DILLON CONSULTING

NORTHCAPE INVESTMENTS INC.

Environmental Impact Study

12811 Tenth Line, Whitchurch-Stouffville

April 2026 – 25-2368

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1.0 Introduction

Dillon Consulting Limited (Dillon) was retained by Northcape Investments Inc. to complete an Environmental Impact Study (EIS) in support of applications required to facilitate the proposed development at 12811 Tenth Line (the "Property"), in the Town of Whitchurch-Stouffville (the Town) and Region of York (the Region). The Property is bound to the west by Tenth Line, to the east by York Durham Line, and to the north and south by agricultural lands. The Property and adjacent lands within 120 metres (m) of its boundary are considered the "Study Area" for the EIS (**Figure 1**).

Based on a review of the Ontario Ministry of Natural Resources (MNR[1]) Natural Heritage Information Centre (NHIC) mapping as well as Toronto and Region Conservation Authority (TRCA) Regulated Area mapping, a watercourse (Reesor Creek) and associated wetland and woodland corridor transects through the eastern portion of the Property. These natural heritage features fall within the TRCA's Regulated Area (**Figure 2**). Due to the presence of natural heritage features in the Property, any proposed development must be evaluated to determine the potential for adverse effects on the Town's Natural Heritage System, as per the policies of the Town's Official Plan.

The requirement for the EIS was formally identified based on pre-application consultation comments received by the Town and TRCA (File No. PRE21.087) on November 6, 2025 (**Appendix A**). The Town's staff confirmed that the proposed development requires a Zoning By-Law Amendment (ZBA) and Draft Plan of Subdivision (DPOS) Applications. As such, this EIS was completed to support these applications.

The purpose of the EIS is to:

- Document existing conditions of the natural environment;
- Determine the potential limits of future development;
- Evaluate the potential for environmental impacts associated with future development; and
- Recommend mitigation, restoration, enhancement measures to preserve and/or restore natural features, and if necessary, compensation.

The EIS has been prepared in general accordance with the TRCA Environmental Impact Statement Guidelines (2014), and in accordance with the Terms of Reference (TOR) submitted to the Town and TRCA on April 24, 2019. Approval from the TRCA on the TOR was received on May 13, 2019. Communications for the submission and approval are provided in **Appendix A**.

[1] Previously Ontario Ministry of Natural Resources and Forestry (MNRF).

NORTHCAPE INVESTMENTS INC.

ENVIRONMENTAL IMPACT STUDY

12811 TENTH LINE, WHITCHURCH-STOUFFVILLE

FIGURE 1
PROJECT LOCATION & STUDY AREA

- Project Location
- Study Area (120 m)
- Water Body

1:3,000

0 50 100 200 m

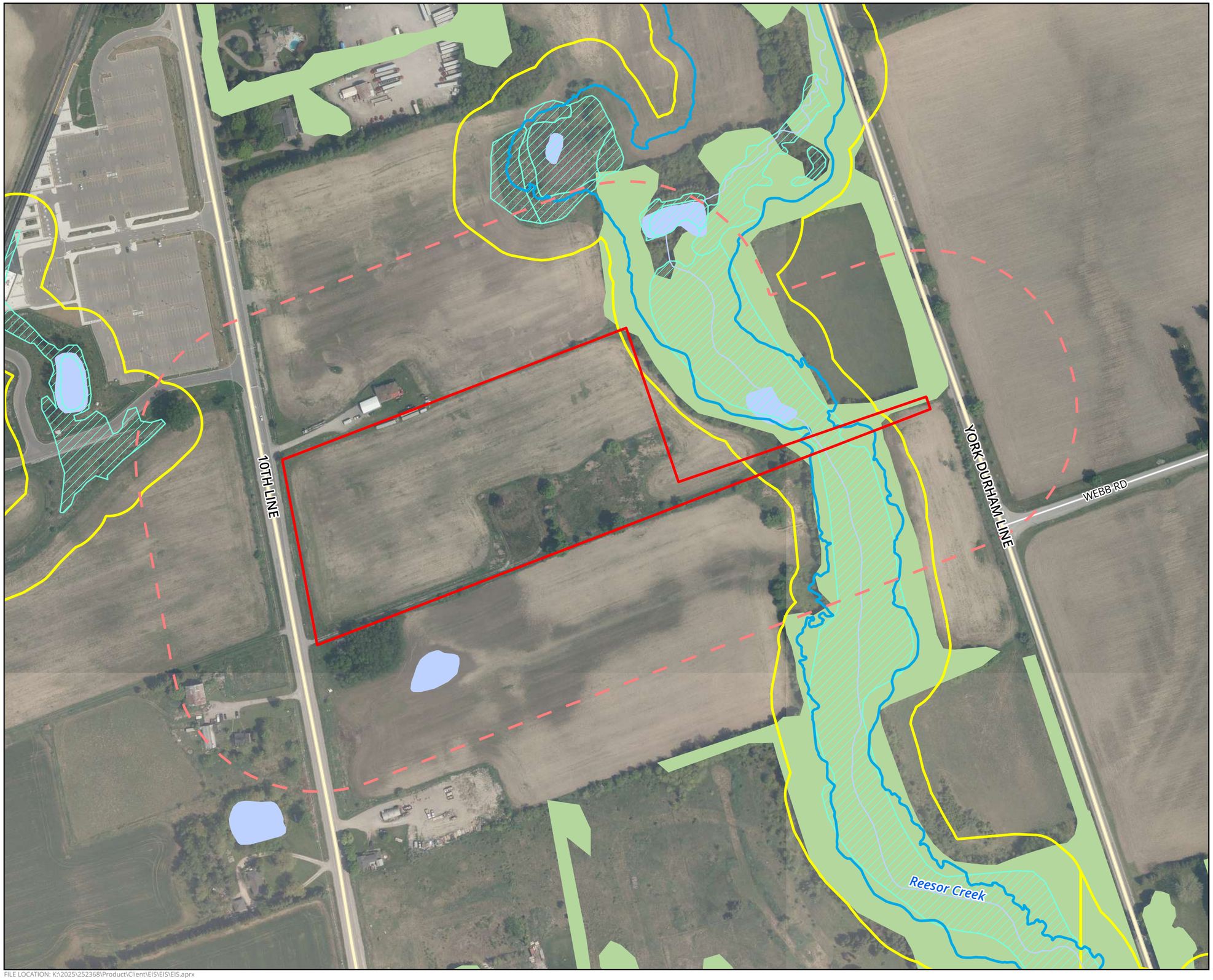
MAP CREATED BY: GM
MAP CHECKED BY: LJ
MAP PROJECTION: NAD 1983 UTM ZONE 17N

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, ESRI

DILLON CONSULTING

PROJECT: 252368
STATUS: FINAL
DATE: 2026-04-15

FILE LOCATION: K:\2025\252368\Product\Client\EIS\EIS\EIS.aprx



NORTHCAPE INVESTMENTS INC.

ENVIRONMENTAL IMPACT STUDY

12811 TENTH LINE, WHITCHURCH-STOUFFVILLE

FIGURE 2
MAPPED NATURAL FEATURES

- Project Location
- Study Area (120 m)
- Regulated Area (TRCA)
- Existing Floodplain (TRCA)
- Unevaluated Wetland (MNR)
- Water Body
- Woodland (MNR)

1:3,000

0 50 100 200 m

MAP CREATED BY: GM
MAP CHECKED BY: LJ
MAP PROJECTION: NAD 1983 UTM ZONE 17N

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, ESRI

DILLON CONSULTING

PROJECT: 252368
STATUS: FINAL
DATE: 2026-04-15

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2.0 Overview of Policy Framework

For purposes of the following discussion, the most recent updated versions of the applicable documents have been reviewed. This section is not intended to constitute a complete land use planning assessment as it focuses on the relevant environmental policies and regulations. The documents referenced below should be read in their entirety for a more detailed understanding of the land use policy framework to the Property and surrounding area. Relevant planning policy schedules and maps for the Property are provided in **Appendix B** for reference.

2.1 Federal Framework

2.1.1 Fisheries Act, 2019

The federal *Fisheries Act*, last amended in 2019, and its fisheries protection provisions include 'the authorities for the regulation of works, undertakings or activities that risk harming fish and fish habitat'. The fish and fish habitat protection provisions are applied in conjunction with other applicable federal laws and regulations related to aquatic ecosystems, such as the *Species at Risk Act*. Core prohibitions include death of fish (subsection 34.4(1)), and harmful alteration, disruption, or destruction of fish habitat (HADD) (subsection 35(1)). Fish habitat refers to spawning grounds and any other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly to carry out their life processes (Fisheries Protection Policy Statement, 2019). The protection of fish habitat in Canada is the responsibility of Fisheries and Oceans Canada (DFO) and its partners.

The identification of fish and fish habitat specifically associated with the Property is detailed in **Section 5.1**.

2.1.2 Species at Risk Act, 2002

The federal *Species at Risk Act* (SARA; 2002) was enacted to prevent wildlife species from being extirpated or becoming extinct, and to provide for the recovery of wildlife species listed as Endangered (END) or Threatened (THR) under SARA. Species that are federally listed as Endangered or Threatened species are considered species at risk (SAR) under Schedule 1 of SARA, which are protected under the provisions of SARA, including protection for the species and their residence (e.g., nest, den). While SARA applies to species on federal land, such as Canadian oceans and waterways, national parks, national wildlife areas, some migratory bird sanctuaries, and First Nations reserve lands, it also applies to SAR migratory birds protected under the Migratory Birds Convention Act (MBCA; discussed in Section 2.1.3) and aquatic species (fish and mussels) anywhere in Canada.

Species at Risk listed under SARA as they relate to the Property are further discussed in **Section 4.4** of this report.

2.1.3 Migratory Birds Convention Act, 1994

The MBCA and associated regulations protect and conserve migratory birds, their eggs, and their nests. The new Migratory Birds Regulations (MBR; issued under the *MBCA*, 1994) came into force on June 30, 2022 to modernize the previous MBR, implemented in 1918. The new MBR, 2022 provides protection to active migratory bird nests (i.e., when they contain a live bird or a viable egg) with a high conservation value. The Canadian Wildlife Service branch of Environment and Climate Change Canada administers the policies and regulations of the Act. Activities that are harmful to migratory birds, their eggs, and their nests are prohibited under the Act's regulations. Migratory birds are species that meet three criteria:

- Species referred to in Article 1 of the Migratory Birds Convention as amended under the 1995 protocol;
- Species that are native or naturally occurring in Canada; and
- Species known to have regularly occurred in Canada.

Identification of birds and their habitat is further discussed in **Section 5.4.**

2.2 Provincial Framework

2.2.1 Species Conservation Act, 2025

On March 30, 2026, the *Species Conservation Act*, 2025 (SCA) came into effect in Ontario, officially repealing and replacing the *Endangered Species Act*, 2007 (ESA). The purpose of the SCA is to identify SAR based on the best available scientific information, and to provide for the protection and conservation of these species while taking into account social and economic considerations, including the need for sustainable economic growth in Ontario. There are multiple applicable regulations under the SCA. These regulations serve to identify which species and habitats receive protection and provide direction on the current implementation of the Act.

Under the SCA, the regulatory framework has shifted to a "registration-first" approach for many activities, establishing specific conditions, mitigation measures, and conservation plans that must be met to proceed, while other activities continue to require a formal permit. The Ministry of the Environment, Conservation and Parks (MECP) continue to administer the legislation, including the transition of legacy ESA permits and agreements into the new SCA framework.

SAR listed under SCA as they relate to the Property and surrounding lands are further discussed in **Section 4.4** of this report.

2.2.2 Provincial Policy Statement, 2024

The Provincial Planning Statement, 2024 (PPS) provides overall policy direction on matters of provincial interest related to land use planning and development in Ontario. The PPS sets forth a vision for Ontario's land use planning system by managing and directing land use to achieve efficient development and land use patterns, wise use and management of resources, and protecting public health and safety.

This report deals specifically with Policy 4.1, Natural Heritage, and Policy 4.2, Water, which provides for the protection and management of natural heritage and water resources (e.g., significant wetlands, woodlands, valleylands, significant wildlife habitat, fish habitat, etc.).
The PPS defines "significant" to mean:

a) *In regard to wetlands, coastal wetlands and areas of natural and scientific interest, an area identified as provincially significant by the Ontario Ministry of Natural Resources using evaluation procedures established by the province, as amended from time to time;*
b) *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 established by the Province; and*
c) *In regard to other features and areas in Policy 4.1, 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.*

The PPS defines "sensitive" to mean:

- In regard to surface water features and ground water features, means areas that are particularly susceptible to impacts from activities or events, including, but not limited to, water withdrawals, and additions of pollutants.

Potential significance of natural heritage features may be evaluated based on size, age, presence of rare or sensitive species, species diversity, and linkage functions, taking into consideration factors such as adjacent land use and degree of disturbance. Criteria for determining significance follow guidance outlined in the Natural Heritage Reference Manual (MNR, 2010) and the Significant Wildlife Habitat Technical Guide Ecoregion 6E Criterion Schedules (MNRF, 2015), where applicable.

Significance of natural features identified within the Study Area is further discussed in **Section 6.0** of this report.

2.2.3 Greenbelt Plan, 2017

Pursuant to the *Greenbelt Act*, 2005, the Greenbelt Plan (MMAH, 2017a) was introduced in 2005 as a sub strategy to the PPS (2020) to define growth and development within the Greater Golden Horseshoe along with the Oakridge's Moraine Conservation Plan (ORMCP), and the Niagara Escarpment Plan (NEP). The Greenbelt Plan was recently updated in 2017; the update to the Greenbelt Plan was approved by the Lieutenant Governor in Council, Order in Council No. 1025/2017 as an amendment to the Greenbelt Plan on July 1, 2017.

Lands situated within the Greenbelt Plan area are delineated directly under Section 2 of the *Greenbelt Act*, 2005 (following the revocation of *O.Reg. 59/05* in December 2023) and are identified on Schedule 1 (**Appendix B**). Designated lands under Schedule 1 of the Greenbelt Plan serve to protect agricultural resources as well as natural heritage and water resource systems. In instances where an area is located

within the Oak Ridges Moraine Conservation Plan (ORMCP) or the Niagara Escarpment Plan (NEP), the policies of those respective plans continue to apply as established in Section 2 of the Greenbelt Plan. As the entirety of the Study Area is located within the ORMCP (**Appendix B**), the governing policies are those found under Section 2.1 of the Greenbelt Plan.

2.2.4 Oak Ridges Moraine Conservation Plan, 2017

The Oak Ridges Moraine Conservation Plan was developed as part of a comprehensive strategy for the Oak Ridges Moraine (ORM), which included passing of the *Oak Ridges Moraine Conservation Act*, 2001 on December 13, 2001. The purpose of the ORMCP is to provide land use and resource management planning direction to provincial ministers, ministries, and agencies, municipalities, municipal planning authorities, landowners and other stakeholders on how to protect the Moraine's ecological and hydrological features and functions. The ORMCP was recently updated in 2017 with an additional amendment approved in 2022 to redesignate lands in the ORMCP area.

The ORMCP divides the Moraine into four land use designations:

- **Natural Core Areas:** Protect those lands with the greatest concentrations of key natural heritage features which are critical to maintaining the integrity of the Moraine as a whole;
- **Natural Linkage Areas:** Protect critical natural and open space linkages between the Natural Core Areas and along rivers and streams;
- **Countryside Areas:** Provide an agricultural and rural transition and buffer between the Natural Core Areas and Natural Linkage Areas and the urbanized Settlement Areas; and
- **Settlement Areas:** Reflect a range of existing communities planned by municipalities to reflect community needs and values.

The Study Area is located entirely within the ORMCP area and is designated as Settlement Area (**Appendix B;** Map 4).

Under the ORMCP (2017b), Settlement Areas are meant to provide a range of existing communities planned by municipalities to reflect community needs and values. As per Part II, Section 18 of the ORMCP, urban uses and development defined within municipal official plans are permitted in these areas; permitted uses may be subject to provisions under subsection 19 (3) and 31 (4) of the plan. Development is defined under the ORMCP as the "*creation of a new lot, a change in land use, or the construction of buildings and structures requiring approval under the Planning Act*."

Objectives of Settlement Areas under Part II, Section 18 of the ORMCP (2017) include maintaining, improving and restoring the health, diversity, size and ecological functions of Key Natural Heritage Features (KNHF) and Key Hydrologic Features (KHF). KNHF are defined in Part III, Section 22 as "*wetlands, habitat for END/THR species, fish habitat, Areas of Natural and Scientific Interest (ANSI), significant woodlands, Significant Wildlife Habitat (SWH) and rare vegetation communities*". Conversely, KHF are defined under Part III, Section 26 as "*permanent and intermittent streams, wetlands, kettle lakes, seepage areas and springs*." Criteria defining the listed KNHF and KHF are provided in the ORMCP Technical Paper 1 (MMAH, 2002). Development within KNHFs, KHFs, and their associated vegetation

protection zones (VPZ) is prohibited under Part III, Sections 22 and 26 of the ORMCP; a 30 m VPZ is required for all KNHF and KHF identified by the ORMCP. Infrastructure may be permitted to cross a KNHF or KHF under Part IV, Section 41(5) if it can be demonstrated that there is no reasonable alternative.

2.2.5 Conservation Authorities Act, 1990

The *Conservation Authorities Act* (1990) governs programs and services that further the conservation, restoration, development and management of natural resources in watersheds in Ontario. In accordance with Section 28 of the *Conservation Authorities Act*, the Act defaults to municipal conservation authorities to implement and enforce *O.Reg. 41/24*: Prohibited Activities, Exemptions and Permits, which identifies areas regulated by the Conservation Authority (areas subject to flooding, shoreline erosion, or contain wetlands, watercourses, slopes, stable and unstable stream valleys, and applicable setback areas).

The TRCA regulates development, interference with alterations to shorelines and watercourses in accordance with *O.Reg. 41/24*. The regulation applies to natural or hazardous areas (i.e., areas in and near rivers, streams, floodplains, wetlands, and slopes) in TRCA Regulated Areas. The mapped watercourse corridor within the Property falls within the TRCA Regulated Area (**Figure 2**).

2.2.5.1 TRCA The Living City Policies, 2014

As discussed above, the watercourse corridor and it's associated hazards (floodplain and meander belt) fall within the Regulated Area of the TRCA under the *Conservation Authorities Act*. Consequently, development on the Property is subject to the policies outlined in The Living City Policies (TRCA, 2014b).

The Living City Policies provides the policy framework for the TRCA's role in the planning and development process, ensuring the protection and management of the jurisdiction's natural resources.

Key policies applicable to the Property include the following:

- **Section 8.4.8a (Valley and Stream Corridors):** This policy mandates a minimum 10 m buffer from the greater of several hazards, including the long-term stable top of slope, the regulatory floodplain, or the meanderbelt; and
- **Section 8.4.8b (Wetlands):** This policy requires a minimum 10 m buffer from the limit of all non-Provincially Significant Wetlands and any contiguous natural features. This setback is intended to protect the hydrologic function and ecological integrity of the wetland.

Adherence to TRCA's Living City Policies to accommodate the development is further discussed in **Section 10.3**.

2.3 Municipal Framework

2.3.1 York Region Official Plan, 2022

The York Region Official Plan (ROP) was approved with modifications by the Ministry of Municipal Affairs and Housing (MMAH) in November 2022. The June 2024 office consolidation incorporates updates reflecting Bill 150, the *Planning Statute Law Amendment Act*, 2023, and Bill 162, the *Get It Done Act*, 2024. This consolidation builds upon and replaces previous Official Plans approved in 2010 and 1994 (York Region, 2024). The Official Plan provides the overarching policy framework guiding economic, environmental, and community planning decisions across York Region. Based on the ROP (2022), the Property is designated as Community Area on Map 1A (**Appendix B**). As per Section 4.2 of the ROP, the primary location for human services needs within York Region is to take place within these areas.

Additional designated areas related to natural heritage features are depicted in Map 2 (Regional Greenlands System), Map 4 (Key Hydrological Features) and Map 5 (Woodlands). Based on Maps 2 to 5, the watercourse that transects through the eastern portion of the Property is part of the Regional Greenlands System and is classified as a permanent or intermittent stream with associated unevaluated wetland and woodland features. As per Map 3 (**Appendix B**), there are no Areas of Natural and Scientific Interest (ANSI) within 120 m of the Property boundaries.

Policies regarding the identification and protection of Key Natural Features and Key Hydrologic Features of the Regional Greenland System are provided in Section 3.1 of the ROP (2022). According to Section 3.4.1 of the ROP (2022): "Key natural heritage features and Key hydrologic features within York Region include:

a) *Habitat of endangered and threatened species;*
b) *Fish habitat;*
c) *Wetlands;*
d) *Life Science Areas and Earth Science Areas of Natural and Scientific Interest (ANSI's);*
e) *Significant valleylands;*
f) *Significant woodlands;*
g) *significant wildlife habitat (including habitat of special concern species);*
h) *Sand barrens, savannahs and tallgrass prairies;*
i) *Lakes and their littoral zones;*
j) *Permanent and intermittent streams;*
k) *Kettle lakes;*
l) *seepage areas and springs; and*
m) *Lake Simcoe Shoreline."*

Protection measures for key natural heritage features and key hydrologic features are outlined in section 3.4 of the ROP. Section 3.4.9 states that "*an application for development and site alteration within 120 metres of a key natural heritage feature or key hydrological feature shall be accompanied by an environmental impact study*".

The delineation of key natural heritage and key hydrologic features within the jurisdiction of the Region was examined during the desktop review and field investigations. Natural heritage features within the Property meeting criteria for Key Features are discussed in **Section 6.0** of this report.

2.3.2 Town of Whitchurch-Stouffville, 2025

The Town of Whitchurch-Stouffville Official Plan (OP) received partial approval from the Ministry of Municipal Affairs and Housing on September 25, 2025. This plan establishes the land use policy framework intended to manage growth and development throughout the Town.

2.3.2.1 Land Use Designations

The majority of the Study Area is identified in Schedule A (Town Structure) as a Designated Greenfield Area where part of the lands are designated as the Old Elm GO Major Transit Station Area (MTSA). The eastern portion of the Study Area also overlaps with the Regional Greenland System. The Study Area is further classified as a Settlement Area as per Schedule B (Provincial Plan Areas and Designations) of the Town's OP (**Appendix B**). Further site-specific designations under Schedule D-4 (Old Elm MTSA) include:

- Medium-High Density Mixed Use Area;
- Medium-High Density Residential Area;
- Residential Area; and
- Environmentally Significant Area.

The eastern portion is designated as an Environmentally Significant Area**.** This area is further broken down in Schedule K9a and K-9b (Natural Heritage Features) where non-evaluated wetlands and woodlands associated with Reesor Creek are mapped (**Appendix B**). The features within the Environmental Significant Area are considered Key Natural Heritage Features and form part of the Town's Natural Heritage System as defined in Section 4 of the OP.

2.3.2.2 Vegetation Protection Zones

Section 4.1.13 (Table 4) of the OP outlines the requirements for establishing and maintaining buffers around key natural heritage features. As the Study Area is located within an Urban Area and Community of Stouffville Secondary Plan, the Town's Official Plan provides that the minimum vegetation protection zones (VPZ) established through site-specific environmental studies shall prevail over the general standards in the Oak Ridges Moraine Conservation Plan.

This is further supported by Section 12.5.2.1 of the Community of Stouffville Secondary Plan, which recognizes that while the Greenland System establishes a baseline for features and their associated VPZs, these boundaries are subject to refinement. The policy directs that the final limits of the Greenland System be informed by the designations on Schedule F-3 (**Appendix B**) alongside updated technical data, such as the studies required under Section 12.9 of the secondary plan. Accordingly, the buffers for significant woodlands, SWH, significant valleylands, and permanent watercourses/fish habitat within this Study Area are defined by the field-verified evidence and analysis provided in this

report and supporting studies. The minimum VPZ applied to natural heritage features that overlap with the Study Area is detailed in **Section 10.3**.

2.3.2.3 Community of Stouffville Secondary Plan

The Community of Stouffville Secondary Plan, found in Section 12 of the Town's OP, establishes a comprehensive land-use framework designed to manage growth while preserving the area's distinct natural and cultural heritage. The Property is situated within the Old Elm Major Transit Station Area (MTSA), as identified in Schedule F-5 (**Appendix B**). As per Section 12.4.11, the Old Elm GO Station Area consists of lands generally within an 800-metre radius of the station, with specific land use designations and intensification targets delineated on Schedule F-5.

A primary objective of the Plan is the development of a linked green space system that protects and maintains the ecological integrity of aquatic, wetland, and terrestrial habitats throughout the community. To support this, the Plan mandates that development and site alteration be restricted within 120 metres of key natural heritage or hydrologic features unless an EIS confirms that no negative impacts will occur to the features or their ecological functions. In accordance with Schedule F-3 of the Secondary Plan (**Appendix B**), the natural features overlapping the Study Area are designated as Phase 3 Greenland System, a designation that encompasses core features as well as their associated protection zones.

The Greenland System is a central component of the community's structure, prioritizing the long-term conservation of valley lands and woodlands to provide a continuous ecological corridor. To minimize environmental stress on these systems, the Plan requires the identification of minimum vegetation protection zones. By adhering to these policies, the proposed works are intended to align with the Town's vision for a compact, sustainable community that balances transit-oriented intensification within the Old Elm GO Station Area with the protection of the designated Greenland System.

Adherence to the applicable policies detailed in the Town's OP is further detailed in **Section 10.3**.

3.0 Methodology

3.1 Background Review

The background information reviewed to identify environmental constraint areas, soils, landforms, geological features, and significant natural heritage features (watercourses, woodlands, wetlands, and potential wildlife occurrences) in the Study Area included a combination of existing published data, information made available through various public agencies, and web-based mapping programs. Information sources that were reviewed to provide an understanding of lands within the Study Area are listed in **Table 1.**

Table 1: Policies, Legislation and Background Resources Searched

Source	Plans, Guidelines and Supporting Documents
Government of Canada	
Environment and Climate Change Canada	• *Species at Risk Act*, 2002; • Species at Risk Registry: Accessed to determine the at-risk status of wildlife species under Schedule 1 of the *Species at Risk Act* (SARA, 2002); • *Migratory Birds Convention Act*, 1985; and • General Nesting Periods of Migratory Birds: Utilized to determine local nesting period at the Property's location.
Fisheries and Oceans Canada	• *Fisheries Act*, 2019; and • Aquatic Species at Risk Map: Accessed to determine aquatic at-risk occurrences.
Province of Ontario	
Ministry of Environment, Conservation and Parks	• *Species Conservation Act*, 2025; • Protected Species in Ontario List (*O.Reg. 60/26*); and • Client's Guide to Preliminary Screening for Species at Risk (2019).
Ministry of Municipal Affairs and Housing	• Provincial Policy Statement, 2024 (Policies within Section 4.1 related to natural heritage features; Policies within Section 4.2 related to water); • Greenbelt Plan, 2017; and • Oak Ridges Moraine Conservation Plan, 2017.
Ministry of Natural Resources	• Natural Heritage Information Centre (NHIC) database (1 km Grid Squares: #17PJ4171, #17PJ172, ##17PJ272); • MNR Make a Map: Natural Heritage Areas (MNRF, 2019a); • MNR Ontario GeoHub database; • Natural Heritage Reference Manual (MNRF, 2010); • MNRF Significant Wildlife Habitat Technical Guide (MNRF, 2000); • Significant Wildlife Habitat Ecoregion 6E Criteria Schedules (MNRF, 2015); • Bedrock Geology of Ontario, southern sheet (MNRF, 1991); and • Physiography of Southern Ontario (Chapmen and Putnam, 1984).

Source	Plans, Guidelines and Supporting Documents
Municipal Policies	
Town of Whitchurch-Stouffville Official Plan	• Town of Whitchurch-Stouffville Official Plan, 2025 (Approved September 2025).
York Region Official Plan	• York Region Official Plan, 2022 (Consolidated June 2024).
Conservation Authority	
Toronto and Region Conservation Authority	• TRCA Regulation Mapping (2024); • Regional Watershed Monitoring Program (RWMP) Fish Community Data (2019); • TRCA's Environmental Impact Statement Guidelines (2019); • Duffins Creek Watershed Report Card (2018); and • A Watershed Plan for Duffins Creek and Carruthers Creek (2003).
Wildlife Atlases	
Wildlife Atlases and Distribution Data	• Ontario Breeding Bird Atlas (OBBA; Cadman *et al.,* 2008). Second Atlas (2001-2005) – data for square #17TPJ47 grid based on 10 km^2 system; • Christmas Bird Count (CBC; Birds Canada, 2022). Count circle Holiday Beach (ONHB) – Historical Records from 2005 – 2019; • Rare Vascular Plants of Ontario (Fourth Edition; Oldham and Brinker, 2009). Distribution data for rare vascular plants; • Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2022). List of reptile and amphibian species occurrences for 10 km^2 square # 17PJ47; • Ontario Butterfly Atlas (OBA; Toronto Entomologists Association, 2022). List of butterfly species occurrences for 10 km^2 square #17PJ47; and • Atlas of the Mammals of Ontario (Dobbyn, 1994). Distribution data for mammals.

3.2 Field Methodology

Field surveys were conducted in 2019 and confirmed in 2025. As part of the field investigations conducted in 2019, Dillon biologists completed aquatic habitat assessment, headwater drainage feature assessment, vegetation assessments (including Ecological Land Classification [ELC], spring and summer botanical inventories, woodland dripline staking), amphibian breeding surveys, and breeding bird surveys where incidental wildlife was documented in conjunction with these surveys. The 2025 site visits served to confirm the baseline conditions documented during the 2019 field program. These investigations were used to confirm the extent of natural heritage features and wildlife (including potential SAR) presence on the Property and Study Area. Site photographs taken during the field investigations are presented in **Appendix C**.

To support a comprehensive assessment, Dillon also integrated relevant survey data collected by other consulting firms within the Old Elm GO Station Area. Consulting firms that conducted field investigations within neighbouring properties to the Study Area included Palmer Environmental Consulting Group (PECG), Stantec Consulting Ltd. (Stantec), and Terrapex Environmental Ltd. (Terrapex). Specifically, the data regarding breeding birds, bats (including acoustic monitoring and exit surveys) and incidental

wildlife was incorporated. While some of these observations occurred outside the immediate Study Area, these species are mobile or migratory and possess the potential to utilize the Property. Supporting data from these external reports are provided in **Appendix D**, while specific survey types, dates, and weather conditions are summarized in **Table 2**.

Table 2: Field Investigations Conducted at the Property

Survey	Location	Date	Weather Conditions		
			Temperature (°C)	Wind[1]	Cloud Cover (%)
Dillon					
Preliminary staking of consolidated woodland dripline and Top of Bank, Headwater Drainage Feature #1	12875 Tenth Line 12811 Tenth Line 12749 Tenth Line	March 9, 2019	0	2	20
Amphibian Breeding Survey #1		April 25, 2019	12	2	100
Amphibian Breeding Survey #2		May 22, 2019	14	2	100
Aquatic Habitat Assessment		May 22, 2019	13	3	90
Breeding Bird Survey #1		June 3, 2019	8	2	80
Breeding Bird Survey #2, Spring Botanical Inventory		June 25, 2019	21	2	20
Amphibian Breeding Survey #3		June 26, 2019	26	2	10
Ecological Land Classification & Summer Botanical Inventory		July 17, 2019	25	2	25
Agency Staking of Woodland Dripline		August 26, 2019	25	2	10
Confirmatory Site Visits		December 2, 2025	-2	2	10
		December 9, 2025	-6	3	80
PECG					
Breeding Bird Survey #1	12942 York Durham Line	June 10, 2017	Refer to **Appendix D**.		
Breeding Bird Survey #2		June 24, 2017			
Stantec					
Breeding Bird Survey #1	12958 and 12902 Tenth Line	June 7, 2018	Refer to **Appendix D**.		
Breeding Bird Survey #2		June 21, 2018			
Breeding Bird Survey #3		July 5, 2018			
Terrapex					
Breeding Bird Survey #1	12762 Tenth Line	June 24, 2021	Refer to **Appendix D**.		
Bat Acoustic Survey		July 6, 2021			
Breeding Bird Survey #2		July 10, 2021			
Bat Exit Surveys		June 29, 2022			

Notes:
[1]Beaufort Wind Scale where 0 = Calm, 1 = Light air movement, 2 = Slight breeze, 3 = Gentle breeze and 4 = Moderate breeze.

3.2.1 Aquatic Habitat Assessment

An aquatic habitat assessment was completed on the Property on May 22, 2019. The habitat assessment was documented using standardized field sheets containing information from the Ontario Stream Assessment Protocol (OSAP) Manual along Reesor Creek. Information collected during the habitat assessment included (where applicable): channel form, presence/absence of flow, substrate type, channel dimensions (e.g., width and depth), and riparian vegetation. Representative station locations were determined in the field to document habitat characteristics in each reach that was accessible to field staff. Aquatic conditions were also photographed at the time of assessment.

The results of the aquatic habitat assessment are discussed in **Section 5.2.1.**

3.2.1.1 Headwater Drainage Feature Assessment

Headwater Drainage Feature (HDF) assessment was completed on the Property, consisting of one to two site visits generally following 'standard methods' outlined in the Evaluation, Classification, and Management of Headwater Drainage Features (TRCA & Credit Valley Conservation [CVC]; 2014). During the first visit, the Property was walked to inventory and assess potential HDF's present overlapping with the Property, with a focus on areas of noticeable swales or ditches identified in background mapping and review of aerial imagery. If a potential HDF was found, data collected included: bankfull width, wetted width, bankfull depth, wetted depth and substrate. During the second site visit, data collection would be more focused on the presence of water and if flow was present, as typically HDFs are dry or starting to dry up during late April into May. If flow was present during the second HDF survey, the same field data was collected as what was collected during the first HDF assessment to further inform hydroperiod as well as aquatic and terrestrial habitat.

This information was then used to help determine appropriate management recommendations for HDFs present within the Property based on their classification in accordance with TRCA and CVC's 2014 guidance document. The results of the headwater drainage feature assessment completed during the first site visit is detailed in **Section 5.1.1.**

3.2.2 Vegetation Assessments

3.2.2.1 Ecological Land Classification

Vegetation communities were characterized using the Ecological Land Classification (ELC) System for Southern Ontario, second approximation (Lee *et al.*, 1998; Lee, 2010). Vegetation community boundaries were determined through the review of aerial photography and then refined through the on-site field investigation. Vegetation studies involved identifying the dominant species in each vegetation cover type based on visual estimates of species abundances. Other physical traits such as topography and slope aspect were also noted within each community. Vegetation communities in the Study Area were mapped to the ecosite level, and where possible and/or appropriate, to the community

level. Areas of anthropogenic uses (i.e., agriculture, transportation, and residential properties) were also mapped to provide a complete account of existing conditions within the Study Area.

Vegetation communities identified as a result of the ELC surveys are reported in **Section 5.2.1**.

3.2.2.2 Botanical Inventories

A two season botanical inventories (spring and summer) was conducted within the Property as part of the field investigations. The botanical inventories were conducted to record species presence. Species nomenclature for plants recorded were based on the Ontario Plant List (Newmaster *et al.,* 1998) with updates from the Flora Ontario – Integrated Botanical Information System (FOIBIS; 2005). Recorded plants were compiled into a comprehensive list, and included the SRank, provincial and federal status, the Co-efficient of Conservatism (CC) values (indicator to a species'/vegetation community's sensitivity or native dominance, which can be used as a way to measure the overall health of an ecosystem). The resulting list of botanical species also incorporated trees identified on and adjacent to the Property.

Plant species identified on the Property are discussed in **Section 5.2.2**.

3.2.2.3 Agency Staking of Natural Heritage Features

Background review (**Section 4.0**) identified MNR-mapped woodland and associated unevaluated wetlands within the eastern portion of the Property. On August 26, 2019, a Dillon biologist and the TRCA conducted a site visit to formally stake the woodland dripline.

As the woodland dripline encompasses the mapped extent of the unevaluated wetlands, it was identified as the governing limit of the Natural Heritage System adjacent to the proposed development. Consequently, the staked woodland boundary serves as the baseline for determining the required setbacks and minimum vegetation protection zones for natural features in this area. Results of the agency staking and the resulting feature limits are detailed in **Section 4.3**.

3.2.3 Amphibian Breeding Surveys

Amphibian breeding surveys followed the Marsh Monitoring Program protocol (Bird Studies Canada, 2009). Five point-count survey stations (ABH1 to ABH5) were established across the Property and neighbouring lands to the north and south (12875 and 12749 Tenth Line), with appropriate spacing between locations (**Figure 3**). In accordance with the protocol, three different surveys were conducted between April 1 and June 30, with at least two weeks between each survey. Surveys were completed between one half hour after sunset and midnight during evenings with a minimum night temperature of 5 ^{o}C, 10 ^{o}C, and 17 ^{o}C for each of the three respective surveys. Survey points are displayed on **Figure 3.**

The calling activity of individuals estimated to be within 100 m of the observation point was documented. All individuals beyond 100 m were recorded as outside the count circle and calling activity was be recorded. Calling activity was then ranked using one of the three abundance code categories:

- Code 1: Calls not simultaneous, number of individuals can be accurately counted;
- Code 2: Some calls simultaneous, number of individuals can be reliably estimated; and
- Code 3: Calls continuous and overlapping, number of individuals cannot be estimated.

Results of the amphibian breeding surveys are provided in **Section 5.3**.

3.2.4 Breeding Bird Surveys

Diurnal breeding bird surveys were conducted on the Property and neighbouring lands following the methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Cadman *et al.* 2007). Six point-count survey stations (BBS1 to BBS6) were established across the Property and neighbouring lands to the north and south (12875 and 12749 Tenth Line), with appropriate spacing between locations (**Figure 3**). Surveys conducted were a minimum of 10 days apart between late May and early July. Surveys consisted of 10-minute point counts conducted between dawn and five hours after sunrise to establish quantitative estimates of bird abundance in the various habitat types within the Study Area. During the surveys, evidence of breeding behaviour was recorded, including, but not limited to, males singing, nest building, egg incubation, territorial defence, carrying food, and feeding their young. Breeding evidence for each bird species was documented using Breeding Bird Atlas Evidence Codes.

To supplement the surveys, area searches was completed to observe species presence and breeding activity. Area searches involved noting individual bird species observed and their corresponding breeding evidence while traversing the Property and neighbouring lands on foot. Point count locations are displayed on **Figure 3**. Furthermore, a review of other consultant reports involving surveys conducted within neighbouring properties was undertaken to identify species occurrence in the general vicinity of the Study Area (**Appendix D**). Refer to **Table 2** for a summary of breeding bird surveys completed within the general vicinity of the Study Area.

The results of the breeding bird surveys are included in **Section 5.4**.

3.2.5 Bat Surveys

3.2.5.1 Bat Acoustic Survey

A Terrapex biologist used a Wildlife Acoustics Echo Meter Touch 2 Pro to complete a preliminary acoustic survey for bats at four stations within the neighbouring property to the southwest (12762 Tenth Line). As per MECP (2021a) protocols, the acoustic survey was completed in June, on a warm/mild night (i.e., ambient temperature above 10°C) with low winds and no precipitation.

3.2.5.2 Bat Exit Surveys

Terrapex biologists also visually inspected the building on the 12762 Tenth Line property to assess their potential to function as roosts for bats and subsequently completed bat exit surveys per MECP guidance (**Appendix D**). Terrapex biologists completed exit surveys at three stations located adjacent to potential access points. Per MECP (2021b) protocols, exit surveys were completed on two separate evenings in June, on warm/mild nights (i.e., ambient temperature above 15°C) with low winds and no precipitation. During both exit surveys Terrapex biologists used a Wildlife Acoustics Echo Meter Touch 2 Pro to supplement their visual observations.

As discussed in **Section 3.2**, bat surveys completed by Terrapex is detailed in this report to document the potential of SAR bats within the general vicinity of the Study Area. The results from the bat surveys are detailed in **Section 5.5.**

3.2.6 Incidental Wildlife Observations

Incidental observations of wildlife made during the above-noted field investigations were noted, as well as other wildlife evidence such as dens, tracks, and scat, where possible. For each observation, notes, and when possible, photos were taken. These observations helped to determine potential ecological functions, linkages, etc. within the Study Area and neighbouring properties.

Incidental wildlife observations identified during the field investigations outlined in **Table 2** are provided in **Section 5.5**.

3.2.7 Significant Wildlife Habitat Assessment

The Significant Wildlife Habitat Technical Guide (MNR 2000) and associated Ecoregion 6E Criteria Schedule (MNRF, 2015) are the guidance documents for the identification and evaluation of Significant Wildlife Habitat in this area of the province. SWH is protected under the PPS (2024). Potential presence of candidate SWH types was assessed using results from the ELC surveys and other field investigations noted above.

Results of the SWH assessment are detailed in **Section 6.6**.

4.0 Background Review

Dillon conducted a background data review (**Section 3.1**) to inform the development of the TOR and the field investigations for this EIS. The following sections provide a summary of the existing environmental conditions within the Study Area.

4.1 Natural Features Records and Mapping

Records and mapping of various natural heritage features were reviewed in preparation of this EIS and are presented on **Figure 2**. Relevant natural heritage features associated with the Study Area are summarized as follows to provide context for this EIS. These features are described in general in this section, and are further detailed in **Section 5.0**.

4.1.1 Watershed Summary

The Study Area is situated within the headwaters of Stouffville Creek and Reesor Creek, both of which are tributaries to West Duffins Creek. Together, these systems form part of the West Duffins Creek subwatershed. This system eventually feeds into the main branch of Duffins Creek, draining a total area of 287 km^2 into Lake Ontario (TRCA, 2003). The Duffins Creek watershed is recognized as one of the healthiest in the Toronto region, currently maintaining the highest proportion of both natural cover (42%) and forest cover (27%) within the TRCA jurisdiction (TRCA, 2018).

The headwater channels in this system are characterized by coldwater thermal regimes that support a diverse community of fish species. While the West Duffins subwatershed maintains an above-average "B" grade for surface water quality, the system faces ongoing pressure from increased urbanization, which can lead to elevated chloride concentrations from road salt and increased stormwater runoff. Consequently, maintaining the integrity of these headwater features is a key factor for the continued success of regional restoration efforts. According to MNR's Ontario GeoHub Aquatic Resource Area (ARA) database, the segment of Reesor Creek that transects through the Study Area is classified as a cold-water stream (MNR, 2024b).

In addition to surface water features, the subject lands possess significant groundwater functions. Regulatory mapping identifies the Property as being located within a Significant Groundwater Recharge Area (SGRA) and a Wellhead Protection Area (WHPA) Q1/Q2 recharge management area. Due to the presence of the Oak Ridges Moraine Aquifer Complex (ORMAC) and the site's proximity to Stouffville Municipal Supply Well No. 3, portions of the subject lands are also classified as Highly Vulnerable Aquifers (HVAs) with vulnerability scores of 8 or 10. Aquatic habitat assessments completed in 2019 by Dillon are further discussed in **Section 5.1**.

4.1.2 Fish Community Data

Fish community data for the West Duffins Creek subwatershed was obtained from MNR's Ontario GeoHub ARA database (ID: AU-0021-DUF). Desktop records indicate that 26 species have been documented within the subwatershed. Of these, 22 species are provincially ranked as S4 (Apparently Secure) or S5 (Secure), indicating they are common and stable within Ontario. Of the remaining four species, three are classified as SNA, and are not considered suitable target for conservation activities. The last species, the Redside Dace (*Clinostomus elongatus*) carried a provincial rank of S2 (Imperiled). This species is currently listed as Endangered under Schedule 1 of the federal SARA (2002).

A review of the DFO Aquatic SAR Mapping (DFO, 2025) and the MNR (2024a) NHIC database confirmed that no occurrence records or designated critical habitats for Redside Dace overlap with the Study Area. While Redside Dace was documented within the broader West Duffins Creek watershed, DFO and MNR's NHIC records indicate these populations are restricted to the main channel of West Duffins Creek. This documented habitat is located approximately 20 km downstream of the Reesor Creek segment that transects the Study Area. Given this significant distance, no direct interaction with the Study Area is anticipated.

Fish community records are summarized in **Table 3**. Potential occurrences of SAR and their regulated habitats are discussed further in **Section 4.4**, while an assessment of fish habitat suitability within the Study Area is provided in **Section 5.1**.

Table 3: Fish Species Identified within the General Vicinity of the Study Area

Scientific Name	Common Name	SARA[1]	SCA[2]	SRank[3]
Ambloplites rupestris	Rock Bass	—	—	S5
Ameiurus nebulosus	Brown Bullhead	---	---	S5
Catostomus commersonii	White Sucker	—	—	S5
Chrosomus eos	Northern Redbelly Dace	—	—	S5
Clinostomus elongatus	Redside Dace	END	END	S2
Cottus bairdii	Mottled Sculpin	—	—	S5
Cottus cognatus	Slimy Sculpin	—	—	S5
Culaea inconstans	Brook Stickleback	---	---	S5
Etheostoma caeruleum	Rainbow Darter	—	—	S4
Etheostoma exile	Iowa Darter	---	---	S5
Etheostoma nigrum	Johnny Darter	---	---	S5
Hybognathus hankinsoni	Brassy Minnow	---	---	S5
Hypentelium nigricans	Northern Hog Sucker	—	—	S4
Lepomis gibbosus	Pumpkinseed	—	—	S5
Luxilus cornutus	Common Shiner	---	---	S5
Micropterus salmoides	Largemouth Bass	—	—	S5

Scientific Name	Common Name	SARA[1]	SCA[2]	SRank[3]
Noturus flavus	Stonecat	—	—	S4
Oncorhynchus mykiss	Rainbow Trout	—	—	SNA
Pimephales notatus	Bluntnose Minnow	---	---	S5
Pimephales promelas	Fathead Minnow	---	---	S5
Rhinichthys atratulus	Blacknose Dace	---	---	S5
Rhinichthys cataractae	Longnose Dace	—	—	S5
Salmo trutta	Brown Trout	---	---	SNA
Salvelinus fontinalis	Brook Trout	---	---	S5
Salvelinus namaycush x S. fontinalis	Splake	—	—	SNA
Semotilus atromaculatus	Creek Chub	---	---	S5

Notes:
[1]SARA = Federal Species at Risk Act Status where "---" = not listed, END = Endangered.
[2]SCA = Provincial Species Conservation Act Status where "---" = not listed.
[3]Provincial Conservation Status Rank where S2=Imperiled, S4=Apparently Secure, S5=Secure, and SNA=Not suitable target for conservation activities.

4.2 Terrestrial Environment

4.2.1 Landforms, Soils and Geology

As discussed in **Section 2.2.3**, the Study Area falls within the ORMCP. The ORM is an irregular ridge of sandy hills stretching 160 km from the Niagara Escarpment in the west to the Trent River in the east. It serves as the watershed divide between western Lake Ontario to the south and Lake Simcoe, Georgian Bay, and the Trent River system to the north. Locally, the ORM manifests as hummocky terrain consisting of kames and kettles.

While regional mapping such as the Soil Survey of York County (Hoffman and Richards, 1955) identifies the area as primarily Milliken soil series (loam with imperfect drainage) , site-specific geotechnical investigations conducted between 2020 and 2022 provide a more detailed characterization of the Property's subsurface.

The Property lies within the South Slope physiographic region. Subsurface investigations confirm the presence of the Halton Till plain, characterized predominantly by a silt to silty clay matrix that is clast-poor and high in matrix carbonate. Beneath this relatively shallow upper till layer, the site is underlain by sediments derived from the ORAC, composed of interbedded fine sand and silt deposits with an approximate thickness of 30 m in this area (Soil Engineers Ltd., 2026). Based on 12 drilled boreholes across the Property, the stratigraphy is further defined as follows:

- **Surface Layers:** A topsoil veneer ranging from 5 to 25 cm in thickness covers the site. Beneath this is a layer of ploughed soil (silty clay and organics) extending to depths of 0.7 to 1.1 m, reflecting the site's history as farmland;

- **Earth Fill:** In the vicinity of previously demolished structures in the southeast, earth fill consisting of silty clay with topsoil inclusions and rootlets extends to a depth of 1.4 m;
- **Glacial Tills:** The upper stratigraphy is dominated by sandy silt till to silty sand till, which is compact to very dense. These deposits contain a random mixture of clay to gravel, with frequent cobbles and boulders encountered during drilling;
- **Cohesive Deposits:** Deposits of silty clay and silty clay till are located primarily in the eastern portion of the Property. These soils exhibit low plasticity and firm to hard consistency; and
- **Saturated Sediments:** At deeper intervals (generally below 5.6 to 6.0 m), the site is underlain by water-bearing silt and sand units associated with the ORAC. These units are generally saturated with depth.

4.2.2 Wetlands

Based on a review of provincial (Ontario Geohub) and municipal (Town's OP and TRCA) mapping resources, non-evaluated wetland features associated with the watercourse was identified along the eastern portion of the Study Area. Wetland vegetation communities identified within the Study Area are discussed in **Section 5.2.1**.

4.2.3 Woodlands

Based on review of provincial (Ontario GeoHub), municipal (Town's OP) mapping resources, woodland features associated with the watercourse corridor was identified along the eastern portion of the Study Area. In addition, one small woodlot (less than 0.5 hectares) was identified outside of the Property, but within the southwest portion of the Study Area. Woodland vegetation communities identified within the Study Area are discussed in **Section 5.2.1**.

4.2.4 Valleylands

Based on review of TRCA Regulated Area mapping resources, one apparent valley feature associated with Reesor Creek was identified within the Study Area. This feature is discussed further in **Section 6.4**.

