(s) prior to activities that may damage or destroy trees. Trees owned by others are Offsite Trees and Shared Trees:
   a. Offsite Trees - Trees on property adjacent to the subject property;
   b. Shared (Boundary) Trees - Trees whose trunk including the basal trunk flare growing on the boundary between the subject property and adjoining property (from *Ontario Forestry Act*).

The Provincial Forestry Act, R.S.O. 1990 (Section 10):

10. (2) Every tree whose trunk is growing on the boundary between adjoining lands is the common property of the owners of the adjoining lands. 1990, c. 18 Sched. I, s. 21.
(3) Every person who injures or destroys a tree growing on the boundary between adjoining lands without the consent of the land owners is guilty of an offence under this Act. 1998, c. 18, Sched. I, s. 21.

ROOT SENSITIVE EXCAVATION

A preliminary excavation at the limit of work is recommended to determine the potential magnitude of the impacts posed by the planned work. For excavation in turf or permeable surfaces, the final excavation limit should be marked in the field and excavation shall be performed using air-spade, dry-vac truck, hydro-vac truck or hand tools. For excavation of existing impermeable surfaces, the impermeable top layer may be broken up by machine to allow access to the permeable base layers. The permeable base layers may need to be excavated further to expose existing roots, in which case this excavation shall be performed using air-spade, dry-vac truck, hydro-vac truck or hand tools. All root sensitive excavation must be performed under the supervision of a qualified arborist. All roots exposed must be documented by the supervising arborist. Every effort should be made to preserve as many exposed roots as possible. Roots approved for pruning should be cleanly cut with a sharp, non-vibrating tool such as a handsaw, secateurs, chainsaw at face of trench such that no further disturbance of the roots are to be expected once mechanical excavation begins. All root pruning is to be performed by the arborist only, as per guidelines below.

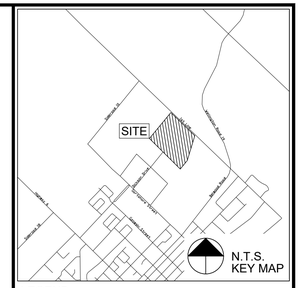
1. When root sensitive excavation is performed in regards to the installation of a deep site feature such as a foundation, roots of less than 5cm diameter can be cut sharply, if necessary, unless an abundance of smaller roots are involved. If roots of 5cm diameter or greater or an abundance of smaller roots are exposed in the excavation areas inside or just outside the Tree Protection Zone (TPZ) of bylaw trees they should be preserved.

2. When root sensitive excavation is performed in regards to the installation of site features such as post holes, all roots exposed of under 5cm diameter may be cleanly cut at face of hole such that no further disturbance of the roots are to be expected once mechanical excavation begins for the lower portion of the holes (below hand dug area). If roots of 5cm diameter or greater are uncovered they should be preserved, the post holes filled in with viable soil and the hole moved at least 0.5 metre away to avoid significant roots.

3. When root sensitive excavation is performed in regards to the installation of site features such as driveways, walkways, curbs, etc. roots of less than 5cm diameter can be cut sharply, if necessary, unless an abundance of smaller roots are involved. If roots of 5cm diameter or greater or an abundance of smaller roots are exposed in the excavation areas inside or just outside the TPZ of bylaw trees they should be preserved

4. When root sensitive excavation is performed in regards to the installation of utilities such as water lines or sewers, every effort should be made to preserve as many exposed roots as possible by installing the utilities underneath the roots without root pruning. If roots of 5cm diameter or greater are uncovered they should be preserved.

