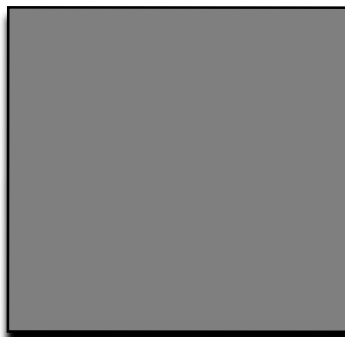
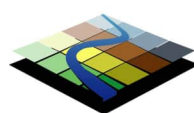




ENVIRONMENTAL IMPACT STATEMENT

Consent (Lot Line Adjustment) Application
10410 Bessey Road, Township of Wainfleet

26 March 2026



TERRASTORY
environmental consulting inc.

ENVIRONMENTAL IMPACT STATEMENT

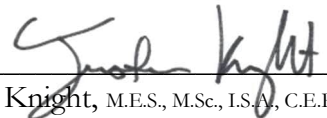
Consent (Lot Line Adjustment) Application
10410 Bessey Road, Township of Wainfleet

Prepared for:

1515435 Ontario Ltd.

Prepared by:

Terrastory Environmental Consulting Inc.
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Project No.: 22070
26 March 2026

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1 INTRODUCTION

1.1 Study Background

Terrastory Environmental Consulting Inc. (“Terrastory”) was retained by 1515435 Ontario Ltd. (“Applicant”) to prepare this Environmental Impact Study (EIS) as part of the supporting documentation for a consent (lot line adjustment) application at 10410 Bessey Road (“Subject Property”) in the Township of Wainfleet. The Subject Property totals approximately 4.15 hectares (ha) or 10.6 acres (ac) in area and is bounded by Bessey Road (east), a Provincially Significant Wetland (north), naturalized lands primarily comprised of thicket (west), and the rear yards of residential parcels on Lakeshore Road (south). The lands are currently maintained as a mobile home park and are mostly comprised of manicured amenity space with some scattered trees. A residence and storage shed are present near the northern property boundary, while a residence occurs near the southern property boundary. The location of the Subject Property within its broader landscape setting is shown in **Figure 1**.

The Subject Property is located outside of any “Urban Areas” (i.e., settlement areas) or other “Strategic Growth Areas” per Schedule B (Regional Structure) under the Niagara Official Plan (NOP). A “Permanent & Intermittent Stream” (“Bessie Branch” of the Eagle Marsh Drain) is mapped on Schedule C2 (Natural Environment System – Individual Components and Features) of the NOP flowing westward through the Subject Property, while units associated with the Provincially Significant Wainfleet Eagle Marsh Drain Wetland Complex (“PSW”) occur along the northwestern and northern property boundaries (and also occur east side of Bessey Road).

The Subject Property forms part of the “Lakeshore Area” per Schedule A (Municipal Structure) of the Township’s Official Plan (“Township’s OP”), being primarily designated “Resort Recreational” under Schedule B (Land Use – Township) and B9 (Land Use – Lakeshore Area). The Subject Property further contains “Fish Habitat” (associated with the Eagle Marsh Drain) and “Hazard Lands” designations under Schedule B. A variety of natural features are designated from the vicinity of the Subject Property under Schedule E (Natural Environment Features) of the Township’s OP, including “Fish Habitat (Important)”, “Significant Woodland”, and “Provincially Significant Wetland”. Finally, the Subject Property is zoned “Mobile Home Park” (MHP) with a “Fish Habitat Overlay” under the Township’s Zoning By-law (No. 034-2014). Owing to the watercourse (“Bessie Branch”) and adjacent PSW, portions of the Subject Property are regulated by the Niagara Peninsula Conservation Authority (NPCA) under O. Reg. 41/24 pursuant to the *Conservation Authorities Act*.

The following significant natural heritage features/areas are known from within or immediately adjacent to the Subject Property:

- Provincially Significant Wainfleet Eagle Marsh Drain Wetland Complex (“PSW”).
- “Other” identified wetlands.
- Wooded/treed areas (mostly though not entirely overlapping with the PSW).
- Eagle Marsh Municipal Drain (watercourse), also mapped as a “Permanent or Intermittent Stream” per Schedule C2 of the NOP.
- Endangered/Threatened species (e.g., Spoon-leaved Moss was documented on the east side of Bessey Road).

The Applicant is proposing a lot line adjustment with the adjacent parcel to the west (10428 Lakeshore Road). The purpose of the lot line adjustment is to create additional developable area within the revised Subject Property boundaries for a septic system (leaching bed) to maximize redevelopment potential for the mobile home park, which is advancing through a separate Site Plan Application (SPA) process. It is Terrastory's understanding that the SPA to redevelop the mobile home park (which is a separate application) will be formally submitted following consideration of the lot line adjustment, and provided that the consent is allowed by the Township's Committee of Adjustment (CoA).

The Applicant proceeded through a pre-consultation meeting in relation to the consent application on 14 November 2024. Regional Environmental Planning staff (who continue to act in an advisory role on behalf of the Township) requested the submission of a supporting EIS given the various significant natural features occurring within and adjacent to the proposed envelope of the septic system. A Terms of Reference (ToR) which scopes the conduct and content of this study was circulated by Terrastory to Regional Environmental Planning and NPCA staff on 29 March 2025, with responses received by NPCA (K. Riley, Planner) on 07 April 2025 and the Region (A. Boudens, Senior Environmental Planner) on 03 April 2025. The approved ToR and associated comment responses are provided in **Appendix 1**.

It is emphasized that the effects assessment (see **Section 5**) and policy assessment (see **Section 6**) contained in this study are centred on the consent (lot line adjustment) and proposed installation of the septic system. Despite this, Terrastory has presented all biophysical information collected for the lands between 2022 and 2025 for completeness and to facilitate a more tailored and streamlined assessment of potential effects stemming from the future SPA for the mobile home redevelopment.

1.2 Study Purpose

The purpose of this study is to present a biophysical characterization of the Subject Property and Adjacent Lands (defined herein as those within 120 m of the proposed limit of disturbance) as a means to assess the potential for adverse effects on the natural environment and natural heritage features stemming from the proposed development plan. The scope and approach of this study address the reporting requirements of the ToR (see **Appendix 1**), Section 8.9 of the Township's OP, and the Regional EIS Guidelines (March 2024). It is understood that this report will form part of the consent application package to be submitted for consideration by the Township and NPCA.

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 Study Area (see **Section 2.1**).
2. **Conduct site assessments 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	• 1934, 1954, 1965, 2009, 2013, 2015 to 2018, and 2020 to 2024.
Natural Feature Mapping	• Township of Wainfleet Official Plan: • Schedule A (Municipal Structure) • Schedule B (Land Use - Township) • Schedule B9 (Land Use – Lakeshore Area) • Schedule E (Natural Environment Features) • Appendix 4 (Municipal Drains) • Regional Municipality of Niagara Official Plan: • Schedule B (Regional Structure), • Schedule C1 (Natural Environment System Overlay and Provincial Natural Heritage Systems), • Schedule C2 (Natural Environment System – Individual Components and Features) • Schedule C3 (Key Hydrologic Areas Overlay) • Land Information Ontario (LIO) accessed via the “Make a Map: Natural Heritage Areas” web-based platform (accessed 03 November 2025). • Niagara Peninsula Conservation Authority (NPCA) regulation mapping (accessed 03 November 2025).
Physiographic Resource Mapping and Datasets	• Topographic Survey of the Subject Property. • Ontario Base Mapping produced by MNR (1:10,000) with 5 m contours. • Provincial Digital Terrain Model (LiDAR-derived). • Ontario Well Records (publicly-available). • The Soils of the Regional Municipality of Niagara (Kingston and Presant 1989). • Soil Survey of Welland County (Ontario Agricultural College 1935). • Agricultural Information Atlas (accessed 03 November 2025). • 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	• Natural Heritage Information Centre (NHIC) database accessed via the “Make a Map: Natural Heritage Areas” web-based platform (squares: 17PH3949, 17PH3950,

Type of Information Acquired	Description
	17PH4050, 17PH4049, 17PH4048, 17PH3948, 17PH3848, 17PH3849, 17PH3850; accessed 03 November 2025). • iNaturalist “(NHIC) Rare species of Ontario” project (accessed 03 November 2025). • Ontario Breeding Bird Atlas (OBBA) database and the Atlas of the Breeding Birds of Ontario, 2001–2005 (Cadman et al. 2007) (square: 17PH34). • Ontario Reptile & Amphibian Atlas (square: 17PH34; accessed 03 November 2025). • Ontario Butterfly Atlas database (square: 17PH34; accessed 03 November 2025). • iNaturalist “Ontario Odonata” project (accessed 03 November 2025). • Aquatic Species at Risk Maps by Fisheries and Oceans Canada (accessed 03 November 2025). • Atlas of the Mammals of Ontario (Dobbyn 2005).
Natural Heritage Objectives and Strategies	• Wainfleet Eagle Marsh Drain Wetland Complex Evaluation Record (June 2009).

2.2 Site Assessment and Surveys

The acquired background information per **Table 1** helped direct a fieldwork program carried out by Terrastory staff from 2022 to 2025. Field activities occurring from 2022 to 2023 were restricted to the Subject Property and were completed to consider the proposed redevelopment of the mobile home park, whereas field activities occurring from 2024 to 2025 centred on the proposed septic envelope and adjacent areas. **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
12 April 2022	Snake visual encounter survey	T. Knight; J. Consiglio	Air Temperature 16°C; Beaufort Wind 1; Cloud Cover 10%; No Precipitation. Sunny, warm.	14:40 to 17:00
13 April 2022	Anuran calling survey #1, incidental wildlife observations.	C. Wegenschimmel	Air Temperature 16°C; Beaufort Wind 0-1; Cloud Cover 75-100%; No Precipitation.	22:00 to 23:00
09 May 2022	Anuran calling survey #2, incidental wildlife observations.	T. Knight	Air Temperature 16-17°C; Beaufort Wind 2; Cloud Cover 0-25%; No Precipitation.	21:45 to 22:20
10 June 2022	Breeding bird survey #1, spring vascular plant survey, incidental wildlife observations.	T. Knight	Air Temperature 15°C; Beaufort Wind 1-2; Cloud Cover 0%; No Precipitation.	7:30 to 8:50
11 June 2022	Anuran calling survey #3, incidental wildlife observations.	T. Knight	Air Temperature 17-18°C; Beaufort Wind 1; Cloud Cover 25-50%; No Precipitation.	22:05 to 22:45

Date of Site Assessment	Assessments/Surveys Performed	Terrastory Staff	Weather Conditions	Time On-site
25 June 2022	Breeding bird survey #2, incidental wildlife observations.	T. Knight	Air Temperature 20-21°C; Beaufort Wind 1; Cloud Cover 25-50%; No Precipitation.	7:20 to 8:30
16 August 2022	Late summer vascular plant survey, Ecological Land Classification, incidental wildlife observations.	C. Wegenschimmel	n/a	10:30 to 13:30
22 August 2022	Site meeting with project team.	T. Knight	n/a	9:00 to 10:00
23 September 2022	Staking with Regional Environmental Planning and NPCA staff.	T. Knight	n/a	9:00 to 10:30
03 August 2023	Staking with Regional Environmental Planning and NPCA staff.	T. Knight	n/a	11:00 to 12:00
18 October 2024	Site-reconnaissance within the proposed septic envelope, fall vascular plant survey.	C. Wegenschimmel	Air temperature: 12-14°C, Beaufort wind 0, cloud cover 0-25%, no precipitation.	10:18 to 13:13
05 April 2025	Anuran calling survey #1, incidental wildlife observations.	T. Knight	Air temperature: 6°C, Beaufort wind 0-1, cloud cover 75-100%, Light Rain.	20:06 to 20:37
01 May 2025	Electrofishing survey, incidental wildlife observations.	T. Knight, D. Johnson	Air temperature: 16°C, Beaufort wind 0-2, cloud cover 75-100%, No Precipitation.	10:13 to 10:46
07 May 2025	Anuran calling survey #2, incidental wildlife observations.	T. Knight	Air temperature: 12°C, Beaufort wind 0-2, cloud cover 0-25%, No Precipitation.	20:55 to 21:20
25 May 2025	Breeding bird survey #1, Red-headed Woodpecker survey #1, spring vascular plants survey, incidental wildlife observations.	T. Knight	Air temperature: 12-13°C, Beaufort wind 0-1, cloud cover 0-25%, No Precipitation.	08:37 to 10:08
28 May 2025	Staking with Regional Environmental Planning and NPCA staff.	T. Knight	Air temperature: 13°C, Beaufort wind 0-1, cloud cover 75-100%, Light Rain.	10:30 to 12:00
03 June 2025	Anuran calling survey #3, incidental wildlife observations.	T. Knight	Air temperature: 17°C, Beaufort wind 0, cloud cover 0-25%, No Precipitation.	21:34 to 21:52

Date of Site Assessment	Assessments/Surveys Performed	Terrastory Staff	Weather Conditions	Time On-site
11 June 2025	Breeding bird survey #2, Red-headed Woodpecker survey #2, incidental wildlife observations.	T. Knight	Air temperature: 16-17°C, Beaufort wind 0-1, cloud cover 0-25%, No Precipitation.	08:51 to 09:48
23 June 2025	Breeding bird survey #3, Red-headed Woodpecker survey #3, incidental wildlife observations.	T. Knight	Air temperature: 21-22°C, Beaufort wind 0-1, cloud cover 0-25%, No Precipitation.	07:13 to 07:56
16 July 2025	Summer vascular plant survey, Ecological Land Classification, incidental wildlife observations.	C. Wegenschimmel	Air temperature: 24°C, Beaufort wind 0, cloud cover 0-25%, No Precipitation.	09:58 to 11:43
17 September 2025	Fall vascular plant survey, Ecological Land Classification, incidental wildlife observations.	C. Wegenschimmel	Air temperature: 23°C, Beaufort wind 0, cloud cover 0-25%, No Precipitation.	15:08 to 16:05

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 proposed septic envelope). 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:

- **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) (MNRF 2022). All existing boundaries of wetlands mapped on Adjacent Lands were maintained through this study.

- **Woodland Boundaries:** Where woodlands were identified, their boundaries were delineated based on the outer limit of the crown dripline. All woodlands mapped on Adjacent Lands were delineated via aerial photograph interpretation.
- **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.
- **Anuran Calling Surveys according to the Marsh Monitoring Protocol:** Three (3) rounds of Anuran calling surveys were conducted in accordance with the Marsh Monitoring Protocol (Bird Studies Canada et al. 2008). Surveys occurred 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).
- **Butternut and Black Ash Survey:** A comprehensive area search (“wandering transects”) was undertaken for Butternut (*Juglans cinerea*) and Black Ash (*Fraxinus nigra*) within areas of potentially suitable habitat.
- **Breeding Bird Surveys according to the Ontario Breeding Bird Atlas Protocol:** Three (3) 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. Species were also recorded during comprehensive area searches (“wandering transects”) that were completed while traveling between each station.
- **Red-headed Woodpecker (*Melanerpes erythrocephalus*) Survey Protocol:** Three (3) rounds of call playback surveys occurred during the appropriate season between May 25 to June 30 and in general accordance with the Red-headed Woodpecker Species Guidance document (Wisconsin Department of Natural Resources 2017).
- **Ontario Stream Assessment Protocol (OSAP):** Fish and aquatic habitat conditions within all on-site surface water features were assessed in accordance with the Ontario Stream Assessment Protocol (OSAP) (Stanfield 2010). A modified-version of the OSAP Section 4, Module 1 (Rapid Assessment Methodology for Channel Structure) was employed to collect the aquatic data. OSAP provides a standard assessment technique for characterizing watercourses and their attendant fish and aquatic habitat conditions at specific locations (stations). Information to collect includes bankfull and wetted widths, channel structure, evidence of erosion, instream cover, substrate type, stability, and aquatic and riparian vegetation, and other relevant characteristics.
- **Fish Community Survey (i.e., Electrofishing):** A single-pass electrofishing survey was undertaken during the spring freshet (i.e., at high water levels) to verify the presence or absence of direct fish habitat within certain ditches within the Subject Property.

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 those referenced in Section 4.1 of the 2024 Provincial Planning Statement (PPS), namely:

- Significant Wetlands;
- Significant Woodlands;
- Significant Valleylands;
- Significant Wildlife Habitat (SWH);
- Significant Areas of Natural and Scientific Interest (ANSIs);
- Habitat of Endangered and Threatened Species; and
- Fish Habitat.

Defining “significant natural features” pursuant to the PPS is considered warranted as such features are generally considered “Core Natural Areas” under the Township’s OP and/or act as “features and components” of the Regional NES. Notwithstanding this, the Township’s OP (Section 3.2) and NOP (Section 3.1.9) provide provisions that consider and/or protect additional natural features beyond the requirements of the PPS. These features are also considered “significant” herein and include:

- All natural features designated “Environmental Protection Area” (EPA) or “Environmental Conservation Area” (ECA) per Sections 3.2.1 and 3.2.2 of the Township’s OP (respectively), which includes Regionally Significant Life Science ANSIs and other evaluated wetlands (which also form part of the Regional NES but are not considered by the PPS);
- Other Wetlands (per the NOP);
- Other Woodlands (per the NOP);
- Permanent and Intermittent Streams (per the NOP);
- Inland Lakes and their Littoral Zones (per the NOP); and
- Supporting Features and Areas (Section 3.1.15 of the NOP), Enhancement Areas (Section 3.1.16 of the NOP), and Linkages (Section 3.1.17 of the NOP).

Definitions for the above provincially/regionally/locally significant natural features can be found in Schedule L (Natural Environment System: Components, Definitions, and Criteria) of the NOP. Criteria used to determine the presence or absence of the above significant natural features within the Subject Property and Adjacent Lands were considered from a variety of sources including the Township’s OPs, NOP, Natural Heritage Reference Manual (MNR 2010), Significant Wildlife Habitat (SWH) Technical Guide (MNR 2000), and SWH Criteria Schedules for Ecoregion 7E (MNR 2015).

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 Niagara pursuant to the *List of the Vascular Plants of Ontario's Carolinian Zone* (Oldham 2017).

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 (i.e., per PPS, Township ECA/EPA features, and Regional NES), natural features/hazards regulated by NPCA, and/or significant species occur on the Subject Property and/or Adjacent Lands. 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	Township of Wainfleet Official Plan (January 2016 consolidation). Niagara Official Plan (May 2024 office consolidation).
Provincial	Provincial Planning Statement 2024, pursuant to the <i>Planning Act</i> , R.S.O. 1990, c. P.13, including: - 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). <i>Conservation Authorities Act</i> , R.S.O. 1990, c. C.27, including: - Ontario Regulation 41/24 – Prohibited Activities, Exemptions, and Permits. - NPCA Policy Document: Policies for the Administration of Ontario Regulation 155/06 and the Planning Act (April 2024). <i>Endangered Species Act</i> (ESA), S.O. 2007, c. 6, including: - Ontario Regulation 230/08 – Species at Risk in Ontario List - Ontario Regulation 242/08 – General - Ontario Regulation 832/21 – Habitat <i>Fish and Wildlife Conservation Act</i> , S.O. 1997, c. 41.
Federal	<i>Species at Risk Act</i> , S.C. 2002, C. 29. <i>Fisheries Act</i> , R.S.C. 1985, c. F-14, including: Fish and Fish Habitat Protection Policy Statement (DFO 2019).

Level of Government	Natural Heritage or Environmental Policy Requirements
	- Pathways of Effects (DFO 2024). <i>Migratory Birds Convention Act</i>, S.C. 1994, c. 22, including: - 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 “Lakeshore” community of Wainfleet bordering on the northern shoreline of Lake Erie (Reebs Bay) at Camelot Beach. Lands to the east and west of the Subject Property were previously quarried resulting in the creation of back-flooded ponds comprising the “Clay Pits” (to the east) and Wainfleet Wetlands Conservation Area (to the west). Abutting areas to the north and west are naturalized and contain a variety of thicket, woodland, and wetland vegetation types. A low-density residential area on Lakeshore Road occurs to the south.

3.2 Physical Setting

3.2.1 Surficial Geology and Soils

The Subject Property is comprised of glaciolacustrine deep water deposits represented by silts and clays (Ontario Geological Survey 2010). These soils were laid down during retreat of the Wisconsin ice sheet (circa 11,000 to 22,000 years ago). Glaciolacustrine silts and clays are widespread throughout central and southern Niagara (between the Niagara Escarpment and Onondaga Escarpment) and form part of the Haldimand Clay Plain (Chapman and Putnam 1984). The topography of the Haldimand Clay Plain is characterized by minimal changes in elevation, producing flat landscapes with low gradient and wide, meandering rivers (Chapman and Putnam 1984).

The most recent soils mapping for Niagara Region (Kingston and Presant 1989) assigns “Not Mapped” to the Subject Property on the basis of the existing “campsite” use. The original soils mapping for Welland County (Ontario Agricultural College 1935) indicates the presence of Jeddo Clay, which is a dark grey to blackish grey clay and clay loam. The existing soils mapping for the Subject Property and Study Area generally aligns with the Terrastory’s soil investigations which revealed a preponderance of surficial silty clay substrates.

3.2.2 Topography and Drainage

The Subject Property is nearly flat, sitting between approximately 175 to 176 metres above sea level (masl). Abutting lands are also generally flat and are therefore broadly consistent with the Haldimand Clay Plain overall.