4.2.5 Areas of Natural and Scientific Interest

Based on review of provincial (Ontario GeoHub) and municipal (the Town) mapping resources, no Areas of Natural and Scientific Interest (ANSI) were identified within the Study Area.

4.3 Agency Consultation

The Property is located within the jurisdiction of the TRCA. Relevant background data from the TRCA was reviewed and integrated throughout this report. On August 26, 2019, a site visit was conducted with TRCA staff and Dillon biologist to review and formally stake the woodland dripline. As this dripline fully encompassed the mapped extent of the wetlands in this area, the staked woodland boundary was utilized to define the limit for these natural features.

4.4 Species at Risk

A search of the NHIC database and other available wildlife atlases was conducted to identify historical occurrences of SAR within the general vicinity of the Property. The Property is located on private lands under the provincial jurisdiction of MECP. As such, SAR have been defined to include the following:

- Species listed as Threatened or Endangered on the Protected Species in Ontario List (*O.Reg 60/26*);
- Aquatic species listed as Threatened or Endangered under Schedule 1 of the federal SARA (2002) and protected under the *Fisheries Act* (2019); and/or
- Migratory bird species listed under Schedule 1 of SARA (2002) and protected under the MBCA (1994).

Based on the background review, a total of 19 SAR was identified as having the potential to occur within the general vicinity of the Study Area based on historical data (Table E-1; **Appendix E**). SAR were then screened in accordance with the MNRF's Natural Heritage Reference Manual (2005) and recent MECP guidance to identify SAR with potential to occur within the Property based on the presence of suitable habitat. Historical occurrence of SAR with the potential to occur in the Study Area are listed in **Table 4;** these 11 SAR and their habitat are protected under the provincial SCA (2025) or federal SARA (2002). NHIC records comprise of the 1 km square grid area that overlaps the area, while Ontario Breeding Bird Atlas (OBBA), Ontario Reptile and Amphibian Atlas (ORAA) and Ontario Butterfly Atlas (OBA) records are 10 km squares. Records of SAR within these squares do not necessarily represent records within the boundaries of the Study Area.

Table 4: Species at Risk Records within the Vicinity of the Study Area

Scientific Name	Common Name	SARA[1]	SCA[2]	SRank[3]
Birds				
Hylocichla mustelina	Wood Thrush	THR	---	S4B
Melanerpes erythrocephalus	Red-headed Woodpecker	END	---	S3
Mammals				
Lasionycteris noctivagans	Silver-haired Bat	---	END	S4
Lasiurus borealis	Eastern Red Bat	---	END	S4
Lasiurus cinereus	Hoary Bat	---	END	S4
Myotis leibii	Eastern Small-footed Myotis	---	END	S2S3
Myotis lucifugus	Little Brown Myotis	END	END	S3
Myotis septentrionalis	Northern Myotis	END	END	S3
Pipistrellus subflavus	Tri-colored Bat	END	END	S3?
Botanical				
Fraxinus nigra	Black Ash	---	END	S4
Juglans cinerea	Butternut	END	END	S3?

Notes:

[1]Federal *Species at Risk Act*, 2002 where "---" = not listed, THR = Threatened and END = Endangered.

[2]Provincial *Species Conservation Act*, 2025 where "---" = not listed, END = Endangered.

[3]Provincial Conservation ranking (SRank) where S2=Imperiled, S3= Rare, S4= Apparently Secure and S5= Secure, B= Breeding, N= Non-breeding, ?= Some uncertainty with the classification due to insufficient information.

For the purpose of this report, "SAR bats" refers to Silver-haired Bat (*Lasionycteris noctivagans*), Eastern Red Bat (*Lasiurus borealis*), Hoary Bat (*Lasiurus cinereus*), Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Pipistrellus subflavus*). The potential presence of these species within the vicinity of the Study Area is evaluated in **Section 5.5**, with SAR and SAR habitat further discussed in **Section 6.5**.

4.5 Identification of Significant Wildlife Habitat

Wildlife habitat is defined as an area where plants, animals and other organisms live, including areas where species concentrate at a vulnerable point in their life cycle, and areas that are important to migratory and non-migratory species (MNR, 2000). To assist planning authorities, the MNR developed the Significant Wildlife Habitat (SWH) Technical Guide (MNR, 2000) that provides information on the identification, description, and prioritization of SWH in Ontario. To account for the ecological diversity across the province, MNR developed the SWH Ecoregional Criteria Schedules to support the SWH Technical Guide. These schedules are specific to each geographic area of each ecoregion. The Study Area is located in Ecoregion 6E (Lake Simcoe – Rideau), Ecodistrict 6E-6 (Barrie) (Henson and Brodribb, 2005); under the Criteria Schedule for Ecoregion 6E (MNRF, 2015), SWH with the potential to occur within the general vicinity of the Study Area has been divided into four broad categories consisting of:

- Seasonal Concentration Areas of Animals;
- Rare Vegetation Communities or Specialized Habitat for Wildlife;
- Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species); and
- Animal Movement Corridors.

No candidate SWH (cSWH) or mapped SWH were identified to overlap with the Property or Study Area through review of provincial (Ontario GeoHub) or municipal (the Town) resources.

4.5.1 Seasonal Concentration Areas of Animals

Seasonal concentration areas are sites that support large numbers of a species to gather together at one time of the year, or where several species congregate. As discussed in **Section 4.2.3**, woodland features are mapped within the Study Area and have been identified as candidate seasonal concentration areas for Bat Maternity Colonies.

4.5.2 Rare Vegetation Communities or Specialized Habitat for Wildlife

This category consists of two separate components: rare vegetation communities, and specialized habitats. Rare are those with vegetation communities that are considered rare (SRanks of S1 to S3; Extremely Rare to Rare-Uncommon, respectively) in the province. SRanks are rarity rankings applied to species at the provincial level. Generally, SRanks of S1 to S3, as defined by the NHIC, would qualify. The presence of rare vegetation communities is confirmed in **Section 5.0**.

Specialized wildlife habitats are microhabitats that play a critical role in the survival and reproduction of certain species, particularly those requiring large, contiguous areas of suitable environment for long-

term viability and successful breeding. Based on **Section 4.2.2**, the unevaluated wetlands and woodland features that overlap with the Study Area are considered cSWH for Amphibian Breeding Habitat (Woodlands).

4.5.3 Species of Conservation Concern

A search of the NHIC database (MNR, 2024a) and other available wildlife atlases was conducted to identify species occurrence records of Species of Conservation Concern (SCC) within the general vicinity of the Study Area (**Table E-2; Appendix E**). SCC includes the following:

- Species that are assigned a conservation rank of S1-S3 by the NHIC;
- Species that are not aquatic species or migratory birds listed as Special Concern, Threatened, or Endangered on Schedule 1 of SARA; and/or
- Species that are classified as Special Concern, Threatened, or Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) but have not yet been added to Schedule 1 of SARA.

SCC were screened in accordance with the MNRF's Natural Heritage Reference Manual (2010) and recent MECP guidance to identify SCC with potential to occur within the Study Area based on the presence of suitable habitat detected using aerial imagery. Following the screening of recent occurrence records and habitat preferences, two SCC were identified to potentially occur within the Study Area (**Table 5**). NHIC records comprise of the 1 km square grid area that overlaps the area, while OBBA, ORAA and OBA records are 10 km squares. Records of SCC within these squares do not necessarily represent records within the boundaries of the Study Area.

Table 5: Historical Occurrences of SCC with the Potential to Occur within the Study Area

Scientific Name	Common Name	SARA[1]	SCA[2]	SRank[3]
Birds				
Contopus virens	Eastern Wood-pewee	SC	---	S4B
Lepidoptera				
Danaus plexippus	Monarch	SC	---	S2N, S4B

Notes:
[1]Federal *Species at Risk Act*, 2002 where SC = Special Concern.
[2]Provincial *Species Conservation Act*, 2025 where "---" = not listed.
[3]Provincial Conservation ranking (SRank) where S2=Imperiled, S4= Apparently Secure, B= Breeding, N= Non-breeding.

SCC and SCC habitat are further discussed in **Section 6.6.3**.

4.5.4 Animal Movement Corridors

Animal movement corridors are elongated, naturally-vegetated parts of the landscape used by animals to move from one habitat to another, and are typically identified by MNR and/or planning authorities. Animal movement corridors can be associated with wetland and forest communities connecting (linkages) into longer or larger tracks of naturalized areas. Based on aerial imagery, the Study Area has the potential to support candidate Amphibian Movement Corridors within the woodland and wetland

features. As such, candidate SWH for Amphibian Movement Corridors has been identified within the Study Area.

The candidate SWH identified in the background review is further refined in **Section 6.6**.

5.0 Biophysical Inventory

A biophysical inventory of natural heritage features within the Property was conducted in accordance with the methods detailed in **Section 3.0**. This EIS documents the results of the field work program. The analysis of data collected from background review (**Section 4.0**) and during the field investigations was used to evaluate the significance of natural heritage features within the Study Area, as detailed in **Section 6.0**.

5.1 Aquatic Habitat Assessment

The tributary of Reesor Creek is a permanent stream that flowed in a southerly direction within the Study Area. The stream contained riffle, run, pool and flat habitats with sand as the dominant substrate. However, silt, gravel, cobble and boulder substrates were also present. The mean wetted width was 2.4 m while the mean bankfull width was 4.7 m. Further, the mean wetted depth was 0.35 m and the mean bankfull depth was 0.85 m. Both banks exhibited signs of erosion with undercut banks and exposed soil.

In-stream habitat consisted of undercut banks (20%), boulders (2%), cobble (1%), overhanging woody debris (30%) and in-stream woody debris (15%). No in-stream habitat was observed in 32% of the stream. No aquatic vegetation was observed. Within the Study Area, 90-100% of the stream was shaded by the surrounding forest community. Areas of fine gravel that may be suitable fish spawning habitat were observed within the stream.

Land use around the stream consisted of agriculture and rural roads and as a result, potential pollutants include fertilizers, pesticides and road salt. Upstream, a corrugated steel pipe culvert crossing exists on the neighbouring property and a deteriorating stone bridge was observed within the Study Area.

Reference photos from the aquatic habitat assessment can be found in **Appendix C** (Photos 1-5).

5.1.1 Headwater Drainage Feature Assessments

Based on correspondence with the TRCA (**Appendix A**), a site visit conducted by Dillon reviewed if potential HDFs were present within the Property. This reconnaissance was performed during the first HDF assessment window under ideal conditions, specifically during the spring freshet, to document potential seasonal flow or ephemeral features. The assessment confirmed an absence of physical indicators such as defined bed and banks, scoured channels, or topographic depressions capable of conveying flow. Furthermore, there was no evidence of active or standing water, nor were there any hydrophytic vegetation communities or soil staining indicative of prolonged saturation. As a result, no HDF features were identified within the Study Area.

5.2 Vegetation Assessments

5.2.1 Ecological Land Classification

The field investigations and desktop review of aerial imagery indicates that the Property is primarily comprised of agricultural lands with natural features (woodlands and wetlands) present within the eastern portion of the Property. Adjacent land use within 120 m of the Property consisted of both cultural (Tenth Line, York Durham Line, rural properties, agricultural) and natural (woodland and wetland communities) lands.

In total, 22 natural vegetation communities and anthropogenic land uses were observed within the Study Area. The location, type and approximate vegetation boundaries of the various vegetation communities located within the Study Area are delineated on **Figure 3**. **Table 6** outlines the communities documented during the ELC survey.

Representative photos for each of the vegetation communities identified are provided in **Appendix C**, and a full list of vegetation species provided in **Appendix F**. Potential impacts to vegetation communities as a result of the proposed site alteration activities are discussed in **Section 9.0**.

Table 6: ELC Communities Identified within the Study Area

ELC Code	ELC Classification	Description	Photos (Appendix E)
Vegetation Communities			
FOC2-2	Dry-Fresh White Cedar Coniferous Forest	The FOC2-2 community was identified outside of the Property, but within the northeastern portion of the Study Area. The canopy primarily contained coniferous (greater than 75% coniferous cover) with Eastern White Cedar (*Thuja occidentalis*) as the dominant species.	---
FOC4-1	Fresh-Moist White Cedar Coniferous Forest Ecosite	This community was identified in the northeastern portion of the Study Area, outside of the Property boundaries. The feature was dominated by Eastern White Cedar (*Thuja occidentalis*) in the canopy, and occurrences of Sensitive Fern (*Onoclea sensibilis*), Marsh Fern (*Thelypteris palustris*), Spotted Jewelweed (*Impatiens capensis*) and Cinnamon Fern (*Osmundastrum cinnamomeum*).	---
FOC4	Fresh-Moist White Cedar Coniferous Forest	This community was identified in the eastern portion of the Property. The majority of this community contained a dominant Eastern White Cedar canopy with the occasional occurrence of species such as Manitoba Maple (*Acer negundo*) and Black Walnut (*Juglans nigra*). The understorey was open with rare occurrences of shrub species Red Elderberry (*Sambucus racemosa*), Common Buckthorn (*Rhamnus cathartica*), and Alternate-leaved dogwood (*Cornus alternafolia*). Ground layer species was also rare with species such as Enchanter's Nightshade (*Circaea lutetiana*), Wood Sorrel *(Oxalis acetosella*), and Yellow Avens (*Geum aleppicum*) present.	6
FODM3-1	Dry-Fresh Poplar Deciduous Forest Ecosite	This wooded feature was observed on the neighbouring property to the south. It consisted of a canopy dominated almost exclusively by Trembling Aspen (*Populous tremuloides*). Other tree species found in the understorey included Staghorn Sumac (*Rhus typhina*), Common Buckthorn, and the occasional White Ash (*Fraxinus Americana*). The ground layer was a mix of grass species Awnless Brome (*Bromus inermis)*, Canada Goldenrod (*Solidago Canadensis*), and other species such as Riverbank Grape (*Vitis riparia*), and Tufted Vetch (*Vicia cracca).*	7
FODM7-3/SWDM4	Fresh-Moist Willow Lowland Deciduous Forest/Mineral Deciduous Swamp	This community was present within the northeast corner of the Study Area, outside of the Property boundaries. It was characterized by a multi-tiered, dense structure (>60% cover across all strata). The canopy was dominated by Crack Willow (*Salix fragilis*), while the subcanopy and understorey were primarily composed of Manitoba Maple, and various dogwood species (*Cornus spp*.). The ground layer contained Ostrich Fern (*Matteuccia struthiopteris*) and Canada Wood Nettle (*Laportea canadensis*). Notably, endangered Butternut (*Juglans cinerea*) trees were present in the southern portion of the community (PECG, 2019, **Appendix D**).	---

ELC Code	ELC Classification	Description	Photos (Appendix E)
THDM2	Dry-fresh Deciduous Shrub Thicket Ecosite	This thicket community was identified outside of the Property but within the northeastern portion of the Study Area. The community was dominated by an understorey of Common Buckthorn shrub with an open canopy consisting of Black Cherry (*Prunus serotina*), White Ash, and Apple (*Malus spp*.). The ground layer was dominated by grass species Awnless Brome, with abundant invasive Dog-strangling Vine (*Cynanchum rossicum),* Canada Thistle and Tufted Vetch.	8
SWC	Coniferous Swamp	A coniferous swamp was identified in the neighbouring Property to the east.	---
SWCM1	White Cedar Mineral Coniferous Swamp	This coniferous swamp community was present on the neighbouring property to the south. The community was dominated primarily by a dense stand of Eastern White Cedar (*Thuja occidentalis*) with a very low occurrence of other species such as White Willow, Black Walnut, Yellow Birch and Green Ash. Jewelweed dominated the ground layer along with several fern species such as Bulblet Fern (*Cystopteris bulbifera*), Lady Fern (*Athyrium filix-femina*), Oak Fern (*Gymnocarpium dryopteris*) and Sensitive Fern. Understorey shrubs were rare with Alternate-leaved Dogwood and Red Osier dogwood present.	9
SWCM4	Mineral Deciduous Swamp	Located outside of the Property but within the northeastern corner of the Study Area, this community featured a canopy characterized by Apple (*Malus spp*.), Manitoba Maple, Balsam Poplar (*Populus balsamifera*), and Willow (*Salix spp*.). The understorey was composed of Red Osier Dogwood (*Cornus sericea*), Alternate-leaved Dogwood, Choke Cherry (*Prunus virginiana*), and invasive Common Buckthorn. Notably, a Butternut (*Juglans cinerea*) was located within this community (PECG, 2019; **Appendix D**).	---
SWT	Thicket Swamp	The SWD4 community was located in the northeastern corner of the Study Area and consisted of apple, Manitoba Maple, Balsam Poplar and willow in the canopy. The understory was composed of Red Osier Dogwood, Alternate-leaved Dogwood, Common Buckthorn and Choke Cherry (PECG, 2019; **Appendix D**).	---
MASM1-1	Cattail Mineral Shallow Marsh	This wetland community was present along the northern limits of the Study Area, outside of the Property boundaries. The feature was dominated by Broad-leaved Cattail (*Typha latifolia*), with an outer border of Reed Canary Grass (*Phalaris arundinacea*). Interspersed among the cattail and grasses were other forb species such as Jewelweed, Bittersweet Nightshade (*Solanum dulcamara*) and Sensitive Fern (*Onoclea sensiblis*). Shrub species Red-Osier Dogwood, with occasional Peachleaf Willow (*Salix amygdaloides*).	10

ELC Code	ELC Classification	Description	Photos (Appendix E)
MEGM4	Fresh-Moist Graminoid Meadow	This meadow area was identified on the neighbouring property to the south. It was dominated by Common Reed (*Phragmites australis*) with smaller amounts of Reed Canary Grass and other grass species. Ground layer was intermixed with other species such as Common Plantain (*Plantago major),* Lance-leaved Aster (*Symphyotrichum lanceolatum*), and Field Horsetail (*Equisetum arvense*).	11
MEMM3	Dry-Fresh Mixed Meadow Ecosite	This community was present along the southern boundary of the Property. It was dominated by Canada Goldenrod and contained abundant Canada Thistle (*Cirsium arvense*) with occasional occurrences of Common Milkweed (*Asclepias syriaca*), Wild Carrot (*Daucus carota*) and grass species such as Awnless Brome and Timothy (*Pleum pretense*). The only tree species present are several mature Norway Maple (*Acer platanoides*).	12
MEMM4	Fresh-Moist Mixed Meadow Ecosite	This community was present within the southern portion of the Study Area, outside of the Property boundaries. It was dominated by Canada Goldenrod, Lance-leaved Aster (*Symphyotrichum lanceolatum*) and contains abundant Wild Raspberry (*Rubus idaeus*) and with occasional occurrences of Jewelweed, Philadelphia Fleabane (*Erigeron philadelphicus*). The canopy consists of the occasional Black Walnut or Manitoba Maple trees with an understorey of Red-Osier Dogwood and White Elderberry (*Sambucus gaudichadiana*) shrub species.	13
SAS_1-1	Pondweed Submerged Shallow Aquatic	This community was present outside of the Property boundaries but within the northeastern corner of the Study Area. The pond community was dominated by pondweed (*Potamogeton sp.*) and Broad-leaved Cattail (PECG, 2019; **Appendix D**).	---
Cultural Land Use			
OAG	Open Agriculture	The majority of the Property consisted of open agricultural lands planted with row crop based on 2025 aerial imagery (June 2025) and confirmed during the December 2025 site visits.	14
OAGM1	Annual Row Crop	Cropped lands were identified in neighbouring properties based on aerial imagery.	---
OAGM4	Open Pasture/Fallow Field	An open pasture/fallow field was identified within the eastern portion of the Property.	---
TAGM5	Fencerow	This community was identified along the northern Property boundary, and was dominated by grass species such as Awnless Brome, as well as abundant Canada Thistle, Canada Goldenrod, Common Milkweed and Tufted Vetch.	---
CVI_1	Transportation	Tenth Line and York Durham Line bound the Property to the west and east.	---

ELC Code	ELC Classification	Description	Photos (Appendix E)
CVR_4	Rural Residential	A rural Residential Property was present in the neighbouring Property to the north.	---
CVR_3	Low-Density Residential	A low-density residential lot is present within the southwest corner of the Study Area.	

5.2.2 Botanical Inventory

A total of 104 plant species were documented during 2019 field studies and 2025 confirmatory site visits completed for the Property and adjacent properties to the north and south (12875 and 12749 Tenth Line). Of the 104 species, 59% are listed as native species and are considered common (S4) to very common (S5) in the province of Ontario. Conversely, 41% of the species observed are listed as introduced species; therefore, a status ranking is not applicable as the species is not a suitable target for conservation activities (SRank of SE or SNA). One SAR species, Butternut, was identified during vegetation surveys; Butternut are listed as endangered and therefore are protected under the ESA (2007).

The Co-efficient of Conservatism (CC) provides additional information on the nature of the vegetation communities within the Study Area. The CC values range from 0 to 10 and represent an estimated probability that a plant is likely to occur in a landscape that is relatively unaltered or is in a pre-settlement condition. For example, a CC of 0 is given to plants such as Manitoba Maple (*Acer negundo*) that demonstrate little fidelity to any remnant natural community, i.e. may be found almost anywhere. Similarly, a CC of 10 is applied to plants like Shrubby Cinquefoil (*Potentilla fructicosa*) that are almost always restricted to a pre-settlement remnant, i.e. a high-quality natural area. Introduced plants were not part of the pre-settlement flora, so no CC values have been applied to these species.

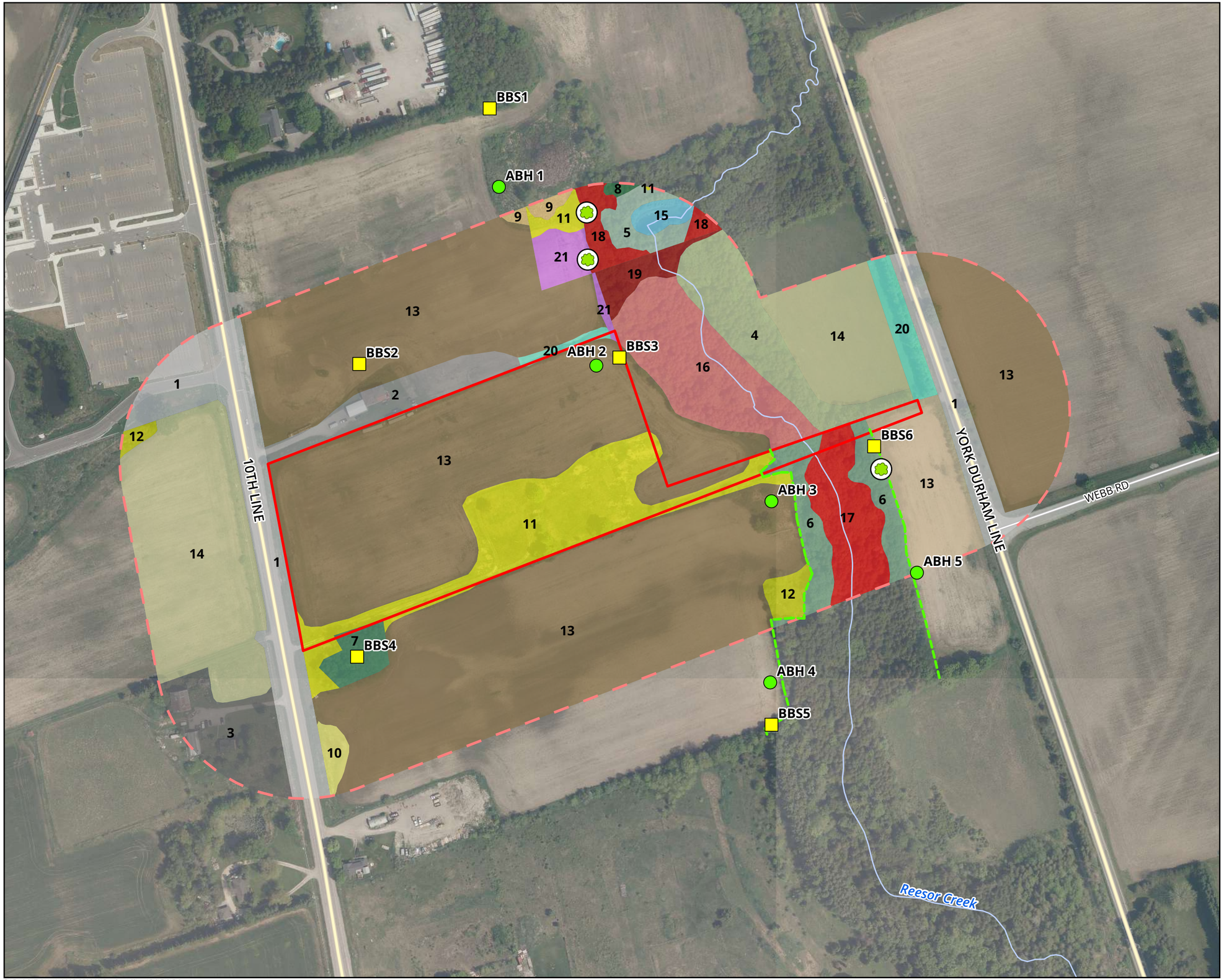
Of the 104 species identified within the Study Area, 5 have a CC value of 7 or greater: Woodland Horsetail (*Equisetum sylvaticum*), Common Oak Fern (*Gymnocarpium dryopteis)*, Michigan Lily (*Lilium michiganese*), Common Wood-sorrell *(Oxalis montana*), and Northern Mountain-ash (*Sorbus decora*). The mean CC value for the site was 2.07 out of a possible 10, indicating a moderately disturbed landscape. A full list of the vegetation species observed within the Study Area has been included in **Appendix F**.

NORTHCAPE INVESTMENTS INC.

ENVIRONMENTAL IMPACT STUDY

12811 TENTH LINE, WHITCHURCH-STOUFFVILLE

FIGURE 3
FIELD INVESTIGATION RESULTS



- Project Location
- Study Area (120 m)
- Amphibian Breeding Habitat Survey Location
- Breeding Bird Survey Location
- Butternut
- Staked Dripline (TRCA/Dillon - August 26, 2019)

Ecological Land Classification

- 1: CVI_1: Transportation
- 2: CVR_3: Single Family Residential
- 3: CVR_4: Rural Residential
- 4: FOC2-2: Dry - Fresh White Cedar Coniferous Forest
- 5: FOCM4-1: Fresh – Moist White Cedar Coniferous Forest
- 6: FOCM4: Fresh – Moist White Cedar Coniferous Forest
- 7: FODM3-1: Dry – Fresh Poplar Deciduous Forest
- 8: FODM7-3: Fresh – Moist Willow Lowland Deciduous Forest / SWDM4: Mineral Deciduous Swamp
- 9: MASM1-1: Cattail Mineral Shallow Marsh
- 10: MEGM4: Fresh - Moist Graminoid Meadow
- 11: MEMM3: Dry-Fresh Mixed Meadow
- 12: MEMM4: Fresh - Moist Mixed Meadow
- 13: OAG: Fallow Field
- 13: OAG: Open Agriculture
- 14: OAGM1: Annual Row Crop
- 15: SAS_1-1: Pondweed Submerged Shallow Aquatic
- 16: SWC: Coniferous Swamp
- 17: SWCM1: White Cedar Mineral Coniferous Swamp
- 18: SWDM4: Mineral Deciduous Swamp
- 19: SWT: Thicket Swamp
- 20: TAGM5: Fencerow
- 21: THDM2: Dry - Fresh Deciduous Shrub Thicket

1:3,000

0 50 100 200 m

MAP CREATED BY: GM
MAP CHECKED BY: LJ
MAP PROJECTION: NAD 1983 UTM ZONE 17N

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, ESRI

DILLON CONSULTING

PROJECT: 252368
STATUS: FINAL
DATE: 2026-04-15

FILE LOCATION: K:\2025\252368\Product\Client\EIS\EIS\EIS.aprx

5.3 Amphibian Breeding Surveys

Amphibian surveys were completed on April 25, May 22, and June 26, 2019, respectively. The presence of amphibian species was identified at three out of the five survey locations (ABH1 to ABH3). Five frog species: Spring Peeper (*Pseudacris crucifer)*, Wood Frog (*Lithobates sylvaticus*), Grey Tree Frog (*Hyla versicolor*), Green Frog (*Lithobates clamitans*), and American Toad (*Anaxyrus americanus*) were observed within the Study Area and neighbouring properties during the amphibian breeding surveys (**Table 7**). While a species richness was moderate, low populations and call codes of each species were generally observed at each station. All five amphibian species observed within the Study Area and neighbouring properties are listed as Secure in the province (SRank of S5), and neither are considered SAR nor SCC in Ontario.

Table 7: Amphibian Breeding Survey Results

Scientific Name	Common Name	SARA[1]	SCA[2]	Srank[3]	Survey Date (2019)	Call Code[4] (Population Estimate)	Station ID
Pseudacris crucifer	Spring Peeper	---	---	S5	April 25	1(5)	ABH 1
					May 22	1 (2)	ABH 1
					May 22	1(2)	ABH 2
Lithobates sylvaticus	Wood Frog	---	---	S5	April 25	1(3)	ABH 1
Hyla versicolor	Gray Tree Frog	---	---	S5	June 26	1(2)	ABH3
Lithobates clamitans	Green Frog	---	---	S5	June 26	1(2)	ABH3
Anaxyrus americanus	American Toad	---	---	S5	June 26	1(2)	ABH3

Notes:

[1] Federal *Species at Risk Act*, 2002 where "---" = not listed.

[2] Provincial *Species Conservation Act*, 2025 where "---" = not listed.

[3] Provincial Conservation Ranking (SRank) where S5 = secure.

[4] Call Code: 1 =no overlap in calls, number of individuals can be accurately counted, 2 = some calls simultaneous, number of calls can be reliably estimated, 3 = full chorus and calls overlapping.

Potential impacts to amphibians as well as general wildlife are discussed in **Section 9.0.4**.

5.4 Breeding Bird Surveys

From Dillons surveys conducted in 2019 as well as the contributing consultant reports that mention breeding bird surveys, an average of 33 bird species has been documented within the Property and neighbouring properties. A summary is shown below in Error! Reference source not found. of how many species were observed by each consultant firm with the full results shown in **Table 9**. The majority of species observed during surveys have populations in Ontario that are either Secure (SRank of S5) and Apparently Secure (SRank of S4) within Ontario.

Table 8: Summary of Breeding Bird Surveys

Survey Year	Property(ies)	Consultant	Total Bird Species	SAR/SCC Obs.
2017	12942 York Durham Line	PECG	35	2
2018	12958 and 12902 Tenth Line	Stantec	22	1
2019	12875 Tenth Line 12811 Tenth Line 12749 Tenth Line	Dillon	38	1
2020	12762 Tenth Line	Terrapex	38	1

SAR bird observations were recorded during previous field programs. Specifically, Bobolink (*Dolichonyx oryzivorus)* was noted by PECG during 2017 surveys, while Barn Swallow (*Hirundo rustica*) has been documented by all consultants involved in the Community of Stouffville Secondary area to date. A suitable habitat assessment was conducted to determine the potential for these species to nest within the Property. While an existing barn structure was located on the neighboring property to the west (within the broader Study Area), no suitable unoccupied rural structures were identified within the Property. Additionally, the Property lacked extensive and contiguous grasslands required for Bobolink. As no suitable nesting habitat was present within the Property, these species have been screened out. Any potential habitat associated with the off-site structure will not be directly impacted by the proposed development, and as such, these species are not discussed further in this report.

Furthermore, Eastern Wood-pewee (*Contopus virens*) was identified by PECG (2019). SWH for this SCC is further discussed in **Section 6.6.3**.

Table 9: Breeding Bird Survey Results

Scientific Name	Common Name	SARA[1]	SCA[2]	SRank[3]	PECG 2016/ 2017	Stantec June 20/ July 24, 2018	Dillon June 25/ July 17, 2019	Terrapex June 23, 2020
Aix sponsa	Wood Duck	---	---	S5		X		
Anas platyrhynchos	Mallard	---	---	S5	X	X	X	
Branta canadensis	Canada Goose	---	---	S5	X	X	X	
Meleagris gallopavo	Wild Turkey	---	---	S5			X	X
Ardea herodias	Great Blue Heron	---	---	S4	X			
Cathartes aura	Turkey Vulture	---	---	S5B		X		X
Buteo jamaicensis	Red-tailed Hawk	---	---	S5			X	X
Buteo lineatus	Red-shouldered Hawk	---	---	S4B			X	
Charadrius vociferus	Killdeer	---	---	S5B,S5N	X		X	X
Larus delawarensis	Ring-billed Gull	---	---	S5B,S4N		X		
Zenaida macroura	Mourning Dove	---	---	S5		X		X
Colaptes auratus	Northern Flicker	---	---	S4B	X	X	X	
Picoides pubescens	Downy Woodpecker	---	---	S5		X		

Scientific Name	Common Name	SARA[1]	SCA[2]	SRank[3]	PECG 2016/ 2017	Stantec June 20/ July 24, 2018	Dillon June 25/ July 17, 2019	Terrapex June 23, 2020
Picoides villosus	Hairy Woodpecker	---	---	S5	X			
Falco sparverius	American Kestrel	---	---	S4	X			
Contopus virens	Eastern Wood Pewee	SC	---	S4B	X			
Myiarchus crinitus	Great Crested Flycatcher	---	---	S4B	X		X	
Sayornis phoebe	Eastern Phoebe	---	---	S5B	X		X	X
Tyrannus tyrannus	Eastern Kingbird	---	---	S4B	X		X	X
Vireo gilvus	Warbling Vireo	---	---	S5B		X	X	X
Vireo olivaceus	Red-eyed Vireo	---	---	S5B	X		X	
Corvus brachyrhynchos	American Crow	---	---	S5B	X	X	X	X
Corvus corax	Common Raven	---	---	S5			X	
Cyanocitta cristata	Blue Jay	---	---	S5	X		X	
Hirundo rustica	Barn Swallow	THR	---	S4B	X	X	X	X
Tachycineta bicolor	Tree Swallow	---	---	S4B	X			
Poecile atricapillus	Black-capped Chickadee	---	---	S5	X		X	X
Troglodytes aedon	House Wren	---	---	S5B	X	X	X	
Sialia sialis	Eastern Bluebird	---	---	S5B			X	
Turdus migratorius	American Robin	---	---	S5B	X	X	X	X
Dumetella carolinensis	Gray Catbird	---	---	S4B	X	X	X	
Sturnus vulgaris	European Starling	---	---	SNA	X		X	X
Bombycilla cedrorum	Cedar Waxwing	---	---	S5B	X		X	
Geothlypis trichas	Common Yellowthroat	---	---	S5B	X		X	
Mniotilta varia	Black-and-white Warbler	---	---	S5B	X			
Setophaga petechia	Yellow Warbler	---	---	S5B	X	X	X	X
Setophaga ruticilla	American Redstart	---	---	S5B	X		X	
Melospiza georgiana	Swamp Sparrow	---	---	S5B			X	
Melospiza melodia	Song Sparrow	---	---	S5B	X	X	X	X
Passerculus sandwichensis	Savannah Sparrow	---	---	S4B	X		X	
Pooecetes gramineus	Vesper Sparrow	---	---	S4B				X
Spizella passerina	Chipping Sparrow	---	---	S5B	X	X	X	
Cardinalis cardinalis	Northern Cardinal	---	---	S5	X		X	X
Passerina cyanea	Indigo Bunting	---	---	S4B	X		X	
Agelaius phoeniceus	Red-winged Blackbird	---	---	S4	X	X	X	X

Scientific Name	Common Name	SARA[1]	SCA[2]	SRank[3]	PECG 2016/ 2017	Stantec June 20/ July 24, 2018	Dillon June 25/ July 17, 2019	Terrapex June 23, 2020
Dolichonyx oryzivorus	Bobolink	THR	---	S4B	X			
Icterus galbula	Baltimore Oriole	---	---	S4B			X	X
Molothrus ater	Brown-headed Cowbird	---	---	S4B	X	X	X	X
Quiscalus quiscula	Common Grackle	---	---	S5B	X	X	X	X
Carduelis tristis	American Goldfinch	---	---	S5B	X	X	X	X
Carpodacus mexicanus	House Finch	---	---	SNA		X		

Notes:

[1] Federal *Species at Risk Act*, 2002 where "---" = not listed, SC = Special Concern, THR=Threatened.

[2] *Provincial Species Conservation Act*, 2025 where "---" = not listed.

[3] Provincial Conservation ranking (SRank) where S5 = Secure, S4 = Apparently Secure, SNA=Not suitable target for conservation activities, B = Species breeding range in Ontario.

5.5 Bat Surveys

5.5.1 Bat Acoustic Survey

A Terrapex biologist completed a preliminary acoustic survey of the trees located at 12762 Tenth Line for bats on July 6, 2021 between 9:40 pm and 12:17 am. During the acoustic survey, the temperature ranged from 22 ˚C (beginning of survey) to 18 ˚C (end of survey) and the wind speed was low (Beaufort Scale = 1). There was no precipitation during the survey. During the survey the Echo Meter Touch 2 Pro recorded a total of 95 bat passes. Most bat activity was recorded at Station 1; this likely reflects bats foraging at the pond located immediately south of the site. The majority of recordings (65 of 95) were identified as Big Brown Bat and/or Silver-haired Bat. All but one of the other recordings (i.e., 29 of 30) was identified as Hoary Bat. A single recording was identified as Little Brown Myotis. All species recorded during this survey are considered SAR under SCA (2025).

5.5.2 Bat Exit Surveys

Terrapex biologists completed two exit surveys of buildings at 12762 Tenth Line with the potential function as bat roosts. Terrapex biologists observed no bats emerge from the surveyed buildings, but recorded incidentally a total of 30 bat passes, including 15 by Big Brown Bat and/or Silver-haired Bat, 14 by Hoary Bat and a single pass by Eastern Red Bat.

As such, the background data provided by Terrapex indicates that SAR bats are present within the vicinity of the Study Area. The presence of these species, along with their associated habitat requirements, is evaluated in further detail within **Section 6.5.2**.

5.6 Incidental Wildlife Observations

Incidental observations of wildlife were made during field investigations completed by Stantec, Dillon, PECG and Terrapex though only Dillon and Terrapex have them listed in the reporting. Incidental observations were made while traversing the site, noting any evidence of wildlife or sensitive habitat features (e.g., potential amphibian breeding habitat, stick nests) as well as gaining a general characterization of available habitat. Lists of incidental wildlife observed are noted in the accompanying report (**Appendix D**). Species observed are generally considered very common. Observations of one SCC, Monarch (*Danaus plexippus*) was made by Dillon during the 2019 field program. SCC and SCC habitat is further discussed in **Section 6.6.3**.

The list of incidental wildlife observed by Dillon and Terrapex is shown below (**Table 10**).

Table 10: Incidental Wildlife Observed

Scientific Name	Common Name	SARA[1]	SCA[2]	Srank[3]	Dillon	Terrapex
Birds						
Actitis macularius	Spotted Sandpiper	---	---	S5B	---	---
Butorides virescens	Green Heron	---	---	S4B		X
Columba livia	Rock Pigeon	---	---	SNA		X
Eremophila alpestris	Horned Lark	---	---	S5B		X
Melanerpes carolinus	Red-bellied Woodpecker	---	---	S4		X
Mammals						
Odocoileus virginianus	White-tailed Deer	---	---	S5	X	
Procyon lotor	Northern Raccoon	---	---	S5	X	
Sciurus carolinensis	Eastern Gray Squirrel	---	---	S5	X	
Tamias striatus	Eastern Chipmunk	---	---	S5	X	X
Lepidoptera						
Colias philodice	Clouded Sulphur	---	---	S5	X	
Danaus plexippus	Monarch	SC	SC	S2N, S4B	X	
Pieris rapae	Cabbage White	---	---	SNA	X	
Odonata						
Calopteryx maculata	Ebony Jewelwing	---	---	S5	X	

Notes:

[1]Federal *Species at Risk Act*, 2002 where THR=Threatened.

[2]Provincial *Endangered Species Act*, 2007 where SC= Special Concern.

6.0 Natural Heritage Features

6.1 Fish Habitat

As described in **Section 5.1**, Reesor Creek is characterized as permanent fish habitat. The specific ecological functions of this feature, including its role in supporting aquatic productivity and maintaining connectivity within the integrated Natural Heritage System, are evaluated in detail within **Section 7.0**.

6.2 Wetlands

The wetland community was identified as a White Cedar Mineral Coniferous swamp (SWCM1-1) which exists in the eastern portion of the Study Area. This wetland community was associated with Reesor Creek and was contained within the limits of the ravine feature. The wetland feature extended past the boundaries of the Study Area and continued onto adjacent properties located north and south along the watercourse. Preliminary boundaries of the feature containing the woodland and wetland community were assessed by Dillon on March 9, 2019. During field surveys in July 2019, a high level of disturbance was noted within the wetland community. Within the boundaries of the Study Area, the central portion of the community has been used heavily as a recreational paintball sport park. Makeshift wooden structures, plywood, rubber tires, garbage cans and other materials litter the area and reduced the quality of the wetland habitat (**Appendix C**, Photo 6). As a result, the ground was generally compacted and natural vegetation in many areas was limited or absent.

6.3 Woodlands

The majority of woodlands within the Study Area was directly associated with the tributary of Reesor Creek (FOCM4, SWC, SWCM1). These woodlands extend north and south along the watercourse beyond the boundaries of the Study Area and contribute to an overall woodland feature that is approximately 11 ha in size. Additionally, a small woodlot (0.20 hectares) on the neighbouring Property to the south was isolated in the landscape and surrounded by agricultural lands.

Woodlands within the Study Area are regulated under multiple local planning policies including the ORMCP (2017), The ROP (2022) and the Town's OP (2025). As per Section 4.1.9.1 (f) of the Town's OP, the woodland associated with Reesor Creek is considered significant based on the following:

- The woodland is larger than 0.5 hectares;
- The woodland is within 30 metres of a wetland and permanent stream;
- The woodland occurs within the natural heritage system; and
- The woodland supports provincially rare wildlife and plant species.

While the woodland in the eastern portion is identified as significant (**Figure 4**), the woodlot outside of the Property boundaries but within the Study Area is not considered significant based on the following conditions:

- The wooded feature is less than 0.5 hectares;
- The wooded feature is not associated with a wetland or watercourse feature;
- The wooded feature does not form part of the natural heritage system as it is an isolated community surrounded by agricultural lands and anthropogenic uses; and
- Does not support provincially rare wildlife or plant species.

Encroachment to these features is not proposed as a result of the proposed development at the Property. Mitigation measures and/or enhancement opportunities associated with the woodland and surrounding lands are detailed in **Sections 9.0 and 10.0.**

6.4 Valleylands

No criteria for Significant Valleylands are provided in ROP (2022) or OP (2025) policies. According to Section 4.5 of the ORMCP Technical Paper #1 (Identification of Key Natural Heritage Features), Significant valleylands include:

- All streams with well defined valley morphology (i.e., floodplains, meander belts and valley slopes) having an average width of 25 m or more;
- All spillways and ravines with the presence of flowing or standing water for a period of no less than two months in an average year. Such features must be greater than 50 metres in length; 25 metres in average width with a well defined morphology (i.e. two valley walls of 15% slope or greater with a minimum height of 5 metres, and valley floor), and having an overall area of 0.5 ha or greater; and
- Additional features identified by the approval authority, that are consistent with one or more of the functions described above.

Based on the criteria in the Natural Heritage Reference Manual (2010) and ORMCP Technical Paper #1, Reesor Creek is considered a Significant Valleyland (**Figure 4**). Within the Study Area, the tributary that overlaps with the Property (identified as Reach RCT3) is set within a forested valley with a continuous valley slope present along the west side. A fluvial geomorphology assessment determined that the watercourse system is partially confined, meaning meander bends are adjacent to one valley wall, thereby restricting migration on one side of the system (GEO Morphix Ltd., 2026; Soil Engineer Ltd., 2026). Specific geomorphic and geotechnical assessments were conducted to inform the erosion and slope stability hazards for the west valley slope:

- **Valley Slope and Height:** The west valley slope is approximately 4.5 to 6.0 m high, with overall slope gradients ranging from 2.6H:1V to 4.8+H:1V;
- **Meander Belt Width:** A meander belt width was not delineated because the western valley slope acts as a spatial constraint that limits natural channel migration;

- **Toe Erosion Allowance (TEA):** While the creek meanders at various distances from the toe of the slope, a conservative 8.0 m toe erosion allowance was recommended by GEO Morphix Ltd. (2026) report. This allowance was applied in the absence of a clearly defined channel bank or water's edge to establish a long-term safety margin; and
- **Long-Term Stable Top of Slope (LTSTOS):** Slope stability analysis using the Bishop Method confirmed that the existing slope is generally stable, with a minimum factor of safety (FOS) exceeding 1.5, satisfying OMNR guidelines for active land use. After incorporating the 8.0 m TEA and projected stable gradients of 2.4 to 2.9H:1V, the preliminary LTSTOS was found to coincide with the existing top of slope.

To support a comprehensive protection strategy, a consolidated buffer has been established for the Property. This constraint line incorporates the significant woodland dripline and the LTSTOS as shown in **Figure 4**. Details regarding the components and requirements of this consolidated VPZ are discussed further in **Section 10.3**.

6.5 Species at Risk

Based on the preliminary background review, 11 SAR were identified as having the potential for suitable habitat within the Study Area: Wood Thrush (*Hylocichla mustelina*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), Black Ash (*Fraxinus nigra*), Butternut (*Juglans cinerea*), and seven SAR bat species as detailed in **Section 4.4**. Following the completion of the field program, the following determinations were made:

- **Birds:** Neither Wood Thrush nor Red-headed Woodpecker were recorded during the standardized breeding bird surveys or through incidental wildlife observations conducted across the Property and adjacent lands; and
- **Botanical:** Black Ash was not identified during the comprehensive botanical inventories conducted in 2019.

Consequently, Wood Thrush, Red-headed Woodpecker, and Black Ash have been screened out, and no further impacts to these species are anticipated. Conversely, the presence of Butternut and potential habitat for SAR bats was identified during the field investigations. These species are discussed in further detail in the following sections.

6.5.1 Butternut

Butternut usually grows alone or in small groups in deciduous forests. This species prefers moist, well-drained soil and is often found along streams. It is also found on well-drained gravel sites and rarely on dry rocky soil. This species does not do well in the shade and often grows in sunny openings and near forest edges (Poisson and Ursic, 2013).

Three Butternut trees were observed outside of the Property boundaries but within the Study Area (**Figure 4**). While a formal Butternut Health Assessment (BHA) was not performed, these trees appeared to exhibit signs of Butternut Canker Disease (*Ophiognomonia clavigignenti-juglandacearum*). As these

trees are located within significant woodlands of the Study Area, no impacts are anticipated to occur to this species.

6.5.2 SAR Bats

Resident bats generally occupy the same area year-round and may hibernate locally to their foraging and maternity roosting habitats. For the purpose of this report, resident SAR bats include Eastern Small-footed Myotis, Tri-colored bat, Little Brown Myotis and Northern Myotis. These species require various habitat types to support overwintering, roosting, and feeding activities. All three species typically overwinter in cold and humid hibernacula (i.e., caves) (MECP, 2020).

Migratory bats typically travel long distances to find food sources and overwintering grounds. For the purpose of this report, migratory SAR bats include Hoary Bat, Eastern Red Bat and Silver-Haired Bat, which migrate from Canada to warmer southern regions for the winter months (COSSARO, 2024). These migratory bats primarily occupy forested areas (deciduous or coniferous), and roost in the open foliage of trees at the edge of cleared areas and adjacent to water.

Potential habitat for SAR bats may occur in deciduous trees with a minimum diameter at breast height (DBH) of 21.1 cm (Humphrey and Fotherby, 2019). Woodlands (FOCM4, SWCM1, and FOC2-2) within the Study Area have the potential to provide suitable habitat for SAR bat species. To mitigate potential impacts on SAR bats, mitigation measures for bats (and general wildlife) are further provided in **Section 9.1.4** and **Section 10.5**.

6.6 Significant Wildlife Habitat

Criteria for determining significance of wildlife habitat follow the guidelines outlined in the Natural Heritage Reference Manual (MNRF, 2010) and the Significant Wildlife Habitat Technical Guide Ecoregion 6E Criterion Schedules (MNRF 2015), where applicable.

6.6.1 Seasonal Concentration Areas of Animals

Bat Maternity Colonies

One category of cSWH for Seasonal Concentration Areas was identified within the Study Area: Bat Maternity Colonies. According to provincial criteria, cSWH for Bat Maternity Colonies is defined as mature deciduous or mixed forest stands containing more than 10 large-diameter wildlife trees per hectare (>10 trees/ha), with a diameter at breast height (DBH) greater than 25 cm. Based on field investigations and aerial imagery, only the White Cedar Coniferous Forest (FOCM4) and White Cedar Coniferous Swamp (SWCM1) associated with the Reesor Creek tributary met the size threshold (>10 ha) to be considered candidate habitat (**Figure 4**). As the proposed development limits are located outside of these communities, no impacts to cSWH are anticipated, provided that standard mitigation measures are implemented.

Reptile Hibernaculum

During the 2019 field program, Dillon staff observed a stone foundation of a former agricultural building within the Dry-Fresh Poplar Deciduous Forest (FODM3-1), adjacent to 10th Line. As the foundation appeared to be partially buried with visible crevices in the structure's face, it was initially identified as providing potential candidate Significant Wildlife Habitat (cSWH) for reptile hibernacula. However, throughout the multi-year field investigations conducted within the Study Area and neighbouring properties, no reptiles or evidence of reptile activity were documented within or in the immediate vicinity of this feature. Due to the lack of observed occurrences and the absence of confirmed use, this feature has been screened out and is not considered Significant Wildlife Habitat.

