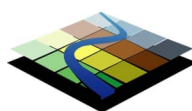


ENVIRONMENTAL IMPACT ASSESSMENT

NEC Development Permit Application (#24-381)

1st Side Road, City of Burlington

6 December 2024



TERRASTORY
environmental consulting inc.

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1st Side Road, City of Burlington

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DRAFT – not for external circulation

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Project No.: 2181
6 December 2024

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1 INTRODUCTION

1.1 Study Background

Terrastory Environmental Consulting Inc. (hereinafter “Terrastory”) was retained by Glen Echo Muskoka Developments (hereinafter “the Applicant”) to prepare this Environmental Impact Assessment (EIA) in support of a development application (new driveway) within a vacant lot of record on 1st Side Road (hereinafter “Subject Property”) in the City of Burlington. The Subject Property is an approximately 23.2-hectare (57.3 acre) parcel on the southeast side of Side Road 1 located east of Cedar Springs Road. The Subject Property primarily consists of open agricultural fields surrounded by natural areas including upland forest, wetland (swamps and marshes), and hedgerows. The location of the Subject Property within its broader landscape setting is shown in **Figure 1**.

The Subject Property is contained within the boundaries of the Niagara Escarpment Plan (NEP) administered by the Niagara Escarpment Commission (NEC) and is thereby zoned “NEC Development Control Area” pursuant to the City’s Zoning By-law (#2020). Under the NEP, the frontage of the Subject Property is designated “Escarpment Rural Zone” while the remainder is designated “Escarpment Protection Area” with a small area of “Escarpment Natural Area” along the southwest property line (see **Figure 1**). Schedule A (City System) of the City’s Official Plan (OP) indicates that the Subject Property is contained within the “Rural Area” designation while natural areas within the Subject Property occur within the City’s designated “Green System” overlay. Schedule I (Land Use – Rural Area) indicates that the City’s Natural Heritage System (NHS) also overlaps with the Subject Property (along with the “Agricultural Land Base”) whereas Schedule M (The Natural Heritage System) of the City’s OP indicates the presence of “Key Natural Features” within the Subject Property which appear to overlap with a Significant Woodland, Provincially Significant Wetland (PSW; Grindstone Creek Headwaters Wetland Complex), and intermittent tributary of Grindstone Creek.

The Regional Natural Heritage System (NHS) of Halton Region is mapped throughout much of the Subject Property per Map 1 (Regional Structure) of the Regional Official Plan (ROP), while the remainder of the Subject Property is designated Agricultural Area. Map 1G of the ROP indicates the presence of Regionally-significant “Key Features” within the Subject Property given the presence of various natural areas, including Significant Woodland and wetlands associated with the PSW. Owing to the presence of a watercourse (and associated natural hazards) and wetlands, development activities within portions of the Subject Property are subject to the regulatory jurisdiction of Conservation Halton (CH) per O. Reg. 41/24 under the *Conservation Authorities Act*.

The Subject Property currently lacks vehicular access for agricultural machinery, which can only enter the Subject Property through adjacent parcels. On this basis, the Applicant is seeking to construct a vehicular entrance and driveway. It is understood that the Applicant has engaged with agency staff (i.e., NEC, City, Region, CH) at various times over the past three years; as part of pre-consultation, agency staff requested the submission of an EIA to support the necessary NEC Development Permit and overall agency review. A Terms of Reference (ToR) which scopes the conduct and content of this EIA was submitted by Terrastory for agency review and approval on 25 March 2023. Upon preliminary review of the ToR, agency staff requested the completion of a site walk and staking exercise which occurred on 26 July 2023. Final comments on the EIA ToR were received from NEC (09 April 2024), Halton Region (11 April 2024), and CH (17 April 2024); all

such comments have been considered herein and are provided for reference in **Appendix 1**. Formal permission from NEC and CH is required to facilitate construction of the proposed driveway, while advisory comments are expected to be submitted by the Region and City.

When Terrastory was first engaged in 2022, a broader development application was being contemplated including construction of a house and winery. Such activities are not proposed through this development application, which exclusively involves the construction of a driveway. Notwithstanding this, Terrastory has reported upon the results of field activities occurring throughout the Subject Property (i.e., rather than simply within 120 m of the proposed driveway envelope) as this information was collected during the 2023/2024 fieldwork program.

1.2 Study Purpose

The purpose of this study is to present a biophysical characterization of the Subject Property and Adjacent Lands (i.e., those within 120 m of the limit of development) as a means to assess the potential for adverse effects on the natural environment and natural heritage features stemming from the proposed redevelopment application. The scope and approach of this study address the reporting requirements of the following documents and policies:

- Terms of Reference (**Appendix 1**);
- Subsection 4.2.4 of the City's OP (Environmental Impact Assessment);
- Policy 118(3) of the ROP;
- Regional Environmental Impact Assessment Guideline (2020);
- Policy 2.7(6) of the NEP; and
- CH EIS Guidelines (2005).

It is understood that this EIA report will form part of the NEC Development Permit application package to be submitted for consideration by NEC, CH, Halton Region, and the City.

2 APPROACH AND METHODS

This study is composed of five (5) discrete components which are bulleted below and further described in the following sections.

1. **Acquire background biophysical information and mapping** available for the local landscape surrounding the Subject Property (see **Section 2.1**).
2. **Conduct a site assessment and ecological surveys** to field-verify the accuracy of the acquired background biophysical information and collect additional biophysical information as necessary (see **Section 2.2**).
3. **Assess the significance** of the biophysical information collected and natural features identified within the context of applicable natural heritage and environmental policies (see **Section 2.3**).
4. **Predict the effects** of the application on the identified significant natural features and natural environment, particularly the net effects once mitigation measures and technical recommendations are implemented (see **Section 2.4**).
5. **Determine whether the proposed application addresses applicable natural heritage and environmental policies** at municipal, provincial, and federal levels (see **Section 2.5**).

2.1 Background Biophysical Information Assessment

This study is supported by background biophysical information and mapping acquired and reviewed from a variety of sources which are listed below in **Table 1**.

Table 1. Background Biophysical Information Acquired and Reviewed.

Type of Information Acquired	Description
Ortho-rectified Aerial Photographs	<ul style="list-style-type: none"> • 1954, 2005, 2006, 2009, 2011, 2013 to 2022.
Natural Feature Mapping	<ul style="list-style-type: none"> • City of Burlington Official Plan (version February 2021) Schedules A (City System), I (Land Use – Rural Area), and M (The Natural Heritage System). • Regional Municipality of Halton Official Plan (4 November 2022 office consolidation) Map 1 (Regional Structure) and Map 1G (Key Features). • Land Information Ontario (LIO) accessed via the “Make a Map: Natural Heritage Areas” web-based platform (last accessed 04 December 2024). • Conservation Halton (CH) regulation mapping (last accessed 04 December 2024).
Physiographic Resource Mapping and Datasets	<ul style="list-style-type: none"> • Topographic Survey of the Subject Property. • Ontario Base Mapping produced by MNR (1:10,000) with 5 m contours. • Ontario Well Records (publicly-available). • The Soils of Halton County (Gillespie et al. 1971). • Agricultural Information Atlas (last accessed 04 December 2024). • Bedrock Topography and Overburden Thickness Mapping (Gao et al. 2006). • Paleozoic Geology of Southern Ontario (Armstrong and Dodge 2007). • Surficial Geology of Southern Ontario (Ontario Geological Survey 2010). • Physiography of Southern Ontario (Chapman and Putnam 1984).
Ecological Resource Mapping and Datasets	<ul style="list-style-type: none"> • Natural Heritage Information Centre (NHIC) database accessed via the “Make a Map: Natural Heritage Areas” web-based platform (squares: 17NJ9103, 17NJ9104, 17NJ9204, 17NJ9203, 17NJ9202, 17NJ9102, 17NJ9002, 17NJ9003, 17NJ9004; last accessed 04 December 2024). • Critical Habitat for SAR National Dataset (last accessed 04 December 2024). • iNaturalist “(NHIC) Rare species of Ontario” project (last accessed 04 December 2024). • Ontario Breeding Bird Atlas (OBBA) database and the Atlas of the Breeding Birds of Ontario, 2001–2005 (Cadman et al. 2007) (square: 17NJ90). • eBird (last accessed 04 December 2024). • iNaturalist “Herps of Ontario” project and Ontario Reptile & Amphibian Atlas (last accessed 04 December 2024). • Ontario Butterfly Atlas database (square: 17NJ90; last accessed 04 December 2024). • iNaturalist “Ontario Odonata” project (last accessed 04 December 2024). • Bumble Bee species distribution maps from iNaturalist and Bumble Bee Watch. • Aquatic Species at Risk Maps produced by Fisheries and Oceans Canada (last accessed 04 December 2024). • Atlas of the Mammals of Ontario (Dobbyn 2005).

2.2 Site Assessment and Surveys

The acquired background information per **Table 1** helped direct a three-season fieldwork program carried out by Terrastory staff in 2023/2024. **Table 2** below indicates the primary assessments/surveys performed during each site visit, weather conditions, and time on-site.

Table 2. Site Assessments and Ecological Surveys performed within the Subject Property.

Date of Site Assessment	Assessments/Surveys Performed	Terrastory Staff	Weather Conditions	Time On-site
10 November 2022	Preliminary site reconnaissance and habitat mapping, fall vascular plant survey.	C. Wegenschimmel	Cool, sunny	afternoon
10 April 2023	Anuran calling survey (#1)	T. Knight	Air Temperature 12-13°C; Beaufort Wind 1; Cloud Cover 0%; No Precipitation.	20:30-21:00
11 May 2023	Anuran calling survey (#2)	T. Knight	Air Temperature 24°C; Beaufort Wind 2; Cloud Cover 0%; No Precipitation.	21:10-21:40
25 May 2023	Breeding bird survey (#1), spring vascular plant survey, drainage feature assessment, incidental wildlife observations.	C. Wegenschimmel	Air Temperature 5°C; Beaufort Wind 1-2; Cloud Cover 0%; No Precipitation.	6:00-8:45
19 June 2023	Breeding bird survey (#2), late spring vascular plant survey, incidental wildlife observations.	C. Wegenschimmel	Air Temperature 15°C; Beaufort Wind 1-2; Cloud Cover 0%; No Precipitation.	6:00-8:45
21 June 2023	Anuran calling survey (#3)	T. Knight	Air Temperature 19°C; Beaufort Wind 0; Cloud Cover 0-25%; No Precipitation.	21:30-22:00
11 July 2023	Ecological Land Classification (ELC), wetland delineation, summer vascular plant survey, incidental wildlife observations.	C. Wegenschimmel	Air Temperature 22-25°C; Beaufort Wind 0; Cloud Cover 0%; No Precipitation.	9:00-12:00
26 July 2023	Wetland and dripline staking with agency staff, site meeting with agency staff	T. Knight	Hot.	9:30-13:00
12 April 2024	Headwater Drainage Feature (HDF) Assessment (#1), incidental wildlife observations.	T. Knight	Air Temperature 8°C; Beaufort Wind 4; Cloud Cover 75-100%; No Precipitation.	9:00-10:00

Date of Site Assessment	Assessments/Surveys Performed	Terrastory Staff	Weather Conditions	Time On-site
19 April 2024	Tree inventory, bat tree roosting habitat assessment, incidental wildlife observations.	C. Wegenschimmel	Air Temperature 10°C; Beaufort Wind 2; Cloud Cover 75-100%; No Precipitation.	9:40-13:00
25 April 2024	Tree inventory, bat tree roosting habitat assessment, incidental wildlife observations.	C. Wegenschimmel	Air Temperature 3°C; Beaufort Wind 2; Cloud Cover 0-25%; No Precipitation.	10:15-12:00
08 May 2024	Headwater Drainage Feature (HDF) Assessment (#2).	T. Knight	Mild.	14:20-15:00
26 August 2024	Headwater Drainage Feature (HDF) Assessment (#3), late summer vascular plant survey.	T. Knight	Mostly sunny, hot.	13:00-13:30

The site assessments and surveys centred on characterizing the land use (e.g., historical development patterns, existing built features, land maintenance, etc.), physiographic (e.g., topography, drainage, surface water features, etc.), and ecological (e.g., vegetation, wildlife, habitats, etc.) conditions and features of the Subject Property and (where appropriate) Adjacent Lands (i.e., those within 120 m of the Subject Property). All land-use, physiographic, and ecological information described for Adjacent Lands was collected from either current aerial photographs or observations from inside the Subject Property and/or publicly-accessible areas (e.g., rights-of-way, etc.). The locations and boundaries of significant natural features and/or habitats were recorded on-site with a high-accuracy GPS supported by representative photographs.

In addition to collecting general biophysical information, the following targeted assessments (i.e., feature- or species-specific surveys) were undertaken:

- Tree Inventory and Health Assessment:** Trees were inventoried and assessed by a Terrastory Arborist as part of the Arborist Report/Vegetation Protection Plan. All private trees 10 cm diameter at breast height (DBH) or greater and all municipal trees regardless of size (if present), located within or immediately adjacent to the proposed area of disturbance (e.g., building envelopes, grading, servicing etc.), were inventoried and assessed from the ground. Trees situated on adjacent private properties near the proposed areas of disturbance were reviewed as necessary and to the extent possible from areas in which access was granted. All assessed trees were: (1) labeled using metal number-stamped tags, (2) identified to species, (3) measured at breast-height (approximately 1.37 metres above ground) with calipers and/or DBH tape, (4) assessed for crown diameter, and (5) assessed for risk features, indicators of decline, and growth constraints (e.g., open wounds, live crown ratio, disease, etc.). The tree health and structural assessment was undertaken consistent with accepted arboricultural techniques. None of the assessed trees were cored, probed, or climbed, nor were their roots exposed for detailed assessment. As the tree inventory was undertaken during leaf-off, certain indicators of tree health and structural integrity (e.g., live crown ratio, etc.) could not be assessed.
- Vegetation Mapping according to Ecological Land Classification (ELC):** Vegetation communities on the Subject Property were characterized and mapped according to Ecological Land

Classification (Lee et al. 1998) and the 2008 update to the Vegetation Type List (Lee 2008). Vegetation communities were initially identified based on current aerial photographs and then verified and refined (as necessary) on-site. ELC mapping was scaled to the finest level of resolution deemed appropriate (i.e., either Ecosite or Vegetation Type). Vegetation communities mapped on Adjacent Lands were delineated predominantly via aerial photograph interpretation.

- **Wetland Boundaries:** Where wetlands were identified via ELC, their boundaries were delineated consistent with the “50% wetland vegetation rule” and presence of hydric soils per the procedures of the Ontario Wetland Evaluation System (OWES) (OMNRF 2014).
- **Vascular Plant Survey:** Vascular plants were recorded based on a comprehensive area search (“wandering transects”) within naturally-occurring (i.e., non-planted) or naturalizing areas of vegetation. Particular effort was paid to areas with the greatest potential to support significant vascular plants (i.e., designated Species at Risk, provincially rare, etc.) and areas with the greatest potential for impact based on the proposed development plan. Nomenclature and common names for the recorded vascular plant species are generally consistent with the Southern Ontario Vascular Plant Species List (Bradley 2013) except where a name change has more recently been adopted by NHIC.
- **Breeding Bird Surveys according to the Ontario Breeding Bird Atlas Protocol:** Two rounds of breeding bird surveys were conducted in accordance with the Ontario Breeding Bird Atlas (OBBA) protocol (Bird Studies Canada et al. 2001). Surveys occurred within the appropriate season (May 24–July 10), time of day (between dawn and approximately 5 hours after dawn), and weather conditions (no rain, wind speed ≤ 3 on the Beaufort Wind Scale). While the OBBA protocol recommends that stations be situated at least 300 m apart (to avoid double counting), the stations established herein were often closer together to ensure more comprehensive survey coverage. Surveys occurred for a minimum duration of 10 minutes at each station.
- **Bat Maternal Roosting Habitat Assessment according to MECP Protocols:** Targeted surveys of bat habitat on the Subject Property focused on identifying the presence of candidate maternity roost sites. The bat habitat assessment followed methods outlined in the “Treed Habitats – Maternity Roost Surveys” protocol (MECP 2022a). The habitat assessment was restricted to portions of the Subject Property in which development or site alteration activities (which might result in tree impacts or removal) are proposed.
- **Ontario Stream Assessment Protocol (OSAP):** Relevant OSAP modules were implemented which include:
 - a) Rapid Assessment Methodology for Channel Structure (S4.M1) for the intermittent tributary of Grindstone Creek and sump outlet channel.
 - b) Unconstrained Headwater Drainage Features (S4.M11) and Evaluation, Classification and Management of Headwater Drainage Features Guidelines MENDELEY CITATION PLACEHOLDER 0.

As described in **Section 1.1**, Terrastory has reported upon the results of field activities occurring throughout the Subject Property (i.e., rather than simply within 120 m of the proposed driveway envelope) as this information was collected during the 2023/2024 fieldwork program.

2.3 Significance Assessment

2.3.1 Definitions and Criteria

“Significant natural features” as described herein represent natural features and habitats that have recognized status (and therefore policy significance) within the planning jurisdiction in which an application is proposed. Significant natural features are defined herein to include all Key Natural Heritage Features (KNHFs) and Key Hydrologic Features (KHF) identified per section 3.2.5 of the NEP, namely:

- Wetlands;
- Habitat of Endangered and Threatened Species;
- Fish Habitat;
- Life Science Areas of Natural and Scientific Interest (ANSIs);
- Earth Science ANSIs;
- Significant Valleylands;
- Significant Woodlands;
- Significant Wildlife Habitat;
- Habitat of Special Concern Species in Escarpment Natural and Escarpment Protection Areas;
- Permanent or Intermittent Streams;
- Lakes and their littoral zones; and
- Seepage Areas and Springs.

In addition to being within an Escarpment Protection Area pursuant to the NEP, the Subject Property is entirely contained within both the City’s NHS pursuant to Schedule M of the City’s OP and the RNHS pursuant to Map 1 (Regional Structure) of the ROP. Per Policy 115.3, the RNHS is a systems approach to protecting and enhancing natural features and functions and includes the following components:

- 1) Key Features (includes those identified on Map 1G of the Regional OP)
 - a) Significant habitat of endangered and threatened species,
 - b) Significant wetlands,
 - c) Significant coastal wetlands,
 - d) Significant woodlands
 - e) Significant valleylands,
 - f) Significant wildlife habitat,
 - g) Significant areas of natural and scientific interest,
 - h) Fish habitat;
- 2) Enhancements to the Key Features including Centres for Biodiversity;
- 3) Linkages;
- 4) Buffers;
- 5) Watercourses that are within a Conservation Authority regulation limit or that provide a linkage to a wetland or a significant woodland; and
- 6) Wetlands other than those considered significant.

The RNHS also includes the following areas per ROP Policy 115.4:

1. Escarpment Natural Area and Escarpment Protection Areas as identified in the Niagara Escarpment Plan.
2. Regulated Flood Plains as determined, mapped and refined from time to time by the appropriate Conservation Authority.
3. Parts of the Agricultural System.

While the RNHS incorporates many of the same significant natural features as the NEP (i.e., KNHFs and KHF's), in some cases the ROP incorporates slightly different feature definitions and greater direction for the identification and mapping of such features.

Criteria used to determine the presence or absence of the above significant natural features (e.g., KNHFs, KHF's, Key Features) within the Subject Property were considered from a variety of sources including the local and Regional OPs, Natural Heritage Reference Manual (MNR 2010), and (for Significant Wildlife Habitat) the Ecoregion 7E Criteria Schedule (MNRF 2015).

Apart from significant natural features as defined above, this study also seeks to determine whether any natural features or hazards regulated by CH pursuant to O. Reg. 162/06 occur within the Study Area. CH regulated features and hazard lands include:

- Wetlands (significant, evaluated, or identified);
- Watercourses and any associated floodplain and erosion hazards;
- Valleylands;
- Steep slopes and other hazard lands; and
- The Lake Ontario shoreline.

Like significant natural features, “significant species” represent individuals of wild species which have recognized status (and therefore policy significance) within the planning jurisdiction in which an application is proposed. Significant species are defined herein to include:

- Species designated Endangered, Threatened, or Special Concern under O. Reg. 230/08 pursuant to the provincial *Endangered Species Act, 2007*.
- Species designated Provincially Rare (i.e., S1, S2, or S3) by NHIC.
- Species considered Regionally Rare in Ecoregion 7E4 pursuant to the List of the Vascular Plants of Ontario's Carolinian Zone (Oldham 2017), or species considered Regionally Rare in Halton Region pursuant to the Halton NAI.

2.3.2 Determination

After collecting the background biophysical information and conducting the fieldwork program, the data was interpreted to determine whether any significant natural features (per NEP and/or ROP), natural features/hazards regulated by CH, and/or significant species occur within the Subject Property. If a natural feature or species met the significance criteria, it is considered “confirmed”. If a natural feature or species may be present on the Subject Property and/or Adjacent Lands given the prevailing biophysical or habitat conditions but was not confirmed based on either background or site-specific biophysical data, it is considered potential or “candidate”. Candidate significant natural features and species are treated as confirmed where no additional information is available.

2.4 Effects Assessment and Mitigation

The potential ecological effects of an application can be understood spatially as zones that radiate outward from the direct project footprint (e.g., building envelope, etc.) and associated areas of site alteration (e.g., grading, etc.). While the greatest potential for effects typically occurs within areas directly subject to development or disturbance, surrounding areas may also be affected indirectly. Such indirect effects can include light or noise pollution that affects wildlife communities on Adjacent Lands, or degradation of water quality within a downstream receptor resulting from sediment runoff during construction.

The following five-pronged approach is employed herein to assess the effects of an application on significant natural features and species and (where warranted) the natural environment in general:

1. **Scope** the effects assessment to environmental components that warrant consideration. The effects assessment herein centres principally on significant natural features and species (i.e., those that have policy significance within the planning jurisdiction, as defined in **Section 2.3**) but may also consider general environmental effects where warranted.
2. **Identify the predicted direct and indirect effects** of the application on each significant natural feature or species during all project stages (i.e., pre- to -post-development) in the absence of mitigation. Direct effects are those where there is a cause-effect relationship between a proposed activity and an effect on a natural feature or species (e.g., tree clearance within a building footprint, etc.). Indirect effects result when an activity is linked to a direct effect through a chain of foreseeable interactions or steps.
3. **Evaluate the significance** of the predicted effects for each environmental component based on their attributes (i.e., spatial extent, magnitude, timing, frequency, and duration) and likelihood (i.e., high, medium, low).
4. Where the potential for negative effects are anticipated, **recommend ecologically-meaningful mitigation measures** to avoid such impacts first (where possible), and where impacts cannot be avoided to minimize, compensate, and/or enhance as appropriate.
5. **Identify the predicted residual or net effects** of the application assuming implementation of all recommended mitigation measures.

Per step 4, mitigation measures are offered where the potential for negative effects are anticipated to a degree that cannot be supported given the prevailing policy context. Whenever possible, Terrastory works iteratively with the project team as a means to identify development plan options that avoid negative effects first; options that would minimize or mitigate such negative effects are less preferred and considered secondarily. In general, avoidance measures that have already been incorporated into the application or project design are not duplicated as technical recommendations herein. The effects assessment and any recommended mitigation measures are provided in **Section 5**.

2.5 Natural Heritage Policy Context

There is an overlapping municipal, provincial, and federal policy framework respecting the protection of natural heritage features and areas across southern Ontario. These requirements include objectives, policies, and directives which are principally contained in federal and provincial statutes, regulations, policy statements, Official Plans, and guidance documents. The overarching natural heritage policy framework directing development activities within the Subject Property is

outlined below in **Table 3**. A determination of whether the application considered herein addresses such policies is provided in **Section 6**.

Table 3. Applicable Natural Heritage Policies.

Level of Government	Natural Heritage or Environmental Policy Requirements
Municipal	<p>City of Burlington Official Plan (July 2024 office consolidation).</p> <p>Regional Municipality of Halton Official Plan (4 November 2022 office consolidation).</p> <p>Regional Municipality of Halton Tree Protection By-law (No. 121-05).</p>
Provincial	<p>Provincial Planning Statement 2024, pursuant to the <i>Planning Act</i>, R.S.O. 1990, c. P.13, including:</p> <ul style="list-style-type: none"> • Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005 (MNR 2010). • Significant Wildlife Habitat Technical Guide (MNR 2000). • Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNRF 2015). • Significant Wildlife Habitat Mitigation Support Tool (MNRF 2014). <p><i>Conservation Authorities Act</i>, R.S.O. 1990, c. C.27, including:</p> <ul style="list-style-type: none"> • Ontario Regulation 162/06 – Halton Region Conservation Authority: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation. • Policies and Guidelines for the Administration of Ontario Regulation 162/06 and Land Use Planning Policy Document April 27, 2006 (amended 26 November 2020). <p><i>Endangered Species Act</i> (ESA), S.O. 2007, c. 6, including:</p> <ul style="list-style-type: none"> • Ontario Regulation 230/08 – Species at Risk in Ontario List • Ontario Regulation 242/08 – General • Ontario Regulation 832/21 – Habitat <p><i>Fish and Wildlife Conservation Act</i>, S.O. 1997, c. 41.</p>
Federal	<p><i>Fisheries Act</i>, R.S.C. 1985, c. F-14, including:</p> <ul style="list-style-type: none"> • Fish and Fish Habitat Protection Policy Statement (DFO 2019). <p><i>Migratory Birds Convention Act</i>, S.C. 1994, c. 22, including:</p> <ul style="list-style-type: none"> • Migratory Birds Regulations, C.R.C., c. 1035.

3 EXISTING BIOPHYSICAL CONDITIONS

The following is a description of the biophysical features and conditions of the Subject Property, which are shown spatially on **Figure 2**. Representative photographs are provided in **Appendix 2**.

3.1 Land-use and Landscape Setting

The Subject Property is situated within the rural area of the City of Burlington southwest of the community of Mount Nemo and east of Waterdown (City of Hamilton). Parcels adjacent to the Subject Property represent rural lots with single-family residences and amenity space, while the surrounding landscape consists of a mixture of agricultural land (mostly cash crops and hay) and natural features (including meadow, thicket, and woodland).

3.2 Physical Setting

3.2.1 Bedrock Geology

The Escarpment Brow becomes ill-defined along the southern margin of the Subject Property but broadly trends in a northeast/southwest direction, becoming evident again in the vicinity of Millar Crescent to the northeast. The Niagara Escarpment at this location (and generally between Waterdown and Mount Nemo) attains less prominence and is partially buried by silty-clayey Halton Till.

The bedrock underlying much of the Subject Property is mapped as Silurian-aged (i.e., 419 to 444 million-year-old) shales, sandstones, and limestones of the Clinton-Cataract Group (Armstrong and Dodge 2007). In Ontario, the Clinton-Cataract Group includes a number of relatively thin and discontinuous formations which directly underlie the Escarpment Brow, which in the local landscape is represented by blue-grey to buff dolostone associated with the Amabel Formation (Armstrong and Dodge 2007; Ontario Geological Survey 1976). The Amabel Formation forms the caprock of the Niagara Escarpment from approximately Waterdown northward to the Bruce Peninsula. Erosion-prone red shales (and interbedded limestones) of the Queenston Formation are mapped along the southeastern margin of the Subject Property from the escarpment toe.

Publicly-accessible water well records suggest variable bedrock depth within the Subject Property and local landscape. Well logs on adjacent parcels nearest to the proposed driveway alignment suggest depth to bedrock (limestone) ranging from about 5 to 7 m in depth, overlying grey-brown clay.

3.2.2 Surficial Geology and Soils

Surficial geology mapping (Ontario Geological Survey 2010) indicates that the Subject Property is overlain by Halton Till, which is a fine-grained deposit which onlaps the margins of the Oak Ridges Moraine and Niagara Escarpment. While the Halton Till was previously assumed to represent a late-stage glacial readvancement out of Lake Ontario, it is now believed that the Halton Formation (which is comprised of Halton Till along with related facies) represents deepwater mud deposits (Sharpe and Russell 2016).

An on-site soils assessment by Terrastory revealed a preponderance of clayey loams throughout upland portions (including the valleyland) of the Subject Property. The wetland areas tend to contain less than 40 cm of mesic organic material overlying clay.

3.2.3 Topography and Drainage

The Subject Property encompasses a wide topographic gradient (i.e., ridge/valley top, steep slope, and bottomlands). The topographic survey coupled with Provincial contour mapping indicates a greater than 16 m topographic gradient between the tableland ridges which are mostly farmed (280 masl) and the topographic low along the western property boundary associated with the intermittent tributary of Grindstone Creek.

3.3 Ecological Setting

3.3.1 Vegetation Communities

The vegetation description that follows is centred on the vegetation communities occurring in close proximity to the proposed driveway alignment. Other vegetation communities occurring within the Subject Property are indicated on **Figure 2**

3.3.1.1 Uplands and Terrestrial Habitats

The largest vegetation community within the vicinity of the proposed driveway alignment is a Fresh - Moist Poplar Deciduous Woodland (WODM5-1). This community has a canopy dominated by Trembling Aspen (*Populus tremuloides*) and Hybrid Willow (*Salix x fragilis*). The subcanopy is mainly composed of Green Ash (*Fraxinus pennsylvanica*). The understory is comprised of Green Ash, Common Buckthorn (*Rhamnus cathartica*), Gray Dogwood (*Cornus racemosa*) and Choke Cherry (*Prunus virginiana*). Ground layer species include Poison Ivy (*Toxicodendron radicans*), Broad-leaved Enchanter's Nightshade (*Circaea canadensis*), Tall Goldenrod (*Solidago altissima*), and Herb Robert (*Geranium robertianum*).

Abutting the poplar woodland and intermittent tributary of Grindstone Creek is a Fresh – Moist Willow Lowland Deciduous Forest (FODM7-3). The canopy is dominated by Trembling Aspen (*Populus tremuloides*). The subcanopy is comprised of Trembling Aspen and Red Ash. The understory contains a mix of Green Ash, Gray Dogwood, Common Buckthorn and Red-osier Dogwood (*Cornus sericea*). Ground Layer species include Common Dandelion (*Taraxacum officinale*), Tall Goldenrod and White Awns (*Geum canadensis*)

3.3.1.2 Wetland Habitats

A Reed Canary Grass Mineral Shallow Marsh (MASM1-14) overlaps with intermittent tributary of Grindstone Creek southwest of the proposed driveway envelope. This community has some Green Ash present in the canopy/subcanopy and is dominated by a ground layer of Reed Canary Grass along with Creeping Bentgrass (*Agrostis stolonifera*)

A Reed-canary Grass Organic Meadow Marsh (MAMO1-3) occurs southwest of the proposed development and abuts the existing agricultural fields. Redtop (*Agrostis gigantea*), Tufted Vetch (*Vicia cracca*), Panicked Aster (*Symphotrichum lanceolatum*) and Reed Canary Grass (*Phalaris arundinacea*) are dominant, along with occasional sedges such as Fox Sedge (*Carex vulpinoidea*)

A Green Ash Organic Deciduous Swamp (SWDO1-2) surrounds the open pond to the southwest of the proposed driveway. The canopy is dominated Green Ash along with Trembling Aspen, Freeman's Maple (*Acer x freemanii*), and Bur Oak (*Quercus macrocarpa*). The subcanopy is composed of Green Ash and White Elm (*Ulmus americana*). The understory is mainly Green Ash regeneration along with Hawthorn species (*Crataegus* spp.), Common Buckthorn, and Gray Dogwood. Ground layer species include Panicked Aster, Sensitive Fern (*Onoclea sensibilis*), Fowl Mannagrass (*Glyceria striata*), and Wild Strawberry (*Fragaria virginiana*).