The “Bessie Branch” of the Eagle Marsh Drain flows through the central portion of the Subject Property and along the southern edge of the proposed lot line adjustment. Based on provincial municipal drain mapping, the “Bessie Branch” emerges in a broad wetland area east of Bessey Road and flows westward, ultimately discharging to a back-flooded pond within the Wainfleet Wetlands

Conservation Area to the north of Maplewood Road. The “Bessie Branch” enters the Subject Property via an approximately 0.5 m wide corrugated HDPE culvert beneath Bessey Road, and also flows through an 0.5 m wide CSP culvert internal to the site which provides vehicular access between the northern and southern portions of the Subject Property.

It is understood that flows within the “Bessie Branch” occasionally reverse (i.e., flow eastward). Through the Subject Property, the “Bessie Branch” flows through a defined, straightened channel approximately 2 m wide and 1 m deep. Flow conditions within the Bessie Branch are highly variable, with the bankfull channel occasionally achieving full capacity (even during the drier months) and at other times being completely dry. Lesser Duckweed (*Lemna minor*) is often abundant within the channel alongside Reed-canary Grass (*Phalaris arundinacea*).

3.3 Ecological Setting

3.3.1 Vegetation Communities

The largest vegetation community within the Study Area by spatial extent is a Gray Dogwood Deciduous Thicket (THDM5-1). This vegetation community extends along the western boundary of the Subject Property throughout the proposed septic envelope. This thicket community has occasional canopy and subcanopy sized trees which include Red Ash (*Fraxinus pennsylvanica*), Black Walnut (*Juglans nigra*), Manitoba Maple (*Acer negundo*), and Norway Maple (*Acer platanoides*). The understory is dominated by Grey Dogwood (*Cornus racemosa*), European Buckthorn (*Rhamnus cathartica*), Red Ash (regeneration), and Tatarian Honeysuckle (*Lonicera tatarica*). The ground layer is composed of White Avens (*Geum canadense*), Broad-leaved Enchanter's Nightshade (*Circaea canadensis*), Spotted Touch-me-not (*Impatiens capensis*), and Downy Yellow Violet (*Viola pubescens*). Further west of the Subject Property are two areas of Gray Dogwood Mineral Deciduous Thicket Swamp (SWTM2-3). This community also extends along the northern boundary of the Subject Property and is overall similar to the THDM5-1 community but appears to contain pooling water and wetland ground layer species such as Common Boneset (*Eupatorium perfoliatum*), Fowl Manna Grass (*Glyceria striata*), Panicked Aster (*Symphyotrichum lanceolatum*), and Stout Woodreed (*Cinna arundinacea*). The boundary of the SWTM2-3 was only inspected generally during Terrastory's site investigations and has been mapped identical to the existing PSW boundaries.

West of the Subject Property there are also two areas of Swamp Maple Mineral Deciduous Swamp (SWDM3-3) which is more extensive to the north of the Subject Property. This community is largely dominated by Freeman's Maple (*Acer x freemanii*) along with the occasional Red Ash and White Elm (*Ulmus americana*) in both the canopy and subcanopy. Similarly, the understory is comprised of young Freeman's Maple and Red Ash, along with European Buckthorn and Nannyberry (*Viburnum lentago*). Ground layer species include Rough-stemmed Goldenrod (*Solidago rugosa*), Graceful Sedge (*Carex gracillima*), Hooked Agrimony (*Agrimonia gryposepala*), and Wild Strawberry (*Fragaria virginiana*). Similar to the SWTM2-3 community, the boundary of the SWDM3-3 community is mapped coincident with the existing PSW boundary and was only generally inspected by Terrastory (alongside NPCA and Regional Environmental Planning staff in May 2025).

Along the drain outlet west of the centre of the Subject Property is a small Fresh - Moist Manitoba Maple Deciduous Woodland (WODM5-3). The canopy and subcanopy are mainly comprised of Manitoba Maple and Black Walnut along with Red Ash and Eastern Cottonwood (*Populus deltoides*). The understory has a mix of European Buckthorn, hawthorn (*Crataegus* spp.), Red Ash (regeneration), and Gray Dogwood. Ground layer species include Garlic Mustard (*Alliaria petiolata*),

Dame's Rocket (*Hesperis matronalis*), Maryland Sanicle (*Sanicula marilandica*), and Great Ragweed (*Ambrosia trifida*). West of the southwest corner of the Subject Property is another deciduous woodland (WOD) which has a canopy composed of Manitoba Maple, Eastern Cottonwood, Norway Maple (*Acer platanoides*), and Freeman Maple.

Further west along the drain outlet is a disturbed Mixed Meadow (MEM) which appears to have been cut (likely as part of drain maintenance works). The community is composed of Tall Goldenrod (*Solidago altissima*), Slender Stinging Nettle (*Urtica gracilis*), Panicked Aster, and Kentucky Bluegrass (*Poa pratensis* ssp. *pratensis*).

Lastly, along the southwestern boundary of the Subject Property is a Deciduous Hedgerow (HE1). The canopy and subcanopy are comprised of Freeman's Maple, Northern Catalpa (*Catalpa speciosa*), and Red Ash. The understory is composed of Red Ash, Multiflora Rose (*Rosa multiflora*), Silky Dogwood (*Cornus obliqua*), and European Buckthorn. Ground layer species include Tall Goldenrod, Panicked Aster, Downy Yellow Violet, and Ground-ivy (*Glechoma hederacea*).

Much of the Subject Property itself is comprised of manicured grass with scattered trees.

3.3.2 Vascular Plants

A total of 203 vascular plant species were recorded within the Subject Property (see **Appendix 3**). One provincially rare species – Honey Locust (*Gleditsia triacanthos*) – was observed which has a subnational rank of S2? (Imperiled?). Honey Locust is not considered to be native to Niagara Region and has been widely planted throughout southern Ontario. No species at risk vascular plants were documented (though note that a Threatened moss species occurs east of Bessey Road, see **Section 4.4** below).

3.3.3 Breeding Anurans

Anuran calling surveys were undertaken at five (5) stations (AN-1 to AN-5) on 13 April, 09 May, and 11 June 2022. Two (2) additional stations (AN-6 to AN-7) were surveyed on 05 April, 07 May, and 03 June 2025 to fully capture the proposed septic envelope (as access to 10428 Lakeshore Road was now available). The locations of each survey station is shown on **Figure 2** while the full survey results are provided in **Appendix 4**. A total of six (6) Anuran species were documented during the calling surveys. A general description of the Anuran communities present within the Study Area is provided below.

For surveys conducted in 2022, station AN-1 covered the Gray Dogwood Deciduous Shrub Thicket (THDM2-4) northwest of the Subject Property and woodland north of the Subject Property. Station AN-2 covered areas southwest of the Subject Property. Stations AN-3 to AN-5 covered the marsh and pond east of Bessey Road.

Full choruses of American Toad (*Anaxyrus americanus*) and Western Chorus Frog (*Pseudacris triseriata*) were detected west of Station AN-1. Full choruses of American Toad, Spring Peeper (*Pseudacris crucifer*), and Western Chorus Frogs were detected west of Station AN-2. At Station AN-3, full choruses of American Toad, Green Frog (*Lithobates clamitans*), and Northern Leopard Frog (*Lithobates pipiens*) were detected. Lower numbers of American Bullfrog (*Lithobates catesbeianus*), Spring Peeper, and Western Chorus Frog were also present. At Station AN-4, low numbers of American

Toad were present as well as moderate numbers of Green Frog. Station AN-5 had moderate numbers of Spring peeper with low numbers of American Toad and Northern Leopard Frog.

For surveys conducted in 2025, Station AN-6 covered the Gray Dogwood Deciduous Shrub Thicket (THDM2-4) west of the centre of the Subject Property while Station AN-7 covered roughly the same area as AN-1 (but was situated within the thicket to improve audibility). No calling anurans were detected calling from Station AN-6. At Station AN-7 a full chorus of Western Chorus Frog and moderate numbers of Spring Peeper were detected calling northwest of the Subject Property. The 2025 survey at AN-7 confirmed that the significant calling activity heard at AN-1 in 2022 emanated from areas well beyond the proposed septic envelope.

The presence of abundantly vocalizing Western Chorus Frog and Spring Peeper (call code 3) west of Station AN-2 indicated significant Anuran breeding habitat on Adjacent Lands, although the exact location of calling activity is unknown. Additionally, the presence of Bullfrog east of Station AN-3 on the east side of Bessey Road also confirms significant Anuran breeding habitat. Both these areas fall well outside the proposed limit of disturbance.

3.3.4 Breeding Birds

Breeding bird surveys were conducted at three (3) stations (BI-1, BI-2, and BI-3) on 10 June and 26 June 2022. One (1) additional station (BI-4) was surveyed on 26 May, 11 June, and 23 June 2025, and included targeted (playback) surveys for Red-headed Woodpecker. 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 5**. The locations of significant bird species recorded are illustrated on **Figure 3**.

A total forty-nine (49) bird species were detected. In total, 40 species are considered at least possibly breeding within the Study Area. Seven (7) species were flyovers and were determined to be nonbreeders, these included Bank Swallow (*Riparia riparia*), Barn Swallow (*Hirundo rustica*), Caspian Tern (*Hydroprogne caspia*), Cliff Swallow (*Petrochelidon pyrrhonota*), Osprey (*Pandion haliaetus*), Ring-billed Gull (*Larus delawarensis*), and Turkey Vulture (*Cathartes aura*). One (1) bird species recorded was a migrant – Wilson's Warbler (*Cardellina pusilla*) – which does not breed in southern Ontario. Additionally, one (1) Canada Goose (*Branta canadensis*) was observed with no breeding evidence. Two (2) non-native species were observed which included House Sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*).

Of the thirty-eight (38) native bird species recorded, twenty-two (22) were determined to be “Possible” breeders, evidenced by codes singing male (S) and observed in suitable habitat during the breeding season (H). These species include birds that were only observed during one of the two breeding bird surveys conducted. Seventeen (17) species were determined to be “Probable” breeders, evidenced by codes pair (P) observed in suitable nesting habitat during the species' breeding season, Presumed Territory (I) based on the presence of an adult bird (usually singing, but not necessarily so), in the same suitable nesting habitat patch on at least two visits, and Agitated behavior (A) in suitable nesting habitat during the species' breeding season. One (1) species, Carolina Wren (*Thryothorus ludovicianus*), was determined to be a “Confirmed” breeder (Co) evidenced by code (AE) Adult Entering, occupying, or leaving a nest site.

At a provincial level, each of the native species assumed to be breeding have been assigned S-ranks of either S4 or S5 by the NHIC, which indicates that their provincial populations are “apparently secure” or “secure”, respectively.

Of the 49 bird species detected, four (4) Species at Risk were detected during the breeding bird surveys, which included Bank Swallow, Barn Swallow, Eastern Wood-pewee (*Contopus virens*), and Wood Thrush (*Hylocichla mustelina*). These species are discussed further in subsequent sections.

3.3.5 Fish

An electrofishing survey of the “Bessie Branch” as it flows through the Subject Property occurred on 01 May 2025. No fish were captured within the Subject Property.

Banded Killifish (*Fundulus diaphanus*), Bluegill (*Lepomis macrochirus*), and Green Sunfish (*Lepomis cyanellus*) were captured along the edge of the pond to the east of Bessie Road. This pond was found to be hydrologically disconnected from the “Bessie Branch” under normal hydrologic conditions (see Photo 15 in **Appendix 2**). Upstream of the Subject Property, the “Bessie Branch” appears to be mostly supported by ditch flows along the east and west sides of Bessie Road.

3.3.6 Incidental Wildlife Recorded

Efforts to incidentally document wildlife were made during all site visits by Terrastory. Incidental wildlife observations (i.e., species which were not recorded during targeted wildlife surveys) include the following:

- One (1) **bee** species: Common Eastern Bumblebee (*Bombus impatiens*).
- Ten (10) **bird** species (recorded outside the targeted bird surveys): American Woodcock (*Scolopax minor*), Dark-eyed Junco (*Junco hyemalis*), Eastern Bluebird (*Sialia sialis*), Eastern Kingbird (*Tyrannus tyrannus*), Golden-crowned Kinglet (*Regulus satrapa*), Marsh Wren (*Cistothorus palustris*), Spotted Sandpiper (*Actitis macularius*), Tufted Titmouse (*Baeolophus bicolor*), White-throated Sparrow (*Zonotrichia albicollis*), and Yellow-rumped Warbler (*Setophaga coronata*).
- Eight (8) **butterfly** species: Black Swallowtail (*Papilio polyxenes*), Cabbage White (*Pieris rapae*), Clouded Sulphur (*Colias philodice*), Little Wood Satyr (*Megisto cymela*), Mourning Cloak (*Nymphalis antiopa*), Monarch (*Danaus plexippus*), Northern Crescent (*Phyciodes cocyta*) and Peck’s Skipper (*Polites peckius*).
- Five (5) **mammal** species: Coyote (*Canis latrans*), Gray Squirrel (*Sciurus carolinensis*), Red Squirrel (*Tamiasciurus hudsonicus*), Red Fox (*Vulpes vulpes*), and White-tailed Deer (*Odocoileus virginianus*).
- Six (6) **odonate** species: Eastern Pondhawk (*Erythemis simplicicollis*), Emerald Spreadwing (*Lestes dryas*), Blue Dasher (*Pachydiplax longipennis*), Common Green Darner (*Anax junius*), Eastern Forktail (*Ischnura verticalis*), and Fragile Forktail (*Ischnura posita*).
- One (1) **reptile** species: Red-eared Slider (*Trachemys scripta elegans*), occurring in the pond east of Bessey Road. One depredated turtle nest (possibly associated with Snapping Turtle) was also documented east of Bessey Road.
- One (1) **spider** species: Spined Micrathena (*Micrathena gracilis*).

At a provincial/subnational level, Spined Micrathena has a subnational rank of S3S4 (Apparently Secure-vulnerable); however, this species appears to be regularly encountered across southern and eastern Ontario based on over 1,470 confirmed (“Research Grade”) records on iNaturalist. Tufted Titmouse has a subnational rank of S3 (Vulnerable). Each of the other incidental species recorded have been assigned subnational ranks of either S4 or S5 by the NHIC, which indicates that their provincial populations are “apparently secure” or “secure”, respectively. Monarch is listed as Special Concern provincially and Endangered federally. See **Section 5.3.2** for further details.

4 SIGNIFICANCE ASSESSMENT

Based on the biophysical information collected during background information gathering (per **Table 1**) and the results of Terrastory’s site assessment (per **Sections 2.2** and **3**), **Table 4** 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**.

Table 4. Summary of the Assessment of Significant Natural Features on the Subject Property and Adjacent Lands.

Significant Natural Feature	Status within the Proposed Septic Envelope	Status within Adjacent Lands (i.e., < 120 m from the Proposed Septic Envelope)
PPS Significant Natural Features		
Significant Wetlands	Absent. See Section 4.1.	Confirmed. See Section 4.1.
Significant Woodlands	Absent. See Section 4.2.	Candidate. See Section 4.2.
Significant Valleylands	Absent.	Absent.
Significant Wildlife Habitat	Absent. See Section 4.3.	Confirmed/Candidate. See Section 4.3.
Significant Areas of Natural and Scientific Interest	Absent.	Absent.
Habitat of Endangered and Threatened Species (per ESA)	Candidate (bats). See Section 4.4.	Confirmed. See Section 4.4.
Fish Habitat (per <i>Fisheries Act</i>)	Absent. See Section 4.5.	Confirmed. See Section 4.5.
Locally and Regionally Significant Natural Features (i.e., beyond PPS requirements)		
Evaluated and Other Wetlands	Absent. See Section 4.1.	Confirmed. See Section 4.1.
Other Woodlands	Absent. See Section 4.2.	Candidate. See Section 4.2.
Regionally Significant ANSIs	Absent.	Absent.
Permanent or Intermittent Streams	Absent. See Section 4.6.	Candidate But Unlikely. See Section 4.6.
Lakes and their littoral zones	Absent.	Absent.
Supporting Features and Areas, Enhancement Areas, and Linkages	Candidate. See Section 4.7.	Candidate. See Section 4.7.

4.1 Significant, Evaluated, and Other Wetlands

“Wetland” is defined in the PPS (p. 55) as follows:

Wetlands: means lands that are 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 plants 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.

This definition of “wetland” differs slightly from that provided under O. Reg. 41/24 of the *Conservation Authorities Act*:

“wetland” means land that,

- (a) is seasonally or permanently covered by shallow water or has a water table close to or at its surface,
- (b) directly contributes to the hydrological function of a watershed through connection with a surface watercourse,
- (c) has hydric soils, the formation of which have been caused by the presence of abundant water, and
- (d) has vegetation dominated by hydrophytic plants or water tolerant plants, the dominance of which have been favoured by the presence of abundant water.

“Significant” in the context of a “wetland” is defined in the PPS (p. 52) as follows:

in regard to wetlands, coastal wetlands and areas of natural and scientific interest, an area identified as provincially significant using evaluation criteria and procedures established by the Province, as amended from time to time;

Schedule L of the NOP defines “Other Wetlands” as:

lands that meet the definition of a wetland, and which have not been evaluated as a provincially significant wetland.

To inform the development limits, Terrastory organized a natural feature staking exercise with NPCA (T. Bukovics) and Regional Environmental Planning (A. Boudens) staff on 23 September 2022. At that time, it was determined that vegetation removal had recently occurred within a wetland within the Subject Property (location shown in **Figure 3**); in response, agency staff recommended that the staking be delayed (and feature limits reassessed in the future) following further internal agency discussion. A second staking exercise and agency site walk was held on 03 August 2023 within the Subject Property, which did not result in any alteration to the previous staked wetland boundaries or identification of additional wetlands or other natural features.

The proposed septic envelope area was reviewed on-site with NPCA (T. Bukovics) and Regional Environmental Planning (L. Karlewicz) staff on 28 May 2025. It was confirmed at that time that the proposed septic envelope did not overlap with either wetland or “woodlands” as defined under the NOP (see also **Section 4.2** below). The existing PSW limits north and west of the proposed septic envelope were not inspected in detail as it was believed by the project team at that time that the proposed development and site alteration activities could avoid any areas within 30 m of the PSW.

An assessment of potential effects to the wetlands within the Study Area associated with the proposed development plan is provided in **Section 5.3.1**.

4.2 Significant and Other Woodlands

“Woodland” is defined in the PPS (p. 55) as follows:

Woodlands: means treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological 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. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels. Woodlands may be delineated according to the Forestry Act definition or the Province’s Ecological Land Classification system definition for “forest.”

“Significant” in the context of a “woodland” is defined in the PPS (p. 52) as follows:

in regard to *woodlands*, an area which 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 and procedures established by the Province;

The Township’s OP (p. 135) defines “significant” in the context of woodlands as:

an area which 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;

Schedule L of the NOP defines “Other Woodlands” (i.e., non-significant woodlands which retain some degree of policy significance) as:

woodlands determined to be ecologically important in terms of features, functions, representation, or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system. Other woodlands include all terrestrial treed vegetation communities where the percent tree cover is >25%. Other woodlands would not include woodlands meeting the criteria as significant woodlands.

Policy 3.2.2.4 under the Township's OP offers criteria upon which woodland significance can be determined. Additional criteria for determining woodland significance and the presence or absence of "Other Woodlands" is provided in Schedule L of the NOP.

There are no "forest" communities with greater than 60% tree cover within or adjacent to the proposed septic envelope. On this basis, there are no "Significant Woodlands" present as defined in Schedule L of the NOP. Significant Woodland may overlap with the SWDM3-3 treed swamp community, though confirmation of significance would require access onto other Adjacent Lands (to the north).

A Manitoba Maple dominated deciduous woodland (WODM5-3) occurs along the "Bessie Branch". Based on criteria contained in Schedule L of the NOP, this woodland may meet the definition of "Other Woodland" (although confirmation would require further access onto Adjacent Lands to the south). For the purposes of this EIS, given the proximity of the WODM5-3 community to the proposed septic envelope, the WODM5-3 community is considered a candidate "Other Woodland" (and treated as an "Other Woodland" herein).

An assessment of potential effects to the Other Woodland associated with the proposed development plan is provided in **Section 5.3.2**.

4.3 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 6**. Based on the results of this assessment, nine (9) SWH types are considered further through this study:

- Seasonal Concentration Areas of Animals
 1. Bat Maternity Colonies
 2. Turtle Wintering Areas
 3. Deer Winter Congregation Areas
- Rare Vegetation Communities or Specialized Habitats for Wildlife
 4. Amphibian Breeding Habitat (Woodlands)
 5. Amphibian Breeding Habitat (Wetlands)
- Habitat of Species of Conservation Concern
 6. Marsh Bird Breeding Habitat
 7. Terrestrial Crayfish
 8. Special Concern and Rare Wildlife Species
- Animal Movement Corridors
 9. Amphibian Movement Corridors

Also based on this assessment, a total of ten (10) 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) Tufted Titmouse (*Baeolophus bicolor*)
- 3) Wood Thrush (*Hylocichla mustelina*)
- 4) Monarch (*Danaus plexippus*)

- 5) Pronghorn Clubtail (*Phanogomphus graslinellus*)
- 6) Unicorn Clubtail (*Arigomphus villosipes*)
- 7) Powdered Ruffle Lichen (*Parmotrema hypotropum*)
- 8) Eastern Musk Turtle (*Sternotherus odoratus*)
- 9) Snapping Turtle (*Chelydra serpentina*)
- 10) Spined Micrathena (*Micrathena gracilis*)

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 5.3.2**.