Detailed measures to avoid adverse impacts to general wildlife are further discussed in **Section 10.5.**

6.6.2 Rare Vegetation Communities or Specialized Habitat for Wildlife

As MNR-mapped swamp features were identified within the Study Area, the potential for Amphibian Breeding Habitat (Woodlands) was evaluated as cSWH. Following the completion of the targeted amphibian breeding surveys (as detailed in **Section 5.3**), calling anuran activity did not meet the defining thresholds for significance as outlined in the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNRF, 2015). Specifically, the high intensity calling activity (Call Code 3) required to confirm significance was not recorded during any of the survey periods. Consequently, the swamp communities within the Study Area have been screened out as SWH for amphibian breeding. Further evaluation of Animal Movement Corridors associated with these features is provided in **Section 6.6.4**.

6.6.3 Habitat for Species of Conservation Concern

As detailed in **Section 4.5.3**, two species: Monarch and Eastern Wood-pewee (*Contopus virens*) were identified as having potential habitat within the Study Area based on a review of natural and naturalized features (**Table 5**).

Based on breeding bird surveys and incidental wildlife observations conducted within the Study Area and on neighboring properties, Eastern Wood-pewee was recorded by PECG at 12942 York Durham Line, approximately 130 meters north of the Property. As the significant woodland feature is contiguous from the observation point to the Property, this woodland is considered confirmed SWH for Eastern Wood-pewee (**Figure 4**).

Furthermore, while Monarch was incidentally observed within the Study Area, the Property itself contains very limited milkweed (*Asclepias spp*.) and consists primarily of active agricultural fields. Consequently, the Property does not meet the criteria for Monarch habitat, and cSWH for Monarch has been screened out from further assessment.

6.6.4 Animal Movement Corridors

As discussed in Section **6.6.2**, cSWH for Amphibian Breeding Habitat (Woodlands) was not identified within the Study Area due to insufficient anuran calling activity. According to the Significant Wildlife Habitat Criteria Schedules, "*movement corridors must be determined when amphibian breeding habitat is confirmed as SWH".* As the prerequisite breeding habitat was not confirmed, associated amphibian movement corridors have been ruled out and are not considered further in this assessment.

Impacts related to candidate SWH as well as general wildlife are discussed in **Section 9.1.4**. Measures to avoid adverse impacts to candidate SWH are further discussed in **Section 10.4**.

NORTHCAPE INVESTMENTS INC.

ENVIRONMENTAL IMPACT STUDY

12811 TENTH LINE, WHITCHURCH-STOUFFVILLE
FIGURE 4
CONCEPT PLAN & NATURAL HERITAGE CONSTRAINTS

- Project Location
- Study Area (120 m)
- Butternut
- Concept Plan
- Grading Plan
- Staked Dripline (TRCA/Dillon - August 26, 2019)
- Staked Dripline (TRCA - May 23 2018)
- Air Photography Dripline
- Air Photography Dripline VPZ (10 m)
- Staked Dripline VPZ (10 m)
- Existing Floodplain (TRCA)
- Floodplain VPZ (10 m)
- Long Term Stable Top of Slope
- Long Term Stable Top of Slope (10 m VPZ)
- Consolidated Buffer Limit
- Significant Valleyland
- Significant Woodland, Potential SAR Bat Habitat and Confirmed SWH for Eastern Wood-pewee
- Unevaluated Wetland

1:3,000

0 50 100 200 m

MAP CREATED BY: GM
MAP CHECKED BY: LJ
MAP PROJECTION: NAD 1983 UTM ZONE 17N

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, ESRI

DILLON CONSULTING

PROJECT: 252368
STATUS: FINAL
DATE: 2026-04-15

FILE LOCATION: K:\2025\252368\Product\Client\EIS\EIS\EIS.aprx

7.0 Ecological Function

Natural features within the Study Area were assessed to determine their integrated ecological function, revealing a landscape defined by the transition from active agricultural lands to the protected Reesor Creek system. The Property is bounded by Tenth Line to the west, York Durham Line to the east, and agricultural lands to the north and south. These municipal roads and adjacent cultural land uses fragment the natural heritage features within the broader Study Area.

The Reesor Creek corridor forms a core component of the Greenlands System as designated by the Town's OP. This corridor encompasses significant woodlands, significant valleylands, and White Cedar Mineral Coniferous swamps. These features support ecological and geomorphic functions, including flood attenuation, baseflow maintenance, and the support of permanent fish habitat. Fluvial geomorphological assessments indicate the tributary that overlaps with the Property (Reach RCT3) maintains a "Good" degree of stream health, providing diverse instream habitats including gravel/cobble riffles and pools. Simultaneously, the riparian vegetation provides a shaded thermal refuge for aquatic species and serves as a terrestrial movement corridor for local wildlife, facilitating north-south dispersal through an otherwise fragmented agricultural landscape.

Although field investigations identified signs of historical disturbance, including the presence of invasive Common Buckthorn and localized soil compaction from former paintball usage, the feature continues to support diverse ecological niches. Geomorphic indicators such as extensive basal scour, large organic debris, and exposed tree roots demonstrate that the channel is currently in a transitional successional stage, enlarging to accommodate hydromodifications while continuing to provide complex habitat structure. Specifically, the woodland provides confirmed SWH for Eastern Wood-pewee, offering the multi-layered canopy required for nesting. Furthermore, the potential presence of large-diameter trees has been identified as candidate SWH for Bat Maternity Colonies as well as potential habitat for SAR bats. While the Property itself is largely anthropogenically modified, the woodland edges within the broader Study Area support SAR flora, such as Butternut, further indicating the valley's capacity to support species of conservation value.

Ultimately, the ecological integrity of the Study Area is maintained by the contiguous nature of the valley system and its ability to provide diverse, interconnected habitat types (aquatic, wetland, and upland forest) in close proximity. The natural heritage features in relation to the proposed site alteration activities have been summarized on **Figure 4**. Potential impacts to wildlife and wildlife habitat are further discussed in **Section 9.0**, with corresponding mitigation and enhancement strategies detailed in **Section 10.0**.

8.0 Proposed Works

The proposed development includes applications for Zoning By-law Amendments and Draft Plan of Subdivision applications to develop residential use blocks (3.819 ha), parkland (0.470 ha), environmental lands (0.190 ha), stormwater management facility (0.185 ha), future road blocks (0.052 ha), and future development block (0.040 ha). The residential blocks will consist of mixed use residential, rear lane townhouses, and back-to-back townhouses along with associated roadways. The proposed development in relation to natural heritage features is shown on **Figure 4**.

Construction of the proposed development would include the removal of trees and ground vegetation from the Property, construction of buildings, placement of hardscape (e.g., driveways) and servicing. Clearing activities will include the removal of vegetation and trees from fencerow, agricultural and meadow areas. Refer to the Arborist Report (Strybos Barron King Ltd., 2026) for the number of proposed tree removals, as well as the Functional Servicing and Stormwater Management Report (SCS Consulting Ltd., 2026) for further details on the proposed grading, servicing and SWM plans. Potential impacts resulting from the proposed development are detailed in the following sections, with comprehensive mitigation measures and enhancement opportunities discussed in **Section 10.0**.

9.0 Impact Assessment

9.1 Potential Direct Impacts

Direct impacts are those that are immediately evident as a result of a development. Typically, the adverse effects of direct impacts are most evident during the site preparation and construction phase of a development. Potential direct impacts of the proposed residential development include the following:

- Diversion of surface water flows;
- Erosion and sedimentation into natural features;
- Tree and vegetation removal; and
- Loss of/disturbance to wildlife and wildlife habitat.

9.1.1 Diversion of Surface Water Flows

The potential impacts of changes to land use and land cover on the health of a watershed can include changes to groundwater infiltration, runoff, stream flow regime, water quality, stream channel erosion, and wildlife habitat. The most notable difference to the Property will be the removal of vegetation and addition of impervious surfaces (i.e., parking lots, rooftops, etc.). Impervious surfaces prevent infiltration of water into the soils and the removal of vegetation eliminates the evapotranspiration component of the natural water balance.

A SWM plan is required to maintain the existing runoff function of the Property. This plan is to follow the Stormwater Management Criteria (TRCA, 2012) as well as the specific water quantity control criteria for Duffins Creek watershed. As a result, a FSSMR has been completed by SCS Consulting Ltd. (2026), which has considered a water balance. Furthermore, Soil Engineers Ltd. (2026) have completed a water balance within their hydrogeological Investigation, available for review under separate cover. Refer to **Section 10.1** for mitigation measures related to surface flows.

9.1.2 Erosion and Sedimentation of Natural Features

Construction activity, especially operations involving the handling of earthen material, increases the availability of sediment for erosion and transport. In order to mitigate the adverse environmental impacts caused by the release of sediment-laden runoff, measures for erosion and sediment control (ESC) are recommended for the construction site.

Potential impacts to the natural features in the Study Area may include disturbance to or loss of additional vegetation due to the deposition of dust and/or overland mobilization of soil.

Refer to **Section 10.2** for mitigation measures related to erosion and sedimentation within the Property.

9.1.3 Tree and Vegetation Removal

The proposed development plan indicates tree and ground vegetation removal will occur up to the developable limits of the Property to facilitate grading and construction of the development. A total of 18 private trees that are all greater than 10 cm diameter at standard height (DSH) are proposed for removal. Of these removals, nine (9) trees are classified as "Mature Trees" (30 cm DSH or greater) and are subject to species protection and compensation requirements under the Town's Private Tree By-Law (Strybos Barron King Ltd., 2026). These trees are present within the fencerows, as well as individual trees within the agricultural fields. Compensation for these feature removals will be discussed with the Town.

On a site level, the impacts of tree and vegetation removal may include:

- Direct loss of trees;
- Decreased floral species richness and abundance;
- Negative edge effects, include altered soil conditions and water availability;
- Loss of native seed banks; and/or
- Physical injury, root damage, and compaction of trees not intended for removal that may result from construction operations.

Further details on proposed individual tree removals and mitigation as required by the Town has been prepared under separate cover and can be found in the Arborist (Strybos Barron King Ltd., 2026).

Mitigation for the removal of trees and vegetation within the Property are provided in **Section 10.4**.

9.1.4 Loss of and/or Disturbance to Wildlife and Wildlife Habitat

Vegetation clearing within the proposed development footprint has the potential to impact local flora and fauna. Specifically, the significant woodland identified within the Study Area provides confirmed SWH for Eastern Wood-pewee and potential habitat for SAR bats, including candidate SWH for Bat Maternity Colonies (**Figure 4**). If left unmitigated, the proposed development has the capacity to negatively affect these features through direct habitat loss, edge effects, and noise or light disturbance during the construction and post-construction phases.

Flora and fauna present within the Study Area may be impacted by construction in the following ways:

- Displacement, injury, or death resulting from contact with heavy equipment during clearing and grading activities;
- Disturbance to wildlife as a result of noise associated with construction activities, particularly during breeding periods; and
- Loss of general wildlife habitat.

The area of tree and vegetation removal is limited to the developable area of the residential, park and stormwater management blocks. As such, no vegetation removal is anticipated to occur within the significant woodland and associated features. Methods recommended to further reduce impacts to wildlife habitat are outlined in **Section 10.5**.

9.2 Potential Indirect Impacts

Indirect impacts are those that do not always manifest in the core area of development, but in the lands adjacent to the development. Indirect impacts can begin in the construction phase; however, they can continue post-construction. Potential indirect impacts of the proposed development include anthropogenic disturbance and colonization of non-native and/or invasive species.

9.2.1 Anthropogenic Disturbance

Disturbance to local wildlife communities due to indirect impacts on the lands adjacent to the proposed development could result if left unmitigated. Noise, light, vibration and human presence are indirect impacts that can adversely influence the population size and breeding success of local wildlife. These effects are more pronounced when new development is introduced in non-disturbed areas. As lands within the Property are already disturbed (agricultural practices, presence of invasive species), impacts as a result of the proposed development are expected to be minimal.

Although lands within the Study Area are already anthropogenically disturbed, mitigation measures that further address this disturbance have been included in **Section 10.0.**

9.2.2 Colonization of Non-native and/or Invasive Species

Physical site disturbance may increase the likelihood that non-native and/or invasive flora species will be introduced to the surrounding vegetation communities. Invasive flora can establish in disturbed sites and can encroach onto adjacent undisturbed lands more efficiently than native flora. This type of colonization is currently occurring within the natural features on the Property (i.e., Common Buckthorn). In order to prevent the colonization of invasive species and maximize ecological function within the buffer area, planting of native species is recommended.

Mitigation measures relating to invasive species have been included in **Section 10.0**.

10.0 Mitigation and Opportunities for Enhancement

Mitigation involves the avoidance or reduction of developmental impacts through good design, construction practices and/or restoration and enhancement activities. The feasibility of mitigation options has been evaluated based on the natural features within and adjacent to the Property. The impact assessment highlighted four potential direct impacts: diversion of surface water flows, erosion and sedimentation of natural features, tree and vegetation removal, and loss of and/or disturbance to wildlife and wildlife habitat. Two additional potential indirect impacts were described, including anthropogenic disturbances and colonization of non-native/invasive species.

A variety of mitigation techniques can be used to reduce or eliminate the above-mentioned impacts. These measures include a SWM Plan, an ESC Plan, a Landscape Plan, a Tree Protection Plan, a Wildlife Impact Mitigation Plan, development VPZ and an Environmental Monitoring Plan. Each mitigation measure is introduced below.

10.1 Stormwater Management Plan and Water Balance

As discussed in **Section 9.1.1**, a detailed SWM plan is provided in the FSSMR completed by SCS Consulting Ltd. (2026) and incorporates the water balance analysis completed by Soil Engineers Ltd. (2026). Both reports are provided under separate cover. As the Property is situated within the jurisdiction of the TRCA, the proposed site development adheres to applicable TRCA criteria and performance standards. The proposed development will increase the impervious lands within the Study Area through the installation of buildings, paved driveways, laneways, roads, and sidewalks. Due to this change in imperviousness, infiltration mitigation is necessary to meet the following stormwater runoff control criteria:

- **Quantity Control:** Control post-development peak flows to allowable release rates for the 2 through 100-year storm events based on unit flow rates established in the Duffins Creek Hydrology Update (2002);
- **Quality Control:** Provide an "Enhanced" level of protection in accordance with the Ministry of Environment (MOE) Stormwater Management Planning and Design Manual (2003) with a minimum 80% Total Suspended Solids (TSS) removal;
- **Erosion Control:** Provide a minimum 5 mm on-site retention (infiltration/bioretention) and a minimum 48-hour extended detention of runoff from a 25 mm-4-hour Chicago storm event to preserve the geometric stability of Reesor Creek; and
- **Water Budget:** Maintain existing groundwater recharge rates and appropriate distribution to protect related hydrologic functions and groundwater-dependent ecosystems.

The following is a summary of the stormwater management measures that will be implemented to meet the objectives for the Property:

10.1.1 Quantity Control

The proposed development will be serviced by SWM Facility E1, a wet pond located south of the Property on the Acorn South lands. This facility will provide quantity control by attenuating peak flows to the allowable unit release rates for the 2 through 100-year storm events prior to discharging to Reesor Creek. By mimicking pre-development peak flow rates, the facility prevents the highly impulsive (flashy) hydraulic regime that leads to downstream habitat destruction. Preliminary sizing was determined based on a drainage area of 22.49 ha, which includes the subject lands and external contributing areas

10.1.2 Quality Control

Ecological health in the Duffins Creek watershed is supported through a multi-stage treatment train designed to remove sediments and associated contaminants. Per Town standards, pre-treatment devices, such as oil-grit separators (OGS), will be proposed within the site plan blocks to remove 80% of suspended solids from runoff prior to discharging to the municipal storm sewer. Secondary "Enhanced" protection will be provided via the permanent pool of the downstream SWM Facility E1, which allows for the settling of finer particulates.

10.1.3 Erosion Control

To safeguard the physical integrity of the Reesor Creek valley and its sloped walls, erosion protection is provided by SWM Facility E1 through the 48-hour extended detention of the 25 mm storm event. This slow-release mechanism prevents high-velocity flows from scouring the watercourse bed and banks. Additionally, the development will provide 5 mm of on-site retention for the proposed impervious area, totaling approximately 195 m^3. This retention mimics natural abstraction, reducing the total volume of runoff reaching the creek. The specific retention method, likely infiltration measures or on-site storage for irrigation, will be confirmed at the detailed design stage.

10.1.4 Water Budget

An assessment and quantification of infiltration across the Property was completed to determine the mitigated annual infiltration rate for proposed conditions. Due to the proximity of Stouffville Municipal Supply Well No. 3 and the shallow depth of the ORMAC, much of the site has an elevated aquifer vulnerability scoring of 8 or 10. To minimize impacts on the annual infiltration rate and protect these sensitive groundwater functions, a "treatment train" of Low Impact Development (LID) measures will be implemented where feasible to maintain or increase existing infiltration rates. Key components of the water budget strategy include:

- **Infiltration Targets:** Based on in-situ testing by Soil Engineers Ltd. (2026), design infiltration rates for the on-site sandy silt soils range from 20 to 30 mm/hr after applying safety correction factors;

- **Clean Runoff Infiltration:** Due to high aquifer vulnerability and location within a Wellhead Protection Area (WHPA), only clean runoff (e.g., roof runoff) is permitted to infiltrate into the groundwater to prevent contamination from road salt. Consequently, no LIDs are proposed to infiltrate right-of-way (ROW) runoff or stormwater management facility outflows;
- **LID Siting and Vertical Clearance:** Infiltration facilities will be restricted to development blocks, as Town standards prohibit structural LIDs in ROWs or park blocks. These facilities will be designed to maintain a 1.0 m vertical clearance between the bottom of the trench and the more restrictive of the approximate top of the ORMAC or the seasonally high groundwater level. Seasonally high groundwater elevation depth of 3.2 m to 7.5 m below existing ground; and
- **Mitigation Measures:** Feasible measures to maintain the water balance include increased topsoil depths, infiltration trenches, and potentially using on-site storage for site-specific uses such as irrigation to meet the 5 mm on-site retention target.

Preliminary calculations indicate that through these proposed mitigation measures, the development can achieve an appropriate post-development infiltration volume that safeguards the hydrological and ecological functions of the site. Exact LID locations and sizing will be finalized at the detailed design stage.

10.2 Erosion and Sediment Control Plan

In order to mitigate the adverse environmental impacts caused by the release of sediment-laden runoff into receiving natural features, measures for erosion and sediment control are required for construction sites. This is an important component of land development that plays a large role in the protection of adjacent lands and downstream aquatic habitat. Control measures must be selected that are appropriate for the erosion potential of the site and it is important that they be implemented and modified on a staged basis to reflect the site activities. Furthermore, their effectiveness decreases with sediment loading and therefore, inspection and maintenance is required.

An Erosion and Sediment Control Plan will be developed as part of detailed design for the proposed development by SCS Consulting Ltd. During the detailed design stage, erosion and sediment control measures will be designed with a focus on erosion control practices (such as stabilization, track walking, staged earthworks, etc.) as well as sediment controls (such as fencing, mud mats, catch basin sediment control devices, rock check dams and temporary sediment control ponds). These measures will be designed and constructed as per the “Erosion and Sediment Control Guide for Urban Construction” document (TRCA, 2019). A detailed erosion and sediment control plan will be prepared for review and approval by the Town and TRCA prior to any proposed grading being undertaken. This plan will address phasing, inspection and monitoring aspects of erosion and sediment control. All reasonable measures will be taken to ensure sediment loading to the adjacent watercourses and properties are minimized both during and following construction.

The plan may also include but is not limited to measures such as installation of geotextile silt fences, rock check dams, ditch checks, temporary sediment ponds, designated topsoil stockpile areas, and cut-off swales and ditches to divert surface flows to the appropriate sediment control area. More specifically, the plan may include the following measures:

- Topsoil Stockpiles:
  - Measures will be taken to prevent erosion of stockpiles, keeping sediment, nutrients, and organic matter from entering the waterways. To ensure the stockpile is effective, it is proposed to stabilize stockpiles immediately. Seeding or mulching can be used to stabilize the stockpile. Another option is to place plastic sheeting on the stockpile to protect it from rainfall. Given the size of the site, topsoil will likely be removed from the site.
- Rock Check Dams (RCD):
  - During construction activities, RCD are anticipated to be used within stormwater drainage ditches as part of the sediment and erosion control plan. The configuration of drainage ditches and RCDs will be completed during the Detailed Design stage.
- Environmental Fencing:
  - In general, environmental fencing should be placed around the limits of construction and topsoil stockpiles. Double row environment fences with straw bales in between are recommended in areas adjacent to the areas of environmental significance, such as the bordering watercourses and the associated valley lands. It is proposed to inspect all physical barriers be inspected weekly and after significant rainfall events.
- Monitoring:
  - It is essential to ensure that the sediment and erosion control measures are properly installed and well maintained. They should be monitored on daily basis to ensure that they function as intended. The ESC plan should provide the framework for the inspection, maintenance, and record-keeping procedures for all stages of construction. The deficient parts to be repaired/replaces as soon as they are detected. In order to mitigate the adverse environmental impacts caused by the release of sediment-laden runoff into receiving watercourses, measures for erosion and sediment control are required for construction sites. This is an important component of land development that plays a large role in the protection of downstream watercourses and aquatic habitat. Control measures must be selected that are appropriate for the erosion potential of the site and it is important that they be implemented and modified on a staged basis to reflect the site activities. Furthermore, their effectiveness decreases with sediment loading and therefore, inspection and maintenance is required.

10.3 Vegetation Protection Zones

The primary function of a VPZ is to protect natural heritage features from the potential adverse effects of adjacent development. As detailed in **Section 3.2.2.3**, Dillon and the TRCA conducted a site investigation to formally stake the significant woodland dripline. As the dripline encompasses the mapped extent of the unevaluated wetlands, it was established as the governing limit of the Town's

Environmentally Significant Area adjacent to the proposed development. Consequently, this staked boundary served as the primary constraint for determining required setbacks and minimum protection zones.

To adhere to TRCA and Town policies (refer to **Sections 2.2.5.1 and 2.3.2.2**) and to align with ecological best management practices, a 10 m VPZ was applied to the LTSTOS, regulatory floodplain, and woodland dripline (**Figure 4**). This consolidated setback has been integrated into the Environmentally Significant Area to prevent impacts to the forest and swamp habitats resulting from the proposed development. The VPZ along the eastern portion of the Property will be restored with robust native vegetation, as described in **Section 10.4**. This restoration is intended to mitigate the colonization of invasive species, enhance the ecological integrity of the woodland, and provide a functional buffer for sediment and erosion control.

10.4 Landscape Restoration Plan

As discussed in **Section 9.1.3**, the proposed development will necessitate the removal of select trees, shrubs, and groundcover within the designated development footprint. To mitigate these impacts, a Landscape Plan will be prepared at detailed design. This plan will be designed to offset vegetation removal through the strategic use of native tree and shrub species, specifically focusing on the restoration and enhancement of the buffer areas along the woodland dripline. All proposed tree removals should be compensated at the prescribed ratios in accordance with the Town's Tree Protection By-law. As detailed in the Arborist Report by Strybos Barron King Ltd. (2026), these requirements will be met through on-site replanting or cash-in-lieu payments, replacing a monoculture with a more diverse, sustainably managed canopy.

It is also recommended that all proposed seed mixes be native to the Duffins Creek watershed and align with the technical recommendations outlined in the TRCA Seed Mix Guidelines (2022). Compliance with tree replacement ratios and compensation strategies will be finalized in consultation with the Town, as required.

The planting plan includes, but is not limited to:

- A mix of native deciduous and coniferous trees and shrubs within the VPZ area;
- Sodding within portions of the development; and
- A native seed mix for enhancement within the VPZ area.

The following monitoring and maintenance measures may also be recommended:

- Removal of invasive tree and shrubs, where applicable;
- Watering and weeding of newly planted areas as required for proper establishment of plantings; and
- Replacement of dead material from previous year's planting.

10.5 Wildlife Impact Mitigation Plan

Strategies to mitigate impacts to general wildlife prior to and during construction are proposed below. These may include (but are not limited to):

- Clearing vegetation outside the breeding bird season (April 1 to August 31) and active bat season (May 1 – September 30);
- Should any clearing be required during the breeding bird season (April 1 to August 31), nest searches conducted by a qualified person must be completed 48 hours prior to clearing activities. If nests are found, work within approximately 10 m (depending on the associated bird species) of the tree should cease until the young of year have fledged or until the nest is determined to be inactive. If no nests are present, clearing may occur. This is in accordance with the federal MBCA;
- Schedule vegetation clearing and grading activities to avoid disturbance to breeding amphibians, reptiles and other sensitive wildlife species, where possible;
- Where possible, increase the distance of construction equipment used from the significant woodland/valleyland edge to avoid disturbing wildlife;
- Limit the use of lighting, where possible;
- Planting of Common Milkweed (*Asclepias syriaca*) within the proposed SWM facility block to support Monarch;
- Installation of wildlife exclusion fencing and escape routes, with the purpose of directing wildlife away from the construction area and to more suitable habitat;
- Visual monitoring for wildlife species and avoidance where encountered, if possible;
- If necessary, have a qualified biologist monitor construction in the areas of potential wildlife habitat;
- If wildlife is found within the construction area, they will be re-located to an area outside of the development into an area of appropriate habitat, as necessary;
- Wash equipment before moving between sites to control spread of invasive species;
- Construction crews working on site should be educated on local wildlife and take appropriate measures for avoiding wildlife; and/or
- Should an animal be injured or found injured during construction they should be transported to an appropriate wildlife rehabilitation center.

As detailed in **Section 9.1.4,** the significant woodland was identified as providing confirmed SWH for Eastern Wood-pewee, as well as potential habitat for SAR bats and cSWH for Bat Maternity Colonies. Through the implementation of the mitigation measures and the application of the 10 m VPZ discussed above, no adverse impacts to these species or their associated habitats are anticipated. The proposed development limits remain entirely outside of the protected significant woodland, providing the long-term preservation of these ecological functions.

10.6 Environmental Monitoring Plan

An Environmental Monitoring Plan (EMP) is recommended through the duration of construction activities on-site to check that the erosion and sediment control measures operate effectively and to monitor the potential impact, if any, upon the natural environment. The duration of construction is defined as the period of time from the beginning of earthworks until the site is stabilized. Site stabilization is defined as the point in time when the roads have been paved, buildings have been built, lawns have been sodded and restoration plantings have been completed.

Erosion and sediment control measures should be regularly monitored and are likely to require periodic cleaning (e.g., removal of accumulated silt), maintenance and/or re-construction. Inspections of the erosion and sediment controls on the construction site should be undertaken by a certified sediment and erosion control monitor. If damaged control measures are observed, they should be repaired and/or replaced promptly. Site inspection staff and construction managers should refer to the Erosion and Sediment Control Inspection Guide (2008) prepared by the Greater Golden Horseshoe Area Conservation Authorities. This guide provides information related to the inspection reporting, problem response and proper installation techniques.

The EMP will be implemented during active construction periods for the development with the following frequency:

- On a bi-weekly basis; and/or
- After every 10 mm or greater rainfall event.

Protected vegetation areas will require periodic monitoring to check that they are not being impacted by the proposed development. Should impacts be observed, necessary steps will be taken to ensure that the impacted vegetation is either restored or replaced.

11.0 Summary and Conclusion

This EIS was prepared in support of an application for proposed development at 12811 Tenth Line in the Town of Whitchurch-Stouffville (**Figure 1**). This EIS included an assessment of background resources and field investigations in accordance with the policy mapping and background review reports presented in **Appendix B** and **Appendix D**, respectively. The findings of the field investigations consisted of secondary source reviews, as well as aquatic habitat assessments (including the identification of HDFs), vegetation assessments (ELC, botanical inventory, agency staking of dripline), amphibian breeding surveys, breeding bird surveys, bat surveys, and incidental wildlife observations.

The Property overlaps with mapped MNR wetland and woodland features, as well as lands designated as Environmentally Significant Areas under the Town's OP. Field investigations conducted by Dillon verified communities at the time of assessment, including the MNR-mapped wetland (confirmed as ELC communities SWC and SWCM1), significant woodland (FOCM4) and meadow (MEMM3) communities located within the Study Area. The majority of the Property consisted of cultural land uses including open agricultural lands (OAG), fencerows (TAGM5) and rural residential properties (CVR_4). The contiguous significant woodland feature occupying the eastern portion of the Property provides a suite of specialized habitats, including confirmed SWH for Eastern Wood-pewee, as well as potential habitat and cSWH for Bat Maternity Colonies. Furthermore, Butternut was identified within the portions of this continuous woodland situated south of the Property boundaries. As the proposed development does not necessitate tree removal within this woodland feature, the significant natural heritage functions will remain intact. Consequently, no adverse impacts to SWH, SAR, or their associated habitats are anticipated as a result of the proposed development.

Impacts from the proposed development may include diversion of surface flows, erosion and sedimentation of natural features, direct loss of trees/vegetation and disturbance or loss of candidate/confirmed SWH. These impacts will be avoided or minimized through the natural heritage feature VPZ's (**Figure 4**), consultation with regulatory agencies, and by implementing the mitigation, restoration and management measures described in this report. In addition, an Arborist Report (Strybos Barron King Ltd., 2026) has been developed for the Property, which will compensate for tree removals (as required by municipal by-laws) and assist in preventing anthropogenic disturbance and the spread of non-native, invasive species. To support maintenance of existing surface water run-off patterns, a SWM plan (SCS Consulting Ltd., 2026) will also be incorporated to maintain existing surface water runoff patterns to watercourse features. In addition, an Erosion and Sediment Control Plan will be developed further at Detailed Design to ensure the natural features located in proximity to the proposed development are not adversely affected as a result of construction activities. Lastly, an Environmental Monitoring Plan is recommended during construction to monitor impacts on the natural environment and to ensure mitigation measures are implemented.

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Appendix A

Terms of Reference

Pre-Application Consultation Comments

Town File No.: PRE21.087

November 6, 2025

Northscape Comments

Project Name/Owner: Northscape Investments Inc
Address(s): 12779 and 12811 Tenth Line
Application(s): ZBA, DPOS,
Town Planner: Cassandra Bagin

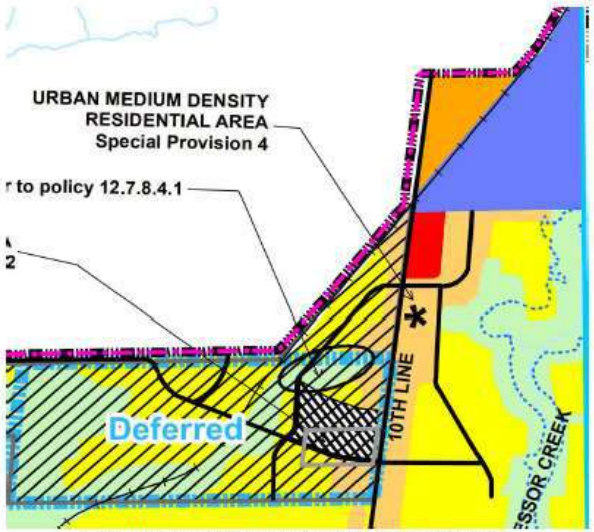
Bousfields File No.: 22103
Town File No.: PRE21.087
Date: November 6, 2025

REF	COMMENTS	CONSULTANT	RESPONSE
ZONING COMMENTS			
	Official Plan Amendment 137 (OPA137) was partially approved, with portions of Schedule F remaining under appeal. This appeal was scoped back through a settlement reached between the appellants and the Town. The subject lands are no longer under appeal.	Note.	
	The Lincolnville GO Land Use Study is currently ongoing, which will result in an Official Plan Amendment with new Official Plan policies and designations for the applicant's lands. Comments expressed herein may be revised subject to the outcome of the Lincolnville GO Land Use Study and the resulting Official Plan Amendment, and the ongoing appeal to OPA137.	Note.	
	The Lincolnville GO MTSA OPA approval is contingent upon the timing of the approval of the Region's ongoing Municipal Comprehensive Review. Town staff have prepared comments based on the draft policy directions at this time, which may be subject to change.	Note.	
	The Lincolnville GO MTSA OPA approval is contingent upon the timing of the approval of the Region's ongoing Municipal Comprehensive Review. Town staff have prepared comments based on the draft policy directions at this time, which may be subject to change. The comments provided below are in relation to the Draft Lincolnville OPA. It is anticipated that the Draft Lincolnville OPA will be brought forward to Council in early 2022. The Official Plan policies resulting from the Lincolnville GO Land Use Study are anticipated to designate the property as High Density Mixed Use, Medium-High Density Residential, and Residential.	Note.	
Land Use (Draft Lincolnville OPA)			
	Lincolnville Medium-High Density Mixed Use		

	The proposed Medium-High Density Mixed Use designation is expected to permit mixed-use buildings with at-grade commercial and office uses and upper-storey apartments and/or offices; standalone apartments; stacked and back-to-back stacked townhouses; live-work units in the form of apartments and townhouse units; and accessory uses including home occupations in conjunction with townhouse units.	Bousfields	
	Development will generally consist of a mid-rise built form, with buildings at least 4 storeys (approximately 14.0 m in height) and up to 8 storeys (approximately 26.0 m in height). The required density range at minimum of 80 units per net hectare, up to approximately 140 units per net hectare (about 70 to 125 units per gross hectare)	Bousfields	
	Based on the draft submission, the proposed development appears to fall within the required density range. However, the draft submission does not meet the minimum height requirements. The proposed lane access townhouses fronting Tenth Line do not conform to the permitted uses. The applicant will be required to provide the number of units proposed in each designation and demonstrate that their proposal conforms to the required densities and permitted uses of the draft Official Plan policies.	Bousfields	
	Lincolnville Medium-High Density Residential		
	The proposed Medium-High Density Residential designation east of the Medium-High-Density Mixed Use designation in the Lincolnville GO Land Use Study is anticipated to permit apartments, a full range of townhouses, including street, back-to-back, laneway and stacked townhouses. Accessory uses are expected to include secondary suites and home occupations. A minimum planned density in the order of 65 to 115 units per gross hectare is anticipated for the Medium-High Density Residential designation in order to achieve the planned minimum density target of 150 people and jobs per hectare for the MTSA.	Bousfields	
	The proposed lane access townhouses and back-to-back townhouses would be permitted under the draft policies. However, based on the draft submission, the proposed development achieves approximately 49 units per hectare and would not meet the minimum required densities.	Bousfields	
	Lincolnville Residential		
	The proposed development along the eastern edge of the subject lands fall outside the MTSA boundary, and as such do not factor into the calculation of the MTSA density requirements.	Bousfields	
	The proposed townhouses are a permitted use and the proposed densities appear to meet the expected minimum density requirement of 30 units per hectare for the Lincolnville Residential designation. However, this should be confirmed by the applicant.	Bousfields	
	North South Collector Road		

	The Lincolnville Land Use Study draft concept contemplates a north south collector road adjacent to the Greenland Area on the east side of the property. The proposed development depicts the north south collector road further west than in the Lincolnville draft concept. While there may be issues regarding the terrain, the applicant will need to address how the proposed road location meets the intent and requirements of the draft Official Plan policies. Particularly, in relation to the draft Lincolnville Urban Design Guidelines (UDGs) and how the road will achieve the planned streetscape. As proposed, it appears that the road does not meet the width requirements in the draft UDGs. The proposed road will also need to connect with the existing north-south collector road to the south. Engineering will provide additional comments related to the road alignment.	Bousfields/ Ty Lin	
	As per the Urban Design Guidelines the collector roads are meant to employ a "complete streets" approach that supports active transportation (walking, cycling and transit) as well as shared street designs, where possible. As proposed, with the number of laneway intersections, the cross section of the collector road would not support the complete streets approach as described in the Urban Design Guidelines. An Urban Design Brief should accompany the application to demonstrate how it supports the proposed Urban Design Guidelines.	Bousfields.	
	Parkland		
	Parkland requirements for within the Lincolnville Study Area, east of the Railway line requires approximately nine hectares of parkland. Six of the nine hectares will be required in the form of parkland, with the balance to be accounted for in cash in lieu. The applicant will be required to demonstrate how their proposal will contribute to meeting the parkland requirements for the Lincolnville GO Study Area. Comments from Leisure Services are required with respect to the adequacy, location, and programming of the proposed park block.	Bousfields/ Ownership	
	School site		
	As part of the Lincolnville GO Land Use Study, a school site for the York Region Catholic District School Board has been identified. The school site will need to be identified in the vicinity of the subject lands as part of a complete development application in this area. The applicant should be working with the landowner at 12749 Tenth Line to coordinate a suitable site.	Bousfields	
	General Comments		
	As part of the application, the applicant must provide the number of units within the MTSA boundary, along with the area of the property that is within the MTSA boundary to demonstrate how the density requirements will be achieved.	Bousfields	
	Coordination of the development concept with the surrounding properties is essential in order to develop the properties in a cohesive manner.	Bousfields	

	As part of the Lincolnville GO MTSA study, parkland requirements have been discussed with the Landowners Group. As part of a development application it will be required to demonstrate how parkland requirements will be met. Discussions are ongoing with the Landowner Group regarding what will be accepted as parkland, particularly in relation to Stormwater Management ponds and/or tanks. A park of approximately 1.6 hectares in size may be required in the vicinity of the eastern portion of the property.	Bousfields	
	The Lincolnville Urban Design Guidelines have details regarding road right of ways, built form, setbacks, public realm, streetscape, landscaping, etc., which will need to be considered as part of the application and the character/function of the north-south Collector Road.	Bousfields	
	A Planning Justification Report is required to demonstrate how the proposed development will consider the new draft policies of the Lincolnville GO MTSA Official Plan Amendment and the UDGs, including the land use types, built form and density levels, and how the proposed plan will coordinate with the surrounding development.	Bousfields	
	As per Draft Policy 13.7 Implementation of the Lincolnville Policies, an Urban Design Brief is required to be submitted as part of a complete application.	Bousfields	
	A Natural Heritage Evaluation is required as development is proposed within 120 metres of the Key Natural Heritage Feature, as per Section 3.2.9 (Table 3.1). Encroachment on the Minimum Vegetation Protection Zone will also need to be addressed, to the satisfaction of the Town and Conservation Authority.	Dillon	
	A Hydrological Evaluation is required as development is proposed within 120 metres of the Key Hydrological Feature, as per Section 3.2.9 (Table 3.1).	Soil Eng.	
	The property is within a 5 Year Wellhead Protection Zone, the policies of Section 5.10 apply which prohibit certain uses/activities.	Soil Eng.	
	Section 5.8.3 with respect to sewage and water shall apply. In addition to the studies identified above, additional studies may be required as per Section 12.9.	SCS	
	The Town recognizes that if, through the Lincolnville GO Land Use Study, the proposed development conforms with the new Official Plan designations and policies, an OPA would not be required. While it remains uncertain as to the land use policies and density permissions that will ultimately apply to the Lincolnville GO study area, the Town will endeavor to keep the applicant informed as the Study progresses.	Bousfields	
	Additional comments will be forthcoming pending the outcome of the Lincolnville GO Land Use Study.	Note.	

	 Aerial Image Indicating Current OP Designation	Note.	
	Note: The Town's Official Plan July 2017, as amended, shall be read in its entirety. Additional provisions may apply.	Note.	
	A Zoning By-law Amendment Application is required to permit the development as proposed. • Review and consider Sections 2.11, 3.2, 3.3, 3.4, 3.7, 3.11, 3.20, 3.21, 3.22, 3.23, 3.24, 3.25, 3.28, 3.29, 3.30, 3.31, 3.39, 3.40, 3.41, Section 5A, and Section 7 of the Zoning By-law when developing the draft Zoning By-law Amendment.	Bousfields	

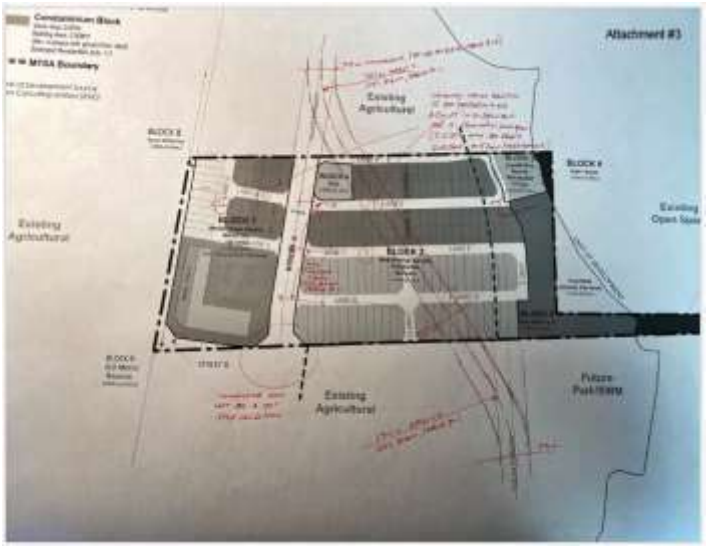
	 Aerial Image Indicating Current Zoning	Note.	
	Note: The Town's Comprehensive Zoning By-law 2010-001-ZO, as amended, shall be read in its entirety. Additional provisions may apply.	Note.	
TOWN OF WHITCHURCH - STOUFFVILLE DEPARTMENT COMMENTS			
Development Planning and Urban Design			
General			
	Zoning By-law Amendment, Draft Plan of Subdivision, Draft Plan or Exemption from Draft Plan of Condominium, Site Plan Control, and Exemption from Part Lot Control Applications are required to permit the development as it is currently proposed.	Note.	
	An Application for Official Plan Amendment may also be required based on Policy Planning comments.	Bousfields	
	A Planning Justification Report is required in support of the above-noted applications demonstrating conformity with the any/all applicable policy framework at the time of Application.	Bousfields	
	If the proposed development is contemplated to be phased, a phasing plan shall be submitted to the Town for review.	Note.	
	If any phasing of the registration of the proposed Draft Plan of Subdivision is required, it shall be identified at the time of Application, or prior to drafting of draft plan of subdivision conditions to ensure they reflect the proposed phasing of the plan.	Bousfields	
	Refer to the Checklist (Attachment #1) for a complete list of studies, reports and plans required for complete application submission.	Note.	
	Any other approval required as a result of the review of the future planning applications, that may not have been identified through the pre-consultation process, will be identified at the time of the processing of the planning applications.	Note.	
Site and Building Design and Landscaping			

	The design and layout of the proposed subdivision shall be coordinated and in keeping with the ongoing Lincolnville Land Use Study for the area including, but not limited to, land uses, minimum and maximum density requirements, street network and street widths, parkland, trails, etc.	Bousfields	
	Staff appreciate the coordination of the development with the abutting landowners.	Bousfields	
	For any Townhouse blocks, no more than 8 units per Townhouse block is encouraged.	Bousfields	
	Provide traffic control details and temporary arrangements for the various proposed roadways that will be terminated at the ends of the property boundaries in the interim, prior to the development of the adjacent lands. Provide traffic control details and temporary arrangements for the various proposed roadways that will be terminated at the ends of the property boundaries in the interim, prior to the development of the adjacent lands.	Ty Lin	
	Internal street/road network to integrate sidewalks, walkway connections, trails, bike lanes or paths, mid-block connections for townhouse blocks, etc.	Bousfields	
Urban Design			
	Development is required to be in accordance with the developed Urban Design Guidelines for the Lincolnville Area - See Attachment #2 of DS-046-20 here: https://whitchurch.civicweb.net/FileStorage/9B5C1FC18D324CA681AA6EB98FCB9EFA-DS-046-20%20Attachment%202.pdf	Bousfields	
	An Urban Design Brief will be required at the submission of the Draft Plan of Subdivision Application stage (not detailed design) including visuals and renderings to establish built form requirements for the private developments. A Streetscape and Utility Coordination Plan will also be required at the Application stage. o The Planning Justification Report may include a section to address the requirement of an Urban Design Brief provided it comprehensively addresses the matter. The brief must demonstrate how the proposed development conforms with the Urban Design Guidelines as indicated/linked above.	Bousfields	
	The Urban Design Brief should address the transition of built form from High to Medium to Low-Density built form.	Bousfields	
	Appropriate lot design shall be reviewed through the draft plan stage.	Bousfields	
	High quality urban design shall be applied to both the public and private realms. Specific attention is to be given to ensure that development appropriately relates to and interacts with the public realm. Generally this interaction could be facilitated by having residential development face onto parkland and recreational open space rather than isolate it through reverse lotting.	Bousfields	
	Architectural Control Guidelines (ACG) will be required for back-to-back and street townhomes on the proposed draft plan. Condominium townhome blocks shall also be addressed in the ACG's and approval of Elevations for stacked townhomes will be implemented through a future Site Plan Control Application(s).	Bousfields	
Open Space, Trails, Parks and Connections			

	Refer to the following link to access the Town's Active Transportation Servicing Plan (ATSP): https://www.cometogetherws.ca/active-transportation	Note.	
	The importance of open space and recreation areas as part of the public realm, and the need for an appropriate design interface that reinforces the importance of these spaces should be addressed in the design of the proposed subdivision. The draft plan and natural features should demonstrate how the development of each residential lot or block will be integrated with the abutting features.	Note.	
	Conveyances of lands for parks purposes, any conveyance of lands for environmental buffers and environmental lands/features, location of trails, etc. would be discussed with the planning act applications. Information on any/all buffers requirement must be obtained from TRCA.	Note.	
	A Master Concept Landscape plan will be required to demonstrate a master landscape design for the proposed subdivision that would outline the key principles of landscape design for overall as well as individual blocks. This would also assist in establishing zoning regulations.	Stybos	
Policy Planning			
	See Town Official Plan section. No further comments.	Note.	
Heritage Planning | Madison Elliott | October 26, 2021			
Archaeology			
	The subject property meets three (3) of the ten (10) provincial criteria used by the Ministry of Heritage, Sport, Tourism, and Culture Industries; the Region of York (Archaeological Management Plan); and the Town of Whitchurch-Stouffville for determining archaeological potential: 1) Located along a historic transportation corridor: a. Now Tenth Line, within Con. 10, Lot 4; 2) In areas of pioneer Euro-Canadian settlement: a. Estates of John Vanzant 1860 Tremaine Map; b. Estate of Sarah Lloyd 1878 York County Atlas; 3) Within 300m of a permanent waterbody, 200m of a secondary watercourse or seasonal waterbody, or 300m of a prehistoric watercourse or permanent waterbody a. Reesor Creek		
	These criteria define the property as having archaeological potential. Accordingly, Section 2(d) of the Planning Act and Section 2.6.2 of the Provincial Policy Statement apply to the subject application. As such, staff require that the applicant be advised of the following study required to be submitted along with any future applications under the Planning Act, Building Permit applications, or before soil disturbance of any kind: • Archaeological Assessment (Stage 1-2). Further stages (3-4) may be required dependent upon the results of this initial study.		

	 Fig. 1 – Map showing the subject property (blue) and areas of archaeological potential (yellow), as per York Region's Archaeological Management Plan (WS Maps).		
Built Heritage & Cultural Heritage Landscapes			
	No comments		
Building and Zoning			
	No comments received / outstanding will be provided upon receipt.		
Engineering			
Town Engineering			
	All engineering submissions shall comply with Engineering Standards that are available at the following link: https://whitchurch.civicweb.net/filepro/documents/132158	Note.	