3.3.2 Vascular Plants

A total of 195 vascular plant species were recorded within the Subject Property (see **Appendix 3**). Two (2) vascular plant species of conservation concern were recorded:

- **Black Ash (*Fraxinus nigra*)** – Black Ash is listed as Endangered provincially and was documented at one (1) location within the Subject Property (see **Section 4.2.5**).
- **Waxy-fruited Hawthorn (*Crataegus formosa*)** – Waxy-fruited Hawthorn has a Provincial Rank of S2? and was recorded in two (2) locations within the Subject Property.

3.3.3 Trees

A total of 90 trees situated within or adjacent to the proposed area of disturbance were inventoried and assessed. The full results of the tree inventory and condition assessment are provided in **Appendix 4**. A brief description of the overall tree composition and conditions observed is provided below and in **Table 4**.

Table 4. Composition and Abundance of Trees within and/or adjacent to the proposed Areas of Development and Disturbance.

Species	Total Assessed	Percentage of Total (%)
Black Walnut (<i>Juglans nigra</i>)	1	1.1
Colorado Blue Spruce (<i>Picea pungens</i>)	3	3.3
Eastern White Pine (<i>Pinus strobus</i>)	2	2.2
European Larch (<i>Larix decidua</i>)	7	7.8
Green Ash (<i>Fraxinus pennsylvanica</i>)	16	17.8
Hybrid Willow (<i>Salix x fragilis</i>)	12	13.3
Shagbark Hickory (<i>Carya ovata</i>)	2	2.2
Trembling Aspen (<i>Populus tremuloides</i>)	45	50
White Elm (<i>Ulmus americana</i>)	2	2.2
TOTAL	90	~100

3.3.4 Breeding Anurans

Anuran calling surveys were undertaken at 5 stations on 10 April, 11 May, and 21 June 2023. The locations of each survey station are shown on **Figure 2** while the full survey results are provided in **Appendix 5**. A total of six Anuran species were documented during the calling surveys.

Station AN-5 surveyed the intermittent tributary of Grindstone Creek and its associated meadow marshes/swamps. Only American Toad was detected and was calling in low numbers. Significant anuran calling activity based on vocalizations of Spring Peeper (*Pseudacris crucifer*) and Wood Frog (*Lithobates sylvaticus*) was documented at AN-3 and AN-4 (open water pond).

3.3.5 Breeding Birds

Breeding bird surveys were undertaken at 7 stations on 25 May and 19 June 2023. A total of 55 bird species were recorded during the breeding bird surveys. The assemblage and abundance of birds recorded generally reflects the prevailing structure and composition of on-site vegetation communities and variable habitats of the Study Area (e.g., forest, woodland, treed swamp, thicket, thicket swamp, meadows, disturbed open areas). The locations of each survey station are shown on **Figure 2** while the full survey results indicating each species' breeding status by survey station can

be found in **Appendix 6**. A general summary of the breeding bird community present within the proposed driveway area is provided below.

Station BI-1 surveyed forest (FODM7-3), meadow marsh (MAMO1-3), woodland (WODM5-1) and swamp (SWDO1-2) in proximity to the proposed driveway. In total, eighteen (18) species were recorded at station BI-1, all of which were considered at least “Possible” breeders within the Subject Property. Of the eighteen (18) breeding birds, the highest level of breeding evidence documented was “Probable”, either by the observation of agitated birds (code A), pairs of birds (code P), or territorial males (code T), which is defined as a singing male being present at the same location at least seven days apart. This evidence was the highest level obtained for twelve (12) species.

The next highest level documented was “Possible” breeding, evidenced by codes singing male (S) and observed in suitable habitat during the breeding season (H). This level of breeding evidence was obtained for six (6) species.

None of the bird species recorded at station BI-1 are of conservation concern. Bird species of conservation interest were recorded elsewhere on the Subject Property (see **Appendix 6**) and included:

- Barn Swallow (*Hirundo rustica*)
- Bobolink (*Dolichonyx oryzivorus*)
- Eastern Meadowlark (*Sturnella magna*)
- Eastern Wood-pewee (*Contopus virens*)
- Wood Thrush (*Hylocichla mustelina*)

3.3.6 Headwater Drainage Feature Assessment

Upon review of the ToR, agency staff (Region) requested the completion of an HDF assessment. There are two (2) separate HDFs flowing through the proposed driveway alignment which are identified herein as GR-1 and GR-2 are indicated on **Figure 2**. The HDFs empty directly into the intermittent tributary of Grindstone Creek (GR-1) or into the Sump Outlet Channel (GR-2).

The first HDF assessment was undertaken on 12 April 2024 following an approximately 40 mm storm event occurring the previous day. Both HDFs contain a single segment (i.e., reach) and exhibit limited channel definition with an absence of substrate sorting. Direct fish habitat is absent; however, both HDFs convey flows of water, sediment, and nutrients to downstream reaches occupied by fish and therefore act as “contributing” fish habitat. Conditions observed are summarized in **Table 5** below.

The second and third HDF assessments were undertaken on 08 May and 26 August 2021. Both HDFs were completely dry on during the mid-spring and summer dates.

HDF management recommendations in accordance with the Evaluation, Classification and Management of Headwater Drainage Features Guidelines are provided in **Appendix 7**. Note that both HDFs will be maintained in place, while GR-2 will be conveyed beneath the proposed driveway via culvert.

Table 5. HDF Assessment based on the Spring (freshet) Survey on 12 April 2024.

Feature/Segment	Conditions
GR-1	<p>Flow influence: freshet (nearly spate)</p> <p>Flow condition: minimal flow</p> <p>Feature type: no defined feature</p> <p>Feature vegetation: wetland</p> <p>*Riparian vegetation (0-1.5 m): wetland (left bank), wetland (right bank)</p> <p>*Riparian vegetation (1.5-10 m): wetland (left bank), wetland (right bank)</p> <p>*Riparian vegetation (10-30 m): scrubland (left bank), cropped (right bank)</p> <p>Dominant substrate: clay</p> <p>Subdominant substrate: clay</p> <p>Feature roughness: high (in-channel wetland vegetation)</p> <p>Flow velocity: 0.5 m/s</p> <p>Feature width: 2 m</p> <p>Bankfull depth: 100 mm</p> <p>Sediment transport (adjacent lands): none</p> <p>Sediment deposition: none</p>
GR-2	<p>Flow influence: freshet (nearly spate)</p> <p>Flow condition: minimal flow</p> <p>Feature type: swale</p> <p>Feature vegetation: lawn</p> <p>*Riparian vegetation (0-1.5 m): lawn (left bank), lawn (right bank)</p> <p>*Riparian vegetation (1.5-10 m): lawn (left bank), lawn (right bank)</p> <p>*Riparian vegetation (10-30 m): none (left bank), lawn (right bank)</p> <p>Dominant substrate: clay</p> <p>Subdominant substrate: clay</p> <p>Feature roughness: high (in-channel wetland vegetation)</p> <p>Flow velocity: 0.5 m/s</p> <p>Feature width: 1 m</p> <p>Bankfull depth: 5 mm</p> <p>Sediment transport (adjacent lands): none</p> <p>Sediment deposition: none</p>

*Reference to “left bank” and “right bank” are made in relation to an upstream view.

3.3.7 Bat Tree Roosting Habitat Assessment

A bat tree roosting habitat assessment was undertaken during leaf-off conditions on 19 and 25 April 2024. The roosting habitat survey was restricted to portions of the poplar woodland (WODM5-1) and willow lowland forest (FODM7-3) overlapping with the proposed driveway envelope. A summary of the bat roosting habitat survey results is presented below with the detailed results presented in **Appendix 8**. Trees with some potential to support bat roosting were identified and are shown on **Figure 2**.

3.3.8 Incidental Wildlife Recorded

Efforts to incidentally document wildlife were made during all site visits by Terrastory in 2023. Incidentally recorded species included:

- Two (2) additional **bird** species: Eastern Bluebird (*Sialia sialis*) and Pileated Woodpecker (*Dryocopus pileatus*).
- One (1) **butterfly** species: Appalachian Brown (*Lethe Appalachia*).

- Five (5) **mammal** species: Coyote (*Canis latrans*), Eastern Chipmunk (*Tamias striatus*), Gray Squirrel (*Sciurus carolinensis*), Raccoon (*Procyon lotor*), and White-tailed Deer (*Odocoileus virginianus*).
- Five (5) **Odonate** Species: Blue Dasher (*Pachydiplax longipennis*), Calico Pennant (*Celithemis elisa*), Eastern Pondhawk (*Erythemis simplicicollis*), Slender Spreading (*Lestes rectangularis*), and Twelve-spotted Skimmer (*Libellula pulchella*).
- Three (3) **reptiles** species: Eastern Gartersnake (*Thamnophis sirtalis sirtalis*), Midland Painted Turtle (*Chrysemys picta marginata*), and Snapping Turtle (*Chelydra serpentina*).

4 SIGNIFICANCE ASSESSMENT

Based on the biophysical information collected during background information gathering (per **Table 1**) and the results of Terrastory's fieldwork program (per **Sections 2.2** and **3**), **Table 6** below provides a determination of the presence (or potential presence) of each significant natural feature considered herein. Shaded rows denote features which were confirmed or may be present within the Subject Property or Adjacent Lands and are considered further as part of the effects assessment in **Section 5**. Significant natural feature mapping is provided in **Figure 3**.

As the Subject Property is encircled on all sides by paved roads (including Guelph Line), an assessment of potential impacts to "Adjacent Lands" is negligible and not considered further.

Table 6. Summary of the Assessment of Significant Natural Features on the Subject Property and Adjacent Lands.

Significant Natural Feature	Status within the Subject Property
NEP Significant Natural Features	
Wetlands	Confirmed. See Section 4.1.
Habitat of Endangered and Threatened Species (per ESA)	Confirmed. See Section 4.2.
Fish Habitat (per <i>Fisheries Act</i>)	Candidate. See Section 4.3.
Areas of Natural and Scientific Interest (Life Science or Earth Science)	Absent.
Significant Valleylands	Absent.
Significant Woodlands	Confirmed. See Section 4.4.
Significant Wildlife Habitat	Confirmed/Candidate. See Section 4.5.
Habitat of Special Concern Species in Escarpment Natural and Escarpment Protection Areas	Confirmed/Candidate. See Section 4.5.
Permanent or Intermittent Streams	Candidate. See Section 4.6.
Lakes and their littoral zones	Absent.
Seepage Areas and Springs	Not observed.
Regional Natural Heritage System Components	
Key Features	Confirmed. See Section 4.7.
Enhancements to Key Features	Confirmed. See Section 4.7.

Significant Natural Feature	Status within the Subject Property
Linkages	Absent.
Buffers	Confirmed. See Section 4.7.
Watercourses	Confirmed. See Section 4.7.
Wetlands other than those considered significant	Confirmed. See Section 4.7.
Conservation Authority Regulated Features and Hazard Lands	
Wetlands, watercourses, valleylands, meanderbelts, floodplains, steep slopes, and shorelines.	Confirmed. See Section 4.8.

4.1 Wetlands

As defined per p. 160 of the NEP, wetlands are:

Land that is seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs, and fens. Periodically soaked or wet lands being used for agricultural purposes which no longer exhibit wetland characteristics are not considered to be wetlands for the purposes of this definition (Provincial Policy Statement, 2014).

As described in Section 3.3.1 and shown in Figure 2 and Figure 3, several wetlands are present within the Subject Property and in close proximity to the proposed driveway alignment. Some of these wetlands have been formally mapped as part of the Provincially Significant Grindstone Creek Headwaters Wetland Complex, whereas others are either continuous with the PSW boundary or are separated from the PSW (i.e., represent “identified” or “other” wetlands).

The ROP provides a Halton-specific definition for regionally “significant wetlands” pursuant to Policy 2.76.5(3) and 2.76.5(4) as follows:

SIGNIFICANT WETLANDS means:

(1) for lands within the Niagara Escarpment Plan Area, *Provincially Significant Wetlands* and wetlands as defined in the Niagara Escarpment Plan that make an important ecological contribution to the Regional Natural Heritage System.

Based on the above definition, it is expected that the wetlands occurring in the vicinity of the proposed driveway alignment (which represent PSW and other wetlands abutting the PSW) are also considered “regionally significant” pursuant to the ROP. Note however that an exercise to formally re-confirm the wetland status under OWES has not been undertaken at this time.

An assessment of potential effects to the “other” (unevaluated and non-significant) wetlands associated with implementation of the proposed development plan is provided in Section 5.2.1.

4.2 Habitat of Endangered and Threatened Species

An assessment of the likelihood that any Endangered and Threatened species or their habitats occur within the Subject Property or Adjacent Lands is provided in **Appendix 10**. A total of four (4) Endangered or Threatened species are considered to have a possible likelihood of occurrence on the Subject Property (or were confirmed) given their habitat associations and current distribution in southern Ontario:

- 1) Jefferson Salamander (*Ambystoma jeffersonianum*)
- 2) Bobolink (*Dolichonyx oryzivorus*)
- 3) Eastern Meadowlark (*Sturnella magna*)
- 4) Little Brown Myotis (*Myotis lucifugus*)
- 5) Northern Myotis (*Myotis septentrionalis*)
- 6) Tri-colored Bat (*Perimyotis subflavus*)
- 7) Black Ash (*Fraxinus nigra*)

A general description of each Endangered/Threatened species and their habitat is offered below. An assessment of potential effects to these Endangered/Threatened species associated with the proposed development plan is provided in **Section 5.2.2**.

4.2.1 Jefferson Salamander

Jefferson Salamander (*Ambystoma jeffersonianum*) and Jefferson Salamander-dependent Unisexual Salamander are designated Endangered in Ontario per O. Reg. 230/08 pursuant to the ESA. These salamanders breed in fishless ponds and temporary wetlands. Outside of the breeding season, adults and juveniles forage and overwinter in adjacent forests and woodlands. Both “species” are at-risk as a result of habitat loss, road mortality, and contamination of breeding sites. Per Section 21 of Ont. Reg. 832/21, the regulated habitat of both species is defined as follows:

- i. a wetland, pond or vernal or other temporary pool that is being used by a Jefferson salamander or Jefferson dominated polyploid or was used by a Jefferson salamander or Jefferson dominated polyploid at any time during the previous five years,
- ii. an area that is within 300 metres of a wetland, pond or vernal or other temporary pool described in subparagraph i and that provides suitable foraging, dispersal, migration or hibernation conditions for Jefferson salamanders or Jefferson dominated polyploids,
- iii. a wetland, pond or vernal or other temporary pool that,
 - A. would provide suitable breeding conditions for Jefferson salamanders or Jefferson dominated polyploids,
 - B. is within one kilometre of an area described in subparagraph i, and
 - C. is connected to the area described in subparagraph i by an area described in subparagraph iv, and

- iv. an area that provides suitable conditions for Jefferson salamanders or Jefferson dominated polyploids to disperse and is within one kilometre of an area described in subparagraph i.

Jefferson Salamander is known from the local landscape, including populations in Mount Nemo (north) and south of Waterdown (west). There is theoretically suitable breeding habitat for Jefferson Salamander within the Subject Property, particularly the pond occurring approximately 115 to the southwest of the proposed driveway envelope.

4.2.2 Bobolink

Bobolink is designated Threatened in Ontario per O. Reg. 230/08 pursuant to the ESA and is federally designated Threatened by the COSEWIC. Prior to European settlement this species may have been rare in Ontario and was likely restricted to tallgrass prairie habitats in the southwest. With widespread conversion of forests to forage crops, Bobolink's range shifted eastward with Ontario containing a significant portion of the current breeding population MENELEY CITATION PLACEHOLDER 2. This species is semi-colonial and nests in hayfields, pastures, meadows, grasslands, and prairies, particularly those with tall, dense vegetation, moderate litter depths, and very limited woody cover. While territory size has been found to range between 0.5 ha to 2.5 ha (with higher quality sites permitting smaller territories), Bobolink is well-recognized as area-sensitive and generally will not occupy habitat patches that are less than 4-10 ha MENELEY CITATION PLACEHOLDER 3.

Bobolink was documented within the Subject Property at breeding bird stations BI-3, BI-4, and BI-6. Notwithstanding this, all agricultural fields within the Subject Property are tilled and as such suitable breeding habitat is restricted to Adjacent Lands only.

4.2.3 Bats

Per the assessment in **Appendix 10**, Little Brown Myotis, Northern Myotis, and Tri-colored Bat have the potential to roost and forage on the Subject Property. Each of these bat species are designated Endangered in Ontario per O. Reg. 230/08 pursuant to the *Endangered Species Act* (ESA) and are federally designated Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Little Brown Myotis and Northern Myotis form maternity colonies that roost in large-diameter trees with cracks, crevices, and/or exfoliating bark; Little Brown Myotis will also frequently roost in buildings (e.g., attics, barns, etc.). Roosting sites for Tri-colored Bat maternity colonies are less understood but have been documented in dead or dying leaf clusters of oaks (*Quercus* spp.) and maples (*Acer* spp.), along with live foliage and buildings (Humphrey and Fotherby 2019). Individuals (i.e., non-reproductive females and males) of all three bat species may roost in smaller diameter trees and other spaces (e.g., beneath house siding, etc.) which are not occupied by maternity colonies. Overwintering habitat includes caves and mines that maintain temperatures above 0°C. White Nose Syndrome (a fungal disease caused by an introduced pathogen) has devastated populations of each species across their ranges. The fungus causes hibernating individuals to become dehydrated, leading to excessive arousal, depleted fat reserves, and ultimately emaciation and/or death.

Wooded areas within the Subject Property contain suitable roosting habitat for Endangered bats, while the edges and openings could support generalized feeding activities. While maternity colonies of Little Brown Myotis and Northern Myotis tend to select larger roost trees (≥ 25 cm diameter),

individual bats (e.g., males and/or non-reproductive females) are less restrictive in their roosting requirements and may select trees of varying sizes and decay classes. Potential Tri-colored Bat roosting habitat is generally restricted to areas containing oaks and maples.

4.2.4 Eastern Meadowlark

Eastern Meadowlark is designated Threatened in Ontario and federally designated Threatened by COSEWIC. This species may have been rare in southern Ontario prior to European settlement and was likely associated with tallgrass prairie habitats in the southwest. Eastern Meadowlark is considered area-sensitive and often does not breed in habitats which are less than 4 ha in size and may also be found in fields with a greater density of shrub cover MENDELEY CITATION PLACEHOLDER 4.

Eastern Meadowlark was documented within the Subject Property at breeding bird stations BI-6 and BI-7. Notwithstanding this, all agricultural fields within the Subject Property are tilled and as such suitable breeding habitat is restricted to Adjacent Lands only.

4.2.5 Black Ash

Black Ash is designated Endangered in Ontario per O. Reg. 230/08 pursuant to the ESA and is considered Threatened by COSEWIC. Black Ash is a medium-sized, shade-intolerant hardwood tree that occurs on moist to wet sites including deciduous and mixed woodlands, swamps, fens, and riparian areas, particularly those underlain by organic soils. Like most ash species (*Fraxinus* spp.), Black Ash has been negatively affected by larval feeding activities of Emerald Ash Borer (*Agrilus planipennis*).

Per subsection 2(2) of O. Reg 6/24 under the ESA, the prohibitions set out in clause 9(1)(a) of the ESA (i.e., prohibition on killing, harming, harassing, and capturing) only apply to Black Ash individuals with the following characteristics:

- Occurring in a municipality or territorial district identified in Schedule 1;
- Equalling or exceeding 1.37 m in height;
- Equalling or exceeding 8 cm DBH; and
- Not determined to be “unhealthy” pursuant to a report prepared by a “qualified professional”.

Black Ash was documented within the Subject Property in the vicinity of the open pond. This individual is >30 m from the proposed limit of disturbance associated with the proposed driveway.

4.3 Fish Habitat

The intermittent tributary of Grindstone Creek flowing southward near the proposed driveway alignment is mapped as “coldwater” fish habitat pursuant to the provincial Aquatic Resource Area (ARA) dataset (AU-0006-GR1). This particular ARA segment extends downstream nearly to the Grindstone Creek marshes (near the mouth at Lake Ontario) and there are no point-based records of fish from the sections of watercourse within 3.5 km (“as the fish swims”) upstream or downstream of the Subject Property. The tributary appears to become dry by early summer, suggesting limited contributions of baseflow, which casts doubt on the status of this tributary as a

“coldwater” system. The tributary is also underlain by clay (as is the broader local landscape), which tends to support “flashy” hydrologic conditions which receive limited to no groundwater inputs.

On the basis of the above, it is expected that the tributary of Grindstone Creek is not considered thermally sensitive and would not support permanent fish habitat. It is possible that fish access the Subject Property as far north as 1st Side Road seasonally from downstream reaches, though this is not known with certainty.

An assessment of potential effects to fish habitat associated with the proposed development plan is provided in **Section 5.2.3**.

4.4 Significant Woodlands

“Significant Woodlands” are defined per the NEP consistent with the PPS definition:

Woodland: A treed area that provides environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrologic and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. A woodland includes treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels. A woodland may be delineated according to the Forestry Act definition or the Province’s Ecological Land Classification system definition for “forest” (Provincial Policy Statement, 2014).

Significant:

b) in regard to woodlands, an area that is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. These are to be identified using criteria established by the Ministry of Natural Resources and Forestry.

“Significant Woodland” is further defined pursuant to the ROP (Section 277) as follows:

SIGNIFICANT WOODLAND means a *Woodland* 0.5ha or larger determined through a *Watershed Plan*, a Sub-watershed Study or a site-specific Environmental Impact Assessment to meet one or more of the four following criteria:

- (1) the *Woodland* contains forest patches over 99 years old,
- (2) the patch size of the *Woodland* is 2 ha or larger if it is located in the Urban Area,
or
4 ha or larger if it is located outside the Urban Area but below the *Escarpment Brow*, or 10 ha or larger if it is located outside the Urban Area but above the *Escarpment Brow*,
- (3) the *Woodland* has an interior core area of 4 ha or larger, measured 100m from the

edge, or

- (4) the *Woodland* is wholly or partially within 50 m of a *major creek or certain headwater creek* or within 150m of the *Escarpment Brow*.

Much of the treed swamp and forest/woodland habitats occurring around the open water pond and along the western/southwestern property boundary are considered Significant Woodland.

There is a narrow stretch of poplar woodland (WODM5-1) and willow lowland forest (FODM7-3) extending towards and into the proposed driveway envelope. In general the poplar woodland is approximately 30 to 35 m in width while the willow lowland forest is approximately 15 to 20 m in width. While it is recognized that the ROP does not provide guidance in relation to minimum widths required to substantiate either a “forest/woodland” or “Significant Woodland”, through past engagement with Halton Region planning staff it is understood that the Region considers hedgerows to be linear wooded features less than 20 m in width (i.e., dripline to dripline). The basis upon which this guidance rests is that the Regional Tree By-law 121-05 indicates that woodlands do not include “narrow linear strips of trees” and references a 20 m width in relation to mapping woodlands as separate units. In addition to this, the *Technical Definitions and Criteria for Key Natural Heritage Features in the Natural Heritage System of the Protected Countryside* (MNR 2012) requires that a Significant Woodland must exhibit a minimum width of 40 m in the “South Area”. While it is recognized that the Subject Property falls within the NEP area, the NEP does not provide direction or guidance in relation to defining Significant Woodlands and, further, the NEP forms part of the Greenbelt Plan area.

On the basis of the above, it has been determined that the poplar woodland (WODM5-1) and willow lowland forest (FODM7-3) do not constitute “Significant Woodlands”. The nearest Significant Woodland to the limit of the proposed driveway is represented by the SWDO1-2 community near the open water pond, which is 80 m from the proposed driveway envelope.

An assessment of potential effects to the Significant Woodland associated with the proposed development plan is provided in **Section 5.2.2**.

4.5 Significant Wildlife Habitat

An assessment of the likelihood that any candidate or confirmed SWH types occur within the Subject Property or Adjacent Lands is provided in **Appendix 11**. Based on the results of this assessment, five (5) SWH types are considered further through this study:

- Seasonal Concentration Areas of Animals
 1. Bat Maternity Colonies
 2. Turtle Wintering Areas
 3. Reptile Hibernaculum
- Rare Vegetation Communities or Specialized Habitats for Wildlife
 4. Amphibian Breeding Habitat (Woodland)
- Habitat of Species of Conservation Concern
 5. Special Concern and Rare Wildlife Species

Also based on this assessment, a total of six (6) Special Concern or provincially rare species are considered to have at least a possible likelihood of occurrence on the Subject Property given their

habitat associations and current distribution in southern Ontario (or were confirmed based on the fieldwork program):

- 1) Eastern Wood-pewee (*Contopus virens*)
- 2) Wood Thrush (*Hylocichla mustelina*)
- 3) American Bumble Bee (*Bombus pensylvanicus*)
- 4) Monarch (*Danaus plexippus*)
- 5) Yellow-banded Bumblebee (*Bombus terricola*)
- 6) Snapping Turtle (*Chelydra serpentina*)

An assessment of potential effects to the identified candidate SWH types and Special Concern/provincially rare species associated with the proposed development plan is provided in **Section 5.2.5**.

4.6 Permanent and Intermittent Streams

“Permanent and intermittent streams” are defined under the NEP as follows:

Permanent stream: A stream that continually flows in an average year.

Intermittent stream: A stream-related watercourse that contains water or is dry at times of the year that are more or less predictable, generally flowing during wet seasons of the year but not the entire year, and where the water table is above the stream bottom during parts of the year.

By definition, the intermittent tributary of Grindstone Creek does not represent a “Permanent Stream”. While the tributary exhibits an intermittent flow condition, the NEP directs that an “Intermittent Stream” must exhibit a groundwater table that is “above the stream bottom during parts of the year”. As there is no hydrogeological information to support this analysis, the intermittent tributary of Grindstone Creek is considered a candidate “Intermittent Stream”.

4.7 Regional Natural Heritage System

The following natural features within the Subject Property form part of the RNHS:

- Key Features
 - Significant wetlands
 - Significant woodlands
 - Significant wildlife habitat (candidate/confirmed)
 - Fish habitat (candidate)
- Buffers
- Watercourses (intermittent tributary of Grindstone Creek)
- Wetlands (other than those considered significant).

4.8 Conservation Authority Regulated Areas

CH regulates development and site alteration (including fill placement and grade changes) within 15 m of the regulatory floodplain (TOB) and within 30 m of wetlands under O. Reg. 41/24. The wetland boundary was staked with CH staff on 26 July 2023 while the regulatory floodplain was provided by CH to the project team and is plotted on the survey (see **Appendix 9** and **Figure 3**).

5 EFFECTS ASSESSMENT AND MITIGATION

The purpose of this EIA is to present a biophysical characterization of the Subject Property and Adjacent Lands as a means to identify the potential for adverse effects on the natural environment and natural heritage features stemming from the proposed reconstruction of a single-detached residence on private servicing. Several significant natural features and species were documented (or may occur) within the Subject Property pursuant to the assessments presented in **Section 4**. The following effects assessment provides an evaluation of the potential for the proposed development to result in negative effects to such environmental components and offers technical recommendations to mitigate such effects where warranted. Certain technical recommendations offered herein apply to several natural features and/or species simultaneously; as such, all technical recommendations should be read and considered in their entirety. The baseline or existing conditions against which the application is assessed are treated as the state of the Subject Property at the time of the site assessments. The effects assessment herein is based on the design drawings provided in **Appendix 12**.

5.1 Proposed Development Plan and Avoidance Measures

Since project commencement in fall 2022 Terrastory has provided extensive feedback to and worked iteratively with the project team during formulation of the proposed driveway envelope (including limits of grading). These discussions have centred on the need to avoid/minimize impacts to and maintain ecologically/policy appropriate setbacks from the significant natural features identified herein.

The proposed development and site alteration activities consist of the construction of an approximately 170 m (length) by 6 m (wide) gravel driveway which includes a new entrance at 1st Side Road. The proposed limit of grading has been kept as tight as possible to the driveway margin per the grading plan (see **Appendix 12**) to minimize encroachment into the adjacent natural areas and/or buffer zones (i.e., of the PSW and intermittent tributary). The driveway terminates at the within existing cropland.

The width of the driveway has been minimized to the maximum extent practicable (6 m), having been reduced in width (from 9 m). The driveway is also restricted to the northern property boundary to achieve a maximum setback from the adjacent PSW, treed/wooded areas, and watercourse. Neither the NEP nor ROP provide minimum setback distances from wetlands or Significant Woodlands. Notwithstanding this, it is recognized that Regional Environmental Planning staff typically request establishment of 30 metre setbacks from certain natural features which comprise the RNHS, including PSWs. A 30 m PSW setback cannot be accommodated as it would eliminate any possibility of constructing a vehicular entrance to the Subject Property. A separate, narrow area of frontage on 1st Side Road further south is constrained by prevailing natural heritage features (including wetland) and is less suitable for an entrance than the location as proposed through this NEC Development Application.

In recognizing the foregoing, an assessment of the potential for negative impacts on the identified significant natural features are further described below.

5.2 Feature-based Effects Assessment and Technical Recommendations

5.2.1 Wetlands

Where development and/or site alteration activities are proposed within or adjacent to wetlands, adverse effects may occur via the following pathways:

- Alterations to surface water and/or groundwater contributions to the wetland from construction (e.g., dewatering, etc.), grading that modifies the existing topography or drainage, and/or increased coverage of impervious surfaces (e.g., roads, roofs, etc.);
- Increased sediment loadings and/or nutrient enrichment within the wetland via runoff exiting from development areas during and post construction. This may alter wetland water quality and vegetation communities via increased turbidity, eutrophication, contamination by toxic substances, changes in pH, etc.
- Noise and/or light pollution that may adversely affect the ability of wetland wildlife to successfully carry out their life processes (e.g., breeding, feeding, etc.); and
- Increased human activity (i.e., encroachment) within the wetland which may result in soil compaction, dumping, etc.
- Potential for fuel spills during the construction phase of development.
- Increased potential for introducing invasive species including both animals and plants during and post construction.

The proposed driveway envelope achieves the greatest setback from the PSW which can be accommodated. The proposed edge of disturbance (reflected by the silt fence) extends as close as 6 metres from the PSW boundary as staked with CH on 26 July 2023, although is mostly a minimum of 10 m from the PSW. The following measures are recommended for the PSW setback.

- **The PSW setback will be enhanced with native tree/shrub plantings via a Wetland Buffer Enhancement Plan and is to be treated as a Vegetation Protection Zone comprised of “natural, self-sustaining vegetation”.**

The aforementioned Wetland Buffer Enhancement Plan will also serve to address necessary tree removals as required by NEC's Vegetation Protection Plan Technical Criteria (May 2023) and indicated on the VPP in **Figure 4**.

During construction it is anticipated that the proposed development areas will contain exposed soils, which are inherently unstable and have a greater potential for runoff into adjacent areas (including adjacent wetlands) during rainfall events. The most effective erosion and sediment control system emphasizes the prevention of erosion first, minimizes sediment transport off-site through a multi-barrier approach, and involves regular inspection and maintenance. To protect adjacent wetlands from construction-related impacts, the following measures are recommended:

- **Erosion and Sediment Control measures must be incorporated into the detailed design (e.g., Grading Plan).**

5.2.2 Habitat of Endangered and Threatened Species

Per the assessment in **Appendix 10** a total of four (4) Endangered or Threatened species are considered to have a possible likelihood of occurrence on the Subject Property (or were confirmed) given their habitat associations and current distribution in southern Ontario:

- 1) Jefferson Salamander (*Ambystoma jeffersonianum*)
- 2) Bobolink (*Dolichonyx oryzivorus*)
- 3) Eastern Meadowlark (*Sturnella magna*)
- 4) Little Brown Myotis (*Myotis lucifugus*)
- 5) Northern Myotis (*Myotis septentrionalis*)
- 6) Tri-colored Bat (*Perimyotis subflavus*)
- 7) Black Ash (*Fraxinus nigra*)

As described in **Section 4.2**, no potential impacts to Bobolink and Eastern Meadowlark are anticipated as the Subject Property lacks suitable breeding habitat for these species. Further, no impacts to Black Ash are anticipated as no individuals are present within 30 m of the proposed driveway envelope.