GENERAL TREE PROTECTION NOTES



LEGEND:

EXISTING TREE
ID NUMBER | THICK CIRCLE DENOTES CROWN DIAMETER (ESTIMATED). THIN CIRCLE DENOTES MINIMUM TREE PROTECTION ZONE (MTPZ). SINGLE THICK CIRCLE DENOTES BOTH CROWN DIAMETER AND MTPZ

PRESERVE TREE
TREE HAS MODERATE LOW TO HIGH BIOLOGICAL HEALTH AND MODERATE LOW TO HIGH STRUCTURAL CONDITION AND CAN BE INCORPORATED INTO THE PROPOSED DEVELOPMENT

REMOVE TREE
TREE HAS LOW BIOLOGICAL HEALTH AND/OR STRUCTURAL CONDITION

REMOVE TREE
TREE IS IN CONFLICT WITH PROPOSED DEVELOPMENT

REMOVE TREE
TREE HAS LOW BIOLOGICAL HEALTH AND/OR LOW STRUCTURAL CONDITION AND IS IN CONFLICT WITH PROPOSED DEVELOPMENT

INFORMATION SOURCES

1. Site Plans received from Triton Engineering Services Ltd. January 14, 2022.
2. Tree Inventory and Assessment conducted by Aboud & Associates Inc. August 31, 2021.

No.	Description	By	Date
1	ISSUED FOR REVIEW	JD	03 FEB-22
0	ISSUED FOR REVIEW	JD	21 SEP-21

REVISIONS: All previous issues of this drawing are superceded

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road , Guelph , Ontario , N1H 7L5 . 519.822.6839 . www.aboudtng.com

Title:

TREE PRESERVATION PLAN

Project:

DICKSON DRIVE EXTENSION & MULTI-USE PATH
TOWNSHIP OF CENTRE WELLINGTON

Date: FEBRUARY 2022	Designer: DB
Project: AA21-085A	Drawn: JGL
Scale: 1:500	Checked: JD

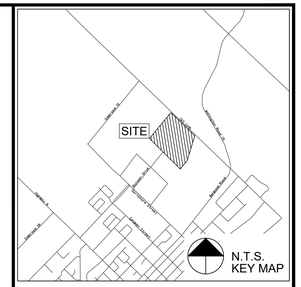
Drawing No:

TPP4

FILEPATH: \ABOUDFS01\COMPANY\AA-A PROJECTS\2021\APPROVED\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH MUNICIPAL CLASS EA\DRAWINGS\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH TPP 2022-01-31.DWG CTB: GMIP_Standard.ctb PLOTTED:3-Feb-22 4:00 PM