	The following reports/studies/drawings are required: o Comprehensive Functional Servicing Report (water, sanitary, storm, storm ponds and grading) in conjunction with other Phase 3 lands o Traffic Impact Study, comprehensive with other Phase 3 lands o Geotechnical Study o Hydrogeological Study o Tertiary Plan (density, unit type and housing mix, and land use) o Preliminary Landscaping plans o Municipal Addressing Plan o Environmental Site Assessment o Erosion and Sediment Control Plan o Traffic Management Plan o Site Illumination and lighting plan o Noise and Vibration Study o Construction Management Plan o Waste management plan o Neighbourhood Information Plan o Tree Survey o Species at Risk Assessment o Active Transportation Plan, in compliance with AODA requirements. o Turning Templates for Garbage, Fire Truck and Snow Removal trucks.	Note.	
	The proposed North-South collector road shall align through the developments in the Lincolnville area providing smooth connectivity with the lands to the north and south. A local collector road of 23 metres is required.	Bousfields/ Ty Lin	
	A road widening along Tenth Line will be required.	Bousfields/ Ty Lin	
	There are no existing municipal services in this area. Staff recommend working together with the Phase 3 landowners group for servicing solutions.	SCS	
	The proposed shared access with 12749 Tenth Line requires approval from the landowner.	Note.	
	An Engineering Preconsultation meeting fee of $1,023 will be immediately payable upon attendance by Engineering Staff at a required Preconsultation meeting.	Ownership	
	All applicable Engineering fees, deposits and securities will be due at the Subdivision and Site Plan Agreement stages. The Town will require securities for Grading, Servicing and Landscaping works.	Ownership	
R. J. Burnside			
	Limit the laneway driveways to one on each leg of the collector. These driveways should also be lined up with other streets and driveways on the opposite side of the collector to minimize conflict.	Bousfields/ Ty Lin	
	A continuous north-south collector through these draft plans is recommended.	Bousfields/ Ty Lin	
	Collector roads are to be 23m wide (Std B4.05, table B-2 and std dwg. WS-103) and to have a minimum centreline radius of 130m (Std B3.00, Table B-1)	Bousfields/ Ty Lin	

	Tangent of centreline from any stop condition to be a minimum of 30m from the adjacent road centreline. (Std B3.00, Table B-1)	Bousfields/ Ty Lin	
	Laneway centreline radius is minimum of 12m per OBC.	Bousfields/ Ty Lin	
	When a laneway is to be utilized as a primary access (back to back townhomes) it must be approximately 11.25m wide to allow for sidewalk and utilities. A detail of this cross section is yet to be determined by the Town.	Bousfields/ Ty Lin	
			
Public Works | Jeffrey Thomson | Nov 18, 2021			
1	All right-of-ways to be assumed by the Town must conform to our applicable Engineering Standards and Guidelines. Any areas that do not conform must be privately owned and maintained.	Note.	
2	Any privately maintained areas with water distribution infrastructure must have proper isolating valves and backflow prevention equipment installed to isolate private water distribution infrastructure from the Town-operated system.	Note.	
3	All apartment buildings, commercial units, and other privately maintained areas must either provide a Waste Management Plan or arrange for private waste collection.	Note.	
Fire and Emergency Services			
Access Routes			
	Should the noted Laneways be contemplated as 'private streets' they shall be designed to at least the minimum requirements set forth in the Ontario Building Code for fire access routes. All private roadways shall satisfy the requirements of the town's fire route by-law.	Note.	
Snow Storage			

	Site plan shall note the locations of snow loading/storage and other requirements such as garage pick-up and drop-off.	at Site Plan Stage	
Concerns with Access (adjacent developments)			
	The submission provided is isolated and/or depends on an adjacent development(s), therefore the applicant must demonstrate to the satisfaction of the Fire Department, that adequate access will be provided to all lots/blocks within the plan prior to any building construction.	Note.	
Fire Safe Community			
	Fire Service recommends the installation of automatic fire sprinklers in all subject buildings to help promote a fire safe community.	at Site Plan Stage	
Other Comments			
	Ensure address numbering is assigned in conformance with the town's address numbering requirements.	Note.	
	Please identify on the site plan each primary entrance door for the listed structures being proposed.	Note.	
EXTERNAL AGENCY COMMENTS			
Toronto and Region Conservation Authority | Michelle Bates | November 10, 2021			
	As part of the proposed applications, it will need to be demonstrated that all components of the development (at a minimum including above and below ground structures, stormwater management, roads, parking, amenity areas, grading and site alteration) are located outside of all natural features, natural hazards and their required setbacks/Minimum Vegetation Protection Zones. Based on a preliminary review of the submitted concept plan, TRCA staff are concerned that the proposed development may not be sufficiently setback from the natural features and natural hazards. Please see the Submission Requirements section of this memo for technical studies that will be required to determine the limit of development. Please note that once the limit of development has been determined, all environmental lands should be zoned for environmental protection and conveyed into public ownership.	Note.	
	Lastly, as noted above a portion of the subject lands are located within a future MTSA associated with the Lincolnville GO Station. TRCA staff have taken part in Technical Advisory Committee meetings regarding the establishment of the MTSA boundary and updating of the land uses designations for the area by the Town. TRCA has strongly recommended that a Master Environmental Servicing Plan be completed to inform the planning, servicing and other design elements of the entire MTSA community, including the treatment of the Natural System.	Note.	
Future Submission Requirements			
	Draft Plan of Subdivision and Zoning By-Law Amendment		
	Zoning By-law Amendment Text and Schedule – Ensure a copy of the schedule is provided with all environmental constraints shown (natural features, natural hazards and setbacks/Minimum Vegetation Protection Zones)	Bousfields	
	Planning Justification Report – Include a detailed policy discussion regarding natural heritage and natural hazard policies and an Oak Ridges Moraine conformity statement.	Bousfields	

	Natural Heritage Evaluation (NHE) – Identify the form, function, habitats and significance of the natural features on and to the extent possible adjacent to the subject lands, assess potential impacts, mitigation measures, and restoration/enhancement measures for the proposed development and trails network, create and/or enhance connections to natural features and corridors on external lands, and demonstrate conformity with relevant provincial, municipal and TRCA policies It is strongly recommended that a comprehensive NHE is provided for the MTSA in order to fully identify the form and function and protection of the natural features and avoid the duplication of efforts. A Terms of Reference for the NHE should be submitted to TRCA for review and approval. A general guideline is available on our website.	Dillon	
	Headwater Drainage Feature Assessment (Separate Report or Appended to NHE) – Please review and assess any potential HDF features on the subject lands, and provide management recommendations, as applicable, in accordance with TRCA's guidelines.	Dillon	
	Delineation of the Regulatory Flood Plain on a detailed topographic survey signed by an Ontario Land Surveyor – To purchase our current flood plain mapsheet and/or modeling, please contact the undersigned or TRCA Water Resources Engineering (alison.maclennan@trca.ca).	Dillon	
	Geotechnical (Slope Stability) Analysis – To determine the Long-Term Stable Top of Slope associated with the valley on and/or adjacent to the subject lands in accordance with our Geotechnical Engineering Design and Submission Requirements. It is strongly recommended that a comprehensive geotechnical analysis be completed for the MTSA to identify hazards that affect several properties and avoid duplication of efforts.	Soil Eng.	
	Meander belt Analysis – Determine the meander belt hazard associated with the watercourse located adjacent to the subject lands in accordance with applicable technical guidelines including TRCA's Meander Belt Width Delineation Procedures. It is strongly recommended that a comprehensive meander belt analysis be completed for the MTSA to identify hazards that affect several properties and avoid duplication of efforts.	GeoMorphix	
	Hydrogeological Investigation – Assess current groundwater constraints/conditions which will inform the feasibility of the proposed designations/density, practicality of water balance strategies, and design of infrastructure and Low Impact Development (LID) measures. Please be advised that our preference is to avoid active permanent dewatering due to potential longterm challenges and impacts on natural features. For any proposed dewatering, a dewatering plan discussing volumes, timing, and impacts will need to be provided. It is strongly recommended that a comprehensive hydrogeological investigation provided for the MTSA in order to identify the groundwater constraints/conditions and avoid the duplication of efforts.	Soil Eng.	

	Functional Servicing and Stormwater Management Report – Outlining how the proposed stormwater management design conforms with TRCA requirements for water quantity, quality, erosion and water balance in accordance with TRCA's SWM guideline and current Duffins Creek criteria. Due to the sensitivity of the watercourse adjacent to the proposed developments, continuous erosion modeling should be provided and inform the stormwater management strategy. It is strongly recommended that a comprehensive Functional Servicing and Stormwater Management Report is provided for the MTSA in order to identify the servicing and stormwater management requirements / needs / scheme and avoid the duplication of efforts.	SCS	
	Water Balance Analysis – In accordance with the CTC Source Protection Plan (lands are within a WHPA-Q area), ORMCP, TRCA's SWM guideline and Feature-Based Water Balance requirements. It is strongly recommended that a comprehensive Water Balance Analysis addressing requirements for source water protection, stormwater and natural features is provided for the MTSA area.	Dillon	
	Engineering Drawings/Plans – Including Site Plan, Grading Plan, Site Servicing Plan, Erosion and Sediment Control Plan, cross-section and associated details. Please ensure that these plans are coordinated with the adjacent developments to the north and south.	SCS	
	Preliminary Trail Study and Plans – TRCA strongly encourages that the trail plans be considered at this time and be implemented through the development. Details on the location, type and disturbance associated with all proposed trails should be submitted early on in the approvals process to ensure that trails are sited appropriately and impacts on natural features and hazard lands are avoided, minimized and/or mitigated. This should in turn reduce the costs of construction and/or maintenance over the long term.	Strybos	
	Landscape Restoration Plans – Identifying how the proposed minimum vegetation protection zones, parks and stormwater management blocks will be naturalized with native species.	Strybos	
	Architectural Drawings – Building Elevations and Sections	at Site Plan Stage	
	TRCA Application Fees – These fees will be assessed at the time of circulation of an associated application and once the scope of review work to be conducted is established.	Ownership	
Regional Municipality of York			
Development Planning Comments			
	• We recommend the applicant confirm and demonstrate through a Planning Justification Report how all aspects of the proposal, is in conformity with the applicable policies of the York Region Official Plan (ROP), as well as the Local Official Plan. Any proposed development on this site should pe in keeping with the applicable planning policies and requirements.	Bousfields	
	• Based on 'Map 1- Regional Structure' of the ROP, the parcel is within the "Towns and Villages" designation.	Bousfields	
	• The proposal must demonstrate and comply with Section 5.6 (Towns and Villages) in the ROP. Furthermore, the proposal must demonstrate conformity with all other relevant policies of the applicable Provincial, Regional, and local planning documents.	Bousfields	

	• The Town of Whitchurch-Stouffville designates the site as "Urban Medium High Density Residential, Residential, Greenland and Floodplain Area" in the Community of Stouffville Secondary Plan. We recognize that the Town has undertaking a Land Use Study for the proposed Lincolnville GO Station Area, which will result in the delineation of a Major Transit Station Area (MTSA) and the preparation of an Official Plan Amendment to implement transit-supportive land uses and densities in the vicinity of the GO station. The proposed development should be in keeping with the Town's vision for this area.	Bousfields	
	• A watercourse and a woodlot is located on eastern corner of the subject lands as per Map 4&5-YROP. The environmental features need to be field verified and their respective vegetation zones (VPZs) established. Any proposed development or site alteration should be located outside of the required setbacks/vpz associated with this feature. We rely on the Toronto and Region Conservation Authority (TRCA) to comment on any natural hazard & heritage matters, including scope of Environmental Impact Study (EIS), on our behalf.	Dillon	
	• If this proposal goes forward, York Region's Community Planning & Development Services Division will require a review fee for the Draft Plan of Subdivision, which is currently $6,700.00. No separate fee is required for the ZBA application, if it is accompanied with another application. A site plan and draft plan of condominium fee may be required after further review of the applications. All fees by cheque need to be made payable by cheque to "The Regional Municipality of York". Applicants can now also pay by wire or electronic fund transfer.	Ownership	
	• For your reference, please also see the Development Applications Submission Checklist for our Complete Regional "Submission Requirements for Development Applications".	Bousfields	
	• Please submit all electronic submissions to developmentservices@york.ca	Bousfields	
Transportation Planning Comments			
1	The applicant will be required to prepare a Transportation Mobility Plan Study that is consistent with the Region's Transportation Mobility Plan Guidelines (2016). It is recommended that the applicant's Transportation Consultant prepare a Terms of Reference for the Region to review prior to initiating the Study.	Ty Lin	
Infrastructure Asset Management Comments			
1	Prior to final approval, the Owner shall provide to the Region the following documentation to confirm that water and wastewater services are available to the subject development and have been allocated by the Town: • A copy of the Council resolution confirming that the Town has allocated servicing capacity, specifying the specific source of the capacity. • A copy of an email confirmation by the Town staff stating that the allocation of the subject development remains valid at the time of the request for regional clearance of this condition.	Bousfields	
2	A functional servicing report and site servicing plan are to be submitted to support the development application. The report should detail at a minimum anticipated water and wastewater demands and how the services will be provided, including engineering drawings of the proposed service connections to the local municipal systems, downstream capacity analyses, etc.	SCS	

3	Detailed comments will be provided to the applicant after the submission has been received and reviewed.	Note.	
Water Resources Comments			
	The site is located within the CTC Source Protection Region corresponding with the Toronto and Region Conservation Authority (TRCA) boundary. The site is within a Wellhead Protection Area B and C (WHPA-B and HHPA-C), and is under Vulnerability Scores 6, 8 and 10. The site is located on the Oak Ridges Moraine (ORM). The site is also partially within a Highly Vulnerable Aquifer (HVA). There is a flowing well within proximity to the site, as well as high groundwater with a 0.5-1m rebound. The applicant is advised to contact the Source Water Protection Admin at York Region at 1-877-464-9675 ext. 75139 or at SourceWaterProtection@york.ca to discuss the proposed works and associated requirements from Water Resources.	Note.	
	The site is also within the Wellhead Protection Area Q (WHPA-Q) and a Significant Groundwater Recharge Area (SGRA). The applicant is advised to contact Quentin Hanchard at TRCA Quentin.Hanchard@trca.ca to discuss the proposed works and associated requirements. The approving body for compliance with the policy will be the local municipality.	Note.	
	A Section 59 Notice (Source Water Protection Permit) from York Region's Water Resources group is required prior to the filing of a planning application with the local municipality.	Note.	
York Catholic District School Board			
	The Lincolnville GO Study proposes to relocate the elementary school site on the west side of Tenth Line (as identified in OPA137) to the east side of Tenth Line. As such, the York Catholic District School Board requires the draft plan(s) illustrate a six (6) acre elementary school site in a location that is consistent with the Town's Lincolnville GO Study.	Note.	

EIS Terms of Reference & Correspondence

April 24, 2019

MEMO

TO: Jackie Burkart, Toronto and Region Conservation Authority
Haiqing Xu, Town of Whitchurch-Stouffville

FROM: Christie Cestra, Dillon Consulting Limited

cc: Mr. Lynn Barkey (Acorn NE Investments Inc.)
Mr. Dave Farrow (Northcape Investments Inc.)
Mr. Walter Cesta (2647737 Ontario Inc.)

DATE: April 24, 2019

SUBJECT: Natural Heritage Evaluation Terms of Reference for three Properties: 12875, 12779, and 12749 Tenth Line, Town of Whitchurch-Stouffville, Regional Municipality of York

OUR FILE: 18-7736, 19-9482, 19-9231

Introduction

Dillon Consulting Limited (Dillon) has been retained to undertake environmental studies for the proposed development of three properties (PIN: 037070123, 037070187, 037070121) located at the civic addresses 12875, 12779, and 12749 Tenth Line (the "Properties", depicted in the attached Figure), owned by Acorn NE Investments Inc., Northcape Investments Inc., and 2647737 Ontario Inc. (the "Client Group"), respectively.

As the Properties are located within the Oak Ridges Moraine (ORM) Settlement Area, environmental studies are required to support a Natural Heritage Evaluation (NHE) under Section 22(3) of the Oak Ridges Moraine Conservation Plan (ORMCP; MMAH 2017). As such, the Client Group and Dillon are taking a pro-active approach in confirming the appropriate environmental studies that are required to complete the NHE.

In keeping with the general policies of the Toronto and Region Conservation Authority (TRCA) Environmental Impact Statement Guidelines (2014), we have prepared the following Terms of Reference (TOR). Below, we present the TOR in a check-list format to ensure that the required work and/or studies are known and agreed to prior to the commencement of work, to facilitate a stream-lined and timely review process.

Terms of Reference

General Policies

☒ The NHE must be undertaken by a qualified professional in environmental or related sciences to the satisfaction of the TRCA.

☒ A visit to the site may be required by the TRCA prior to, during, or upon receipt of the NHE.

☒ The staking of significant natural features (i.e., woodlands, etc.) by the TRCA may be required. Staking will generally occur between the end of May and the end of October. Any staking that

occurs outside of this time may require a confirmatory visit between May and October.

Note: The staking of natural features has already occurred at the 12875 Tenth Line property, on May 22, 2018.

Existing Conditions

☒ The existing conditions of the Properties must be clearly described and clearly mapped on aerial photographs.

☒ The description must include the zoning and all designations of all Official Plan(s) (OP) on the Properties. This includes any land use designations from other municipal planning documents, such as Secondary Plans.

☒ Land use designations from any other applicable planning documents (i.e., Greenbelt Plan) must be clearly described and the limits identified in the mapping.

☒ The NHE shall identify the components of the Natural Heritage System. The boundaries of the Natural Heritage System shall be confirmed in the field by the proponent, mapped on a figure in the report and approved by the TRCA and the planning authority.

☒ All designated environmental features (i.e., Natural Heritage System, Urban River Valleys, or natural features identified in the OPs) must be identified in the mapping and described in the report. These features include provincial or regional Areas of Natural and Scientific Interest (ANSIs), Provincially and Locally Significant Wetlands (PSWs and LSWs), Environmentally Significant Areas (ESAs), etc.

☒ A description of the soils, landforms and surficial geology based on a review of available mapping and literature must be described in the report. Any staking done to date as well as the calculated hazard limits will be provided on constraints mapping. If available, topographical information will be provided on constraints mapping.

☒ Hydrological and hydrogeological resources, including surface water features, recharge/discharge zones, groundwater quality and quantity, groundwater elevations and flow directions, and connections between groundwater and surface water features will be identified based on the information available from the consulting team.

☒ The vegetation communities must be identified using the Ecological Land Classification (ELC) (Lee et. Al., second approximation) system to vegetation type, where possible. The communities must be identified in the mapping, using the appropriate ELC codes, as well as described in the text. As a component of the ELC, a plant list must be included as a component of the report. The list must include an analysis for the presence of federal, provincial, regional and/or watershed rare, threatened or endangered species. This should include information from the NHIC.

☒ A multi-season (late spring/early summer, late summer/early fall) plant survey is required and must be included within the report. The list must include an analysis for the presence of federal, provincial, regional and/or watershed rare, threatened or endangered species. This

should include information from the NHIC. In the event that the late summer/early fall survey is not complete at the time of a submission, the results will be included in a future submission.

☒ The NHE requires a breeding bird survey. The survey must be conducted during the breeding bird season at an appropriate time of day in appropriate weather conditions and by a qualified professional. A minimum of two surveys are required and they must follow generally accepted scientific protocols, not necessarily atlasing methods. A list of the breeding birds is to be included within the report. The list must include an analysis for the presence of federal or provincial rare, threatened or endangered species. Watershed rarity status shall be determined in conjunction with the TRCA.

☒ The NHE requires a breeding amphibian survey. The survey must be conducted during the breeding amphibian season and by a qualified professional. For calling amphibians a minimum of three surveys are required. These surveys must span the full amphibian breeding season to ensure that the peak periods of activity for early and late breeding species are accounted for. For non-calling amphibians, appropriate methodology must be used. A list of the breeding amphibians is required as an appendix. The list must include an analysis for the presence of federal, provincial, threatened or endangered species. Watershed rarity status shall be determined in conjunction with the TRCA.

☒ A fisheries habitat assessment shall be provided due to the presence of suitable fish habitat. Existing data regarding fish species shall be obtained from TRCA and/or the MNRF and used for the fisheries assessment, if available. The assessment shall include a description of watercourses or other fish habitat on and/or adjacent to the Properties.

Note: One watercourse is identified within the 12779 and 12749 Tenth Line properties. A fisheries habitat assessment is not proposed within the 12875 Tenth Line property, as no watercourse features are identified within this property.

☐ The fisheries assessment will include community sampling through electrofishing and/or netting during the appropriate season, under a collection permit issued by the MNRF.

Note: Fish community sampling is not proposed within the Properties. Secondary source information will be utilized instead.

☒ All incidental wildlife observed shall be reported on and listed in the report. The list must include an analysis for the presence of federal or provincial rare, threatened or endangered species. Watershed rarity status shall be determined in conjunction with the TRCA.

☒ A functional assessment of the Properties describing the ecology of the natural heritage features and functions (including components of the Natural Heritage System, Urban River Valley, etc.) within and adjacent to the Properties should be provided. The functional assessment may include ecological function, wetland functions, natural heritage features and landscapes, benefits of importance to humans, and corridors and linkages, as required.

☒ Mapping (at a minimum) shall consist of the following:

a) All mapping must have a title, figure number, north arrow, legend and scale or scale

bar.

b) A site location map that provides the regional or watershed context of the Properties.
c) The extent of the Natural Heritage System and its components must be clearly demarcated on an air photo base, if applicable.
d) The locations of all watercourses and waterbodies.
e) Vegetation communities must be delineated and identified using ELC.
f) The location of any rare, threatened or endangered species and/or populations shall be identified, if appropriate.
g) The location of any important wildlife features (i.e., hibernacula, den, stick nest, etc.) shall be identified.

Evaluation of the Ecological Impacts

☒ An assessment of the potential impacts to the features and functions of natural areas and natural heritage features shall be identified and discussed.

☒ An assessment of the potential impact on wildlife at a local, watershed and provincial (if applicable) level shall be provided using the Ecoregion 6E criterion schedules (MNRF, 2015).

☒ In the case of significant natural features (as confirmed through field studies), the NHE must demonstrate that there is no development or site alteration within the feature with the exception of uses as specified in the OP and/or prior approvals. The NHE must determine appropriate buffers from significant natural features.

☒ If applicable, where natural features or natural vegetation communities are proposed for removal, the quantity of removal shall also be included.

Recommendations and Mitigation Measures

☒ Avoidance of any Natural Heritage System feature is the preferred approach to mitigation unless otherwise specified in the OP and/or prior approvals.

☒ Determine adequate buffers through the identification of the critical function and protection zones of any identified natural areas.

☒ Where avoidance of a feature is not feasible or possible, mitigation approaches/ techniques must be provided. These may include edge management plans, buffer plantings, fencing, low impact designs (LID), etc.

☒ In cases where a linkage area has been identified on a property, the NHE must demonstrate how it will be integrated into the proposed development plan.

☒ Recommendations for Best Management Practices during construction should be provided. This may include silt fencing, tree protection, fencing, identification of timing or seasonal constraints to construction or restoration, etc.

☒ If monitoring is required, the details of a monitoring program must be agreed to in writing by

the TRCA, planning authority and other parties.

Conclusions

The NHE will address conformity with the following:

☒ Conformity with the policies and requirements of the Town of Whitchurch-Stouffville and the Region of York Official Plans.

☒ Conformity with the policies and requirements of other applicable planning documents (i.e., ORMCP, Greenbelt Plan, etc.).

☒ Conformity with the requirements of the TRCA.

Species at Risk

Should any Species at Risk or their habitat be identified during the NHE process and confirmed in the field, the Ministry of the Environment, Conservation and Parks (MECP) will be notified and we will address any Species at Risk requirements as outlined in the *Endangered Species Act, 2007* under separate cover with MECP. The TRCA and the Town will be informed of MECP approvals that are acquired.

Information Request

At this time we are requesting any of the following background information, if available:

- Watercourse/drain classifications and thermal stream classifications;
- Fish community information;
- Natural environment studies in and/or adjacent to the Properties;
- Regionally or locally significant/rare flora, fauna, vegetation communities;
- Any additional natural environment data you may have for the indicated area; and,
- GIS Mapping of Regulation Limits.

We would to thank you for your time in establishing these Terms of Reference with us and look forward to working together with you on this and other projects as we move forward.

Please let me know if you have any questions.

Yours sincerely,

DILLON CONSULTING LIMITED

Christie Cestra, M.Sc.Associate,
Project Manager

Vandermeer, Caitlin <cvandermeer@dillon.ca>

Fwd: Terms of Reference for NHE at 12875, 12779 and 12749 Tenth Line, Stouffville

Cestra, Christie <ccestra@dillon.ca> Tue, May 14, 2019 at 8:13 AM
To: Lynn Barkey <lbarkey@baifdev.com>, "Steve Schaefer (@ SCS)" <sschaefer@scsconsultinggroup.com>
Cc: Kate Roper <kroper@dillon.ca>, Caitlin Vandermeer <cvandermeer@dillon.ca>

Hi Lynn and Steve,

See below. The TRCA has accepted the TOR for the NHE field studies. Still waiting on a response from the Town.

The TRCA has identified that we may need to do a water balance for the wetland at the west end of the Acorn property (which we anticipated). Jackie has requested that we complete their wetland balance risk evaluation to assist in determining the scope of the water balance. Dillon can do part of this, but the remainder needs to be done by the hydrogeologist.

We can discuss at this morning's meeting if you'd like.

Lynn - I'm going to forward this email again to you, Walter and Dave. The water balance doesn't pertain to their properties so I wanted to contact you separately.

Christie

Christie Cestra
Associate
Dillon Consulting Limited
235 Yorkland Boulevard Suite 800
Toronto, Ontario, M2J 4Y8
T - 416.229.4646 ext. 2384
F - 416.229.4692
M - 647.962.6357
CCestra@dillon.ca
www.dillon.ca

Please consider the environment before printing this email

---------- Forwarded message ---------
From: **Jackie Burkart** <Jackie.Burkart@trca.ca>
Date: Mon, May 13, 2019 at 5:08 PM
Subject: RE: Terms of Reference for NHE at 12875, 12779 and 12749 Tenth Line, Stouffville
To: "Cestra, Christie" <ccestra@dillon.ca>
Cc: haiqing.xu@townofws.ca <haiqing.xu@townofws.ca>

Hi Christie, I don’t think I got back to you on this. My apologies.

TRCA has reviewed the terms of reference for the NHE. While we are in agreement with the contents of the Terms of Reference, please note that you will likely need to do a wetland water balance for the wetland on the northernmost property. Please complete the Wetland Water Balance Risk Evaluation to determine the appropriate level of effort required, in consultation with TRCA. Data collection for the wetland water balance should begin ASAP.

https://trca.ca/app/uploads/2017/12/WetlandWaterBalanceRiskEvaluation_Nov2017.pdf

I have forwarded your data request to our GIS team and asked that they deal directly with you.

Kind regards,

Jackie Burkart, RPP

Senior Planner

Development Planning & Permits I Development & Engineering Services

T: 416-661-6600 ext. 5304

E: Jackie.Burkart@trca.ca

A: 101 Exchange Avenue, Vaughan, ON L4K 5R6

Toronto and Region Conservation Authority (TRCA) I trca.ca

From: "Cestra, Christie" <ccestra@dillon.ca>
Sent: Monday, April 29, 2019 12:12 PM
To: Jackie Burkart <Jackie.Burkart@trca.ca>
Subject: Re: Terms of Reference for NHE at 12875, 12779 and 12749 Tenth Line, Stouffville

Hi Jackie,

Yes it is.

Christie

DILLON CONSULTING

CANADA BEST MANAGED COMPANIES Platinum member

Christie Cestra
Associate
Dillon Consulting Limited
235 Yorkland Boulevard Suite 800
Toronto, Ontario, M2J 4Y8
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CCestra@dillon.ca
www.dillon.ca

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On Mon, Apr 29, 2019 at 12:09 PM Jackie Burkart <jburkart@trca.on.ca> wrote:

Hi Christie - is 12811 Tenth Line also supposed to be part of your NHE?

Jackie Burkart, RPP
Senior Planner
Development Planning and Permits I Development and Engineering Services

T: 416.661.6600 ext. 5304
E: jburkart@trca.on.ca
A: 101 Exchange Avenue, Vaughan, ON, L4K 5R6

Toronto and Region Conservation Authority (TRCA) | trca.ca

From: "Cestra, Christie" <ccestra@dillon.ca>
To: Haiqing Xu <haiqing.xu@townofws.ca>, Jackie Burkart <jburkart@trca.on.ca>
Cc: Dave Farrow <dfarrow@trinison.com>, Walter Cesta <cestaw@rogers.com>, Lynn Barkey <lbarkey@baifdev.com>, Caitlin Vandermeer <cvandermeer@dillon.ca>, Kate Roper <kroper@dillon.ca>, 187736 <187736@dillon.ca>, 199482 <199482@dillon.ca>, 199231 <199231@dillon.ca>
Date: 04/25/2019 08:14 AM
Subject: Terms of Reference for NHE at 12875, 12779 and 12749 Tenth Line, Stouffville

---

Hello Haiqing and Jackie,

Please find attached a Terms of Reference to complete Natural Heritage Evaluations on three properties in Stouffville (located within the Phase 3 East lands) at 12875, 12779 and 12749 Tenth Line.

If you have any questions, please let me know. I look forward to hearing from you.

Thank you,
Christie

Christie Cestra
Associate
Dillon Consulting Limited
235 Yorkland Boulevard Suite 800
Toronto, Ontario, M2J 4Y8
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F - 416.229.4692
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CCestra@dillon.ca
www.dillon.ca

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[attachment "Acorn, Northcape, and 2647737 Ontairo Inc. TOR Checklilst_April.24.2019.pdf" deleted by Jackie Burkart/TRCA]

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Spam
Phish/Fraud
Not spam
Forget previous vote

Appendix B

Planning Policy Schedules and Mapping

Greenbelt Plan, 2017

Schedule 1

greenbelt PLAN

Georgian Bay

Lake Ontario

Map North:
46.87°E

Lake Huron

BRUCE

GREY

Georgian Bay

F.N.

Lake Simcoe

BARRIE

C.F.B. Borden

GREY

SIMCOE

DUFFERIN

WELLINGTON

GUELPH

HALTON

PEEL

YORK

TORONTO

DURHAM

KAWARTHA LAKES

PETERBOROUGH

PETERBOROUGH

NORTHUMBERLAND

WATERLOO

HAMILTON

BRANTFORD

BRANT

NIAGARA

HALDIMAND COUNTY

Lake Ontario

Study Area

LEGEND

Ontario

- Greenbelt Area (*Greenbelt Act, 2005*)
  - Protected Countryside
    - Towns / Villages
      - Hamlets
  - Urban River Valleys
  - Oak Ridges Moraine Area
  - Niagara Escarpment Plan Area
- External Connections
- Settlement Areas Outside the Greenbelt
- Upper and Single-Tier Municipal Boundaries
- F.N. First Nation

Note: While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations of features or roads. For precise boundaries and locations of Settlement Areas, including Towns/Villages and Hamlets, the appropriate municipalities should be consulted.

Produced in 2023 by and using data sources from the Ministries of: Municipal Affairs and Housing; Northern Development; Mines; Natural Resources and Forestry; Environment, Conservation and Parks; and, Agriculture, Food and Rural Affairs.

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0 5 10 20 30 40 KM

1 cm equals 6 km

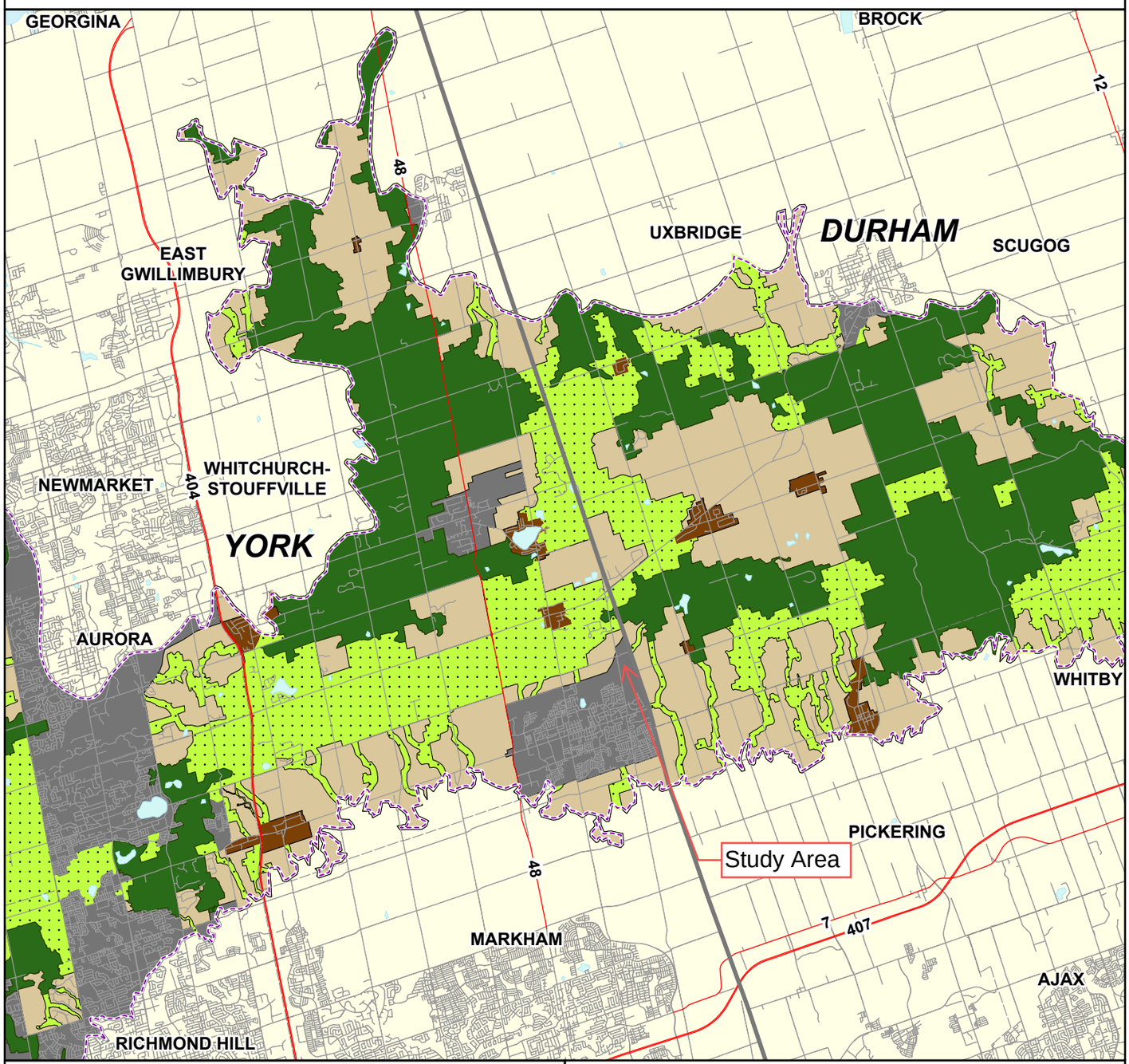
Map North: 0°

Schedule 1: Greenbelt Area

Oak Ridges Moraine Conservation Plan, 2017

Map 4

Oak Ridges Moraine Conservation Plan Land Use Designation Map



Map 4
Towns of East Gwillimbury & Whitchurch-Stouffville, City of Markham

Ontario

Legend

- Oak Ridges Moraine Conservation Plan Area
  - Boundary of Oak Ridges Moraine Conservation Plan Area Ontario Regulation 140/02
  - Boundary of Oak Ridges Moraine Area Ontario Regulation 01/02
- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement (a component of Countryside Area)
- Palgrave Estates Residential Community (a component of Countryside Area)
- Settlement Area
- Upper and Single-Tier Municipal Boundaries
- Lower Tier Municipal Boundaries
- Road or Highway
- F.N. First Nations Reserve or First Nations
- Niagara Escarpment Plan Boundary

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations of features or roads nor as a guide to navigation.

Generally reflects information provided by the relevant municipality. For precise boundaries and locations of Settlement Areas (ORM Settlement Areas and Rural Settlements) the appropriate municipalities should be consulted.

Source of Information:
Produced in 2023 by, and using data sources from, the Ministries of: Municipal Affairs and Housing; Natural Resources and Forestry; and, Agriculture, Food and Rural Affairs.

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2 0 2 4 6 8 Km

1 cm equals 2 Km

N

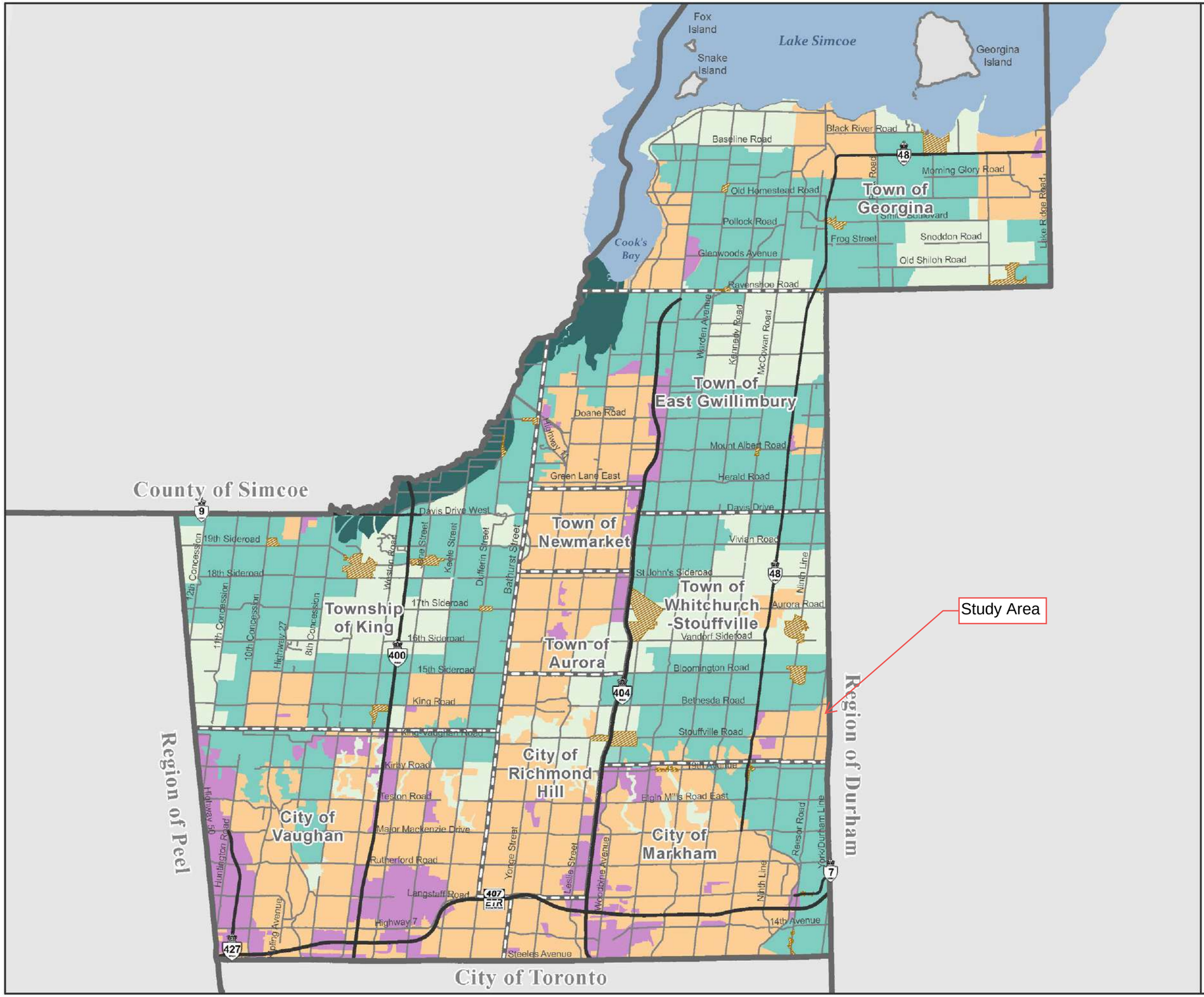
Map Rotation: 0 Degrees

York Region Official Plan, 2022

Maps 1A, 2, 3, 4 and 5

MAP 1A

LAND USE DESIGNATIONS



Urban System
- Community Area
- Employment Area

Agricultural System
- Holland Marsh Specialty Crop Area
- Agricultural Area
- Rural Area
- Hamlet

Provincial Highways
- Existing

Municipal Boundaries
- Regional Municipal Boundary
- Local Municipal Boundary

N

0 2 4 6 8 10

Kilometres

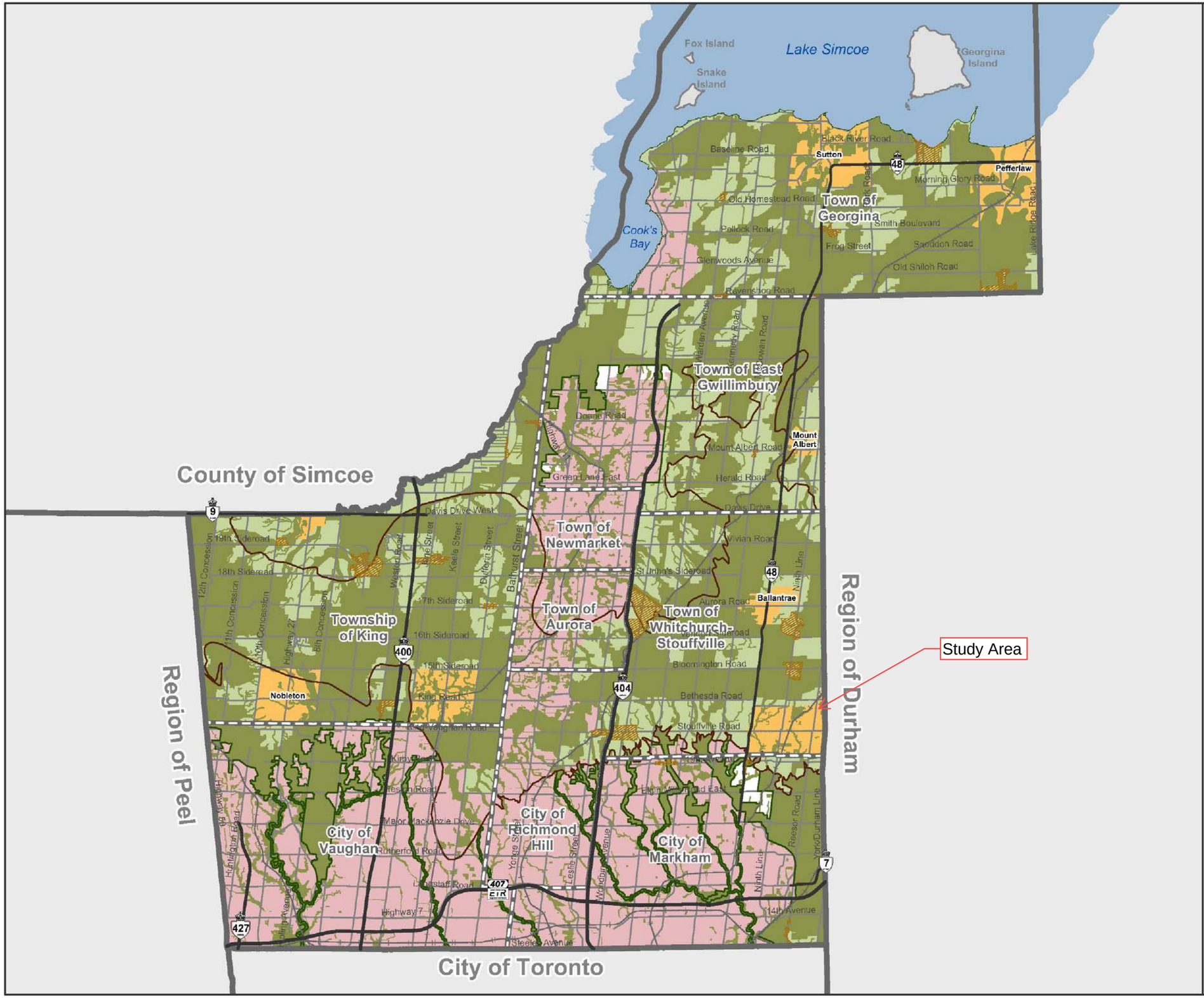
York Region

Produced by: The Regional Municipality of York
Planning and Economic Development Branch, Corporate Services Department, 2024
Data: The Regional Municipality of York, The Regional Municipalities of Durham and Peel, County of Simcoe, City of Toronto
Queen's Printer for Ontario 2003-2024, Includes Greenbelt and Oak Ridges Moraine Boundaries and Water Features
Based on best available data and may contain minor errors or omissions.

G:\Development\DGO - Development General\Cory Fagan\2023 GDR Population Data (Mark and Jessica)\Copy_of_Daniels.aprx

MAP 2

REGIONAL GREENLANDS SYSTEM



Regional Greenlands System
- Regional Greenlands System
- Urban Area
- Towns and Villages
- Hamlets

Greenbelt Plan
- Greenbelt Plan Boundary
- Protected Countryside
- Urban River Valley

Oak Ridges Moraine Conservation Plan
- Oak Ridges Moraine Conservation Plan Boundary
- Countryside

Provincial Highways
- Existing

Municipal Boundaries
- Regional Municipal Boundary
- Local Municipal Boundary

N

0 2 4 6 8 10

Kilometres

York Region

Produced by: The Regional Municipality of York
Planning and Economic Development Branch, Corporate Services Department, 2024
Data: The Regional Municipality of York, The Regional Municipalities of Durham and Peel, County of Simcoe, City of Toronto
Queen's Printer for Ontario 2003-2024, Includes Greenbelt and Oak Ridges Moraine Boundaries and Water Features
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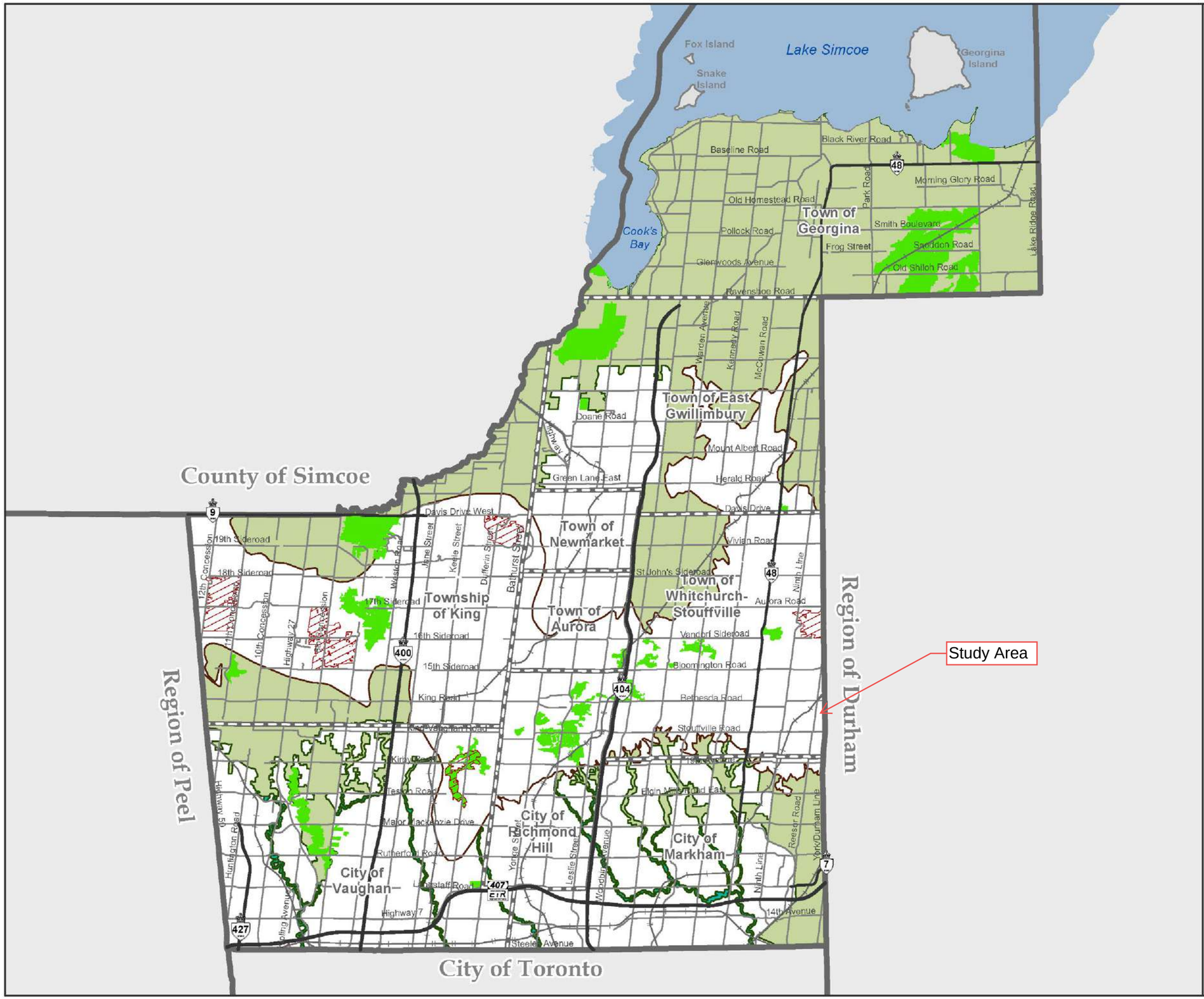
G:\Development\000 - Development General\Cory Fagan\2023 GDR Population Data (Mark and Jessica)\Copy_of_Daniels.aprx

MAP 3

AREAS OF NATURAL AND SCIENTIFIC INTEREST



Areas of Natural and Scientific Interest

- Areas of Natural and Scientific Interest - Earth Science
- Areas of Natural and Scientific Interest - Life Science

Greenbelt Plan

- Greenbelt Plan Boundary
- Protected Countryside
- Urban River Valley

Oak Ridges Moraine Conservation Plan

- Oak Ridges Moraine Conservation Plan Boundary

Provincial Highways

- Existing

Municipal Boundaries

- Regional Municipal Boundary
- Local Municipal Boundary

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Kilometres

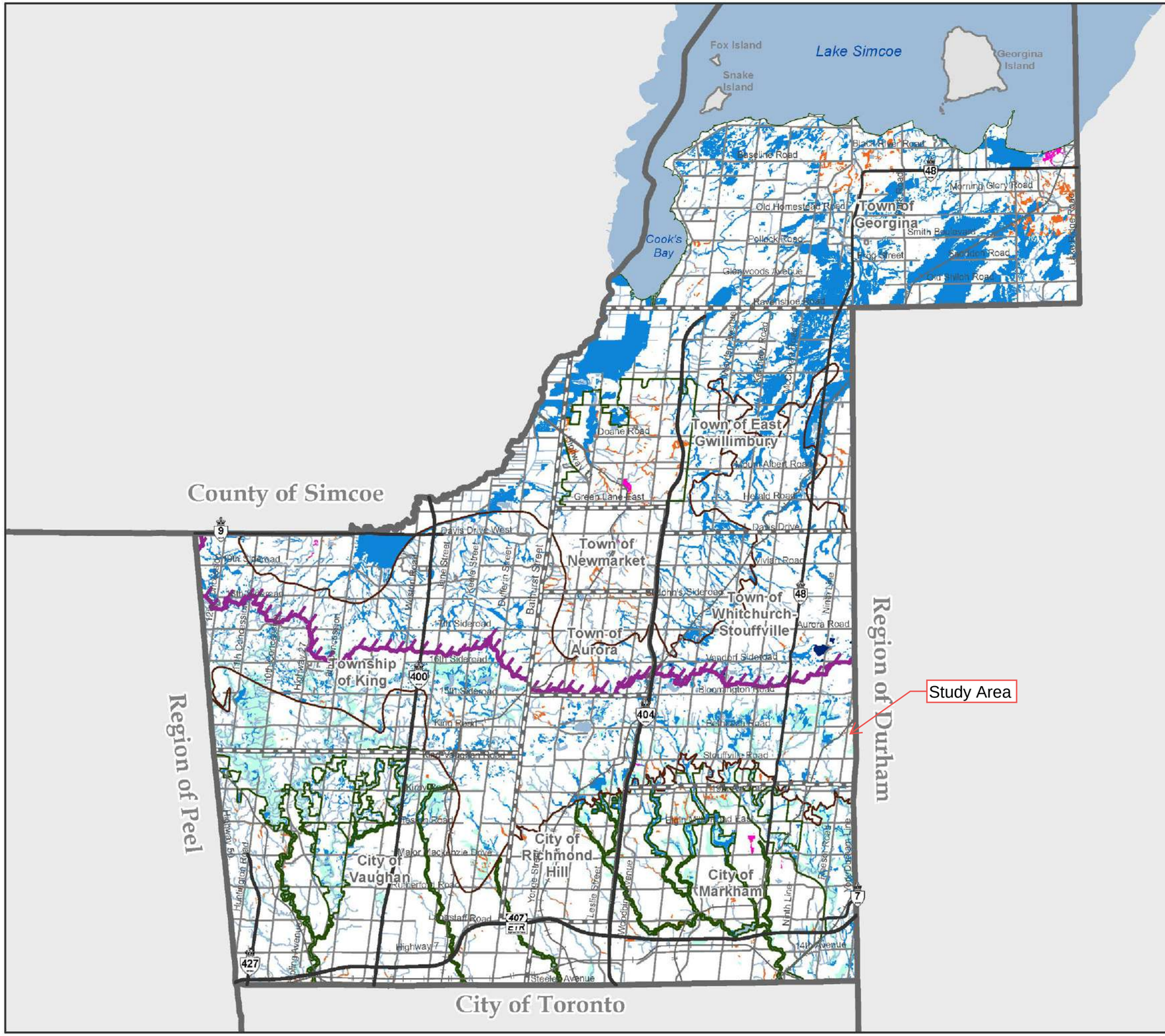
York Region

Produced by: The Regional Municipality of York
Planning and Economic Development Branch, Corporate Services Department, 2022
Data: The Regional Municipality of York, The Regional Municipalities of Durham and Peel, County of Simcoe, City of Toronto
Queen's Printer for Ontario 2003-2022, Includes Greenbelt and Oak Ridges Moraine Boundaries and Water Features
Based on best available data and may contain minor errors or omissions.