Theoretically suitable breeding habitat for Jefferson Salamander (or Jefferson-dependent Unisexuales) is associated with the open pond occurring 115 m southwest of the proposed driveway alignment. While this species is known from the local landscape (i.e., northward at Mount Nemo, southwestward at Waterdown). The proposed driveway envelope does not bisect any expected movement corridors (manicured lawn occurs to the north) and generally is aligned through a partially maintained meadow, existing trail, and early-successional woodland habitat (dominated by Trembling Aspen). Given distance to the potentially suitable breeding pond, intervening habitat between the pond and driveway envelope (i.e., tilled agricultural land), and habitats overlapping with the driveway alignment itself, impacts to potential habitat for Jefferson Salamander are not expected. Installation of silt fence and other erosion/sediment control measures (see recommendations in **Section 4.1**) will further contain areas of disturbance to the immediate driveway envelope.

Portion of the Subject Property with the greatest potential to support Endangered bats are restricted to areas of mature forest/woodland which are beyond the limit of development/disturbance. Notwithstanding this, certain amenity trees within the front-yard and a stand of poplar trees require removal to support the proposed development plan, and have some potential to provide generalized, non-specific roosting habitat for individual bats (i.e., males and non-reproductive females). This includes a small number of candidate bat roosts (e.g., SN-8, SN-9, SN-10, see **Figure 2**).

The following measures are recommended to avoid injury to any potentially roosting bats during amenity tree removal within the proposed development envelope:

- **All necessary tree removals will be completed outside the primary bat activity period (i.e., to be completed between October 1 and March 31). If limited tree removal is required during the restricted timing window, consult a qualified ecologist and/or MECP for further direction.**

- **If construction activities occur during the active bat season (i.e., April 1 and September 30), work will be restricted to daylight hours only and the use of artificial lighting will be avoided.**

5.2.3 Permanent/Intermittent Streams and Candidate Fish Habitat

Where development and/or site alteration activities are proposed adjacent to watercourses that support (or are assumed to support) fish and/or aquatic organisms, adverse effects may occur via the following pathways (amongst others):

- Alterations to surface water and/or groundwater contributions to the watercourse from construction (e.g., dewatering, etc.), grading that modifies the existing topography or drainage, and/or increased coverage of impervious surfaces (e.g., roads, roofs, etc.);
- Increased sediment loadings and/or nutrient enrichment within the watercourse via runoff exiting from development areas during and post construction. This may alter water quality and/or degrade habitat quality via increased turbidity, eutrophication, contamination by toxic substances, changes in pH, etc.
- Introduction of invasive species including aquatic organisms and aquatic plants.
- Increased human activity (i.e., encroachment) in the vicinity of the watercourse which may result in bank compaction, exploitation of fish, dumping, etc.

The small drainage feature conveying drainage from a sump pump outlet is neither considered a regulated “watercourse” nor does this feature contain direct (permanent or seasonal) fish habitat. This small drainage feature will continue to flow and outlet to the adjacent watercourse (to the south on Adjacent Lands) given installation of a proposed culvert (see **Appendix 12**).

The intermittent tributary of Grindstone Creek to the south may contain seasonal fish habitat, though this feature appears to regularly dry up by early summer (depending on seasonality and rainfall conditions) and it is plausible that direct fish habitat does not occur in proximity to the proposed driveway envelope. The tributary also is not expected to be a “coldwater” system as mapped by the Province under the ARA because it likely lacks baseflow contributions and is underlain by clayey substrate (though note that no hydrogeological information is available at this time). The bankfull channel of the watercourse extends no closer than 10 m from the proposed limit of disturbance. Implementation of erosion and sediment control measures at construction and preparation and implementation of the recommended Wetland Buffer Enhancement Plan will serve to protect the watercourse and candidate fish habitat therein.

5.2.4 Significant Woodlands

Where development and/or site alteration activities are proposed within or adjacent to forests or woodlands, adverse effects may occur via the following pathways:

- Mechanical injury to the trunk, roots, branches, and/or foliage of retained woody vegetation.
- Smothering or exposure of roots due to changes in grade.
- Soil compaction from the use of heavy machinery.
- Noise and/or light pollution that may adversely affect the ability of woodland wildlife to successfully carry out their life processes (e.g., breeding, feeding, etc.).

- Increased human activity (i.e., encroachment) within or adjacent to the woodland which may result in soil compaction, dumping, etc.
- Increased susceptibility to establishment by invasive species either directly or indirectly and including both animals and plants.

As outlined in **Section 4.4**, the narrow stretch of poplar woodland (WODM5-1) and willow lowland forest (FODM7-3) do not constitute Significant Woodlands given their narrowness. The limit of the Significant Woodland extends within approximately 80 m of the proposed driveway envelope, which is a sufficient setback to protect this feature and its functions from proposed development.

5.2.5 Significant Wildlife Habitat

Per the assessment in **Section 4.5**, a total of five (5) candidate SWH types were considered further through this study:

- Seasonal Concentration Areas of Animals
 1. Bat Maternity Colonies
 2. Turtle Wintering Areas
 3. Reptile Hibernaculum
- Rare Vegetation Communities or Specialized Habitats for Wildlife
 4. Amphibian Breeding Habitat (Woodland)
- Habitat of Species of Conservation Concern
 5. Special Concern and Rare Wildlife Species

Also based on this assessment, a total of six (6) Special Concern or provincially rare species have at least a possible likelihood of occurrence on the Subject Property given their habitat associations and current distribution in southern Ontario (or were confirmed based on the fieldwork program):

- 1) Eastern Wood-pewee (*Contopus virens*)
- 2) Wood Thrush (*Hylocichla mustelina*)
- 3) American Bumble Bee (*Bombus pensylvanicus*)
- 4) Monarch (*Danaus plexippus*)
- 5) Yellow-banded Bumblebee (*Bombus terricola*)
- 6) Snapping Turtle (*Chelydra serpentina*)

No specific recommendations are offered herein to minimize impacts to candidate SWH types identified herein provided that all other mitigation measures recommended herein are implemented. The proposed driveway alignment does not extend through any candidate SWH types. For those species of conservation interest that may occur in the local landscape (e.g., Yellow-banded Bumblebee, American Bumble Bee), no negative impacts to potentially suitable habitat (e.g., nectaring habitat) are anticipated.

5.2.6 Other Natural Environment Considerations

While the recommendations offered herein restrict development activities from all significant natural heritage features, some vegetation removal (i.e., woody and herbaceous vegetation) is required to facilitate development. To further minimize potential adverse effects to the natural environment and breeding birds during construction, the following measures are recommended:

- The removal of trees will generally be restricted to areas in direct conflict with the footprints of the proposed development features (e.g., residence, septic system, driveway, etc.) and grading, along with any hazardous trees in the immediate vicinity that pose an unacceptable risk to human life or property.
- All necessary vegetation removal along with removal of structures will be completed outside the primary bird nesting period (i.e., to be completed between September 1 and March 31). Should minor vegetation removal be proposed during the bird nesting period, a bird nesting survey will be undertaken to confirm the presence or absence of nesting birds or bird nests within or adjacent to the areas subject to vegetation clearance. The survey is to take place within 48 hours of vegetation removal.
- Incorporation of Bird-Friendly Guidelines into the residence design such as those published in City of Toronto's "Best Practices for Bird-Friendly Glass" and "Best Practices for Effective Lighting" should be considered at detailed design.
- Any Landscape Plans prepared as part of the development approval should incorporate species native to the local landscape.

Terrastory has also prepared a VPP per **Figure 4**. Adherence to the VPP will further minimize the number of tree removals; however, a total of 26 tree removals (and an additional 2 dead tree removals) is required to support the proposed development plan. The following measures are recommended:

- The requirements of the Vegetation Protection Plan (see Figure 4) will be implemented.
- Tree removals will be replaced consistent with the requirements of NEC's Vegetation Protection Plan Technical Criteria (May 2023) and are to be directed to the Wetland Buffer Enhancement Plan area (see Figure 4).

5.2.7 Summary of Technical Recommendations

All technical recommendations provided in **Section 5.2** are reiterated in **Appendix 13**.

6 APPLICABLE NATURAL HERITAGE AND ENVIRONMENTAL POLICIES

The following sections summarize the various municipal, provincial, and federal environmental policies that may apply to the proposed development plan and describe how the recommendations provided in this study will address these policies (where applicable).

6.1 City of Burlington Official Plan (July 2024 office consolidation)

The City's OP is a legal document prepared as required under section 14.7(3) of the *Planning Act*. An OP sets out goals, objectives, and policies that direct and manage land-use and future development

activities and their effects on the social and natural environment of a municipality. Provincial plans that offer direction on matters of provincial interest are implemented principally through the City's OP. Provided herein is a description of relevant environmental and natural heritage policies contained within the City's OP and an assessment of whether the NEC development application addresses such policies.

Schedule A (City System) of the City's Official Plan (OP) indicates that the Subject Property is contained within the "Rural Area" designation while natural areas within the Subject Property occur within the City's designated "Green System" overlay. Schedule I (Land Use – Rural Area) indicates that the City's Natural Heritage System (NHS) also overlaps with the Subject Property (along with the "Agricultural Land Base") whereas Schedule M (The Natural Heritage System) of the City's OP indicates the presence of "Key Natural Features" within the Subject Property which appear to overlap with a Significant Woodland, Provincially Significant Wetland (PSW; Grindstone Creek Headwaters Wetland Complex), and intermittent tributary of Grindstone Creek.

Policies related to protection of the City's NHS are provided in Section 4.2 of the OP. A summarized and condensed list of key natural heritage provisions of the City's OP that pertain to the development application considered herein is provided below.

- **Policy 4.2.2(a)** directs that the NHS consists of two (2) components: the City's NHS and the Greenbelt NHS (as indicated on Schedule M).
- **Policy 4.2.2(c)(ii)** directs that the policies of the NEP apply within the portions of the City's NHS overlapping with the NEP Area.
- **Policy 4.2.2(e)(i)** provides a list of features comprising the City's NHS, which are listed as follows:
 - i. Key Natural Features:
 - Habitat of endangered and threatened species,
 - Significant wetlands,
 - Significant coastal wetlands,
 - Significant woodlands
 - Significant valleylands,
 - Significant wildlife habitat,
 - Significant areas of natural and scientific interest,
 - Fish habitat;
 - ii. Enhancements to the Key Natural Features including Centres for Biodiversity;
 - iii. Linkages;
 - iv. Buffers;
 - v. Watercourses that are within a Conservation Halton regulation limit or that provide a linkage to a wetland or a significant woodland; and
 - vi. Wetlands other than those considered significant.
- **Policy 4.2.2(e)(i)** further clarifies that while Key Natural Features are identified on Schedule M, additional Key Natural Features may be mapped through future studies (such as through a development application or site alteration application process).
- **Policy 4.2.2(h)(ii)** allows for refinements to the boundaries of the City's NHS through completion of an EIA prepared in accordance with subsection 4.2.4.
- **Policy 4.2.2(m)** provides a framework for applications which propose development or site alteration within or adjacent to the City's NHS, including demonstration that the application

will not cause negative impacts to the City's NHS and natural heritage features/areas and/or their ecological and hydrological functions.

- **Policy 4.2.4** provides triggers for the submission of an EIA and a framework for their submission.

The City's NHS policies closely align with Regional natural heritage requirements (see **Section 6.2** below). Terrastory reviewed potential impacts to the identified significant natural features – including non-significant wetlands, Significant Woodland, candidate/confirmed SWH, candidate fish habitat, and habitat of Endangered and Threatened species – in **Section 5.2** of this EIA. Provided that Terrastory's recommended mitigation measures (summarized in **Appendix 13**) are carried out in full, it is expected that the proposed driveway has been designed and will be constructed in a manner that minimizes the potential for negative impacts to the greatest extent achievable given the context of the site.

6.2 Regional Municipality of Halton Official Plan (4 November 2022 office consolidation)

The ROP is a legal document prepared as required under section 14.7(3) of the *Planning Act*. An OP sets out goals, objectives, and policies that direct and manage land-use and future development activities and their effects on the social and natural environment of a municipality. Provincial plans that offer direction on matters of provincial interest are implemented principally through the ROP.

A list of key provisions from the ROP that pertain to the protection of natural heritage are provided below.

- **Section 115.2** defines the Regional Natural Heritage System as consisting of:
 - Areas designated on Map 1;
 - The shoreline of Lake Ontario and Burlington Bay; and
 - Significant habitats of endangered species and threatened species not included in the designation on Map 1.
- **Section 115.3** identifies a list of "Key Features" that form part of the Regional Natural Heritage System shown on Map 1G, including:
 - Significant habitat of endangered and threatened species;
 - Significant wetlands;
 - Significant coastal wetlands;
 - Significant woodlands;
 - Significant valleylands;
 - Significant wildlife habitat;
 - Significant areas of natural and scientific interest; and
 - Fish habitat.
- **Section 117** provides a list of permissible uses within the Natural Heritage System, including (among others) agricultural operations, normal farm practices, and single detached dwellings on existing lots.
- **Section 118(2)** provides a prohibition on development and site alteration within significant wetlands, significant coastal wetlands, significant habitat of endangered and threatened species, and fish habitat (except in accordance with provincial and federal policies).
- **Section 118(2)** also prohibits altering any components of the Regional Natural Heritage System unless it can be demonstrated that there will be no negative impacts on the natural features and areas or their ecological functions.

- **Section 118(3)** requires that a proponent of any development or site alteration that is located in proximity to the Regional NHS carry out an EIA (subject to certain exceptions). The purpose of an EIA is to demonstrate that the proposed development or site alteration will result in no negative impacts to that portion of the Regional NHS or unmapped Key Features affected by the development or site alteration.

As established in **Section 6.1** above, the proposed driveway envelope has been situated in the most ecologically appropriate location possible and has been minimized in width to the greatest extent possible (6 m). Implementation of the recommended technical mitigation measures (e.g., installation of erosion and sediment control measures, Wetland Buffer Enhancement Plan) will further serve to protect the PSW and intermittent tributary of Grindstone Creek, along with their ecological functions.

6.3 **Niagara Escarpment Plan 2017, pursuant to the *Niagara Escarpment Planning and Development Act*, R.S.O. 1990, c. N.2**

The NEP sets out land use policies for areas within or adjacent to the Niagara Escarpment and was prepared under the authority of the *Niagara Escarpment Planning and Development Act*. Such policies are aimed at protecting the geological distinctness of the Niagara Escarpment and overlapping natural areas as a continuous natural environment while allowing for compatible development. There are seven land-use designations provided by the Plan, each of which contain different land use policies:

- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Minor Urban Centre
- Urban Area
- Escarpment Recreation Area
- Mineral Resource Extraction Area

The proposed driveway alignment is restricted to the “Escarpment Rural Area” designation. Escarpment Rural Areas provide for compatible rural land uses and are intended to serve as a buffer to the more ecologically sensitive areas of the Escarpment.

Specific policies for the protection of KHF's and KNHF's are provided in section 2.6 and 2.7 of the NEP, respectively. The NEP defines KHF's as:

- Permanent and intermittent streams;
- Lakes (and their littoral zones);
- Seepage areas and springs; and
- Wetlands;

The NEP defines KNHF's as:

- Wetlands;

- Habitat of Endangered and Threatened Species;
- Fish Habitat;
- Life Science Areas of Natural and Scientific Interest (ANSIs);
- Earth Science Areas of Natural and Scientific Interest (ANSIs);
- Significant Valleylands;
- Significant Woodlands;
- Significant Wildlife Habitat, and
- Habitat of Special Concern species in Escarpment Natural and Escarpment Protection areas.

The following policies apply to KHF's and KNHF's:

- **Section 2.6(2)** generally prohibits development within KHF's with certain exceptions, including development of a single dwelling and accessory facilities on existing lots of record (outside of wetlands) provided that disturbance is minimal.
- **Section 2.6(3)** provides criteria outlining the basis of a hydrologic evaluation where a KHF has been identified within 120 m of the limit of development.
- **Section 2.6(4)** requires the establishment of a sufficiently sized Vegetation Protection Zone (VPZ) which is to be maintained as "natural self-sustaining vegetation".
- **Section 2.6(10)** directs that changes to natural drainage should be avoided.
- **Section 2.7(2)** generally prohibits development within KNHF's with certain exceptions, including development of a single dwelling and accessory facilities on existing lots of record (outside of wetlands) provided that disturbance is minimal.
- **Section 2.7(3)** requires maintenance of the diversity and connectivity between KNHF's and KHF's.
- **Section 2.7(4)** recommends that development in other natural features not identified as KNHF's should be avoided.
- **Section 2.7(6)** requires the completion of a Natural Heritage Evaluation where a proposal for development within 120 m of a KNHF may engender impacts. The Natural Heritage Evaluation must:
 - Demonstrate that the development will protect the KNHF and its functions;
 - Identify planning, design, and construction practices that minimize erosion, sedimentation and the introduction of nutrients or pollutants, and (where possible), enhances or restores the health, diversity, and size of the KNHF;
 - Determines a minimum vegetation protection zone to protect the KNHF and its functions; and
 - Demonstrates that the connectivity between KNHF's and KHF's located within 240 metres of each other will be maintained for the movement of native plants and animals across the landscape.
- **Policy 2.7(8)** generally prohibits development within Endangered/Threatened species habitat with certain exceptions, including development of a single dwelling and accessory facilities on existing lots of record (outside of wetlands) provided that disturbance is minimal.

As established in **Section 6.1** above, the proposed driveway envelope has been situated in the most ecologically appropriate location possible and has been minimized in width to the greatest extent possible (6 m). Implementation of the recommended technical mitigation measures (e.g., installation of erosion and sediment control measures, Wetland Buffer Enhancement Plan) will further serve to protect the PSW and intermittent tributary of Grindstone Creek, along with their ecological functions.

6.4 Provincial Planning Statement 2024, pursuant to the *Planning Act*, R.S.O. 1990, c. P. 13

The Provincial Policy Study (PPS) is promulgated under the authority of the *Planning Act* and came into effect on 20 October 2024. The PPS provides direction to municipalities on land-use matters of provincial interest and sets the policy framework for regulating the use and development of land. Municipal OP's must be consistent with the PPS. Per its preamble, the PPS *provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment.*

The principal PPS policies that apply to natural heritage protection are outlined in section 2.1. While recognizing that the natural heritage protection framework is not intended to limit the ability of agricultural uses to continue (Policy 2.1.9), the PPS instructs that *natural features and areas shall be protected for the long term* (Policy 2.1.1) and that their diversity and connectivity be *maintained, restored or, where possible, improved* (Policy 2.1.2). In Ecoregions 6E and 7E the PPS separates significant features into three categories:

- 1) Those in which development and site alteration are not permitted, including 1) Provincially Significant Wetlands and 2) Significant Coastal Wetlands (Policy 2.1.4);
- 2) Those in which development and site alteration are not permitted unless it can be demonstrated that no negative impacts on the significant natural feature and/or its functions will occur, including: 1) Significant Woodlands, 2) Significant Valleylands, 3) Significant Wildlife Habitat, 4) Significant Areas of Natural and Scientific Interest, 5) Non-significant Coastal wetlands, and 6) Adjacent Lands (Policy 2.1.5 and 2.1.8).
- 3) Those in which development and site alteration are not permitted except in accordance with federal/provincial requirements, including: 1) fish habitat (Policy 2.1.6) and 2) habitat of Endangered and Threatened Species (Policy 2.1.7).

The NEP directs (p. 4) that it is to be read in conjunction with the PPS but shall take precedence over the policies of the PPS to the extent of any conflict.

In considering the aforementioned PPS policies, it has been determined that the proposed development plan addresses the intent of natural heritage provisions of the PPS for the following reasons:

- Per **Table 6** of this report, no Significant Areas of Natural or Scientific Interest or Significant Valleylands are present within the Subject Property.
- Per **Section 5.2** of this report, the proposed driveway envelope has been situated as far from the Provincially Significant Wetland as can be achieved, with additional mitigation measures (e.g., Wetland Buffer Enhancement) recommended to be implemented herein.

- Per **Section 5.2** of this report, no negative impacts to the Significant Woodland or candidate Significant Wildlife Habitat are anticipated given implementation of the proposed development plan provided that the recommended mitigation measures are implemented in full.
- Per **Section 5.2** of this report, Fish Habitat and Endangered/Threatened species habitat will be protected in accordance with provincial and federal requirements.

6.5 Halton Region Conservation Authority Regulation 162/06, pursuant to the *Conservation Authorities Act*, R.S.O. 1990, c. C.27

CH's regulatory jurisdiction includes areas within and adjacent to valley and stream corridors, the Lake Ontario shoreline, hazard lands (e.g., floodplains, steep slopes, etc.), watercourses, and wetlands as provided under O. Reg. 41/24 of the *Conservation Authorities Act*. Features/hazards regulated by CH within the Subject Property include a watercourse (intermittent tributary of Grindstone Creek) and associated regulatory floodplain, and wetlands. The regulatory floodplain was previously provided by CH staff (A. Gallagher, 22 April 2024) and has been plotted on the survey by MMP (see **Appendix 9**), while the on-site wetlands were staked with CH staff on 26 July 2023.

CH's *Policies and Guidelines for the Administration of Part VI of the Conservation Authorities Act and Ontario Regulation 41/24* (last amended 21 June 2024) is the primary document used to implement and administer CH hazard policies. CH regulates development and site alteration (including fill placement and grade changes) within 15 m of the regulatory floodplain (TOB) and within 30 m of wetlands. Permission to develop within a regulated area must establish how the "five tests" of development within or adjacent to "hazardous land" have been met. More specifically, development is only permitted if (in the opinion of the Authority) the control of 1) flooding, 2) erosion, 3) dynamic beaches, 4) unstable soil, or 5) bedrock will not be affected.

Permission from CH under O. Reg. 41/24 will be required to facilitate implementation of the proposed development plan.

6.6 Provincial *Endangered Species Act*, S.O. 2007, c. 6

The *Endangered Species Act* (ESA) is administered by MECP and protects designated Endangered and Threatened species in Ontario from being killed, harmed, or harassed (s. 9) or having their habitat damaged or destroyed (s. 10). The protection afforded to Endangered and Threatened species "habitat" is either prescribed by O. Reg. 832/21, or (for those species that lack regulated habitat) is defined as *an area on which the species depends, directly or indirectly, to carry on its life processes, including life processes such as reproduction, rearing, hibernation, migration or feeding*. Development activities that constitute habitat damage and/or destruction typically require permitting under section 17 of the ESA, or proceed through registration of the activity as a conditional exemption under O. Reg. 242/08 or O. Reg. 830/21 (where applicable).

A detailed assessment of potential and confirmed Endangered and Threatened habitat within the Subject Property is provided in **Appendix 10**. Per this assessment, and provided that relevant technical recommendations outlined in **Section 5.2** are implemented in full, it has been determined that the proposed development plan is consistent with the species and habitat protection provisions of the ESA.

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

The amended federal *Fisheries Act* (Bill C-68) received Royal Assent in June 2019 while the updated fish and fish habitat protection provisions came into force in August 2019. Subsection 34.4(1) of the amended *Fisheries Act* prohibits all work, undertaking, or activity from causing the death of fish (other than fishing). Subsection 35(1) requires that project activities not result in the “*harmful alteration, disruption or destruction of fish habitat*” (HADD) unless undertaken in accordance with the requirements of a statutory exemption per subsection 35(2). Based on the Fish and Fish Habitat Protection Policy Statement (August 2019), HADD is interpreted by DFO to include “*any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat’s capacity to support one or more life processes of fish*”.

No in-water works or fill placement below the high-water mark of a surface water feature containing fish habitat is proposed through this application. Consistent with the assessment carried out in **Section 5.2** and provided that relevant technical recommendations outlined in **Section 5.2.3** are implemented in full, it has been determined that the proposed development plan is consistent with the fish and fish habitat protection provisions outlined in the *Fisheries Act*.

6.8 Federal *Migratory Birds Convention Act*, S.C. 1994, c. 22

Subsection 5(1) of the Migratory Birds Regulations under the *Migratory Birds Convention Act, 1994* (MBCA) prohibits the disturbance or destruction of nests, eggs, or nest shelters of a migratory bird without authorization. Subsection 5(2) of the Migratory Birds Regulations allows for damage or destruction of nests which lack a live bird or viable egg with the exception of inactive nests associated with species listed under Schedule 1. In Ontario, the nests of Schedule 1 species are afforded year-round protection (i.e., regardless of the presence or absence of a live bird or viable egg), inclusive of the following species:

- Black-crowned Night Heron (*Nycticorax nycticorax*)
- Cattle Egret (*Bubulcus ibis*)
- Great Blue Heron (*Ardea herodias*)
- Great Egret (*Ardea alba*)
- Green Heron (*Butorides virescens*)
- Pileated Woodpecker (*Dryocopus pileatus*)
- Snowy Egret (*Egretta thula*)

The provincial *Fish and Wildlife Conservation Act, 1997* (FWCA) extends the protection of bird nests and eggs to certain non-migratory species not listed under the Migratory Birds Regulations (e.g., Corvids, Strigids, Accipitrids). Section 7(1) of the FWCA prohibits a person from destroying, taking, or possessing the nest or eggs of a bird that belongs to a species that is wild by nature. Section 7(3) identifies that section 7(1) of the FWCA does not apply to a person who destroys, takes, or possesses the nest or eggs of a bird described in subsection (a) in accordance with the authorization of the Minister, or subsection (b) in the circumstances prescribed by the regulations. The nests of certain non-migratory bird species are not protected under the FWCA (e.g., Red-winged Blackbird).

Provided that the recommendations outlined in **Section 5.2.6** are implemented in full (i.e., prohibition on vegetation removal during the bird breeding season), no impacts to breeding birds or bird nests protected by the MBCA or FWCA are anticipated.

7 CONCLUSIONS

In accordance with the Terms of Reference for this study (**Appendix 1**) and relevant natural heritage policies, the preceding Environmental Impact Assessment provides a detailed characterization of the natural environment occurring within and adjacent to a proposed driveway envelope at a vacant lot of record on 1st Side Road in Burlington. This EIA has been prepared in support of a Niagara Escarpment Commission Development Permit made pursuant to the Niagara Escarpment Plan and will further support technical review of the application by City, Region, and CH staff. Included herein is a comprehensive approach to identifying the presence or absence of several significant natural features afforded varying degrees of protection by applicable environmental policies. Potential negative impacts to the identified significant natural features are described with mitigation measures and technical recommendations offered to avoid or minimize such impacts and/or offer enhancements as appropriate.

Based on the findings presented in this report, the following natural features with ecological and/or policy significance have been identified:

- The proposed driveway envelope overlaps with the **Escarpment Rural Area** designation under the NEP.
- The boundary of wetlands forming part of (or contiguous with) a **Provincially Significant Wetland** (Grindstone Creek Headwaters Wetland Complex) were staked with CH staff on 26 July 2023, along with the dripline of certain treed/wooded areas and **Significant Woodlands**.
- An **intermittent tributary of Grindstone Creek** flows in a southward direction through the PSW in the vicinity of the proposed driveway envelope.
- Portions of the on-site woodlands and treed swamp are considered **Significant Woodlands**, although the driveway envelope does not overlap with any Significant Woodland.
- The Subject Property provides a variety of **Confirmed** (i.e., amphibian breeding habitat) and **Candidate Significant Wildlife Habitat** types.
- A variety of **Endangered/Threatened** species have the potential to occur in the vicinity of the proposed driveway envelope (see **Appendix 10**).

The Subject Property currently lacks vehicular access; agricultural machinery can only enter the Subject Property through adjacent parcels. On this basis, the Applicant is seeking to construct a vehicular entrance and driveway from 1st Side Road. The proposed entrance/driveway are situated in the most ecologically desirable location available, and the driveway overall has been minimized in width to the greatest extent practicable (6 m) and abuts the northern property line (as far from adjacent natural areas as possible). Such measures will serve to minimize the potential for impact to the above-noted significant natural features.

In addition, a comprehensive set of recommendations and mitigation measures are offered in **Section 5.2** as a means to minimize the potential for impacts to the adjacent significant natural features and address policy requirements outlined in **Section 6**. This includes the implementation of Erosion and Sediment Control measures at construction, treating the PSW setback area as a Vegetation Protection Zone (consisting of “natural self-sustaining vegetation”), undertaking planting and enhancement measures as part of a Wetland Buffer Enhancement Plan, and placing a timing restriction on vegetation removals (to protect nesting birds and roosting bats). The works will also

be directed by a Vegetation Protection Plan (see **Figure 4**) with necessary tree removals to be replaced consistent with NEC's Vegetation Protection Plan Technical Criteria (May 2023).

It is advised that such technical recommendations be incorporated into any necessary development approvals that permit the application.

DRAFT

8 REFERENCES

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DRAFT



KEY MAP

0 1 2 km

Legend

Area of Assessment

Subject Property

Driveway Envelope

NEP Land Use Designations

Escarpment Natural Area


Escarpment Protection Area

Escarpment Rural Area

GENERAL NOTES:

-Features depicted herein should not be used in place of a professional survey.

-Numeric scale is for a 11x17 inch print.