Tree No. (not tagged)	Tree Species	DBH (cm)	Minimum Tree Protection Zone (m, from total height of tree)	Crown Diameter est. (m)	Crown Class	Condition	Constraint to Development	Ownership: Private (P), Offsite (O), Municipal (M), Shared (S!)	Rec. Action - Development: Preserve, Remove	Rec. Action - Development (Option 1): Preserve, Remove	Rec. Action - Development (Option 2): Preserve, Remove	Rec. Action - Development (Option 3): Preserve, Remove	Rec. Action - Development (Option 4): Preserve, Remove	Final Recommendation: Preserve, Remove	Compensation Required: Yes (Y), No (N)	Reason for removal	Comments
1	Acer negundo Manitoba Maple	52 [38,30]	3.6	15	Dominant	Good	M	P	P	P	P	P	P	P	N		
2	Acer negundo Manitoba Maple	41 [27,20,20,19]	3.0	12	Dominant	Good	M	P	P	P	P	P	P	P	N		
3	Acer negundo Manitoba Maple	40	2.4	14	Dominant	Fair	M	P	P	P	P	P	P	P	N		Broken crown
4	Acer negundo Manitoba Maple	42 [30,22,20]	3.0	10	Dominant	Good	M	P	P	P	P	P	P	P	N		
5	Acer rubrum Red Maple	50	3.0	10	Dominant	Good	M	P	P	P	P	P	P	P	N		
6	Acer saccharum ssp. saccharum Sugar Maple	68	4.2	15	Dominant	Fair	M	P	P	P	P	P	P	P	N		Deadwood moderate, large cavity
7	Acer saccharum ssp. saccharum Sugar Maple	64	4.2	14	Dominant	Good	M(H)	P	P	P	P	P	P	P	N		Minor deback
8	Acer saccharum ssp. saccharum Sugar Maple	68	4.2	15	Dominant	Good	M(H)	P	P	P	P	P	P	P	N		
9	Fraxinus americana White Ash	60	3.6	9	Dominant	Very Poor	L	S	R	P	P	P	P	RC	N	Condition	EAB
10	Acer saccharum ssp. saccharum Sugar Maple	10	1.8	4	Dominant	Fair	L	P	P	P	P	P	P	P	N		Trunk wound moderate
11	Acer saccharum ssp. saccharum Sugar Maple	14	1.8	4	Dominant	Good	L	P	P	P	P	P	P	P	N		
12	Acer saccharum ssp. saccharum Sugar Maple	10	1.8	3	Dominant	Good	L	P	P	P	P	P	P	P	N		
13	Acer saccharum ssp. saccharum Sugar Maple	8	1.2	3	Dominant	Good	L	P	P	P	P	P	P	P	N		
14	Acer saccharum ssp. saccharum Sugar Maple	8	1.2	3	Dominant	Good	L	P	P	P	P	P	P	P	N		
15	Acer saccharum ssp. saccharum Sugar Maple	9	1.2	3	Dominant	Good	L	P	P	P	P	P	P	P	N		
16	Picea pungens 'Glauca' Colorado Blue Spruce	18	1.8	2	Dominant	Dead	L	P	R	R	R	R	R	RCD	N	Road extension and condition	
17	Picea pungens 'Glauca' Colorado Blue Spruce	24	2.4	6	Dominant	Good	M	P	P	R	R	R	R	RD	Y	Road extension	
18	Picea pungens 'Glauca' Colorado Blue Spruce	25	2.4	6	Dominant	Good	M	P	P	R	R	R	R	RD	Y	Road extension	Vines
19	Populus deltoides Eastern Cottonwood	34 [18,16,16,13,12]	2.4	6	Dominant	Good	M	P	P	R	R	R	R	RD	Y	Road extension	
20	Prunus serotina Black Cherry	44 [34,28]	3.0	12	Co-Dominant	Fair	M(L)	P	P	P	P	P	P	P	N		Unbalanced crown minor,
21	Prunus serotina Black Cherry	47 [36,30]	3.0	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
22	Acer platanoides Norway Maple	70	4.2	14	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		Large split in trunk
23	Prunus serotina Black Cherry	52 [42,30]	3.6	12	Co-Dominant	Fair	M	P	P	P	P	P	P	P	N		Trunk wound moderate at base
24	Picea abies Norway Spruce	55	3.6	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
25	Picea abies Norway Spruce	42	3.0	10	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
26	Picea abies Norway Spruce	70	4.2	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
27	Picea abies Norway Spruce	48	3.0	8	Intermediate	Fair	L	P	P	P	P	P	P	P	N		Broken crown