G:\Development\001 - Demography\2017 Municipal Comprehensive Review\Mapping\Draft ROP 2020 Map Schedules\Draft ROP MXDs\APRIL2022_Draft ROP MXDs for June Council PDF Report (Linked to EPED layers)\Linked_Map 3_ANSI.mxd

MAP 4

KEY HYDROLOGIC FEATURES



Key Hydrologic Features

- Area Subject to the Lake Simcoe Protection Plan
- Provincially Significant and Provincial Plan Area Wetlands
- Other Evaluated Wetlands
- Wetlands not evaluted per Ontario Wetland Evaluation System
- Lakes
- Permanent or Intermittent Stream
- Seepage Areas and Springs (Toronto and Region Conservation Authority)
- Kettle Lakes

Greenbelt Plan

- Greenbelt Plan Boundary
- Urban River Valley

Oak Ridges Moraine Conservation Plan

- Oak Ridges Moraine Conservation Plan Boundary

Provincial Highways

- Existing

Municipal Boundaries

- Regional Municipal Boundary
- Local Municipal Boundary

N

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Kilometres

York Region

Produced by: The Regional Municipality of York
Planning and Economic Development Branch, Corporate Services Department, 2022
Data: The Regional Municipality of York, The Regional Municipalities of Durham and Peel, County of Simcoe, City of Toronto
Queen's Printer for Ontario 2003-2022, Includes Greenbelt and Oak Ridges Moraine Boundaries and Water Features
Based on best available data and may contain minor errors or omissions.

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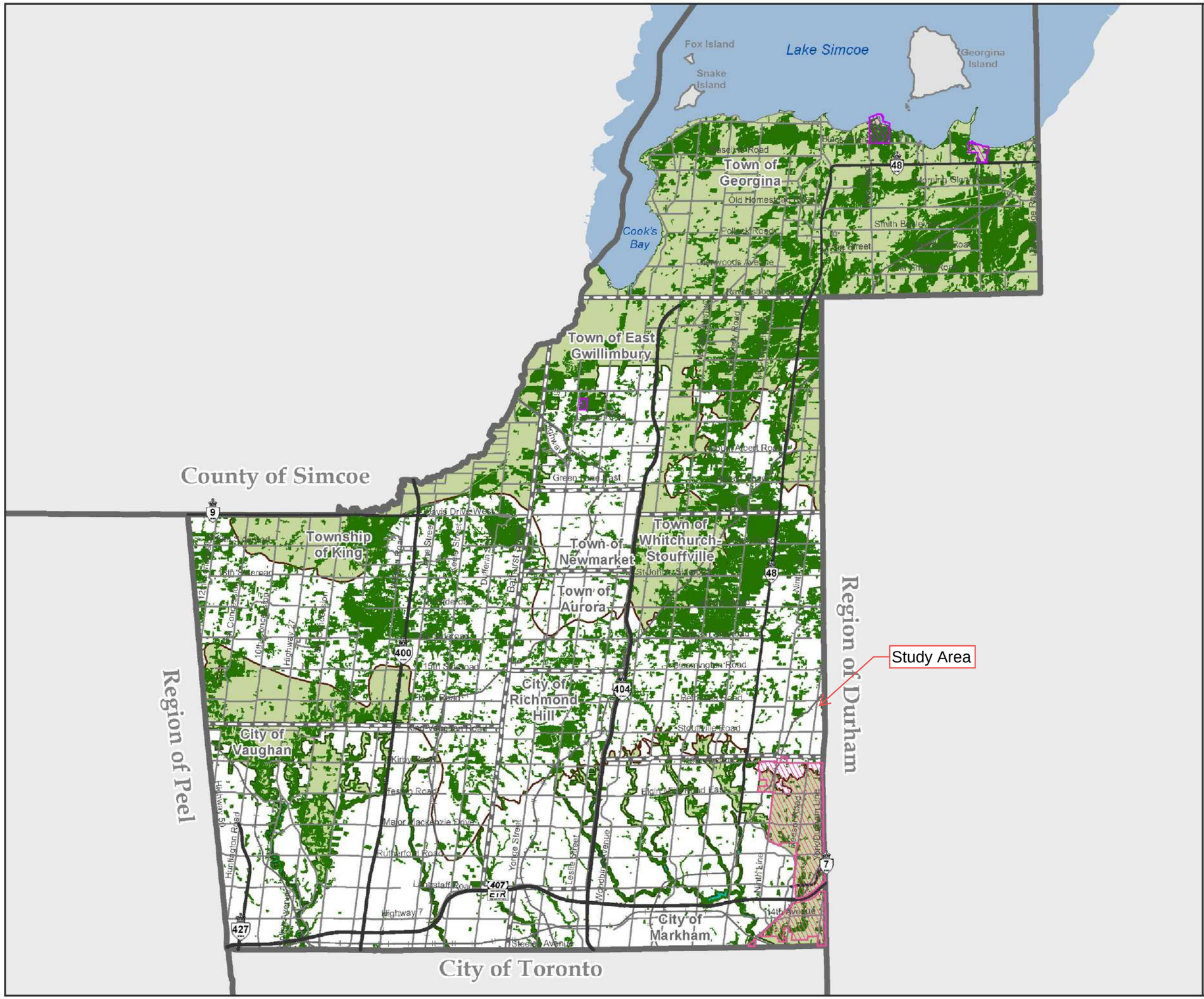
MAP 5

WOODLANDS



Woodlands
Provincial Park
Rouge National Urban Park

Greenbelt Plan
Greenbelt Plan Boundary
Protected Countryside
Urban River Valley

Oak Ridges Moraine Conservation Plan
Oak Ridges Moraine Conservation Plan Boundary

Provincial Highways
Existing

Municipal Boundaries
Regional Municipal Boundary
Local Municipal Boundary

N

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Kilometres

York Region

Produced by: The Regional Municipality of York
Planning and Economic Development Branch, Corporate Services Department, 2022
Data: The Regional Municipality of York, The Regional Municipalities of Durham and Peel, County of Simcoe, City of Toronto
Queen's Printer for Ontario 2003-2022, Includes Greenbelt and Oak Ridges Moraine Boundaries and Water Features
Based on best available data and may contain minor errors or omissions.

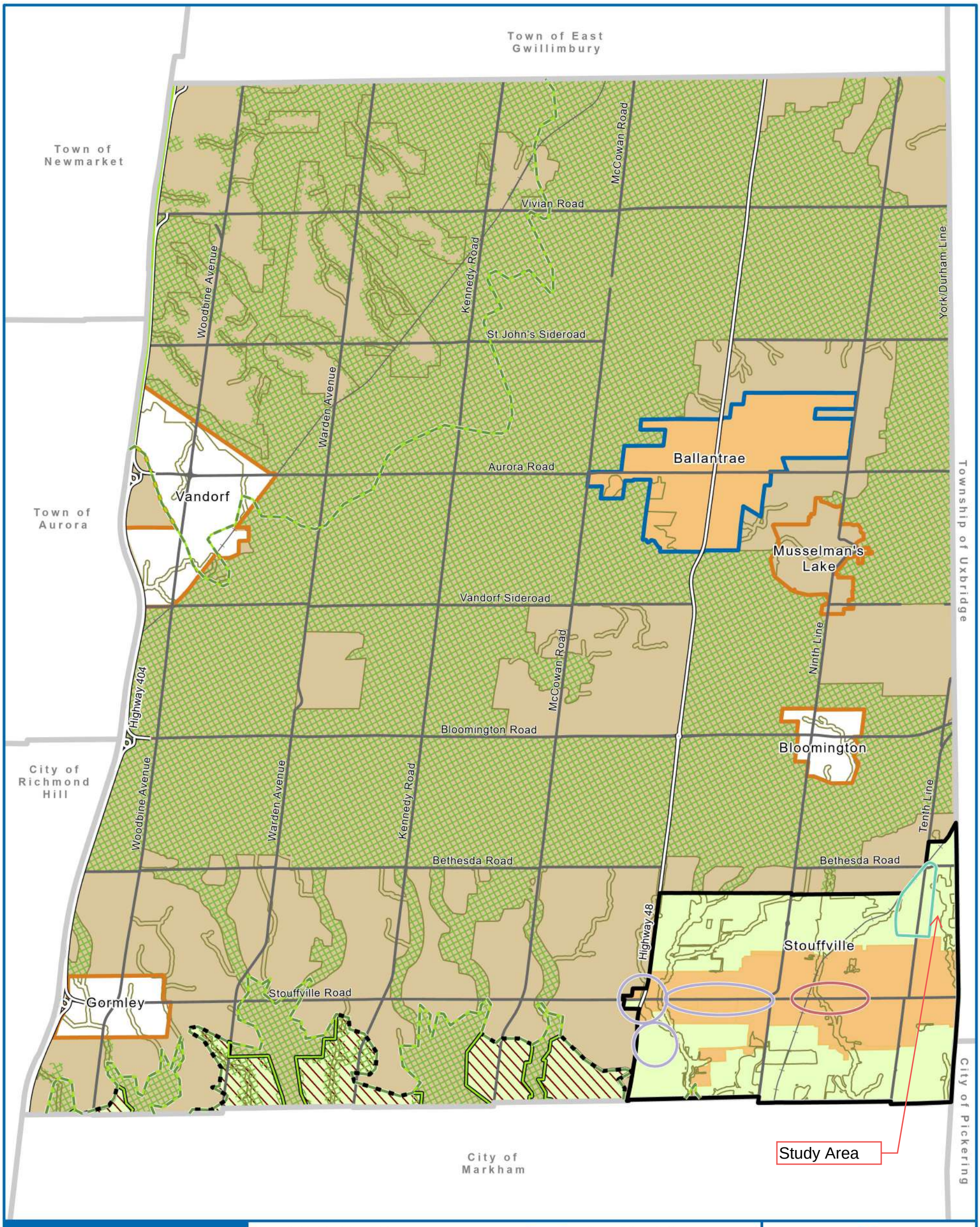
G:\Development\001 - Demography\2017 Municipal Comprehensive Review\Mapping\Draft ROP 2020 Map Schedules\Draft ROP MXDs\APRIL2022_Draft ROP MXDs for June Council PDF Report (Linked to EPED layers\Linked_Map 5_Woodland.mxd

Town of Whitchurch-Stouffville Official Plan, 2025

Schedules A, B , D-4, K9a, K9b, F-3, and F-5

Schedule A
Town Structure

Town of Whitchurch-Stouffville
Official Plan



- Municipal Boundaries
- Urban Area
- New Urban Area
- Community Area
- Hamlet Area
- Agricultural System
- Natural Heritage System
- Regional Greenland System
- Greenbelt Plan Boundary
- Oak Ridges Moraine Conservation Plan Boundary
- Designated Greenfield Area
- Built Up Area
- Old Elm GO MTSA*
- Stouffville GO MTSA (Core Area)*
- Strategic Growth Areas*

* Refer to Schedules D for specific MTSA and Strategic Growth Area boundaries and land use designations.

0 1 2 3
Kilometres

Sources: MNRF, York Region & Town of Whitchurch-Stouffville
Projection: UTM NAD83 Zone 17
Approved September 25, 2025

Stouffville

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Town of East Gwillimbury

Town of Newmarket

Town of Aurora

City of Richmond Hill

City of Markham

Township of Uxbridge

City of Pickering

Vivian Road

St John's Sideroad

Aurora Road

Vandorf Sideroad

Bloomington Road

Bethesda Road

Stouffville Road

Main Street

Woodbine Avenue

Warden Avenue

Kennedy Road

McCowan Road

Highway 404

Highway 48

Ninth Line

Tenth Line

York/Durham Line

Vandorf

Ballantrae

Musselman's Lake

Bloomington

Stouffville

Gormley

Lake Simcoe Region Conservation Authority

Toronto and Region Conservation Authority

Study Area

Schedule B
Provincial Plan Areas and Designations

Town of Whitchurch-Stouffville
Official Plan

- Municipal Boundaries
- Settlement Area
- Hamlet / Rural Settlement
- Conservation Authority Boundary
- Area Subject to the Lake Simcoe Protection Plan

Greenbelt Plan

- Greenbelt Plan Boundary
- Protected Countryside
- Greenbelt Natural Heritage System

Oak Ridges Moraine Conservation Plan

- Oak Ridges Moraine Conservation Plan Boundary
- Countryside Area
- Natural Core Area
- Natural Linkage Area

0 1 2 3

Kilometres

Sources: MNRF, York Region & Town of Whitchurch-Stouffville
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Approved September 25, 2025

Stouffville

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Town of Whitchurch-Stouffville
Official Plan

Schedule D-4
Old Elm MTSA
Land Use Designations

Bethesda Road

Old Elm Special Provision 1

Lands Subject to Appeal

Study Area

Tenth Line

York/Durham Line

Greenwood Road

Noah's Farm Trail

Flute Street

- Urban Area
- Old Elm Boundary
- Old Elm Major Transit Station Area
- Special Provisions Area
- Lakes and Ponds
- Streams
- Regulatory Floodline
- Rail Line
- GO Station Area
- GO Train Station
- Required Mixed Use Frontage Area
- Old Elm - Residential Area
- Old Elm - Medium-High Density Residential Area
- Old Elm - Medium-High Density Mixed Use Area
- Old Elm - High Density Mixed Use Area
- Old Elm - Public Uses and Utilities
- Regional Greenland System
- Environmentally Significant Area
- Proposed Neighbourhood Park
- Proposed School Location
- Conceptual Collector Road

0 100 200 300
Metres

Sources: MNRF, York Region & Town of Whitchurch-Stouffville
Projection: UTM NAD83 Zone 17
Approved September 25, 2025

Stouffville

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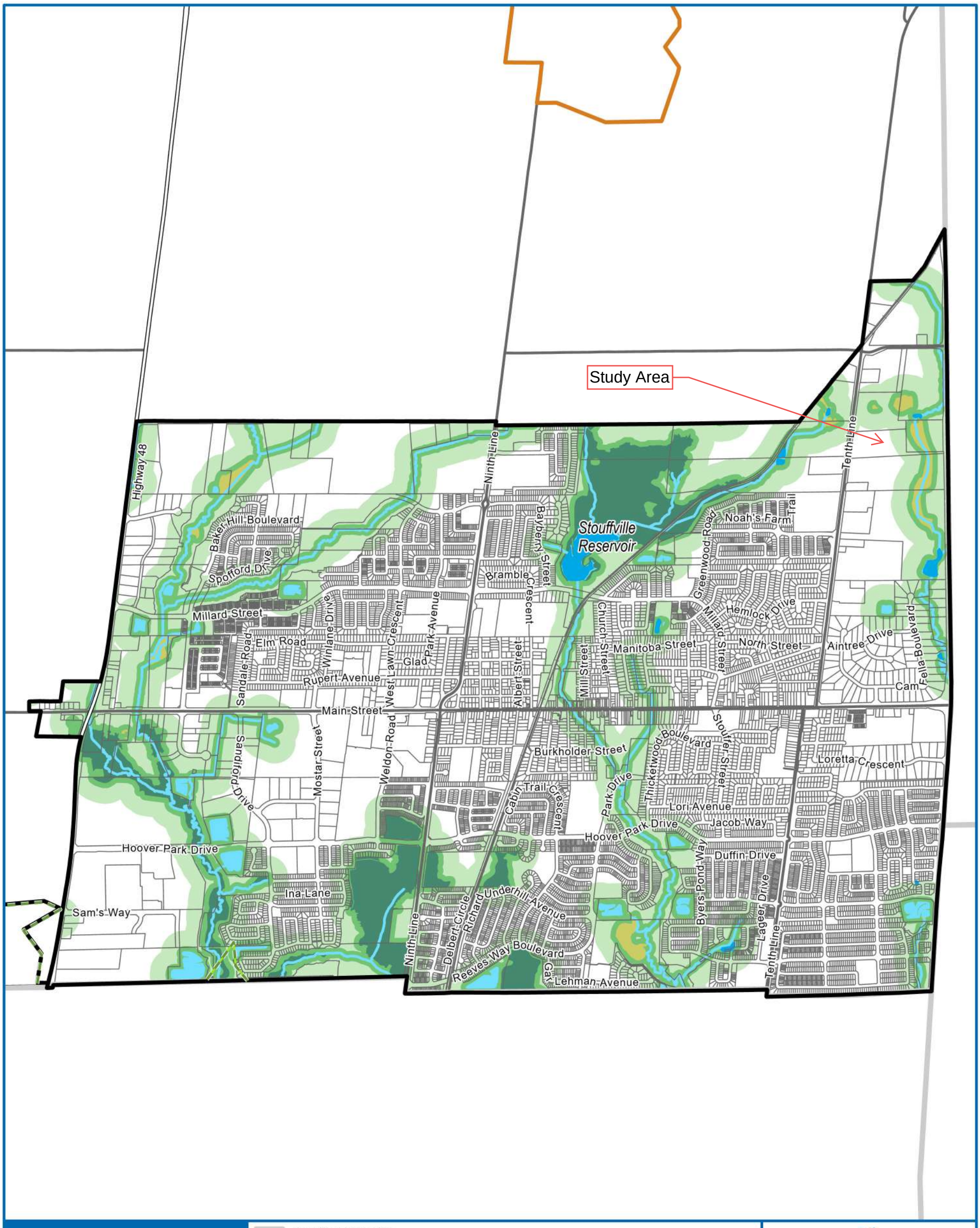

Schedule K-9a Stouffville

Key Hydrologic Features

Town of Whitchurch-Stouffville

Official Plan

- Municipal Boundaries
- Urban Area
- Hamlet Area
- Oak Ridges Moraine Plan Area Boundary
- Greenbelt Plan Boundary
- Kettle Lake
- Lakes and Ponds
- Streams
- Provincially Significant and Provincial Plan Area Wetlands
- Non-evaluated Wetlands
- Other Evaluated Wetlands
- Minimum Vegetation Protection Zone
- Minimum Area of Influence

0 340 680 1,020

Metres

Sources: MNRF, York Region & Town of Whitchurch-Stouffville
Projection: UTM NAD83 Zone 17
Approved September 25, 2025

Stouffville

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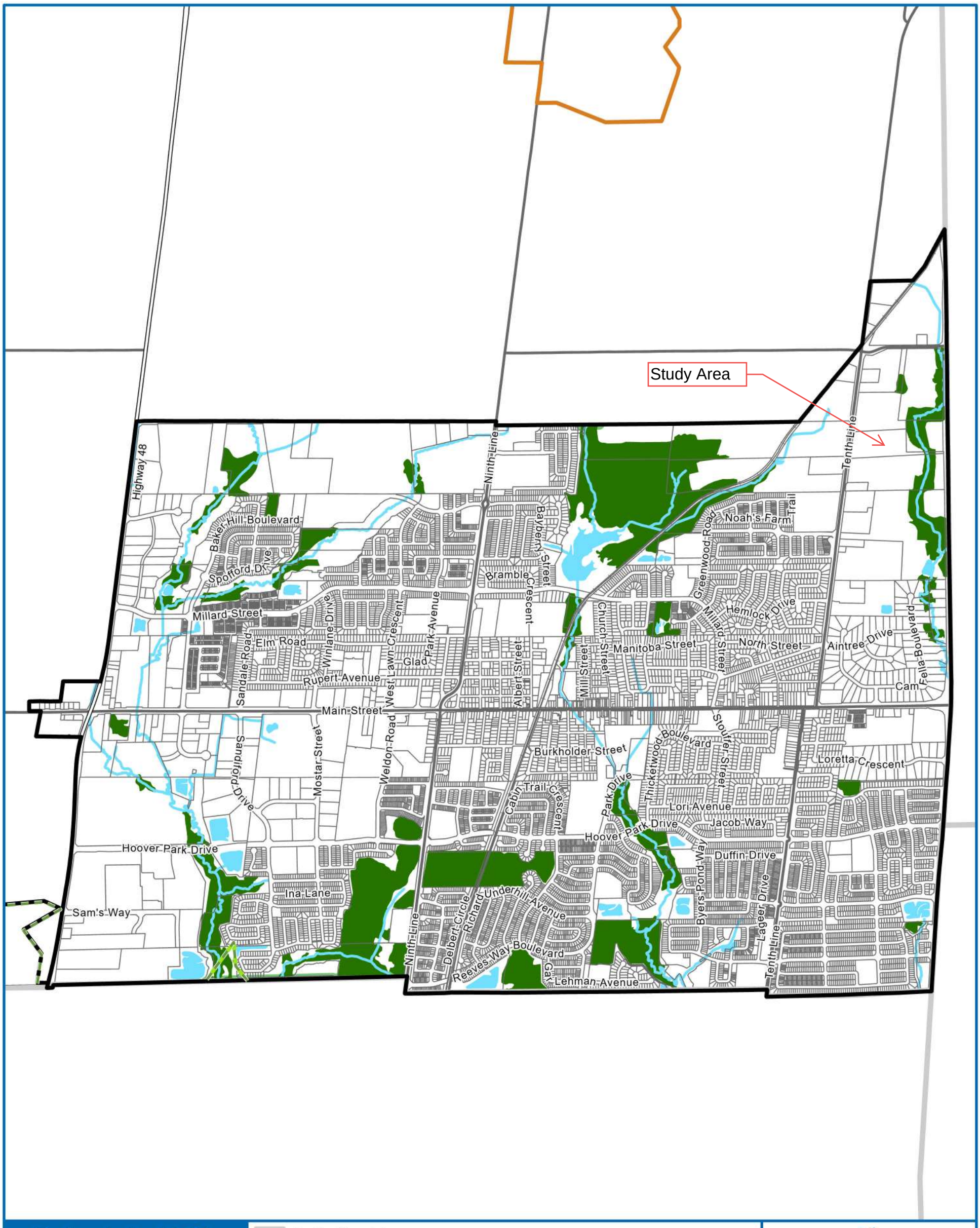

Schedule K-9b Stouffville

Natural Heritage Features

Town of Whitchurch-Stouffville

Official Plan

- Municipal Boundaries
- Urban Area
- Hamlet Area
- Oak Ridges Moraine Plan Area Boundary
- Greenbelt Plan Boundary
- Urban Area
- Streams
- Lakes and Ponds
- Woodlands (In Settlement Area)
- Minimum Vegetation Protection Zone

0 340 680 1,020

Metres

Sources: MNRF, York Region & Town of Whitchurch-Stouffville
Projection: UTM NAD83 Zone 17
Approved September 25, 2025

Stouffville

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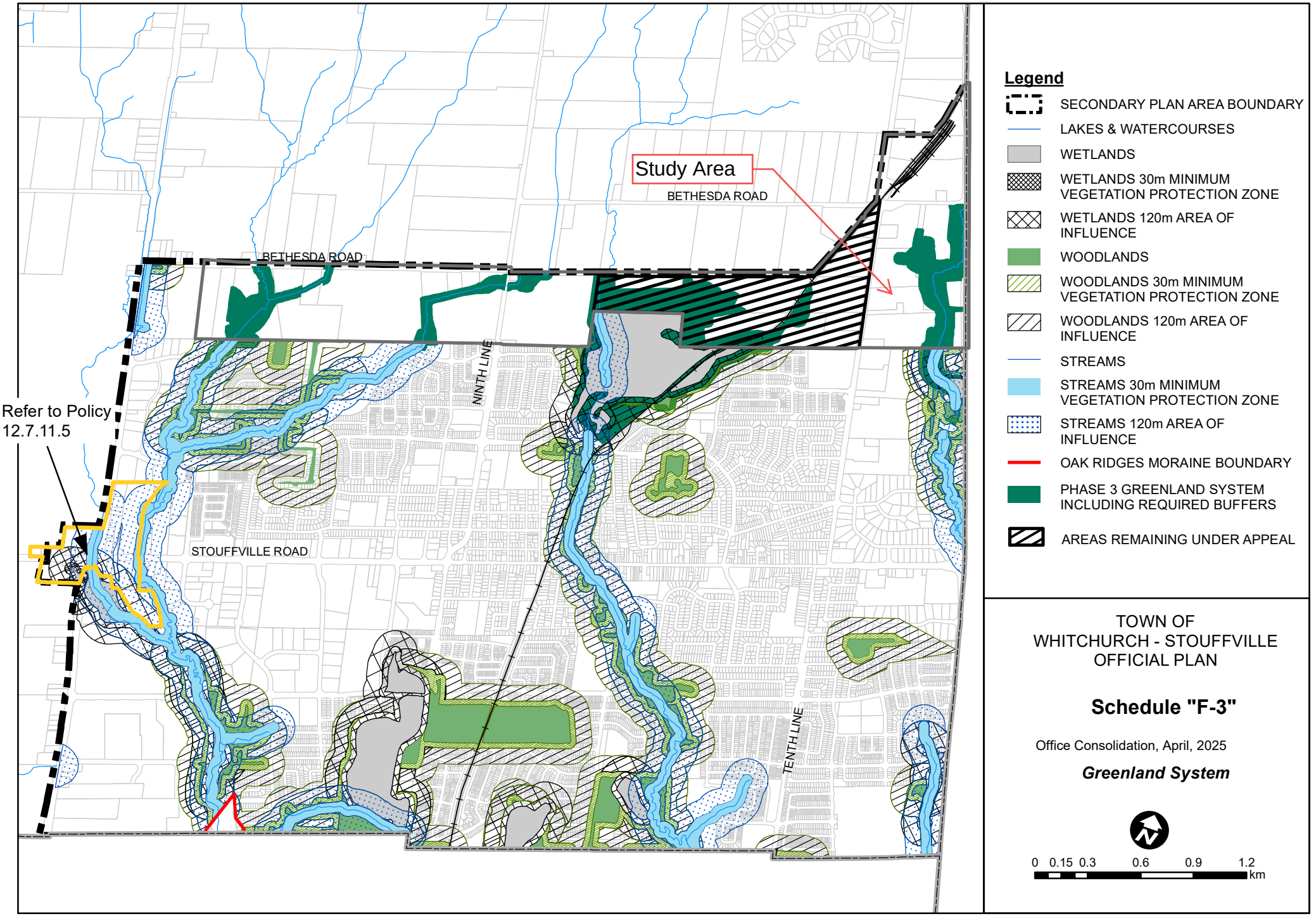
Study Area
BETHESDA ROAD
BETHESDA ROAD
NINTH LINE
Refer to Policy
12.7.11.5
STOUFFVILLE ROAD
TENTH LINE
Legend
SECONDARY PLAN AREA BOUNDARY
LAKES & WATERCOURSES
WETLANDS
WETLANDS 30m MINIMUM VEGETATION PROTECTION ZONE
WETLANDS 120m AREA OF INFLUENCE
WOODLANDS
WOODLANDS 30m MINIMUM VEGETATION PROTECTION ZONE
WOODLANDS 120m AREA OF INFLUENCE
STREAMS
STREAMS 30m MINIMUM VEGETATION PROTECTION ZONE
STREAMS 120m AREA OF INFLUENCE
OAK RIDGES MORAINE BOUNDARY
PHASE 3 GREENLAND SYSTEM INCLUDING REQUIRED BUFFERS
AREAS REMAINING UNDER APPEAL
TOWN OF
WHITCHURCH - STOUFFVILLE
OFFICIAL PLAN
Schedule "F-3"
Office Consolidation, April, 2025
Greenland System
0 0.15 0.3 0.6 0.9 1.2
km

Old Elm GO Station Area

(Formerly Lincolnville)

Schedule F5

Land Use Plan

LEGEND

- Major Transit Station Area (1)
- Lincolnville Boundary
- Old Elm High-Density Mixed-Use
- Old Elm Medium-High Density Mixed-Use
- Old Elm Medium-High Density Residential
- Old Elm Residential
- Old Elm Utilities / Future Layover Facility
- Required Mixed-Use Frontage Area
- Special Provision 1
- Old Elm GO Station (formerly Lincolnville)
- Watercourses / Water Bodies
- Greenland Area (OPA 137) (2)
- Regional Greenlands System
- P Proposed Neighbourhood Parks (3)
- Proposed School Location (4)
- Parcels
- Conceptual Collector Road
- Stouffville Settlement Area Boundary
- Town Boundary
- 500 m Boundary (approx. 5 - 6 min. walk)
- 800 m Boundary (10 min. walk)

(1) The Major Transit Station Area boundary will be implemented by York Region.

(2) Greenland Area is based on OPA 137 and includes updates based on data provided to WSP. Further refinements may be considered based on updated information.

(3) Proposed park space locations are conceptual and subject to confirmation.

(4) Proposed school location is conceptual and subject to confirmation of need and/or location.

Office Consolidation
April, 2025

Note: Lands on the east side of Tenth Line are subject to appeal with the OLT

Appendix C

Photo Plate

Description	Photo
Photo 1 May 22, 2019 Tributary of Reesor Creek: Facing downstream.	
Photo 2 May 22, 2019 Tributary of Reesor Creek: Facing downstream. Heavy erosion and fallen cedars that may cause future debris jams.	
Photo 3 May 22, 2019 Tributary of Reesor Creek: Gravel bed that may be suitable fish spawning habitat. Undercut banks present.	

Photo 4 May 22, 2019 Tributary of Reesor Creek: Facing downstream. Boulder substrate with debris from human activities. Minor debris jam present downstream.		
Photo 5 May 22, 2019 Tributary of Reesor Creek: Facing upstream. Upstream corrugated steel pipe culvert on neighbouring property.		
Photo 6 July 18, 2019 FOCM4 Fresh-Moist White Cedar Coniferous Forest Large area of forest and swamp littered with debris from recreational use (Paintball)		

Photo 7 July 18, 2019 FODM3-1 Dry-fresh Poplar deciduous forest	
Photo 8 July 18, 2019 THDM2 Dry-fresh Deciduous Shrub Thicket Ecosite	
Photo 9 July 18, 2019 SWCM1 White Cedar Mineral Coniferous Swamp	

Photo 10 July 18, 2019 MASM1-1 Cattail Mineral Shallow Marsh		
Photo 11 July 18, 2019 MEGM4 Fresh-Moist Graminoid Meadow		
Photo 12 July 18, 2019 MEMM3 Dry-Fresh Mixed meadow		

Photo 13 July 18, 2019 MEMM4 Fresh-Moist Mixed Meadow Ecosite		
Photo 14 December 2, 2025 OAG Open Agriculture, annual row crops.		

Appendix D

Background Review Reports

AMBRIA (LINCOLNVILLE) LIMITED

SCOPED ENVIRONMENTAL IMPACT STUDY

12762 Tenth Line
Whitchurch-Stouffville, Ontario

FINAL REPORT

AUGUST 17, 2022

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1.0 INTRODUCTION

Terrapex Environmental Ltd. (Terrapex) was retained by Ambria (Lincolnville) Limited (Ambria) to complete a scoped Environmental Impact Study (EIS) in support of the proposed development of a residential subdivision at a 2.0 ha property known municipally as 12762 Tenth Line in the Town of Whitchurch-Stouffville, Ontario (the 'Site').

The Site is located in the northeast corner of the community of Stouffville, approximately 350 m north of Forsyth Farm Drive (**Figure 1**). The majority of the Site consists of cultivated agricultural land; the eastern portion includes a residential dwelling, garage, large wooden barn and several smaller outbuildings. Agricultural land borders the Site to the north, west and east; a single residential dwelling is located immediately to the south (**Figure 2**).

During the pre-consultation process, the Toronto and Region Conservation Authority (TRCA) requested the preparation of a scoped EIS to assess the presence/absence of Species at Risk (SAR) and Significant Wildlife Habitat (SWH). Terrapex submitted a proposed Terms of Reference (TOR) for the scoped EIS; this TOR was approved by TRCA Planner Michelle Bates on June 5, 2020. Ms. Bates also indicated that an EIS/Natural Heritage Evaluation (NHE) would not be required to address the requirements of the Oak Ridges Moraine Conservation Plan as the Site appears to be more than 120 m from mapped Key Natural Heritage Features and Key Hydrologic Features (**Appendix I**).

Terrapex submitted the scoped EIS in November 2020 and received comments on this submission from the Town of Whitchurch-Stouffville and TRCA in June 2021. To address these comments, and to respond to Ministry of the Environment, Conservation and Parks (MECP) guidance regarding SAR, Terrapex undertook supplemental fieldwork. This report reflects revisions to the original scoped EIS to enhance its clarity and to incorporate the results of supplemental field surveys and assessments completed in 2021 and 2022.

2.0 STUDY METHODOLOGY

Terrapex biologists assessed the natural heritage features and functions of the Site through a review of existing information sources and the completion of a variety of field surveys and assessments. The following sections describe in further detail the information sources reviewed and field investigations undertaken.

2.1 REVIEW OF EXISTING INFORMATION SOURCES

Terrapex reviewed the following information sources to identify flora and fauna potentially present at the Site:

- Ministry of Natural Resources and Forestry (MNRF), formerly Ministry of Natural Resources (MNR) Natural Heritage Information Centre (NHIC) on-line database for 1 km^2 grid squares 17PJ4070, 17PJ4071, 17PJ4072, 17PJ4172, 17PJ4171, 17PJ4270 and 17PJ4271.
- Department of Fisheries and Oceans (DFO) on-line Aquatic Species at Risk (SAR) mapping.
- Two databases maintained by Birds Canada (formerly Bird Studies Canada) including eBird and the second Ontario Breeding Bird Atlas (OBBA 2) for grid square 17TPJ47.
- Ontario Nature's Ontario Reptile and Amphibian Atlas (ORAA) for grid square 17PJ47.
- *Atlas of the Mammals of Ontario* (Dobbyn 1984) and *The Natural History of Canadian Mammals* (Naughton 2012).
- iNaturalist Rare Species of Ontario on-line database.
- iNaturalist Herps of Ontario on-line database.

2.2 FIELD SURVEYS AND ASSESSMENTS

Terrapex biologists completed a variety of field surveys and assessments to supplement the data obtained from the review of existing information sources. This included the delineation and characterization of vegetation communities; the completion of surveys for vascular plants, bats, and breeding birds; the assessment of candidate Significant Wildlife Habitat (SWH) as defined by MNR (2000) and/or MNRF (2015); and the assessment of potential bat maternity roost habitat. Incidental observations of wildlife or evidence of their presence (e.g., nests, tracks, scat) were also recorded. The following sections describe further the methodology of fieldwork completed by Terrapex biologists.

2.2.1 ECOLOGICAL LAND CLASSIFICATION (ELC) AND BOTANICAL SURVEY

A Terrapex biologist described and mapped vegetation communities at the Site in accordance with the methodology of *Ecological Land Classification for Southern Ontario: First Approximation and Its Application* (Lee et al. 1998). ELC nomenclature was assigned based on the *Ecosites of Ontario: Operational Draft April 20th 2009* (Banton et al. 2009). During the identification of vegetation communities, the biologist also completed a botanical inventory of the Site.

2.2.2 BAT ACOUSTIC SURVEY

To assess its potential use by bats, a Terrapex biologist used a Wildlife Acoustics Echo Meter Touch 2 Pro to complete a preliminary acoustic survey for bats at four stations within the Site (**Figure 3**). Per MECP (2021a) protocols, the acoustic survey was completed in June, on a warm/mild night (i.e., ambient temperature above 10°C) with low winds and no precipitation.

2.2.3 BAT EXIT SURVEYS

Terrapex biologists visually inspected the Site's buildings to assess their potential to function as roosts for bats and subsequently completed bat exit surveys per MECP guidance (**Appendix II**). Terrapex biologists completed exit surveys at three stations located adjacent to potential access points (**Figure 3**). Per MECP (2021b) protocols, exit surveys were completed on two separate evenings in June, on warm/mild nights (i.e., ambient temperature above 15°C) with low winds and no precipitation. During both exit surveys Terrapex biologists used a Wildlife Acoustics Echo Meter Touch 2 Pro to supplement their visual observations.

2.2.4 BREEDING BIRD SURVEYS

Terrapex biologists conducted two breeding bird surveys at three point count stations within the Site per Ontario Breeding Bird Atlas 3 (OBBA 3) protocols (**Figure 4**). OBBA 3 is a partnership between Birds Canada, the Canadian Wildlife Service (CWS), MNRF, Ontario Field Ornithologists (OFO) and Ontario Nature (Birds Canada et al. 2021). Both surveys were completed during the peak of breeding season (i.e., May 24-July 10), between 30 minutes before sunrise and five hours after sunrise. Survey dates were chosen to ensure favourable weather conditions, with wind speeds generally below 19 km/hr and no precipitation.

2.2.5 SIGNIFICANT WILDLIFE HABITAT

MNRF broadly categorizes SWH as (i) seasonal concentration areas, (ii) rare vegetation communities or specialized habitats for wildlife, (iii) habitats of species of conservation concern, excluding the habitats of Endangered and Threatened species, and (iv) animal movement corridors (MNR 2000). Based on a reconnaissance-level survey of the subject property and the results of other fieldwork (e.g., ELC), Terrapex assessed the potential occurrence of SWH within the subject property based on the criteria outlined by the *Significant Wildlife Habitat Technical Guide* (MNR 2000) and/or the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNRF 2015).

2.2.6 CANDIDATE BAT MATERNITY ROOST HABITAT ASSESSMENT

A Terrapex biologist surveyed the Site under leaf-off conditions per MECP (2021a) protocols to identify snags with the potential to function as maternity roost habitat for Little Brown Myotis (*Myotis lucifugus*) and/or Northern Myotis (*Myotis septentrionalis*). MNRF (2017) defines a snag as a standing live or dead tree with a diameter at breast height (dbh) of at least 10 cm and cracks, crevices, hollows, cavities, and/or loose or naturally exfoliating bark.

For each snag, Terrapex biologists recorded the following information:

- Unique identification number.
- Tree species.
- Approximate height (m).
- Diameter at breast height (cm).
- Location as determined by a hand-held Global Navigation Satellite System (GNSS) receiver and expressed as NAD83 Universal Transverse Mercator (UTM) coordinates.
- Number, size, and location (height above ground) of any cracks, crevices, or cavities.
- Canopy cover within a 10 m diameter circle centered on the snag.
- Number of other snags located within 10 m.
- Decay class per Watt and Caceres (1999).
- Extent (%) of peeling bark (if present).

Terrapex biologists used the following MECP (2021a) criteria to assess the relative potential of each snag located within the Site to function as bat maternity roost habitat, listed in order of importance:

1. Tallest snag.
2. Snag exhibits cavities or crevices most often originating as cracks, knot holes, or woodpecker cavities.
3. Snag with the largest dbh > 25 cm.
4. Snag located within a cluster of other snags.
5. Snag that has a large amount of peeling bark.
6. Snag with a cavity or crevice located high up on the tree (> 10 m).
7. Snag is of a species that provides good cavity habitat (e.g., Pine, Maple, Ash, Oak).
8. Canopy is more open.
9. Snag is in early stages of decay (i.e., Watt and Caceres (1999) Decay Class 1–3).

Each snag was identified as having low, moderate, or high potential to function as maternity roost habitat for Little Brown Myotis or Northern Myotis based on the scoring protocol provided in **Appendix III**.

2.2.7 SPECIES AT RISK SCREENING

Per MECP (2019) guidance, Terrapex reviewed existing information sources to identify SAR that, based on their distribution, have the potential to occur within the Site and/or adjacent lands. Terrapex assessed the presence/absence of those SAR potentially present based on the availability of suitable habitat and the results of field surveys and assessments. Terrapex provided the results of this SAR screening to MECP for review and comment.

3.0 SITE CHARACTERIZATION

The following sections describe the natural heritage features of the Site based on the review of existing information sources and the results of field surveys and assessments.

3.1 VEGETATION COMMUNITIES AND VASCULAR PLANTS

Terrapex biologists completed a botanical inventory of the Site and identified its vegetation communities on June 23, 2020. Two vegetation communities are present. The majority of the Site consists of cultivated agricultural land that is further classified as annual row crops (OAGM1). The remainder of the Site can be described as residential rural property (CVR_4). This latter portion of the Site includes the residential dwelling, garage, barn and other outbuildings, as well as the disturbed areas surrounding these structures (**Figure 5**).

An MHBC arborist completed a tree inventory of the Site on December 4, 2020 and identified 53 individual trees and five tree groupings of 16 different species (MHBC 2020). Three species comprise the majority of trees present:

- Black Walnut (*Juglans nigra*): 19 specimens
- Manitoba Maple (*Acer negundo*): 10 specimens
- White Spruce (*Picea glauca*): 6 specimens

Terrapex biologists identified a further 43 vascular plant species within the Site (**Table 1**).

Of the total of 59 vascular plant species recorded from the Site, TRCA (2017) identifies 36 (61%) as non-native or probably introduced. None of the 59 recorded species is considered a SAR and only one, White Spruce, is considered by TRCA (2017) to be a species of regional conservation concern (L3).

3.2 MAMMALS

The Atlas of the Mammals of Ontario (AMO) provides records of mammal presence in Ontario for grid squares measuring 10 km x 10 km in area. The Atlas includes records of 24 mammal species from the general area of the Site (Dobbyn 1994). Of these 24 species, 23 are considered common (S4) or very common (S5) in Ontario. One of the 24 species is considered rare to uncommon (S3) in Ontario and is designated Endangered under the Endangered Species Act (2007): Little Brown Myotis (**Table 2**).

A Terrapex biologist completed a preliminary acoustic survey of the Site for bats on July 6, 2021 between 9:40 pm and 12:17 am. During the acoustic survey, the temperature ranged from 22 ˚C (beginning of survey) to 18 ˚C (end of survey) and the wind speed was low (Beaufort Scale = 1). There was no precipitation during the survey.

During the survey the Echo Meter Touch 2 Pro recorded a total of 95 bat passes. Most bat activity was recorded at Station 1; this likely reflects bats foraging at the pond located immediately south of the Site (**Figure 3**).

The majority of recordings (65 of 95) were identified as Big Brown Bat (*Eptesicus fuscus*) and/or Silver-haired Bat (*Lasionycteris noctivagans*). All but one of the other recordings (i.e., 29 of 30) was identified as Hoary Bat (*Lasiurus cinereus*). The NHIC considers these three bat species "Apparently Secure" (S4) and none is designated a SAR. A single recording was identified as Little Brown Myotis. NHIC consider this species to be "Rare to Uncommon" (S3) and it is designated Endangered under the Endangered Species Act (2007).

Terrapex biologists visually inspected the Site's buildings on June 24, 2021 to assess their potential to function as bat roosts. Based on the results of this inspection, Terrapex biologists completed two exit surveys of buildings with the potential function as bat roosts (**Table 3**). Terrapex biologists observed no bats emerge from the surveyed buildings, but recorded incidentally a total of 30 bat passes, including 15 by Big Brown Bat and/or Silver-haired Bat, 14 by Hoary Bat and a single pass by Eastern Red Bat (*Lasiurus borealis*).

3.3 BIRDS

The second Ontario Breeding Bird Atlas (OBBA 2) includes records of 115 species of birds from the 10 km x 10 km grid square (17TPJ47) which encompasses the Site. Terrapex biologists recorded 38 of these 115 species from the Site during two breeding bird surveys completed on June 24, 2021 and July 10, 2021, and/or through incidental observation during other fieldwork (**Table 4**). The NHIC considers all 38 species recorded by Terrapex as common (S4) or very common (S5) in Ontario, but TRCA (2017) ranks three of the 38 as species of regional conservation concern. One of the 38 species recorded, Barn Swallow (*Hirundo rustica*) is currently designated Threatened under both the provincial Endangered Species Act (2007) and the federal Species at Risk Act (2002).

Terrapex biologists visually inspected the Site's buildings on June 24, 2021 to assess their use by nesting birds. Terrapex biologists located a single active Barn Swallow nest within the upper level of the barn, and three inactive Barn Swallow nests in the barn's lower level (**Appendix IV**). Terrapex biologists also observed in the barn's lower level three other inactive nests, likely those of Eastern Phoebe (*Sayornis phoebe*), American Robin (*Turdus migratorius*) and Rock Pigeon (*Columba livia*) or Mourning Dove (*Zenaida macroura*).

3.4 HERPETOFAUNA

The Ontario Reptile and Amphibian Atlas (ORAA) database includes records of 14 herpetofauna from the 10 km x 10 km grid square (17PJ47) which encompasses the Site. The NHIC considers thirteen of these 14 species common (S4) or very common (S5) in Ontario, though TRCA (2017) ranks 11 of the 14 as species of regional conservation concern (**Table 5**). The remaining species, Snapping Turtle (*Chelydra serpentina*) is designated Special Concern under both the provincial Endangered Species Act (2007) and the federal Species at Risk Act (2002).

The Site lacks suitable wetland habitat for most species of herpetofauna, particularly ranid frogs and turtles, and Terrapex biologists did not observe incidentally within the Site any of the 14 species previously recorded from grid square 17PJ47.

3.5 SIGNIFICANT WILDLIFE HABITAT

The Site includes two cultural ELC community classes (OAG1 and CVR_4). Cultural ELC community classes may include features that could function as wildlife habitat, but none of the features assessed at the Site meets the criteria of SWH as defined by the MNR (2000) and/or MNRF (2015).

3.6 BAT MATERNITY ROOST HABITAT

To identify snags with the potential to function as maternity roost habitat for Little Brown Myotis and/or Northern Myotis, a Terrapex biologist surveyed the Site under leaf-off conditions on April 8, 2022 and April 10, 2022. The biologist identified and assessed a total of 10 snags (**Figure 6**). **Table 6** summarizes the physical characteristics of the 10 snags and their relative potential to function as bat maternity roost habitat, as assessed by Terrapex. All but one of the 10 snags were assessed as having low or moderate potential to function as bat maternity roost habitat. **Appendix IV** provides representative photographs of the assessed snags.

3.7 SPECIES AT RISK SCREENING

Through its review of existing information sources, Terrapex identified 14 SAR that, based on their distribution, have the potential to occur within the Site and/or adjacent lands. Potentially suitable habitat for five of these 14 SAR is present within the Site, but the completion of field surveys and assessments confirmed the presence of only two: Barn Swallow and Little Brown Myotis (**Table 7**). Terrapex provided the results of its SAR screening to MECP for review and MECP recommended measures to address SAR bats (**Appendix II**). This report reflects these MECP recommendations.

4.0 PROPOSED DEVELOPMENT

The proposed development of the Site consists of 218 stacked townhouses with associated parking spaces and roadways (**Appendix V**). This development will require the removal of the existing buildings (i.e., residential dwelling, garage, barn and smaller outbuildings) as well as the majority of the existing trees and tree groupings. MHBC recommends the retention of five trees located at the Site's periphery (MHBC 2020).

5.0 NATURAL HERITAGE PLANNING CONSIDERATIONS

Terrapex reviewed the following legislation, regulation, plans and policy documents to assess their implications for the Site's proposed development:

- Species at Risk Act (2002)
- Endangered Species Act (2007)
- Provincial Policy Statement (2020)
- Oak Ridges Moraine Conservation Plan (2017)
- Regional Municipality of York Official Plan – Office Consolidation (2019)
- Town of Whitchurch-Stouffville Official Plan – Office Consolidation (2020)
- TRCA's Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (i.e., Ontario Regulation 166/06)

5.1 SPECIES AT RISK ACT

The federal Species at Risk Act (2002) received Royal Assent on December 12, 2002. The Act, also known as SARA, is intended to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened.