 **TERRASTORY**
environmental consulting inc.
info@terrastoryenviro.com 905.745.5398

1:3,000

0 25 50 75 100 m

Location:

1st Side Road,
City of Burlington

Project No.: 22181

Date: 2024-12-02

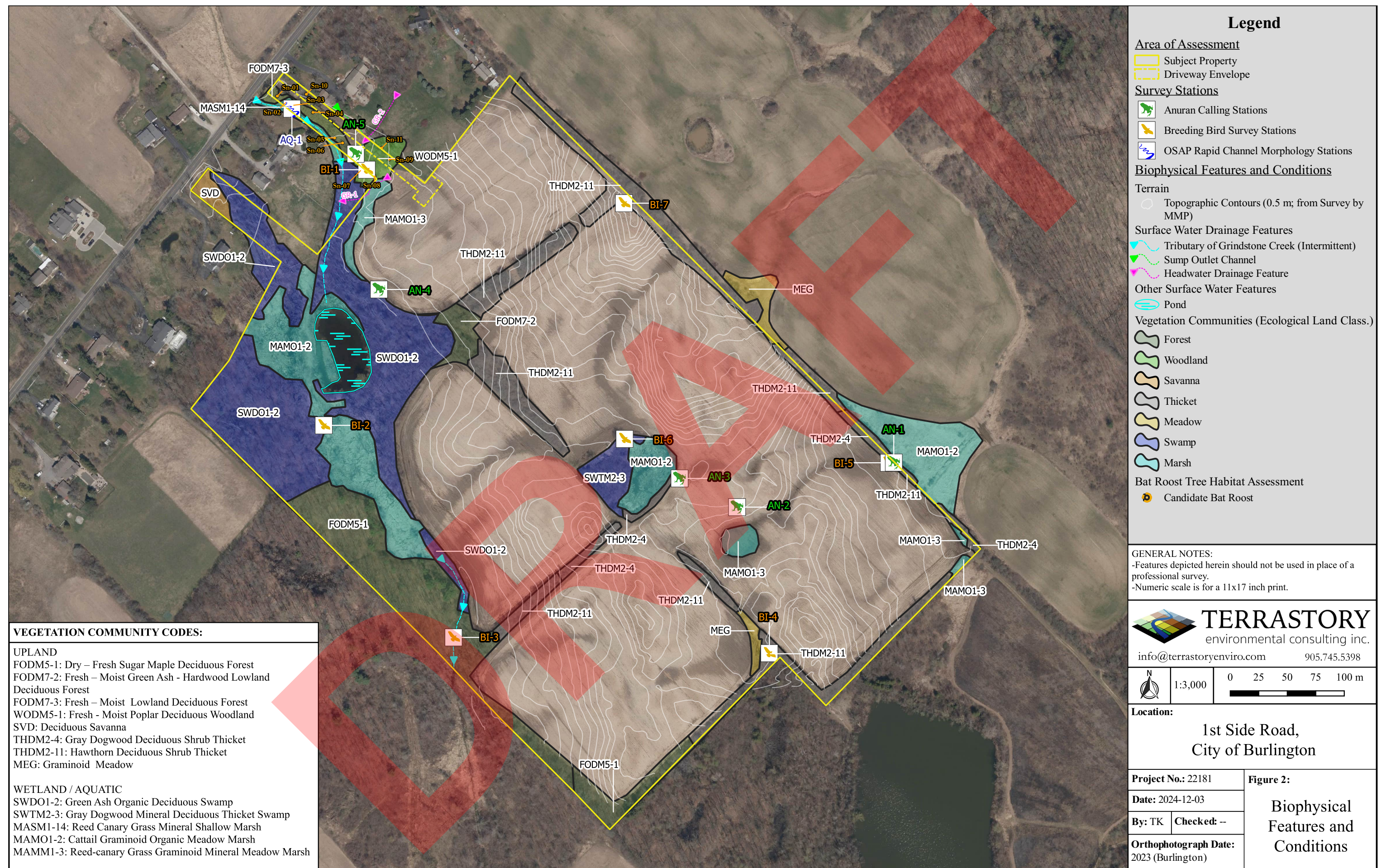
By: TK

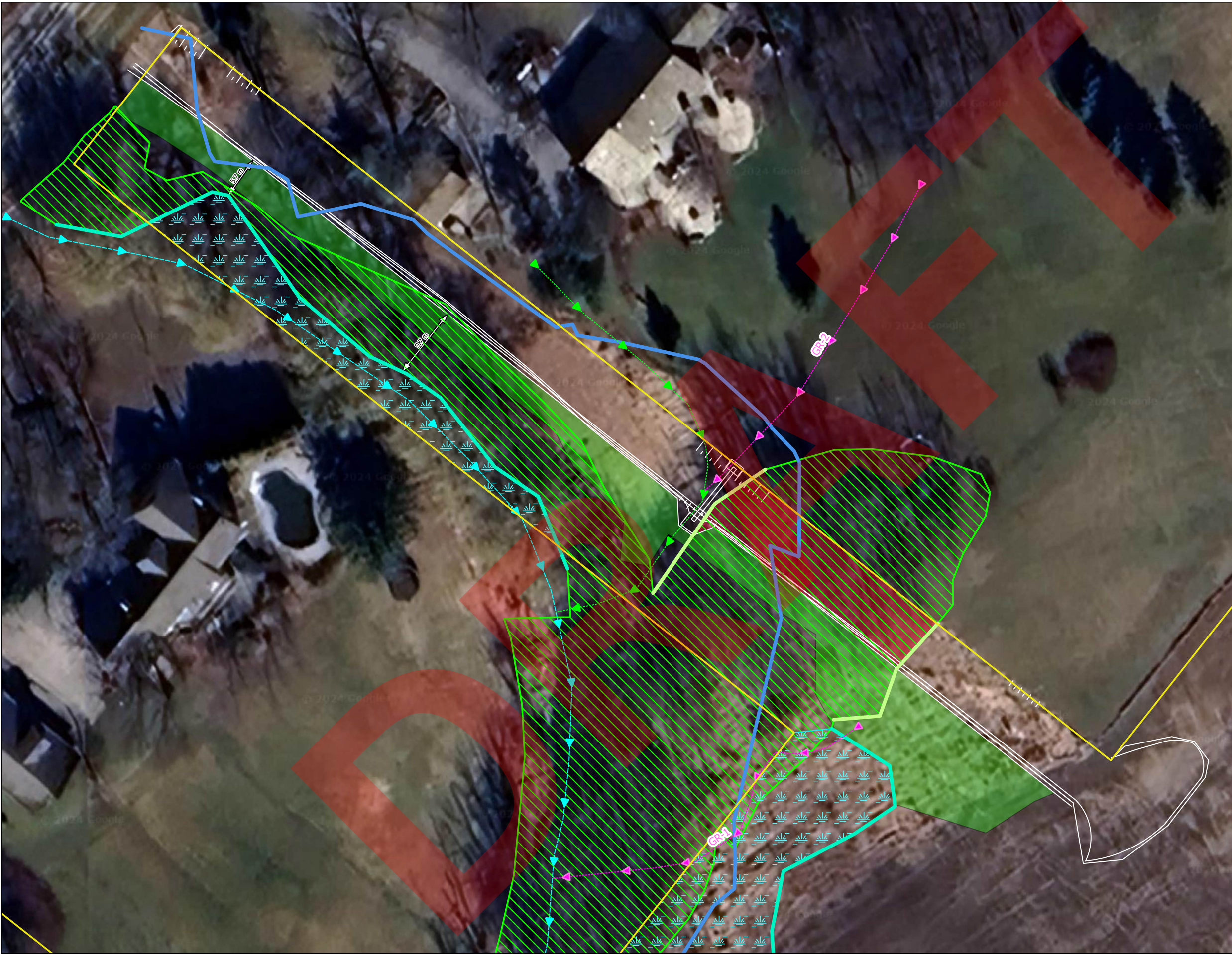
Checked: --

Orthophotograph Date:
2023 (Burlington)

Figure 1:

Location of the
Subject Property





Legend

- Area of Assessment**
- Subject Property
- Biophysical Features and Conditions**
- Tributary of Grindstone Creek (Intermittent)
 - Sump Outlet Channel
 - Headwater Drainage Feature
- Significant Natural Features - Terrastory**
- Woodland Dripline (staked with Halton Region Peer Reviewer on 28 July 2023)
 - Wetland Boundary (staked with CH on 28 July 2023)
 - Regulatory Flood Hazard (per Survey by MMP)
 - Wetlands
 - Woodland
- Proposed Activities**
- Proposed Driveway
 - Encroachment into Woodland (265 m2)
- Natural Environment Recommendations**
- Wetland Buffer Enhancement Plan Area

GENERAL NOTES:
-Features depicted herein should not be used in place of a professional survey.
-Numeric scale is for a 11x17 inch print.



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1:500



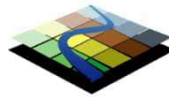
Location:

1st Side Road,
City of Burlington

Project No.: 22181		Figure 3: Significant Natural Features with Proposed Development Plan
Date: 2024-12-03		
By: TK	Checked: --	
Orthophotograph Date: 2024 (Google Maps)		

Appendix 1. Terms of Reference

March 25, 2023
Project No.: 22181



TERRASTORY
environmental consulting inc.

Rosi Zirger
Senior Planner
Niagara Escarpment Commission
rosi.zirger@ontario.ca

Braden Fleming
Environmental Planner
Conservation Halton
blfleming@hrca.on.ca

Heather Ireland
Senior Planner – Environment
Regional Municipality of Halton
heather.ireland@halton.ca

**SUBJECT: Terms of Reference for Environmental Impact Study
1st Side Road (vacant lot of record)
City of Burlington**

Dear Rosi, Braden, and Heather,

Terrastory Environmental Consulting Inc. (hereinafter “Terrastory”) has been retained by the owner of the above-captioned property (hereinafter “Subject Property”) to complete an Environmental Impact Study (EIS) in support of a development application involving the establishment of a vineyard and related uses. The Subject Property is an approximately 23.2 hectare (ha) or 57.32 acre (ac) existing lot of record on the southeast side of 1st Side Road, west of Guelph Line. The location of the Subject Property within its broader landscape setting is shown below in **Figure 1**.

The Subject Property is situated within the boundaries of the Niagara Escarpment Plan (NEP) and is therefore subject to development controls administered by the Niagara Escarpment Commission (NEC). The frontage of the Subject Property is designated Escarpment Rural Zone per the NEP while the remainder is designated Escarpment Protection Area. The Regional Natural Heritage System (NHS) of Halton Region is mapped throughout much of the Subject Property per Map 1 (Regional Structure) of the ROP, while the remainder of the Subject Property is designated Agricultural Area. Map 1G of the ROP indicates the presence of Regionally-significant “Key Features” within the Subject Property given the presence of various natural areas, including wetlands associated with the Provincially Significant Grindstone Creek Headwaters Wetland Complex (hereinafter “PSW”) and Significant Woodland. Beyond the aforementioned natural areas, the Subject Property is comprised of agricultural fields. Portions of the Subject Property are regulated by Conservation Halton (CH) owing to the presence of a watercourse (and its associated floodplain and erosion hazards) and wetlands.

A three-phase development plan (i.e., with separate NEC development permit applications) is proposed for the lands over an approximately five-year period:

- **Phase 1:** construction of driveway access from No.1 Sideroad to the vineyard and planting grape vines;
- **Phase 2:** construction of dwelling (including extension of the driveway) and construction of accessory structures near the house; and
- **Phase 3:** construction of a winery.

Given the proximity of development to the aforementioned natural features (particularly PSW) and natural hazards (particularly floodplain/meanderbelt), an EIS will be requested to support agency review of the development application. The driveway entrance is proposed through an area regulated by CH; as such, in addition to an NEC development permit, permission from CH under O. Reg. 162/06 is also required to develop the parcel in the ways contemplated.

A Terms of Reference (ToR) for the EIS is provided below for review and approval by agency staff. Should you have any questions or require further clarification regarding the contents of this letter, I would be pleased to discuss them further and can be reached by phone (905.745.5398) or email (tristan@terrastoryenviro.com).

Regards,

Terrastory Environmental Consulting Inc.

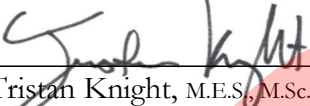

Tristan Knight, M.E.S., M.Sc., I.S.A.
Senior Ecologist | President



Figure 1. Location of the Subject Property.

TERMS OF REFERENCE

Approach

Overall, the EIS will be undertaken with consideration for Halton Region's Environmental Impact Assessment Guideline (2020) and CH's Guidelines for Ecological Studies (Aug. 2017), and will incorporate the following broad components:

- ✓ Identification, description, and delineation of relevant natural heritage features on-site, including their functions;
- ✓ Connections between the identified significant natural features and broader landscape, including potential linkages with off-site features and the natural heritage system (where applicable);
- ✓ Description of the proposed development and assessment of potential impacts, including their implications on the natural environment and any identified significant natural heritage features;
- ✓ Technical recommendations and mitigation measures to achieve relevant standards and policy tests, including enhancement measures (where applicable); and
- ✓ Assessment of application conformity with relevant municipal, provincial, and federal natural heritage requirements.

Intent of the EIS is to document and assess Key Natural Heritage Features and Key Hydrologic Features, and demonstrate how such features will be appropriately protected consistent with relevant policy requirements.

Background Information Gathering

Background biophysical information will be gathered from the following sources:

- Current and historical aerial photographs.
- Existing natural feature mapping.
 - City of Burlington OP Schedules A (City System) and A-1 (City System – Provincial Land Use Plans and Designations)
 - Regional Municipality of Halton OP Schedule 1G (Key Features within the Greenbelt and Regional Natural Heritage Systems)
 - Land Information Ontario (LIO)
 - CH regulation mapping (screening maps)
- Wetland Evaluation Record for the Provincially Significant Grindstone Creek Headwaters Wetland Complex
- Ontario Base Mapping, LiDAR, and other sources of topographic information
- Ontario well records from the local landscape
- Soils mapping for the local landscape
- Paleozoic and surficial geology mapping for the local landscape
- Physiographic mapping for the local landscape
- NHIC element occurrences
- iNaturalist element occurrences, including rare species records retrieved through the “(NHIC) Rare Species of Ontario” project
- eBird.
- Ontario Breeding Bird Atlas database
- Ontario Butterfly Atlas

- Bumble Bee Watch species maps
- iNaturalist “Odonata of Ontario” project
- iNaturalist “Herps of Ontario” project
- DFO Aquatic Species at Risk Maps
- Atlas of the Mammals of Ontario

Field Work Program

Terrastory staff completed a reconnaissance-level site assessment to the Study Area on 10 November 2022. Our proposed 2023 fieldwork program in support of the EIS is outlined below in Table 1 below.

Table 1. 2023 Fieldwork Program.

2023 Fieldwork Program	Schedule (approx.)
<ul style="list-style-type: none"> • Bat snag/cavity tree habitat assessment will be undertaken based on the Survey Protocol for SAR Bats within Treed Habitats (MNRF 2017). Habitat assessment to be restricted to areas in which tree removal within forest/woodland communities is anticipated (if any). *Note – need for acoustic monitoring to be determined based on the conditions documented and proposed development plan. 	<ul style="list-style-type: none"> • April (i.e., before leaf-out)
<ul style="list-style-type: none"> • Watercourse characterization will be undertaken for the tributary of Grindstone Creek in accordance with OSAP module S4.M1 (Rapid Assessment Methodology for Channel Structure). 	<ul style="list-style-type: none"> • Spring
<ul style="list-style-type: none"> • Three (3) rounds of Anuran calling surveys will be conducted in accordance with the Marsh Monitoring Protocol (Bird Studies Canada et al. 2008). Surveys will occur within the appropriate season (April to June), time of day (between 30 minutes after sunset and 12:00am), and weather conditions (minimal to no rain, wind speed ≤ 3 on the Beaufort Wind Scale). 	<ul style="list-style-type: none"> • April to June
<ul style="list-style-type: none"> • Two (2) rounds of breeding bird surveys will be conducted in accordance with the Ontario Breeding Bird Atlas (OBBA) protocol (Bird Studies Canada et al. 2001). Surveys will occur within the appropriate season (May 24–July 10), time of day (between dawn and approximately 5 hours after dawn), and weather conditions (no rain, wind speed ≤ 3 on the Beaufort Wind Scale). While the OBBA protocol recommends that stations be situated at least 300 m apart (to avoid double counting), the stations will likely be established in closer proximity to ensure more comprehensive survey coverage. Surveys to occur for a minimum duration of 10 minutes at each station. 	<ul style="list-style-type: none"> • Late May to Mid June (Round #1) • Mid June to Early July (Round #2)
<ul style="list-style-type: none"> • Vegetation community characterization will be undertaken in accordance with the Ecological Land Classification (ELC) System for Southern Ontario (Lee et al. 1998). 	<ul style="list-style-type: none"> • Summer
<ul style="list-style-type: none"> • Three-season vascular plant survey (i.e., late spring/early summer and fall) will be undertaken via an area search (i.e., “wandering transects”). All species recorded will be listed in an appendix along with their respective Coefficient of Conservatism, Wetness Coefficient, and local rank (according to Oldham 2017). 	<ul style="list-style-type: none"> • June-early Sept
<ul style="list-style-type: none"> • Natural feature staking will be undertaken with Regional Forestry and CH Planning Ecology staff to confirm 1) woodland dripline (if present), and 2) wetland boundaries according to OWES. Potentially regulated surface water features will be reviewed with CH. Staked natural feature boundaries to be surveyed by an OLS. 	<ul style="list-style-type: none"> • Week of June 5
<ul style="list-style-type: none"> • Incidental observations of flora/fauna during all site visits. 	<ul style="list-style-type: none"> • April-early Sept

In addition to the EIS fieldwork program above, a tree inventory will be undertaken by a qualified Terrastory Arborist as part of preparing the necessary Vegetation Protection Plan for NEC.

Proposed Report Table of Contents

The on-site biophysical information collected per **Table 1** will be assessed and reviewed in concert with background biophysical information collected from a variety of sources. The information will be summarized into an EIS report which will address the requirements of this ToR and relevant natural heritage policies.

A proposed Table of Contents for the EIS will generally follow the outline below:

- 1) Introduction
 - a. Study Background
 - b. Study Purpose
- 2) Approach and Methods
 - a. Background Biophysical Information Collected (see above).
 - b. Agency correspondence (as needed).
 - c. Site Assessments and Survey Methodologies (*see fieldwork plan in **Table 1**).
 - d. Impact/Effects Assessment and Mitigation
 - e. Natural Heritage and Environmental Policy Context
 - i. City of Burlington Official Plan
 - ii. Regional Municipality of Halton Official Plan
 - iii. Niagara Escarpment Plan pursuant to the *Niagara Escarpment Planning and Development Act*
 - iv. Growth Plan pursuant to the *Places to Grow Act*
 - v. Provincial Policy Statement pursuant to the *Planning Act*
 - vi. CH regulation (O. Reg. 162/06) and related policies pursuant to the *Conservation Authorities Act*
 - vii. *Endangered Species Act* including Ontario Regulation 242/08
 - viii. *Fisheries Act*
 - ix. *Fish and Wildlife Conservation Act*
 - x. *Migratory Birds Convention Act*
- 3) Existing Biophysical Conditions
 - a. Land-use Setting
 - b. Physical Setting (e.g., hydrology, surficial geology, etc.).
 - c. Ecological Setting
 - i. Vegetation Communities, including ELC mapping
 - ii. Vascular Plants, including mapping of all SAR and provincially/regionally rare species documented (*if any)
 - iii. Anuran breeding
 - iv. Bat habitat
 - v. Breeding birds
 - vi. Aquatic habitat conditions
 - vii. Incidental wildlife recorded
- 4) Significance Assessment
 - a. Significant Natural Features
 - i. Wetlands
 - ii. Significant Woodland
 - iii. Candidate/Confirmed Significant Wildlife Habitat
 - iv. Potential/Confirmed Endangered and Threatened Species Habitat

- v. Watercourse/aquatic habitat
 - vi. Any additional features (*if present)
 - b. Significant Species (*if present)
- 5) Description of the Proposed Development
 - a. Include consideration for and review of other overlapping technical studies/plans
- 6) Impact Assessment
 - a. Development Alternatives and Avoidance Measures incorporated into Project Design.
 - b. Effects Assessment (e.g., Spatial extent, magnitude, frequency, duration, adjacent lands, etc.)
- 7) Mitigation Strategy (as required), including the necessary Vegetation Protection Plan
- 8) Conclusions
- 9) References

From: Zirger, Rosi (MNRF) <Rosi.Zirger@ontario.ca>

Sent: Tuesday, April 9, 2024 10:42 AM

To: Victoria Colantonio <victoria@urbaninmind.ca>; steveorrett@gmail.com
<steveorrett@gmail.com>

Subject: RE: Update regarding: NEC Development Permit Application - 0000 1st Sideroad, Burlington

Good morning Victoria

The Request for Comments was a bit delayed in getting out. I expect to receive agency comments soon.

Meanwhile, I can provide the following comments of the EIS Terms of Reference (Note: these comments are from an NEC colleague who is an ecologist):

- The proposed table of contents seems fine.
- Breeding Bird Surveys: As noted in the ToR, using the OBBA protocol would say stations are 300 m apart, and given only 100 m of linear distance for driveway, that would be one. The ToR says more stations would be set up but did not say how many. We suggest adding “walkabout” bird surveys covering the entire area over a course of a minimum of an hour on each of at least two visits.
- Bats: The ToR cites “Survey Protocol for SAR Bats within Treed Habitats (MNRF 2017)”. There may be more recent correspondence from MECP concerning including trees of smaller diameter than originally advised by MECP. Please check with MECP for updated information on size of trees to be considered / surveyed for cavities as potential maternity colonies.

Regards

Rosi

Rosi Zirger

Senior Planner | Niagara Escarpment Commission

232 Guelph Street, Georgetown, Ontario, L7G 4B1

905-703-7216

rosi.zirger@ontario.ca | www.escarpment.org



Accessibility: As part of the NEC's commitment to providing accessible service, please let me know if you have any accommodation needs or require the contents of this email in an alternative format.

Availability: NEC staff provide services in person, via telephone, or via email. To better serve you, **we ask that you make an appointment if you prefer to meet in person.** You may request an appointment with staff at escarpment.org/appointments.

April 11, 2024

Rosi Zirger
Niagara Escarpment Commission
232 Guelph Street
Georgetown ON L7G 4B1

Dear Rosi,

RE: **Niagara Escarpment Commission – Development Permit Application**
Part of Lot 19, Concession 1 NDS
0000 No. 1 Side Road
City of Burlington, Region of Halton
File: H/A/2023-2024/381

Regional Staff have reviewed the above noted Niagara Escarpment Development Permit application, received from the Niagara Escarpment Commission's (NEC) to permit the construction of a new gravel driveway to provide access to the vacant parcel of land as follows:

- To construct a $\pm 9\text{m}$ wide by $\pm 163.05\text{ m}$ long gravel driveway and from a new access to #1 Sideroad running southerly to the agricultural fields and to install a fence along the property line adjacent to the driveway on the 23.28 ha (57.53 ac) existing vacant agricultural lot.

Regional staff are **unable** to provide a favourable recommendation at this time as additional information is required to ensure that areas of Regional interests related to the Regional Natural Heritage System are addressed.

Planning Analysis:

The subject lands fall within the Greenbelt Plan and are designated as Protected Countryside. Per Section 2.2 of the Greenbelt Plan, the Niagara Escarpment Plan policies continue to apply and the Protected Countryside policies do not apply, with the exception of Section 3.3 (Parkland, Open Space and Trails), which does not apply to this proposal.

Within the Niagara Escarpment Plan (NEP) Area the subject lands are designated Escarpment Rural Area and Escarpment Protection Area.

The subject lands are designated Regional Natural Heritage System with a portion of these lands forming part of the Agricultural designation as identified on Map 1 of the 2009 Regional Official Plan (ROP), as amended.

The submitted NEC Development Permit application proposes to establish a new access driveway through lands which form part of the RNHS, and which contain Key Features that form part of the RNHS. As per Section 118 2 of the ROP, a systems approach is to be applied to

Regional Municipality of Halton

HEAD OFFICE: 1151 Bronte Rd, Oakville, ON L6M 3L1
905-825-6000 | Toll free: 1-866-442-5866

implementing the Regional Natural Heritage System, and in doing so, by not permitting the alteration of any components of the RNHS unless it has been demonstrated that there will be no negative impacts on the natural features and areas or their ecological function. Further, Section 118 (3) and (3.1) requires the proponent of any development application or site alteration to carry out an Environmental Impact Assessment that is to demonstrate that the proposed development or site alteration will result in no negative impact to that portion of the RNHS.

Included as part of the NEC's circulation was a copy of a Terms of Reference (Terrastory Environmental Consulting Inc, March 25, 2023). Regional Staff previously provided comments on this scope of work which are appended hereto for the NEC's reference (See Appendix 'A').

Staff note that as a completed and accepted EIA has not been completed for these lands, that we are not in a position to confirm that the proposed development/site alteration conforms to ROP policy. Further, Regional Staff note that the proposed new access driveway is located within an area regulated by Conservation Halton and in close proximity to a mapped wetland. Comments from Conservation Halton should be obtained and addressed in this regard.

Conclusion:

Regional Staff are **unable** to provide a favourable recommendation at this time as additional information is required to ensure that matters of Regional interests are addressed. Regional Staff recommend the deferral of this application, until such time that the requested information below can be provided:

- Submission of an updated Terms of Reference for the EIA;
- Submission of a completed Environmental Impact Assessment

We trust that these comments are of assistance. Should you have any questions or require additional information, please do not hesitate to contact the undersigned.

Please send notice of the NEC's decision on this application.

Sincerely,



Adam Huycke, MCIP, RPP, CPT
Senior Planner

APPENDIX 'A'
REGIONAL NATURAL HERITAGE SYSTEM TERMS OF REFERENCE COMMENTS
MAY 2023

Brief Description of Proposal:

The proposed development is located within the Niagara Escarpment Plan area and will be subject to a future development permit application. The applicant is proposing to develop the site in 3 Phases:

- Phase 1 – new access road from No. 1 Sideroad leading to a new vineyard.
- Phase 2 – construction of a single detached dwelling, extension of driveway, and 2 large accessory buildings that are anticipated to be used for storing personal items and/or farm equipment. No other details are known.
- Phase 3 – construction of building for winery and associated parking.

It is anticipated that two separate private servicing systems will be required to service the proposal (one for the dwelling, one for the winery). No information is available at this time regarding specifics.

Materials Reviewed:

- Terms of Reference for Environmental Impact Study, prepared by Terrastory Environmental Consulting Inc., dated March 25, 2023.

Technical Comments:

Regional Staff have reviewed the Terms of Reference (TOR) prepared by Terrastory and we have the following comments for your consideration:

1. Please clarify / confirm the limits or locations for proposed field work. Based on the TOR, it would be presumed that the site in its entirety is being surveyed, however given the location for the proposed development and the presumption that the balance of the lands will not have a change in condition (i.e., will continue as agricultural similar to current use), some surveys could be scoped geographically. Approximate areas / scoping notes are acceptable – e.g., Anuran calling will assess all wetlands on the Subject Property, Aquatic survey(s) will occur in the general limits / extent noted on Figure X.
2. Headwater Drainage Features (HDFs)
 - a) Review of imagery for the subject property shows evidence of drainage (potential HDFs) across the subject property and connecting to adjacent properties (see image below). Specifically, one appears to traverse the area proposed for the house & accessory buildings.
 - b) Please undertake an assessment of HDFs as part of the EIS to ensure management of water / drainage is appropriately managed on the subject property and on/through adjacent lands.

- c) This assessment should include lands within or adjacent to the proposed development area and any areas which may drain to features or lands within this area.
3. Aquatic Assessment / Watercourse Characterization
- a) The TOR states that OSAP module S4.M1 will be utilized. Please ensure that the field investigation will document flow characteristics, stream channel dimensions (wetted width, bankfull width, etc.), substrate composition, channel/shoreline morphology, in-stream cover and riparian vegetation compositions. The proposed module does not capture all of these elements and they are required to inform fish habitat / aquatic habitat.
- b) Field investigations are to assess for presence of fish / fish habitat (seasonal, intermittent, permanent, contributory). If insufficient information on fish community is available and conditions could support fish, community sampling (to inform sensitivity) will be required.
- c) This assessment should include the small tributary which will be crossed by the proposed driveway, the confluence with the receiving watercourse and reaches of the watercourse through the subject property as needed to assess potential impacts of the proposed land use(s).
4. Please include a photo log in the EIA which includes photos that best characterize the site conditions, including sets of channel photos for watercourses (u/s, d/s of assessed reaches).
5. The TOR Approach discusses the incorporation of broader components to be included in the EIA, in accordance with the Region's EIA Guidelines, including a linkage assessment and enhancement measures (where applicable). Please include the linkage assessment in the proposed table of contents Section 4. a. (Significant Natural Features). In addition, any applicable enhancement measures and opportunities should be discussed in section 7 (Mitigation Strategy)
6. Please consult with MECP to confirm if additional surveys or permitting is required with regards to SAR. Please provide correspondence that the MECP is satisfied that the proposed development can proceed as presented without contravening the *Endangered Species Act* (ESA) or correspondence as to required steps to support a decision on permitting requirements.

General Comment:

7. Please note that the subject property, specifically the access road, contains a Conservation Halton Regulated watercourse and flood plain hazards associated with the Provincially Significant Wetland (PSW) Complex. Consultation with Conservation Halton (CH) is required to determine any applicable Regulatory requirements in accordance with O. Reg. 162/06 and demonstration that there is safe ingress/egress during a Regional Flood. Regional staff defer to CH on this matter.

Conclusion:

Based on the above-noted recommendation, Regional Staff recommend that the above-noted comments are addressed, including any additional Regulatory requirements from Conservation Halton as part of a revised submission of the Terms of Reference.

Please have the applicant submit a revised draft TOR for review and acceptance prior to formally submitting the Environmental Impact Assessment.

We trust that these comments are sufficient and request that you please keep them on file for the Region's records. Should you have any questions or concerns, please do not hesitate to contact me or Heather Ireland.

Site Visit:

<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
Date:			
Notes: Future site visit TBD with Conservation Halton, the Niagara Escarpment Commission and the Region to delineate the limits of the PSW complex and the dripline of vegetation associated with the candidate significant woodlands.			

April 17, 2024

Rosi Zirger
Niagara Escarpment Commission
232 Guelph Street
Georgetown, ON L7G 4B1

BY E-MAIL ONLY (rosi.zirger@ontario.ca)

To Rosi Zirger:

**Re: Niagara Escarpment Commission Permit
Development Permit Application H/A/2023-2024/381
0000 Number 1 Sideroad, Burlington (surrounding 2164 No 1 Sideroad)
Applicant/Owner: Urban in Mind c/o Victoria Colantonio
CH File: PNEC-2076**

Conservation Halton (CH) staff has reviewed the above-noted application as per our regulatory responsibilities under the *Conservation Authorities Act* and Ontario Regulation 41/24 and our provincially delegated responsibilities under Ontario Regulation 686/21 (e.g., commenting on risks related to natural hazards arising from the proposal where the authority considers it advisable).

Documents reviewed as part of this submission, received on **March 21, 2024** included:

- NEC Development Permit Application, received March 21, 2024
- Justification Brief for NEC, Conservation and Regional Development/Access Permit Application(s) ~ No. 1 Side Road, Grindstone Creek, prepared by Urban in Mind
- Proposed Driveway for Access Drawing, prepared by Urban in Mind, dated December 8, 2023
- Topographic Survey prepared by MacKay, MacKay & Peters Limited Land Surveyors & Mappers, dated September 22, 2023
- Terms of Reference for Environmental Impact Study prepared by Terrastory Environmental Consulting Inc., dated March 25, 2023

Proposal

The proposed works include:

- To construct a ±9m wide by ±163.05 m long gravel driveway and form a new access to #1 Sideroad running southerly to the agricultural fields and to install a fence along the property line adjacent to the driveway on the 23.28 ha (57.53 ac) existing vacant agricultural lot.
- Staff understands that the proposed works are phase one of three phases (with separate NEC Development Permit applications), which may include the construction of a dwelling (including extension of the driveway), accessory structures and a winery.

Ontario Regulation 41/24

Under Ontario Regulation 41/24, CH regulates all watercourses, valleylands, wetlands, Lake Ontario Shoreline, and hazardous lands, as well as lands adjacent to these features. Based on CH's Approximate Regulation Limit (ARL) mapping, the subject property is traversed by tributaries of Tuck Creek and Grindstone Creek and contains the flooding and erosion hazards (meander belt) associated with those watercourses. The property also contains wetlands that are part of the Grindstone Creek Headwaters Provincially Significant Wetland (PSW) Complex. CH regulates the floodplain and meander belt plus a distance of 15 metres from the limit of the greater hazard at this location, and 30 metres from the limit of wetlands. Permission is required from CH prior to undertaking any development activity within CH's regulated area and applications are reviewed under the *Conservation Authorities Act*, Ontario Regulation 41/24 and CH's Regulatory Policies and Guidelines (<https://conservationhalton.ca/policies-and-guidelines>).

CH provided preconsultation feedback for this application, including comments on the Terms of Reference (ToR) for the Environmental Impact Study (EIS). CH staff also staked the limits of the wetland on July 26, 2023. The limits of the wetland shown in this application appear to be incorrect based on CH's documentation of the staking, and the submission requires updates. Regulatory floodplain limits will also need to be delineated. Detailed comments in this regard are provided in Appendix A of this letter.