4.4 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 7**. A total of seven (7) 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) Eastern Red Bat (*Lasiurus borealis*)
- 2) Little Brown Myotis (*Myotis lucifugus*)
- 3) Northern Hoary Bat (*Lasiurus cinereus*)
- 4) Northern Myotis (*Myotis septentrionalis*)
- 5) Silver-haired Bat (*Lasionycteris noctivagans*)
- 6) Tri-colored Bat (*Perimyotis subflavus*)
- 7) Spoon-leaved Moss (*Bryoandersonia illecebra*)

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 5.3.4**.

4.4.1 Bats

Per the assessment in **Appendix 7**, Little Brown Myotis, Northern Myotis, and Tri-colored Bat have the potential to roost and forage within the proposed septic envelope. Each of these bat species are designated Endangered in Ontario per O. Reg. 230/08 pursuant to the provincial ESA and are listed as Endangered on Schedule 1 of the federal *Species at Risk Act* (SARA). 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.

Per the assessment in **Appendix 7**, migratory bats (Eastern Red Bat, Hoary Bat, and Silver-haired Bat) also have the potential to roost and forage within the proposed septic envelope. Each of these bat species are designated Endangered in Ontario per O. Reg. 230/08 pursuant to the ESA and have been assessed as Endangered by COSEWIC but are not listed on Schedule 1 of the federal SARA. These migratory species are primarily found in Ontario during the summer months, and their summer habitat is generally comprised of foraging, drinking, and roosting sites (COSEWIC 2023).

Eastern Red Bat and Hoary Bat typically roost with dependent young (i.e., pups) in deciduous or coniferous forests of all age classes, with a preference for roosting in tall, large diameter trees, and at sufficient heights to deter predators (i.e., at a height greater than five metres; COSEWIC 2023). Occurrences of Eastern Red Bat and Hoary Bat roosting in anthropogenic structures are rare. Silver-haired Bat reproductive females typically roost in decaying, large diameter deciduous or coniferous trees with heart-rot or exfoliating bark, and are known to occasionally roost on or in buildings (COSEWIC 2023). Roost switching is common among all three migratory species. All three migratory bats species undergo seasonal migrations during the fall and spring which expose them to numerous threats, including fatalities associated with wind energy facilities. Other threats to these species include declines in prey abundance, and losses of forested roosting habitat and foraging habitat.

Targeted bat roosting habitat assessments and/or acoustic monitoring were not undertaken as part of this study, as no development or site alteration activities are proposed within any woodland. Candidate maternity roosting habitat for both resident and/or migratory bats occurs in the broader Study Area where snags and/or trees with sufficiently-sized cracks or crevices are present (for snag/cavity roosters). Oaks and/or maples could theoretically support roosting by Tri-colored Bat, though this species is generally rare in southern Ontario. Other trees within or outside the on-site woodlands could support “day roosts” for individual cavity roosting bats (e.g., males or non-reproductive females) or for Eastern Red Bat and Hoary Bat.

4.4.2 Spoon-leaved Moss

Spoon-leaved Moss is designated Threatened in Ontario per O. Reg. 230/08 pursuant to the ESA and is federally designated Endangered under Schedule 1 of SARA. This species occupies a wide range of habitats in southern Ontario but appears to favour imperfectly drained, partially shaded, second-growth wooded areas (Knight 2022).

Spoon-leaved Moss was documented east of Bessey Road (see **Figure 3**). No individuals were observed within the Subject Property or in the vicinity of the proposed septic envelope. Additional information pertaining to this species is provided in **Section 5.3.4**.

4.5 Fish Habitat

No fish were documented within the “Bessie Branch” as it flows through the Subject Property based on an electrofishing assessment conducted in May 2025. The “Bessie Branch” is hydrologically disconnected from the adjacent ponds to the east of Bessey Road (see Photo 15 in **Appendix 2**), and appears to be primarily fed by roadside ditches. In the event that the “Bessie Branch” becomes hydrologically reconnected to the eastern ponds (i.e., should the armourstone barrier be removed, or during high flood events), fish would become stranded within the drain as it does not appear there is a permanent hydrological connection with downstream fish habitat.

On the basis of the information available at this time, there is no direct fish habitat within the Subject Property; however, flows within the “Bessie Branch” could hydrologically support downstream fish habitats.

4.6 Permanent and Intermittent Streams

The “Bessie Branch” of the Eagle Marsh Drain is shown as a “Permanent & Intermittent Stream” per Schedule C2 of the NOP. The “Bessie Branch” does not exhibit a permanent flow regime as it appeared dry during several site visits over the course of the fieldwork program. For the “Bessie Branch” to be considered an “Intermittent Stream”, it would need to meet the following definition from Schedule L of the NOP:

stream-related watercourses that contain water or are 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 (Greenbelt Plan, 2017).

Unless the “Bessie Branch” is supported by groundwater (i.e., in which the water table is “above the stream bottom during parts of the year”), it is not considered an “Intermittent Stream”. While no hydrogeological information is available for the “Bessie Branch” to enable this determination, groundwater dependent watercourses are generally rare to absent from silty clay surficial soils in southern Niagara where groundwater flow is typically assumed to be negligible.

4.7 Supporting Features and Areas, Enhancement Areas, and Linkages

Lands to the west of the Subject Property are broadly naturalized and provide a supporting, linkage function to the surrounding PSW and other natural lands.

5 EFFECTS ASSESSMENT AND MITIGATION

The purpose of this EIS 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 construction of a septic system (leaching bed). Several significant natural features and species were documented (or may occur) within the Subject Property pursuant to the assessments in **Section 4**. The following effects assessment provides an evaluation of the potential for the proposed consent (lot line adjustment) application 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 fieldwork program. The effects assessment herein is based on the design drawings provided in **Appendix 8**.

5.1 Proposed Development Plan

The proposed (physical) development and site alteration activities consist only of the construction of a septic leaching bed. A broader redevelopment application for the mobile home park will be proposed through a separate, future SPA.

5.2 Avoidance Measures incorporated into the Proposed Development Plan

Since project commencement (i.e., for the consent application) in October 2024 Terrastory has provided extensive feedback to and worked iteratively with the project team during formulation of the proposed septic envelope. 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, particularly the PSW boundary, Other Woodland, and “Bessie Branch”. As a result, the proposed septic leaching bed has been redesigned and resituated in an envelope that only requires very minor (< 3 m) encroachment into the 30 m PSW setback. Terrastory has confirmed with the septic designer (M. Varty, Envision) that the proposed septic envelope incorporated into the site plan occupies the smallest bed possible (given the size of the adjacent mobile home redevelopment) and represents the full limit/envelope of the leaching bed (i.e., additional disturbance beyond the limit shown is not required).

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

5.3 Feature-based Effects Assessment and Technical Recommendations

5.3.1 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.

As discussed in **Section 4.1**, the proposed septic envelope and adjacent areas were reviewed on-site with NPCA and Regional Environmental Planning staff on 28 May 2025. At that time, it was determined that the proposed septic envelope did not overlap with any proposed wetlands. Portions of the adjacent PSW boundary were reviewed generally during the agency site walk, but the boundary was not delineated in detail. The existing PSW boundary has been carried forward through this assessment.

It is understood that the proposed leaching bed configuration represents the smallest size that can accommodate the proposed use as part of the mobile home redevelopment to the east. While the septic leaching bed extends slightly within the NOP minimum 30 m setback from the PSW (i.e., by

no more than 3 m), a variable 30 m setback is achieved (as portions of the septic system are greater than 30 m from the PSW boundary). On this basis, the following measure is recommended:

- **The proposed septic envelope will be installed in the location indicated in Appendix 8.**

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:

- **Schedule work to avoid weather conditions which increase the potential for erosion and sedimentation (i.e., rain, strong wind, etc.).**
- **Exposed soils will be restricted to the smallest area for the shortest period of time.**
- **Sediment fence will be installed prior to the commencement of site preparation and other construction-related activities. Sediment fence will be installed properly (e.g., trenched in, etc.), inspected regularly (i.e., daily, following storm events, etc.), and repaired immediately when necessary (e.g., breaches eliminated, sediment accumulations removed, etc.).**
- **Any necessary stockpiles or temporarily stored topsoil, fill, or aggregate material will be piled as low as practicable and isolated by sediment fence.**
- **Locate all fuels, construction materials, and other potentially deleterious substances (if needed on-site) a minimum of 30 m from the dripline of the Other Woodland. Minimize storage of such materials on-site.**
- **Contractor will be prepared to immediately deploy spills response equipment (e.g., absorption pads, etc.) if necessary. All spills will be reported to the Ontario Spills Action Centre (1-800-268-6060) as soon as possible.**
- **Non-biodegradable erosion and sediment control materials (including accumulated sediment if any) will be removed once construction is complete and disturbed areas are stabilized.**

It is highlighted that NPCA previously expressed concerns related to the removal of a wetland within the Subject Property (see **Section 4.1**). NPCA had previously requested that replacement/compensation of this feature be considered through the mobile home redevelopment application. The Applicant is encouraged to engage further with NPCA related to this matter.

5.3.2 Other Woodland

Where development and/or site alteration activities are proposed 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 potential for establishment by invasive species either directly or indirectly and including both animals and plants.

As noted in **Section 4.2**, a candidate “Other Woodland” flanks the “Bessie Branch” of the Eagle Marsh Drain. On this basis, Terrastory encouraged the project team to achieve a minimum 10 m setback between the “Other Woodland”, which has been accommodated by the design (which, relatedly, also achieves a 30 m setback from the “Bessie Branch”). On this basis, and in relation to the “Other Woodland”, the following measure is recommended:

- **The proposed septic envelope will be installed in the location indicated in Appendix 8.**

5.3.3 Significant Wildlife Habitat

Per the assessment in **Section 4.3**, a total of nine (9) candidate SWH types were considered further through this study:

- Seasonal Concentration Areas of Animals
 1. Bat Maternity Colonies
 2. Turtle Wintering Areas
 3. Deer Winter Congregation Areas
- Rare Vegetation Communities or Specialized Habitats for Wildlife
 4. Amphibian Breeding Habitat (Woodlands)
 5. Amphibian Breeding Habitat (Wetlands)
- Habitat of Species of Conservation Concern
 6. Marsh Bird Breeding Habitat
 7. Terrestrial Crayfish
 8. Special Concern and Rare Wildlife Species
- Animal Movement Corridors
 9. Amphibian Movement Corridors

Also based on this assessment, a total of ten (10) 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) Tufted Titmouse (*Baeolophus bicolor*)
- 3) Wood Thrush (*Hylocichla mustelina*)
- 4) Monarch (*Danaus plexippus*)
- 5) Pronghorn Clubtail (*Phanogomphus graslinellus*)
- 6) Unicorn Clubtail (*Arigomphus villosipes*)
- 7) Powdered Ruffle Lichen (*Parmotrema hypotropum*)
- 8) Eastern Musk Turtle (*Sternotherus odoratus*)
- 9) Snapping Turtle (*Chelydra serpentina*)
- 10) Spined Micrathena (*Micrathena gracilis*)

No specific recommendations are offered herein to further minimize the potential for impacts candidate or confirmed SWH types. The proposed septic envelope directly avoids locations where any SWH types and/or species of conservation concern were recorded. SWH types and/or species recorded in relatively close proximity to the septic envelope are not expected to be “negatively impacted” (as defined) by the proposed works. The proposed septic envelope overlaps with a thicket and was sited specifically to avoid the documented significant natural features and their associated buffer zones.

A relocation and monitoring plan will be required for the on-site Chimney Crayfish population where individuals overlap with the proposed limit of development associated with the mobile home park redevelopment. This recommendation is unrelated to the proposed lot line adjustment but should be considered through the future SPA for the mobile home park redevelopment.

5.3.4 Habitat of Endangered and Threatened Species

Per the assessment in **Appendix 7** a total of seven (7) 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) Eastern Red Bat (*Lasiurus borealis*)
- 2) Little Brown Myotis (*Myotis lucifugus*)
- 3) Northern Hoary Bat (*Lasiurus cinereus*)
- 4) Northern Myotis (*Myotis septentrionalis*)
- 5) Silver-haired Bat (*Lasionycteris noctivagans*)
- 6) Tri-colored Bat (*Perimyotis subflavus*)
- 7) Spoon-leaved Moss (*Bryoandersonia illecebra*)

The proposed septic envelope overlaps entirely with a thicket community, which provides limited roosting potential for Endangered bats. Notwithstanding this, there is some potential for bats (particularly males and non-reproductive females) to occupy certain trees which overlap with the septic envelope and would require removal. The following measures are recommended to avoid impacts to roosting bats:

- **Any necessary woody vegetation removal within the proposed development envelopes will only take place between December 1 and March 31 to avoid the active season for bats. Should minor woody vegetation removal be required between April 1 and November 30, consult a qualified Ecologist for further direction.**

- **If construction activities occur during the active bat season, work will be restricted to daylight hours only and the use of artificial lighting will be avoided.**

The proposed septic envelope is over 200 m from Spoon-leaved Moss, which was observed exclusively east of Bessey Road. No technical recommendations are required to avoid impacts to this species.

5.3.5 Supporting Features and Areas, Enhancement Areas, and Linkages

The proposed 30 m setback between the “Bessie Branch” and southern boundary of the leaching bed will maintain linkages through the landscape. Certain features/areas surrounding the PSWs (i.e., west of the proposed development will remain present.

5.3.6 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 septic envelope, along with any hazardous trees in the immediate vicinity that pose an unacceptable risk to human life or property.**
- **All necessary vegetation removal (e.g., trees, meadow vegetation) will be completed outside the primary bird nesting period (i.e., to be completed between September 1 and January 31). Should minor vegetation removal be proposed during the restricted timing window within readily searchable habitat types, 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 bird nesting survey is to take place within 48 hours of vegetation removal.**
- **All vehicles and machinery (i.e., construction equipment) shall follow relevant best practices for reducing the spread of invasive species outlined in the Clean Equipment Protocol for Industry (Halloran et al. 2013).**
- **Any Landscape Plans prepared as part of the development approval should incorporate species native to the local landscape.**

The extended tree removal timing restriction recommended above (i.e., no tree removals after January 31) reflects the potential presence of nesting owls within or adjacent to the proposed septic envelope. A Great Horned Owl (*Bubo virginianus*) was observed near the proposed septic envelope during the 2025 fieldwork program and may be nesting in the area.

5.3.7 Summary of Technical Recommendations

All technical recommendations provided in **Section 5.3** are reiterated in **Appendix 9**.

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 Township of Wainfleet Official Plan (January 2016 consolidation)

The Township'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 Township's OP. Provided herein is a description of relevant environmental and natural heritage policies contained within the Township's OP and an assessment of whether the consent application addresses such policies.

The Subject Property forms part of the "Lakeshore Area" per Schedule A of the Township's OP, being primarily designated "Resort Recreational" under Schedule B (Land Use – Township) and B9 (Land Use – Lakeshore Area). The Subject Property further contains "Fish Habitat" (associated with the Eagle Marsh Drain) and "Hazard Lands" designations under Schedule B. A variety of natural features are designated from the vicinity of the Subject Property under Schedule E (Natural Environment Features) of the Township's OP, including "Fish Habitat (Important)", "Significant Woodland", and "Provincially Significant Wetland".

Several natural heritage policy areas within the Township's OP were reviewed for consideration as part of this study. This includes:

- Section 2.6 (The Natural Heritage System);
- Section 3.2.2 (Environmental Conservation Area);
- Section 3.11 (Hazard Lands);
- Section 8.9 (Environmental Impact Study Guidelines).

Section 2.6 of the Township's OP affords policies related to the local Natural Heritage System (NHS), including its constituent natural features and linkages. Schedule A of the Township's OP fails to indicate the NHS overlapping with the Subject Property, which is restricted to the designated "Lakeshore Area". Notwithstanding this, significant natural features are known from the Subject Property and Adjacent Lands per Schedule B9.

Section 3.2.1 of the Township's OP specifies permitted uses within EPA designated lands, which include:

- a) Provincially Significant Wetland;
- b) Provincially significant Life Science Areas of Natural and Scientific Interest (ANSI);
- c) Significant habitat of endangered and threatened species

As noted in **Section 5.3.1**, the proposed septic envelope nearly achieves a 30 m setback from the adjacent PSWs (the boundaries of which were carried forward based on existing mapping through this study).

Section 3.2.2 of the Township's OP specifies permitted uses within ECA designated lands, which include:

- a) Significant woodlands;
- b) Significant wildlife habitat;
- c) Significant habitat of species of concern;
- d) Regionally significant Life Science Areas of Natural and Scientific Interest (ANSI);
- e) Other evaluated wetlands;
- f) Significant valleylands;
- g) Lake Erie shoreline; and
- h) Publicly owned Conservation Lands.

ECA lands are absent from the Subject Property but overlap with the proposed septic envelope, as indicated on Schedule B9 of the Township's OP. The designated ECA lands appear to reflect a "Significant Woodland" shown on Schedule E of the Township's OP. Notwithstanding this mapping, Terrastory has confirmed an absence of "Significant Woodland" (or "Other Woodland" as defined in the NOP) overlapping with the proposed septic envelope.

Section 3.11 of the Township's OP provides policy direction for lands that contain a hazard overlay. Policy 3.11.1 notes that Hazard Lands are "*an overlay designation and appl[y] in addition to the other identified designations.*" These policies apply where one or more of the following conditions occur:

- a) Flood susceptibility
- b) Steep slopes
- c) Erosion susceptibility
- d) Other physical condition
- e) Flood and erosion prone lands along the Lake Erie shoreline

As described in **Section 5.3**, the proposed septic envelope achieves a minimum 30 m setback from the adjacent Eagle Marsh Drain. Further discussion with NPCA regarding the presence or absence of "Hazard Lands" may be required.

Section 8.9 of the Township's OP provides direction on the approach, scope, and content requirements of Environmental Impact Studies. Section 8.9.1 directs that EISs be submitted with the development application and be prepared by a qualified individual in accordance with Regional policies and guidelines. Section 8.9.4 further discusses EIS scoping, which may be reduced after consultation with the Township, Region, and NPCA. This study has proceeded via a Terms of Reference (see **Appendix 1**) approved by the Region and NPCA.

Terrastory reviewed potential impacts to the identified significant natural features (i.e., ECA and EPA) – particularly the PSW, candidate/confirmed SWH, and the "Bessie Branch" of the Eagle Marsh Drain – in **Section 5.3** of this EIS. In addition to the setback requirements already incorporated into the proposed septic envelope (see **Appendix 8**), additional recommendations have been provided herein to avoid impacts to roosting bats and nesting birds and implement sediment

and erosion controls at construction. Given the above policy assessment and provided that Terrastory's recommended mitigation measures (summarized in **Appendix 9**) are carried out in full, it is concluded that the proposed construction of a septic system appropriately addresses the natural heritage protection provisions of the Township's OP.

6.2 Regional Municipality of Niagara Official Plan (May 2024)

The NOP was approved by the Province with modifications on 4 November 2022, which replaced the previous 2014 ROP. As a pre-consultation meeting did not occur within one-year prior to the 2022 NOP approval (i.e., between 4 November 2021 and 4 November 2022), the operative natural heritage policy framework is contained in the current in force and effect NOP (rather than the 2014 ROP).

The Subject Property is located outside of any "Urban Areas" (i.e., settlement areas) or other "Strategic Growth Areas" per Schedule B (Regional Structure) under the Niagara Official Plan (NOP). A "Permanent & Intermittent Stream" (Eagle Marsh Drain) is mapped on Schedule C2 (Natural Environment System – Individual Components and Features) of the NOP flowing westward through the Subject Property, while units associated with the Provincially Significant Wainfleet Eagle Marsh Drain Wetland Complex ("PSW") occur along the northwestern and northern property boundaries (and also occur on the east side of Bessey Road).

It is understood that Regional Environmental Planning staff have executed a service agreement with the Township of Wainfleet to provide advice related to interpretation of relevant natural heritage policies within the Township's OP and NOP through the development approvals process.