SARA includes general prohibitions to protect species listed on Schedule 1. These include the following:

Section 32(1) states that no person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an Extirpated species, an Endangered species or a Threatened species.

Section 33 states that no person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an Endangered species or a Threatened species, or that is listed as an Extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.

SARA defines a residence as a dwelling-place, such as a den, nest or other similar area or place, that is occupied or habitually occupied by one or more individuals during all or part of their life cycles, including breeding, rearing, staging, wintering, feeding or hibernating.

As the Site is not located within federal lands, the general prohibitions of Section 32 and Section 33 only apply to:

- Aquatic species listed as Endangered, Threatened or Extirpated in Schedule 1 of SARA; and
- Migratory birds listed in the Migratory Birds Convention Act (1994) and also listed as Endangered, Threatened or Extirpated in Schedule 1 of SARA.

Barn Swallow is the only SAR present at the Site to which the general prohibitions of Section 32 and Section 33 apply. Barn Swallow is listed in the Migratory Birds Convention Act (1994) and is currently listed as Threatened in Schedule 1 of SARA.

Under SARA, in Ontario, the nest of a Barn Swallow, occupied or not, is only considered a residence from May 1 or the date when adults are first seen building or occupying the nest, whichever is earlier, to August 31 or the date when a bird is last seen at the nest, whichever is later (Government of Canada 2019).

The proposed removal of the Site's existing barn will result in the destruction of one active and three inactive Barn Swallow nests. However, as long as the barn's removal is undertaken outside of the period when these nests satisfy the definition of residence, their destruction would not contravene Section 33 of SARA.

In April, 2021, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) reassessed Barn Swallow as Special Concern; the federal Minister of the Environment received this reassessment on October 12, 2021. The Minister is currently undertaking consultations to determine whether or not to amend SARA Schedule 1 to downlist Barn Swallow to Special Concern, or whether to refer the matter back to COSEWIC (Government of Canada 2022).

Should Barn Swallow be downlisted from Threatened to Special Concern, the removal of the Site's existing barn would not contravene Section 33 of SARA, as it does not prohibit the damage or destruction of the residences of wildlife species assessed as Special Concern.

5.2 ENDANGERED SPECIES ACT

Ontario's Endangered Species Act (2007) came into force on June 30, 2008. The Act, administered by the MECP, has three purposes:

(1) To identify species at risk based on the best available scientific information, including information obtained from community knowledge and aboriginal traditional knowledge.

(2) To protect species that are at risk and their habitats, and to promote the recovery of species that are at risk.

(3) To promote stewardship activities to assist in the protection and recovery of species that are at risk.

Section 9.1(a) of the Act states that no person shall kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario list as an Extirpated, Endangered or Threatened species.

Section 10.1(a) of the Act states that no person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an Endangered or Threatened species.

Terrapex identified two SAR at the Site: Barn Swallow (Threatened) and Little Brown Myotis (Endangered).

5.2.1 BARN SWALLOW

Proposed removal of the Site's existing barn will result in the destruction of nesting habitat for a single pair of Barn Swallows. As Barn Swallow is currently listed as a Threatened species, the existing barn can only be removed in compliance with the requirements of the Endangered Species Act (2007) through the following mechanisms:

- Secure a Regulatory Exemption per Ontario Regulation 830/21
- Payment of a Species Conservation Charge per Ontario Regulation 829/21

However, the Committee on the Status of Species at Risk in Ontario (COSSARO) reassessed Barn Swallow as Special Concern in September 2021; this reassessment was formally reported to the Minister of the Environment, Conservation and Parks on January 26, 2022. Under the Endangered Species Act (2007), the MECP must amend the Species at Risk in Ontario (SARO) list within 12 months of the receipt of a report from COSSARO. Accordingly, Terrapex anticipates that the SARO list will be revised to reflect the downlisting of Barn Swallow to Special Concern by January 27, 2023.

Once Barn Swallow has been downlisted, authorization under the Endangered Species Act (2007) will not be required to remove the Site's existing barn as Section 10.1(a) of the Act does not afford habitat protection to species assessed as Special Concern.

5.2.2 LITTLE BROWN MYOTIS

Terrapex provided MECP with the results of its SAR screening on May 20, 2022. In its response, MECP indicates that the acoustic survey completed by Terrapex "appears to preclude the use" of the treed portions of the Site by SAR bats, but recommends that mitigation measures be employed to ensure the proposed development does not negatively affect Little Brown Myotis (**Appendix II**). Section 7 describes mitigation measures recommended by Terrapex.

5.3 PROVINCIAL POLICY STATEMENT

The Provincial Policy Statement (PPS) provides policy direction on matters of provincial interest related to land use planning and development. The Ministry of Municipal Affairs and Housing (MMAH) issues the PPS under the authority of Section 3 of the Planning Act (R.S.O. 1990). The most recent version of the PPS came into effect on May 1, 2020 (MMAH 2020). Section 2.1 of the PPS defines and provides direction regarding the protection and management of 10 types of natural heritage features and areas:

- Significant wetlands in Ecoregions 5E, 6E, and 7E
- Significant coastal wetlands
- Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E, and 7E
- Significant woodlands in Ecoregions 6E and 7E
- Significant valleylands in Ecoregions 6E and 7E
- Significant wildlife habitat
- Significant Areas of Natural and Scientific Interest
- Coastal wetlands in Ecoregions 5E, 6E, and 7E
- Fish habitat
- Habitat of Endangered species and Threatened species

Of these 10 types of natural heritage features and areas, only one is present within the Site: the habitat of Endangered species and Threatened species.

Section 2.1.7 of the PPS states that development and site alteration shall not be permitted in the habitat of Endangered species and Threatened species, except in accordance with provincial and federal requirements.

As described in Section 5.1 (above) and Section 5.2.1 (above), proposed development of the Site can be completed in compliance with the requirements of the provincial Endangered Species Act (2007) and the federal Species at Risk Act (2002).

5.4 OAK RIDGES MORAINE CONSERVATION PLAN

The Oak Ridges Moraine Conservation Plan (ORMCP) was established under the Oak Ridges Moraine Conservation Act (2001) to provide land use and resource management planning direction on how to protect the Moraine's ecological and hydrological features and functions. The ORMCP is administered by the MMAH; the most recent version of the Plan came into effect on July 1, 2017.

The ORMCP establishes the following four land use designations:

- Natural Core Areas
- Natural Linkage Areas
- Countryside Areas
- Settlement Areas

The Site is designated a Settlement Area under the ORMCP. The ORMCP allows within Settlement Areas urban uses and development as set out in municipal official plans.

The ORMCP identifies eight types of Key Natural Heritage Features (KNHF) and four types of Key Hydrological Features (KHF), numbered 1-8 and 9-12, respectively:

1. Wetlands
2. Habitat of Endangered and Threatened species
3. Fish habitat
4. Areas of natural and scientific interest (life science)
5. Significant valleylands
6. Significant woodlands
7. Significant wildlife habitat (including habitat of special concern species)
8. Sand barrens, savannahs and tallgrass prairies
9. Permanent and intermittent streams
10. Wetlands
11. Kettle lakes
12. Seepage areas and springs

Of the eight types of KNHF and four types of KHF, only one is present within the Site: the habitat of Endangered species and Threatened species.

Section 22 (2) of the ORMCP generally prohibits development and site alteration within KNHF and KHF. However, within Settlement Areas, the ORMCP permits development and site alternation within the habitat of an Endangered or Threatened species if the following conditions are met:

(i) the development or site alteration is not prohibited under the Endangered Species Act (2007) and it complies with any requirements or restrictions under that Act, and

(ii) it is not within any other KNHF or the related minimum vegetation protection zone.

The proposed development of the Site satisfies these requirements.

5.5 REGIONAL MUNICIPALITY OF YORK OFFICIAL PLAN

York Region comprises nine local municipalities, including the Town of Whitchurch-Stouffville. York Region's Official Plan (ROP) guides economic, environmental and community building decisions to manage growth by helping to coordinate and direct more detailed planning by local municipalities (York Region 2019).

Section 2 of the ROP outlines policies to identify, protect and enhance a Regional Greenlands System (RGS). Section 2 also outlines policies to identify, protect and where possible enhance Key Natural Heritage Features (KNHF) and Key Hydrologic Features (KHF). KNHF and KHF can exist within or outside of the RGS and consist of the following:

- significant habitat of Endangered and Threatened species
- fish habitat
- wetlands
- Life Science Areas and Earth Science Areas of Natural and Scientific Interest
- Environmentally Significant Areas
- significant valleylands
- significant woodlands
- Significant Wildlife Habitat (SWH)
- sand barrens, savannahs and tallgrass prairies
- lakes and their littoral zones
- permanent and intermittent streams
- kettle lakes
- seepage areas and springs deemed vulnerable or sensitive surface water features
- Lake Simcoe Shoreline

The Site is located outside of the RGS. Of the 14 types of KNHF and KHF defined by the ROP, only one is present within the Site: the habitat of Endangered species and Threatened species.

Section 2.2.14 of the ROP prohibits within the Oak Ridges Moraine development or site alteration in KNHF and KHF or their associated vegetation protection zones, except as provided for by the ORMCP. As described in Section 5.4 (above), the proposed development of the Site satisfies the requirements of the ORMCP.

5.6 TOWN OF WHITCHURCH-STOUFFVILLE OFFICIAL PLAN

The Official Plan for the Town of Whitchurch-Stouffville provides policies and implementation approaches to guide decision making by the Town with respect to the natural environment, land use, community services, social and cultural matters and development review. The Plan identifies a Greenland System for the Community of Stouffville that includes Key Natural Heritage Features (KNHF) and Hydrologically Sensitive Features (HSF) including streams, woodlands, kettle lakes and wetlands, and the minimum vegetation protection zone associated with these features (Town of Whitchurch-Stouffville 2020). The Site is located outside of the Community of Stouffville Greenland System (**Figure 2**).

The Site, along with nearly all of the other portions of the Community of Stouffville, is located within the Oak Ridges Moraine. Section 3.2.9 of the Town of Whitchurch-Stouffville Official Plan states that development and site alternation within this area are subject to the provisions of the ORMCP. As described in Section 5.4 (above) the proposed development of the Site satisfies the requirements of the ORMCP.

Section 3.5.6(i) of the Town of Whitchurch-Stouffville Official Plan states the following:

> Notwithstanding any other provisions of the Plan, and regardless of the land use designation, no development or site alteration shall be permitted in significant habitat of endangered species and threatened species; and in fish habitat, except in accordance with provincial or federal requirements.

As described in Section 5.1 (above) and Section 5.2.1 (above), proposed development of the Site can be completed in compliance with the requirements of the provincial Endangered Species Act (2007) and the federal Species at Risk Act (2002).

5.7 ONTARIO REGULATION 166/06

The TRCA administers Ontario Regulation 166/06, also known as the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation. Section 2 of the Regulation prohibits development in certain areas (e.g., floodplains, river valleys and wetlands) unless, in the opinion of the TRCA, the proposed development will not affect the control of flooding, erosion, dynamic beaches, pollution or the conservation of land.

No portion of the Site is subject to Ontario Regulation 166/06 (**Figure 2**).

6.0 ASSESSMENT OF IMPACTS

The following sections describe the impacts of the proposed development on the natural heritage features of the Site. Potential impacts will be avoided or minimized to the extent possible through the implementation of mitigation measures and best management practices as described in Section 7.

6.1 REMOVAL OF EXISTING VEGETATION

The proposed development will result in the permanent removal of two cultural vegetation communities, including approximately 1.1 ha of cultivated agricultural land and 0.9 ha of disturbed land that encompasses the existing residential dwelling, garage, barn and other outbuildings. With the exception of five trees located at the Site's periphery, all of the 53 individual trees and five tree groupings identified by MHBC (2020) will be removed. In the opinion of Terrapex, the removal of this vegetation will have limited ecological impacts because:

- Both vegetation communities are anthropogenic, and neither is considered sensitive or rare.
- TRCA (2017) identifies the majority (61%) of the 59 vascular plant species recorded from the Site as non-native or probably introduced.
- None of the 59 recorded vascular plant species recorded from the Site is considered a SAR and only one, White Spruce, is considered by TRCA (2017) to be a species of regional conservation concern (L3).

6.2 IMPACTS TO RETAINABLE TREES

In the absence of appropriate protection measures, construction activities could negatively affect the five trees recommended for retention through machinery impacts to their trunks, branches and/or bark. Proposed development also has the potential to result in root zone disturbance during grading. Physical injuries can affect tree health and may lead to tree mortality (MNR 2010).

Section 7 outlines tree protection measures to mitigate the potential impacts of proposed development on trees recommended for retention.

6.3 IMPACTS ON WILDLIFE

The proposed development will result in the permanent removal of the two cultural vegetation communities that comprise the Site, including most of the 53 individual trees and all of the five tree groupings identified by MHBC (2020). Proposed tree removal includes eight of the 10 snags identified by Terrapex (**Figure 6**). In the opinion of Terrapex, proposed vegetation removal will have limited impacts on wildlife because:

- The Site comprises only a small part of a larger landscape-level mosaic of agricultural land and rural residential development that provides similar habitat for wildlife.
- Both vegetation communities are anthropogenic and neither includes SWH as defined by MNR (2000) and/or MNRF (2015).
- All but one of the eight snags proposed for removal have low to moderate potential to function as bat maternity roost habitat. Available data for bats that roost in tree cavities or beneath exfoliating bark suggests that these species regularly shift roosts (Kunz and Lumsden 2003). In the opinion of Terrapex, the proposed removal of eight snags from the Site will have little to no impact on the local bat community due to the inherently ephemeral nature of snags and their widespread availability within the broader landscape.
- The Site's fauna largely consists of common, urban/semi-urban adapted species that are tolerant of urbanization.

The proposed development will also require the removal of all of the Site's existing buildings (i.e., the residential dwelling, garage, barn and smaller outbuildings). In the opinion of Terrapex, the proposed removal of most of these buildings will have no impact on wildlife. However, the removal of the barn will result in the destruction of one active and three inactive Barn Swallow nests. As described in Section 5.1 (above) and Section 5.2.1 (above), the proposed removal of the barn can be completed in compliance with the requirements of the provincial Endangered Species Act (2007) and the federal Species at Risk Act (2002).

Section 7.3 outlines measures to mitigate the potential impacts of the proposed development on wildlife.

6.4 SHORT TERM IMPACTS

Standard construction activities have the potential to result in short-term direct impacts to retained natural heritage features and their associated ecological and/or hydrological functions. Potential impacts include the following:

- **Erosion and sedimentation**: grading, excavation, fill placement, soil stockpiling, and the movement of heavy machinery have the potential to result in the movement of sediment beyond the Site (MNR 2010). Section 7 provides recommendations to prevent erosion and sedimentation impacts.

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- **Pollution**: construction-related activities within the Site such as on-site maintenance and refueling have the potential to result in contamination of soil and/or groundwater through spills (MNR 2010). Contamination of adjacent lands could also result from the movement off-site of dust and construction waste such as plastic wrapping (MNR 2010).

- **Disturbance of Wildlife**: the movement of large machinery and construction-associated noise pollution has the potential to result in the temporary disturbance and/or displacement of local wildlife (MNR 2010). In the opinion of Terrapex, the potential for such impacts is low because the existing fauna largely consists of common, urban/semi-urban adapted species that are tolerant of some degree of urbanization.

7.0 PROPOSED MITIGATION MEASURES

The following sections outline the mitigation measures and best management practices recommended by Terrapex to limit the potential impacts of the proposed development.

7.1 CONSTRUCTION LIMIT DEMARCATION

Erosion and sediment control fencing (see Section 7.4, below) should be installed prior to the commencement of construction activities to mark the limits of development/grading and to prevent incidental damage to retained trees. This fencing should be maintained throughout the entire period of construction.

7.2 TREE PROTECTION

Vegetation removal should be completed in a manner that avoids damage to those trees proposed for retention. Retained trees should be protected per MHBC (2020) recommendations.

7.3 WILDLIFE HABITAT LOSS

Loss of habitat during their roosting and nesting seasons could negatively affect bats and breeding birds, respectively. To minimize the potential impacts of the proposed development and to comply with relevant legislation (e.g., Migratory Birds Convention Act, 1994) Terrapex recommends the following:

- To minimize potential impacts to roosting bats (if present), proposed snag removal should be completed outside of the period identified by MECP when bat maternity colonies are active (i.e., April 1 – September 30).
- To minimize potential impacts to breeding birds, proposed vegetation removal and the demolition of the existing barn should be completed outside of the breeding bird timing window (April 1 – August 31) and the period when Barn Swallow nests satisfy the SARA definition of residence.

7.4 EROSION AND SEDIMENT CONTROL PLAN

An erosion and sediment control plan should be prepared and implemented to prevent sediment from migrating beyond the Site. Terrapex recommends that the plan reflect TRCA (2019) guidelines and incorporate the following erosion and sediment control measures:

- Installation of silt fencing along the limit of grading prior to any vegetation removal, grading, or excavation.
- Regular monitoring of the silt fencing during active construction and the prompt repair of any deficiencies.

- Revegetation as soon as possible of areas of exposed soil that are not subject to active construction.
- Maintenance of erosion and sediment control measures until construction and landscaping are completed.

7.5 CONSTRUCTION BEST MANAGEMENT PRACTICES

The following sections describe best management practices intended to minimize the potential for construction-related impacts during development.

7.5.1 VEHICLE MAINTENANCE AND REFUELLING

To minimize the potential for contamination by fuel and oil, any vehicle maintenance and refuelling within the Site should be completed as far as possible from retained trees, the pond located immediately south of the Site and the roadside ditch that runs along Tenth Line. By maximizing the separation from these features, any spills are less likely to result in their contamination.

7.5.2 STORAGE OF EQUIPMENT, MATERIALS AND FILL

To minimize the potential for encroachment into adjacent lands, construction equipment, materials, and fill should be stored as far as possible from the Site's boundaries, particularly those in closest proximity to the pond located immediately south of the Site and those that border the roadside ditch that runs along Tenth Line.

8.0 SUMMARY AND CONCLUSIONS

Terrapex reviewed background information and completed supplementary field surveys and assessments to characterize the natural heritage features of the Site. This information was used to assess the potential impacts of the proposed development of 218 stacked townhouses with associated parking spaces and roadways within the Site.

The Site currently consists of two cultural vegetation communities. None of the 59 plant species recorded from the Site is considered a SAR and TRCA (2017) identifies the majority (61%) as non-native or probably introduced. The Site's fauna largely consists of common, urban/semi-urban adapted species that are tolerant of urbanization. However, the Site's existing barn provides nesting habitat for Barn Swallow, a species currently designated Threatened under the provincial Endangered Species Act (2007) and the federal Species at Risk Act (2002).

In the opinion of Terrapex, the Site's proposed development will have limited ecological impacts. This conclusion reflects the following key considerations:

- Both vegetation communities proposed for removal are anthropogenic and neither includes SWH as defined by MNR (2000) and/or MNRF (2015).
- The Site's fauna largely consists of common, urban/semi-urban adapted species that are tolerant of urbanization.
- The Site comprises only a small part of a larger landscape-level mosaic of agricultural land and rural residential development that provides similar habitat for wildlife.
- The proposed removal of the Site's existing barn can be completed in compliance with the requirements of the provincial Endangered Species Act (2007) and the federal Species at Risk Act (2002).

Terrapex is of the opinion that with the implementation of the mitigation measures and best management practices described in Section 7, the Site's proposed development will have limited ecological impacts and satisfies the requirements of relevant legislation and land use policies as outlined in Section 5.

9.0 SIGNATURES

This scoped Environmental Impact Study was conducted in accordance with the terms of reference for this project, agreed upon by Ambria (Lincolnville) Limited and Terrapex Environmental Ltd.

Terrapex Environmental Ltd. has exercised due care, diligence, and judgement in completing this study; however, studies of this nature have inherent limitations. The reported information is believed to provide a reasonable representation of the general conditions at the Site. By necessity, the findings and observations regarding the conditions of the Site are based solely on the extent of observations and any other information gathered during the assessment, and subsequent investigations of differing scope may reveal conflicting results. Observations and data were collected at discrete locations and conditions may vary at other locations or with the passage of time.

In addition, our comments, conclusions, and recommendations are based in part on the observations and data documented by third parties. By necessity, except where explicitly noted, we have relied upon the accuracy and completeness of information presented by said third parties, regardless of any disclaimers regarding reliance provided in the documentation subjected to review. Terrapex Environmental Ltd. does not assume any responsibility for errors, omissions, or other limitations pertaining to third party work programs.

This report has been prepared for the sole use by Ambria (Lincolnville) Limited. Terrapex Environmental Ltd. accepts no liability for claims arising from the use of this report, or from actions taken or decisions made as a result of this report, by parties other than Ambria (Lincolnville) Limited.

Respectfully submitted,

TERRAPEX ENVIRONMENTAL LTD.

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Project Biologist

Chris Parent, M.Sc.
Senior Biologist and Project Manager

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FIGURES

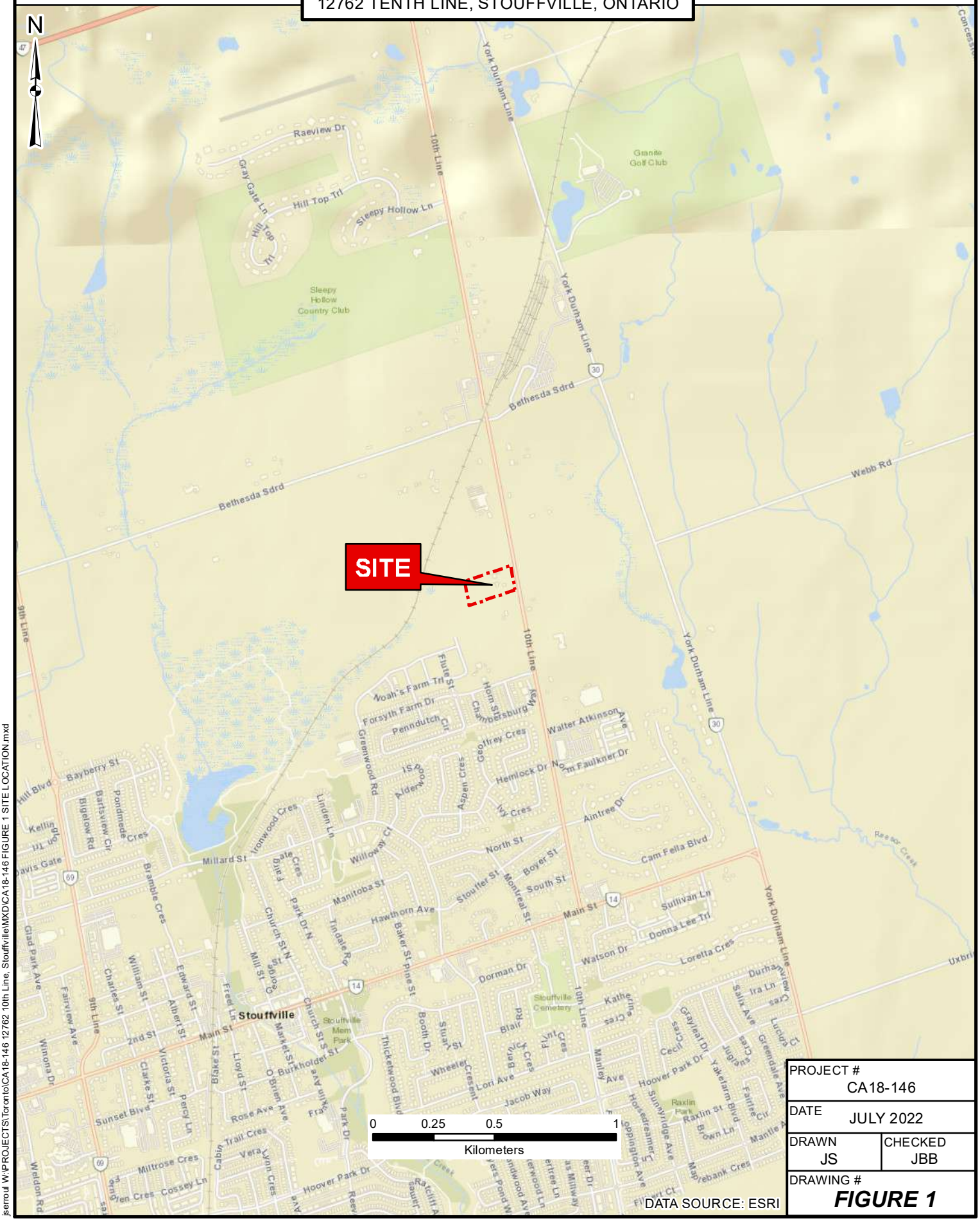
TERRAPEX

SITE LOCATION

12762 TENTH LINE, STOUFFVILLE, ONTARIO

CLIENT

AMBRIA (LINCOLNVILLE) LIMITED



DATA SOURCE: ESRI

PROJECT #	CA18-146
DATE	JULY 2022
DRAWN	JS
CHECKED	JBB
DRAWING #	**FIGURE 1**

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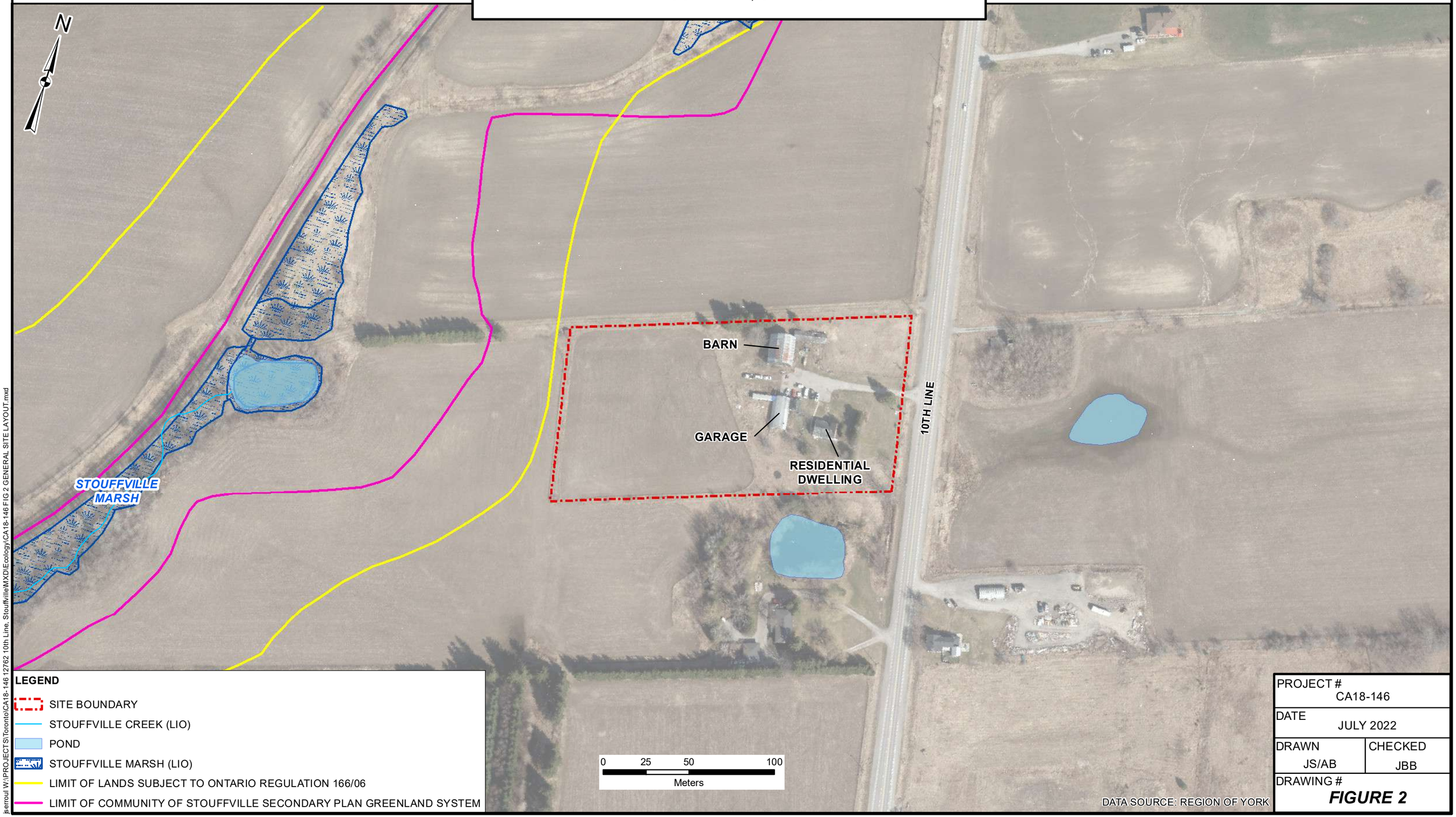
TERRAPEX

GENERAL SITE LAYOUT

12762 TENTH LINE
STOUFFVILLE, ONTARIO

CLIENT

AMBRIA (LINCOLNVILLE) LIMITED



LEGEND

- SITE BOUNDARY
- STOUFFVILLE CREEK (LIO)
- POND
- STOUFFVILLE MARSH (LIO)
- LIMIT OF LANDS SUBJECT TO ONTARIO REGULATION 166/06
- LIMIT OF COMMUNITY OF STOUFFVILLE SECONDARY PLAN GREENLAND SYSTEM

DATA SOURCE: REGION OF YORK

PROJECT # CA18-146	
DATE JULY 2022	
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jserroul W:\PROJECTS\Toronto\CA18-146 12762 10th Line, Stouffville\MXD\Ecology\CA18-146 FIG 2 GENERAL SITE LAYOUT.mxd

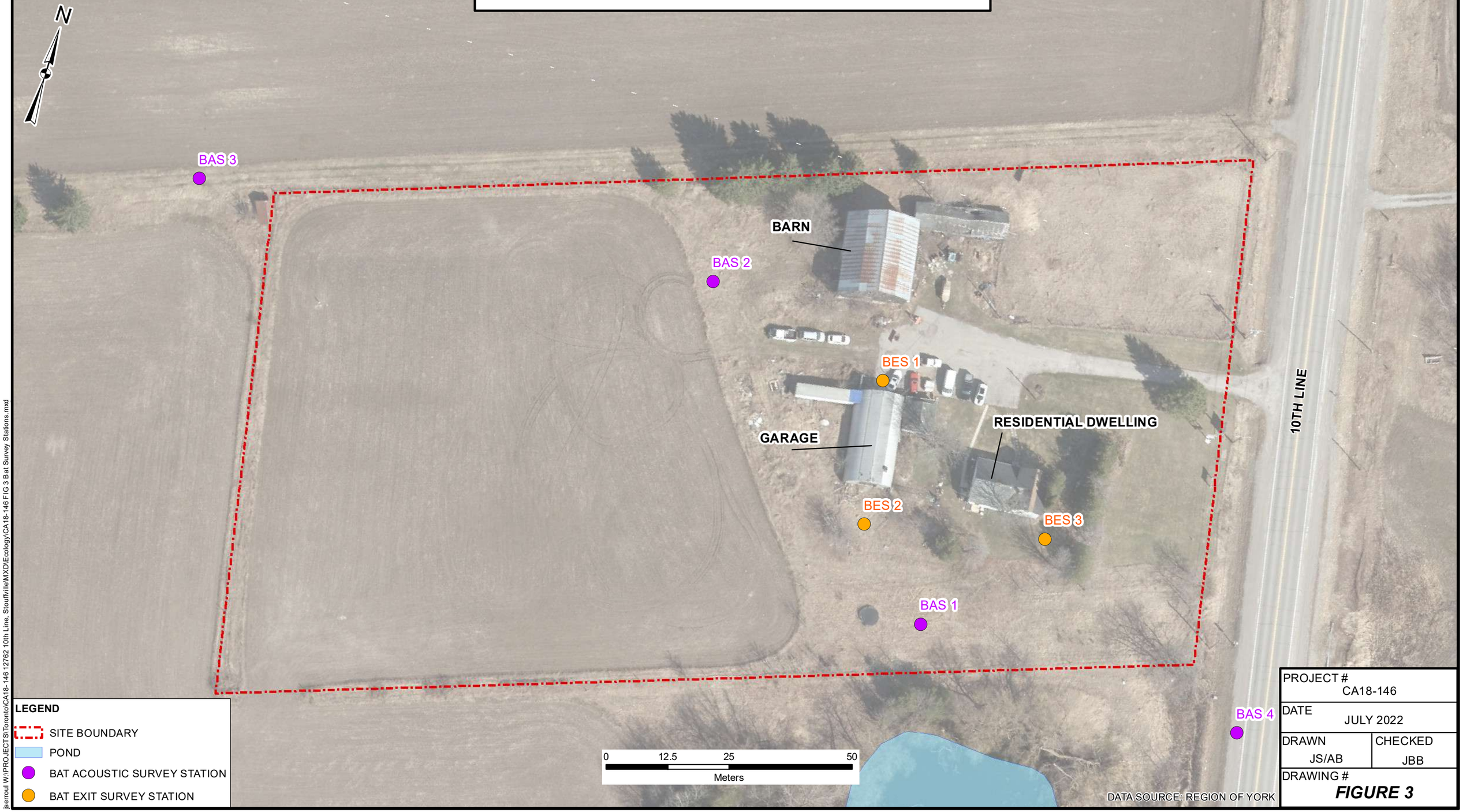
TERRAPEX

BAT SURVEY STATIONS

12762 TENTH LINE
STOUFFVILLE, ONTARIO

CLIENT

AMBRIA (LINCOLNVILLE) LIMITED



LEGEND

- SITE BOUNDARY
- POND
- BAT ACOUSTIC SURVEY STATION
- BAT EXIT SURVEY STATION

PROJECT #	CA18-146
DATE	JULY 2022
DRAWN	JS/AB
CHECKED	JBB
DRAWING #	***FIGURE 3***

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TERRAPEX

BREEDING BIRD SURVEY STATIONS

12762 TENTH LINE
STOUFFVILLE, ONTARIO

CLIENT

AMBRIA (LINCOLNVILLE) LIMITED

LEGEND

- SITE BOUNDARY
- POND
- BREEDING BIRD SURVEY STATION

DATA SOURCE: REGION OF YORK

PROJECT #	CA18-146
DATE	JULY 2022
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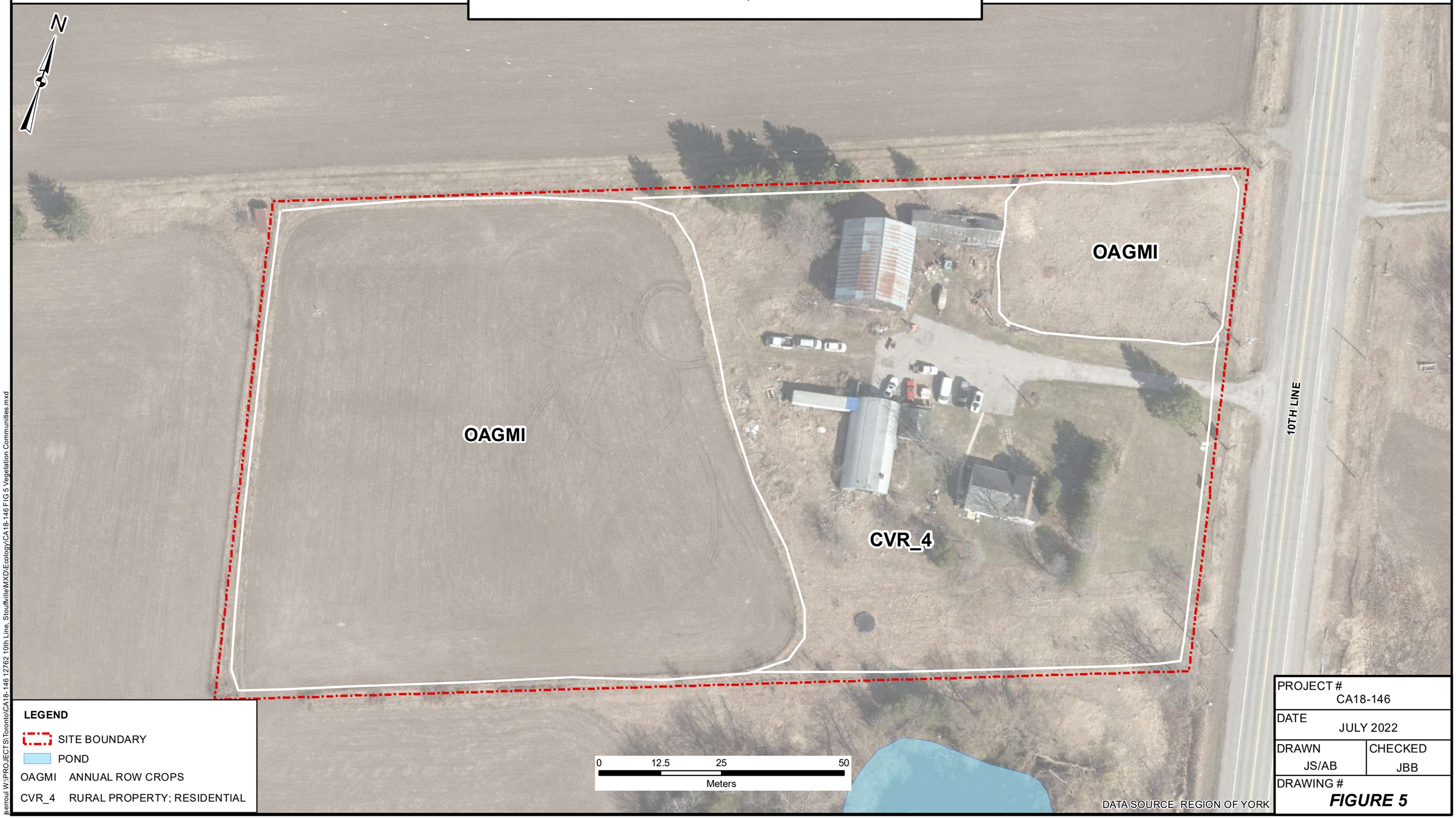
TERRAPEX

VEGETATION COMMUNITIES

12762 TENTH LINE
STOUFFVILLE, ONTARIO

CLIENT

AMBRIA (LINCOLNVILLE) LIMITED



LEGEND

- SITE BOUNDARY
- POND
- OAGMI ANNUAL ROW CROPS
- CVR_4 RURAL PROPERTY; RESIDENTIAL

DATA SOURCE: REGION OF YORK

PROJECT #	CA18-146
DATE	JULY 2022
DRAWN	JS/AB
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DRAWING #	***FIGURE 5***

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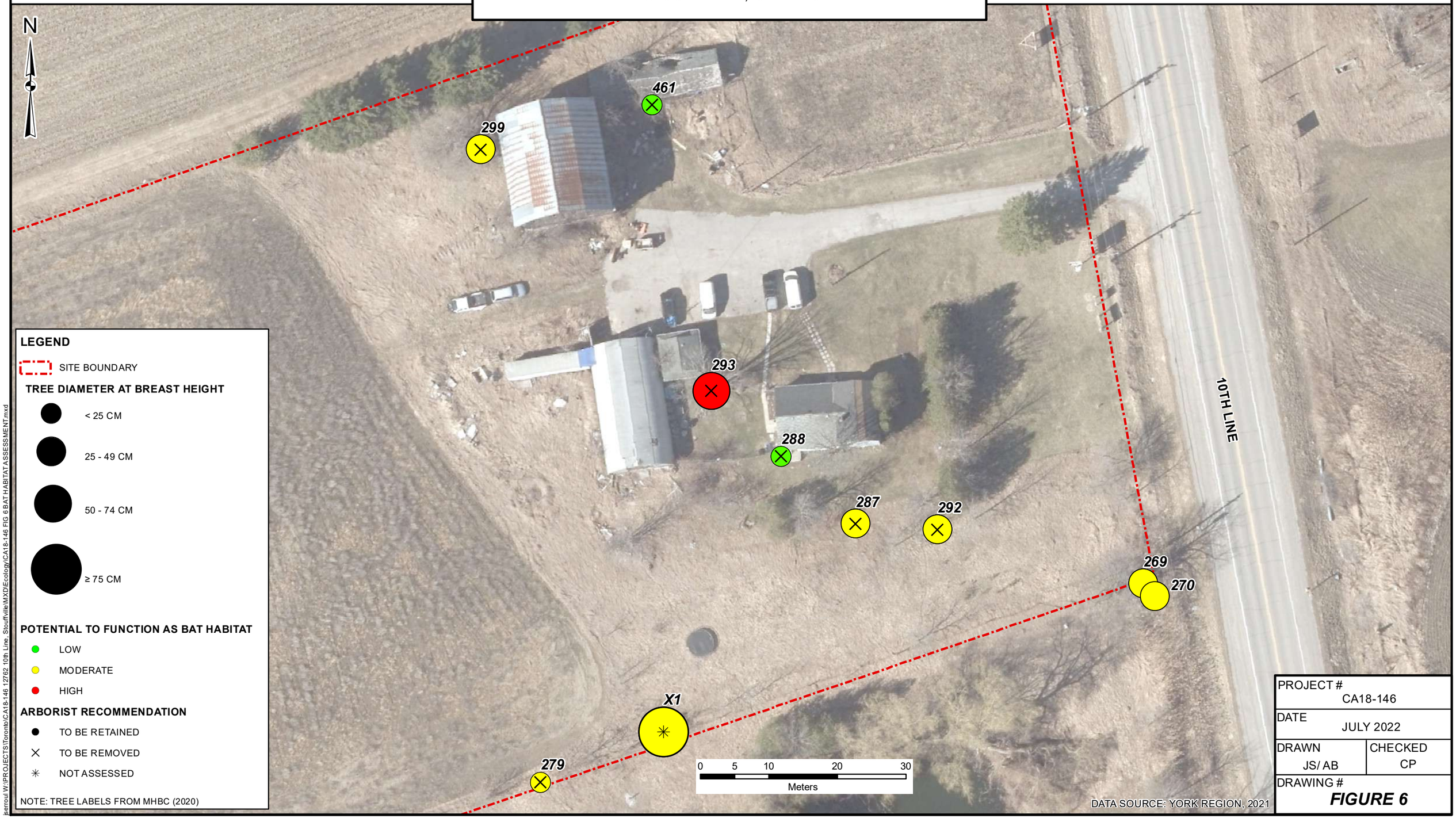
TERRAPEX

BAT HABITAT ASSESSMENT

12762 10TH LINE
STOUFFVILLE, ONTARIO

CLIENT

AMBRIA (LINCOLNVILLE) LIMITED



LEGEND

SITE BOUNDARY

TREE DIAMETER AT BREAST HEIGHT

- < 25 CM
- 25 - 49 CM
- 50 - 74 CM
- ≥ 75 CM

POTENTIAL TO FUNCTION AS BAT HABITAT

- LOW
- MODERATE
- HIGH

ARBORIST RECOMMENDATION

- TO BE RETAINED
- TO BE REMOVED
- NOT ASSESSED

NOTE: TREE LABELS FROM MHBC (2020)

DATA SOURCE: YORK REGION, 2021

PROJECT #	CA18-146
DATE	JULY 2022
DRAWN	JS/ AB
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DRAWING #	***FIGURE 6***

\\serroul\W:\PROJECTS\Toronto\CA18-146 12762 10th Line, Stouffville\MXD\Ecology\CA18-146 FIG 6 BAT HABITAT ASSESSMENT.mxd

TABLES

Table 1: Plants recorded by Terrapex during the June 23, 2020 botanical inventory.

Species		Status			
Common Name	**Scientific Name**	**SARO List[1]**	**COSEWIC[2]**	**S-Rank[3]**	**TRCA[4]**
Eastern White Cedar	*Thuja occidentalis*			S5	L4
Norway Spruce	*Picea abies*			SNA	L+
Smooth Brome	*Bromus inermis*			SNA	L+
Downy Brome	*Bromus tectorum*			SNA	L+
Bladder Campion	*Silene vulgaris*			SNA	L+
Russian Olive	*Elaeagnus angustifolia*			SNA	L+
Common Milkweed	*Asclepias syriaca*			S5	L5
Canada Avens	*Geum canadense*			S5	L5
Trembling Aspen	*Populus tremuloides*			S5	L5
Black Walnut	*Juglans nigra*			S4	L5
White Elm	*Ulmus americana*			S5	L5
Common Lamb's-quarters	*Chenopodium album*			SNA	L+
Greater Celandine	*Chelidonium majus*			SNA	L+
Common Shepherd's Purse	*Capsella bursa-pastoris*			SNA	L+
Dame's Rocket	*Hesperis matronalis*			SNA	L+

Species		Status			
Common Name	**Scientific Name**	**SARO List[1]**	**COSEWIC[2]**	**S-Rank[3]**	**TRCA[4]**
Field Pennycress	*Thlaspi arvense*			SNA	L+
Goutweed	*Aegopodium podagraria*			SNA	L+
Wild Strawberry	*Fragaria virginiana*			S5	L5
Chokecherry	*Prunus virginiana*			S5	L5
North American Red Raspberry	*Rubus idaeus ssp. strigosus*			S5	L5
Garden Bird's-foot Trefoil	*Lotus corniculatus*			SNA	L+
Black Locust	*Robinia pseudoacacia*			SNA	L+
Red Clover	*Trifolium pratense*			SNA	L+
White Clover	*Trifolium repens*			SNA	L+
Tufted Vetch	*Vicia cracca*			SNA	L+
Staghorn Sumac	*Rhus typhina*			S5	L5
Manitoba Maple	*Acer negundo*			S5	L+?
Horse Chestnut	*Aesculus hippocastanum*			SNA	L+
European Buckthorn	*Rhamnus cathartica*			SNA	L+
Riverbank Grape	*Vitis riparia*			S5	L5
Basswood	*Tilia americana*			S5	L5

Species		Status			
Common Name	**Scientific Name**	**SARO List[1]**	**COSEWIC[2]**	**S-Rank[3]**	**TRCA[4]**
Smooth Bedstraw	*Galium mollugo*			SNA	L+
Wild Carrot	*Daucus carota*			SNA	L+
Red-osier Dogwood	*Cornus stolonifera*			S5	L5
Common Lilac	*Syringa vulgaris*			SNA	L+
Common Motherwort	*Leonurus cardiaca*			SNA	L+
Common Plantain	*Plantago major*			SNA	L+
Red Elderberry	*Sambucus racemosa ssp. pubens*			S5	L5
Common Ragweed	*Ambrosia artemisiifolia*			S5	L5
Common Burdock	*Arctium minus*			SNA	L+
Canada Thistle	*Cirsium arvense*			SNA	L+
Philadelphia Fleabane	*Erigeron philadelphicus*			S5	L5
Mouse-ear Hawkweed	*Pilosella officinarum*			SNA	L+
Prickly Lettuce	*Lactuca serriola*			SNA	L+
Oxeye Daisy	*Leucanthemum vulgare*			SNA	L+
Wild Chamomile	*Matricaria chamomilla*			SNA	L+
Canada Goldenrod	*Solidago canadensis*			S5	L5

Species		Status			
Common Name	**Scientific Name**	**SARO List[1]**	**COSEWIC[2]**	**S-Rank[3]**	**TRCA[4]**
Common Tansy	*Tanacetum vulgare*			SNA	L+
Common Dandelion	*Taraxacum officinale*			SNA	L+
Yellow Goatsbeard	*Tragopogon dubius*			SNA	L+
Reed Canarygrass	*Phalaris arundinacea*			S5	L+?

1. Species at Risk in Ontario List as established by the Endangered Species Act (2007)

2. Committee on the Status of Endangered Wildlife in Canada

3. NHIC Subnational Conservation Status Ranks (S-Ranks)

   SNA - Not applicable.

   S5 - Secure - At very low or no risk of extirpation due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

4. Local rank per TRCA (2017)

   L1-L3: species of regional conservation concern

   L4: species of conservation concern in urban area

   L5: species is not of conservation concern at this time

   L+: introduced species, not native to TRCA jurisdiction

   L+?: species is probably introduced

Table 2: Mammals recorded from the area of the Site by AMO and incidentally from the Site by Terrapex.

Species		Source of Observation		Status			
Common Name	**Scientific Name**	**AMO**	**Terrapex Incidental Observation**	**SARO List[1]**	**COSEWIC[2]**	**S-Rank[3]**	**TRCA[4]**
Little Brown Myotis	*Myotis lucifugus*	x		Endangered	Endangered	S3	L4
Eastern Gray Squirrel	*Sciurus carolinensis*	x				S5	L5
Red Squirrel	*Tamiasciurus hudsonicus*	x				S5	L4
Silver-haired Bat	*Lasionycteris noctivagans*	x				S4	-
Big Brown Bat	*Eptesicus fuscus*	x				S4	L4
Eastern Cottontail	*Sylvilagus floridanus*	x				S5	L4
European Hare	*Lepus europaeus*	x				SNA	L+
Eastern Chipmunk	*Tamias striatus*	x	x			S5	L4
Woodchuck	*Marmota monax*	x				S5	L5
Northern Short-tailed Shrew	*Blarina brevicauda*	x				S5	L3
Beaver	*Castor canadensis*	x				S5	L4
Deer Mouse	*Peromyscus maniculatus*	x				S5	L4
White-footed Mouse	*Peromyscus leucopus*	x				S5	L4
Meadow Vole	*Microtus pennsylvanicus*	x				S5	L4
Muskrat	*Ondatra zibethicus*	x				S5	L4
Norway Rat	*Rattus norvegicus*	x				SNA	L+
House Mouse	*Mus musculus*					SNA	L+
Porcupine	*Erethizon dorsatum*	x				S5	L2
Coyote	*Canis latrans*	x				S5	L4
Red Fox	*Vulpes vulpes*	x				S5	L4
Northern Raccoon	*Procyon lotor*	x				S5	L5
American Mink	*Neovison vison*	x				S4	L4

Species		Source of Observation		Status			
Common Name	**Scientific Name**	**AMO**	**Terrapex Incidental Observation**	**SARO List[1]**	**COSEWIC[2]**	**S-Rank[3]**	**TRCA[4]**
Striped Skunk	*Mephitis mephitis*	x				S5	L5
White-tailed Deer	*Odocoileus virginianus*	x				S5	L4

1. Species at Risk in Ontario List as established by the Endangered Species Act (2007)
2. Committee on the Status of Endangered Wildlife in Canada
3. NHIC Subnational Conservation Status Ranks (S-Ranks)

   SNA - Not applicable.