In review of the plans submitted, it appears that a portion of wetland would be disturbed by the driveway crossing, and works would be within 30 metres of wetlands. The driveway is also proposed to extend through the regulatory floodplain and cross a swale from an adjacent property, which is not considered to be regulated by CH.

Should the works proposed under this NEC Development Permit Application be approved, a CH permit will be required prior to the initiation of works as the development activities are proposed within CH's regulated area. As outlined in Appendix A of this letter, additional information and updates are required to be submitted by the applicant to support CH's review and confirm works can be permitted by CH.

Ontario Regulation 686/21

In addition to CH's regulatory responsibilities described above, CH also has provincially delegated responsibilities under Ontario Regulation 686/21: Mandatory Programs and Services, to review proposals made under the *Niagara Escarpment Planning and Development Act* to comment on risks related to natural hazards arising from the proposal where the authority considers it advisable. To ensure any risks related to natural hazards are understood and addressed, the comments in Appendix A of this letter relating to delineation of hazards and the design and grading of the driveway should be addressed by the applicant.

Recommendation

To ensure natural hazards and wetlands are appropriately addressed and the proposed works can be permitted by CH, staff recommends the comments within Appendix A of this letter be addressed through a subsequent submission for further review and comments from CH prior to NEC approval.

We trust the above is of assistance. If you require additional information, please contact the undersigned by email at agallaugh@hrca.on.ca.

Please note that CH has not circulated these comments to the applicant, and we trust that you will provide them as part of your report.

We trust the above is of assistance. Please contact the undersigned with any questions.

Sincerely,



Ashley Gallagher
Planning & Regulations Analyst
905-336-1158 ext. 2267
agallagher@hrca.on.ca

Cc: City of Burlington, planning@burlington.ca
Adam Huycke, Halton Region, adam.huycke@halton.ca
Jennifer Olah, Halton Region, Jennifer.Olah@ontario.ca

Encl: Appendix A: Detailed Comments

Appendix A: Detailed Comments

The following detailed comments should be addressed by the applicant in support of NEC application H/A/2023-2024/381 to ensure the proposed works within CH's regulated area can be permitted by CH. CH may provide additional comments upon review of the updated materials.

#	CH – First Submission Comments April 17, 2024
1.	Submit a digital shape file of the wetland staking for CH review and confirmation, as it appears that there is an error in the limits shown on the drawings provided.
2.	Update the topographic survey with accurate delineation of the floodplain (with flood elevations labelled) and wetland limits. CH will follow up through separate correspondence with the applicable regulatory flood elevations to be delineated. Specify what vertical datum is represented on the survey.
3.	Update drawings showing: <ol style="list-style-type: none"> A clear distinction between the staked wetland limit and staked dripline Air photo overlaid with the staked wetland limits Distance between the edge of the proposed driveway and wetland limit Area (m²) of wetland to be impacted/removed by the driveway Staked wetland limits and 30 m CH regulation limit from wetlands Regulatory floodplain and 15 m CH regulatory allowance from floodplain Erosion and sediment control measures and details Existing and proposed cross-sectional views of intended works clearly showing grading/topography to wetland limit
4.	Provide confirmation that the proposed driveway is to remain gravel in support of the future development including vineyard and related uses. Should the driveway be paved, additional information will be required to demonstrate there are no surface water impacts to the wetland.
5.	Provide vegetation inventory of impacted features and tree preservation plan within CH regulated limits.
6.	Provide a restoration plan for any regulated areas that are proposed to be disturbed, including a wetland compensation and restoration plan equivalent to the area disturbed/removed by the proposed driveway. Please contact CH to discuss details of compensation measures. CH will review the plans alongside the updated staking information to assess whether the works can be permitted by CH.
7.	Confirm that the driveway will be level graded and/or identify any proposed grading changes on the drawings. Based on available information, provided the driveway is level graded, it appears there will be safe access/egress through the floodplain based on provincial guidelines.
8.	The EIS TOR and subsequent EIS should be updated based on CH's comments above.
9.	The Justification Brief should be updated to describe CH's regulated area and related requirements as outlined in this letter.

Appendix 2. Representative Photographs



Photo 1. Intermittent tributary of Grindstone Creek (08 May 2024).



Photo 2. Reed Canary-grass Mineral Shallow Marsh (MASM1-14) forming part of the PSW at 1st Side Road (08 May 2024).



Photo 3. Fresh-Moist Lowland Deciduous Forest (FODM7-3) (10 November 2022).



Photo 4. Fresh-Moist Poplar Deciduous Woodland (WODM5-1) along east edge of the proposed driveway envelope (25 April 2024).



Photo 5. Sump Outlet Channel (08 May 2024).



Photo 6. Reed-canary Grass Graminoid Organic Meadow Marsh (MAMO1-3) south of proposed driveway envelope (19 June 2023).



Photo 7. Green Ash Organic Deciduous Swamp (SWDO1-2) south of the proposed driveway envelope (19 June 2023).



Photo 8. Agricultural land east of proposed driveway envelope (26 August 2024).

Appendix 3. Vascular Plant List

Scientific Name	Common Name	Family	S-Rank (per NHIC)	Coefficient of Conservatism	Coefficient of Wetness
<i>Acer saccharum</i>	Sugar Maple	Aceraceae	S5	4	3
<i>Acer x freemanii</i>	Freeman's Maple	Aceraceae	SNA	6	-5
<i>Achillea millefolium</i>	Common Yarrow	Asteraceae	SNA	0	3
<i>Agrimonia gryposepala</i>	Hooked Agrimony	Rosaceae	S5	2	3
<i>Agrostis gigantea</i>	Redtop	Poaceae	SNA	0	-3
<i>Agrostis stolonifera</i>	Creeping Bentgrass	Poaceae	SNA	0	-3
<i>Alisma triviale</i>	Northern Water-plantain	Alismataceae	S5	1	-5
<i>Alliaria petiolata</i>	Garlic Mustard	Brassicaceae	SNA	0	0
<i>Ambrosia artemisiifolia</i>	Common Ragweed	Asteraceae	S5	0	3
<i>Anemone canadensis</i>	Greek Anemone	Ranunculaceae	SNA	0	0
<i>Aralia nudicaulis</i>	Wild Sarsaparilla	Araliaceae	S5	4	3
<i>Arctium lappa</i>	Great Burdock	Asteraceae	SNA	0	3
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	Araceae	S5	5	-3
<i>Arrhenatherum elatius</i>	Tall Oatgrass	Poaceae	SNA	0	3
<i>Asclepias incarnata</i>	Swamp Milkweed	Asclepiadaceae	S5	6	-5
<i>Asclepias syriaca</i>	Common Milkweed	Asclepiadaceae	S5	0	5
<i>Athyrium filix-femina</i> var. <i>angustum</i>	Northeastern Lady Fern	Dryopteridaceae	S5	4	0
<i>Barbarea vulgaris</i>	Bitter Wintercress	Brassicaceae	SNA	0	0
<i>Bidens cernua</i>	Nodding Beggarticks	Asteraceae	S5	2	-5
<i>Bidens frondosa</i>	Devil's Beggarticks	Asteraceae	S5	3	-3
<i>Boehmeria cylindrica</i>	False Nettle	Urticaceae	S5	4	-5
<i>Bromus inermis</i>	Smooth Brome	Poaceae	SNA	0	5
<i>Bromus japonicus</i>	Japanese Brome	Poaceae	SNA	0	3
<i>Carex bebbii</i>	Bebb's Sedge	Cyperaceae	S5	3	-5
<i>Carex comosa</i>	Bristly Sedge	Cyperaceae	S5	5	-5
<i>Carex crinita</i>	Fringed Sedge	Cyperaceae	S5	6	-5
<i>Carex cristatella</i>	Crested Sedge	Cyperaceae	S5	3	-3
<i>Carex deweyana</i>	Dewey's Sedge	Cyperaceae	S5	6	3
<i>Carex gracillima</i>	Graceful Sedge	Cyperaceae	S5	4	3
<i>Carex granularis</i>	Limestone Meadow Sedge	Cyperaceae	S5	3	-3
<i>Carex intumescens</i>	Bladder Sedge	Cyperaceae	S5	6	-3
<i>Carex lupulina</i>	Hop Sedge	Cyperaceae	S5	6	-5
<i>Carex molesta</i>	Troublesome Sedge	Cyperaceae	S4S5	5	0
<i>Carex pseudocyperus</i>	Cyperus-like Sedge	Cyperaceae	S5	6	-5
<i>Carex radiata</i>	Eastern Star Sedge	Cyperaceae	S5	4	0
<i>Carex retrorsa</i>	Retorse Sedge	Cyperaceae	S5	5	-5
<i>Carex sprengelii</i>	Sprengel's Sedge	Cyperaceae	S5	6	0
<i>Carex stipata</i>	Awl-fruited Sedge	Cyperaceae	S5	3	-5
<i>Carex tribuloides</i>	Blunt Broom Sedge	Cyperaceae	S4	5	-3
<i>Carex tuckermanii</i>	Tuckerman's Sedge	Cyperaceae	S5	7	-5
<i>Carex vulpinoidea</i>	Fox Sedge	Cyperaceae	S5	3	-5
<i>Carpinus caroliniana</i>	Blue-beech	Betulaceae	S5	6	0

Scientific Name	Common Name	Family	S-Rank (per NHIC)	Coefficient of Conservatism	Coefficient of Wetness
<i>Carya ovata</i>	Shagbark Hickory	Juglandaceae	S5	6	3
<i>Centaurea nigrescens</i>	Short-fringed Knapweed	Asteraceae	SNA	0	5
<i>Cichorium intybus</i>	Chicory	Asteraceae	SNA	0	5
<i>Cicuta bulbifera</i>	Bulb-bearing Water-hemlock	Apiaceae	S5	5	-5
<i>Cicuta maculata</i>	Spotted Water-hemlock	Apiaceae	S5	6	-5
<i>Circaea canadensis</i>	Broad-leaved Enchanter's Nightshade	Onagraceae	S5	2	0
<i>Cirsium arvense</i>	Canada Thistle	Asteraceae	SNA	0	3
<i>Cirsium vulgare</i>	Bull Thistle	Asteraceae	SNA	0	3
<i>Cornus obliqua</i>	Pale Dogwood	Cornaceae	S5	2	-3
<i>Cornus racemosa</i>	Gray Dogwood	Cornaceae	S5	2	0
<i>Cornus stolonifera</i>	Red-osier Dogwood	Cornaceae	S5	2	-3
<i>Crataegus formosa</i>	Waxy-fruited Hawthorn	Rosaceae	S2?	4	5
<i>Crataegus holmesiana</i>	Holmes' Hawthorn	Rosaceae	S4S5	4	5
<i>Crataegus macracantha</i>	Large-thorned Hawthorn	Rosaceae	S5	4	5
<i>Crataegus macrosperma</i>	Big-fruited Hawthorn	Rosaceae	S5	4	5
<i>Crataegus pruinosa</i>	Frosted Hawthorn	Rosaceae	S5	4	5
<i>Crataegus punctata</i>	Dotted Hawthorn	Rosaceae	S5	4	5
<i>Cynanchum rossicum</i>	Honeyvine	Asclepiadaceae	SNA	0	0
<i>Dactylis glomerata</i>	Orchard Grass	Poaceae	SNA	0	3
<i>Daucus carota</i>	Wild Carrot	Apiaceae	SNA	0	5
<i>Dianthus armeria</i>	Deptford Pink	Caryophyllaceae	SNA	0	5
<i>Dryopteris carthusiana</i>	Spinulose Wood Fern	Dryopteridaceae	S5	5	-3
<i>Dryopteris intermedia</i>	Evergreen Wood Fern	Dryopteridaceae	S5	5	0
<i>Echinocystis lobata</i>	Wild Mock-cucumber	Cucurbitaceae	S5	3	-3
<i>Epipactis helleborine</i>	Eastern Helleborine	Orchidaceae	SNA	0	3
<i>Equisetum arvense</i>	Field Horsetail	Equisetaceae	S5	0	0
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	Asteraceae	S5	1	-3
<i>Erythronium americanum</i>	Yellow Trout-lily	Liliaceae	S5	5	5
<i>Euonymus europaeus</i>	European Euonymus	Celastraceae	SNA	0	5
<i>Eupatorium perfoliatum</i>	Common Boneset	Asteraceae	S5	2	-3
<i>Eutrochium maculatum</i> var. <i>maculatum</i>	Spotted Joe Pye Weed	Asteraceae	S5	3	-5
<i>Fagus grandifolia</i>	American Beech	Fagaceae	S4	6	3
<i>Fragaria virginiana</i>	Wild Strawberry	Rosaceae	S5	2	3
<i>Fraxinus nigra</i>	Black Ash	Oleaceae	S4	7	-3
<i>Fraxinus pennsylvanica</i>	Green Ash	Oleaceae	S4	3	-3
<i>Galium aparine</i>	Cleavers	Rubiaceae	S5	4	3
<i>Galium odoratum</i>	Sweet Bedstraw	Rubiaceae	SNA	0	5
<i>Galium palustre</i>	Marsh Bedstraw	Rubiaceae	S5	5	-5
<i>Geranium maculatum</i>	Spotted Geranium	Geraniaceae	S5	6	3
<i>Geranium robertianum</i>	Herb-Robert	Geraniaceae	S5	2	3
<i>Geum canadense</i>	White Avens	Rosaceae	S5	3	0
<i>Geum urbanum</i>	Wood Avens	Rosaceae	SNA	0	5

Scientific Name	Common Name	Family	S-Rank (per NHIC)	Coefficient of Conservatism	Coefficient of Wetness
<i>Glechoma hederacea</i>	Ground Ivy	Lamiaceae	SNA	0	3
<i>Glyceria striata</i>	Fowl Mannagrass	Poaceae	S5	3	-5
<i>Hackelia virginiana</i>	Virginia Stickseed	Boraginaceae	S5	5	3
<i>Hesperis matronalis</i>	Dame's Rocket	Brassicaceae	SNA	0	3
<i>Hypericum perforatum</i>	Common St. John's-wort	Clusiaceae	SNA	0	5
<i>Inula helenium</i>	Elecampane	Asteraceae	SNA	0	3
<i>Juglans nigra</i>	Black Walnut	Juglandaceae	S4?	5	3
<i>Juncus effusus</i>	Soft Rush	Juncaceae	S5	4	-5
<i>Juncus tenuis</i>	Path Rush	Juncaceae	S5	0	0
<i>Lapsana communis</i>	Common Nipplewort	Asteraceae	SNA	0	3
<i>Larix laricina</i>	Tamarack	Pinaceae	S5	7	-3
<i>Lemna minor</i>	Lesser Duckweed	Lemnaceae	S5?	5	-5
<i>Lemna trisulca</i>	Star Duckweed	Lemnaceae	S5	6	-5
<i>Leonurus cardiaca ssp. cardiaca</i>	Common Motherwort	Lamiaceae	SNA	0	5
<i>Leucanthemum vulgare</i>	Oxeye Daisy	Asteraceae	SNA	0	5
<i>Lindera benzoin</i>	Spicebush	Lauraceae	S4	6	-3
<i>Lolium arundinaceum</i>	Tall Fescue	Poaceae	SNA	0	3
<i>Lonicera tatarica</i>	Tartarian Honeysuckle	Caprifoliaceae	SNA	0	3
<i>Lotus corniculatus</i>	Garden Bird's-foot Trefoil	Fabaceae	SNA	0	3
<i>Ludwigia palustris</i>	Marsh Seedbox	Onagraceae	S5	5	-5
<i>Lycopus uniflorus</i>	Northern Water-horehound	Lamiaceae	S5	5	-5
<i>Lythrum salicaria</i>	Purple Loosestrife	Lythraceae	SNA	0	-5
<i>Malus pumila</i>	Common Apple	Rosaceae	SNA	0	5
<i>Mattencia struthiopteris</i>	Ostrich Fern	Dryopteridaceae	S5	5	0
<i>Medicago lupulina</i>	Black Medic	Fabaceae	SNA	0	3
<i>Medicago sativa</i>	Alfalfa	Fabaceae	SNA	0	5
<i>Myosotis laxa</i>	Small Forget-me-not	Boraginaceae	S5	6	-5
<i>Nabalus altissimus</i>	Tall Rattlesnakeroot	Asteraceae	S5	5	3
<i>Onoclea sensibilis</i>	Sensitive Fern	Dryopteridaceae	S5	4	-3
<i>Ostrya virginiana</i>	Eastern Hop-hornbeam	Betulaceae	S5	4	3
<i>Oxalis stricta</i>	Upright Yellow Wood-sorrel	Oxalidaceae	S5	0	3
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	Vitaceae	S4?	6	3
<i>Parthenocissus vitacea</i>	Thicket Creeper	Vitaceae	S5	4	3
<i>Persicaria maculosa</i>	Spotted Lady's-thumb	Polygonaceae	SNA	0	-3
<i>Persicaria virginiana</i>	Virginia Smartweed	Polygonaceae	S4	6	0
<i>Phalaris arundinacea</i>	Reed Canary Grass	Poaceae	S5	0	-3
<i>Phleum pratense</i>	Common Timothy	Poaceae	SNA	0	3
<i>Picea glauca</i>	White Spruce	Pinaceae	S5	6	3
<i>Pinus strobus</i>	Eastern White Pine	Pinaceae	S5	4	3
<i>Pinus sylvestris</i>	Scots Pine	Pinaceae	SNA	0	3
<i>Plantago lanceolata</i>	English Plantain	Plantaginaceae	SNA	0	3
<i>Plantago major</i>	Common Plantain	Plantaginaceae	SNA	0	3

Scientific Name	Common Name	Family	S-Rank (per NHIC)	Coefficient of Conservatism	Coefficient of Wetness
<i>Poa compressa</i>	Canada Bluegrass	Poaceae	SNA	0	3
<i>Poa palustris</i>	Fowl Bluegrass	Poaceae	S5	5	-3
<i>Poa pratensis</i> ssp. <i>pratensis</i>	Kentucky Bluegrass	Poaceae	SNA	0	3
<i>Podophyllum peltatum</i>	May-apple	Berberidaceae	S5	5	3
<i>Populus deltoides</i>	Eastern Cottonwood	Salicaceae	S5	4	0
<i>Populus tremuloides</i>	Trembling Aspen	Salicaceae	S5	2	0
<i>Potentilla norvegica</i>	Norwegian Cinquefoil	Rosaceae	S5	0	0
<i>Potentilla recta</i>	Sulphur Cinquefoil	Rosaceae	SNA	0	5
<i>Potentilla simplex</i>	Old-field Cinquefoil	Rosaceae	S5	3	3
<i>Prunella vulgaris</i>	Heal-all	Lamiaceae	S5	0	0
<i>Prunus serotina</i>	Black Cherry	Rosaceae	S5	3	3
<i>Prunus virginiana</i>	Choke Cherry	Rosaceae	S5	2	3
<i>Quercus macrocarpa</i>	Bur Oak	Fagaceae	S5	5	3
<i>Quercus rubra</i>	Northern Red Oak	Fagaceae	S5	6	3
<i>Ranunculus abortivus</i>	Kidney-leaved Buttercup	Ranunculaceae	S5	2	0
<i>Ranunculus acris</i>	Tall Buttercup	Ranunculaceae	SNA	0	0
<i>Ranunculus caricetorum</i>	Northern Swamp Buttercup	Ranunculaceae	S5	5	-5
<i>Ranunculus sceleratus</i>	Cursed Buttercup	Ranunculaceae	S5	2	-5
<i>Rhamnus cathartica</i>	Common Buckthorn	Rhamnaceae	SNA	0	0
<i>Rhus typhina</i>	Staghorn Sumac	Anacardiaceae	S5	1	3
<i>Ribes cynosbati</i>	Prickly Gooseberry	Grossulariaceae	S5	4	3
<i>Ribes rubrum</i>	Northern Red Currant	Grossulariaceae	SNA	0	5
<i>Rosa blanda</i>	Smooth Rose	Rosaceae	S5	3	3
<i>Rosa multiflora</i>	Multiflora Rose	Rosaceae	SNA	0	3
<i>Rubus allegheniensis</i>	Allegheny Blackberry	Rosaceae	S5	2	3
<i>Rubus idaeus</i> ssp. <i>strigosus</i>	Wild Red Raspberry	Rosaceae	S5	2	3
<i>Rubus occidentalis</i>	Black Raspberry	Rosaceae	S5	2	5
<i>Rumex crispus</i>	Curly Dock	Polygonaceae	SNA	0	0
<i>Salix amygdaloides</i>	Peach-leaved Willow	Salicaceae	S5	6	-3
<i>Salix discolor</i>	Pussy Willow	Salicaceae	S5	3	-3
<i>Salix eriocephala</i>	Heart-leaved Willow	Salicaceae	S5	4	-3
<i>Salix petiolaris</i>	Meadow Willow	Salicaceae	S5	3	-3
<i>Salix purpurea</i>	Purple Willow	Salicaceae	SNA	0	-3
<i>Salix triandra</i>	Almond Willow	Salicaceae	SNA	0	0
<i>Salix x fragilis</i>	(<i>Salix alba</i> X <i>Salix euxina</i>)	Salicaceae	SNA	0	0
<i>Schoenoplectus tabernaemontani</i>	Soft-stemmed Bulrush	Cyperaceae	S5	5	-5
<i>Scirpus atrocinctus</i>	Black-girdled Bulrush	Cyperaceae	S5	5	-5
<i>Scirpus atrovirens</i>	Dark-green Bulrush	Cyperaceae	S5	3	-5
<i>Sium suave</i>	Hemlock Water-parsnip	Apiaceae	S5	4	-5
<i>Solanum dulcamara</i>	Bittersweet Nightshade	Solanaceae	SNA	0	0
<i>Solidago altissima</i>	Tall Goldenrod	Asteraceae	S5	1	3
<i>Solidago gigantea</i>	Giant Goldenrod	Asteraceae	S5	4	-3

Scientific Name	Common Name	Family	S-Rank (per NHIC)	Coefficient of Conservatism	Coefficient of Wetness
<i>Solidago rugosa ssp. rugosa</i>	Northern Rough-stemmed Goldenrod	Asteraceae	S5	4	0
<i>Sonchus arvensis ssp. arvensis</i>	Glandular Field Sow-thistle	Asteraceae	SNA	0	3
<i>Sporobolus vaginiflorus</i>	Sheathed Dropseed	Poaceae	S5	1	5
<i>Stellaria graminea</i>	Grass-leaved Starwort	Caryophyllaceae	SNA	0	5
<i>Symphyotrichum lanceolatum</i>	Panicled Aster	Asteraceae	S5	3	-3
<i>Symphyotrichum lateriflorum var. lateriflorum</i>	Calico Aster	Asteraceae	S5	3	0
<i>Symphyotrichum puniceum var. puniceum</i>	Swamp Aster	Asteraceae	S5	6	-5
<i>Taraxacum officinale</i>	Common Dandelion	Asteraceae	SNA	0	3
<i>Thuja occidentalis</i>	Eastern White Cedar	Cupressaceae	S5	4	-3
<i>Tilia americana</i>	American Basswood	Tiliaceae	S5	4	3
<i>Toxicodendron radicans</i>	Poison Ivy	Anacardiaceae	S5	2	0
<i>Trifolium hybridum</i>	Alsike Clover	Fabaceae	SNA	0	3
<i>Trifolium pratense</i>	Red Clover	Fabaceae	SNA	0	3
<i>Trifolium repens</i>	White Clover	Fabaceae	SNA	0	3
<i>Trillium grandiflorum</i>	White Trillium	Liliaceae	S5	5	3
<i>Typha angustifolia</i>	Narrow-leaved Cattail	Typhaceae	SNA	0	-5
<i>Typha latifolia</i>	Broad-leaved Cattail	Typhaceae	S5	1	-5
<i>Ulmus americana</i>	American Elm	Ulmaceae	S5	3	-3
<i>Urtica dioica ssp. gracilis</i>	Slender Stinging Nettle	Urticaceae	S5	2	0
<i>Veronica officinalis</i>	Common Speedwell	Scrophulariaceae	SNA	0	5
<i>Viburnum acerifolium</i>	Maple-leaved Viburnum	Caprifoliaceae	S5	6	5
<i>Viburnum lentago</i>	Nannyberry	Caprifoliaceae	S5	4	0
<i>Viburnum opulus ssp. opulus</i>	Cranberry Viburnum	Caprifoliaceae	SNA	0	-3
<i>Vicia tetrasperma</i>	Smooth Arrowwood	Caprifoliaceae	S4	7	0
<i>Vicia cracca</i>	Tufted Vetch	Fabaceae	SNA	0	5
<i>Viola cucullata</i>	Marsh Blue Violet	Violaceae	S5	5	-5
<i>Vitis riparia</i>	Riverbank Grape	Vitaceae	S5	0	0

Appendix 4. Tree Inventory and Condition Assessment

Tag No.	Common Name	Scientific Name	DBH (cm)	Crown Radius (m)	Risk Features, Decline Indicators, and Growth Constraints	Health Condition ¹	Structural Condition ¹	Ownership ²	Min. TPZ (m)	Tree Preservation Recommendation ³
1	Eastern White Pine	<i>Pinus strobus</i>	18	2		Good	Good	2190 1st Side Rd.	1.8	Retain - beyond development envelope.
2	Eastern White Pine	<i>Pinus strobus</i>	16	2		Good	Good	2190 1st Side Rd.	1.8	Retain - beyond development envelope.
3	Colorado Blue Spruce	<i>Picea pungens</i>	18	0.5		Good	Good	2190 1st Side Rd.	1.8	Retain - beyond development envelope.
4	Colorado Blue Spruce	<i>Picea pungens</i>	18	0.5		Good	Good	2190 1st Side Rd.	1.8	Retain - beyond development envelope.
5	Colorado Blue Spruce	<i>Picea pungens</i>	16	0.5		Good	Good	2190 1st Side Rd.	1.8	Retain - beyond development envelope.
201	Green Ash	<i>Fraxinus pennsylvanica</i>	12	1.5	Epicormic branches	Poor	Good/Fair	Applicant	1.8	Retain - beyond development envelope.
202	European Larch	<i>Larix decidua</i>	26	2	Large beetle exit holes, bark starting to peel	Dead	Dead	Applicant	1.8	Retain - beyond development envelope.
203	Green Ash	<i>Fraxinus pennsylvanica</i>	15	2		Fair	Good	Applicant	1.8	Retain - beyond development envelope.
204	Green Ash	<i>Fraxinus pennsylvanica</i>	11	1.5	EAB	Dead	Dead	Applicant	1.8	Retain - beyond development envelope.
205	European Larch	<i>Larix decidua</i>	18	1	Leaning slightly, some loose bark	Dead	Dead	Applicant	1.8	Retain - beyond development envelope.
206	European Larch	<i>Larix decidua</i>	14	1	Some loose bark	Dead	Dead	Applicant	1.8	Retain - beyond development envelope.
207	European Larch	<i>Larix decidua</i>	21	2	Exposed roots in all <i>Larix</i>	Dead	Dead	Applicant	1.8	Retain - beyond development envelope.
208	European Larch	<i>Larix decidua</i>	28	2.5	Alive with exposed roots	Fair/Poor	Fair/Poor	Applicant	1.8	Retain - beyond development envelope.
209	Hybrid Willow	<i>Salix x fragilis</i>	154	10	Snag-01	Good/Fair	Good/Fair	Applicant	9.2	Retain - beyond development envelope.
210	Hybrid Willow	<i>Salix x fragilis</i>	104	8	Decay at base, snag-02	Fair	Fair	Applicant	6.2	Retain - beyond development envelope.
211	Hybrid Willow	<i>Salix x fragilis</i>	112	8	Some dieback in branches, snag-03	Good/Fair	Good/Fair	Applicant	6.7	Retain - beyond development envelope.
212	Green Ash	<i>Fraxinus pennsylvanica</i>	14	1.5		Good/Fair	Good/Fair	Applicant	1.8	Retain - beyond development envelope.
213	Green Ash	<i>Fraxinus pennsylvanica</i>	13	1		Good/Fair	Good/Fair	Applicant	1.8	Retain - beyond development envelope.
214	Green Ash	<i>Fraxinus pennsylvanica</i>	14	1	EAB	Poor	Poor	Applicant	1.8	Retain - beyond development envelope.
215	Green Ash	<i>Fraxinus pennsylvanica</i>	11	1		Good/Fair	Good/Fair	Applicant	1.8	Retain - beyond development envelope.
216	Green Ash	<i>Fraxinus pennsylvanica</i>	17	3	EAB	Fair/Poor	Fair/Poor	Applicant	1.8	Retain - beyond development envelope.
217	Green Ash	<i>Fraxinus pennsylvanica</i>	13	2		Fair	Good/Fair	Applicant	1.8	Retain - beyond development envelope.
218	Hybrid Willow	<i>Salix x fragilis</i>	85	8	Some dead branches, snag-04	Good/Fair	Good/Fair	Applicant	5.4	Injure - root damage within mTPZ expected.
220	White Elm	<i>Ulmus americana</i>	11	1	At edge of wetland	Good	Good	Applicant	1.8	Retain - beyond development envelope.
221	Hybrid Willow	<i>Salix x fragilis</i>	63	8		Good	Good	Applicant	4.2	Injure - root damage within mTPZ expected.
222	Green Ash	<i>Fraxinus pennsylvanica</i>	11	1	EAB	Fair/Poor	Fair/Poor	Applicant	1.8	Retain - beyond development envelope.
223	Hybrid Willow	<i>Salix x fragilis</i>	101	8		Good	Good/Fair	Applicant	6.1	Retain - beyond development envelope.
224	Hybrid Willow	<i>Salix x fragilis</i>	72	8		Good	Good/Fair	Applicant	4.8	Retain - beyond development envelope.
225	Hybrid Willow	<i>Salix x fragilis</i>	68	7	Some upper branches have been cut	Good/Fair	Good/Fair	Applicant	4.2	Retain - beyond development envelope.
226	Hybrid Willow	<i>Salix x fragilis</i>	64	6	Leader missing, horizontal regrowth, rot at base, snag-05	Fair/Poor	Fair/Poor	Applicant	4.2	Retain - beyond development envelope.
227	Hybrid Willow	<i>Salix x fragilis</i>	83	8		Good	Good/Fair	Applicant	5.4	Retain - beyond development envelope.
228	White Elm	<i>Ulmus americana</i>	11	0.5	Willow branch leaning on tree	Good	Good	Applicant	1.8	Retain - beyond development envelope.
229	Hybrid Willow	<i>Salix x fragilis</i>	74	8	Leaning over water course	Good	Good/Fair	Applicant	6	Retain - beyond development envelope.