The NOP does not carry forward the EPA/ECA designation framework for significant natural features as contained in the Township's current OP (and previous 2014 ROP). The natural heritage policy framework is largely contained in Chapter 3 (Sustainable Region) of the NOP. A simplified and condensed summary of relevant Regional natural heritage policies which the development application must address is as follows:

- **Policy 3.1.1.1** establishes a Natural Environment System (NES) for Niagara Region, the features and components of which are identified in Schedule L
- **Policy 3.1.1.2** clarifies that the NES also includes groundwater features, surface water features, and other hydrologic functions.
- **Policy 3.1.2.1** directs that natural heritage features and areas, key natural heritage features, key hydrologic features, and other individual components of the NES are indicated as an overlay on Schedule C2 of the NOP.
- **Policy 3.1.2.2** lists the individual features and components of the NES (mapped on Schedule C-2), which include:
 - a) significant woodlands;
 - b) other woodlands;
 - c) provincially significant wetlands;
 - d) other wetlands and non-provincially significant wetlands;
 - e) life science areas of natural and scientific interest;
 - f) earth science areas of natural and scientific interest;
 - g) permanent and intermittent streams;
 - h) inland lakes; and

- i) linkages.
- **Policy 3.1.3.1** directs that not all features and components of the NES can or have been mapped, and as such detailed area-specific or site-specific studies (e.g., EIS, SWS) are required for their identification).
- **Policy 3.1.3.3** directs the highest level of environmental protection shall apply where lands containing two or more components of the NES.
- **Policy 3.1.4.1** allows for changes to the limits of individual features or components of the NES where justified through an EIS and/or hydrological evaluation.
- **Policy 3.1.4.9** directs that applications for a lot boundary adjustment shall avoid the fragmentation of provincially significant wetlands and significant woodlands.
- **Policy 3.1.4.10** directs that applications for lot boundary adjustment should avoid the fragmentation of other natural heritage features and areas, key natural heritage features or key hydrologic features wherever possible and practical.
- **Section 3.1.9** applies to lands in designated Settlement Areas and other lands which are outside of the Provincial NHS (i.e., Growth Plan NHS and Greenbelt Plan NHS) and Niagara Escarpment Plan area.
- **Policy 3.1.9.5.1** prohibits development and site alteration within the following significant natural features:
 - a) Provincially Significant Wetlands,
 - b) Significant Coastal Wetlands, and
 - c) Significant Woodlands.
- **Policy 3.1.9.5.2** permits development in the following natural heritage features only where it can be demonstrated that no negative impacts on the feature or its ecological functions is anticipated:
 - a) Other Woodlands,
 - b) Significant Valleylands,
 - c) Significant Wildlife Habitat, and
 - d) Areas of Natural and Scientific Interest.
- **Policy 3.1.9.5.4** recognizes the overlapping regulatory authority of NPCA as it pertains to development within or adjacent to Watercourses, Provincially Significant Wetlands, and Other Wetlands.
- **Table 3-1** provides Adjacent Lands distances for various natural heritage features and areas contained in the NES.
- **Policy 3.1.9.8.1** mandates minimum setbacks from several features and components of the NES per Table 3-2, which includes:
 - a) 30 m from PSWs.
 - b) 20 m from Significant Woodlands
 - c) 10 m from Other Woodlands
- **Policy 3.1.10.1** prohibits development and site alteration within key hydrologic areas, key hydrologic features, and other important water resources unless no negative impacts are demonstrated on several hydrological features and functions.
- **Policy 3.1.11** directs that development and site alteration are not permitted in Other Woodlands unless it has been demonstrated through the preparation of an environmental impact study that there will be no negative impacts on the other woodland or its ecological functions.

- **Policy 3.1.12.1** directs that development or site alteration shall not be permitted in fish habitat except in accordance with Federal and Provincial requirements.
- **Policy 3.1.13.1** directs that development or site alteration shall not be permitted in habitat of endangered and threatened species except in accordance with Federal and Provincial requirements.
- **Policy 3.1.15.1** clarifies that supporting features and areas are lands that have been restored or have the potential to be restored, and include:
 - a) grasslands, thickets, and meadows that support the ecological functions of adjacent key natural heritage features, key hydrologic features, and/ or natural heritage features and areas;
 - b) valleylands, which includes lands that may have ecological and/or hydrologic functions, that are not significant valleylands, and are not the site of a permanent or intermittent stream that is regulated by the Conservation Authority;
 - c) wildlife habitat that is not considered to be significant wildlife habitat; and
 - d) enhancement areas, which are the subject of Section 3.1.16 of this Plan.
- **Policy 3.1.15.2** directs that supporting features and areas shall be screened for through an EIS and/or hydrological evaluation both inside and outside settlement areas.
- **Policy 3.1.16.1** clarifies that enhancement areas are intended to consist of natural self-sustaining vegetation that increase the ecological resilience and function of individual key natural heritage features, key hydrologic features and/or natural features and areas, or groups of such features, by:
 - a) increasing the size of key natural heritage features, key hydrologic features and/or natural heritage features and areas;
 - b) connecting key natural heritage features, key hydrologic features and/or natural heritage features and areas to create larger contiguous natural areas;
 - c) improving the shape of key natural heritage features, key hydrologic features and/or natural heritage features and areas to increase interior habitat conditions;
 - or
 - d) including critical function zones and important catchment areas for sustaining ecological functions.
- **Policy 3.1.16.2** directs that potential enhancement areas shall be screened for through an EIS and/or hydrological evaluation both inside and outside settlement areas.
- **Policy 3.1.20.2** directs that an EIS demonstrate how enhancements to ecological function, ecological integrity, or biodiversity of the natural environment system can be achieved.

Consistent with the conformity assessment provided under the Township's OP in **Section 6.1** above, it has been determined that the proposed development has been made consistent with relevant natural heritage provisions contained in the NOP provided that the recommendations made herein are captured through the development approvals process. While it is recognized that the proposed septic envelope slightly encroaches within the minimum 30 m setback from the PSW, it is emphasized that the project septic designer has indicated that the septic envelope cannot be further reduced.

It is further recognized that Policy 3.1.4.9 and 3.1.4.10 provide direction to lot boundary adjustments. Policy 3.1.4.9 relates to avoiding the "fragmentation" of PSWs and Significant Woodlands, whereas Policy 3.1.4.10 relates to avoiding fragmentation of other natural heritage features/areas "wherever possible and practical". It is highlighted that the term "fragmentation" is

not defined in the NOP and could relate to “functional” fragmentation (in an ecological sense) or “ownership” fragmentation (in a legal sense). While the former (functional/ecological fragmentation) clearly falls within the purview of an EIS, it is unclear whether “ownership” fragmentation (particularly in the context of a single lot line adjustment) falls within the technical expertise of an Ecologist. Regardless, it is emphasized that the proposed lot line adjustment will not “fragment” (in a legal sense) any PSWs or Significant Woodlands, follows the channel of the “Bessie Branch” (which acts as a naturally suitable administrative boundary), and will not result in new physical development fragmenting any significant natural heritage features or their ecological functions.

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

The Provincial Planning Statement (PPS) is promulgated under the authority of the *Planning Act* and came into effect on 20 October 2024, replacing the previous PPS that came into effect on 1 May 2020. 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 4.1. While recognizing that the natural heritage protection framework is not intended to limit the ability of agricultural uses to continue (Policy 4.1.9), the PPS instructs that *natural features and areas shall be protected for the long term* (Policy 4.1.1) and that their diversity and connectivity be *maintained, restored or, where possible, improved* (Policy 4.1.2). 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).

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

- Per **Table 4** of this report, no Significant Woodlands, Significant Valleylands, or Significant ANSIs are present within the Subject Property.
- Per **Section 5.3** of this report, no “negative impacts” to the PSW or candidate/confirmed SWH types are anticipated provided that the recommended mitigation measures are implemented in full.
- Per **Section 5.3** of this report, Fish Habitat and Endangered/Threatened species habitat will be protected in accordance with provincial and federal requirements.

6.4 O. Reg. 41/24, pursuant to the *Conservation Authorities Act*, R.S.O. 1990, c. C.27

Conservation Authorities (CAs) in Ontario regulate “development” (as defined) within and adjacent to “hazardous lands”, which include “land that could be unsafe for development because of naturally occurring processes associated with flooding, erosion, dynamic beaches or unstable soil or bedrock” as provided under O. Reg. 41/24 pursuant to the *Conservation Authorities Act*. Section 2 under O. Reg. 41/24 serves to define the regulatory jurisdiction of CAs, which include confined valleylands, unconfined valleylands, shorelines of the Great Lakes and inland lakes, and wetlands. More specifically, the limits of CA regulatory jurisdiction encompass the following spatial areas:

- 15 m from the physical top of bank (TOB) or long-term stable top of slope (LTSTOS), whichever is greater, of confined valleylands;
- 15 m from flooding or meander belt erosion hazards, where valleyland morphology associated with a watercourse is not apparent (except in the case of NPCA, where no additional 15 m regulatory allowance is provided beyond the hazard limit);
- 15 m from the limit of flooding, erosion, or dynamic beach hazards associated with the Great Lakes shoreline or inland lakes; and
- 30 m from wetlands.

Most CAs have prepared various policy documents to guide the administration of O. Reg. 41/24. CA regulatory jurisdiction centres on avoiding development within “hazardous lands”, and does not explicitly extend to natural heritage features or ecological functions. Beyond their regulatory responsibilities under the *Conservation Authorities Act*, CAs also possess delegated responsibilities from the Province to represent provincial interests regarding natural hazards under Section 5.2 of the 2024 PPS, and may also act as “public bodies” under the *Planning Act*.

The limit of NPCA’s regulatory jurisdiction is not known with certainty as any floodplain and/or erosion hazards (if any) associated with the “Bessie Branch” have not been circulated to Terrastory. Notwithstanding this, it is confirmed that the proposed septic envelope is a minimum of 15 m beyond the channel bank of the “Bessie Branch”, but does extend slightly into the 30 m NPCA regulated area from the existing PSW boundaries. On this basis, permission from NPCA is expected to be required to construct the proposed septic system. Impacts to a formerly occurring wetland (see discussion in **Section 4.1**) also require further engagement with NPCA, likely through the future SPA process for the mobile home park redevelopment.

6.5 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” or “harmed” (Section 9) or having their habitat “damaged” or “destroyed” (Section 10). “Habitat” is defined in Subsection 2(1) as a “dwelling-place” (and immediately surrounding area) for animals, the “critical root zone” for vascular plants, and for other species (e.g., bryophytes, lichens) “an area on which any member of a species directly depends in order to carry on its life processes”. Activities that constitute habitat damage and/or destruction can only proceed subject to the requirements of Section 17 or (in limited circumstances) an activity registration under O. Reg. 242/08.

The ESA will be replaced by the recently enacted *Species Conservation Act* (SCA) once proclaimed into force at a later date. Until that time, the statutory requirements of the ESA (as described above) remain in effect.

A detailed assessment of potential and confirmed Endangered and Threatened habitat within the Subject Property is provided in **Appendix 7**. Per this assessment, and provided that relevant technical recommendations outlined in **Section 5.3** 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.

6.6 Federal Species at Risk Act, S.C. 2002, C. 29

The *Species at Risk Act* (SARA) was enacted to prevent wildlife and plant species in Canada from disappearing, and to enable legislative provisions intended to recover and/or manage listed species. Section 32 of SARA protects extirpated, endangered, or threatened species listed on Schedule 1 from being killed, harmed, harassed, captured, or taken, while section 33 prohibits damage or destruction of their “residence” (where applicable). Subsection 58(1) prohibits the destruction of “Critical Habitat” as described in the relevant recovery strategy or action plan.

While COSEWIC is the independent, scientific body responsible for assessing a species’ status in Canada, the decision to proceed with listing such species under Schedule 1 of SARA is made by the Governor in Council per subsection 27(1.1); the species listing process is therefore discretionary. Further, protection of a species’ Critical Habitat only occurs once the federal Recovery Strategy has been finalized and a Critical Habitat Order is issued. Finally, protections afforded to listed species (s. 32), their Residence (s. 33), and their Critical Habitat (s. 58) generally only apply to federal lands, excepting aquatic species and migratory birds (or where a Ministerial Order has been issued).

As the Study Area represents privately-owned land, only those Endangered or Threatened species listed under Schedule 1 of SARA which are aquatic or migratory bird species are afforded protection. In the context of the proposed development considered herein, this includes:

- Bank Swallow (federally Threatened);
- Barn Swallow (federally Threatened);
- Wood Thrush (federally Threatened); and
- Eastern Meadowlark (federally Threatened).

Bank Swallow has been afforded a formal residence description by ECCC, which defines a “residence” as an occupied burrow. The occupied burrow is protected under SARA as a residence from the date when adults are first seen entering or leaving the burrow to the date when a bird is last seen at the burrow. The Study Area falls outside of Critical Habitat as defined in the Recovery Strategy (Environment and Climate Change Canada 2022), and there is an absence of suitable nesting sites. Thus, there are no permitting requirements under SARA in relation to Bank Swallow “residences” or “Critical Habitat”.

Barn Swallow has been afforded a formal residence description, which includes all nests (whether actively occupied or not). No Barn Swallow nests have been observed within the Subject Property, while the proposed septic envelope lacks suitable nesting habitat for this species. No Critical Habitat Order has been published for Barn Swallow under SARA, and thus there is no Critical Habitat (as defined) afforded to this species within the Study Area.

Wood Thrush and Eastern Wood-pewee have neither been afforded a formal residence description nor a Critical Habitat Order under SARA. It is expected that any “residences” (as defined) for these

species would be restricted to active nests where this species is breeding (or assumed to be breeding) within the Study Area. Suitable breeding habitat does not overlap with the proposed septic envelope.

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. Provided that relevant technical recommendations outlined in **Section 5.3** 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 5.3.5** 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 environmental policies, the preceding EIS provides a detailed characterization of the natural environment occurring within and adjacent to a proposed septic envelope adjacent to 10410 Bessey Road in the Township of Wainfleet. This EIS has been prepared in support of a consent application (lot line adjustment) and will also support NPCA's regulatory review under O. Reg. 41/24 pursuant to the *Conservation Authorities Act*. 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 as appropriate.

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

- **Provincially Significant Wetlands** occur to the west and north.
- A candidate **Other Woodland** extends slightly northward from the "Bessey Branch" of the Eagle Marsh Drain.
- Several **Candidate/Confirmed Significant Wildlife Habitat** types occur in the local area (but do not overlap with the proposed septic envelope).
- Confirmed habitat for the **Threatened Spoon-leaved Moss** (east of Bessey Road only) and potential habitat for six **Endangered bats**.

Based on the presence of the above-mentioned significant natural heritage features, a comprehensive set of recommendations and mitigation measures are offered in **Section 5.3** to achieve "no negative impact" and address applicable municipal, provincial, and federal policies outlined in **Section 6**. The proposed septic envelope is situated approximately 30 m from the adjacent PSW (i.e., a variable 30 m setback is achieved), greater than 10 m from the dripline of the candidate Other Woodland, and does not overlap with any confirmed or candidate SWH types. Technical mitigation recommendations offered herein include the installation of erosion and sediment control measures at construction and the need to observe appropriate timing windows to avoid impacts to roosting bats and nesting birds (including owls/hawks which often nest early).

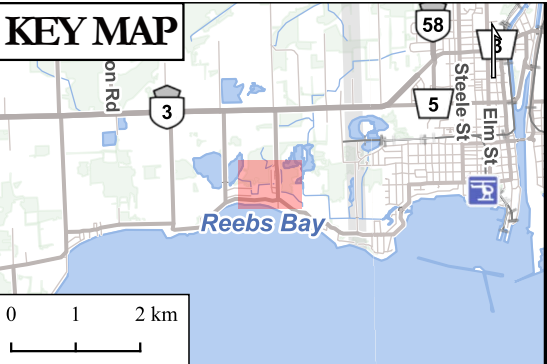
A permit from NPCA pursuant to O. Reg. 41/24 is expected to be required given minor encroachment into the 30 m PSW regulated area. The Applicant is encouraged to further engage with NPCA regarding the previous wetland removal within the Subject Property, which may be resolved through the SPA to redevelop the mobile home park.

It has been determined that no negative impacts to the above-noted features will occur and that the application appropriately addresses applicable natural heritage policies provided that all technical mitigation measures recommended herein (summarized in **Appendix 9**) are implemented in full. It is advised that such technical recommendations be incorporated into any necessary development approvals that permit the consent application.

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Legend

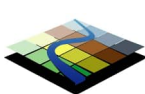
Area of Assessment

- 10410 Bessey Road (Subject Property)
- 10428 Lakeshore Road
- Proposed Lot Line Adjustment

Parcel Fabric

- Niagara Region Parcels

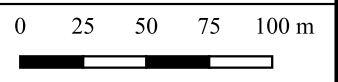
GENERAL NOTES:
-Features depicted herein should not be used in place of a professional survey.
-Numeric scale is for a 11x17 inch print.



TERRASTORY
environmental consulting inc.
info@terrastoryenviro.com 289.309.7040



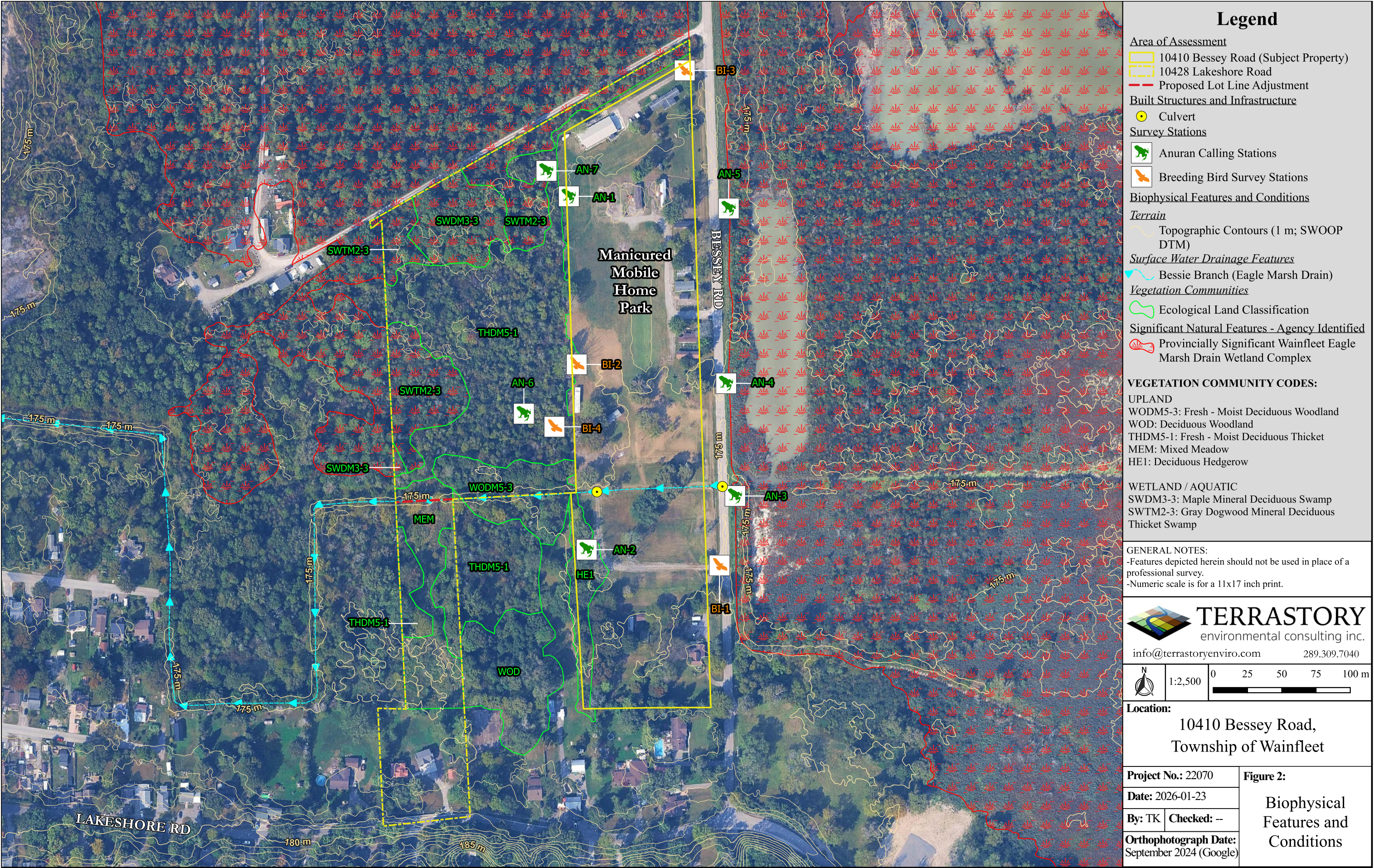
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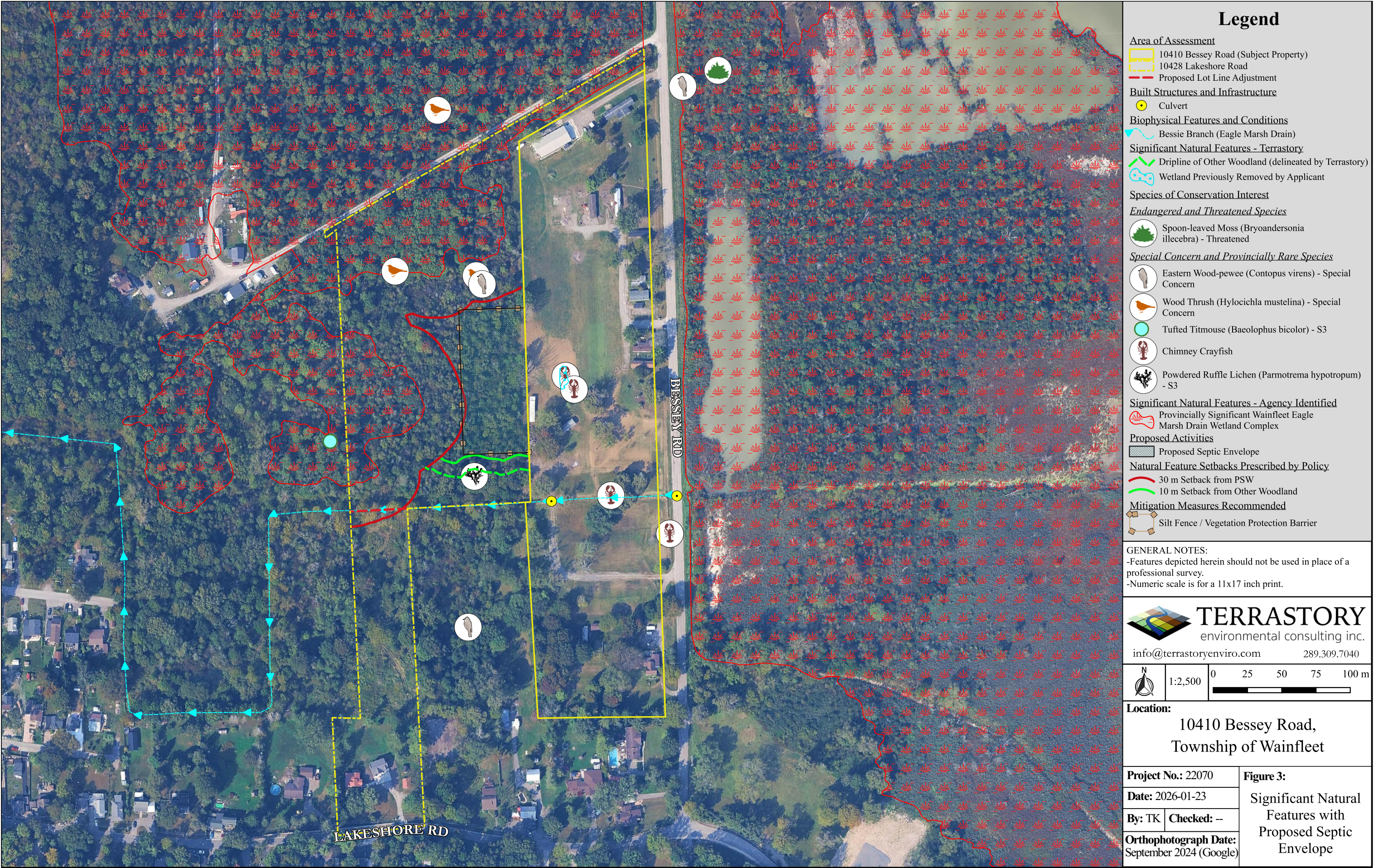


0 25 50 75 100 m

Location:
10410 Bessey Road,
Township of Wainfleet

Project No.: 22070		Figure 1: Location of the Study Area
Date: 2026-01-23		
By: TK	Checked: --	
Orthophotograph Date: September 2024 (Google)		





Appendix 1. Terms of Reference

Tristan Knight

From: Kyle Riley <kriley@npca.ca>
Sent: April 3, 2025 11:36 AM
To: Tristan Knight; Boudens, Adam
Cc: Sarah Ivins; M Petrus; Joe Tomaino
Subject: Re: EIS Terms of Reference - Bessey Road, Wainfleet

Good afternoon, All,

The Niagara Peninsula Conservation Authority (NPCA) has reviewed the subject matter of the ToR circulation provided by Terrastory for the lands known as 10410 Bessey Road, and offers the following.