   S3 - **Vulnerable** — At moderate risk of extirpation due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats or other factors.

   S4 - **Apparently Secure** - At a fairly low risk of extirpation due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

   S5 - Secure - At very low or no risk of extirpation due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

4. Local rank per TRCA (2017)

   L2 - Species of Regional Conservation Concern, somewhat more abundant and generally slightly less sensitive than L1 species.

   L3 - Species of Regional Conservation Concern, generally less sensitive and more abundant than L1 and L2 ranked species.

   L4 - Species of Urban Concern; occur throughout the region but could show declines if urban impacts are not mitiagted effectively.

   L5 - species that are considered secure throughout the region.

   L+ - introduced species, not native to the Toronto region.

Table 3: Bat Exit Surveys.

Survey Details	Survey Number	
	1	**2**
Date of Survey	June 24, 2022	June 29, 2022
Phase of Moon	Waning Crescent	Waxing Crescent
Stations Surveyed (refer to **Figure 3**)	1,2	2,3
Survey Start Time	9:04 pm	8:50 pm
Air Temperature at Start	24 ˚C	18 ˚C
Wind Speed at Start (Beaufort Scale)	1	0
Sky per MECP (2018) at Start	2	2
Survey End Time	10:34 pm	10:30 pm
Air Temperature at End	20 ˚C	17 ˚C
Wind Speed at End	1	1
Sky per MECP (2018) at Start	2	2
Number of Bats Observed	0	0
Number of Bat Passes Recorded	7	23

Table 4: Birds recorded from Square 17TPJ47 by OBBA 2 and from the Site by Terrapex.

Species		Source of Observation								Status			
		OBBA 2 Breeding Evidence	Terrapex Survey 1			Terrapex Survey 2			Terrapex Incidental Observation				
Common Name	Scientific Name		Station 1	Station 2	Station 3	Station 1	Station 2	Station 3		SARO List[1]	COSEWIC[2]	S-Rank[3]	TRCA[4]
Wood Duck	*Aix sponsa*	PROB										S5	L4
Mallard	*Anas platyrhynchos*	CONF							*x*			S5	L5
Pine Warbler	*Setophaga pinus*	CONF										S5B	L4
Alder Flycatcher	*Empidonax alnorum*	PROB										S5B	L5
Willow Flycatcher	*Empidonax traillii*	POSS										S5B	L4
Eastern Phoebe	*Sayornis phoebe*	CONF				*x*			*x*			S5B	L5
Great Crested Flycatcher	*Myiarchus crinitus*	CONF										S4B	L4
Mourning Warbler	*Geothlypis philadelphia*	PROB										S4B	L3
Common Yellowthroat	*Geothlypis trichas*	CONF										S5B	L4
Great Blue Heron	*Ardea herodias*	POSS										S4	L3
Green Heron	*Butorides virescens*	PROB							*x*			S4B	L4
Trumpeter Swan	*Cygnus buccinator*	POSS								NAR	NAR	S4	L+
Canada Goose	*Branta canadensis*	CONF										S5	L5
Hooded Merganser	*Lophodytes cucullatus*	POSS										S5B,S5N	L3
Turkey Vulture	*Cathartes aura*	POSS			*x*							S5B	L5
Osprey	*Pandion haliaetus*	POSS										S5B	L3
Northern Harrier	*Circus hudsonius*	PROB								NAR	NAR	S4B	L2
Sharp-shinned Hawk	*Accipiter striatus*	POSS								NAR	NAR	S5	L3
Cooper's Hawk	*Accipiter cooperii*	CONF								NAR	NAR	S4	L4
Northern Goshawk	*Accipiter gentilis*	CONF								NAR	NAR	S4	L2

Species		Source of Observation								Status			
		OBBA 2 Breeding Evidence	Terrapex Survey 1			Terrapex Survey 2			Terrapex Incidental Observation				
Common Name	Scientific Name		Station 1	Station 2	Station 3	Station 1	Station 2	Station 3		SARO List[1]	COSEWIC[2]	S-Rank[3]	TRCA[4]
Broad-winged Hawk	*Buteo platypterus*	PROB										S5B	L2
Red-tailed Hawk	*Buteo jamaicensis*	POSS	x							NAR	NAR	S5	L5
American Kestrel	*Falco sparverius*	CONF										S4	L4
Ring-necked Pheasant	*Phasianus colchicus*	POSS										SNA	L+
Ruffed Grouse	*Bonasa umbellus*	CONF										S4	L3
Wild Turkey	*Meleagris gallopavo*	CONF		*x*								S5	L3
Virginia Rail	*Rallus limicola*	POSS										S5B	L3
Sora	*Porzana carolina*	PROB										S4B	L3
Common Gallinule	*Gallinula galeata*	CONF										S4B	-
Killdeer	*Charadrius vociferus*	CONF				*x*			*x*			S5B,S5N	L4
Spotted Sandpiper	*Actitis macularius*	PROB							*x*			S5	L4
Ovenbird	*Seiurus aurocapilla*	CONF										S4B	L2
Northern Waterthrush	*Parkesia noveboracensis*	CONF										S5B	L3
Wilson's Snipe	*Gallinago delicata*	PROB										S5B	LX
American Woodcock	*Scolopax minor*	CONF										S4B	L3
Ring-billed Gull	*Larus delawarensis*								*x*			S5B,S4N	L4
Rock Pigeon	*Columba livia*	PROB							*x*			SNA	L+
Mourning Dove	*Zenaida macroura*	PROB	x	*x*		*x*						S5	L5
Black-billed Cuckoo	*Coccyzus erythropthalmus*	PROB										S5B	L3
Yellow-billed Cuckoo	*Coccyzus americanus*	PROB										S4B	L3
Eastern Screech-Owl	*Megascops asio*	CONF								NAR	NAR	S4	L4

Species		Source of Observation								Status			
		OBBA 2 Breeding Evidence	Terrapex Survey 1			Terrapex Survey 2			Terrapex Incidental Observation				
Common Name	Scientific Name		Station 1	Station 2	Station 3	Station 1	Station 2	Station 3		SARO List[1]	COSEWIC[2]	S-Rank[3]	TRCA[4]
Great Horned Owl	*Bubo virginianus*	CONF										S4	L4
Long-eared Owl	*Asio otus*	POSS										S4	L3
Chimney Swift	*Chaetura pelagica*	POSS								THR	THR	S4B,S4N	L4
Ruby-throated Hummingbird	*Archilochus colubris*	POSS										S5B	L4
Belted Kingfisher	*Megaceryle alcyon*	PROB										S4B	L4
Red-bellied Woodpecker	*Melanerpes carolinus*								*x*			S4	L4
Yellow-bellied Sapsucker	*Sphyrapicus varius*	POSS										S5B	L3
Downy Woodpecker	*Picoides pubescens*	PROB										S5	L5
Hairy Woodpecker	*Picoides villosus*	CONF							*x*			S5	L4
Northern Flicker	*Colaptes auratus*	CONF										S4B	L4
Pileated Woodpecker	*Dryocopus pileatus*	POSS										S5	L3
Eastern Wood-pewee	*Contopus virens*	PROB								SC	SC	S4B	L4
Eastern Kingbird	*Tyrannus tyrannus*	CONF	x									S4B	L4
Horned Lark	*Eremophila alpestris*	PROB							*x*			S5B	L3
Purple Martin	*Progne subis*	POSS										S3S4B	L4
Tree Swallow	*Tachycineta bicolor*	CONF										S4B	L4
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	POSS										S4B	L4
Bank Swallow	*Riparia riparia*	CONF								THR	THR	S4B	L3
Cliff Swallow	*Petrochelidon pyrrhonota*	CONF										S4B	L5
Barn Swallow	*Hirundo rustica*	CONF		*x*					*x*	THR	THR	S5B	L4
Blue Jay	*Cyanocitta cristata*	CONF							*x*			S5	L5

Species		Source of Observation								Status			
		OBBA 2 Breeding Evidence	Terrapex Survey 1			Terrapex Survey 2			Terrapex Incidental Observation				
Common Name	Scientific Name		Station 1	Station 2	Station 3	Station 1	Station 2	Station 3		SARO List[1]	COSEWIC[2]	S-Rank[3]	TRCA[4]
American Crow	*Corvus brachyrhynchos*	CONF	x	*x*				*x*				S5B	L5
Common Raven	*Corvus corax*								*x*			S5	L4
Black-capped Chickadee	*Poecile atricapillus*	CONF	x			*x*						S5	L5
Red-breasted Nuthatch	*Sitta canadensis*	PROB										S5	L4
White-breasted Nuthatch	*Sitta carolinensis*	PROB										S5	L4
Brown Creeper	*Certhia americana*	PROB										S5B	L4
House Wren	*Troglodytes aedon*	PROB										S5B	L5
Winter Wren	*Troglodytes hiemalis*	CONF										S5B	L3
Golden-crowned Kinglet	*Regulus satrapa*	PROB										S5B	L3
Eastern Bluebird	*Sialia sialis*	CONF								NAR	NAR	S5B	L4
Veery	*Catharus fuscescens*	CONF										S4B	L2
Hermit Thrush	*Catharus guttatus*	PROB										S5B	L3
Wood Thrush	*Hylocichla mustelina*	PROB								SC	THR	S4B	L3
American Robin	*Turdus migratorius*	CONF	x						*x*			S5B	L5
Gray Catbird	*Dumetella carolinensis*	CONF							*x*			S4B	L4
Northern Mockingbird	*Mimus polyglottos*	CONF										S4	L4
Brown Thrasher	*Toxostoma rufum*	PROB										S4B	L3
Cedar Waxwing	*Bombycilla cedrorum*	PROB	x									S5B	L5
European Starling	*Sturnus vulgaris*	CONF	x		*x*							SNA	L+
Warbling Vireo	*Vireo gilvus*	PROB	x			*x*	*x*					S5B	L5
Red-eyed Vireo	*Vireo olivaceus*	PROB										S5B	L4

Species		Source of Observation								Status			
		OBBA 2 Breeding Evidence	Terrapex Survey 1			Terrapex Survey 2			Terrapex Incidental Observation				
Common Name	Scientific Name		Station 1	Station 2	Station 3	Station 1	Station 2	Station 3		SARO List[1]	COSEWIC[2]	S-Rank[3]	TRCA[4]
Blue-winged Warbler	*Vermivora cyanoptera*	POSS										S4B	L3
Golden-winged Warbler	*Vermivora chrysoptera*	POSS								SC	THR	S4B	L2
Nashville Warbler	*Oreothlypis ruficapilla*	CONF										S5B	L3
Yellow Warbler	*Setophaga petechia*	CONF	x									S5B	L5
Chestnut-sided Warbler	*Setophaga pensylvanica*	POSS										S5B	L3
Magnolia Warbler	*Setophaga magnolia*	PROB										S5B	L3
Yellow-rumped Warbler	*Setophaga coronata*	PROB										S5B	L3
Black-throated Green Warbler	*Setophaga virens*	PROB										S5B	L3
Black-and-white Warbler	*Mniotilta varia*	CONF										S5B	L2
American Redstart	*Setophaga ruticilla*	CONF							*x*			S5B	L4
Canada Warbler	*Cardellina canadensis*	CONF								SC	THR	S4B	L2
Scarlet Tanager	*Piranga olivacea*	PROB										S4B	L3
Northern Cardinal	*Cardinalis cardinalis*	PROB	x			*x*		*x*				S5	L5
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	PROB										S4B	L4
Indigo Bunting	*Passerina cyanea*	CONF							*x*			S4B	L4
Eastern Towhee	*Pipilo erythrophthalmus*	PROB										S4B	L3
Chipping Sparrow	*Spizella passerina*	CONF							*x*			S5B	L5
Field Sparrow	*Spizella pusilla*	CONF										S4B	L4
Vesper Sparrow	*Pooecetes gramineus*	PROB			*x*							S4B	L3
Savannah Sparrow	*Passerculus sandwichensis*	PROB							*x*			S4B	L4
Grasshopper Sparrow	*Ammodramus savannarum*	POSS								SC	SC	S4B	L2

Species		Source of Observation								Status			
		OBBA 2 Breeding Evidence	Terrapex Survey 1			Terrapex Survey 2			Terrapex Incidental Observation				
Common Name	Scientific Name		Station 1	Station 2	Station 3	Station 1	Station 2	Station 3		SARO List[1]	COSEWIC[2]	S-Rank[3]	TRCA[4]
Song Sparrow	*Melospiza melodia*	CONF	x	*x*	*x*	*x*	*x*	*x*	*x*			S5B	L5
Swamp Sparrow	*Melospiza georgiana*	PROB										S5B	L4
White-throated Sparrow	*Zonotrichia albicollis*	CONF										S5B	L3
Bobolink	*Dolichonyx oryzivorus*	PROB								THR	THR	S4B	L3
Red-winged Blackbird	*Agelaius phoeniceus*	CONF	x	*x*		*x*	*x*		*x*			S4	L5
Eastern Meadowlark	*Sturnella magna*	PROB								THR	THR	S4B	L3
Common Grackle	*Quiscalus quiscula*	CONF	x		*x*	*x*			*x*			S5B	L5
Brown-headed Cowbird	*Molothrus ater*	PROB	x			*x*	*x*	*x*				S4B	L5
Baltimore Oriole	*Icterus galbula*	PROB	x		*x*							S4B	L5
Purple Finch	*Haemorhous purpureus*	PROB										S4B	L4
House Finch	*Haemorhous mexicanus*	PROB										SNA	L+
American Goldfinch	*Spinus tristis*	PROB	x	*x*	*x*		*x*	*x*	*x*			S5B	L5
House Sparrow	*Passer domesticus*	PROB										SNA	L+

1. Species at Risk in Ontario List as established by the Endangered Species Act (2007). NAR = Not at Risk; SC = Special Concern; THR = Threatened.

2. Committee on the Status of Endangered Wildlife in Canada. NAR = Not at Risk; SC = Special Concern; THR = Threatened.

3. NHIC Subnational Conservation Status Ranks (S-Ranks)

   SNA - Not applicable.

   S3 - Vulnerable — At moderate risk of extirpation due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats or other factors.

   S4 - Apparently Secure - At a fairly low risk of extirpation due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

   S5 - Secure - At very low or no risk of extirpation due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

   B – Conservation status rank refers to the breeding population in Ontario.

N – Conservation status rank refers to the non-breeding population in Ontario.

A numeric range (e.g., S4S5) is used to indicate any range of uncertainty about the status of a species.

4. Local rank per TRCA (2017)

L2 - Species of Regional Conservation Concern, somewhat more abundant and generally slightly less sensitive than L1 species.

L3 - Species of Regional Conservation Concern, generally less sensitive and more abundant than L1 and L2 ranked species.

L4 - Species of Urban Concern; occur throughout the region but could show declines if urban impacts are not mitiagted effectively.

L5 - species that are considered secure throughout the region.

L+ - introduced species, not native to the Toronto region.

LX - extirpated species; species not recorded in the region in the past 10 years

Table 5: Herpetofauna recorded from Square 17PJ47 by ORAA, from the area of the Site by iNaturalist, and incidentally from the Site by Terrapex.

Species		Source of Observation			Status			
Common Name	**Scientific Name**	**ORAA**	**iNaturalist**	**Terrapex Incidental Observation**	**SARO List[1]**	**COSEWIC[2]**	**S-Rank[3]**	**TRCA[4]**
Western Chorus Frog - Carolinian Population	*Pseudacris triseriata pop. 2*	x					S4	L2
Eastern Red-backed Salamander	*Plethodon cinereus*	x					S5	L3
Red-spotted Newt	*Notophthalmus viridescens viridescens*	x					S5	L2
American Toad	*Anaxyrus americanus*	x					S5	L4
Gray Treefrog	*Hyla versicolor*	x					S5	L2
Spring Peeper	*Pseudacris crucifer*	x					S5	L2
American Bullfrog	*Lithobates catesbeianus*	x					S4	L2
Green Frog	*Lithobates clamitans*	x					S5	L4
Northern Leopard Frog	*Lithobates pipiens*	x					S5	L3
Wood Frog	*Lithobates sylvaticus*	x					S5	L2
Snapping Turtle	*Chelydra serpentina*	x	*x*		SC	SC	S4	L3
Midland Painted Turtle	*Chrysemys picta marginata*	x				SC	S4	L3
Red-bellied Snake	*Storeria occipitomaculata*	x					S5	L3
Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	x					S5	L4

1. Species at Risk in Ontario List as established by the Endangered Species Act (2007)
2. Committee on the Status of Endangered Wildlife in Canada
3. NHIC Subnational Conservation Status Ranks (S-Ranks)

   S4 - Apparently Secure - At a fairly low risk of extirpation due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

   S5 - Secure - At very low or no risk of extirpation due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

4. Local rank per TRCA (2017)

   L2 - Species of Regional Conservation Concern, somewhat more abundant and generally slightly less sensitive than L1 species.

   L3 - Species of Regional Conservation Concern, generally less sensitive and more abundant than L1 and L2 ranked species.

Table 6: Assessment of Candidate Bat Maternity Roost Habitat.

Snag Number	Location (UTM Coordinates)		Tree Species	Height	DBH[1]	Decay Class[2]	Number of Adjacent Snags	Cavities Present?	Peeling Bark	Potential to Function as Bat Habitat	Arborist Recommendation
	Easting (NAD83)	Northing (NAD83)									
269	641603	4871923	Black Walnut	10 m	45 cm	1	1	No	< 5%	Moderate	Retain
270	641605	4871921	Basswood	9 m	28 cm	2	1	Yes	5% - 25%	Moderate	Retain
279	641515	4871894	Staghorn Sumac	5 m	23 cm	2	0	No	5% - 25%	Moderate	Remove
287	641561	4871931	Horse Chestnut	10 m	48 cm	1	0	Yes	< 5%	Moderate	Remove
288	641550	4871941	Norway Maple	8 m	13 cm	1	0	No	< 5%	Low	Remove
292	641573	4871930	Sugar Maple	10 m	29 cm	1	0	No	5% - 25%	Moderate	Remove
293	641540	4871951	Ash sp.	12 m	74 cm	3-4	0	No	25% - 50%	High	Remove
299	641506	4871986	Manitoba Maple	10 m	45 cm	1	0	Yes	< 5%	Moderate	Remove
461	641531	4871992	Manitoba Maple	5 m	11 cm	1	0	Yes	< 5%	Low	Remove
X1	641533	4871901	Indeterminate	3 m	75 cm	6	0	Yes	5% - 25%	Moderate	Not Applicable

1. Diameter at Breast Height
2. Per Watt and Caceres (1999)

Table 7: Results of Terrapex SAR screening.

Taxon	Species		Status per SARO List[1]	Habitat Requirements	Habitat Availability Within Site	Species Occurrence Within Site as Determined by Surveys
	Common Name	Scientific Name				
Plants	Butternut	*Juglans cinerea*	Endangered	In Ontario, Butternut usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and often occurs along streams. It does not do well in the shade, and often grows in sunny openings and near forest edges (MECP 2022).	Not Present	Not Present
Fish	Redside Dace	*Clinostomus elongatus*	Endangered	Occurs in pools and slow-moving areas of small streams and headwaters with a gravel bottom. Generally found in areas with overhanging grasses and shrubs (MECP 2022). Ontario Regulation 832/21 defines Redside Dace habitat for the purposes of the Endangered Species Act (2007).	Not Present	Not Present
Mammals	Little Brown Myotis	*Myotis lucifugus*	Endangered	Little Brown Myotis occur in a wide range of deciduous and coniferous forest stands. They generally avoid large areas of cleared land, such as farm fields, clearcuts, and large post-fire landscapes. Instead, they forage over still water, rivers and in forest gaps, edges, or along trails. Maternity colonies often exist in warm sites that facilitate pup growth rates, such as attics of buildings and under bridges, in rock crevices, or in cavities of canopy trees in forests (COSEWIC 2013). Trees with a dbh ≥ 10 cm with loose bark, cracks and/or cavities (i.e., snags) have the potential to function as maternity roost habitat (MNRF 2017)	Potentially Present	Single Little Brown Myotis “bat pass” recorded during preliminary acoustic survey on July 6, 2021.
Birds	Bank Swallow	*Riparia*	Threatened	Bank Swallow traditionally nested in exposed earthen banks created by erosion along watercourses and lakeshores but has adapted to nesting in artificial sites such as sand and gravel pits, along roadsides, and in stockpiles of soil and other materials (Cadman et al. 2007). Nesting Bank Swallows require a vertical or near-vertical bank of a suitable substrate, typically consisting of fine sand or silt. Natural erosion and human-related excavation of material refreshes the vertical profile and keeps the bank suitable for nesting. If the vertical face of a bank is not maintained or "refreshed", it usually slumps and stabilizes within several years, rendering it unsuitable for nesting (Falconer et al. 2016).	Not Present	Not Present
	Barn Swallow	*Hirunda rustica*	Threatened	Barn Swallows often live in close association with humans and build their cup-shaped mud nests almost exclusively on anthropogenic structures such as barns, bridges and culverts. Natural nest sites such as cliffs or caves are now rarely used (Cadman et al. 2007, MECP 2022).	Present	Present

Taxon	Species		Status per SARO List[1]	Habitat Requirements	Habitat Availability Within Site	Species Occurrence Within Site as Determined by Surveys
	Common Name	Scientific Name				
Birds	Bobolink	*Dolichonyx oryzivorus*	Threatened	Breeds in hayfields and other grasslands, typically those with relatively tall vegetation. Nesting success is considerably higher in undisturbed fields and those mown in mid- to late summer, as early haying results in a high rate of juvenile mortality or nest failure (Cadman et al. 2007).	Potentially Present	Not Present
	Chimney Swift	*Chaetura pelagica*	Threatened	Prior to European settlement, nested in large (> 50 cm dbh) hollow trees, other tree cavities and cracks in cliffs. Today, Chimney Swifts are more likely to occur in and around urban settlements where they nest and roost in chimneys and other anthropogenic structures, such as silos, wells and abandoned buildings. A recent study from southern Ontario found that Chimney Swifts prefer chimneys of non-residential buildings that extend 2.86 m above the roofline and have an internal area of about 1 m^2 (Cadman et al. 2007, COSEWIC 2018).	Not Present	Not Present
	Eastern Meadowlark	*Sturnella magna*	Threatened	Eastern Meadowlarks breed primarily in moderately tall grasslands, such as pastures and hayfields, but are also found in alfalfa fields, weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Individuals use small trees, shrubs or fence posts as elevated song perches (MECP 2022).	Potentially Present	Not Present
	Canada Warbler	*Cardellina canadensis*	Special Concern	Occurs in a variety of forest types, but is most common in wet, mixed deciduous-coniferous forest with a well-developed shrub layer. It can also be locally abundant in regenerating forests, 6-30 years after natural (e.g., forest fire) or anthropogenic (e.g., timber harvesting) disturbance (COSEWIC 2008).	Not Present	Not Present
	Golden-winged Warbler	*Vermivora chrysoptera*	Special Concern	The Golden-winged Warbler is a habitat specialist that prefers to nest in areas with young shrubs (10-30 years into succession) surrounded by mature forest: locations that have recently been disturbed, such as field edges, hydro or utility rights-of-way, or logged areas. Average territories range in size from 1-2 ha (COSEWIC 2006, MECP 2022).	Not Present	Not Present
	Eastern Wood Pewee	*Contopus virens*	Special Concern	Eastern Wood-Pewee typically breeds in deciduous and mixed woods near forest edges, clearings, roadways or water. Occurs less frequently in woodlands with surrounding development than in those without nearby houses (Cadman et al. 2007).	Not Present	Not Present

Taxon	Species		Status per SARO List[1]	Habitat Requirements	Habitat Availability Within Site	Species Occurrence Within Site as Determined by Surveys
	Common Name	Scientific Name				
Birds	Wood Thrush	*Hylocichla mustelina*	Special Concern	Wood Thrush occurs in mature deciduous and mixed forests. The species will use small (3 ha) and isolated forest blocks but prefers larger, continuous areas of forest. The presence of tall trees and a thick understorey are usually prerequisites for site occupancy (Cadman et al. 2007, MECP 2022).	Not Present	Not Present
	Grasshopper Sparrow	*Ammodramus savannarum*	Special Concern	Grasshopper Sparrow prefers drier, sparsely vegetated grasslands, particularly rough or unimproved pastures, at least 30 ha in size. It will occasionally use cultivated hayfields and cereal crops (Cadman et al. 2007).	Potentially Present	Not Present
Reptiles and Amphibians	Snapping Turtle	*Chelydra serpentina*	Special Concern	Snapping Turtles spend most of their lives in water. They prefer shallow waters so they can hide under the soft mud and leaf litter, with only their noses exposed to the surface to breathe. During the nesting season, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams. Snapping Turtles often use anthropogenic features as nest sites, including roads (especially gravel shoulders), dams and aggregate pits (MECP 2022).	Not Present	Not Present

1. Species at Risk in Ontario List as established by the Endangered Species Act (2007)

APPENDIX I

Jason Burch

From: Michelle Bates <Michelle.Bates@trca.ca>
Sent: June 5, 2020 3:52 PM
To: Jason Burch
Cc: Jackie Burkart
Subject: RE: Stouffville Phase 3 East - Ambria Property
Attachments: CA18-146 - 12762 Tenth Line Stouffville - Terms of Reference.pdf

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Hi Jason,

Thanks for your patience. We agree with the proposed scope of work in the TOR. This work can be submitted in the form of a scoped EIS (as suggested in the TOR) or as memorandum regarding Species at Risk and Significant Wildlife Habitat.

Also, given that a portion of the property drains freely towards the wetland and watercourse, the following will be required in support of the proposed development:

1. Demonstrate there will be no hydrological impacts to the pre- to post-conditions of the wetland and the watercourse based upon the grading and any stormwater management requirements. This can be included in the Feature Based Water Balance.

Regards,

Michelle Bates

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From: Jason Burch <j.burch@terrapex.com>
Sent: Friday, June 5, 2020 8:10 AM
To: Michelle Bates <Michelle.Bates@trca.ca>
Cc: Jackie Burkart <Jackie.Burkart@trca.ca>
Subject: RE: Stouffville Phase 3 East - Ambria Property

Good Morning Michelle,

As we are preparing to carry out our work program, I was wondering if you had a chance to review our proposed TOR? And if so, could you provide comment so we may incorporate it into our work program.

Regards,
Jason

Jason Burch, B.Sc.
Manager, Ecological Services

TERRAPEX

Tel: 905-632-5939 ext. 224
Fax: 905-632-6793
Cell: 416-949-9215
Email: j.burch@terrapex.com

920 Brant Street
Unit 16
Burlington, Ontario
L7R 4J1

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From: Michelle Bates <Michelle.Bates@trca.ca>
Sent: May 21, 2020 8:57 AM
To: Jason Burch <j.burch@terrapex.com>
Cc: Jackie Burkart <Jackie.Burkart@trca.ca>; Sara Sutherland <s.sutherland@terrapex.com>
Subject: RE: Stouffville Phase 3 East - Ambria Property

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Hi Jason,

Thank you for your email. We will review the proposed TOR and be in touch.

Regards,

Michelle Bates
Planner
Development Planning and Permits | Development Planning and Engineering Services

T: (416) 661-6600 ext. 5618
E: michelle.bates@trca.ca
A: 101 Exchange Avenue, Vaughan, ON, L4K 5R6 | trca.ca

Toronto and Region Conservation Authority

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From: Jason Burch <j.burch@terrapex.com>
Sent: Thursday, May 21, 2020 7:53 AM
To: Michelle Bates <Michelle.Bates@trca.ca>
Cc: Jackie Burkart <Jackie.Burkart@trca.ca>; Sara Sutherland <s.sutherland@terrapex.com>
Subject: Stouffville Phase 3 East - Ambria Property

Good Morning Michelle and Jackie,

Terrapex Environmental Ltd. has been hired by Ambria (Lincolnville) Limited to completed a Scoped Environmental Impact Study on the property located at 12762 Tenth Line in Stouffville, Ontario. The proposed development is part of a larger development reference as the Stouffville Phase 3 East. I was provided with your names by Mr. Tony Dang of TMGI regarding the proposed development along Tenth Line in Stouffville. He indicated that you both were the TRCA points of contact for the work in the area, specifically along the east side of Tenth Line. As part of the EIS process I have attached the proposed Terms of Reference for the Scoped EIS for your comment. As I am sure you are aware, the site is located outside of the TRCA regulated boundaries, however it is within TRCA jurisdiction. Currently the property is developed with a residential building, a workshop comprised of a garage and large metal shed, two barns (one currently collapsed), and a temporary car shelter, with surface cover consisting of asphalt, grass vegetation, and trees. The western portion of the Site is agricultural and contained a crop of soy beans. We have proposed to complete a vegetation inventory in accordance with the ELC System, and incidental wildlife observations.

Please take a few moments to review the attached ToR, and should you have any questions/comments regarding the proposed work program, please feel free to contact me.

Regards,

Jason

Jason Burch, B.Sc.
Manager, Ecological Services

TERRAPEX

Tel: 905-632-5939 ext. 224
Fax: 905-632-6793
Cell: 416-949-9215
Email: j.burch@terrapex.com

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March 4, 2020
CA18-146

Ambria (Lincolnville) Limited
400 Creditstone Road, Suite 9
Vaughan, Ontario
L4K 3Z3

Attention: Mr. Vince Baffa
Vice President

Re: Terms of Reference for Scoped Environment Impact Study
12762 Tenth Line, Stouffville, Ontario

Dear Mr. Baffa:

Terrapex Environmental Ltd. (Terrapex) is pleased to provide this Terms of Reference (ToR) to Ambria (Lincolnville) Limited (Ambria) to complete a Scoped Environmental Impact Study (EIS) for the property located at 12762 Tenth Line, Whitchurch-Stouffville, Ontario (the 'Site').

BACKGROUND

A Scoped EIS is required for 12762 Tenth Line in Stouffville, Ontario (the 'Site') to support the proposed development of a residential sub-division comprising 141 stacked townhouses, 45 parking spaces and associated roadways. This ToR has been prepared for submission to local planning authorities (e.g. Toronto and Region Conservation Authority (TRCA), and the Town of Whitchurch-Stouffville) for approval.

The Site is located near at the north end of the Town of Whitchurch-Stouffville, approximately 350 m north of Forsyth Farm Drive, and is currently developed with a residential building, a workshop comprised of a garage and large metal shed, two barns (one currently collapsed), and a temporary car shelter, with surface cover consisting of asphalt, grass vegetation, and trees. The western portion of the Site is agricultural and contained a crop of soy beans. The Site is bounded by agricultural land to the north, east, south, and west, a residential property is located adjacent to the south, and residential properties are located to the southwest. A regulated water feature is located approximately 140 m west of the western property boundary. On-line mapping provided by TRCA indicates that the Site is located within TRCA's jurisdiction, and is not within an area Regulated by TRCA. The boundary for lands regulated by TRCA appear to be approximately 5 m west of the western property boundary.

INFORMATION REVIEW

Terrapex will review available literature and background information for the Site and areas immediately adjacent to the Site (up to 250 meters), including:

- Soil maps, aerial photographs, Ontario base maps and any other relevant mapping;
- Existing land use, including location of dwellings, surface water features, and relevant naturalized areas;
- Regulatory authorities, Ministry of Natural Resources and Forestry (MNRF), Ministry of the Environment, Conservation and Parks (MECP) and other on-line database information on the Site and surrounding areas; and,
- Applicable policies, regulations, and plans, including Oak Ridges Moraine Conservation Plan, Greenbelt Plan and Official Plans of the Region and City/Town.

FIELD INVESTIGATIONS

Following a preliminary review of available on-line information the following are the proposed field inventories to be completed as part of the Scoped EIS:

Vegetation Inventory / Ecological Land Classification

Terrapex will complete a vegetation inventory in accordance with the Ecological Land Classification (ELC) System of the Ontario Ministry of Natural Resources for Southern Ontario protocols (Lee *et.al.,* 1998). Existing vegetation communities will be identified based on plant species assemblages, surface soils, and moisture regimes. In addition, potential wildlife habitat will be confirmed. Wildlife habitat identified at the Site will be describe as it relates to Species at Risk (SAR) and significant wildlife habitat. Terrapex will use the information gathered to complete an assessment of Significant Wildlife Habitat, as per the MNRF guidance documents.

Incidental Wildlife Observations

All incidental observations of fauna and fauna habitat will be documented during the site visits. Targeted species surveys will only be conducted if warranted based on the information review and specific direction received through correspondence with the MECP. Should additional biological surveys be required beyond what is proposed, Terrapex will update the ToR for final approval and sign off be applicable regulatory agencies.

Field Investigation Summary:

Investigation	Visit/Timing/Method
Vegetation Survey / ELC, Wildlife Habitat Assessment	2 visits, Spring/Summer 2020 ELC for Southern Ontario (Lee *et al.,* 1998)
Incidental Wildlife Observations	2 visits, Spring/Summer 2020 direct and indirect evidence

REPORTING

Upon completion of the information review and field investigations, a Scoped EIS report will be prepared summarizing the findings of the work program. The Scoped EIS will aim to assess the direct, indirect and secondary ecological effects from the planned development activities on-Site with respect to any areas at and adjacent to the Site, determined to be a natural heritage feature. Where necessary, recommendations for buffers, management programs and mitigation measures will be provided to ensure that there are no net negative impacts on identified natural heritage features or ecological function. The Scoped EIS will be prepared for submission to planning authorities for review as part of the proposed development.

CLOSURE

We trust this ToR for the Scoped EIS will meet the requirements of local planning authorities. If you have any questions or comments regarding the foregoing, or if you wish to discuss further, please contact the undersigned.

Sincerely,
TERRAPEX ENVIRONMENTAL LTD.

Jason Burch, B.Sc.
Project Manager

Sara Sutherland C.E.T., EP
Project Manager

From:	Paula Agostino
To:	Jason Burch
Subject:	Fw: 12762 Tenth Line, Whitchurch-Stouffville
Date:	June 5, 2020 4:21:30 PM
Attachments:	image002.png image003.png RE Stouffville Phase 3 East - Ambria Property.msg

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Hi again Jason...for your information...correspondence between our planner and Michelle Bates below.

Thank you,

Paula

From: Mariusz Jastrzebski <mjastrzebski@mhbcplan.com>
Sent: Friday, June 5, 2020 4:12 PM
To: Vince Baffa <vbaffa@ambria.ca>; Paula Agostino <pagostino@ambria.ca>
Subject: FW: 12762 Tenth Line, Whitchurch-Stouffville

FYI

Please see below.

Special Note: Due to the Covid-19 outbreak, all our staff are working remotely and our offices are physically closed. We will make this transition as seamless as possible and we remain available during business hours.

MARIUSZ JASTRZEBSKI, BURPl, MCIP, RPP | Senior Planner

MHBC **Planning, Urban Design & Landscape Architecture**
7050 Weston Road, Suite 230 | Woodbridge | ON | L4L 8G7 | T 905 761 5588 x 222 | F 905 761 5589 | C 416 571 3924 | mjastrzebski@mhbcplan.com

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From: Michelle Bates [mailto:Michelle.Bates@trca.ca]
Sent: June-05-20 4:04 PM
To: Mariusz Jastrzebski
Cc: Jackie Burkart
Subject: RE: 12762 Tenth Line, Whitchurch-Stouffville

Hi Mariusz,

Yes, this site appears to be more than 120m from mapped Key Natural Heritage Features and Key Hydrologic Features, so an EIS/NHE per ORMCP policies would not be required. We would advise that Species at Risk and Significant Wildlife Habitat (if any) should still be addressed. I should note, we were just in contact with Terrapex regarding their proposed scope of work for this site. Please see the attached correspondence and let me know if you have any questions.

Regards,

Michelle Bates
Planner
Development Planning and Permits | Development Planning and Engineering Services

T: (416) 661-6600 ext. 5618
E: michelle.bates@trca.ca
A: 101 Exchange Avenue, Vaughan, ON, L4K 5R6 | trca.ca

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From: Jackie Burkart <Jackie.Burkart@trca.ca>
Sent: Thursday, June 4, 2020 2:40 PM
To: Mariusz Jastrzebski <mjastrzebski@mhbcplan.com>
Cc: Michelle Bates <Michelle.Bates@trca.ca>
Subject: RE: 12762 Tenth Line, Whitchurch-Stouffville

Hi Mariusz, the Ambria property appears to be not regulated. If such is the case, an NHE is not required. By copy of this email, I will let Michelle Bates confirm that there are no other

natural features on or adjacent to this property.

Kind regards,

Jackie Burkart, RPP
Senior Planner
Development Planning and Permits | Development and Engineering Services

T: 416-661-6600 ext. 5304
E: Jackie.Burkart@trca.ca
A: 101 Exchange Avenue, Vaughan, ON L4K 5R6

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From: Mariusz Jastrzebski <mjastrzebski@mhbcplan.com>
Sent: Thursday, June 4, 2020 1:30 PM
To: Jackie Burkart <Jackie.Burkart@trca.ca>
Subject: 12762 Tenth Line, Whitchurch-Stouffville

Hi Jackie,

Hope you are doing well during these times.

We understand from Christina Ciccone from the Town of Whitchurch-Stouffville that you require an Environmental Impact Study as part of the Zoning By-law and Draft Plan of Subdivision applications for 12762 Tenth Line. Given that the subject lands do not contain any natural heritage or hydrological features, are outside of the wetlands 120 m zone of influence, and are not within a TRCA regulated area, can you please clarify the requirement for this.

Regards,

Mariusz

Special Note: Due to the Covid-19 outbreak, all our staff are working remotely and

our offices are physically closed. We will make this transition as seamless as possible and we remain available during business hours.

MARIUSZ JASTRZEBSKI, BURPl, MCIP, RPP | Senior Planner

MHBC **Planning, Urban Design & Landscape Architecture**
7050 Weston Road, Suite 230 | Woodbridge | ON | L4L 8G7 | T 905 761 5588 x 222 | F 905 761 5589 | C 416 571 3924 | mjastrzebski@mhbcplan.com

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APPENDIX II

Jason Burch

From: Andersen, Jeff (MECP) <Jeff.Andersen@ontario.ca>
Sent: May 31, 2022 3:02 PM
To: Jason Burch
Subject: RE: CA18-146 - 12762 Tenth Line, Stoufville, Ontario - Species at Risk Screening

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Jason;

MECP staff have reviewed the documentation in support of development at the above-noted property. We offer the following;

1. Anthropologic structures should be assessed for their use by species at risk (SAR) Bats;
2. Acoustic monitoring appears to preclude the use of the treed portion of the property by SAR Bats. Mitigation should be employed to ensure Little Brown Myotis is not negatively affected and
3. A letter brief is usually and customarily submitted that includes all figures and studies in one package.

Regards;

JJA

JEFF J. ANDERSEN

MANAGEMENT BIOLOGIST
PERMISSIONS SECTION, SPECIES AT RISK BRANCH
LAND AND WATER DIVISION
ONTARIO MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS

50 Bloomington Road, Aurora ON L4G 0L8 | jeff.andersen@ontario.ca | 289-221-1705

Ontario

From: Jason Burch <j.burch@terrapex.com>
Sent: May 20, 2022 10:14 AM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Chris Parent <c.parent@terrapex.com>
Subject: CA18-146 - 12762 Tenth Line, Stoufville, Ontario - Species at Risk Screening

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

Good Morning,

Terrapex Environmental Ltd. (Terrapex) is preparing an Environmental Impact Study (EIS) in support of the proposed development of a residential sub-division at a property known municipally as 12762 Tenth Line in the Town of Whitchurch-Stouffville, Ontario. The proponent has also prepared an Arborist Report for the trees located within and immediately adjacent to the subject property.

The subject property is located in an area zoned as Agricultural. The majority of the subject property is used for agricultural purposes (i.e., row crops); the remainder includes a residential building, a workshop comprised of a garage and large metal shed, two barns, and a temporary car shelter. Per the Arborist Report, the subject property includes 53 individual trees and five tree groupings.

Terrapex understands that the proposed development comprises 129 stacked townhouses, 281 parking spaces, and associated roadways. **The proposed development would require the removal of all existing structures and all but five trees.**

Per the Ministry of the Environment, Conservation and Parks (MECP) *Client's Guide to Preliminary Screening for Species at Risk* (Draft – May 2019), Terrapex has reviewed the following sources of information to identify, based on their distribution, Species at Risk (SAR) with the potential to occur within the subject property:

- Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) Natural Heritage Information Centre (NHIC) on-line database for 1 km^2 sectors 17PJ4172 and 17PJ4171.
- Department of Fisheries and Oceans (DFO), on-line Aquatic Species at Risk (SAR) mapping.
- Bird Studies Canada (BSC) Ontario Breeding Bird Atlas (OBBA) (2001-2005) for grid square 17TPJ47.
- Ontario Nature's Ontario Reptile and Amphibian Atlas (ORAA) for grid square 17PJ47.
- Atlas of the Mammals of Ontario (Dobbyn 1984) and The Natural History of Canadian Mammals (Naughton 2012).
- eBird on-line datasets.
- iNaturalist Rare Species of Ontario on-line database.
- iNaturalist Herps of Ontario on-line database.

To supplement this review of existing information sources, Terrapex completed the following field surveys/assessments:

(1) Characterization of vegetation communities per Ecological Land Classification (Lee et. al. 1998). Attached Figure 3 illustrates the vegetation communities of the subject property per Lee (2008).

(2) Single season (summer) botanical inventory. Terrapex biologists recorded 51 plant species from the EIS study area. All 51 species recorded by Terrapex are considered apparently secure (S4), secure (S5), or conservation status rank not applicable (SNA) in Ontario.

(3) Two breeding bird surveys per Ontario Breeding Bird Atlas 3 (OBBA 3) protocols at three point count stations located within the EIS study area. Both surveys were completed during the peak of breeding season (i.e., May 24 – July 10), between 30 minutes before sunrise and five hours after sunrise. Survey dates were chosen to ensure favourable weather conditions, with wind speeds less than 20 km/h and no precipitation. Terrapex biologists recorded 34 species from the EIS study area during the breeding bird surveys and/or through incidental observation. All 34 species recorded by Terrapex are considered apparently secure (S4) or secure (S5) in Ontario. However, one of these 34 species (Barn Swallow) is designated Threatened under the *Endangered Species Act* (2007). Terrapex biologists observed Barn Swallow nesting within the barn, including three inactive nests and an one active nest.

(4) A qualified Terrapex biologist completed an assessment of potential bat maternity roost habitat within the subject property on April 8 and April 10, 2022 based on guidance documents provided by MECP on September 21, 2021 (attached). The biologist assessed trees based on the following MECP criteria:

- Tallest snag/cavity tree
- Exhibits cavities or crevices most often originating as cracks, scars, knot holes or woodpecker cavities
- Has the largest diameter breast height (>25cm diameter at breast height)
- Is within the highest density of snags/cavity trees (e.g., cluster of snags)
- Has a large amount of loose, peeling bark

- Cavity or crevice is high in snag/cavity tree (>10m)
- Tree species that provide good cavity habitat (e.g., white pine, maple, aspen, ash, oak)
- Canopy is more open (to determine canopy cover, determine the percentage of the ground covered by a vertical projection of the outermost perimeter of the natural spread of the foliage of trees)
- Exhibits early stages of decay (decay Class 1-3; refer to Watt and Caceres 1999).

Based on these criteria, the biologist identified a total of 10 trees within the subject property with the potential to function as bat maternity roost habitat: two with low potential, seven with moderate potential and one with high potential. Attached Figure 1 illustrates the locations of these 10 trees within the subject property. Only two of the 10 assessed trees (Tree 269 and Tree 270) are proposed for retention (Figure 1).

(5) A Terrapex biologist also used a Wildlife Acoustics Echo Meter Touch 2 Pro to complete a preliminary bat acoustic survey. The biologist completed the survey on Tuesday July 6, 2021 between 9:40 pm and 12:17 am. Figure 1 illustrates the locations of the four survey stations. During the survey, skies were consistently cloudy (cloud cover = 80%) and the temperature ranged from 22 ˚C (survey start) to 18 ˚C (survey end). The biologist recorded a total of 95 bat calls. The majority (65 of 95 calls) were identified as Big Brown Bat and/or Silver-haired Bat. Nearly all of the other calls (29 of 30) were identified as Hoary Bat. Only one of the 95 calls was identified as Little Brown Myotis.

Based on the above, Terrapex has no evidence of the occurrence of species at risk in or immediately adjacent (within 120 m) of the subject property other than Barn Swallow and Little Brown Myotis.

Terrapex is familiar with the requirements to address Barn Swallows as set out in Ontario Regulation 829/21 and Ontario Regulation 830/21.

Accordingly, please advise regarding the following:

(1) Does MECP have any concerns with the proposed development as it relates to the potential presence Species at Risk and/or their habitat?

(2) Are additional field surveys advisable to assess the presence/absence of Little Brown Myotis, or any other Species at Risk?

Should you have any questions or require additional information, please feel free to call.

Regards,

Jason

Jason Burch, BSc
Manager, Ecological Services

TERRAPEX

Office: 905 632 5939 ext 224
Direct: 647 250 8196
Mobile: 416 949 9215
Email: j.burch@terrapex.com

65 Nebo Road
Hamilton Ontario L8W 2C9
Canada

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APPENDIX III

Table 1: Scoring of trees as candidate bat maternity roost habitat based on MECP (2021a) assessment criteria.

Criterion Number	Criterion Description	Approximate Weight	Assessment Score				
			1 Point	2 Points	3 Points	4 Points	5 Points
1	Tallest snag.	20%	Height < 3 m	Height > 3 m but < 6 m	Height > 6 m but < 9 m	Height > 9 m but < 12 m	Height > 12 m
2	Has cavities or crevices most often originating as cracks, knot holes or woodpecker cavities.	20%	No cavities or crevices	1 cavity or crevice	2 distinct cavities or crevices	3 distinct cavities or crevices	> 3 distinct cavities or crevices
3	Snag with the largest diameter-at-breast height (dbh) >25cm.	20%	dbh < 25 cm	dbh > 25 cm but < 50 cm	dbh > 50 cm but < 75 cm	dbh > 75 cm but < 100 cm	dbh > 100 cm
4	Snag located within a cluster of snags.	10%	No other snag within 10 m	≤ 3 other snags within 10 m	> 3 other snags within 10 m		
5	Snag that has a large amount of peeling bark.	10%	Little or no peeling bark	Some peeling bark	Extensive peeling bark		
6	Cavity or crevice is high up on the snag (>10m).	10%	No cavities or crevices	Cavities or crevices ≤ 10 m up	Cavities or crevices > 10 m up		
7	Tree species provides good cavity habitat - Pine, Maple, Ash or Oak.	5%	Snag is Pine, Maple, Ash or Oak				
8	Canopy is more open.	5%	Canopy cover < 50%				
9	Snag exhibits early stages of decay, i.e. Decay Class 1-3 per Watt and Caceres (1999).	5%	Decay Class = 1, 2 or 3				

Table 2: Categorization of potential to function as bat maternity roost habitat based on assessment results.

Total Score	Potential to Function as Bat Maternity Roost Habitat
7-13	Low
14-20	Moderate
21-27	High

APPENDIX IV

TERRAPEX	PHOTOGRAPHIC LOG 		
Client: Ambria (Lincolnville) Limited	**Site Location**:	12762 Tenth Line, Stouffville, Ontario	**Project No**: CA18-146

Photo No: 1 **Date:** June 24, 2021 **Viewing Direction:** n/a **Description:** One of the three inactive Barn Swallow nests located in the barn's lower level.	

Photo No: 2 **Date:** June 24, 2021 **Viewing Direction:** n/a **Description:** Adult Barn Swallow perched on the edge of an active nest located in the upper level of the barn.	

Client: Ambria (Lincolnville) Limited	**Site Location**:	12762 Tenth Line, Stouffville, Ontario	**Project No**: CA18-146

Photo No: 3 **Date:** April 8, 2022 **Viewing Direction:** North **Description:** Snag 293, identified as having high potential to function as bat habitat.	

Photo No: 4 **Date:** April 8, 2022 **Viewing Direction:** n/a **Description:** Snag 287, identified as having moderate potential to function as bat habitat. Note cavity on trunk.	

Client: Ambria (Lincolnville) Limited	**Site Location**:	12762 Tenth Line, Stouffville, Ontario	**Project No**: CA18-146

Photo No: 5 **Date:** June 24, 2021 **Viewing Direction:** North **Description:** Potential bat roost access point located on the south side of the garage.	

Photo No: 6 **Date:** June 24, 2021 **Viewing Direction:** North **Description:** Potential bat roost access point located along the east side of the residential dwelling.	