Tag No.	Common Name	Scientific Name	DBH (cm)	Crown Radius (m)	Risk Features, Decline Indicators, and Growth Constraints	Health Condition ¹	Structural Condition ¹	Ownership ²	Min. TPZ (m)	Tree Preservation Recommendation ³
229	Hybrid Willow	<i>Salix x fragilis</i>	91	6	Leader missing at 4 m, snag-06	Fair/Poor	Poor	Applicant	4.8	Injure - root damage within mTPZ expected.
230	Green Ash	<i>Fraxinus pennsylvanica</i>	12	1	Epicormic	Fair/Poor	Good/Fair	Applicant	1.8	Retain - beyond development envelope.
231	Green Ash	<i>Fraxinus pennsylvanica</i>	11	1	EAB	Fair/Poor	Fair/Poor	Applicant	1.8	Retain - beyond development envelope.
232	Green Ash	<i>Fraxinus pennsylvanica</i>	19	4	EAB	Fair/Poor	Fair/Poor	Applicant	1.8	Retain - beyond development envelope.
233	Trembling Aspen	<i>Populus tremuloides</i>	10	1.5		Good	Good	Applicant	1.8	Retain - beyond development envelope.
234	Trembling Aspen	<i>Populus tremuloides</i>	11	2		Good	Good	Applicant	1.8	Retain - beyond development envelope.
235	Trembling Aspen	<i>Populus tremuloides</i>	11	1		Good	Good	Applicant	1.8	Retain - beyond development envelope.
236	Trembling Aspen	<i>Populus tremuloides</i>	10	1		Good	Good	Applicant	1.8	Retain - beyond development envelope.
237	Trembling Aspen	<i>Populus tremuloides</i>	16	2		Good	Good	Applicant	1.8	Retain - beyond development envelope.
238	Trembling Aspen	<i>Populus tremuloides</i>	11	2		Good	Good	Applicant	1.8	Retain - beyond development envelope.
239	Trembling Aspen	<i>Populus tremuloides</i>	11	1.5		Good	Good	Applicant	1.8	Retain - beyond development envelope.
240	Trembling Aspen	<i>Populus tremuloides</i>	11	2		Good	Good	Applicant	1.8	Retain - beyond development envelope.
241	Trembling Aspen	<i>Populus tremuloides</i>	11	2		Good	Good	Applicant	1.8	Retain - beyond development envelope.
242	Trembling Aspen	<i>Populus tremuloides</i>	11	1		Good	Good	Applicant	1.8	Retain - beyond development envelope.
243	Trembling Aspen	<i>Populus tremuloides</i>	15	2		Good	Good	Applicant	1.8	Retain - beyond development envelope.
244	Trembling Aspen	<i>Populus tremuloides</i>	11	1.5		Good	Good	Applicant	1.8	Retain - beyond development envelope.
245	Trembling Aspen	<i>Populus tremuloides</i>	11	1		Good	Good	Applicant	1.8	Retain - beyond development envelope.
246	Trembling Aspen	<i>Populus tremuloides</i>	15	2	Field edge/path edge	Good	Good	Applicant	1.8	Retain - beyond development envelope.
247	Trembling Aspen	<i>Populus tremuloides</i>	11	1	Field edge	Good	Good	Applicant	1.8	Retain - beyond development envelope.
248	Green Ash	<i>Fraxinus pennsylvanica</i>	18	1	EAB, epicormics, loose bark	Poor	Poor	Applicant	1.8	Retain - beyond development envelope.
249	Green Ash	<i>Fraxinus pennsylvanica</i>	45, 43, 35	6	Epicormics, EAB, loose bark, mostly dead, snag-07	Poor	Poor	Applicant	4.2	Retain - beyond development envelope.
250	Trembling Aspen	<i>Populus tremuloides</i>	10	1		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
251	Trembling Aspen	<i>Populus tremuloides</i>	14	3	Lean at base	Good	Good/Fair	Applicant	1.8	Remove - conflicts with proposed driveway.
252	Trembling Aspen	<i>Populus tremuloides</i>	34	6	Attached to 253 at base	Good	Good	Applicant	2.4	Remove - conflicts with proposed driveway.
253	Trembling Aspen	<i>Populus tremuloides</i>	29	4	Attached to 252 at base	Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
254	Trembling Aspen	<i>Populus tremuloides</i>	16	4		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
255	Trembling Aspen	<i>Populus tremuloides</i>	25	4	One dead stem at base 9 DBH	Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.

Tag No.	Common Name	Scientific Name	DBH (cm)	Crown Radius (m)	Risk Features, Decline Indicators, and Growth Constraints	Health Condition ¹	Structural Condition ¹	Ownership ²	Min. TPZ (m)	Tree Preservation Recommendation ³
256	Trembling Aspen	<i>Populus tremuloides</i>	18	3		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
257	Trembling Aspen	<i>Populus tremuloides</i>	16	3		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
258	Trembling Aspen	<i>Populus tremuloides</i>	14	2		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
259	Trembling Aspen	<i>Populus tremuloides</i>	13	2		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
260	Black Walnut	<i>Juglans nigra</i>	14	2		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
261	Trembling Aspen	<i>Populus tremuloides</i>	15	2		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
262	Trembling Aspen	<i>Populus tremuloides</i>	12	1		Good	Good	Applicant	1.8	Retain - beyond development envelope.
263	Trembling Aspen	<i>Populus tremuloides</i>	25	4	Slight lean	Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
264	Trembling Aspen	<i>Populus tremuloides</i>	24	4		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
265	Trembling Aspen	<i>Populus tremuloides</i>	14	1		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
266	Trembling Aspen	<i>Populus tremuloides</i>	22	4	Slight lean	Good	Good/Fair	2190 1st Side Rd.	1.8	Injure - root damage within mTPZ expected.
267	Trembling Aspen	<i>Populus tremuloides</i>	13	1	Slight lean	Good	Good	2190 1st Side Rd.	1.8	Injure - root damage within mTPZ expected.
268	Trembling Aspen	<i>Populus tremuloides</i>	27	5		Good	Good	2190 1st Side Rd.	1.8	Injure - root damage within mTPZ expected.
269	Trembling Aspen	<i>Populus tremuloides</i>	36	2	One dead leader with cavities, snag-08	Poor	Fair/Poor	2190 1st Side Rd.	2.4	Injure - root damage within mTPZ expected.
270	Trembling Aspen	<i>Populus tremuloides</i>	23, 24	5		Good	Fair	2190 1st Side Rd.	2.4	Injure - root damage within mTPZ expected.
271	Trembling Aspen	<i>Populus tremuloides</i>	13	2		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
272	Trembling Aspen	<i>Populus tremuloides</i>	15, 12	2	Slight lean	Good	Good/Fair	Applicant	1.8	Remove - conflicts with proposed driveway.
273	Trembling Aspen	<i>Populus tremuloides</i>	24	4		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.

Tag No.	Common Name	Scientific Name	DBH (cm)	Crown Radius (m)	Risk Features, Decline Indicators, and Growth Constraints	Health Condition ¹	Structural Condition ¹	Ownership ²	Min. TPZ (m)	Tree Preservation Recommendation ³
274	Trembling Aspen	<i>Populus tremuloides</i>	23	4	Recently dead, snag-09	Dead	Dead	Applicant	1.8	Remove - conflicts with proposed driveway.
275	Trembling Aspen	<i>Populus tremuloides</i>	21	3	Lean at 4 m	Good	Fair	Applicant	1.8	Remove - conflicts with proposed driveway.
276	Trembling Aspen	<i>Populus tremuloides</i>	16	2	Bend/lean at 4 m	Good	Fair	Applicant	1.8	Remove - conflicts with proposed driveway.
277	Trembling Aspen	<i>Populus tremuloides</i>	11	1		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
278	Trembling Aspen	<i>Populus tremuloides</i>	13	2		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
279	Trembling Aspen	<i>Populus tremuloides</i>	12	1		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
280	Trembling Aspen	<i>Populus tremuloides</i>	24	4	Leader dead, split into 2 new leaders	Good/Fair	Fair	Applicant	1.8	Remove - conflicts with proposed driveway.
281	Green Ash	<i>Fraxinus pennsylvanica</i>	70	6	Epicormic, EAB, snag-10	Dead	Dead	Applicant	6	Remove - conflicts with proposed driveway.
282	Shagbark Hickory	<i>Carya ovata</i>	52	8	Property edge	Good	Good	Applicant	3.6	Remove - conflicts with proposed driveway.
283	Shagbark Hickory	<i>Carya ovata</i>	16	3		Good	Good	Applicant	1.8	Remove - conflicts with proposed driveway.
284	European Larch	<i>Larix decidua</i>	26	2	Roots exposed	Dead	Dead	Applicant	1.8	Retain - beyond development envelope.
285	European Larch	<i>Larix decidua</i>	24	2	Roots exposed	Dead	Dead	Applicant	1.8	Retain - beyond development envelope.

¹ - Notwithstanding the determinations of tree health and structural integrity made herein (e.g., good, fair, poor), it must be recognized that all trees (in good health or otherwise) have the potential for failure given adverse weather, damage due to mechanical injury, or other factors that cause stress.

² - All determinations of tree ownership are approximate and have been made in the absence of on-site property boundary markers or other direction from a licensed surveyor.

³ - Notwithstanding any recommendations concerning tree preservation or removal made herein, this report does not supersede or expunge any civil or common law property rights as they pertain to shared/boundary trees or trees occurring on adjacent properties. It is expected that the Applicant will seek approval to injure/remove any and all shared/boundary or neighbouring trees from relevant owners.

Appendix 5. Anuran Calling Survey Results

1 ANURAN CALLING SURVEY METHODOLOGY

Calling anuran surveys were conducted in accordance with the *Marsh Monitoring Program for Surveying Amphibians* (Bird Studies Canada et al. 2008). This protocol involves the completion of three (3) rounds of surveys once per month between April and June from 30 minutes after sunset until approximately midnight. Appropriate weather conditions include no or very light precipitation and wind speed ≤ 3 on the Beaufort wind scale. As the Subject Property is located within the central region (between the 43rd and 47th parallels), all three (3) rounds of surveys should occur during the second half of the month (i.e., April 15-30, May 15-31, and June 15-30).

A total of 5 anuran calling stations were established and situated systematically to cover potentially significant anuran breeding habitats, particularly those that are near proposed areas disturbance. Each station was surveyed for a minimum duration of three (3) minutes. Anurans and evidence of anuran breeding (i.e., vocalizations, tadpoles, etc.) were also recorded incidentally during other field activities on-site.

2 RESULTS

Table 1. Results of Anuran Calling Surveys.

Station ID ¹	Feature or ELC Community Surveyed	Bearing (°)	Survey #1 – 10 April 2023 ²	Survey #2 – 11 May 2023 ²	Survey #3 – 21 June 2023 ²	Comments
AN-1	MAMO1-2	57	No Amphibians Calling	American Toad 1-2 Spring Peeper 2-8	No Amphibians Calling	Survey #1: n/a Survey #2: American Toad 20 m east of station, Spring Peeper 30 m east of station. Survey #3: n/a
AN-2	MAMO1-3	159	Spring Peeper 3 Wood Frog 1-3	Gray Treefrog 1-2 Northern Leopard Frog 1-1 Spring Peeper 3	No Amphibians Calling	Survey #1: Anurans 10-20 m southeast of station. Survey #2: n/a Survey #3: n/a
AN-3	MAMO1-2	292	Spring Pepper 3 Wood Frog 3	Gray Treefrog 2-4 Spring Peeper 3	Gray Treefrog 1-1 Green Frog 1-4	Survey #1: Anurans calling 20-40 meters west of station. Survey #2: n/a Survey #3: n/a
AN-4	MAMO1-2, SWDO1-2, open pond	220	Spring Peeper 3 Wood Frog 3	Gray Treefrog 3 Spring Peeper 3	Gray Treefrog 3 Green Frog 1-1	Survey #1: Anuran calling appears to be concentrated in the open water pond (OAO). Survey #2: n/a Survey #3: n/a
AN-5	MAMO1-3	299	No Amphibians Calling	American Toad 1-2	No Amphibians Calling	Survey #1: n/a Survey #2: American Toad calling from Grindstone Creek tributary 40 m north of station. Survey #3: n/a

¹ Locations of Anuran Calling Stations are shown in **Figure 2**.

²**Call Code 1** = Individuals can be counted; calls not simultaneous; **Call Code 2** = Calls distinguishable; some simultaneous calling; **Call Code 3** = Full chorus; calls continuous and overlapping. Second number after the call code indicates the estimated number of individuals calling; no estimate of individuals is provided for Call Code 3.

Appendix 6. Breeding Bird Survey Results

1 BREEDING BIRD SURVEY METHODOLOGY

Two breeding bird surveys were conducted following Ontario Breeding Bird Atlas (OBBA) protocols (Bird Studies Canada et al. 2001). The surveys occurred within the appropriate season (May 24–July 10), time of day (between dawn and 5 hours after dawn), and weather conditions (no rain, wind speed ≤ 3 on the Beaufort Wind Scale). The station was surveyed for a minimum duration of ten (10) minutes.

Seven (7) survey station was established and situated systematically to cover the variety of bird habitats on-site, particularly habitats with a high potential to support significant bird species and those that occur within or adjacent to proposed areas of disturbance. The locations of all point count stations and significant bird species were recorded in the field with a high-accuracy GPS.

Signs of breeding activity accompanied each bird record (e.g., singing male, probable pair, agitation, carrying nest material, etc.). The OBBA provides four (4) breeding categories to accompany each observation:

Observed: Species observed during its breeding season (no evidence of breeding).

Possible Breeding: Includes any of the following observation types: 1) species observed in its breeding season in suitable nesting habitat, and 2) singing male present, or breeding calls heard, in its breeding season in suitable nesting habitat.

Probable Breeding: Includes any of the following observation types: 1) pair observed in their breeding season in suitable nesting habitat, 2) permanent territory presumed through registration of territorial song on at least 2 days, a week or more apart, at the same place, 3) courtship or display between a male and a female or 2 males, including courtship feeding or copulation, 4) visiting probable nest site, 5) agitated behaviour or anxiety calls of an adult, 6) brood patch on adult female or cloacal protuberance on adult male, and 7) nest-building or excavation of nest hole.

Confirmed Breeding: Includes any of the following observation types: 1) distraction display or injury feigning, 2) used nest or egg shell found (occupied or laid within the period of the study), 3) recently fledged young or downy young, including young incapable of sustained flight, 4) adults leaving or entering nest site in circumstances indicating occupied nest, 5) adult carrying faecal sac, 6) adult carrying food for young, 7) nest containing eggs, and 8) nest with young seen or heard.

2 RESULTS

Table 1. Results of Breeding Bird Surveys.

Common Name	Scientific Name	Breeding Bird Survey Stations ^{1,2}						
		BI-1	BI-2	BI-3	BI-4	BI-5	BI-6	BI-7
American Crow	<i>Corvus brachyrhynchos</i>	Po	Pr					Po
American Goldfinch	<i>Spinus tristis</i>		Pr			Po	Po	
American Redstart	<i>Setophaga ruticilla</i>		Po		Po			
American Robin	<i>Turdus migratorius</i>	Pr	Po	Po	Po	Pr	Po	Po
American Woodcock	<i>Scolopax minor</i>							
Baltimore Oriole	<i>Icterus galbula</i>	Pr	Pr	Po			Pr	
Barn Swallow	<i>Hirundo rustica</i>					O		O
Black-capped Chickadee	<i>Poecile atricapillus</i>	Pr	Pr	Po				Po
Blue Jay	<i>Cyanocitta cristata</i>	Pr	Pr			Po		
Blue-winged Warbler	<i>Vermivora cyanoptera</i>							
Bobolink	<i>Dolichonyx oryzivorus</i>			Po	Pr		Pr	
Brown-headed Cowbird	<i>Molothrus ater</i>	Po	Pr	Po	Po			
Brown Thrasher	<i>Toxostoma rufum</i>							Po
Canada Goose	<i>Branta canadensis</i>		Po					
Cedar Waxwing	<i>Bombycilla cedrorum</i>	Pr		Pr				
Chipping Sparrow	<i>Spizella passerina</i>	Pr						
Common Grackle	<i>Quiscalus quiscula</i>			Po	Po		Pr	
Common Yellowthroat	<i>Geothlypis trichas</i>	Pr				Pr		
Double-crested Cormorant	<i>Phalacrocorax auritus</i>							
Downy Woodpecker	<i>Dryobates pubescens</i>		Co		Po			
Eastern Kingbird	<i>Tyrannus tyrannus</i>	Pr						

Common Name	Scientific Name	Breeding Bird Survey Stations ^{1,2}						
		BI-1	BI-2	BI-3	BI-4	BI-5	BI-6	BI-7
Eastern Meadowlark	<i>Sturnella magna</i>						Po	Po
Eastern Towhee	<i>Pipilo erythrophthalmus</i>					Po		
Eastern Wood-pewee	<i>Contopus virens</i>		Po		Po			
European Starling	<i>Sturnus vulgaris</i>	Pr			Po		Po	
Field Sparrow	<i>Spizella pusilla</i>				Po			
Gray Catbird	<i>Dumetella carolinensis</i>		Pr		Po		Po	
Great Crested Flycatcher	<i>Myrarchus crinitus</i>		Pr		Po	Po		
Hairy Woodpecker	<i>Leuconotopicus villosus</i>		Po					
House Wren	<i>Troglodytes aedon</i>	Pr						Po
Indigo Bunting	<i>Passerina cyanea</i>							Po
Killdeer	<i>Charadrius vociferus</i>				Pr			
Mallard	<i>Anas platyrhynchos</i>		Pr					
Mourning Dove	<i>Zenaida macroura</i>	Po						
Northern Cardinal	<i>Cardinalis cardinalis</i>	Po	Po	Po	Po		Po	Po
Northern Flicker	<i>Colaptes auratus</i>			Po			Pr	
Northern Waterthrush	<i>Parus noveboracensis</i>		Po					
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>		Pr					
Red-eyed Vireo	<i>Vireo olivaceus</i>		Pr	Po	Pr	Po		
Red-tailed Hawk	<i>Buteo jamaicensis</i>				Po			
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Po	Pr	Pr	Po	Pr	Pr	Pr
Ring-billed Gull	<i>Larus delawarensis</i>							
Rose-breasted Grosbeak	<i>Phenictus ludovicianus</i>		Pr	Po			Pr	
Ruby-throated Hummingbird	<i>Archilochus colubris</i>		Po					
Savannah Sparrow	<i>Passerculus sandwichensis</i>				Pr	Pr		Pr

Common Name	Scientific Name	Breeding Bird Survey Stations ^{1,2}						
		BI-1	BI-2	BI-3	BI-4	BI-5	BI-6	BI-7
Scarlet Tanager	<i>Piranga olivacea</i>					Po		
Song Sparrow	<i>Melospiza melodia</i>	Pr	Pr	Pr	Po	Pr	Pr	Pr
Swamp Sparrow	<i>Melospiza georgiana</i>		Pr					
Spotted Sandpiper	<i>Actitis macularius</i>						Po	
Warbling Vireo	<i>Vireo gilvis</i>	Pr						
White-breasted Nuthatch	<i>Sitta carolinensis</i>	Po	Po	Po				
Wild Turkey	<i>Meleagris gallopavo</i>		Po					
Wood Duck	<i>Aix sponsa</i>		Pr					
Wood Thrush	<i>Hylocichla mustelina</i>					Pr		
Yellow Warbler	<i>Setophaga petechia</i>		Pr	Po		Po		

1 Locations of breeding bird survey stations are indicated on **Figure 2**.

2 Co = Confirmed Breeder; Pr = Probable Breeder; Po = Possible Breeder; O = Observed (no evidence of breeding). Breeding status determined based on the results of the formal breeding bird surveys; where a higher level of breeding status was documented incidentally (i.e., during other field surveys), this is noted in within the main body of the report (where applicable).

Appendix 7. Headwater Drainage Feature Classification and Management Recommendations

HDF Segment	Segment Code	Step 1. Hydrology		Step 2. Riparian	Step 3. Fish Habitat	Step 4. Terrestrial Habitat	Management Recommendation
		Function ^{1,2}	Modifiers				
GR-1	S1	FC – 4 (freshet) FT – 4	N/A	Important (wetland)	Contributing	Contributing	Conservation (wetland)
		Contributing					
GR-2	S1	FC – 4 (freshet) FT – 7	N/A	Contributing	Contributing	Limited	Mitigation
		Contributing					

¹FC (Flow Conditions) 1-no surface water, 2-standing water, 3-interstitial flow, 4-surface flow minimal, 5-surface flow substantial.

²FT (Feature Type): 1-defined natural channel, 2-channelized, 3-multi-thread, 4-no defined feature, 5-tiled drainage, 6-wetland, 7-swale, 8-roadside ditch, 9-online pond outlet.

*Codes correspond with the Unconstrained Headwater Drainage Feature (S4.M11) module of the Ontario Stream Assessment Protocol (OSAP).

Appendix 8. Bat Tree Roosting Habitat Assessment Results

Table 1. Snag and Cavity Tree Assessment

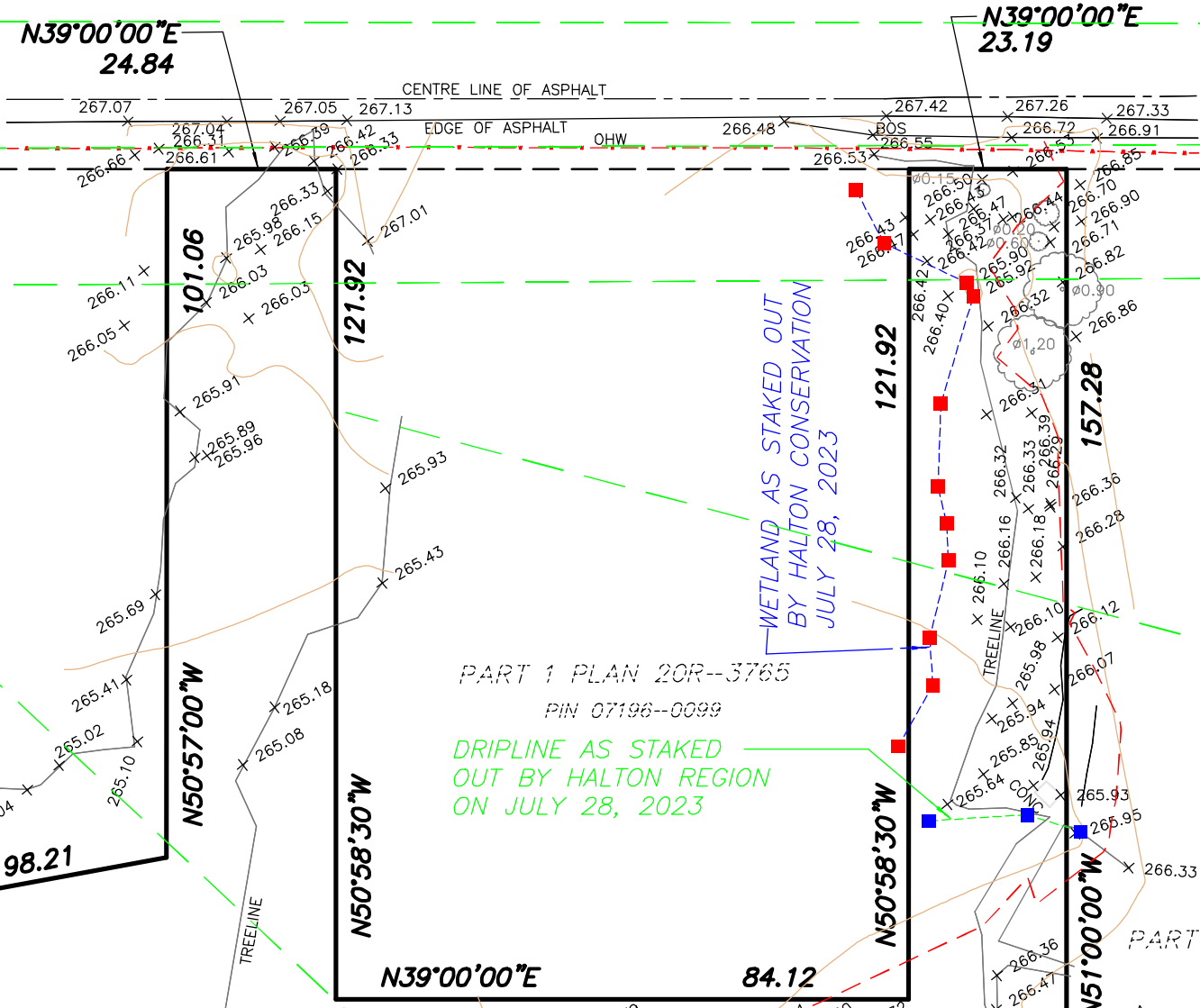
Tree No.	Common Name	Scientific Name	DBH	Decay Class	Height Class	No. of Cavities	Loose Bark?	Notes
SN-01	Hybrid Crack Willow	<i>Salix x fragilis</i>	154	1 – Healthy, Live Tree	1 - Dominant (above canopy)	1	No	Dead upper branches, likely more cavities in canopy.
SN-02	Hybrid Crack Willow	<i>Salix x fragilis</i>	104	1 – Healthy, Live Tree	1 - Dominant (above canopy)	--	No	Large cavities/hollow at tree base
SN-03	Hybrid Crack Willow	<i>Salix x fragilis</i>	112	1 – Healthy, Live Tree	2 - Co-dominant (canopy height)	10 (10-20 cm)	No	Appears hollow at base, large dead branches with cavities.
SN-04	Hybrid Crack Willow	<i>Salix x fragilis</i>	85	1 – Healthy, Live Tree	2 - Co-dominant (canopy height)	1 (20 cm) on dead upper branch	No	--
SN-05	Hybrid Crack Willow	<i>Salix x fragilis</i>	64	1 – Healthy, Live Tree	2 - Co-dominant (canopy height)	1 knot hole at 2 m, 2 large cavities in backside (30 cm) interior maybe hollow	Yes	Tree #226
SN-06	Hybrid Crack Willow	<i>Salix x fragilis</i>	91	2 – Declining live tree, part of canopy lost	4 - Suppressed	--	Yes	Broken top at 4 m, some hanging branches that look hollow.
SN-07	Green Ash	<i>Fraxinus pennsylvanica</i>	35, 43, 45	4 – Recently dead, bark peeling, only large branches intact	2 - Co-dominant (canopy height)	--	Yes	No cavities but lots of loose bark
SN-08	Green Ash	<i>Fraxinus pennsylvanica</i>	18	2 – Declining live tree, part of canopy lost	4 - Suppressed	--	Yes	Mostly dead, epicormics.
SN-09	Trembling Aspen	<i>Populus tremuloides</i>	23	3 – Very recently dead, no canopy, bark, intact, branches intact	2 - Co-dominant (canopy height)	--	Yes	Limited loose bark, Tree #274
SN-10	Green Ash	<i>Fraxinus pennsylvanica</i>	--	2 – Declining live tree, part of canopy lost	2 - Co-dominant (canopy height)	--	Yes	Limited loose bark on upper branches

Tree No.	Common Name	Scientific Name	DBH	Decay Class	Height Class	No. of Cavities	Loose Bark?	Notes
SN-11	Trembling Aspen	<i>Populus tremuloides</i>	36	2 – Declining live tree, part of canopy lost	2 - Co-dominant (canopy height)	1 (5 cm) at branch junction 2 (20 cm) at top of leader 6 m high	Yes	Tree #269

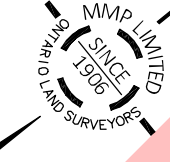
¹ Height classes are as follows: 1 = Less than 4.9 m; 2 = 5-9.9 m; 3 – 10-14.9 m; 4 – 15-19.9 m; 5 = 20-24.9 m, 6 = > 25 m.

Appendix 9. Survey (MMP)

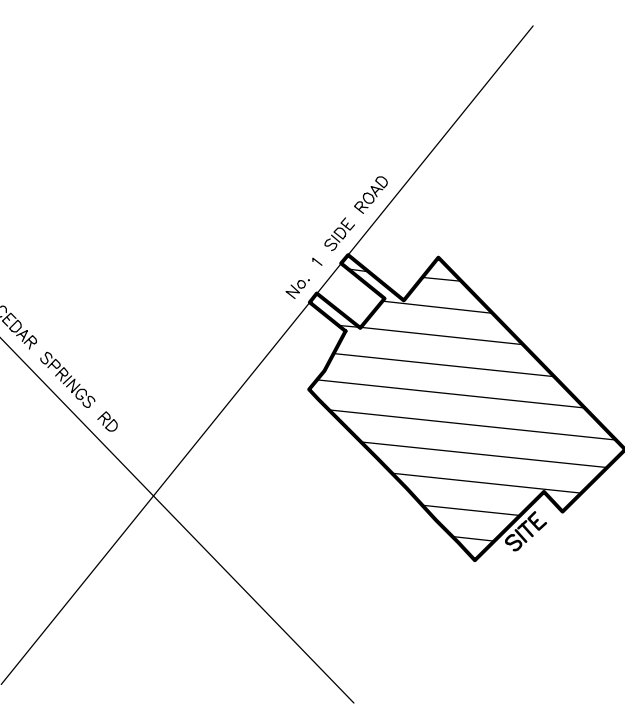
No. 1 SIDEROAD
(ROAD ALLOWANCE BETWEEN CONCESSIONS 1 AND 2 N.D.S.)
PIN 07196-0080



4358 267.50
4337 266.77
4315 266.50



KEYPLAN



NOT TO SCALE

GEOGRAPHIC LOCATION NOTE
PART OF
LOT 19
CONCESSION 1 N.D.S.
GEOGRAPHIC TOWNSHIP OF NELSON
NOW IN THE
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON
SCALE 1 : 1000

MackAY, MackAY & PETERS LIMITED - ONTARIO LAND SURVEYORS
© 2024

METRIC DISTANCES SHOWN HEREON ARE IN METRES AND
CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

COLOUR THE ORIGINAL SIGNED PRINT OF
THIS SITE PLAN CONTAINS COLOUR

BENCHMARK NOTE
CITY OF BURLINGTON BENCHMARK No. 440
ELEVATION = 267.546 METRES (CGVD28-78 ADJUSTMENT)
BRASS PLAQUE SET ON NORTH WEST FACE OF CONCRETE CULVERT OPPOSITE HOUSE
No. 2164 No. 1 SIDEROAD BEING 600 METRES EAST OF CEDAR SPRINGS ROAD

- LEGEND**
- N.D.S. DENOTES NORTH OF DUNDAS STREET
 - PIN DENOTES PROPERTY IDENTIFICATION NUMBER
 - CONC DENOTES CONCRETE
 - BOS DENOTES BOTTOM OF SLOPE
 - OHW DENOTES OVERHEAD WIRES
 - DENOTES DECIDUOUS TREE SCALED TO CANOPY, TRUNK SIZE SHOWN IN METRES
 - - - DENOTES CONSERVATION HALTON FLOODPLAIN LIMIT
 - - - DENOTES CONSERVATION HALTON CROSS SECTIONS
 - - - DENOTES CONSERVATION HALTON CROSS SECTION ELEVATION VALUE (CGCV28)
 - - - DENOTES DRIPLINE AS STAKED BY HALTON REGION
 - - - DENOTES WETLAND AS STAKED BY CONSERVATION HALTON
 - DENOTES STAKES SET BY CONSERVATION HALTON
 - DENOTES STAKES SET BY HALTON REGION

CERTIFICATION NOTE
BOUNDARY DIMENSIONS SHOWN HEREON ARE DERIVED FROM LAND REGISTRY OFFICE
RECORDS AND SURVEY RECORDS OF MMP LIMITED

NOVEMBER 14, 2024
DATE

ROY C. MACKAY
ONTARIO LAND SURVEYOR
FOR MACKAY, MACKAY & PETERS LIMITED

CAUTION
UTILITIES AND SERVICES SHOWN ON THIS SKETCH ARE
APPROXIMATE AND MUST BE VERIFIED BEFORE CONSTRUCTION

No.	DATE	REVISIONS
5	OCTOBER 26, 2024	CONSERVATION HALTON FLOODPLAIN INFORMATION UPDATED
4	OCTOBER 16, 2024	ADDITIONAL FIELD WORK COMPLETED
3	SEPTEMBER 20, 2024	ADD CONSERVATION HALTON FLOODPLAIN INFORMATION
2	SEPTEMBER 14, 2023	PLAN COMPLETED
1	JULY 31, 2023	FIELD WORK COMPLETED