The NPCA offers No Objections to the scope of the ToR suggested by Terrastory.

The NPCA would prefer to complete/update a staking exercise at the address prior to the Applicants proceeding with an EIS. This should be conducted during the growing season (approaching in the coming weeks). We are currently booking for the week of the 21st or afterwards

Should you have any questions please contact the undersigned.

Best regards,



Kyle Riley
Watershed Planner
Niagara Peninsula Conservation Authority (NPCA)
3350 Merrittville Highway, Unit 9, Thorold, Ontario L2V 4Y6

(O) 905.788.3135 Ext 252
(Cell) 905.933.2541
www.npca.ca
kriley@npca.ca

For mapping on features regulated by the NPCA please go to our GIS webpage at <https://gis-npca-camaps.opendata.arcgis.com/> and utilize our Watershed Explorer App or GIS viewer.

The NPCA completed its [Watershed-based Resource Management](#) and [Conservation Area](#) Strategies, paving the way for sustainable conservation across the Niagara Peninsula watershed. It's [Watershed Natural Asset Analysis and Valuation](#) for the Niagara Peninsula watershed offers new insights that redefine how we view nature. **Explore them today!**

From: Tristan Knight <tristan@terrastoryenviro.com>
Sent: Saturday, March 29, 2025 2:46 PM
To: Kyle Riley <kriley@npca.ca>; Boudens, Adam <Adam.Boudens@niagararegion.ca>
Cc: Sarah Ivins <sivins@wainfleet.ca>; M Petrus <mpetrus@surefixservicegroup.com>; Joe Tomaino <joe@ucc.com>
Subject: EIS Terms of Reference - Bessey Road, Wainfleet

Hi Kyle, Adam,

Terrastory has been retained to prepare an Environmental Impact Study in support of a development application at 10410 Bessey Road in Wainfleet. The recent pre-consultation record is attached for reference.

Regional Environmental Planning and NPCA planning ecology staff may recall a site staking completed for the lands in summer 2023, along with a previous Terms of Reference (see attached). At that time, the applicant was only proposing to redevelop the existing mobile park. The applicant is now proposing a lot line adjustment (consent) to facilitate installation of a leaching bed on lands to the west, necessitating an update to the ToR.

The updated ToR attached herein has been prepared with consideration for the proposed construction of a leaching bed and redevelopment of the mobile home park. A preliminary site plan indicating the proposed development and lot line is attached, though note that this plan continues to be under consideration internally and may be further revised.

We look forward to any comments or feedback you may have.

Cheers,
T.

Tristan Knight M.E.S., M.Sc., I.S.A., C.E.R.P.
Senior Ecologist | Arborist
Terrastory Environmental Consulting Inc.
(c) 905-745-5398
www.terrastoryenv.com

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Tristan Knight

From: Boudens, Adam <Adam.Boudens@niagararegion.ca>
Sent: April 7, 2025 2:10 PM
To: Tristan Knight; Kyle Riley
Cc: Sarah Ivins; M Petrus; Joe Tomaino
Subject: RE: EIS Terms of Reference - Bessey Road, Wainfleet
Attachments: 22070 - Terrastory ToR for EIS Bessey Rd Wainfleet Mar 2025.pdf

Hi Tristan,

Regional environmental planning staff have reviewed the EIS Terms of Reference (TOR) prepared for the subject lands located on Bessey Road, Wainfleet, and offer no objection to the proposed work plan.

Regional staff would like to partake in the wetland staking exercise and can provide our availability for the end of May/June, when requested.

Please let me know if you have any questions.

Thanks,
Adam



Adam Boudens, MSc
Senior Environmental Planner /
Ecologist
Public Works Department
Niagara Region
P: (905) 980-6000 ext. 3770
W: www.niagararegion.ca
E: adam.boudens@niagararegion.ca



My workday may look different from your workday. Please do not feel obligated to respond outside of your normal working hours.

From: Tristan Knight <tristan@terrastoryenviro.com>
Sent: Saturday, March 29, 2025 2:47 PM
To: Kyle Riley <kriley@npca.ca>; Boudens, Adam <Adam.Boudens@niagararegion.ca>
Cc: Sarah Ivins <sivins@wainfleet.ca>; M Petrus <mpetrus@surefixservicegroup.com>; Joe Tomaino <joe@ucc.com>
Subject: EIS Terms of Reference - Bessey Road, Wainfleet

**Niagara Region Security
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Hi Kyle, Adam,

Terrastory has been retained to prepare an Environmental Impact Study in support of a development application at 10410 Bessey Road in Wainfleet. The recent pre-consultation record is attached for reference.

Regional Environmental Planning and NPCA planning ecology staff may recall a site staking completed for the lands in summer 2023, along with a previous Terms of Reference (see attached). At that time, the applicant was only proposing to redevelop the existing mobile park. The applicant is now proposing a lot line adjustment (consent) to facilitate installation of a leaching bed on lands to the west, necessitating an update to the ToR.

The updated ToR attached herein has been prepared with consideration for the proposed construction of a leaching bed and redevelopment of the mobile home park. A preliminary site plan indicating the proposed development and lot line is attached, though note that this plan continues to be under consideration internally and may be further revised.

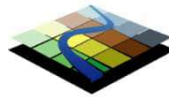
We look forward to any comments or feedback you may have.

Cheers,
T.

Tristan Knight M.E.S., M.Sc., I.S.A., C.E.R.P.
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March 29, 2025
Project No.: 22070



TERRASTORY
environmental consulting inc.

Adam Boudens
Senior Environmental Planner/Ecologist
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Kyle Riley
Watershed Planner
Niagara Peninsula Conservation Authority
(905) 788-3135 x2541
kriley@npca.ca

**SUBJECT: EIS Terms of Reference
10410 Bessey Road
Township of Wainfleet**

Dear Adam and Kyle,

Terrastory Environmental Consulting Inc. (hereinafter “Terrastory”) has been retained by 1515435 Ontario Ltd. (hereinafter “the Applicant”) to complete an Environmental Impact Study (EIS) in support of a development application at the above-captioned location in Wainfleet. The Subject Property totals approximately 4.15 hectares (ha) or 10.6 acres (ac) in area and is situated on the west side of Bessey Road north of Lakeshore Road West. The lands are currently maintained as a mobile home park and are mostly comprised of amenity space. A residence and storage shed are present near the northern property boundary, while a residence occurs near the southern lot boundary.

The Subject Property is designated “Resort Recreational” per Schedule B9 (Land Use – Lakeshore Area) of the Township’s Official Plan (OP) and forms part of the “Lakeshore Area” per Schedule A (Municipal Structure) of the TOP. The Subject Property is zoned “Mobile Home Park” (MHP) per Map 18 of Township’s Zoning By-law (034-2014). A variety of natural features are designated from the vicinity of the Subject Property per Schedule E of the Township’s OP, including “Fish Habitat (Important)”, “Significant Woodland”, and “Provincially Significant Wetland” (Wainfleet Eagle Marsh Drain).

The Subject Property is further contained within the Regional “Natural Environment System Overlay” per Schedule C1 of the Niagara Official Plan (NOP). Schedule C2 of the NOP further shows the PSW on Adjacent Lands to the west (subject to the consent application) and a “Permanent and Intermittent Stream” (i.e., Eagle Marsh Drain). Given the presence of PSW and a municipal drain, development activities within the Subject Property and proposed lot boundary adjustment area are regulated by the Niagara Peninsula Conservation Authority (NPCA) and require permission pursuant to O. Reg. 41/24.

The following significant natural heritage features/areas are known from within or immediately adjacent to the Subject Property:

- Provincially Significant Wainfleet Eagle Marsh Drain Wetland Complex (“PSW”).
- “Other” identified wetlands, some of which are contiguous with the PSW.
- Wooded/treed areas (mostly though not entirely overlapping with the PSW).
- Eagle Marsh Municipal Drain (watercourse), also mapped as a “Permanent or Intermittent Stream”.
- Threatened species (Spoon-leaved Moss documented on the east side of Bessey Road).

The Applicant is proposing to redevelop and expand mobile home uses within the Subject Property. A total of 43 “units” will be created, along with an amenity area, private wastewater facility (proposed to the west within the lot boundary adjustment area), and related uses. A Pre-consultation Meeting was held with the Township, Region, and NPCA staff on 26 January 2023, resulting in a Record of Pre-Consultation letter which confirmed the need for a supporting EIS as part of the original development application. A second Pre-consultation Meeting was held on 14 November 2024 in relation to the consent application which further confirmed the need for a supporting EIS.

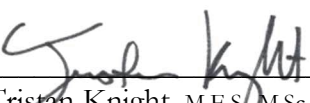
To inform the development limits, Terrastory organized a natural feature staking exercise with NPCA (T. Bukovics) and Regional Environmental Planning (A. Boudens) staff on 23 September 2022. At that time, it was determined that vegetation removal had recently occurred within a wetland area; in response, agency staff recommended that the staking be delayed (and feature limits reassessed in the future) following further internal discussion. Terrastory has advised the Applicant that previous feature removals should be addressed by feature replacement, which has been incorporated onto the concept plan circulated through recent pre-consultation. A staking exercise and site walk occurred on 03 August 2023 and will occur again in 2025 to cover relevant portions of the proposed lot boundary adjustment area.

Given known natural heritage features within/adjacent to the Subject Property, and the need to address previous vegetation removal activities, a comprehensive three-season EIS is required for the lands is necessary. A Terms of Reference (ToR) for the EIS is provided below for review and approval by Regional Environmental Planning and NPCA staff (see **Figure 1**). Note that Terrastory completed much of the fieldwork in support of the EIS within the Subject Property in 2022, with additional field activities in 2025 to focus primarily on Adjacent Lands to the west.

Should you have any questions or require further clarification regarding the contents of this ToR, 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., C.E.R.P.
Senior Ecologist | Arborist

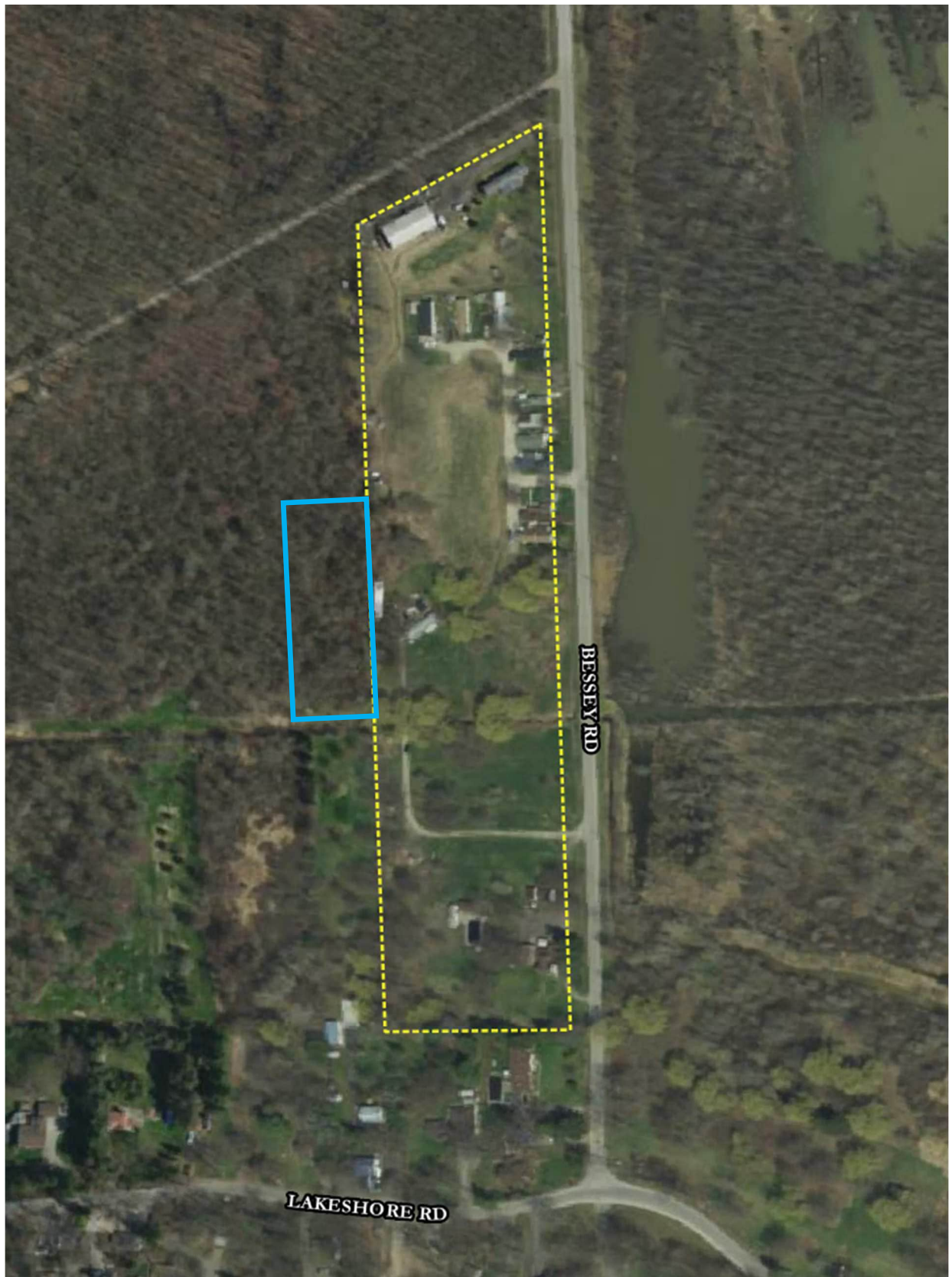


Figure 1. Location of the Subject Property and proposed leaching bed (**blue**).

TERMS OF REFERENCE

Approach

Overall, the EIS will be undertaken consistent with the Regional Environmental Impact Statement (EIS) Guidelines (January 2018 or updated 2025 version), Section 3.1.33 of the NOP, and NPCA's Interim EIS Guidelines (August 2022). The EIS will incorporate the following components:

- ✓ Identification, description, and delineation of all significant 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 address “no negative impacts”, including wetland replacement/enhancement measures; and
- ✓ Assessment of application conformity with relevant municipal, provincial, and federal natural heritage requirements.

Background Information Gathering

Background biophysical information will be gathered from the following sources:

- Current and historical aerial photographs
- Existing natural feature mapping
 - Township Wainfleet OP Schedules A (Municipal Structure), B (Land Use - Township), B9 (Land Use – Lakeshore Area), E (Natural Environment Features), and Appendix 4 (Municipal Drains)
 - Regional Municipality of Niagara OP Schedule B (Regional Structure), C1 (Natural Environment System Overlay and Provincial Natural Heritage Systems), C2 (Natural Environment System – Individual Components and Features), and C3 (Key Hydrologic Areas Overlay)
 - Land Information Ontario (LIO)
 - NPCA regulation mapping (screening maps)
- Wetland Evaluation Record for the Provincially Significant Eagle Marsh Drain 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 Atlas
- iNaturalist “Herps of Ontario” project
- iNaturalist “Odonata of Ontario” project
- DFO Aquatic Species at Risk Maps
- Atlas of the Mammals of Ontario

Field Work Program

Terrastory staff completed a significant portion of our fieldwork program in 2022. Our proposed 2022/2023 fieldwork program in support of the EIS is outlined below in **Table 1**.

Table 1. Fieldwork Program.

Fieldwork Program	Schedule (approx.)
• 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).	• Completed in 2022 – to be verified/updated in 2025
• 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.	• Completed in 2022 – to be verified/updated in 2025
• Vegetation community characterization will be undertaken in accordance with the Ecological Land Classification (ELC) System for Southern Ontario (Lee et al. 1998).	• Completed in 2022 – to be verified/updated in 2025
• 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)).	• Completed in 2022 – to be verified/updated in 2025
• Watercourse characterization will be undertaken for the Eagle Marsh Drain in accordance with OSAP module S4.M1 (Rapid Assessment Methodology for Channel Structure).	• 2023
• Fish community assessment (electrofishing survey) within the Eagle Marsh Drain	• Spring 2025
• Natural feature staking will be undertaken with Regional and NPCA Planning Ecology staff to confirm 1) forest/woodland/savannah driplines (if present), and 2) wetland boundaries according to OWES. Staked natural feature boundaries to be surveyed by an OLS.	• Completed on 03 August 2023 – to be verified/updated in 2025
• Incidental observations of flora/fauna during all site visits.	• All Site Visits

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 addresses relevant requirements and 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. Township of Wainfleet Official Plan
 - ii. Regional Municipality of Niagara Official Plan
 - iii. Provincial Planning Statement (2024)
 - iv. NPCA Regulation (O. Reg. 41/24) and related Policy Document
 - v. Provincial *Endangered Species Act*
 - vi. Provincial *Fish and Wildlife Conservation Act*
 - vii. Federal *Migratory Birds Convention Act*
 - viii. Federal *Fisheries 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. Breeding birds (including marsh birds and nightjars, if documented).
 - v. Fish and Aquatic Habitat
 - vi. Incidental Wildlife Recorded
- 4) Significance Assessment
 - a. Significant Natural Features
 - i. Wetlands
 - ii. Significant or Other Woodlands (*if present)
 - iii. Candidate/Confirmed Significant Wildlife Habitat (*if present)
 - iv. Potential/Confirmed Endangered and Threatened Species Habitat
 - v. Watercourse/fish habitat (*if present)
 - vi. Any additional features (*if present)
 - b. Significant Species (*note, provincially Threatened Spoon-leaved Moss has been documented east of Bessey Road, beyond the proposed development area)
 - c. Other
- 5) Description of the Proposed Development
 - a. Include consideration for and review of other overlapping technical studies/plans (e.g., stormwater management, hydrogeology).
- 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.).
 - c. Wetland Water Balance Risk Evaluation (TRCA 2017) – to be prepared in concert with the project Hydrogeologist (*if required by agency staff).
- 7) Mitigation Strategy
 - 8) Conclusions
 - 9) References

Appendix 2. Representative Photographs



Photo 1. General area of proposed septic envelope (18 October 2024).



Photo 2. General area of proposed septic envelope (18 October 2024).



Photo 3. Treed swamp north of the proposed septic envelope (18 October 2024).



Photo 4. Treed swamp north of the proposed septic envelope (18 October 2024).



Photo 5. Edge of thicket (16 July 2025).



Photo 6. Bessie Branch of Eagle Marsh Drain facing west through the Subject Property (16 July 2025).