28	Thuja occidentalis Eastern White Cedar	43	3.0	7	Co-Dominant	Excellent	M	P	P	P	P	P	P	P	N		
29	Thuja occidentalis Eastern White Cedar	31	2.4	5	Co-Dominant	Excellent	M	P	P	P	P	P	P	P	N		
30	Acer saccharum ssp. saccharum Sugar Maple	95	6.0	18	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
31	Acer saccharum ssp. saccharum Sugar Maple	86	5.4	18	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
32	Acer saccharum ssp. saccharum Sugar Maple	56	3.6	11	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
33	Acer saccharum ssp. saccharum Sugar Maple	46 [36,28]	3.0	10	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		Codominant stems
34	Acer saccharum ssp. saccharum Sugar Maple	39	2.4	10	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
35	Thuja occidentalis Eastern White Cedar	34	2.4	9	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		Minor lean
36	Thuja occidentalis Eastern White Cedar	72 [43,43,37]	4.8	9	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
37	Acer platanoides Norway Maple	57 [47,32]	3.6	12	Dominant	Good	M	P	P	P	P	P	P	P	N		
38	Acer saccharum ssp. saccharum Sugar Maple	35	2.4	9	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
39	Acer saccharum ssp. saccharum Sugar Maple	65 [60,24]	4.2	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
40	Acer saccharum ssp. saccharum Sugar Maple	89	5.4	15	Dominant	Good	M	P	P	P	P	P	P	P	N		Large portion of the trunk failed
41	Acer saccharum ssp. saccharum Sugar Maple	98	6.0	14	Dominant	Good	M	P	P	P	P	P	P	P	N		
42	Acer saccharum ssp. saccharum Sugar Maple	80	4.8	12	Dominant	Good	M(L)	P	P	P	P	P	P	P	N		Deadwood moderate
43	Acer saccharum ssp. saccharum Sugar Maple	95	6.0	18	Dominant	Good	M	P	P	P	P	P	P	P	N		
44	Prunus serotina Black Cherry	26	2.4	8	Dominant	Good	M	P	P	P	P	P	P	P	N		
45	Prunus serotina Black Cherry	36	2.4	10	Dominant	Good	H	P	P	P	P	P	P	P	N		
46	Picea glauca White Spruce	14	1.8	4	Dominant	Good	M(H)	M	P	P	P	P	P	P	N		Vines
47	Picea pungens 'Glauca' Colorado Blue Spruce	12	1.8	4	Dominant	Good	M(H)	M	P	P	P	P	P	P	N		Vines
48	Acer platanoides Norway Maple	20 [18,9]	2.4	5	Dominant	Good	M	M	P	P	P	P	P	P	N		Codominant stems
49	Pinus sylvestris Scots Pine	20	2.4	5	Dominant	Good	M	M	P	P	P	P	P	P	N		
50	Robinia pseudoacacia Black Locust	43 [23,22,20,21]	3.0	8	Dominant	Good	H	O	P	P	P	P	P	P	N		Vines
51	Acer platanoides 'Crimson King' Crimson King Maple	15	1.8	5	Dominant	Good	L	P	P	P	P	P	P	P	N		
52	Acer platanoides 'Crimson King' Crimson King Maple	15	1.8	6	Dominant	Good	L	P	P	P	P	P	P	P	N		
53	Prunus serotina Black Cherry	75 [60,40]	4.8	15	Dominant	Good	M(H)	P	P	P	P	P	P	P	N		
204	Acer saccharum ssp. saccharum Sugar Maple	14	1.8	4	Intermediate	Good	M	O	P	P	P	P	P	P	N		
205	Acer saccharum ssp. saccharum Sugar Maple	16	1.8	4	Intermediate	Good	M	O	P	P	P	P	P	P	N		
917	Acer saccharum ssp. saccharum Sugar Maple	73	4.8	15	Dominant	Good	H	O	P	P	P	P	P	P	N		Offsite
918	Acer saccharum ssp. saccharum Sugar Maple	60	3.6	10	Dominant	Fair	H	O	P	P	P	P	P	P	N		Trunk decay severe
919	Acer saccharum ssp. saccharum Sugar Maple	30	2.4	10	Intermediate	Good	H	O	P	P	P	P	P	P	N		
920	Fraxinus americana White Ash	18	1.8	5	Intermediate	Poor	L	P	P	P	P	P	P	P	N		
921	Acer saccharum ssp. saccharum Sugar Maple	65	4.2	12	Co-Dominant	Fair	M(H)	O	P	P	P	P	P	P	N		Unbalanced crown severe, trunk wound severe