MMP
Mackay, Mackay & Peters Limited
LAND SURVEYORS & MAPPERS
SINCE 1906

3380 South Service Road
Unit 101
Burlington, ON
L7N 3J5
(905) 639-1375
halton@mmplimited.com
mmplimited.com

E:\2024\Halton\TWP NELSON\NDS\ CON 1\LOT 19\21-075\21-075-SK.dwg
DRAWN BY: A.R. PARTIALY CHEF: W.Y. CHECKED BY: DATE: PROJECT No. 21-075-SK DWG. No. 1

**Appendix 10. Endangered and Threatened Species
Assessment**

Species	Status per O. Reg. 230/08 of the ESA	Rationale for Consideration in this Study	General Description of Habitats and Features which the Species is Known to Occupy within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Study Area	Likelihood that Negative Effects to the Species or its Habitat (i.e., “Damage” or “Destruction” as defined in the ESA) will occur based on the Proposed Development Plan and any related Site Alteration Activities
Amphibians					
Jefferson Salamander (<i>Ambystoma jeffersonianum</i>) and Unisexual Salamander	END	NHIC, Ont. Herp Atlas	<ul style="list-style-type: none">Generally found in deciduous and mixed forests adjacent to breeding areas.Breeding areas include woodland vernal pools and ponds.	Possible. A large pond surrounded by wetlands is present within the Subject Property. This species is known from the local landscape though local populations would be separated from the Subject Property by existing roadways.	Unlikely. The proposed driveway is approximately 115 m from the open water pond and is separated by existing agricultural fields. Much of the driveway alignment extends through semi-maintained grass or an early-successional stand of poplar and does not bisect any expected movement corridors (i.e., manicured lawn occurs to the north).
Birds					
Bank Swallow (<i>Riparia riparia</i>)	THR	Species distribution and on-site habitats	<ul style="list-style-type: none">Nests in natural or anthropogenically derived exposed, sandy substrates on vertical or steep surfaces.Forages in a variety of open areas including agricultural lands, meadows, prairies, woodland clearings, marshes, and above waterbodies.	Negligible. While this species may forage over open areas on the Subject Property for brief periods during migration or forays from adjacent breeding sites, suitable breeding sites within the Subject Property are absent.	--
Bobolink (<i>Dolichonyx oryzivorus</i>)	THR	NHIC, OBBA	<ul style="list-style-type: none">Breeds and forages in hayfields, pastures, meadows, grasslands, and prairies which are often (but not always) greater 4 ha.May be found in more marginal habitats (e.g., shrubby fields, smaller fields, etc.) during migration or following disturbance to breeding habitats (e.g., hay cutting).	Confirmed. Bobolink was observed during breeding bird surveys in 2023.	Negligible. The Subject Property is largely tilled with suitable breeding habitat being present on Adjacent Lands only.
Chimney Swift (<i>Chaetura pelagica</i>)	THR	OBBA	<ul style="list-style-type: none">Nests in large, uncapped chimneys and (historically) tree cavities.May forage above a wide variety of anthropogenic (e.g., cities, towns) and natural (e.g., fields, forests) areas.	Negligible. While this species may forage over open areas on the Subject Property for brief periods during migration or forays from adjacent breeding sites, suitable breeding sites within the Subject Property are absent.	--
Eastern Meadowlark (<i>Sturnella magna</i>)	THR	NHIC, OBBA	<ul style="list-style-type: none">Breeds and forages in hayfields, savannahs, pastures, meadows, grasslands, prairies, and shrubby fields.	Confirmed. Eastern Meadowlark was observed during breeding bird surveys in 2023.	Negligible. The Subject Property is largely tilled with suitable breeding habitat being present on Adjacent Lands only.
Henslow’s Sparrow (<i>Ammodramus henslowii</i>)	END	NHIC	<ul style="list-style-type: none">Breeds and forages in hayfields, pastures, meadows, and wet meadows.	Negligible. Henslow’s Sparrow was not detected during breeding bird surveys in 2023. Most records of this species in Ontario are historic in nature (1950s).	--
Least Bittern (<i>Ixobrychus exilis</i>)	THR	OBBA	<ul style="list-style-type: none">Breeds and forages in marshes dominated by robust emergent vegetation containing areas of open water (i.e., interspersed).	Negligible. Suitable habitat is absent from the Subject Property.	--
Red-headed Woodpecker (<i>Melanerpes erythrocephalus</i>)	END	Species distribution and on-site habitats	<ul style="list-style-type: none">Breeds and forages in open forests, savannahs, and forest edges that tend to contain large, mature trees.	Negligible. While suitable habitat is present within the Subject Property, this species was not detected during breeding bird surveys in 2023.	--
Yellow-breasted Chat (<i>Icteria virens</i>)	END	OBBA	<ul style="list-style-type: none">Breeds and forages in prefer dense thickets around wood edges, riparian areas, and in overgrown clearings	Negligible. While suitable habitat is present in the Subject Property. Yellow-breasted Chat was not detected during breeding bird surveys in 2023. This species is very rare in Ontario and recent records (of breeders or potential breeders) are generally restricted to southwestern Ontario.	--

Species	Status per O. Reg. 230/08 of the ESA	Rationale for Consideration in this Study	General Description of Habitats and Features which the Species is Known to Occupy within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Study Area	Likelihood that Negative Effects to the Species or its Habitat (i.e., “Damage” or “Destruction” as defined in the ESA) will occur based on the Proposed Development Plan and any related Site Alteration Activities
Insects					
Mottled Duskywing (<i>Erynnis martialis</i>)	END	Ont. Butterfly Atlas	<ul style="list-style-type: none">Habitat consists of partially shaded treed communities containing its larval foodplants New Jersey Tea (<i>Ceanothus americanus</i>) and/or Prairie Redroot (<i>C. herbaceus</i>).	Negligible. No suitable habitat or host plants (<i>Ceanothus</i> spp.) are present within the Subject Property.	--
Nine-Spotted Lady Beetle (<i>Coccinella novemnotata</i>)	END	Species distribution and on-site habitats	<ul style="list-style-type: none">Occupies a range of open natural areas, including gardens, parks, meadows and agricultural areas.Distribution is driven by prey availability, typically feeding on aphids which colonize crops and orchards.	Negligible. Nine-Spotted Lady Beetle has not been documented in Ontario since 1987. Additionally, the prevalence of non-suitable plants on the site suggests that aphid densities necessary to support the species may not be present.	--
Rusty-patched Bumble Bee (<i>Bombus affinis</i>)	END	Species distribution and on-site habitats	<ul style="list-style-type: none">Occupies a range of open areas with nectaring sites.Nests underground in abandoned rodent burrows or decomposing logs.	Negligible. Most records in Ontario are historical (before 1970). The species was last observed from Pinery Provincial Park in 2009 (Colla and Taylor-Pindar 2011).	--
Transverse Lady Beetle (<i>Coccinella transversoguttata</i>)	END	Species distribution and on-site habitats	<ul style="list-style-type: none">Habitat generalist, meaning it is able to live in a wide range of habitats, including agricultural areas, suburban gardens, parks, coniferous forests, deciduous forests, prairie grasslands, meadows and riparian areas.	Negligible. In Ontario, all records are historical, from 1990 and earlier (Linton and McCorquodale 2019). There has been one recent record from northern Ontario 2021 per records on iNaturalist.	--
Mammals					
Eastern Small-footed Myotis (<i>Myotis leibii</i>)	END	Species distribution and on-site habitats	<ul style="list-style-type: none">Maternal roosting sites include exposed rock outcrops, crevices, and cliffs.Overwinters in caves and mines that maintain temperatures above 0°C.	Unlikely. While species may forage above open habitats on the Subject Property or Adjacent Lands, potential maternal roosting habitat (e.g., rock outcrops, cliffs, etc.) is absent.	--
Little Brown Myotis (<i>Myotis lucifugus</i>)	END	Species distribution and on-site habitats	<ul style="list-style-type: none">Maternity roosts sites most often include buildings and large diameter trees with cracks, crevices, and/or exfoliating bark.Overwinters in caves and mines that maintain temperatures above 0°C.	Possible. Forest/woodland communities within the Study Area could provide roosting opportunities for maternity colonies of this species within larger-diameter snags, cavity trees, or trees with cracks/crevices/loose bark. Other trees within or outside the forest/woodland communities (including smaller-diameter trees) may offer non-specific roosting habitat (i.e., “day roosts”) for individual bats (males or non-reproductive females). The forest/woodland edge and canopy openings provide suitable foraging habitat for this species.	Negligible. Few potential maternity roost snags require removal. A timing window restriction is applied to necessary tree removal activities. Additional mitigation measures for construction and detailed design are also provided. See report for greater details.
Northern Myotis (<i>Myotis septentrionalis</i>)	END	Species distribution and on-site habitats	<ul style="list-style-type: none">Maternity roosts most often include large diameter trees with cracks, crevices, and/or exfoliating bark (buildings rarely used).Overwinters in caves and mines that maintain temperatures above 0°C.	Possible. Forest/woodland communities within the Study Area could provide roosting opportunities for maternity colonies of this species within larger-diameter snags, cavity trees, or trees with cracks/crevices/loose bark. Other trees within or outside the forest/woodland communities (including smaller-diameter trees) may offer non-specific roosting habitat (i.e., “day roosts”) for individual bats (males or non-reproductive females). The forest/woodland edge	Negligible. Few potential maternity roost snags require removal. A timing window restriction is applied to necessary tree removal activities. Additional mitigation measures for construction and detailed design are also provided. See report for greater details.

Species	Status per O. Reg. 230/08 of the ESA	Rationale for Consideration in this Study	General Description of Habitats and Features which the Species is Known to Occupy within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Study Area	Likelihood that Negative Effects to the Species or its Habitat (i.e., “Damage” or “Destruction” as defined in the ESA) will occur based on the Proposed Development Plan and any related Site Alteration Activities
				and canopy openings provide suitable foraging habitat for this species.	
Tri-colored Bat <i>(Perimyotis subflavus)</i>	END	Species distribution and on-site habitats	<ul style="list-style-type: none">Maternal roosting sites include Maple (<i>Acer</i> spp.) and Oak (<i>Quercus</i> spp.) with dead/dying leaf clusters.Overwinters in caves and mines that maintain temperatures above 0°C.	Possible. Maples and Oak with dead/leaf clusters are present within the Subject Property.	Negligible. No oaks or maples are proposed for removal. A timing window restriction is applied to necessary tree removal activities. Additional mitigation measures for construction and detailed design are also provided. See report for greater details.
Plants					
American Ginseng <i>(Panax quinquefolius)</i>	END	Species distribution and on-site habitats	<ul style="list-style-type: none">Occupies rich, relatively undisturbed deciduous forests.	Negligible. Species not documented during vascular plant surveys.	--
Black Ash <i>(Fraxinus nigra)</i>	END	iNaturalist	<ul style="list-style-type: none">Occupies deciduous swamps (often peaty), floodplains, and wet woods.	Confirmed. One tree was observed within the deciduous swamp community.	Negligible. No development or site alteration is proposed within 30 m of any Black Ash.
Butternut <i>(Juglans cinerea)</i>	END	NHIC	<ul style="list-style-type: none">Occupies a variety of treed habitats including mature forests, early-successional forests, and hedgerows.	Negligible. Species not documented during vascular plant surveys.	--
Reptiles					
Five-lined Skink (Carolinian) <i>(Plestiodon fasciatus)</i>	END	Ont. Herp Atlas	<ul style="list-style-type: none">Occupies generally open environments along or near the Great Lakes including dunes, fields, and deciduous forest edges.	Negligible. Record atlas square 17NJ90 is historic (1992). Species is not present in the local landscape.	--
Eastern Hog-nosed Snake <i>(Heterodon platirhinos)</i>	THR	Ont. Herp Atlas	<ul style="list-style-type: none">Occupies a wide range of habitats generally occurring on sandy, well-drained soil with open vegetative cover	Negligible. Record atlas square 17NJ90 is historic in nature (1935). Species is not present in the local landscape.	--
Spotted Turtle <i>(Clemmys guttata)</i>	END	Critical Habitat for Species at Risk National Dataset - Canada	<ul style="list-style-type: none">Occupies ponds, marshes, bogs and ditches with slow-moving water.<ul style="list-style-type: none">Nests in exposed, usually coarse, friable substrate.	Negligible. Suitable habitat is absent from the Subject Property.	--
Wood Turtle <i>(Clemmys insculpta)</i>	END	Critical Habitat for Species at Risk National Dataset - Canada	<ul style="list-style-type: none">Occupies clear rivers, streams or creeks with a slight current and sandy or gravelly bottom.<ul style="list-style-type: none">Often feeds in upland areas adjacent to streams.Nests in exposed, usually coarse, friable substrate.	Negligible. Suitable habitat is absent from the Subject Property.	--

¹ Likelihood categories are to be interpreted as follows:
Negligible: so limited that the assessed species can be assumed absent.
Unlikely: while theoretically conceivable, species presence very improbable or temporary based on available information (e.g., habitat conditions, range, abundance in local landscape, etc.).
Possible: species presence plausible based on available information; no convincing evidence suggesting species could not occur on-site.
Probable: while not confirmed, available information suggests species has a high likelihood of being present.
Confirmed: species observed and/or evidence of occupation (e.g., tracks, etc.) documented.

Appendix 11. Significant Wildlife Habitat Assessment

Table 1. Results of the Significant Wildlife Habitat Assessment.

Ecoregion 7E	Do any Features, Habitats, or Areas within the Study Area meet relevant criteria (Ecoregion 7E Criteria Schedule) as Candidate SWH?	Do any Features, Habitats, or Areas o within the Study Area meet relevant criteria (Ecoregion 7E Criteria Schedule) as Confirmed SWH?	Likelihood that Negative Effects to SWH (i.e., “degradation that threatens the health and integrity” as defined in the 2020 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Seasonal Concentration Areas of Animals			
Waterfowl Stopover and Staging Areas (Terrestrial)	No. Meadows, fields, and/or thickets that annually flood during spring and could support significant congregations of migrating waterfowl are absent.	--	--
Waterfowl Stopover and Staging Areas (Aquatic)	No. Large surface water features (e.g., ponds, lakes, bays, coastal inlets, large watercourses, etc.) and/or wetlands that annually flood during spring could support significant congregations of migrating waterfowl are absent.	--	--
Shorebird Migratory Stopover Areas	No. Unvegetated open areas adjacent to surface water features (e.g., shorelines, beaches, mudflats, etc.) and could support significant congregations of migrating shorebirds are absent.	--	--
Raptor Wintering Areas	No. While forest and (to a lesser extent) meadow habitats are present, which may occasionally support wintering raptors, such habitats are too small to support significant congregations of wintering raptors.	--	--
Bat Hibernacula	No. Natural features and habitats that could support hibernating bats (e.g., caves, mine shafts, crevices, karsts, etc.) are absent.	--	--
Bat Maternity Colonies	Yes. Mature deciduous and mixed forests with a high-density (i.e., >10/ha) of large-diameter (i.e., ≥25 cm DBH) trees containing cracks/cavities may be present.	Unknown. Neither a bat tree roosting habitat assessment nor acoustic monitoring were undertaken as part of this study.	Negligible. Development and site alteration activities are restricted from the boundary of mature deciduous forest, which has the greatest likelihood of supporting maternal colonies of Big Brown Bat and/or Silver-haired Bat. Any necessary removal of trees within the early-successional stand of poplar will be subject to a timing restriction. See report for greater details.
Turtle Wintering Areas	Yes. Surface water features and/or wetlands with soft, muddy substrate which do not freeze to the bottom during winter are present.	Unknown. Spring basking surveys for turtles were not conducted. However, Midland Painted Turtle and Snapping Turtle was observed within the pond.	Negligible. Development and site alteration activities associated with installing a driveway extend no closer than approximately 115 m from the pond.
Reptile Hibernaculum	Yes. Features (e.g., small mammal burrows, rock crevices, etc.) and/or habitats (e.g., certain wetlands with a fluctuating water table, etc.) that could provide snakes with access below the frost line are present.	Unknown. Spring emergence surveys were not conducted.	Negligible. Development and site alteration activities do not overlap with areas exhibiting a high potential to support significant snake overwintering.
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	No. Features that could support nesting by Cliff Swallow and Northern Rough-winged swallow (e.g., eroding banks, sandy hills, borrow pits, steep slopes, cliff faces, etc.) are absent.	--	--
Colonially - Nesting Bird Breeding Habitat Breeding Habitat (Tree/Shrubs)	No. Although swamp communities are present, no colonies were observed during field work in 2023.	--	--
Colonially - Nesting Bird Breeding Habitat (Ground)	No. Rocky islands or peninsulas along lakes or large rivers are absent.	--	--
Migratory Butterfly Stopover Areas	No. A mixture of fields and forests within 5 km from the shoreline of Lake Erie or Lake Ontario are absent.	--	--

Ecoregion 7E	Do any Features, Habitats, or Areas within the Study Area meet relevant criteria (Ecoregion 7E Criteria Schedule) as Candidate SWH?	Do any Features, Habitats, or Areas o within the Study Area meet relevant criteria (Ecoregion 7E Criteria Schedule) as Confirmed SWH?	Likelihood that Negative Effects to SWH (i.e., “degradation that threatens the health and integrity” as defined in the 2020 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Landbird Migratory Stopover Areas	No. While migrating landbirds may temporarily stopover to feed and rest, the Subject Property is unlikely to support significant congregations of migrating landbirds as it is greater than 5 km from the shoreline of Lake Ontario.	--	--
Deer Winter Congregation Areas	No. The Subject Property and/or Adjacent Lands have not been identified as a deer wintering area by MNRF.	--	--
Rare Vegetation Communities or Specialized Habitats for Wildlife			
Cliffs and Talus Slopes	No. Cliffs and talus slope communities are absent.	--	--
Sand Barren	No. Sand barren communities are absent.	--	--
Alvar	No. Flora characteristic of alvars are absent.	--	--
Old Growth Forest	No. Based on a review of historical aerial photographs, the deciduous forest has emerged recently and would not be expected to exhibit old-growth characteristics (e.g., old trees, abundant snags and downed woody debris, canopy gaps caused by species turnover, limited disturbance, etc.).	--	--
Savannah	No. Flora characteristic of savannahs are absent.	--	--
Tallgrass Prairie	No. Flora characteristic of tallgrass prairies are absent.	--	--
Other Rare Vegetation Community	No. Provincially rare vegetation communities are absent.	--	--
Waterfowl Nesting Area	Yes. The open water pond may support nesting waterfowl.	No. While successful Wood Duck breeding was documented within the pond, only a single family was observed (i.e., threshold for significance of this SWH type is a minimum of 3 nesting pairs of the indicator species listed, which was not achieved).	--
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	No. Forest communities adjacent to large surface water features are absent.	--	--
Woodland Raptor Nesting Habitat	No. Interior forest conditions are absent from the Subject Property.	--	--
Turtle Nesting Areas	No. Exposed mineral soils adjacent to surface water features (e.g., lakes, ponds, etc.) and/or wetlands that may support turtles are absent.	--	--
Seeps and Springs	No. Areas where groundwater emerges at the surface and may support specialized habitat for plants and wildlife were not observed.	--	--
Amphibian Breeding Habitat (Woodland)	Yes. Forests with wetlands, ponds, and/or pools that may support significant congregations of breeding amphibians are present.	Yes. The wetlands present at Anuran stations AN-3 and AN-4 (i.e., open water pond) had full choruses of Spring Peeper and Wood Frog. See Figure 2.	Negligible. Development and site alteration activities associated with installing a driveway extend no closer than approximately 115 m from the pond.
Amphibian Breeding Habitat (Wetlands)	No. Wetlands and surface water features (e.g., ponds, lakes, etc.) that may support significant congregations of breeding amphibians are absent.	--	--

Ecoregion 7E	Do any Features, Habitats, or Areas within the Study Area meet relevant criteria (Ecoregion 7E Criteria Schedule) as Candidate SWH?	Do any Features, Habitats, or Areas o within the Study Area meet relevant criteria (Ecoregion 7E Criteria Schedule) as Confirmed SWH?	Likelihood that Negative Effects to SWH (i.e., “degradation that threatens the health and integrity” as defined in the 2020 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Woodland Area-Sensitive Bird Breeding Habitat	No. Interior Forest interior conditions (i.e., >200 m from edge) are absent.	--	--
Habitat for Species of Conservation Concern			
Marsh Bird Breeding Habitat	No. Wetlands with shallow water and emergent aquatic vegetation are absent.	--	--
Open Country Bird Breeding Habitat	No. Meadow habitats of sufficient size are absent.	--	--
Shrub/Early Successional Bird Breeding Habitat	No. Shrub/early-successional habitats of sufficient size are absent.	--	--
Terrestrial Crayfish	Yes. Marsh and swamp communities and/or wet fields are present	No. Terrestrial crayfish chimneys were not documented.	--
Special Concern and Rare Wildlife Species	Yes. See Table 2 below.	Yes. See Table 2 below.	Possible. See Table 2 below.
Animal Movement Corridors			
Amphibian Movement Corridors	No. Significant amphibian breeding habitat is absent. Subject Property is not expected to act as a significant movement corridor between breeding and summer habitat for amphibians.	--	--

Table 2. Results of the Special Concern and Provincially Rare Species Assessment.

Species	Status per O. Reg. 230/08 under the ESA and/or NHIC	Rationale for Consideration in this Study	General Description of Habitats and Features which the Species is Known to Occupy or Use within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Study Area	Likelihood that Negative Effects to the Species or its Habitat (i.e., “degradation that threatens the health and integrity” as defined in the 2020 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities
Birds					
Barn Swallow (<i>Hirundo rustica</i>)	SC	OBBA	<ul style="list-style-type: none">Nests in barns, bridge/culvert undersides, awnings/overhangs on sides of buildings, and (historically) tree cavities.Forages in a variety of open areas including agricultural lands, meadows, prairies, woodland clearings, marshes, and above waterbodies.	Possible. Individual foraging birds were observed during breeding bird surveys in 2023.	Negligible. There is an absence of confirmed or suitable nesting sites in the vicinity of the proposed driveway envelope. Individuals observed were a considerable distance from the proposed driveway envelope and are assumed to be nesting in the local landscape.
Canada Warbler (<i>Cardellina canadensis</i>)	SC	OBBA	<ul style="list-style-type: none">Breeds and forages in a wet thickets, swamps, and mature deciduous forest.	Negligible. Suitable habitat is absent from the Subject Property. Canada Warbler was not detected during breeding bird surveys in 2023.	--
Common Nighthawk (<i>Chordeiles minor</i>)	SC	Species distribution and on-site habitats	<ul style="list-style-type: none">Breeds and forages in a variety of open habitats with sparse cover of woody vegetation.Also occupies urban areas and nests on flat roof tops.	Unlikely. Suitable breeding habitat for nightjars within the Subject Property is limited. No individuals were documented during the course of the 2023 fieldwork program.	--
Eastern Wood-pewee (<i>Contopus virens</i>)	SC	NHIC, OBBA	<ul style="list-style-type: none">Breeds and forages in relatively open, deciduous and mixed forests of various sizes (including urban forest fragments) and along forest edges.	Confirmed. Eastern Wood-pewee was detected during breeding bird surveys in 2023. Birds were observed within the deciduous swamp (SWDO1-2) and deciduous forest (FODM5-1) located along the western side of the Subject Property.	Negligible. No individuals were documented within 120 m of the limit of the proposed driveway envelope.
Grasshopper Sparrow (<i>Ammodramus savannarum</i>)	SC	NHIC, OBBA	<ul style="list-style-type: none">Breeds and forages in hayfields, savannahs, pastures, meadows, grasslands, and prairies.	Negligible. Suitable habitat is present within the Subject Property. However, Grasshopper Sparrow was not detected during breeding bird surveys in 2023.	--
Purple Martin (<i>Progne subis</i>)	S3B	OBBA	<ul style="list-style-type: none">Forages over towns, cities, parks, open fields, dunes, streams, wet meadows, beaver ponds, and other open areas.Nests in cavities (both artificial and natural), though is almost entirely dependent on human constructed nesting structures (martin houses) in Ontario.	Negligible. While this species may forage over open areas on the Subject Property for brief periods during migration or forays from adjacent breeding sites, suitable breeding sites within the Subject Property are absent. Individual foraging birds were observed during breeding bird surveys in 2023.	--
Tufted Titmouse (<i>Baeolophus bicolor</i>)	S3B	iNaturalist	<ul style="list-style-type: none">Breeds in deciduous woods or mixed evergreen-deciduous woods, typically in areas with a dense canopy and many tree species.May also occupy orchards, parks, and suburban areas.	Negligible. Suitable habitat is present within the Subject Property. Tufted Titmouse was not detected during breeding bird surveys in 2023.	--
Wood Thrush (<i>Hylocichla mustelina</i>)	SC	OBBA	<ul style="list-style-type: none">Breeds and forages in second-growth and mature deciduous and mixed forests with a well-developed understory.	Confirmed. Wood Thrush was detected during breeding bird surveys >200 m east of the Subject Property. Suitable habitat is also present within the Subject Property. However, no Wood Thrush was detected within the Subject Property.	Negligible. No individuals were documented within 120 m of the limit of the proposed driveway envelope.
Insects					
American Bumble Bee (<i>Bombus pensylvanicus</i>)	SC	Species distribution and on-site habitats	<ul style="list-style-type: none">Occupies a range of open areas with nectaring sites.	Possible. Species is a habitat generalist and occupies a wide range of areas.	Negligible. Proposed development and site alteration will not adversely affect nectaring opportunities for this species within the local landscape.

Species	Status per O. Reg. 230/08 under the ESA and/or NHIC	Rationale for Consideration in this Study	General Description of Habitats and Features which the Species is Known to Occupy or Use within the Ecoregion in which this Study is Located	Likelihood that the Species Occupies the Study Area	Likelihood that Negative Effects to the Species or its Habitat (i.e., “degradation that threatens the health and integrity” as defined in the 2020 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities
			<ul style="list-style-type: none">Nests above ground in dense mats of long grasses but has also been known to nest in abandoned rodent burrows and bird nests high above the ground.		
Black Dash (<i>Euphyes conspicua</i>)	S3	Ont. Butterfly Atlas	<ul style="list-style-type: none">Occupies sedgy marshes, fens, and wet meadows.Hostplants are narrow-leaved sedges, predominantly Tussock Sedge (<i>Carex stricta</i>).	Negligible. Sedge marsh is absent from the Subject Property.	--
Monarch (<i>Danaus plexippus</i>)	SC	Ont. Butterfly Atlas	<ul style="list-style-type: none">Oviposits on Milkweeds (<i>Asclepias</i> spp.).Generalist foraging that nectars in most areas with wildflowers.	Possible. Ovipositing sites (i.e., species in the genus <i>Asclepias</i>) are present, and species may forage on the Subject Property.	Negligible. Areas of proposed development and site alteration lack milkweed. The landscape surrounding the Study Area provides nectaring and ovipositing sites for this species.
West Virginia White (<i>Pieris virginiensis</i>)	SC	Ont. Butterfly Atlas	<ul style="list-style-type: none">Occupies moist, deciduous woodlands.Oviposits on Toothworts (<i>Cardamine</i> spp.).	Negligible. Historic record from 1989.	--
Yellow Banded Bumble Bee (<i>Bombus terricola</i>)	SC	Species distribution and on-site habitats	<ul style="list-style-type: none">Occupies a range of open areas with nectaring sites.Nests underground in abandoned rodent burrows or decomposing logs.	Possible. Species is a habitat generalist and occupies a wide range of areas.	Negligible. Proposed development and site alteration will not adversely affect nectaring opportunities for this species within the local landscape.
Plants					
Brainerd's Hawthorn (<i>Crataegus brainerdii</i>)	S2	NHIC	<ul style="list-style-type: none">Inhabits anthropogenic (man-made or disturbed habitats), forest edges, meadows and fields	Negligible. Species was not detected during vascular plant surveys in 2023.	--
Goldenseal (<i>Hydrastis canadensis</i>)	SC	Critical Habitat for Species at Risk National Dataset - Canada	<ul style="list-style-type: none">Occupies rich deciduous forests.	Negligible. Species was not detected during vascular plant surveys in 2023.	--
Perfoliate Bellwort (<i>Uvularia perfoliata</i>)	S1S2	NHC	<ul style="list-style-type: none">Inhabits floodplain forests, mesic upland forests, and dry rocky woodlands.	Negligible. Species was not detected during vascular plant surveys in 2023.	--
Perfoliate Horse-gentian (<i>Triosteum perfoliatum</i>)	S1	NHIC	<ul style="list-style-type: none">Inhabits upland deciduous woodlands.	Negligible. Species was not detected during vascular plant surveys in 2023.	--
Reptiles					
Northern Map Turtle (<i>Graptemys geographica</i>)	SC	iNaturalist, Ont. Herp Atlas	<ul style="list-style-type: none">Occupies lakes and large rivers with slow moving currents.Nests in exposed, usually coarse, friable substrate.	Negligible. Suitable habitat is absent from the Subject Property.	--
Snapping Turtle (<i>Chelydra serpentina</i>)	SC	NHIC	<ul style="list-style-type: none">Occupies a variety of aquatic habitats with slow moving water.Nests in exposed, usually coarse, friable substrate.Known to make long-distance overland movements (i.e., several kilometers) between habitats.	Confirmed. One snapping turtle was observed from the pond within the Subject Property. An additional turtle was observed nesting along the edge of the agricultural field east of the pond.	Negligible. Development and site alteration activities associated with installing a driveway extend no closer than approximately 115 m from the pond.

¹ Likelihood categories should be interpreted as follows:
Negligible: so limited that the assessed species can be assumed absent.
Unlikely: while theoretically conceivable, species presence very improbable or temporary based on available information (e.g., habitat conditions, range, abundance in local landscape, etc.).

Possible: species presence plausible based on available information; no convincing evidence suggesting species could not occur on-site.

Probable: while not confirmed, available information suggests species has a high likelihood of being present.

Confirmed: species observed and/or evidence of occupation (e.g., tracks, etc.) documented.

Subnational Ranks (S-Ranks) are interpreted as follows:

S1: Critically Imperiled - Extremely rare in Ontario; usually 5 or fewer occurrences in the province, or very few remaining hectares.

S2: Imperiled - Very rare in Ontario; usually between 5 and 20 occurrences in the province, or very few remaining hectares.

S3: Vulnerable - Rare to uncommon in Ontario; usually between 20 and 100 occurrences in the province; may have fewer occurrences, but with some extensive examples remaining.

S4: Apparently Secure – Apparently secure in the province, with many occurrences.

S5: Secure – Demonstrably secure in Ontario.

SH: Possibly Extirpated – Known from only historical records but still some hope of discovery.