Photo 7. Roadside ditch along the west side of Bessey Road facing northward towards the “Bessie Branch” (17 September 2025).

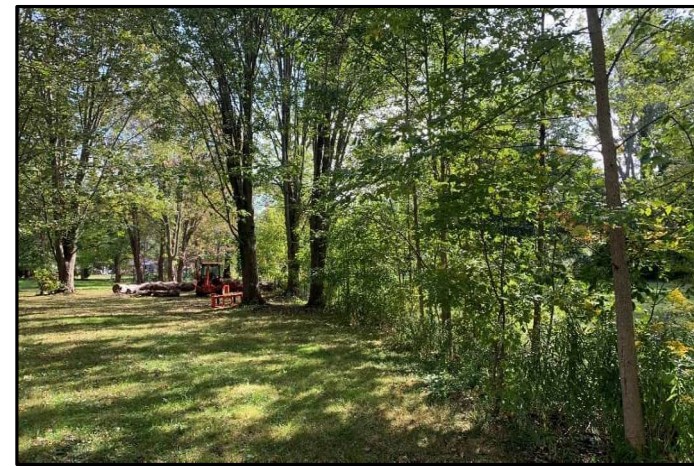


Photo 8. Western edge of the Subject Property (17 September 2025).



Photo 9. Edge of Subject Property (16 July 2025).



Photo 10. Driveway on Adjacent Lands north of the Subject Property (16 July 2025).



Photo 11. Old mobile homes, no longer occupied (17 September 2025)



Photo 12. Old mobile homes, no longer occupied (17 September 2025)



Photo 13. Bessie Branch on the date of the electrofishing survey, facing east towards Bessey Road (01 May 2025).



Photo 14. Bessie Branch on the date of the electrofishing survey, facing west towards Adjacent Lands (01 May 2025).



Photo 15. Hydrological disconnection between the pond east of Bessey Road and the Bessie Branch (01 May 2025).



Photo 16. Banded Killifish (01 May 2025).

Appendix 3. Vascular Plant List

Scientific Name	Common Name	Family	S-Rank (per NHIC)	Local Rank (per Oldham 2017)	Coefficient of Conservatism	Coefficient of Wetness
<i>Acer negundo</i>	Manitoba Maple	Aceraceae	S5		0	0
<i>Acer platanoides</i>	Norway Maple	Aceraceae	SNA		0	5
<i>Acer saccharinum</i>	Silver Maple	Aceraceae	S5		5	-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 trivale</i>	Southern Water-plantain	Alismataceae	S4?		1	-5
<i>Alliaria petiolata</i>	Garlic Mustard	Brassicaceae	SNA		0	0
<i>Allium vineale</i>	Wild Garlic	Liliaceae	SNA		0	3
<i>Ambrosia artemisiifolia</i>	Common Ragweed	Asteraceae	S5		0	3
<i>Ambrosia trifida</i>	Great Ragweed	Asteraceae	S5		0	0
<i>Apocynum cannabinum</i>	Hemp Dogbane	Apocynaceae	S5		3	0
<i>Arctium minus</i>	Common Burdock	Asteraceae	SNA		0	3
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	Araceae	S5		5	-3
<i>Asclepias incarnata</i>	Swamp Milkweed	Asclepiadaceae	S5		6	-5
<i>Asclepias syriaca</i>	Common Milkweed	Asclepiadaceae	S5		0	5
<i>Berberis thunbergii</i>	Japanese Barberry	Berberidaceae	SNA		0	3
<i>Bidens cernua</i>	Nodding Beggarticks	Asteraceae	S5		2	-5
<i>Bidens connata</i>	Purple-stemmed Beggarticks	Asteraceae	S4?		5	-3
<i>Bidens frondosa</i>	Devil's Beggarticks	Asteraceae	S5		3	-3
<i>Bidens vulgata</i>	Tall Beggarticks	Asteraceae	S5		5	0
<i>Calamagrostis canadensis</i>	Bluejoint Reedgrass	Poaceae	S5		4	-5
<i>Carex bromoides</i>	Brome-like Sedge	Cyperaceae	S5		7	-3
<i>Carex crawii</i>	Crawford's Sedge	Cyperaceae	S5	R	7	-3
<i>Carex gracillima</i>	Graceful Sedge	Cyperaceae	S5		4	3
<i>Carex granularis</i>	Limestone Meadow Sedge	Cyperaceae	S5		3	-3
<i>Carex lacustris</i>	Lake Sedge	Cyperaceae	S5		5	-5
<i>Carex lupulina</i>	Hop Sedge	Cyperaceae	S5		6	-5
<i>Carex molesta</i>	Troublesome Sedge	Cyperaceae	S4S5		5	0
<i>Carex psendocyperus</i>	Cyperus-like Sedge	Cyperaceae	S5		6	-5
<i>Carex radiata</i>	Eastern Star Sedge	Cyperaceae	S5		4	0
<i>Carex retrorsa</i>	Retrorse Sedge	Cyperaceae	S5		5	-5
<i>Carex vulpinoidea</i>	Fox Sedge	Cyperaceae	S5		3	-5
<i>Carya ovata</i>	Shagbark Hickory	Juglandaceae	S5		6	3
<i>Catalpa speciosa</i>	Northern Catalpa	Bignoniaceae	SNA		0	3
<i>Centaurea nigrescens</i>	Short-fringed Knapweed	Asteraceae	SNA		0	5
<i>Cerastium fontanum</i>	Common Mouse-ear Chickweed	Caryophyllaceae	SNA		0	3
<i>Chaenorhinum minus</i>	Dwarf Snapdragon	Scrophulariaceae	SNA		0	5
<i>Chenopodium album</i>	White Goosefoot	Chenopodiaceae	SNA		0	3
<i>Cichorium intybus</i>	Chicory	Asteraceae	SNA		0	5
<i>Cicuta bulbifera</i>	Bulb-bearing Water-hemlock	Apiaceae	S5		5	-5
<i>Cinna arundinacea</i>	Stout Woodreed	Poaceae	S4		7	-3

Scientific Name	Common Name	Family	S-Rank (per NHIC)	Local Rank (per Oldham 2017)	Coefficient of Conservatism	Coefficient of Wetness
<i>Circaea canadensis</i>	Broad-leaved Enchanter's Nightshade	Onagraceae	S5		2	3
<i>Cirsium arvense</i>	Canada Thistle	Asteraceae	SNA		0	3
<i>Convolvulus arvensis</i>	Field Bindweed	Convolvulaceae	SNA		0	5
<i>Cornus obliqua</i>	Pale Dogwood	Cornaceae	S5		2	-3
<i>Cornus racemosa</i>	Gray Dogwood	Cornaceae	S5		2	0
<i>Cornus sericea</i>	Red-osier Dogwood	Cornaceae	S5		2	-3
<i>Crataegus calpodendron</i>	Pear Hawthorn	Rosaceae	S4		4	5
<i>Crataegus punctata</i>	Dotted Hawthorn	Rosaceae	S5		4	5
<i>Cyperus strigosus</i>	Straw-colored Flatsedge	Cyperaceae	S5		5	-3
<i>Danthonia spicata</i>	Poverty Oatgrass	Poaceae	S5		5	5
<i>Daucus carota</i>	Wild Carrot	Apiaceae	SNA		0	5
<i>Dianthus armeria</i>	Deptford Pink	Caryophyllaceae	SNA		0	5
<i>Dichanthelium implicatum</i>	Slender-stemmed Panicgrass	Poaceae	S5		3	0
<i>Digitaria ischaemum</i>	Smooth Crabgrass	Poaceae	SNA		0	3
<i>Dipsacus fullonum</i>	Common Teasel	Dipsacaceae	SNA		0	3
<i>Echinochloa crus-galli</i>	Large Barnyard Grass	Poaceae	SNA		0	-3
<i>Eleocharis erythropoda</i>	Red-stemmed Spikerush	Cyperaceae	S5		4	-5
<i>Eleocharis obtusa</i>	Blunt Spikerush	Cyperaceae	S5		5	-5
<i>Elymus repens</i>	Creeping Wildrye	Poaceae	SNA		0	3
<i>Epilobium coloratum</i>	Purple-veined Willowherb	Onagraceae	S5		3	-5
<i>Equisetum arvense</i>	Field Horsetail	Equisetaceae	S5		0	0
<i>Erigeron annuus</i>	Annual Fleabane	Asteraceae	S5		0	3
<i>Erigeron strigosus</i>	Rough Fleabane	Asteraceae	S5		4	3
<i>Erysimum cheiranthoides</i>	Wormseed Wallflower	Brassicaceae	S5		0	3
<i>Eupatorium perfoliatum</i>	Common Boneset	Asteraceae	S5		2	-3
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	Asteraceae	S5		2	0
<i>Festuca rubra</i>	Red Fescue	Poaceae	S5		0	3
<i>Ficaria verna</i>	Fig-root Buttercup	Ranunculaceae	SNA		0	-3
<i>Fragaria virginiana</i>	Wild Strawberry	Rosaceae	S5		2	3
<i>Frangula alnus</i>	Glossy Buckthorn	Rhamnaceae	SNA		0	0
<i>Fraxinus pennsylvanica</i>	Green Ash	Oleaceae	S4		3	-3
<i>Galium aparine</i>	Cleavers	Rubiaceae	S5		4	3
<i>Galium mollugo</i>	Smooth Bedstraw	Rubiaceae	SNA		0	5
<i>Galium palustre</i>	Marsh Bedstraw	Rubiaceae	S5		5	-5
<i>Geranium robertianum</i>	Herb-Robert	Geraniaceae	S5		2	3
<i>Geum canadense</i>	White Avens	Rosaceae	S5		3	0
<i>Gleditsia triacanthos</i>	Honey-locust	Fabaceae	S2?		8	0
<i>Glyceria striata</i>	Fowl Mannagrass	Poaceae	S5		3	-5
<i>Helenium autmnale</i>	Purple-headed Sneezeweed	Asteraceae	SNA		0	0
<i>Heracleum maximum</i>	Cow-parsnip	Apiaceae	S5		3	-3
<i>Hesperis matronalis</i>	Dame's Rocket	Brassicaceae	SNA		0	3
<i>Hesperis matronalis</i>	Dame's Rocket	Brassicaceae	SNA		0	3
<i>Hydrophyllum canadense</i>	Canada Waterleaf	Hydrophyllaceae	S4		8	0
<i>Hypericum majus</i>	Larger Canadian St. John's-wort	Clusiaceae	S5	R	5	-3

Scientific Name	Common Name	Family	S-Rank (per NHIC)	Local Rank (per Oldham 2017)	Coefficient of Conservatism	Coefficient of Wetness
<i>Hypericum perforatum</i>	Common St. John's-wort	Clusiaceae	SNA		0	5
<i>Ilex verticillata</i>	Black Holly	Aquifoliaceae	S5		5	-3
<i>Impatiens capensis</i>	Spotted Jewelweed	Balsaminaceae	S5		4	-3
<i>Iris pseudacorus</i>	Yellow Iris	Iridaceae	SNA		0	-5
<i>Juglans nigra</i>	Black Walnut	Juglandaceae	S4?		5	3
<i>Juncus articulatus</i>	Jointed Rush	Juncaceae	S5		5	-5
<i>Juncus canadensis</i>	Canada Rush	Juncaceae	S5		6	-5
<i>Juniperus virginiana</i>	Eastern Red Cedar	Cupressaceae	S5		4	3
<i>Lactuca serriola</i>	Prickly Lettuce	Asteraceae	SNA		0	3
<i>Lamium purpureum</i>	Purple Dead-nettle	Lamiaceae	SNA		0	5
<i>Leersia oryzoides</i>	Rice Cutgrass	Poaceae	S5		3	-5
<i>Lemna minor</i>	Lesser Duckweed	Lemnaceae	S5?		5	-5
<i>Lepidium campestre</i>	Field Peppergrass	Brassicaceae	SNA		0	5
<i>Leucanthemum vulgare</i>	Oxeye Daisy	Asteraceae	SNA		0	5
<i>Lolium arundinaceum</i>	Tall Fescue	Poaceae	SNA		0	3
<i>Lonicera morrowii</i>	Morrow's Honeysuckle	Caprifoliaceae	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>Lycopus americanus</i>	American Water-horehound	Lamiaceae	S5		4	-5
<i>Lythrum salicaria</i>	Purple Loosestrife	Lythraceae	SNA		0	-5
<i>Malus pumila</i>	Common Apple	Rosaceae	SNA		0	5
<i>Medicago lupulina</i>	Black Medic	Fabaceae	SNA		0	3
<i>Medicago sativa</i>	Alfalfa	Fabaceae	SNA		0	5
<i>Melilotus albus</i>	White Sweet-clover	Fabaceae	SNA		0	3
<i>Melilotus officinalis</i>	Yellow Sweet-clover	Fabaceae	SNA		0	3
<i>Mentha canadensis</i>	Canada Mint	Lamiaceae	S5		3	-3
<i>Mimulus ringens</i>	Square-stemmed Monkeyflower	Scrophulariaceae	S5		6	-5
<i>Myosotis laxa</i>	Small Forget-me-not	Boraginaceae	S5		6	-5
<i>Myosotis scorpioides</i>	True Forget-me-not	Boraginaceae	SNA		0	-5
<i>Onoclea sensibilis</i>	Sensitive Fern	Dryopteridaceae	S5		4	-3
<i>Oxalis dillenii</i>	Slender Yellow Wood-sorrel	Oxalidaceae	S5?		0	3
<i>Panicum flexile</i>	Wiry Panicgrass	Poaceae	S4	R	8	-3
<i>Panicum virgatum</i>	Old Switch Panicgrass	Poaceae	S4		6	0
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	Vitaceae	S4?		6	3
<i>Parthenocissus vitacea</i>	Thicket Creeper	Vitaceae	S5		4	3
<i>Persicaria amphibia</i>	Water Smartweed	Polygonaceae	S5		5	-5
<i>Persicaria hydropiper</i>	Marshpepper Smartweed	Polygonaceae	SNA		0	-5
<i>Persicaria hydropiperoides</i>	False Waterpepper	Polygonaceae	S5	R	4	-5
<i>Persicaria lapathifolia</i>	Pale Smartweed	Polygonaceae	S5		2	-3
<i>Persicaria pensylvanica</i>	Pennsylvania Smartweed	Polygonaceae	S5		3	-3
<i>Persicaria punctata</i>	Dotted Smartweed	Polygonaceae	S5		4	-5
<i>Persicaria virginiana</i>	Virginia Smartweed	Polygonaceae	S4		6	0
<i>Phalaris arundinacea</i>	Reed Canary Grass	Poaceae	S5		0	-3
<i>Phragmites australis ssp. australis</i>	European Reed	Poaceae	SNA		0	-3

Scientific Name	Common Name	Family	S-Rank (per NHIC)	Local Rank (per Oldham 2017)	Coefficient of Conservatism	Coefficient of Wetness
<i>Pilea pumila</i>	Dwarf Clearweed	Urticaceae	S5		5	-3
<i>Plantago lanceolata</i>	English Plantain	Plantaginaceae	SNA		0	3
<i>Poa compressa</i>	Canada Bluegrass	Poaceae	SNA		0	3
<i>Poa palustris</i>	Fowl Bluegrass	Poaceae	S5		5	-3
<i>Poa pratensis</i>	Kentucky Bluegrass	Poaceae	S5		0	3
<i>Poa trivialis</i>	Rough Bluegrass	Poaceae	SNA		0	-3
<i>Polygonum aviculare</i>	Prostrate Knotweed	Polygonaceae	S4?		0	3
<i>Populus alba</i>	White Poplar	Salicaceae	SNA		0	5
<i>Populus deltoides</i>	Eastern Cottonwood	Salicaceae	S5		4	0
<i>Potentilla norvegica</i>	Norwegian Cinquefoil	Rosaceae	S5		0	0
<i>Potentilla recta</i>	Sulphur Cinquefoil	Rosaceae	SNA		0	5
<i>Prunella vulgaris</i>	Heal-all	Lamiaceae	S5		0	0
<i>Prunus virginiana</i>	Choke Cherry	Rosaceae	S5		2	3
<i>Pyrus communis</i>	Common Pear	Rosaceae	SNA		0	5
<i>Quercus macrocarpa</i>	Bur Oak	Fagaceae	S5		5	3
<i>Quercus palustris</i>	Pin Oak	Fagaceae	S4		9	-3
<i>Quercus rubra</i>	Northern Red Oak	Fagaceae	S5		6	3
<i>Ranunculus acris</i>	Tall Buttercup	Ranunculaceae	SNA		0	0
<i>Ranunculus recurvatus</i>	Hooked Buttercup	Ranunculaceae	S5		4	-3
<i>Rhamnus cathartica</i>	Common Buckthorn	Rhamnaceae	SNA		0	0
<i>Rhus typhina</i>	Staghorn Sumac	Anacardiaceae	S5		1	3
<i>Ribes americanum</i>	Wild Black Currant	Grossulariaceae	S5		4	-3
<i>Rosa multiflora</i>	Multiflora Rose	Rosaceae	SNA		0	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>Rudbeckia laciniata</i>	Cut-leaved Coneflower	Asteraceae	S5	R	7	-3
<i>Rumex verticillatus</i>	Swamp Dock	Polygonaceae	S4	R	7	-5
<i>Sagittaria latifolia</i>	Broad-leaved Arrowhead	Alismataceae	S5		4	-5
<i>Salix atrocinerea</i>	Rusty Willow	Salicaceae	SNA		0	-3
<i>Salix interior</i>	Sandbar Willow	Salicaceae	S5		1	-3
<i>Salix</i> × <i>fragilis</i>	Hybrid Willow	Salicaceae	SNA		0	0
<i>Sambucus canadensis</i>	Common Elderberry	Caprifoliaceae	S5		5	-3
<i>Sanicula canadensis</i> var. <i>canadensis</i>	Short-styled Canada Sanicle	Apiaceae	S4	R	7	3
<i>Sanicula marilandica</i>	Maryland Sanicle	Apiaceae	S5		5	3
<i>Sanicula odorata</i>	Clustered Sanicle	Apiaceae	S5		6	0
<i>Schoenoplectus tabernaemontani</i>	Soft-stemmed Bulrush	Cyperaceae	S5		5	-5
<i>Scirpus atrovirens</i>	Dark-green Bulrush	Cyperaceae	S5		3	-5
<i>Scirpus pendulus</i>	Rufous Bulrush	Cyperaceae	S5		3	-5
<i>Scutellaria lateriflora</i>	Mad Dog Skullcap	Lamiaceae	S5		5	-5
<i>Setaria viridis</i>	Green Foxtail	Poaceae	SNA		0	5
<i>Smilax herbacea</i>	Herbaceous Carrionflower	Smilacaceae	S4?		5	0
<i>Solanum emulans</i>	Bittersweet Nightshade	Solanaceae	SNA		0	0
<i>Solidago altissima</i>	Tall Goldenrod	Asteraceae	S5		1	3
<i>Solidago canadensis</i> var. <i>canadensis</i>	Canada Goldenrod	Asteraceae	S5		1	3

Scientific Name	Common Name	Family	S-Rank (per NHIC)	Local Rank (per Oldham 2017)	Coefficient of Conservatism	Coefficient of Wetness
<i>Solidago gigantea</i>	Giant Goldenrod	Asteraceae	S5		4	-3
<i>Solidago nemoralis</i> ssp. <i>nemoralis</i>	Gray-stemmed Goldenrod	Asteraceae	S5		2	5
<i>Solidago rugosa</i> ssp. <i>rugosa</i>	Northern Rough-stemmed Goldenrod	Asteraceae	S5		4	0
<i>Sparganium eurycarpum</i>	Broad-fruited Burreed	Sparganiaceae	S5		3	-5
<i>Spiraea alba</i>	White Meadowsweet	Rosaceae	S5		3	-3
<i>Symphotrichum lanceolatum</i>	Panicled Aster	Asteraceae	S5		3	-3
<i>Symphotrichum lateriflorum</i> var. <i>lateriflorum</i>	Calico Aster	Asteraceae	S5		3	0
<i>Symphotrichum novae-angliae</i>	New England Aster	Asteraceae	S5		2	-3
<i>Symphotrichum puniceum</i> var. <i>puniceum</i>	Swamp Aster	Asteraceae	S5		6	-5
<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 repens</i>	White Clover	Fabaceae	SNA		0	3
<i>Ulmus americana</i>	American Elm	Ulmaceae	S5		3	-3
<i>Urtica dioica</i> ssp. <i>dioica</i>	European Stinging Nettle	Urticaceae	SNA		0	0
<i>Urtica gracilis</i> ssp. <i>gracilis</i>	Slender Stinging Nettle	Urticaceae	S5		2	0
<i>Verbena bracteata</i>	Large-bracted Vervain	Verbenaceae	SNA		0	3
<i>Verbena urticifolia</i>	White Vervain	Verbenaceae	S5		4	0
<i>Veronica serpyllifolia</i>	Thyme-leaved Speedwell	Scrophulariaceae	SNA		0	0
<i>Viburnum dentatum</i> var. <i>lucidum</i>	Maple-leaved Viburnum	Caprifoliaceae	S5		6	5
<i>Viburnum lentago</i>	Nannyberry	Caprifoliaceae	S5		4	0
<i>Viburnum recognitum</i>	Smooth Arrowwood	Caprifoliaceae	S4		7	0
<i>Vicia cracca</i>	Tufted Vetch	Fabaceae	SNA		0	5
<i>Viola affinis</i>	Le Conte's Violet	Violaceae	S4?	R	6	-3
<i>Viola cucullata</i>	Marsh Blue Violet	Violaceae	S5		5	-5
<i>Viola pubescens</i>	Yellow Violet	Violaceae	S5		5	3
<i>Xanthium strumarium</i>	Rough Cocklebur	Asteraceae	S5		2	0

Oldham 2017

H=Historic

R=Rare

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

S1: Critically Imperiled - Extremely rare in Ontario; usually 5 or fewer occurrences in the province.