Tree No. (not tagged)	Tree Species	DBH (cm)	Minimum Tree Protection Zone (m, from total height of tree)	Crown Diameter est. (m)	Crown Class	Condition	Constraint to Development	Ownership: Private (P), Offsite (O), Municipal (M), Shared (S!)	Rec. Action - Development: Preserve, Remove	Rec. Action - Development (Option 1): Preserve, Remove	Rec. Action - Development (Option 2): Preserve, Remove	Rec. Action - Development (Option 3): Preserve, Remove	Rec. Action - Development (Option 4): Preserve, Remove	Final Recommendation: Preserve, Remove	Compensation Required: Yes (Y), No (N)	Reason for removal	Comments
922	Acer saccharum ssp. saccharum Sugar Maple	77	4.8	14	Co-Dominant	Good	H	O	P	P	P	P	P	P	N		Trunk wound severe, unbalanced crown moderate
923	Prunus serotina Black Cherry	17	1.8	7	Suppressed	Good	M(H)	O	P	P	P	P	P	P	N		
924	Acer saccharum ssp. saccharum Sugar Maple	75	4.8	18	Co-Dominant	Good	M(H)	O	P	P	P	P	P	P	N		Unbalanced crown severe, trunk wound severe
925	Acer saccharum ssp. saccharum Sugar Maple	73 [64,35]	4.8	20	Co-Dominant	Excellent	H	O	P	P	P	P	P	P	N		
926	Prunus serotina Black Cherry	34	2.4	6	Co-Dominant	Fair	M	S	P	P	P	P	P	P	N		Crown thin
927	Ostrya virginiana Ironwood	26	2.4	6	Intermediate	Good	M	S	P	P	P	P	P	P	N		
928	*Picea glauca* *White Spruce*	31	2.4	8	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
929	Acer saccharum ssp. saccharum Sugar Maple	105	6.6	20	Co-Dominant	Good	H	P	P	P	P	P	P	P	N		Codominant stems, trunk splits
930	*Acer saccharum ssp. saccharum* *Sugar Maple*	82 [65,50]	5.4	18	Co-Dominant	Good	H	S	P	P	P	P	P	P	N		
931	Acer saccharum ssp. saccharum Sugar Maple	62	4.2	16	Co-Dominant	Good	H	S	P	P	P	P	P	P	N		
932	*Populus deltoides* *Eastern Cottonwood*	58	3.6	10	Co-Dominant	Good	H	P	P	P	P	P	P	P	N		
933	Robinia pseudoacacia Black Locust	15	1.8	8	Intermediate	Good	L	P	P	P	P	P	P	P	N		
934	Robinia pseudoacacia Black Locust	20	2.4	8	Intermediate	Good	L	P	P	P	P	P	P	P	N		
935	Robinia pseudoacacia Black Locust	31 [27,16]	2.4	8	Intermediate	Good	L	P	P	P	P	P	P	P	N		
936	*Robinia pseudoacacia* *Black Locust*	25 [23,11]	2.4	12	Intermediate	Good	L	P	P	P	P	P	P	P	N		
937	*Robinia pseudoacacia* *Black Locust*	38 [27,27]	2.4	12	Intermediate	Good	L	P	P	P	P	P	P	P	N		
938	Acer saccharinum Silver Maple	30	2.4	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
939	*Acer saccharinum* *Silver Maple*	38 [30,14]	2.4	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
940	*Acer saccharinum* *Silver Maple*	36	2.4	13	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
941	*Acer saccharinum* *Silver Maple*	42	3.0	13	Intermediate	Good	M	P	P	P	P	P	P	P	N		Broken crown
942	*Acer saccharinum* *Silver Maple*	30 [25,16]	2.4	13	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
943	*Robinia pseudoacacia* *Black Locust*	31	2.4	8	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		Codominant stems, trunk split
944	*Robinia pseudoacacia* *Black Locust*	18	1.8	6	Intermediate	Good	L	P	P	P	P	P	P	P	N		
945	*Robinia pseudoacacia* *Black Locust*	32	2.4	10	Intermediate	Good	L	P	P	P	P	P	P	P	N		
946	*Robinia pseudoacacia* *Black Locust*	27	2.4	8	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		
947	*Robinia pseudoacacia* *Black Locust*	20	2.4	7	Co-Dominant	Fair	L	P	P	P	P	P	P	P	N		Crown thin
949	*Robinia pseudoacacia* *Black Locust*	34	2.4	9	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		Trunk wound moderate