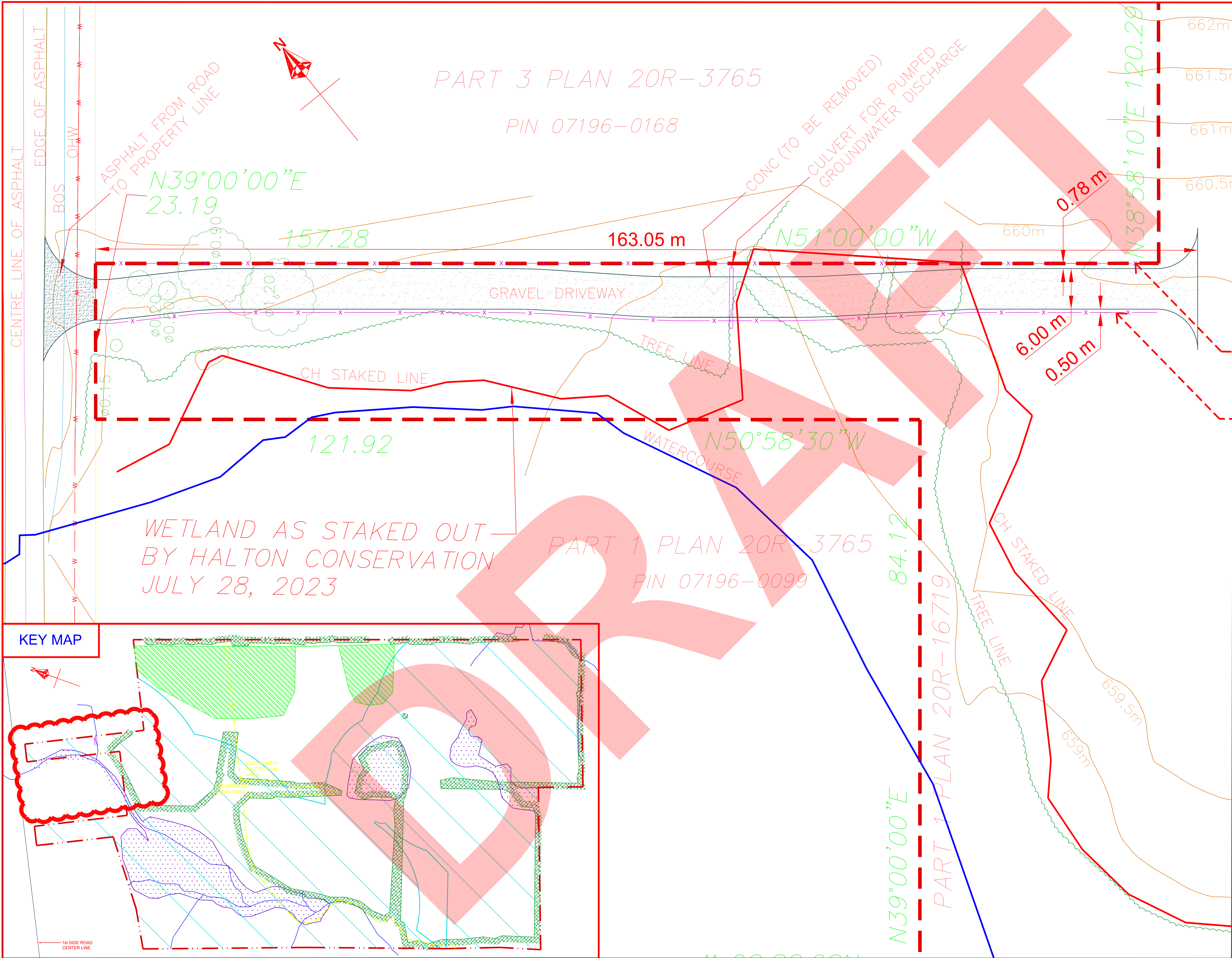
SX: Extirpated – A species or vegetation community that is extirpated from Ontario.

SNA: Not Applicable – A conservation status risk is not applicable because the species or vegetation community is not a suitable target for conservation activities.

SNR: Unranked – Conservation status not yet assessed.

SU: Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

Appendix 12. Proposed Development Plan.



PROPOSED DRIVEWAY
FOR ACCESS
0000 1st SIDE ROAD
BURLINGTON, ONTARIO

CURRENT ZONING: NEC
DEVELOPMENT CONTROL AREA
(ESCARPMENT RURAL /
ESCARPMENT PROTECTION)

TOTAL SITE AREA: 231,600m² (57.24ac, 23.16ha)

PROPOSED DRIVEWAY TO
CROSS CONSERVATION STAKED
AREA FOR ACCESS TO FARMING
FIELDS.
DRIVEWAY TO BE 9m WIDE FOR
EASY FARM EQUIPMENT
ACCESS.

PROPOSED PRIVACY FENCE
ALONG PROPERTY LINE JUST
NORTH EAST OF DRIVEWAY.

PROPOSED BLACK CHAIN-LINK
FENCE 0.5m FROM SOUTH WEST
SIDE OF DRIVEWAY TO PREVENT
FUTURE ENCROACHMENT.

SEE PRIVACY FENCE DETAIL
AND CHAIN-LINK FENCE DETAIL
FOR MORE SPECIFIC INFO.

-REVISIONS-
2024/05/24: ADJUSTED DRIVEWAY TO EXTEND STRAIGHT ALONG
NORTHERN LOT LINE, AVOIDING WETLANDS AS PER C.H.
COMMENTS (J.T.)
2024/08/20: ADJUSTED DRIVEWAY TO MATCH ENGINEERING
DESIGN DRAWINGS (J.T.)

LEGEND:

- PROPERTY BOUNDS
- TREELINE
- CONSERVATION AREA EXTENT
- WATERCOURSE
- WETLAND AREA
- PROPOSED ASPHALT/GRAVEL
- VINEYARD
- ESCARPMENT PROTECTION / RURAL BORDER
- CONTOUR LINES
- FENCE

NOTE: DRAWING IS FOR DISCUSSION PURPOSES ONLY.

PROJECT FILE NO.
2022_33

SCALE: 1:250
(APPROXIMATE)
WHEN PRINTED ON 24 X 36

DATE:
DECEMBER 08, 2023

DRAWN BY: J.T.
REVIEWED BY: T.G.

Urban in Mind

WWW.URBANINMIND.CA

NOTES TO CONTRACTOR:**1. INSPECTION**

CONTRACTOR IS RESPONSIBLE FOR CONTACTING ENGINEER 48 HRS PRIOR TO COMMENCING WORK TO ARRANGE FOR INSPECTION. ENGINEER TO DETERMINE DEGREE OF INSPECTION AND TESTING REQUIRED FOR CERTIFICATION OF UNDERGROUND SERVICE INSTALLATION AS MANDATED BY ONTARIO BUILDING CODE DIVISION C, PART 1, SECTION 1.2.2. GENERAL REVIEW. FAILURE TO NOTIFY ENGINEER WILL RESULT IN EXTENSIVE POST CONSTRUCTION INSPECTION AT CONTRACTORS EXPENSE.

2. CONFIRMATION OF EXISTING INVERTS

72 HOURS PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS TO LOCATE, EXPOSE AND VERIFY INVERTS OF EXISTING UTILITIES AND EXISTING SEWERS AT CONNECTION POINTS. SHOULD THE CONTRACTOR PROCEED WITHOUT COMPLETING THESE LOCATES, EXTRA COSTS RESULTING FROM DELAYS AND STANDBY TIME WILL NOT BE CONSIDERED.

PROP. 15.0m BOSS 2000 HDPE
450mm ϕ CULVERT @ 0.5%
(C/W RIP RAP PAD
150mm ϕ NOMINAL SIZE)
N. INV. = 266.66
S. INV. = 266.59

No. 1 SIDEROAD

EX. RESIDENTIAL LANDS

EX. RESIDENTIAL LANDS

EX. RESIDENTIAL DWELLING

LEGEND:

- EXISTING GROUND ELEVATION
PROPOSED GROUND ELEVATION
PROPOSED ELEVATION TO MATCH EXISTING
PROPOSED DIRECTION OF SHEET FLOW
EXISTING DIRECTION OF SHEET FLOW

BENCH MARK NOTE:

CITY OF BURLINGTON BENCHMARK No. 440
ELEVATION = 267.546 METERS (CGVD28:78 ADJUSTMENT)

BRASS PLAQUE SET ON NORTH WEST FACE OF CONCRETE CULVERT
OPPOSITE HOUSE No. 2164 No. 1 SIDEROAD BEING 600 METERS EAST OF
SPRINGS ROAD.

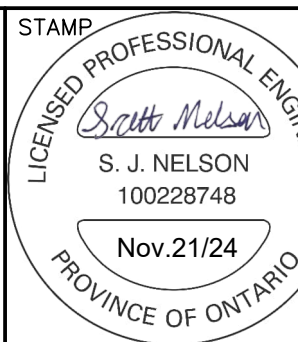
NO.	DATE	BY	REVISIONS
01	NOV.21/24	AS	FLOODLINE AND DRIFLINE ADDED

NOTES TO CONTRACTOR:

- CONTRACTORS AND SUBCONTRACTORS SHALL NOT SCALE FROM THIS DRAWING.
- ANY INCONSISTENCIES AND OMISSIONS FOUND ON THE DRAWINGS MUST BE REPORTED TO THE ENGINEER FOR CLARIFICATION BEFORE COMMENCING THE WORK.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS AND ELEVATIONS AND REPORT ALL FINDINGS TO THE ENGINEER. ONCE CONSTRUCTION HAS COMMENCED, THE CONTRACTOR ACCEPTS RESPONSIBILITY FOR ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS.
- THE POSITIONS OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVER-GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS. WHERE SHOWN ON THE DRAWING, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELVES OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
- ALL DRAWINGS REMAIN THE PROPERTY OF THE ENGINEER AND SHALL NOT BE REPRODUCED, REVISED, OR REVISED WITHOUT THE WRITTEN CONSENT OF S. LLEWELLYN AND ASSOCIATES LIMITED.

DESIGN	0.0	CHK'D	SN	DATE
DRAWN	0.0	CHK'D	SN	SEPT.20, 2024

SCALE	0	5	10	25	40
1: 400					

APPROVALS**NOT FOR
CONSTRUCTION**S. LLEWELLYN & ASSOCIATES LIMITED
CONSULTING ENGINEERSTel. (905) 631-6978
Website: www.sla.on.ca
email: info@sla.on.ca

3228 South Service Road, Suite #105 East Wing, Burlington, Ont., L7N 3H8

CLIENT

URBAN IN MIND
3390 SOUTH SERVICE ROAD,
BURLINGTON, ON L7N 3J5

PROJECT NAME

PROPOSED ACCESS DRIVEWAY
1ST SIDE ROAD,
BURLINGTON, ONTARIO

TITLE

**GRADING AND EROSION CONTROL
PLAN**

PROJECT No.

24046

DRAWING No.

C101

GENERAL NOTES:

- CONSTRUCTION OF SEWERS, AND RELATED APPURTENANCES SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE CURRENT STANDARD DRAWINGS OF THE CITY OF BURLINGTON, THE REGIONAL MUNICIPALITY OF HALTON, THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND THE CITY OF BURLINGTON AMENDMENTS TO OPSD'S. THE CITY AND THE REGION'S DRAWINGS SHALL TAKE PRECEDENCE OVER THE OPSD DRAWINGS.
- ONTARIO PROVINCIAL STANDARD DRAWINGS TO BE READ IN CONJUNCTION WITH THE REGION OF HALTON REVISIONS.
- RELOCATION OF EXISTING SERVICES AND/OR UTILITIES SHALL BE CONSTRUCTED AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL OBTAIN ALL PERMITS FOR CONSTRUCTION.
- FOR ALL SEWERS AND WATERMAIN IN FILL SECTIONS, THE COMPACTION SHALL BE VERIFIED PRIOR TO LAYING OF PIPE.
- NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE REGIONAL ENGINEER, CITY OF BURLINGTON OR THE ENGINEER.
- ALL EXCAVATIONS TO BE BACKFILLED WITH SELECT NATIVE MATERIAL, APPROVED BY THE ENGINEER, TO 95% SPD.
- THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING SILT CONTROL DEVICES AS SHOWN ON THE DRAWINGS AND AS DIRECTED BY THE ENGINEER.
- TREE PROTECTION PROCEDURES TO BE IMPLEMENTED IN ACCORDANCE WITH CITY OF BURLINGTON STANDARDS.
- THESE PLANS ARE NOT TO BE USED FOR CONSTRUCTION UNTIL SEALED BY THE ENGINEER AND INDICATED ISSUED FOR CONSTRUCTION ON THE DRAWING.
- THIS/THESE PLAN(S) IS/ARE NOT TO BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE WRITTEN PERMISSION OF S. LLEWELLYN AND ASSOCIATES LIMITED.
- INFORMATION REGARDING ANY EXISTING SERVICES AND/OR UTILITIES SHOWN ON THE APPROVED SET OF CONSTRUCTION DRAWINGS ARE FURNISHED AS THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL INTERPRET THIS INFORMATION AS HE SEES FIT WITH THE UNDERSTANDING THAT THE OWNER AND HIS AGENTS DISCLAIM ALL RESPONSIBILITY FOR ITS ACCURACY AND /OR SUFFICIENCY. THE CONTRACTOR SHALL ASSUME LIABILITY FOR ANY DAMAGE TO EXISTING WORKS.
- EXISTING TOPOGRAPHIC AND LEGAL INFORMATION TAKEN FROM PLANS PREPARED BY MACKAY, MACKAY & PETERS LIMITED, DATED SEPTEMBER 22, 2023.
- DRIVEWAY ACCESS INFORMATION TAKEN FROM PLANS PREPARED BY URBAN IN MIND.
- THIS PLAN TO BE USED FOR SERVICING AND GRADING ONLY.
- MUNICIPAL APPROVAL OF THESE DRAWINGS IS FOR MATERIAL AND COMPLIANCE WITH CITY OF BURLINGTON AND PROVINCIAL SPECIFICATIONS AND STANDARDS ONLY. APPROVAL AND INSPECTION OF THE WORKS BY THE CITY OF BURLINGTON STAFF DOES NOT CERTIFY THE LINE AND GRADE OF THE WORKS NOR RELIEVE THE CONTRACTOR OF CERTIFICATION OF ALL WORKS BY THE OWNER'S ENGINEER.
- ALTERNATE MATERIALS MAY BE ACCEPTABLE PROVIDED WRITTEN APPROVAL HAS FIRST BEEN OBTAINED FROM THE CITY OF BURLINGTON AND THE ENGINEER.
- THE APPROVAL OF THIS PLAN DOES NOT EXEMPT THE OWNER'S BONDED CONTRACTOR FROM THE REQUIREMENTS TO OBTAIN THE VARIOUS PERMITS/APPROVALS NORMALLY REQUIRED TO COMPLETE A CONSTRUCTION PROJECT, SUCH AS, BUT NOT LIMITED TO THE FOLLOWING:
 - ROAD CUT PERMITS
 - SEWER PERMITS
 - APPROACH APPROVAL PERMITS
 - RELOCATION OF SERVICES
 - COMMITTEE OF ADJUSTMENT
 - ENCROACHMENT AGREEMENTS

- PRIOR TO CONSTRUCTION THE CONTRACTOR MUST:
 - CHECK AND VERIFY ALL DIMENSIONS AND EXISTING ELEVATIONS WHICH INCLUDE BUT ARE NOT LIMITED TO THE BENCHMARK ELEVATIONS, EXISTING SERVICE CONNECTIONS, EXISTING INVERTS AND REPORT FINDING IN WRITING TO THE ENGINEER.
 - OBTAIN ALL UTILITY LOCATES AND REQUIRED PERMITS AND LICENSES.
 - CONFIRM ALL DRAWINGS USED FOR CONSTRUCTION ARE OF THE MOST RECENT REVISION.
 - NOTIFY THE ENGINEER OF THE PROPOSED CONSTRUCTION SCHEDULE FOR COORDINATION OF NECESSARY INSPECTIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE ENGINEER 48 HOURS PRIOR TO THE COMMENCING SITE WORKS TO ARRANGE FOR INSPECTION. THE ENGINEER SHALL DETERMINE THE EXTENT OF INSPECTION AND TESTING REQUIRED FOR CERTIFICATION OF THE UNDERGROUND SERVICE INSTALLATION AS MANDATED BY THE ONTARIO BUILDING CODE DIVISION C, PART 1, SECTION 1.2.2. GENERAL REVIEW. FAILURE TO MAKE SUITABLE ARRANGEMENTS FOR INSPECTION WILL LEAD TO POST CONSTRUCTION TESTING AND INSPECTION AS DETERMINED BY THE ENGINEER. FULL PAYMENT FOR UN-INSPECTED WORKS MAY BE WITHHELD UNTIL THE COMPLETION OF THE POST CONSTRUCTION INSPECTION AND TESTING TO THE SATISFACTION OF THE ENGINEER.
- INSPECTION BY THE OWNER'S ENGINEER IS FOR CERTIFICATION AND GENERAL CONFORMANCE PURPOSES AND DOES NOT CERTIFY LINE AND GRADE OR IMPLY AN ASSURANCE OF QUALITY CONTROL. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THE INSTALLATION OF THE WORKS TO PROPER LINE, GRADE AND QUALITY TO CURRENT INDUSTRY STANDARDS.
- ANY UTILITY RELOCATIONS AND RESTORATIONS DUE TO THE DEVELOPMENT TO BE UNDERTAKEN AT THE EXPENSE OF THE OWNER/DEVELOPER AND SHALL BE COORDINATED BY THE CONTRACTOR.
- ALL RESTORATIONS AND RECONSTRUCTIONS SHALL BE TO COMPLETED TO MATCH EXISTING CONDITIONS OR BETTER AND ARE TO BE PERFORMED TO THE SATISFACTION OF THE ENGINEER AND THE CITY OF BURLINGTON.
- NO BLASTING WILL BE PERMITTED.

ROADWORKS:

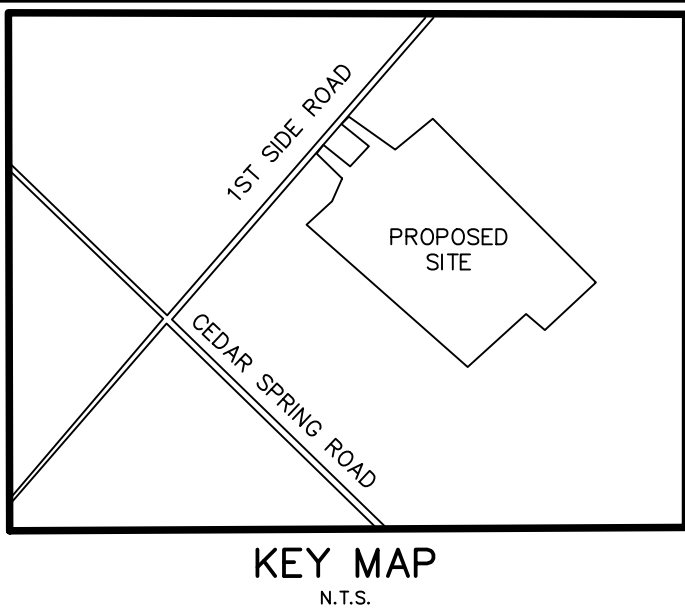
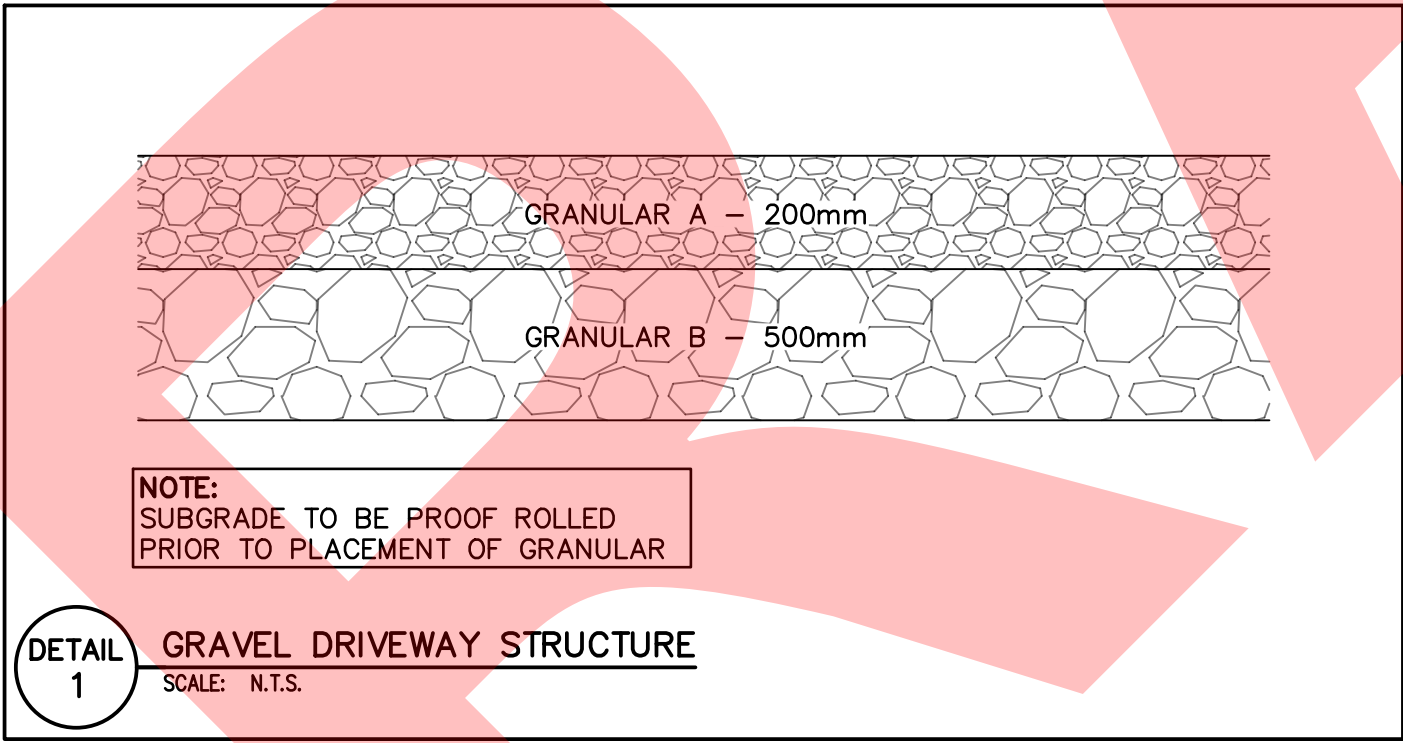
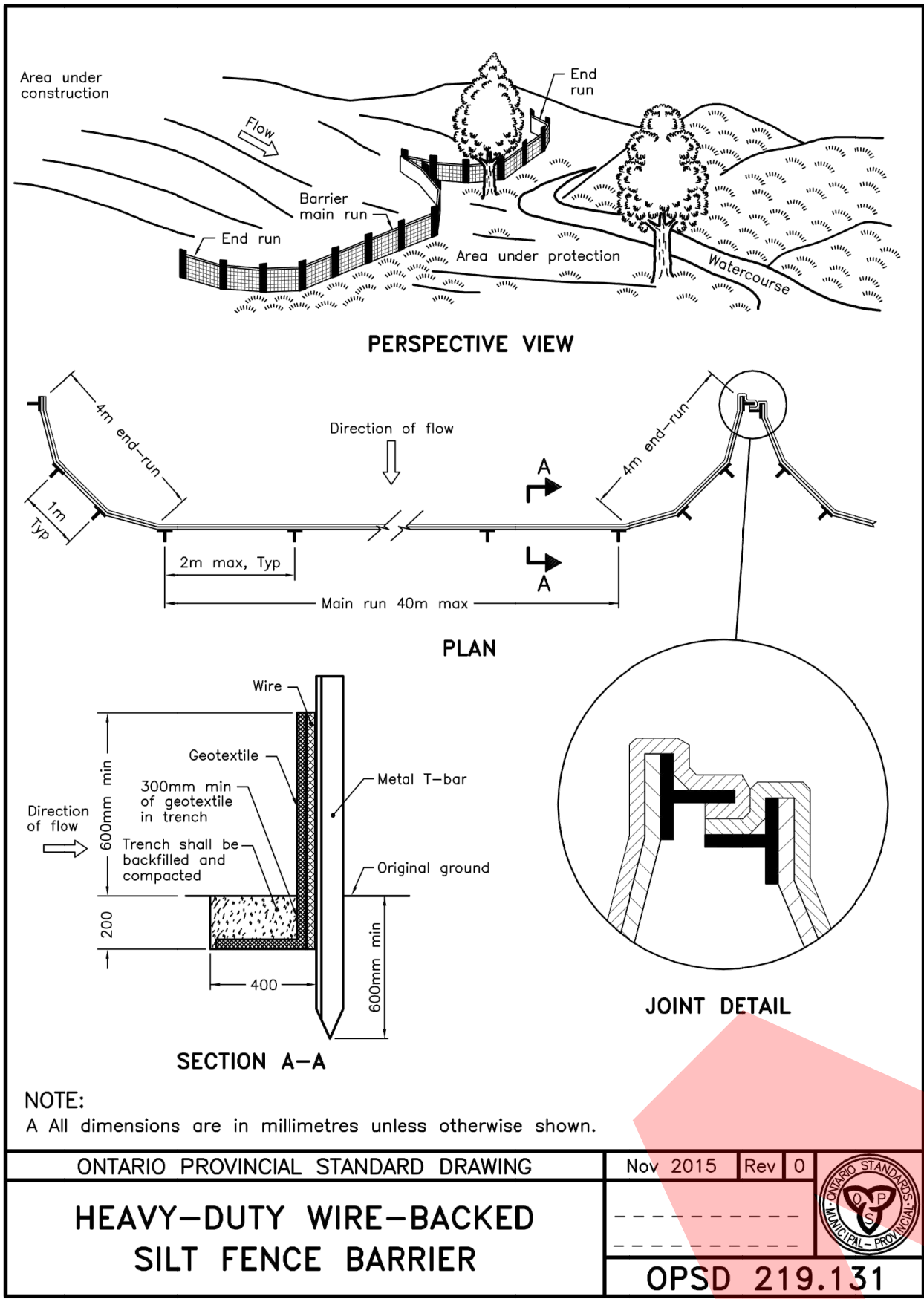
- APPROVED FILL, FREE OF DELETERIOUS AND ORGANIC MATERIAL AND BOULDERS SHALL BE COMPACTED TO A DRY DENSITY NOT LESS THAN 95% THAN THE STANDARD PROCTOR DENSITY. AFTER COMPACTION, SOIL DENSITY TESTS SHALL BE CONDUCTED TO ENSURE ADEQUATE COMPACTION AND STABILITY OF THE FILL AND TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER.
- SUBGRADE TO BE PROOF ROLLED PRIOR TO PLACEMENT OF SUB BASE. UNSUITABLE MATERIAL TO BE REMOVED AND REPLACED WITH SELECT FILL OR GRANULAR "B" AND COMPACTED TO 98% SPD.
- BOULEVARDS TO BE SODDED WITH #1 NURSERY SOD ON A MINIMUM 150mm OF SELECT TOPSOIL.
- TRAFFIC CONTROL SHALL BE MAINTAINED AT ALL TIMES FOR WORKS ON EXISTING ROADWAYS TO THE SATISFACTION OF THE DIRECTOR OF ENGINEERING. THE EXPENSE FOR THE ERECTION OF SIGNS, DELINEATORS AND OTHER TRAFFIC CONTROL DEVICES SHALL BE BORNE BY THE CONTRACTOR.

GRADING NOTES

- ALONG ADJOINING PROPERTIES GRADE TO MEET EXISTING OR PROPOSED ELEVATIONS WITH SODDED SLOPES (MIN. 3H TO 1V) AND/OR RETAINING WALLS AS SPECIFIED.
- ALL RETAINING WALLS, WALKWAYS, CURBS, ETC., SHALL BE PLACED A MIN. OF 0.45m OFF THE PROPERTY LINE. ALL WALLS 1.0M OR HIGHER SHALL BE DESIGNED BY A P.ENG.
- SHOULD A RETAINING WALL BE REQUIRED, THE TOP OF WALL ELEVATIONS SHALL BE SET 150mm ABOVE THE PROPOSED SIDE YARD SWALES.
- RETAINING WALLS 0.6m IN HEIGHT OR GREATER REQUIRE CONSTRUCTION OF A FENCE OR GUARD RAIL AT THE TOP OF THE REAR OF THE WALL. GUARDS FOR RETAINING WALLS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF EXTERIOR GUARDS AS CONTAINED IN THE ONTARIO BUILDING CODE.
- IF GRADING IS REQUIRED ON LANDS ADJACENT TO THE DEVELOPMENT WHICH ARE NOT OWNED BY THE DEVELOPER, THEN THE DEVELOPER MUST OBTAIN WRITTEN PERMISSION FROM THE ADJACENT PROPERTY OWNER TO ALLOW THE DEVELOPER TO GRADE ON THE ADJACENT LANDS, OTHERWISE RETAINING WALLS MUST BE USED.
- THE WRITTEN PERMISSION REQUIRED FROM THE ADJACENT LANDOWNER SHALL BE OBTAINED PRIOR TO ENTERING THE LANDS. SHOULD PERMISSION NOT BE OBTAINED OR IS WITHDRAWN PRIOR TO COMMENCING THE WORK, THEN THE DEVELOPER SHALL LIMIT HIS ACTIVITIES TO THE LIMITS OF THE DEVELOPMENT SITE.
- DRIVEWAY AND DRIVEWAY APPROACHES SHALL BE LOCATED SUCH THAT HYDRO VAULTS AND OTHER STREET FURNITURE ARE A MIN. OF 1.2m FROM THE DRIVEWAY ENTRANCE CURB RADI.

SILTATION AND EROSION CONTROL

- SILTATION CONTROL BARRIERS SHALL BE PLACED AS DETAILED.
- ALL SILTATION CONTROL MEASURES SHALL BE CLEANED AND MAINTAINED AFTER EACH RAINFALL AS DIRECTED AND TO THE SATISFACTION OF THE CITY OF BURLINGTON AND/OR CONSERVATION HALTON.
- ADDITIONAL SILT CONTROL LOCATIONS MAY BE REQUIRED AS DETERMINED BY THE ENGINEER, THE CITY OF BURLINGTON AND/OR CONSERVATION HALTON.



BENCH MARK NOTE:
CITY OF BURLINGTON BENCHMARK No. 440
ELEVATION = 267.546 METERS (CGVD28:78 ADJUSTMENT)
BRASS PLAQUE SET ON NORTH WEST FACE OF CONCRETE CULVERT
OPPOSITE HOUSE No. 2164 No. 1 SIDEROAD BEING 600 METERS EAST OF
SPRINGS ROAD.

01	NOV.21/24	AS	FLOODLINE AND DRILPLINE ADDED
NO.	DATE	BY	REVISIONS

- NOTES TO CONTRACTOR:**
- CONTRACTORS AND SUBCONTRACTORS SHALL NOT SCALE FROM THIS DRAWING.
 - ANY INCONSISTENCIES AND OMISSIONS FOUND ON THE DRAWINGS MUST BE REPORTED TO THE ENGINEER FOR CLARIFICATION BEFORE COMMENCING THE WORK.
 - PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS AND ELEVATIONS AND REPORT ALL FINDINGS TO THE ENGINEER. ONCE CONSTRUCTION HAS COMMENCED, THE CONTRACTOR ACCEPTS RESPONSIBILITY FOR ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS.
 - THE POSITIONS OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVER-GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS. WHERE SHOWN ON THE DRAWING, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELVES OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
 - ALL DRAWINGS REMAIN THE PROPERTY OF THE ENGINEER AND SHALL NOT BE REPRODUCED, REVISED, OR REVISED WITHOUT THE WRITTEN CONSENT OF S. LLEWELLYN AND ASSOCIATES LIMITED.

DESIGN	0.0	CHK'D	SN	DATE
DRAWN	0.0	CHK'D	SN	SEPT.20, 2024
SCALE				

APPROVALS

NOT FOR
CONSTRUCTION



S. LLEWELLYN & ASSOCIATES LIMITED
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CLIENT

URBAN IN MIND
3390 SOUTH SERVICE ROAD,
BURLINGTON, ON L7N 3J5

PROJECT NAME

PROPOSED ACCESS DRIVEWAY
1ST SIDE ROAD,
BURLINGTON, ONTARIO

TITLE

GENERAL NOTES AND DETAILS

PROJECT No.
24046

DRAWING No.
C102

Appendix 13. Summary of Technical Recommendations