S2: Imperiled - Very rare in Ontario; usually between 5 and 20 occurrences.

S3: Vulnerable - Rare to uncommon in Ontario; usually between 20 and 100 occurrences.

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

S5: Secure – Demonstrably secure in Ontario.

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

Appendix 4. 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 seven (7) 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	Bearing (°)	Survey #1 ² 13 April 2022 (AN-1 to AN-5) 05 April 2025 (AN-6 to AN-7)	Survey #2 ² 09 May 2022 (AN-1 to AN-5) 07 May 2025 (AN-6 to AN-7)	Survey #3 ² 11 June 2022 (AN-1 to AN-5) 03 June 2025 (AN-6 to AN-7)	Comments
AN-1	270	American Toad (3) Western Chorus Frog (3)	No Calling Anurans	Grey Treefrog (1-1)	n/a
AN-2	270	American Toad (3) Northern Leopard Frog (1-1) Western Chorus Frog (3) Spring Peeper (3)	No Calling Anurans	Green Frog (1-4)	Survey #3: Grey Treefrog (1-2) and Green Frog (1-2) calling southeast of survey station within the Subject Property.
AN-3	98	American Toad (1-1) Spring Peeper (1-1) Northern Leopard Frog (3)	American Toad (2-4) Spring Peeper (1-2) Spring Peeper (1-1) Spring Peeper (1-1) Western Chorus Frog (1-2)	Green Frog (3) Green Frog (2-7) Bullfrog (1-1)	n/a
AN-4	85	American Toad (1-1)	No Calling Anurans	No Calling Anurans	n/a
AN-5	83	American Toad (1-2) Northern Leopard Frog (1-2) Spring Peeper (1-1)	Spring Peeper (2-6)	Green Frog (1-1)	n/a
AN-6	267	Western Chorus Frog (3)	Western Chorus Frog (1-1) Spring Peeper (2-6)	No Calling Anurans	Survey #2: Western Chorus Frog1-1 calling north of Subject Property, Western Chorus Frog1-2 calling from field flooded lawn of station AN-6
AN-7	253	No Calling Anurans	No Calling Anurans	No Calling Anurans	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 5. Breeding Bird Survey Results

Common Name	Scientific Name	Srank	SARO Status	SARA Status	Breeding Bird Stations ¹ and Breeding Status ²			
					BI-1	BI-2	BI-3	BI-4 (2025)
American Goldfinch	<i>Spinus tristis</i>	S5			Po	Po		Pr
American Robin	<i>Turdus migratorius</i>	S5			Pr	Pr	Pr	Pr
Baltimore Oriole	<i>Icterus galbula</i>	S4B			Pr	Po		Pr
Bank Swallow	<i>Riparia riparia</i>	S4B	THR	THR	O			
Barn Swallow	<i>Hirundo rustica</i>	S4B	THR	THR	O			O
Black-capped Chickadee	<i>Poecile atricapillus</i>	S5			Po	Po		
Blue Jay	<i>Cyanocitta cristata</i>	S5				Po	Po	Pr
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>	S4B						Po
Brown-headed Cowbird	<i>Molothrus ater</i>	S5			Po	Pr	Po	Pr
Canada Goose	<i>Branta canadensis</i>	S5						O
Carolina Wren	<i>Thryothorus ludovicianus</i>	S4			Po	Po		Co
Caspian Tern	<i>Hydroprogne caspia</i>	S3B, S5M	NAR					O
Cedar Waxwing	<i>Bombycilla cedrorum</i>	S5						Pr
Chipping Sparrow	<i>Spizella passerina</i>	S5B, S3N						Po
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	S4S5B						Fl
Common Grackle	<i>Quiscalus quiscula</i>	S5			Po	Pr		
Common Yellowthroat	<i>Geothlypis trichas</i>	S5B, S3N			Po	Po		Pr
Downy Woodpecker	<i>Dryobates pubescens</i>	S5			Po		Po	
Eastern Phoebe	<i>Sayornis phoebe</i>	S5B			Po			
Eastern Wood-pewee	<i>Contopus virens</i>	S4B	SC	SC				Po
European Starling	<i>Sturnus vulgaris</i>	SNA			Po			Pr
Gray Catbird	<i>Dumetella carolinensis</i>	S5B, S3N			Po	Pr		Pr
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	S5B			Po			Po
Great Horned Owl	<i>Bubo virginianus</i>	S4						Po
House Sparrow	<i>Passer domesticus</i>	SNA				Po	Po	
House Wren	<i>Troglodytes aedon</i>	S5B			Po	Po	Po	
Indigo Bunting	<i>Passerina cyanea</i>	S5B				Po		
Killdeer	<i>Charadrius vociferus</i>	S4B						Po
Least Flycatcher	<i>Empidonax minimus</i>	S5B						Po

Mourning Dove	<i>Zenaida macroura</i>	S5	Po	Pr	Pr
Mourning Warbler	<i>Geothlypis philadelphia</i>	S5B			Po
Northern Cardinal	<i>Cardinalis cardinalis</i>	S5	Pr	Po	Po
Northern Flicker	<i>Colaptes auratus</i>	S5	Po		
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	S4B	Po		
Osprey	<i>Pandion haliaetus</i>	S5B			O
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	S5			Pr
Red-eyed Vireo	<i>Vireo olivaceus</i>	S5B			Po
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	S5	Pr	Pr	Po
Ring-billed Gull	<i>Larus delawarensis</i>	S5	O		O
Rose-breasted Grosbeak	<i>Phencticus ludovicianus</i>	S5B		Po	Po
Song Sparrow	<i>Melospiza melodia</i>	S5	Pr	Pr	Pr
Swamp Sparrow	<i>Melospiza georgiana</i>	S5B, S4N	Po		
Turkey Vulture	<i>Cathartes aura</i>	S5B, S3N	O		O
Warbling Vireo	<i>Vireo gilvus</i>	S5B	Po	Po	Pr
Willow Flycatcher	<i>Empidonax traillii</i>	S4B			Po
Wilson's Warbler	<i>Cardellina pusilla</i>	S5B			O
Wood Thrush	<i>Hylocichla mustelina</i>	S4B	SC	THR	Po
Yellow Warbler	<i>Setophaga petechia</i>	S5B	Pr	Pr	Po
Yellow-throated Vireo	<i>Vireo flavifrons</i>	S4B			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).

³ - x = species considered to be Area Sensitive by the MNRF per Appendix G - Table G-4 of the SWH Technical Guide.

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

S1: Critically Imperiled - Extremely rare in Ontario; usually 5 or fewer occurrences in the province.

S2: Imperiled - Very rare in Ontario; usually between 5 and 20 occurrences.

S3: Vulnerable - Rare to uncommon in Ontario; usually between 20 and 100 occurrences.

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 that is extirpated from Ontario.

SNA: Not Applicable – A conservation status risk is not applicable because the species 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.

Breeding status qualifiers are interpreted as follows:

B: Breeding - Conservation status refers to the breeding population of the species.

N: Non-breeding - Conservation status refers to the non-breeding population of the species.

M: Migrant - Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in Ontario.

Appendix 6. Significant Wildlife Habitat Assessment

1 RESULTS

Table 1. Results of the Significant Wildlife Habitat Assessment.

Ecoregion 7E	Do any Features, Habitats, or Areas on the Subject Property or Adjacent Lands meet relevant criteria (Ecoregion 7E Criteria Schedule) as Candidate SWH?	Do any Features, Habitats, or Areas on the Subject Property or Adjacent Lands 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 2024 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 wintering raptors are expected within the Study Area, on-site 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. Detailed roosting habitat assessments and/or monitoring devices were not deployed as part of this study.	Negligible. The proposed septic envelope overlaps with thicket.
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.	Possible. Ponds and open water marshes are present on Adjacent lands east of Bessey Road.	Negligible. Candidate significant turtle wintering areas are restricted to the area east of Bessey Road.
Reptile Hibernaculum	No. 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 may be present.	Unlikely. A spring emergence survey undertaken in April 2022 failed to detect emerging snakes (though this survey focused on areas east of the proposed septic envelope). The proposed septic envelope does not overlap with features with a high probability of supporting significant snake overwintering. No snakes were documented during the 2022 and 2025 field investigations; while snakes are likely present, the lack of snake observations suggests low use of area during the active season.	--
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)	Yes. Swamp communities are present within the Subject Property.	No. Nesting waterbirds may occur east of Bessey Road but do not overlap with the proposed septic envelope.	--
Colonially - Nesting Bird Breeding Habitat (Ground)	No. Rocky islands or peninsulas along lakes or large rivers are absent.	--	--

Ecoregion 7E	Do any Features, Habitats, or Areas on the Subject Property or Adjacent Lands meet relevant criteria (Ecoregion 7E Criteria Schedule) as Candidate SWH?	Do any Features, Habitats, or Areas on the Subject Property or Adjacent Lands 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 2024 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
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.	--	--
Landbird Migratory Stopover Areas	Yes. The Study Area is within 5 km from the shoreline of Lake Erie.	Unlikely. An October 2024 site assessment failed to detect significant numbers of migrating birds. While the proposed septic envelope is expected to support landbird migratory stopovers (as are most areas in the local landscape), the function of the broader natural area in supporting migratory birds would not be impacted by the proposed development.	--
Deer Winter Congregation Areas	Yes. The Subject Property and/or Adjacent Lands have been identified as a deer wintering area by MNRF.	Confirmed. The Subject Property and adjacent lands are mapped as White-tailed Deer Wintering Area (Stratum 2).	Negligible. The proposed septic envelope is restricted to a dense thicket community which would not provide higher quality browse or cover habitat for deer in winter. The mapped deer wintering area covers the entire Subject Property, which is a mobile home park and also would not support significant deer wintering. It is expected that significant deer wintering habitat may be present further to the west or north but would not be impacted by the proposed development.
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	No. Wetland communities are absent.	--	--
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	No. Forest communities adjacent to large surface water features are absent.	--	--
Woodland Raptor Nesting Habitat	Yes. On-site forest communities may support nesting raptors.	No. The Subject Property does not contain interior forest habitat and also would not support nesting Barred Owls.	--
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 are absent.	--	--

Ecoregion 7E	Do any Features, Habitats, or Areas on the Subject Property or Adjacent Lands meet relevant criteria (Ecoregion 7E Criteria Schedule) as Candidate SWH?	Do any Features, Habitats, or Areas on the Subject Property or Adjacent Lands 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 2024 PPS) will occur based on the Proposed Development Plan and any related Site Alteration Activities.
Amphibian Breeding Habitat (Woodland)	<u>Yes.</u> Forests with wetlands, ponds, and/or pools that may support significant congregations of breeding amphibians are present.	<u>Confirmed.</u> Significant calling activity by Grey Treefrog, Spring Peeper and Western Chorus Frog were detected in swamps west and northwest of the Subject Property (though exact location is unknown).	<u>Negligible.</u> The proposed septic envelope is a minimum of 30 m from any potential significant anuran breeding habitat. Based on Terrastory surveys in 2022 and 2025, significant woodland breeding habitat for anurans appears to be restricted to areas northwest/north of the Subject Property on Adjacent Lands.
Amphibian Breeding Habitat (Wetlands)	<u>Yes.</u> Wetlands and surface water features (e.g., ponds, lakes, etc.) that may support significant congregations of breeding amphibians are absent.	<u>Confirmed.</u> Bullfrog was detected in the ponds/wetlands east of Bessey Road.	<u>Negligible.</u> Habitat for Bullfrog is restricted east of Bessey Road.
Woodland Area-Sensitive Bird Breeding Habitat	<u>No.</u> Interior Forest interior conditions (i.e., >200 m from edge) are absent.	--	--
Habitat for Species of Conservation Concern			
Marsh Bird Breeding Habitat	<u>Yes.</u> Wetlands with shallow water and emergent aquatic vegetation are absent.	<u>Unknown.</u> Targeted marsh bird surveys were not recorded.	<u>Negligible.</u> Potentially significant breeding habitat for marsh birds is restricted east of Bessey Road.
Open Country Bird Breeding Habitat	<u>No.</u> Meadow habitats of sufficient size are absent.	--	--
Shrub/Early Successional Bird Breeding Habitat	<u>No.</u> Shrub/early-successional habitats of sufficient size are absent.	--	--
Terrestrial Crayfish	<u>Yes.</u> Marsh and swamp communities and/or wet fields are present	<u>Confirmed.</u> Terrestrial crayfish chimneys were documented in 2025.	<u>Negligible.</u> No chimneys were documented within the proposed septic envelope (future efforts will be required to relocate chimney crayfish as part of redevelopment of the mobile home park).
Special Concern and Rare Wildlife Species	<u>Yes.</u> See Table 2 below.	<u>Yes.</u> See Table 2 below.	<u>Possible.</u> See Table 2 below.
Animal Movement Corridors			
Amphibian Movement Corridors	<u>Yes.</u> Significant amphibian breeding habitat is present.	<u>Yes.</u> Significant amphibian breeding habitat is present.	<u>No.</u> The proposed septic envelope is not expected to bisect any anuran movement corridors, particularly given the lack of naturalized cover through the mobile home park extending to Bessey Road.

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 Area within or adjacent to proposed Development or Site Alteration ¹	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					
American Coot (<i>Fulica americana</i>)	S3B	OBBA	Breeds in a variety of freshwater wetlands from prairie potholes to swamps and marshes to suburban park and sewage ponds to the edges of large lakes.	Negligible. Suitable habitat is present in the ponds east of the Subject Property; however, American Coot was not observed during breeding bird surveys in 2022 or 2025.	--
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	SC	Species distribution and on-site habitats	- Generally found feeding along waterbodies and shorelines, and adjacent deciduous and mixed forests. - Super-canopy trees are used for nesting and roosting. - Feeds largely on fish and carrion.	Negligible. Suitable breeding habitat is absent within the Subject Property; species was not observed during breeding bird surveys in 2022 or 2025.	--
Barn Swallow (<i>Hirundo rustica</i>)	SC	Species distribution and on-site habitats	- 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.	Negligible. While this species was observed during breeding bird surveys in 2022, no nests were documented within the Subject Property and no suitable habitat overlaps with the proposed septic envelope.	--
Common Nighthawk (<i>Chordeiles minor</i>)	SC	Species distribution and on-site habitats	- 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. Species is rare in the local landscape and was not documented during the course of the fieldwork program. Proposed septic envelope lacks small openings/interspersion and cover.	--
Eastern Wood-pewee (<i>Contopus virens</i>)	SC	OBBA	Breeds and forages in relatively open, deciduous and mixed forests of various sizes (including urban forest fragments) and along forest edges.	Confirmed Species was detected during breeding bird surveys.	Negligible. Species was not recorded in the area overlapping with the proposed septic envelope, which generally does not provide suitable breeding habitat for this species.
Grasshopper Sparrow (<i>Ammodramus savannarum</i>)	SC	Species distribution and on-site habitats	Breeds and forages in hayfields, savannahs, pastures, meadows, grasslands, and prairies.	Negligible. Suitable breeding habitat is absent.	--
Great Egret (<i>Ardea alba</i>)	S2B	iNaturalist	Breeds in colonies in trees adjacent to large lakes or extensive wetlands.	Negligible. Suitable foraging and breeding habitat is present in the ponds to the east; however, Great Egret was not observed during the fieldwork program.	--
Purple Martin (<i>Progne subis</i>)	S3B	OBBA	- Forage over towns, cities, parks, open fields, dunes, streams, wet meadows, beaver ponds, and other open areas. - Breeds in cavities both artificial and natural. Almost entirely dependent on human constructed 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. Purple Martin was not observed during breeding bird surveys in 2022.	--
Peregrine Falcon (<i>Falco peregrinus</i>)	SC	Species distribution and on-site habitats	Nests on tall, steep ledges usually close to waterbodies, including cliffs, quarry walls, and buildings.	Negligible. Suitable breeding habitat is absent within the Subject Property. Peregrine Falcon was not observed during breeding bird surveys in 2022.	--
Tufted Titmouse (<i>Baeolophus bicolor</i>)	S3	NHIC	Breeds in deciduous woods or mixed evergreen-deciduous woods, typically in areas with a dense canopy	Confirmed. Species was detected during a fall site assessment in 2024 but was not observed during breeding bird surveys in 2025.	Negligible. Species was not recorded in the area overlapping with the proposed septic envelope, which

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 Area within or adjacent to proposed Development or Site Alteration ¹	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.
			and many tree species. They are also common in orchards, parks, and suburban areas.		generally does not provide suitable breeding habitat for this species.
Wood Thrush (<i>Hylocichla mustelina</i>)	SC	OBBA	Breeds and forages in second-growth and mature deciduous and mixed forests with a well-developed understory.	Confirmed. Species was detected during breeding bird surveys.	Negligible. Species was not recorded in the area overlapping with the proposed septic envelope, which generally does not provide suitable breeding habitat for this species.
Insects					
Monarch (<i>Danaus plexippus</i>)	SC	Species distribution and on-site habitats	- 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 was detected during the fieldwork program.	Negligible. Areas of proposed development and disturbance lack Milkweed. The landscape surrounding the Study Area provides nectaring and ovipositing sites for this species.
Pronghorn Clubtail (<i>Phanogomphus graslinellus</i>)	S3	Species distribution and on-site habitats	Occupies ponds, lakes, and slow streams.	Possible. A large pond occurs east of Bessey Road .	Negligible. Proposed development and disturbance will not adversely affect the pond east of the Subject Property.
Unicorn Clubtail (<i>Arigomphus villosipes</i>)	S3	Species distribution and on-site habitats	Occupies ponds and sluggish streams with mucky bottoms and little emergent vegetation.	Possible. A large pond occurs east of Bessey Road .	Negligible. Proposed development and disturbance will not adversely affect the pond east of the Subject Property.
Mammals					
Woodland Vole (<i>Microtus pinetorum</i>)	SC	Atlas of Ontario Mammals	Occupies deciduous forests in areas of soft, friable, often sandy soil beneath deep humus to facilitate burrowing.	Unlikely. Suitable habitat is absent from the Subject Property, however, forest communities on adjacent lands may support this species.	--
Lichens					
Powdered Ruffle Lichen (<i>Parmotrema hypotropum</i>)	S3	Field surveys in 2025	- Inhabits woodlands, thickets and swamps, especially areas with high humidity. - Grows on branches and trunks of trees.	Confirmed. One (1) individual was found west of the Subject Property within the thicket community.	Negligible. Species was documented approximately 15 m from the limit of the proposed septic envelope. The location where this species was observed will not be impacted.
Plants					
American Bugseed (<i>Corispermum Americanum</i>)	S3?	NHIC	Occupies beaches, sand dunes, sandy prairies and barren waste areas.	Negligible. There is no suitable habitat within the proposed septic envelope. Species was not documented during the fieldwork program.	--
Eastern Few-fruited Sedge (<i>Carex oligocarpa</i>)	S3	NHIC	Occupies dry, usually calcareous woods and alvar woodland in southern Ontario.	Negligible. There is no suitable habitat within the proposed septic envelope. Species was not documented during the fieldwork program.	--
Hairy Green Sedge (<i>Carex hirsutella</i>)	S3	NHIC	Typically found on drier soils of forests and woodlands	Negligible. Species was not documented during the fieldwork program.	--
Schweinitz's Flatsedge (<i>Cyperus schweinitzii</i>)	S3	NHIC	- Inhabits dry, sandy soils and sand dunes along shorelines.	Negligible. There is no suitable habitat within the proposed septic envelope. Species was not documented during the fieldwork program.	--

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 Area within or adjacent to proposed Development or Site Alteration ¹	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.
Swamp Rose-mallow (<i>Hibiscus moscheutos</i>)	SC	NHIC	Occupies shoreline marshes along the Great Lakes and Lake St. Clair.	Negligible. There is no suitable habitat within the proposed septic envelope. Species was not documented during the fieldwork program.	--
Virginia Bluebells (<i>Mertensia virginica</i>)	S3	NHIC	Inhabits low moist deciduous forests and floodplains.	Negligible. There is no suitable habitat within the proposed septic envelope. Species was not documented during the fieldwork program.	--
White-tinged Sedge (<i>Carex albicans</i> var. <i>albicans</i>)	S3	NHIC	Inhabits dry deciduous forests and woodlands.	Negligible. There is no suitable habitat within the proposed septic envelope. Species was not documented during the fieldwork program.	--
Reptiles					
Eastern Musk Turtle (<i>Sternotherus odoratus</i>)	SC	NHIC	- Occupies ponds, lakes, marshes and rivers that are generally slow-moving, have abundant emergent vegetation, and muddy bottoms. - Nests in exposed, usually coarse, friable substrate.	Possible. Suitable habitat is present within ponds occurring east of Bessey Road.	Negligible. Proposed septic envelope is well set back from the ponds east of Bessey Road.
Northern Map Turtle (<i>Graptemys geographica</i>)	SC	NHIC, Ont. Herp Atlas.	- Occupies lakes and large rivers with slow moving currents. - Nests in exposed, usually coarse, friable substrate.	Negligible. Larger lakes, rivers, and similar waterbodies are absent from the Study Area.	--
Snapping Turtle (<i>Chelydra serpentina</i>)	SC	iNaturalist, NHIC, Ont. Herp Atlas.	- 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.	Possible. Suitable habitat is present within ponds occurring east of Bessey Road.	Negligible. Proposed septic envelope is well set back from the ponds east of Bessey Road.
Spiders					
Spined Micrathena (<i>Micrathena gracilis</i>).	S3S4	Field surveys in 2025	- Inhabits hardwood forests that contain oak and hickory trees. Also, occasionally found in urban and suburban habitats where appropriate vegetation is present. - They tend to like moisture; they are more easily found in woodland forests that are near a lagoon, pond, or other small bodies of water.	Confirmed. One (1) individual spider was observed south of the proposed septic envelope.	Negligible. Distribution and abundance of this species in Ontario based on iNaturalist records suggests that its current ranking (as Provincially Rare) requires reconsideration. Species was found in the “Other Woodland” and will be protected from proposed development and site alteration activities.