950	*Robinia pseudoacacia* *Black Locust*	38	2.4	9	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
951	*Robinia pseudoacacia* *Black Locust*	37	2.4	8	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		Vines
952	*Robinia pseudoacacia* *Black Locust*	20	2.4	6	Co-Dominant	Poor	L	P	P	P	P	P	P	P	N		Vines, deadwood moderate, crown thin
953	*Robinia pseudoacacia* *Black Locust*	22	2.4	5	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		Vines
954	*Robinia pseudoacacia* *Black Locust*	15 [13,8]	1.8	6	Intermediate	Good	M	P	P	P	P	P	P	P	N		Vines
955	Robinia pseudoacacia Black Locust	15	1.8	4	Suppressed	Fair	M(L)	P	P	P	P	P	P	P	N		Broken crown, vines
956	*Robinia pseudoacacia* *Black Locust*	33	2.4	8	Intermediate	Good	M(L)	P	P	P	P	P	P	P	N		Vines
957	*Robinia pseudoacacia* *Black Locust*	24	2.4	1	Intermediate	Dead	L	P	R	P	P	P	P	RC	N	Condition	Vines
958	*Robinia pseudoacacia* *Black Locust*	23 [20,11]	2.4	6	Intermediate	Good	M(L)	P	P	P	P	P	P	P	N		
959	*Robinia pseudoacacia* *Black Locust*	24	2.4	10	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		Vines
960	*Robinia pseudoacacia* *Black Locust*	18	1.8	6	Intermediate	Good	L	P	P	P	P	P	P	P	N		
961	*Acer saccharinum* *Silver Maple*	27 [17,14,11,10]	2.4	6	Intermediate	Fair	M(L)	P	P	P	P	P	P	P	N		
962	Robinia pseudoacacia Black Locust	23	2.4	6	Intermediate	Fair	M(L)	P	P	P	P	P	P	P	N		
963	*Robinia pseudoacacia* *Black Locust*	29	2.4	10	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
964	*Robinia pseudoacacia* *Black Locust*	35	2.4	10	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
965	*Acer x Freemani* *Freeman Maple*	20 [14,14]	2.4	8	Suppressed	Good	M(L)	P	P	P	P	P	P	P	N		Codominant stems
966	*Populus deltoides* *Eastern Cottonwood*	65	4.2	12	Dominant	Good	M	P	P	P	P	P	P	P	N		
967	*Populus deltoides* *Eastern Cottonwood*	32	2.4	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
968	*Populus deltoides* *Eastern Cottonwood*	58	3.6	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
969	*Populus deltoides* *Eastern Cottonwood*	23	2.4	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
971	*Populus deltoides* *Eastern Cottonwood*	35	2.4	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
972	*Populus deltoides* *Eastern Cottonwood*	60	3.6	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
973	*Populus deltoides* *Eastern Cottonwood*	65	4.2	14	Dominant	Good	L	P	P	P	P	P	P	P	N		
974	*Acer platanoides* *Norway Maple*	31 [25,18]	2.4	10	Intermediate	Good	L	P	P	P	P	P	P	P	N		Codominant stems
975	*Populus deltoides* *Eastern Cottonwood*	21	2.4	8	Co-Dominant	Fair	L	P	P	P	P	P	P	P	N		Crown thin
976	*Acer platanoides 'Crimson King'* *Crimson King Maple*	22	2.4	8	Suppressed	Good	L	P	P	P	P	P	P	P	N		
977	*Populus deltoides* *Eastern Cottonwood*	66	4.2	12	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		
978	*Acer platanoides 'Crimson King'* *Crimson King Maple*	15	1.8	8	Intermediate	Good	L	P	P	P	P	P	P	P	N		
979	*Acer platanoides 'Crimson King'* *Crimson King Maple*	20	2.4	8	Intermediate	Good	L	P	P	P	P	P	P	P	N		
980	*Prunus serotina* *Black Cherry*	36 [26,20,15]	2.4	12	Intermediate	Very Poor	L	P	R	P	P	P	P	RC	N	Condition	
981	*Populus deltoides* *Eastern Cottonwood*	66	4.2	14	Dominant	Good	L	P	P	P	P	P	P	P	N		
982	*Populus deltoides* *Eastern Cottonwood*	70	4.2	14	Dominant	Good	L	P	P	P	P	P	P	P	N		
983	*Populus deltoides* *Eastern Cottonwood*	56	3.6	14	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		



No.	Description	By	Date
1	ISSUED FOR REVIEW	JD	03 FEB-22
0	ISSUED FOR REVIEW	JD	21 SEP-21

REVISIONS: All previous issues of this drawing are superceded

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road , Guelph , Ontario , N1H 7L5 . 519.822.6839 . www.aboudting.com

Title:

TREE PRESERVATION DATA

Project:

DICKSON DRIVE EXTENSION & MULTI-USE PATH
TOWNSHIP OF CENTRE WELLINGTON

Date: FEBRUARY 2022	Designer: DB
Project: AA21-085A	Drawn: JGL
Scale: N/A	Checked: JD

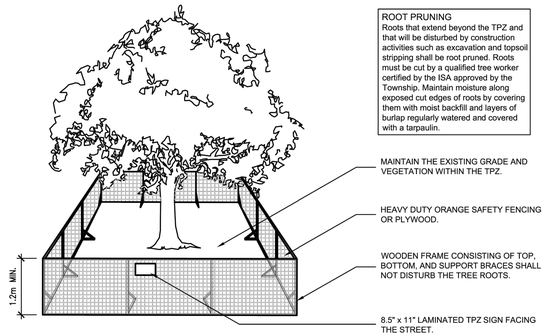
Drawing No:

TPP5

FILEPATH: I:\ABOUDFS01\COMPANY\A-A PROJECTS\2021\APPROVED\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH MUNICIPAL CLASS EA\DRAWING\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH TPP 2022-01-31.DWG CTB: GMBP Standard.ctb PLOTTED:3-Feb-22 4:06 PM

Tree No. (not tagged)	Tree Species	DBH (cm)	Minimum Tree Protective Zone (m, from outer edge of trunk)	Crown Diameter est. (m)	Crown Class	Condition	Constraint to Development	Ownership: Private (P), Offsite (O), Municipal (M), Shared (S)	Rec. Action - Condition: Preserve/ Remove	Rec. Action - Development (Option 1): Preserve/ Remove	Rec. Action - Development (Option 2): Preserve/ Remove	Rec. Action - Development (Option 3): Preserve/ Remove	Rec. Action - Development (Option 4): Preserve/ Remove	Final Recommendation: Preserve/ Remove	Compensation Required: Yes (Y) or No (N)	Reason for removal	Comments
984	*Populus deltoides* *Eastern Cottonwood*	65	4.2	14	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		
985	*Populus deltoides* *Eastern Cottonwood*	63	4.2	14	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		
986	*Populus deltoides* *Eastern Cottonwood*	60	3.6	14	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		
987	*Populus deltoides* *Eastern Cottonwood*	34	2.4	10	Intermediate	Good	L	P	P	P	P	P	P	P	N		
988	*Populus deltoides* *Eastern Cottonwood*	68	4.2	14	Dominant	Good	L	P	P	P	P	P	P	P	N		
989	*Acer saccharum ssp. saccharum* *Sugar Maple*	70	4.2	10	Dominant	Good	M	M	P	P	P	P	P	P	N		Cavity
990	*Acer negundo* *Manitoba Maple*	45 [37,26,24]	3.0	12	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		
991	*Acer negundo* *Manitoba Maple*	22 [20,10]	2.4	8	Suppressed	Good	L	P	P	P	P	P	P	P	N		
992	*Ulmus americana* *White Elm*	50	3.0	14	Dominant	Excellent	M	P	P	P	P	P	P	P	N		
993	*Acer saccharum ssp. saccharum* *Sugar Maple*	35	2.4	10	Intermediate	Good	M	P	P	P	P	P	P	P	N		
994	*Prunus serotina* *Black Cherry*	32	2.4	10	Intermediate	Fair	L	P	P	P	P	P	P	P	N		Crown thin
995	*Prunus serotina* *Black Cherry*	28 [23,16]	2.4	8	Intermediate	Fair	M(L)	P	P	P	P	P	P	P	N		
996	*Acer negundo* *Manitoba Maple*	23 [17,16]	2.4	8	Intermediate	Fair	M(L)	P	P	P	P	P	P	P	N		Moderate lean
997	*Prunus serotina* *Black Cherry*	30	2.4	8	Co-Dominant	Good	M	O	P	P	P	P	P	P	N		
998	*Prunus serotina* *Black Cherry*	36 [25,24,11]	2.4	8	Co-Dominant	Good	M	O	P	P	P	P	P	P	N		
999	*Malus pumila* *Apple*	47 [34,33]	3.0	10	Dominant	Good	M	O	P	P	P	P	P	P	N		
1000	*Malus pumila* *Apple*	30	2.4	10	Co-Dominant	Good	M	O	P	P	P	P	P	P	N		Moderate lean