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.

Appendix 7. 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 Area within or adjacent to proposed Development or Site Alteration ¹	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					
Fowler's Toad (<i>Anaxyrus fowleri</i>)	END	Ont. Herp Atlas, NHIC	- Forages in a variety of shoreline environments including sand dunes, beaches (sand, gravel, or cobble), and limestone pavement along Lake Erie. - Hibernates in relatively open sand dunes and areas with sufficiently deep sand where individuals can dig below the frost line. - Breeds along stream mouths, bedrock pools, and shallow bays in areas that may be temporarily or semi-permanently flooded by Lake Erie. - Dispersal may occur in a variety of shoreline environments.	Negligible. Suitable breeding habitat is absent from the Subject Property and species was not detected during anuran calling surveys.	--
Birds					
Bank Swallow (<i>Riparia riparia</i>)	THR	iNaturalist	- 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	- 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).	Negligible. Suitable breeding habitat is absent.	--
Chimney Swift (<i>Chaetura pelagica</i>)	THR	OBBA	- 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	Breeds and forages in hayfields, savannahs, pastures, meadows, grasslands, prairies, and shrubby fields.	Negligible. Suitable breeding habitat is absent.	--
Least Bittern (<i>Ixobrychus exilis</i>)	THR	NHIC	Breeds and forages in marshes dominated by robust emergent vegetation containing areas of open water (i.e., interspersed).	Unlikely. While suitable breeding habitat is present in lands adjacent to the Subject Property, Least Bittern was not detected during breeding bird surveys in 2022.	--
Piping Plover (<i>Charadrius melodus</i>)	END	NHIC	Breeds and forages on beaches and sand bars along Great Lakes shorelines.	Negligible. Suitable breeding habitat is absent.	--
Red-headed Woodpecker (<i>Melanerpes erythrocephalus</i>)	END	iNaturalist, OBBA	Breeds and forages in open forests, savannahs, and forest edges that tend to contain large, mature trees.	Negligible. While suitable breeding habitat is present in the broader Study Area, Red-headed Woodpecker was not detected during targeted playback surveys in 2025.	--
Yellow-breasted Chat (<i>Icteria virens</i>)	END	NHIC	Breeds and forages in prefer dense thickets around wood edges, riparian areas, and in overgrown clearings	Negligible. While suitable breeding habitat is present in lands adjacent to the Subject Property, Yellow-breasted Chat was not detected during breeding bird surveys in 2022 or 2025.	--

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 Area within or adjacent to proposed Development or Site Alteration ¹	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
Mammals					
Eastern Red Bat (<i>Lasiurus borealis</i>)	END	Species distribution and on-site habitats	- Maternity roost sites are typically within deciduous or coniferous forests of all age classes, with a preference for roosting in tall, large diameter trees. - Occurrences of roosting in anthropogenic structures are rare. - A migratory species primarily found in Ontario during the summer months, with summer habitat consisting of foraging, drinking, and roosting sites.	Possible. Species is generalist rooster and occupies a variety of tree species of varying sizes..	Negligible. A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats (individuals or maternity colonies). Additional mitigation measures for construction and detailed design are also provided. See report for greater details.
Eastern Small-footed Myotis (<i>Myotis leibii</i>)	END	Species distribution and on-site habitats	- Maternal roosting sites include exposed rock outcrops, crevices, and cliffs. - Overwinters in caves and mines that maintain temperatures above 0°C.	Negligible. Suitable maternal roosting sites and over wintering sites are absent from the Subject Property.	--
Hoary Bat (<i>Lasiurus cinereus</i>)	END	Species distribution and on-site habitats	- Maternity roost sites are typically within deciduous or coniferous forests of all age classes, with a preference for roosting in tall, large diameter trees. - Occurrences of roosting in anthropogenic structures are rare. - A migratory species primarily found in Ontario during the summer months, with summer habitat consisting of foraging, drinking, and roosting sites.	Possible. Species is generalist rooster and occupies a variety of tree species of varying sizes.	Negligible. A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats (individuals or maternity colonies). Additional mitigation measures for construction and detailed design are also provided. See report for greater details
Little Brown Myotis (<i>Myotis lucifugus</i>)	END	Species distribution and on-site habitats	- 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/treed 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. A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats (individuals or maternity colonies). 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	- 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/treed 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. A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats (individuals or maternity colonies). 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 Area within or adjacent to proposed Development or Site Alteration ¹	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
Silver-haired Bat (<i>Lasionycteris noctivagans</i>)	END	Species distribution and on-site habitats	- Maternity roost sites are typically within decaying, large diameter deciduous or coniferous trees with heart-rot or exfoliating bark. - Known to occasionally roost on or in buildings. - A migratory species primarily found in Ontario during the summer months, with summer habitat consisting of foraging, drinking, and roosting sites.	Possible. Forest/woodland/treed 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. Silver-haired Bat may be present during migration as the Subject Property is in close proximity to Lake Erie.	Negligible. A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats (individuals or maternity colonies). Additional mitigation measures for construction and detailed design are also provided. See report for greater details.
Tri-colored Bat (<i>Perimyotis subflavus</i>)	END	Species distribution and on-site habitats	- 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. There are mature oaks and maples within the Subject Property that may provide suitable roosting habitat for Tri-coloured bat.	Negligible. A timing window restriction will be applied to tree removal activities to avoid impacting roosting bats (individuals or maternity colonies). Additional mitigation measures for construction and detailed design are also provided. See report for greater details.
Mussels					
Kidneyshell (<i>Ptychobranchnus fasciolaris</i>)	END	NHIC	Occupies small to medium-sized rivers and streams, where it prefers shallow areas with clear, swift-flowing water and substrates of firmly packed coarse gravel and sand.	Negligible. Suitable habitat is absent from the Subject Property.	--
Snuffbox (<i>Epioblasma triquetra</i>)	END	NHIC	Occupies small to medium-sized rivers in shallow riffle areas with clean, clear, swift-flowing water and firm rubble/gravel/sand substrates that are free of silt	Negligible. Suitable habitat is absent from the Subject Property.	--
Plants					
Black Ash (<i>Fraxinus nigra</i>)	END	Species distribution and on-site habitats	Occupies deciduous swamps (often peaty), floodplains, and wet woods.	Negligible. Species not documented during vascular plant surveys.	--
Butternut (<i>Juglans cinerea</i>)	END	NHIC	Occupies a variety of treed habitats including mature forests, early-successional forests, and hedgerows.	Negligible. Species not documented during vascular plant surveys.	--
Spoon-leaved Moss (<i>Bryoandersonia illecebra</i>)	END	NHIC	- Occupies moist or low-lying areas that are seasonally flooded under trees or shrub thickets. - May be found in a variety of vegetation communities including disturbed open woodlands, cultural thicket, savannah, and meadow.	Confirmed. Spoon-leaved Moss was found on adjacent lands east of the Subject Property during botanical surveys in 2022. None was found within the Subject Property despite targeted search efforts.	Negligible. Species occurs east of Bessey Road and will not be impacted by the proposed septic construction.
Reptiles					
Blanding's Turtle (<i>Emydoidea blandingii</i>)	THR		- Occupies freshwater lakes, permanent or temporary pools, slow-flowing streams, marshes, and swamps. - Nests in exposed, usually coarse, friable substrate. - Known to make long-distance overland movements (i.e., several kilometers) between habitats.	Unlikely While there is suitable habitat on adjacent lands (marsh and open water), there is none within the Subject Property. No Blanding’s Turtles were observed during field work in 2022	--

¹ Likelihood categories are to be interpreted as follows:

Negligible: so limited that the assessed species can be assumed absent.

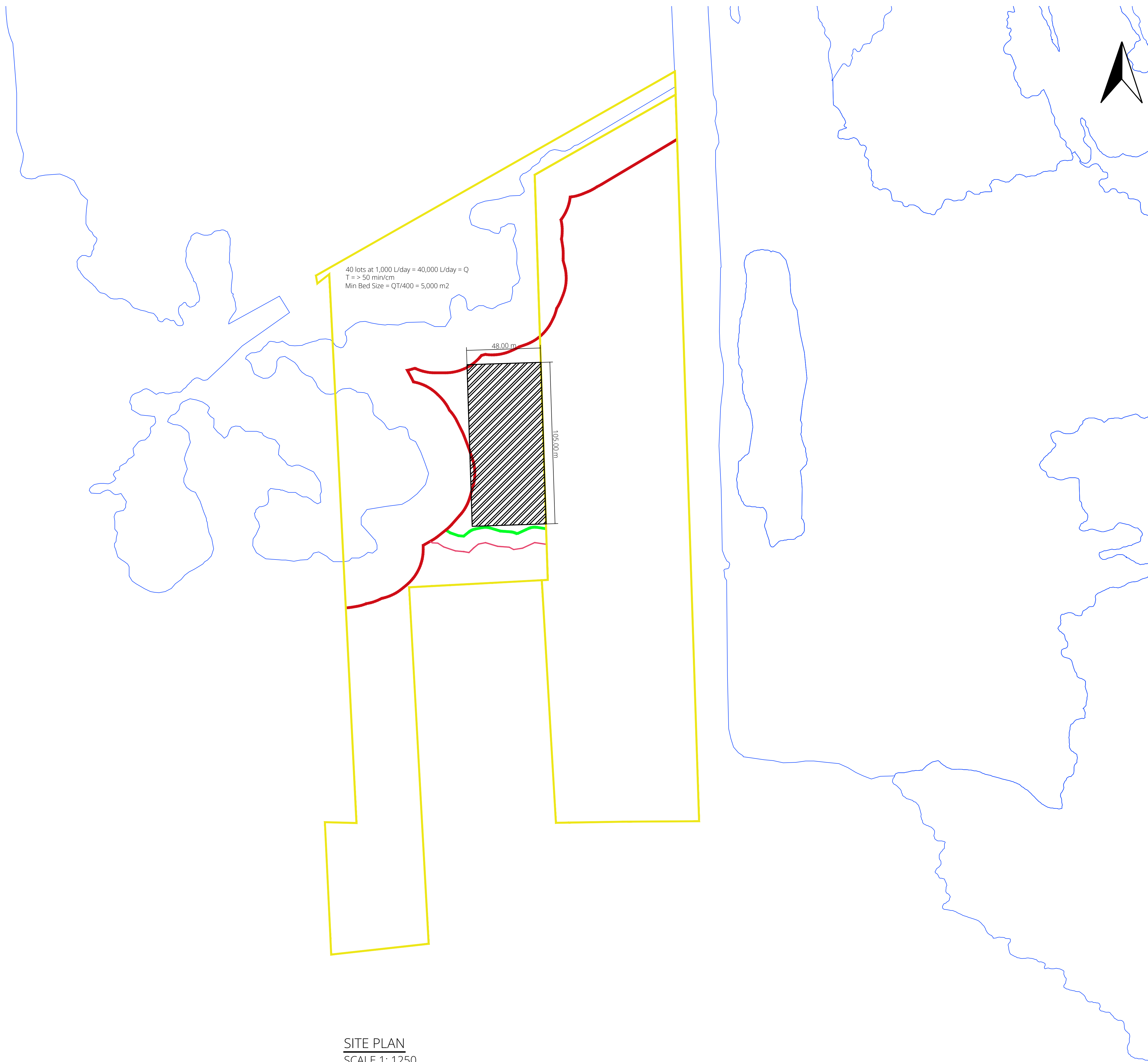
Unlikely: while theoretically conceivable, species presence very improbable or temporary based on available information (e.g., habitat conditions, range, abundance in local landscape, etc.).

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

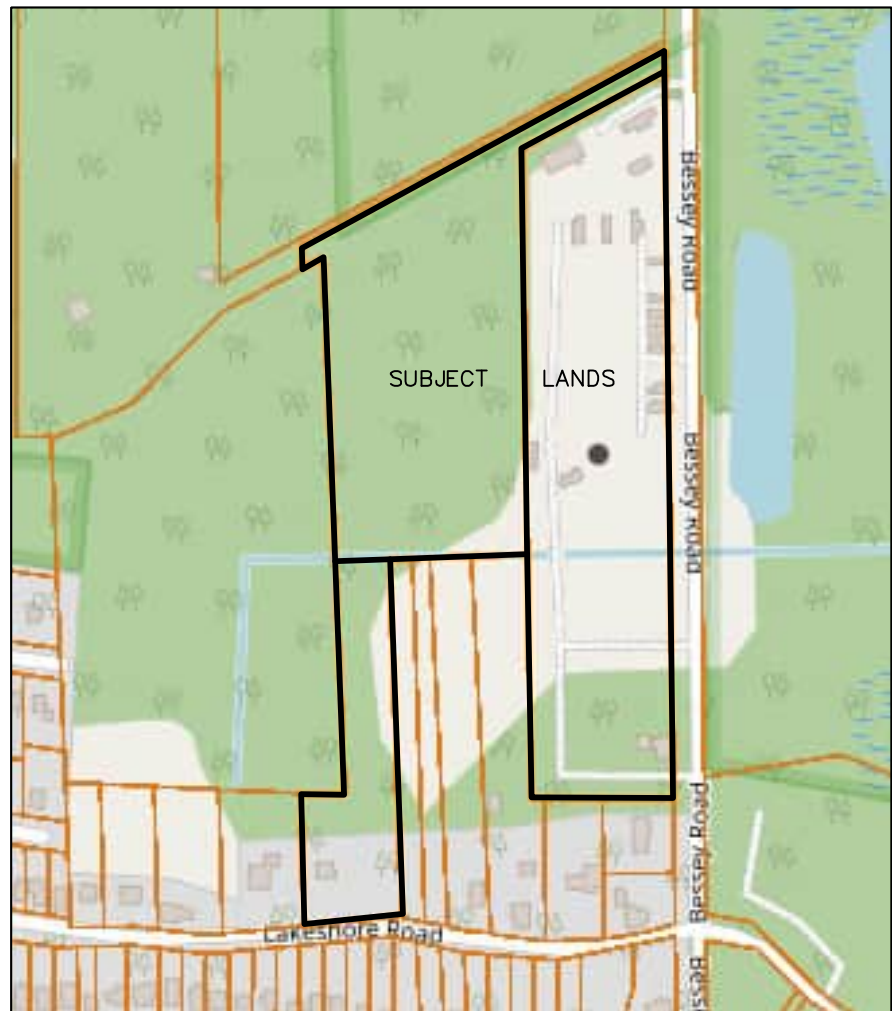
Probable: while not confirmed, available information suggests species has a high likelihood of being present.

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

Appendix 8. Proposed Septic Envelope.



SITE PLAN
SCALE 1: 1250



KEY PLAN NOT TO SCALE

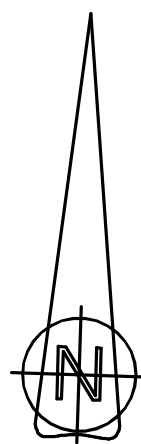
SKETCH FOR SEVERANCE APPLICATION
10410 BESSEY ROAD & 10428 LAKESHORE ROAD
TOWNSHIP OF WAINFLEET
REGIONAL MUNICIPALITY OF NIAGARA

SCALE 1 : 750
RASCH & HYDE LTD.
ONTARIO LAND SURVEYORS

SURVEYOR'S SEAL

SKETCH

THIS IS AN ORIGINAL
COPY IF EMBOSSED BY
THE SURVEYOR'S SEAL
OR PDF CERTIFIED



PARCEL 1
3.2281 Ha.±
TO BE ADDED
TO PARCEL 3

PARCEL 3
4.2502 Ha.±
"BENEFITTING
LANDS"

PARCEL 2
1.0407 Ha.±

LEGEND & NOTES

PIN DENOTES PROPERTY IDENTIFIER NUMBER
HM DENOTES HYDRO METER
HP DENOTES HYDRO/UTILITY POLE
OUL DENOTES OVERHEAD HYDRO/UTILITY POLE LINE
NPCA DENOTES NIAGARA PENINSULA CONSERVATION AUTHORITY
NPCA REGULATION LIMIT IS APPROXIMATE (DERIVED FROM NPCA MAPPING)
N=NORTH, S=SOUTH, E=EAST, W=WEST
DISTANCES AND AREAS ARE APPROXIMATE.

METRIC NOTE:

DISTANCES SHOWN ON THIS SKETCH ARE IN METRES AND
CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

BOUNDARY NOTE

BOUNDARIES HAVE BEEN DERIVED FROM REGISTRY
OFFICE RECORDS AND ACTUAL FIELD WORK.

PROPERTY DESCRIPTION

PART OF LOT 4, CONCESSION 1
TOWNSHIP OF WAINFLEET
REGIONAL MUNICIPALITY OF NIAGARA
PIN 64022-0040 (LT) AND PIN 64022-0041 (LT)

CAUTION

- THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED
EXCEPT FOR THE PURPOSES INDICATED IN THE TITLE BLOCK.
- THIS SKETCH IS PROTECTED BY COPYRIGHT ©
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SURVEYOR'S SEAL, OR PDF CERTIFIED.

MARCH 26, 2026
DATE

Harold D. Hyde
HAROLD D. HYDE
ONTARIO LAND SURVEYOR

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RASCH + HYDE LTD.
Ontario Land Surveyors

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DUNNVILLE: 905-774-7186 FORT ERIE: 905-671-9757
(FAX 905-774-4000)

HAROLD D. HYDE O.L.S.

SCALE 1 : 750

SURVEY : 22-021

DRWN BY : T. Motheson

Appendix 9. Summary of Technical Recommendations

Natural Feature	Technical Recommendations (per Section 5 of report)
Wetlands	• The proposed septic envelope will be installed in the location indicated in Appendix 8. • Schedule work to avoid weather conditions which increase the potential for erosion and sedimentation (i.e., rain, strong wind, etc.). • Exposed soils will be restricted to the smallest area for the shortest period of time. • Sediment fence will be installed prior to the commencement of site preparation and other construction-related activities as shown on Figure 4. Sediment fence will be installed properly (e.g., trenched in, etc.), inspected regularly (i.e., daily, following storm events, etc.), and repaired immediately when necessary (e.g., breaches eliminated, sediment accumulations removed, etc.). • Any necessary stockpiles or temporarily stored topsoil, fill, or aggregate material will be piled as low as practicable and isolated by sediment fence. • Locate all fuels, construction materials, and other potentially deleterious substances (if needed on-site) a minimum of 30 m from the dripline of the woodlot as shown on Figure 4. Minimize storage of such materials on-site. • Contractor will be prepared to immediately deploy spills response equipment (e.g., absorption pads, etc.) if necessary. All spills will be reported to the Ontario Spills Action Centre (1-800-268-6060) as soon as possible. • Non-biodegradable erosion and sediment control materials (including accumulated sediment if any) will be removed once construction is complete and disturbed areas are stabilized.
Other Woodlands	• The proposed septic envelope will be installed in the location indicated in Appendix 8.
Significant Wildlife Habitat	• Potential for impacts will be addressed through full implementation of other overlapping mitigation measures.
Habitat of Endangered and Threatened Species	• Any necessary woody vegetation removal within the proposed development envelopes will only take place between December 1 and March 31 to avoid the active season for bats. Should minor woody vegetation removal be required between April 1 and November 30, consult a qualified Ecologist for further direction. • If construction activities occur during the active bat season, work will be restricted to daylight hours only and the use of artificial lighting will be avoided.
Other Natural Environment Considerations	• The removal of trees will generally be restricted to areas in direct conflict with the footprints of the proposed septic envelope, along with any hazardous trees in the immediate vicinity that pose an unacceptable risk to human life or property. • All necessary vegetation removal (e.g., trees, meadow vegetation) will be completed outside the primary bird nesting period (i.e., to be completed between September 1 and January 31). Should minor vegetation removal be proposed during the restricted timing window within readily searchable habitat types, 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 bird nesting survey is to take place within 48 hours of vegetation removal. • All vehicles and machinery (i.e., construction equipment) shall follow relevant best practices for reducing the spread of invasive species outlined in the Clean Equipment Protocol for Industry (Halloran et al. 2013). • Any Landscape Plans prepared as part of the development approval should incorporate species native to the local landscape.