Ownership:																	
							Private (On Site) Trees		112								
							Private (Off Site) Trees		15								
							Municipal Trees		5								
							Shared Trees		5								
							Total		**137**								
Recommendation Based on Condition:																	
							Preserve Tree Based on Health & Structure			133							
							Remove Tree Based on Health & Structure			4							
							Total			**137**							
Recommendation Based on Development (Option 1):																	
							Preserve/Transplant Tree Based on Development Impacts				133						
							Remove Tree Based on Development Impacts				4						
							Total				**137**						
Recommendation Based on Development (Option 2):																	
							Preserve/Transplant Tree Based on Development Impacts					133					
							Remove Tree Based on Development Impacts					4					
							Total					**137**					
Recommendation Based on Development (Option 3):																	
							Preserve/Transplant Tree Based on Development Impacts						133				
							Remove Tree Based on Development Impacts						4				
							Total						**137**				
Recommendation Based on Development (Option 4):																	
							Preserve/Transplant Tree Based on Development Impacts							133			
							Remove Tree Based on Development Impacts							4			
							Total							**137**			
Final Recommendation:																	
							Final Recommendation: Preserve (P)								130		
							Final Recommendation: Remove due to Condition (RC)								3		
							Final Recommendation: Remove due to Development (RD)								3		
							Final Recommendation: Remove due to Condition & Development (RCD)								1		
							Total								**137**		
Trees Requiring Compensation:																Total Compensation Trees (2:1)	
							Compensation Required: Yes (Y)								3	**6**	
							Compensation Required: No (N)								134		
							Total								**137**		



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

MAINTAIN THE EXISTING GRADE AND VEGETATION WITHIN THE TPZ.

HEAVY DUTY ORANGE SAFETY FENCING OR PLYWOOD.

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

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

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

MINNIMUM TPZ DISTANCE FROM THE BASE OF THE TRUNK

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

TREE PROTECTION ZONE DETAIL

Centre Wellington

1 MacDonald Square
Elora, Ontario, N0B 1S0

Phone (519) 846- 9691

DATE: December 2017
SCALE: NTS
DWG NO. F5

1 TPP6 TREE PROTECTION FENCING

Centre Wellington

Tree Protection Zone (TPZ)

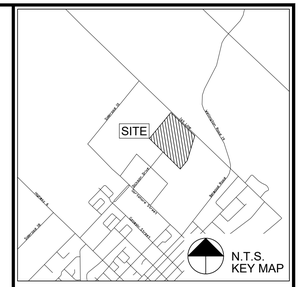
All construction related activities, including grade alteration, excavation, soil compaction, material or equipment storage, disposal of liquids and vehicular access are **PROHIBITED** within the **TPZ**.

The tree protection barrier must not be removed, moved, or altered in any way without the written authorization of the Township.

Concerns or inquiries regarding this **TPZ** can be directed to:

519-846-9691 x218

2 TPP6 TREE PROTECTION SIGNAGE



No.	Description	By	Date
1	ISSUED FOR REVIEW	JD	03 FEB-22
0	ISSUED FOR REVIEW	JD	21 SEP-21

REVISIONS: All previous issues of this drawing are superceded

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road , Guelph , Ontario , N1H 7L5 . 519.822.6839 . www.aboudtng.com

Title:
TREE PRESERVATION DETAILS

Project:
DICKSON DRIVE EXTENSION & MULTI-USE PATH
TOWNSHIP OF CENTRE WELLINGTON

Date: FEBRUARY 2022	Designer: DB
Project: AA21-085A	Drawn: JGL
Scale: N/A	Checked: JD

Drawing No:
TPP6

FILEPATH: \\ABOUDFS01\COMPANY\A-A PROJECTS\2021\APPROVED\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH\MUNICIPAL CLASS EA\DRAWINGS\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH TPP 2022-01-31.DWG CTB: GMBP Standard.ctb PLOTTED:3-Feb-22 4:00 PM