APPENDIX V

CONCEPT 11.1

SITE STATISTICS

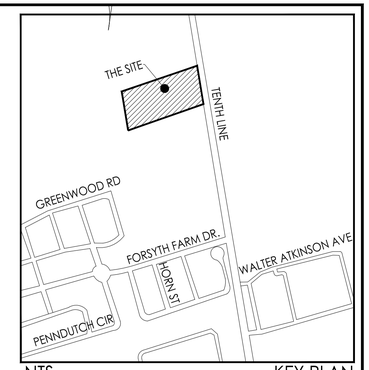
SITE AREA- 2.0Ha GROSS- 1.66Ha NET
(16,620.11 m2)

TOTAL UNITS- 218
156- STACKED ON U/G
62 - GARDENT B2B STACKED

U/G PARKING - 8000m2
U/G PARKING SPACES -221

RESIDENTS PARKING
STACKED ON U/G - 195 (1.25 PER UNIT)
B2B STACKED - 124 (2 PER UNIT)

VISITOR PARKING
TOTAL - 44 (0.20 PER UNIT)
SPACES @ GRADE - 23
SPACES @ U/G - 21



NTS KEY PLAN

FUTURE RESIDENTIAL
HIGH DENSITY

LIMIT OF PARCEL

5.0

MUNICIPAL ROAD ALLOWANCE (21m TOTAL ROW)

LIMIT OF PROPOSED DEVELOPMENT

MUNICIPAL ROAD ALLOWANCE(21m TOTAL ROW)

GARDEN - B2B STACKED
10 UNITS

GARDEN - B2B STACKED
10 UNITS

STACKED ON U/G
20 UNITS

STACKED ON U/G
26 UNITS

GARDEN - B2B STACKED - 62

STACKED ON U/G - 156
PARKETTE-1 - 775 m2

V23
V21
V20
V14
V13
V6
V1
V12
V7

GARDEN - B2B STACKED
14 UNITS

GARDEN - B2B STACKED
14 UNITS

PARKETTE-2 - 350 m2

GARDEN - B2B STACKED
14 UNITS

STACKED ON U/G
36 UNITS

STACKED ON U/G
36 UNITS

RAMP

STAGING

STACKED ON U/G
18 UNITS

STACKED ON U/G
20 UNITS

LIMIT OF U/G

LIMIT OF U/G

FUTURE RESIDENTIAL
MEDIUM DENSITY

6m ROW (BY OTHERS)

FUTURE RESIDENTIAL
MEDIUM DENSITY

TENTH LINE

LEGEND

FSE FINISHED SECOND FLOOR ELEVATION	WATER CONNECTION
FFE FINISHED FLOOR ELEVATION	WATER VALVE CHAMBER
TFW TOP OF FOUNDATION WALL	HYDRANT AND VALVE
TBS TOP OF BASEMENT SLAB	HYDRO METER
USF UNDER SIDE FOOTING	GAS METER
USFR UNDER SIDE FOOTING @ REAR	DOWN LIGHT
USFG UNDER SIDE FOOTING @ GARAGE	14' POLE LIGHTING
R NUMBER OF RISERS TO GRADE	12' POLE LIGHTING
WOD WALKOUT DECK	BOLLARD LIGHTING
LOB LOOKOUT BASEMENT	STOP SIGN
WOB WALK OUT BASEMENT	NO PARKING
WUB WALK UP BASEMENT	NO PARKING IN LANEWAY
REV REVISED PLAN	FIRE ROUTE
STD STANDARD PLAN	3HRS PARKING (RIGHT)
DOOR	3HRS PARKING (LEFT)
WINDOW	PROPOSED SPOT GRADE
BELL PEDESTAL	EXISTING SPOT GRADE
CABLE PEDESTAL	EXISTING TREE TO BE REMOVED
CATCH BASIN	
DBL. CATCH BASIN	EXISTING TREE (TO BE RETAINED)
ENGINEERED FILL	MUNICIPAL ADDRESS
HYDRO CONNECTION	
FIRE HYDRANT	RETAINING WALL (SEE ARCH. DWGS FOR HEIGHT OF WALL)
STREET LIGHT	
MAIL BOX	SNOW STORAGE AREAS
TRANSFORMER	CHAINLINK FENCE
SEWER CONNECTIONS (2 LOTS)	PRIVACY FENCE
SEWER CONNECTIONS (1 LOT)	SOUND BARRIER
AIR CONDITIONING	EXTENT OF BERM TO BE EXTENDED TO MEET BELOW GRADE
DOWN SPOUT TO SPLASH PAD	FIRE FIGHTER TRAVEL PATH
SWALE DIRECTION	REVERSE CHECK FOUNDATION
SUMP PUMP	

THESE DRAWINGS ARE NOT TO BE SCALED:
ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES MUST BE REPORTED DIRECTLY TO ARCHITECT.

ISSUED OR REVISION COMMENTS

NO.	DESCRIPTION	DATE	DWN	CHK
1	ISSUED FOR PRE CONSULTATION	07-JAN-2020	RP	BM
2	ISSUED FOR COORDINATION	19-NOV-2020	RP	
3	ISSUED FOR OPA / ZBA	18-DEC-2020	RP	
4	CONCEPT 11.1	05-JUL-2021	RP	
5	UPDATED TO 23.0M ROW (N-S)	24-NOV-2021	RP	
6	UPDATED TO MATCH SITE ENTRANCE WITH PROPERTY ON NORTH	02-MAR-22	RP	
7	UPDATED TO 21.0M ROW	16-JUN-2022	RP	

RN DESIGN
WWW.RNDESIGN.COM
T:905-738-3177
WWW.THEPLUSGROUP.CA

CLIENT
AMBRIA DEVELOPMENT

PROJECT/LOCATION
10th LINE,
STOUFVILLE, ON

DRAWING
CONCEPT PLAN

DATE	SCALE
JUL 05 2021	1:400
DRAWN BY: RP	CHECKED BY: RP
PROJECT NUMBER: 19083	DRAWING NUMBER: COCNEPT 11.1

File:D:\RN 2019 Projects\19083\Site Planning\Architectural (RN)\Site Plan\19083-SP100.dwg Plotted: Jun 16, 2022 By:RavP

LincoInville Layover and GO Station Improvements IT-2017-EC-010: Environmental Project Report

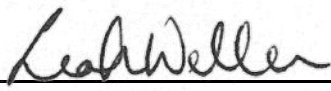
Prepared for:
Metrolinx
20 Bay Street, 6th Floor
Toronto ON M5J 2W3

Prepared by:
Stantec Consulting Ltd.
300W-675 Cochrane Drive
Markham ON L3R 0B8

File No. 160950996
February 23, 2018

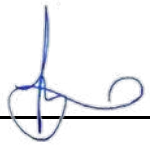
Sign-off Sheet

This document was prepared by Stantec Consulting Ltd. (“Stantec”) for the account of Metrolinx (the “Client”). The material in it reflects Stantec’s professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. The report has been prepared based, in part, on information provided by others as cited in the Reference section. Stantec has not verified the accuracy and / or completeness of third party information.

Prepared by 

(signature)

Leah Weller, MES, MCIP, RPP
Environmental Planner

Reviewed by 

(signature)

Alex Blasko, B.Sc. (Hons.)
Project Manager

Executive Summary

Project Overview

Metrolinx is completing a Transit Project Assessment Process (TPAP) under *Ontario Regulation (O. Reg.) 231/08, Transit Project and Metrolinx Undertakings*. The Lincolnville Layover and GO Station Improvements Project (the Project) includes the proposed expansion of the existing Lincolnville Layover and GO Station to allow for additional overnight train storage through the addition of three new tracks and modifications to associated storage and maintenance infrastructure. The Lincolnville Layover and GO Station (shown in Figure ES- 1) is comprised of an irregularly-shaped parcel of land located at 6840 Bethesda Road and 13190 York-Durham Line, and situated at the northwest portion of the Bethesda Sideroad and York-Durham Line intersection, in the Town of Whitchurch-Stouffville, Regional Municipality of York.

The Purpose of the Project is to expand the existing Lincolnville Layover and GO Station to accommodate increased service and support the need for additional train storage and maintenance associated with the planned growth and service improvements on the Stouffville rail corridor that are being planned and implemented as part of Metrolinx's commitment to Regional Express Rail (RER).

This Environmental Project Report (EPR) documents the findings of the TPAP with respect to existing environmental conditions, potential effects assessment, associated mitigation and monitoring, stakeholder and public consultation, and commitments to future work.

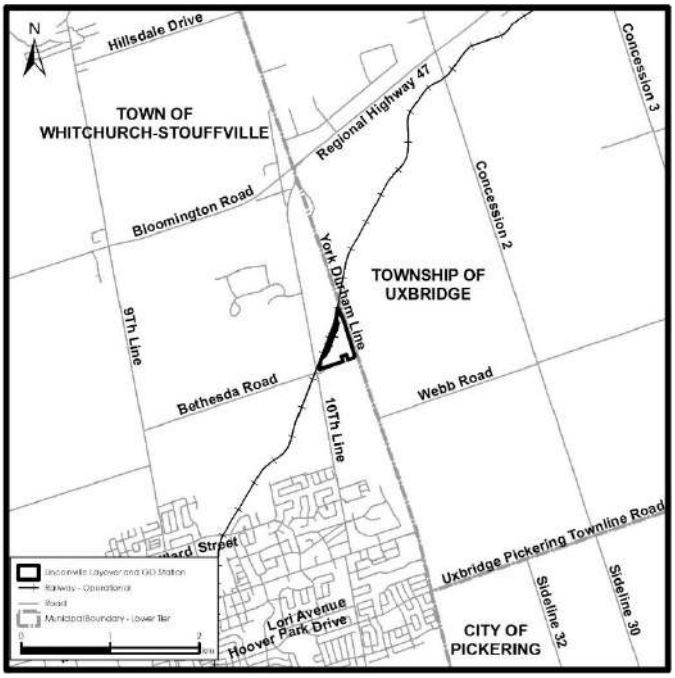


Figure ES- 1: Location of Lincolnville Layover and GO Station

Study Process

This EPR was prepared in accordance with *O. Reg. 231/08, Transit Projects and Metrolinx Undertakings* (Transit Projects Regulation). Under Ontario Regulation (O. Reg.) 231/08, certain types of transit projects that have predictable, and easily manageable environmental effects can follow the TPAP, an Ontario Ministry of the Environment and Climate Change (MOECC) approved, streamlined approach to Environmental Assessments (EA). The method for

determining if the TPAP is an appropriate assessment process for a proposed project is described in Figure ES- 2.

The Lincolnville Layover and GO Station Improvements Project meets the TPAP requirements as presented in Schedule 1 of O. Reg.231/08, as it relates to the following undertakings:

Subsection 2(1) – 4 Construction or modification of tracks required to increase the commuter rail service (including a change to All-Day Service) on an existing rail corridor, including such activities as:

v. construction and/or relocation of storage yard facilities; and

vi. construction of additional switches

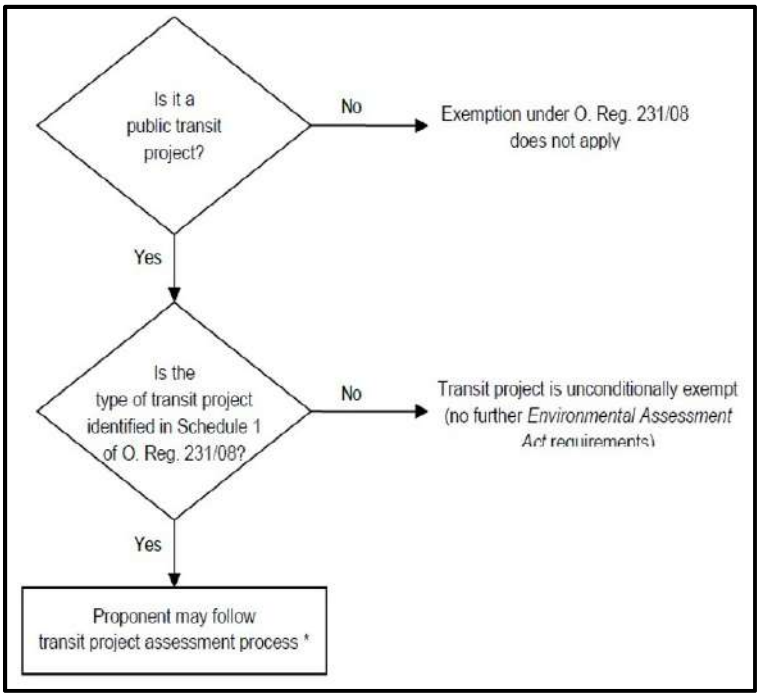


Figure ES- 2: Determination of Applicability of TPAP

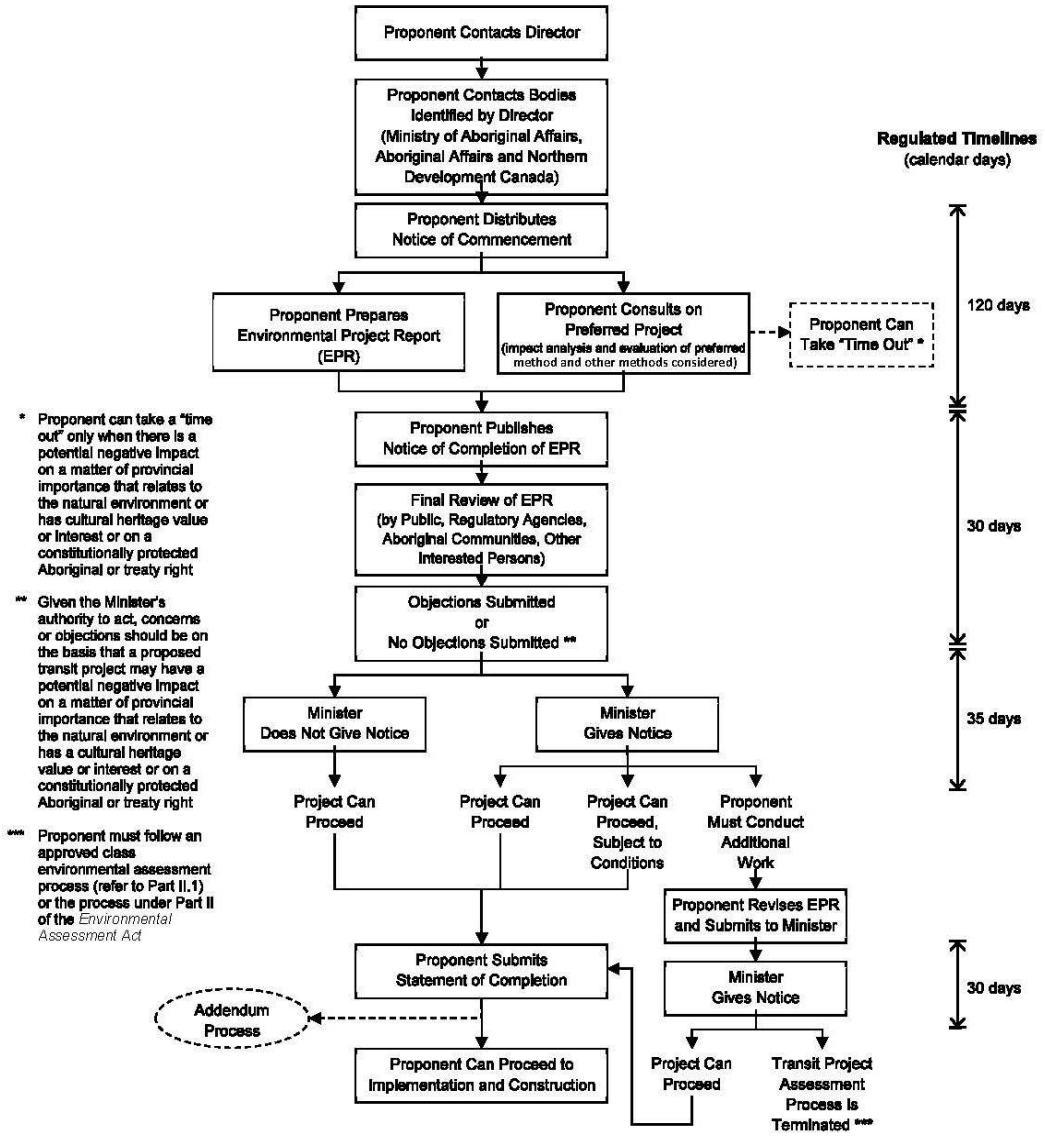
The TPAP is a proponent-driven, self-assessment process that provides a defined framework for the proponent to follow in order to complete the accelerated assessment of the potential environmental effects and decision-making within a 120-day regulated assessment timeline. Following this period, the regulation provides an additional 30-day public and agency review, and a further 35-day MOECC review. By following the TPAP for certain approved projects, the Transit Projects Regulation exempts the proponent of the transit project from the requirements under Part II of the *Environmental Assessment (EA) Act*.

Prior to formal commencement of the TPAP, proponents are urged to undertake introductory activities and consultation through pre-planning activities. The proponent initiates the TPAP by issuing the Notice of Commencement following completion of the Pre-Planning activities and the regulated 120-day timeframe commences.

The Pre-Planning phase involved a number of key activities, which were undertaken in preparation for the commencement of this TPAP. Environmental and technical studies were undertaken in 2016 and 2017 to determine the existing environmental conditions within and in the vicinity of the Lincolnville Layover and GO Station, which informed design work to determine how best to implement the required upgrades. A feasibility study was then completed in the fall of 2017 to confirm a preferred design approach and conceptual design details for the required upgrades at the Lincolnville Layover and GO Station.

Further details describing the TPAP requirements, activities, and associated timelines are provided in Section 1.0 of this EPR. The steps and timelines in the TPAP are illustrated in Figure ES- 3.

Figure ES- 3: Steps in the Transit Projects Assessment Process



Project Components

The main elements of the preferred design include the addition of three train storage tracks, modification of the existing train storage yard and facilities, adding auxiliary infrastructure to accommodate train storage, relocating 2 Maintenance of Way (MOW) tracks, as well as a modification to the tracks used for storing trains and for passenger loading and unloading through the relocation of storage yard facilities (shown in Figure ES- 1). More specifically, the proposed works will include:

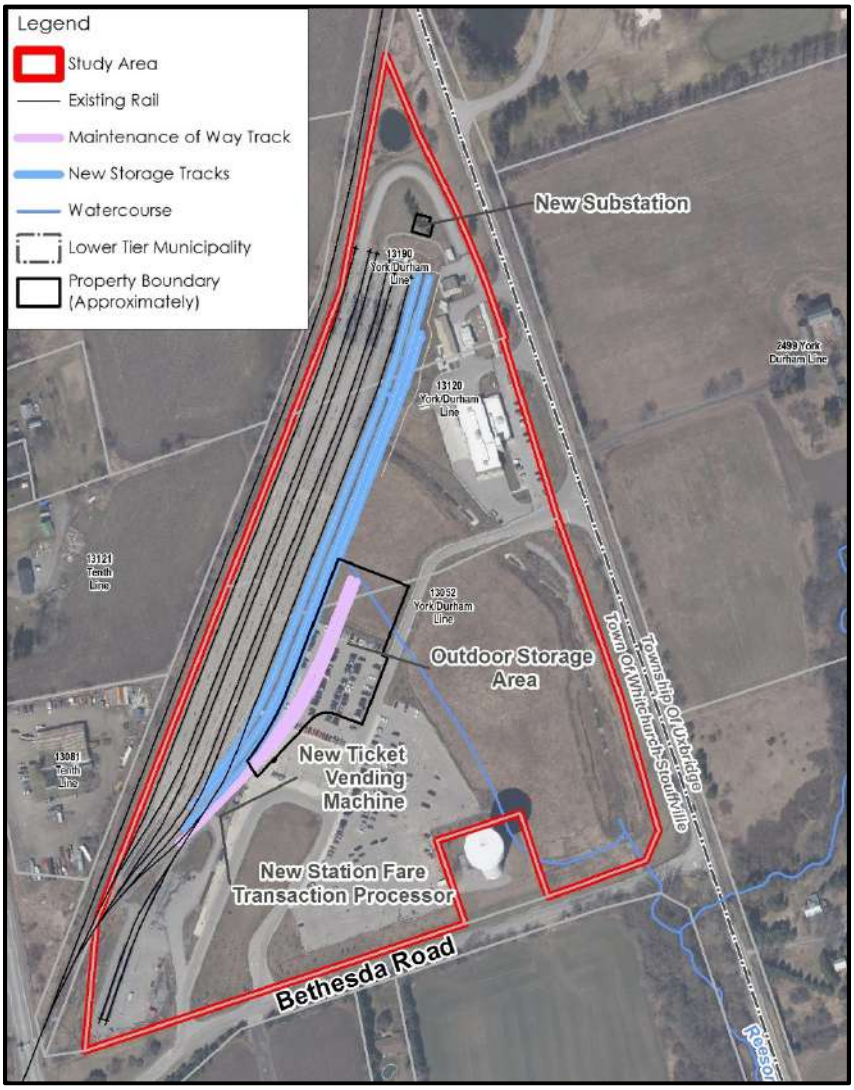


Figure ES- 4: Conceptual Design for Proposed Improvements

Platform Removal: The removal of existing platforms and replacement with storage tracks.

Track Work: Track geometry will change; new switches will be added and minor realignment of existing tracks will be done to accommodate three additional tracks south of the existing tracks.

Site Alterations: Alterations to access and service roads to realign them with the new track geometry and result in a total of nine storage tracks when the Project is completed.

System Upgrades: Addition of a new substation and a direct current (DC) battery room for the Facility, equipment changes to the medium voltage (MV) transformer, main switchboard, panels, and wiring, additional hydro pole.

Grading and Drainage: Changes to existing ditching and graded slopes, a new retaining wall.

Site Servicing: Various storm features to collect and store water, piping, trench drains, and drainage ditching with corrugated steel pipe culverts, upsizing the existing Channel Pond.

Fueling: Two new diesel fueling stations and modifications to existing diesel piping, new diesel exhaust fluid dispensers and a stainless steel drip tray.

Further details describing the project components and rationale of the preferred design are provided in Section 2.0 of this EPR.

Assessment of Potential Effects and Proposed Mitigation Measures

The Project has the potential to create changes to the existing environmental conditions that may result in both positive and negative effects. These changes have been considered through consultation with the public, stakeholders and Indigenous communities throughout the Pre-Planning and TPAP phases of the Project. Following identification of existing conditions, an assessment of potential effects and proposed mitigation measures was completed based on the following information:

- An assessment and evaluation of the potential effects that the Project may have on the environment
- A description of any measures proposed to mitigate any negative effects that the Project may have on the environment
- A description of the means to monitor or verify the effectiveness of the proposed mitigations to reduce or eliminate adverse effects

Section 4.0 of this report presents the conclusions of the effects assessment in more detail, and Section 4.5 presents a table highlighting potential effects, mitigation measures, net effects and monitoring requirements. The potential effects of the proposed improvements to the Lincolnville Layover and GO Station are well understood, and can be addressed through the mitigation measures proposed. Overall, the net effects of the proposed improvements will be positive, resulting in short-term, mitigatable disturbances, balanced by long-term benefits to passengers and the broader community. Long-term benefits include improved access to higher-order transit infrastructure, operating more frequently and throughout the day, and reduced reliance on greenhouse gas-emitting private vehicles. The following is a summary of potential effects associated with the proposed project that will require mitigation measures, and anticipated specific net effects following mitigation measures.

Vegetation and Vegetation Species at Risk

There will be a direct loss of vegetation where removal of vegetation is required for construction, including a permanent loss of vegetation around the Lincolnville GO Station. Revegetation and monitoring is proposed to mitigate the effects of vegetation removal. No net effects are anticipated following standard mitigation and monitoring measures, including adaptive management of replanted vegetation (see Section 4.1.1).

Wildlife and wildlife Species at Risk

Although no evidence of bird nesting, fish habitat, or terrestrial species was encountered during field investigations, should wildlife start using the site for life cycle activities, construction could disturb these activities. Pre-construction investigation and specific construction timing windows are proposed to mitigate the potential for negative effects on wildlife. No net effects are anticipated following standard mitigation measures (see Section 4.1.2).

Surface Water and Aquatic Environment

Site grading and site water management could alter flow regimes of a Headwater Drainage Feature and affect downstream habitat through erosion and downstream sediment transport to Reesor Creek. Standard stormwater management and erosion and sediment control measures are proposed to mitigate potential negative effects to off-site aquatic features. No net effects are anticipated following standard mitigation measures (see Section 4.1.3).

Stormwater Management

To maintain water balance and pre-construction flows on the site, the proposed improvements include new and modified stormwater management features. No net effects are anticipated following standard mitigation measures (see Section 4.1.4).

Hydrology and Groundwater

Potential construction dewatering and operations activities could negatively affect groundwater quantity and quality. Mitigation measures include minimizing dewatering and managing groundwater contamination risks. No net effects anticipated following the proposed mitigation measures (see Section 4.1.5).

Soils and Geology

Although no soil contamination is anticipated to be found on the site, construction activities could affect soil quality if unanticipated contaminants are encountered, and operations activities could affect soil quality if spills occur. Soil testing and management of contamination risks are proposed such that no net effects are anticipated (see Section 4.1.6).

Trees

Trees will be disturbed and removed during construction activities and to accommodate the proposed improvements. Tree protection measures are proposed for trees to be retained, and a replanting plan will be developed in consultation with the municipality and conservation authority to address trees to be removed. Minimal net effects are anticipated following standard mitigation measures and tree replanting (see Section 4.1.7).

Land Use and Users

Current passenger services at the Facility will remain while undergoing construction (i.e. access to GO station and other transit modes will be maintained). Passenger services at the Facility will remain during construction, with signage and on-site construction coordination personnel in place to help direct passengers through the site to limit wait times associated with finding parking and purchasing tickets. Temporary net effects are anticipated with mitigation measures (see Section 4.2.1).

Archaeology

No archaeological resources were identified during the Stage 2 archaeological assessment for the Study Area. No mitigation measures are required, and no net effects are anticipated (see Section 4.3.1).

Cultural Heritage

One Candidate Cultural Heritage Property was identified near the site; however, the proposed works are not anticipated to result in direct or indirect effects on the property. No mitigation measures are required and no net effects are anticipated (see Section 4.3.2).

Air Quality

Increase in volumes of train and vehicular traffic may result in slight changes to air quality, however modelled changes are anticipated to meet MOECC air quality criteria except where background levels of air contaminants already exceed these criteria. Standard construction best management practices are recommended to manage dust, and no net effects are anticipated following standard mitigation measures (see Section 4.4.1).

Noise and Vibration

Noise emissions during construction could cause temporary nuisance to receptors, however noise from the Lincolnville Layover and GO Station's predictable worst case operation do not exceed the criteria outlined in the MOECC and GO Transit *Draft Protocol for Noise and Vibration Assessment* (55 dBA over any hour) at the points of reception studied. No noise control is recommended for the design of proposed improvements and standard construction best management practices are recommended to mitigate the temporary nuisance of construction-related noise. No net effects are anticipated (see Section 4.4.2).

Traffic and Transportation

Construction activities may cause temporary disturbance to vehicular traffic and parking areas, and require temporary changes to pedestrian circulation through passenger areas. Area intersections are anticipated to continue to operate at a good level of service, and signage and construction staging will mitigate temporary construction effects. No net effects are anticipated following the implementation of standard mitigation measures (see Section 4.4.3).

Consultation Process

Metrolinx consulted with government agencies, elected officials, members of the public (including local residents, businesses and interest groups), and Indigenous communities through various communication methods during both the Pre-Planning and TPAP activities.

Consultation for this Project occurred in two main stages – Pre-Planning activities undertaken prior to the Notice of Commencement of the TPAP; and regulated TPAP consultation activities undertaken following the Notice of Commencement of the TPAP. Pre-Planning activities included obtaining input from government agencies, elected officials, members of the public, interested parties, and Indigenous communities. Figure ES- 3 shows how public consultation is integrated into steps of the TPAP.

Following the Pre-Planning activities, the TPAP follows six required key steps that include consultation activities (illustrated in Figure ES- 3):

1. Contact with the MOECC and identification of interested agencies and Indigenous communities.
2. Issuance of the Notice of Commencement of TPAP.
3. Assessment process and consultation with project stakeholders (government agencies, elected officials, members of the public) and Indigenous communities.
4. Issuance of the Notice of Completion of the Environmental Project Report (EPR) (within 120 days following the Notice of Commencement).
5. Provision of 30 days for government agencies, elected officials, members of the public, and Indigenous communities to review the EPR.
6. 35 days for the Minister of the Environment and Climate Change to review the EPR, followed by the submission of a Statement of Completion by the proponent.

A summary of consultation activities is provided below and detailed in Section 6.0.

Project Website

The Project website www.metrolinx.com/lincolnville was maintained to service as a virtual library of materials from public meetings and other Project reports and documentation, as well as a posting location for public notices. The project website also acted as a forum for the public to provide comments on the Project as an alternative to attending Public Meetings.

Stakeholder and Indigenous Consultation and Engagement

Metrolinx provided an opportunity to review agencies, Indigenous communities, adjacent property owners, and community groups to participate in meetings and discussions. An individual briefing was also held with City of Pickering Councilors to provide progress updates pertaining to specific Project interests.

Public Meeting

Metrolinx hosted a Public Meeting on October 26, 2017 to share general information about the Project. The purpose of the Public Meeting was to introduce the Project and Project team to the community, with the intention of providing information as early in the process as possible. There were eight attendees to the Public Meeting.

Notifications and Newspaper Advertisements

A Notice of Public Meeting was prepared to invite residents, agencies, Indigenous communities and other interested persons to attend the meeting to learn about the Project and provide their questions and/or comments to members of the Project Team. This Notice was also published in the Sun Tribune Newspaper on October 12, 2017.

Project Updates Distribution List

Potentially interested parties (including members of the public, property owners, review agencies, Indigenous communities, elected officials, and interested groups) were initially identified through review of MOECC's Government Review Team (GRT) list, reaching out to local and regional municipal bodies and agencies with jurisdiction in the Study Area, obtaining a list of Indigenous community contacts from the MOECC and MTO, and obtaining a list of property owners within 30m of the Study Area. The contact list for the Project has evolved throughout the EA process, based on the level of interest expressed by individuals or additional guidance received by regulatory bodies throughout the study. A stakeholder mailing list and mailing distribution map were prepared and are included in Appendix B.

Project E-mail

A direct email address (Lincolnville@metrolinx.com) was created and monitored regularly by Metrolinx staff.

Mailings

Project notices were mailed to all residents, agencies, Indigenous communities and other interested persons on the distribution list via Canada Post, and were mailed via Canada Post mail drop to a further approximately 7,500 residents of the Stouffville, Claremont and Uxbridge communities.

Online Engagement (Engage Metrolinx)

Metrolinx's online engagement website, www.metrolinxengage.com, was used to facilitate electronic engagement efforts during the TPAP through an online survey from January 18 to February 2, 2018. A copy of the draft environmental studies, and a presentation summarizing the project, environmental effects, and proposed mitigation measures was available for review prior to completing the survey or submitting comments.

Future Commitments and Monitoring

O. Reg. 231/08 requires future commitments, including required permits and approvals to be documented as part of the TPAP to facilitate project implementation in accordance with project-specific mitigation measures and monitoring activities described in this EPR and in a manner that does not result in negative impact on matters of provincial interest related to the natural environment or to cultural heritage value or interest, or on constitutionally protected Indigenous or treaty rights.

This EPR outlines the commitments made by Metrolinx as a part of the TPAP to continue to obtain permits and approvals required for the construction of improvements to, and, as applicable, ongoing operations of the Lincolnville Layover and GO Station. These commitments include consultation with permitting agencies and authorities from whom permits are not a legislative requirement, however Metrolinx has committed to meeting the spirit and intent of the permit that would be applicable to other proponents. Metrolinx has also committed to monitoring and adaptive management of mitigation measures throughout construction activities.

All applicable permits, approvals, and monitoring requirements under environmental laws will be reviewed, confirmed and obtained by Metrolinx prior to the construction of the Project. A complete table of future commitments is provided in Section 7.0 of this EPR.

The following plans will be developed and implemented as part of and Environmental Protection Program to mitigate potential construction effects:

- Erosion and Sediment Control Plan
- Excess Materials Management Plan (for construction-related waste)
- Landscape Plan
- Soil Management Plan (for contaminated soils)
- Air Quality Management Plan
- Complaint Response Protocol
- Emissions Management Plan
- Spill Prevention and Response Plan
- Hazardous Materials and Fuel Handling Plan
- Wildlife Encounter Protocol

As part of future commitments, an Addendum to the EPR may be required if Project developments result in any design variations from what was assessed in this EPR during the approvals, Detailed Design, and construction processes. The TPAP includes provisions in O. Reg. 231/08 for proponents to make changes to a transit project after the Statement of Completion is submitted to the Director of the Environmental Assessment and Approvals Branch of the MOECC and the MOECC Regional Director. In compliance with O. Reg. 231/08. Metrolinx will prepare an addendum to the EPR if there is a proposed change to the Project that is inconsistent with the EPR after the Statement of Completion is issued. A change that is inconsistent with the EPR is generally defined as one for which the effects have not been accounted for in the EPR, either directly or through a contingency planning approach in which a worst-case scenario has been contemplated and a protocol for addressing change has been included in the EPR. Further details describing the EPR addendum process and requirements are provided in Section 7.3 of this EPR.

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APPENDIX B: RECORD OF CONSULTATION AND CONSULTATION REPORT

Glossary of Terms and Acronyms

Assessment Area	Geographic area examined for discipline-specific Project studies
BRT	Bus Rapid Transit
Bus Facility	Passenger and Maintenance for GO Bus Service
CNR	Canadian National Railway
COC	Contaminant of Concern
CPR	Canadian Pacific Railway
CTC	Centralized Traffic Control
CWR	Continuous Welded Rail
DEF	Diesel Exhaust Fluid
DFO	Fisheries and Oceans Canada
EAA	*Environmental Assessment Act*
EA	Environmental Assessment
EPR	Environmental Project Report
ESA	*Endangered Species Act*, 2007 (Ontario)
GO Transit/ MOECC Protocol	GO Transit/ MOECC Draft Protocol for Noise and Vibration Assessment

GTHA	Greater Toronto and Hamilton Area
Layover Facility	Train Layover and Ancillary Services, includes all of the equipment and infrastructure within the property boundaries used to store and maintain the GO Trains overnight when not in use.
LRT	Light Rail Transit
MBCA	*Migratory Birds Convention Act*
MMAH	Ministry of Municipal Affairs and Housing
MNRF	Ministry of Natural Resources and Forestry
MOECC	Ministry of Environment and Climate Change
MOW	Maintenance of Way
MPIR	Ministry of Public Infrastructure Renewal
MTO	Ministry of Transportation
MTCS	Ministry of Tourism, Culture and Sport
NHIC	Natural Heritage Information Centre
NSA	Noise-Sensitive Area
OGS	Oil Grit Separator
O. Reg.	Ontario Regulation
O. Reg. 231/08	*Ontario Regulation 231/08, Transit Projects and Metrolinx Undertakings* (a.k.a. Transit Projects Regulation)

Project	Lincolnville Layover and GO Station Improvements
PM	Public Meeting
PPS	Provincial Policy Statement, 2014
PPUDO	Passenger pick-up and drop-off
RER	Regional Express Rail
ROW	Right-of-Way
RTP	Regional Transportation Plan
SAR	Species at Risk
SARA	Species at Risk Act (Federal)
SARO	Species at Risk in Ontario
Site	Property in which is located the Lincolnville Layover and GO Station and bus passenger area
Sub.	Subdivision
TC	Transport Canada
TPAP	Transit Project Assessment Process
TRCA	Toronto and Region Conservation Authority
YRT	York Region Transit

Units and Measurements

mm	millimetre
cm	centimetre
m	metre
km	kilometre
m asl	metre above sea level
m bgs	metre below ground surface
ha	hectare

1.0 INTRODUCTION AND STUDY PROCESS

With the Greater Toronto and Hamilton Area (GTHA) now being home to nearly seven million people and heading toward 10 million by 2041, transit needs are increasing. To address these urgent transit needs, the Province of Ontario committed to implementing Regional Express Rail (RER) and making other improvements to the GO system. Metrolinx is an agency of the provincial government tasked with implementing regional transit solutions in the GTHA. As part of the RER program, Metrolinx is planning for additional peak-hour and peak-direction service along the Stouffville rail corridor. System upgrades are being planned along this corridor, including the development of the infrastructure necessary to support the introduction of additional trains to meet these needs.

The Lincolnville Layover and GO Station Improvements Project (the Project) is being planned in support of Metrolinx's RER program (details can be found online at http://www.metrolinx.com/en/regionalplanning/rer/). Service improvements on the corridor are also supported by a number of policies, plans and studies that have been completed in the past by area municipalities, regional authorities, and the provincial government.

The location of the Lincolnville Layover and GO Station is shown in Figure 1-1, on the following page.

1.1 PROJECT OVERVIEW

The Lincolnville Layover and GO Station (the site) is the last, northernmost stop on the Stouffville rail corridor, offering passenger service between Union Station in Toronto and Lincolnville GO Station, which is located at 6840 Bethesda Road in the Town of Whitchurch-Stouffville (see Figure 1-1). The site serves multiple purposes: a passenger stop on the Stouffville rail corridor; and a Layover Facility for trains, including six storage tracks and maintenance of way (MOW) siding and yard; and, bus passenger service, storage, fueling and sanding operations for its vehicles.

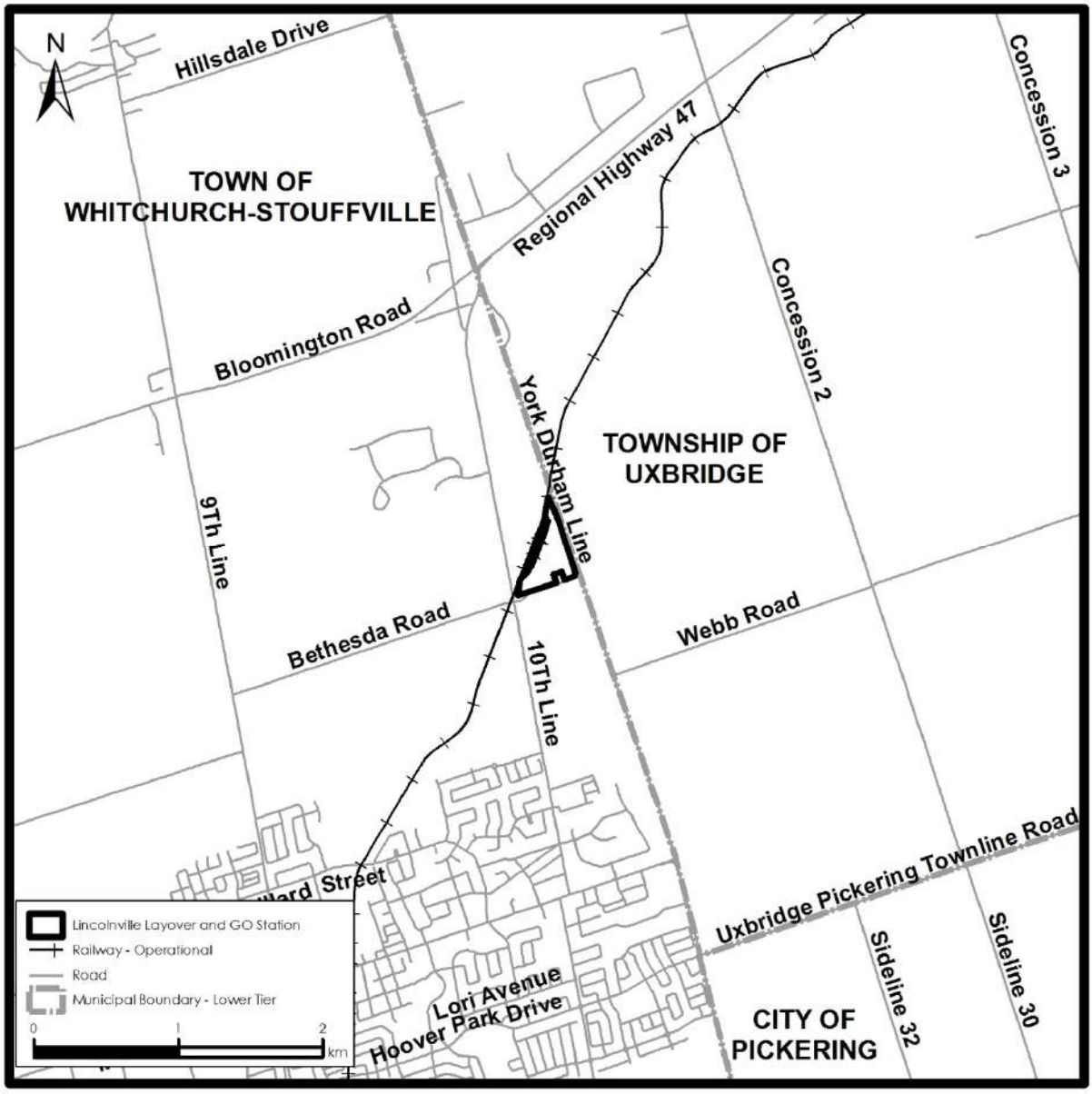


Figure 1-1: Location of the Lincolnville Layover and GO Station

The Lincolnville Layover and GO Station was originally developed to exclusively serve as a Layover yard for the Stouffville rail corridor. The station was added to the site in 2008 to provide a northerly extension of passenger service from Stouffville to Lincolnville. However, due to its proximity to a Layover yard, the existing station services are limited. The need for and location of new station facilities was determined through the development of a Feasibility Study (details can be found online at http://www.metrolinx.com/en/regionalplanning/rer/20171117_Lincolnville_FeasibilityStudyReport

EN.pdf) (Stantec 2017), which reviewed the constraints and opportunities associated with both the proposed improvements to the Layover Facility and the needs of the Station facilities.

The Feasibility Study outlined that, as part of the commitments for RER service improvement, and in keeping with the goals and objectives of regional transit planning and provincial and local policy direction, upgrades to the existing Lincolnville Layover and GO Station facilities are required to:

- Increase ridership safety
- Accommodate future ridership growth
- Enhance pedestrian and cycling access and amenities
- Provide barrier-free access to existing parking

The existing infrastructure and storage capacity at the Layover Facility is not sufficient to support the proposed growth of service on the Stouffville rail corridor, and upgrades to the Facility are required to accommodate planned improvements. Six Layover storage tracks are currently in use at this Facility. Improvements to the site must meet the future need to store nine trains on separate Layover storage tracks and the auxiliary infrastructure and systems to support these additional trains.

In addition, the existing Lincolnville GO Station services, situated within the same site as the Lincolnville Layover Facility, will require upgrades to facilitate a safe and comfortable experience for GO customers and accommodate future train and bus ridership growth. This EPR addresses the proposed improvements to the Layover Facility. Future planning for the Station facilities will be addressed through an EPR Addendum process (see Section 1.8 for additional information on the Addendum process).

1.2 PLANNING CONTEXT AND OTHER PROJECTS

A number of policies, plans and studies preceded this process, which have helped determine the need for and, eventually, the design considerations for the proposed improvements to the site. These include:

- Provincial and Regional Plans and Initiatives:
  - Provincial Policy Statement (PPS), Ministry of Municipal Affairs and Housing (MMAH), 2014
  - Growth Plan for the Greater Golden Horseshoe, Ministry of Municipal Affairs, 2017
  - MoveOntario 2020, 2007

  - The Big Move – Transforming Transportation in the Greater Toronto and Hamilton Area, 2008
  - Strategic Plan: GO 2020, GO Transit, 2008 York Region Transportation Master Plan
  - GO Rail Network Electrification TPAP, Metrolinx, 2017
  - Oak Ridges Moraine Conservation Plan, Government of Ontario, 2017
  - York Region Official Plan, York Region, 2016
- Municipal Plans and Policies
  - Whitchurch-Stouffville Official Plan and Zoning By-law

These policies, plans and studies and their relevance to the project are described below.

1.2.1 Provincial and Regional Plans and Initiatives

1.2.1.1 Provincial Policy Statement, 2014

The Provincial Policy Statement (PPS) is created under the Ontario *Planning Act*, and serves as a policy direction document on matters of provincial interest related to land use planning and development. The PPS promotes transit-supportive land use patterns where transit is planned, exists or may be developed. It also promotes land uses that minimize the length and number of vehicle trips that support current and future use of transit and active transportation. Key policies within the PPS that apply to this Project are described below.

Infrastructure developed should be coordinated, efficient and cost-effective, while promoting energy efficient, green infrastructure, as described in policies 1.6.2, 1.6.7.1 (Government of Ontario, 2014). The Lincolnville Layover improvements will utilize the existing infrastructure and public service facilities, as preferred by policies 1.6.2, 1.6.7.1 (Government of Ontario, 2014). Long-term economic prosperity is described in policy 1.7 as promoting opportunities for economic development and community investment-readiness (1.7.1 (a), Government of Ontario, 2014), while providing for an efficient, cost-effective and reliable multimodal transportation system that is integrated with adjacent systems (1.7.1 (f), Government of Ontario, 2014).

The Lincolnville Layover and GO Station promotes the use of public transit in the Lincolnville area, as well as the ability to provide GO Transit trains along the Stouffville Corridor.

1.2.1.2 Growth Plan for the Greater Golden Horseshoe, Ministry of Municipal Affairs, 2017

The Growth Plan identifies growth areas and growth targets, including the promotion of intensification. The Growth Plan also encourages growth near transit corridor, by providing connectivity among transportation modes and multimodal access to jobs, housing, and schools

(policy 3.2.2.2 (b) (d) MMA, 2017). The Stouffville GO corridor is identified as an Existing Higher Order Transit line, which includes all forms of rapid transit. The Plan also identifies that public transit should be fast, convenient and affordable as part of an integrated transportation network. The Plan encourages increasing the capacity of existing transit systems (policy 3.2.3.2 (d), MMA, 2017), and facilitation improved linkages between and within municipalities (policy 3.2.3.2 (e), MMA, 2017).

The Lincolnville Layover and GO Station supports the continued use of GO Transit along the Stouffville Corridor as it provides a transit station, as well as a storage area for trains not in use.

1.2.1.3 MoveOntario 2020, 2007

The Move Ontario 2020 Plan was developed in June 2007 with the goal of reducing congestion through increases to transit ridership through investments in 52 new rapid transit projects. The multi-year plan, led by the Greater Toronto Transportation Authority (GTTA), in partnership with the Provincial Government and Federal Government had a target of having 66 percent of projects completed by 2015, and 95 percent completed by 2020.

The GO Transit Stouffville rail corridor capacity expansion from Union Station to Stouffville and extension of the line to Uxbridge was featured on the Move Ontario 2020 project list. The Lincolnville Layover and GO Station project supports the capacity expansion of the Stouffville rail corridor.

1.2.1.4 The Big Move – Transforming Transportation in the Greater Toronto and Hamilton Area, 2008

In late 2012, Metrolinx announced the expansion of the Stouffville rail corridor as part of the "Next Wave" of Big Move projects to be funded by Metrolinx's Investment Strategy (Metrolinx, 2012a). The Big Move calls for the expansion of a portion of the Stouffville rail corridor to two-way, all day regional rail service every 15 minutes within the 15-year planning horizon. In order to support this, many improvements to the corridor are required, including improvements at the Lincolnville Layover and GO Station.

1.2.1.5 GO Transit's GO 2020, 2008

GO 2020 was GO Transit's strategic plan developed in 2008. The plan identifies its continued effort to encourage the expansion of the rail and bus network in the GTHA, as well as linkages to other systems such as Light Rail Transit and Bus Rapid Transit options. The Plan identifies an expansion of existing GO rail lines beyond Lincolnville to Uxbridge on the Stouffville GO corridor, and increased service among the projects for the 2020 Plan.

1.2.1.6 Regional Municipality of York Transportation Master Plan, 2016

The Regional Municipality of York published the Transportation Master Plan in 2016. The plan is a high-level policy document that identifies a number of priorities for moving people and goods

throughout and into York Region by 2041. The plan shows a number of proposed infrastructure upgrades that will help move people to the Lincolnville Layover and GO Station. These include extending the frequent transit network to the Lincolnville Layover and GO Station, installing dedicated bike lanes on Bloomington Road and Woodbine Avenue in the vicinity of the site, road widenings to four lanes on Leslie Street and Woodbine Avenue in the vicinity of Bloomington Road, and a commuter parking lot at Bloomington Road and Highway 404.

These proposed changes would increase the accessibility of the Lincolnville GO Station to area residents and businesses, and encourage increased ridership on the Stouffville GO corridor.

1.2.1.7 GO Rail Network Electrification TPAP, Metrolinx, 2017

The population of the GTHA is increasing, and with it, traffic congestion. As part of Moving Ontario Forward, Metrolinx is committed to electrifying the GO Transit system to bring 15-minute, two-way electrified service to core parts of the network through the RER program. A component of the regional transportation plan, The Big Move, this program supports Metrolinx's goal of transforming the GO system into a comprehensive regional rapid transit network. Electrification of the GO network is a key component of the RER program.

The GO Rail Network Electrification undertaking will entail design and implementation of a traction power supply system and power distribution components including: An Overhead Contact System (OCS) along the rail corridors, electrical feeder routes, and a number of traction power facilities located within the vicinity of the rail corridors. The purpose of the GO Rail Network Electrification project is to convert six GO-owned rail corridors from diesel to electric propulsion, including the Stouffville Rail Corridor from Scarborough Junction (off Lakeshore East Corridor) to Lincolnville GO Station. In order to electrify the system, there is new infrastructure that needs to be built as well as modifications to existing infrastructure (such as existing GO Stations and Maintenance Facilities).

A Notice of Completion for the GO Rail Network Electrification TPAP was issued on October 11, 2017. Following the MOECC Minister's review, the Minister issued a Notice to Proceed (approved without conditions) on December 11 2017. A Statement of Completion was submitted to MOECC on December 17, 2017, identifying Metrolinx's intent to process with the transit project in accordance with the Environmental Project Report.

1.2.1.8 Oak Ridges Moraine Conservation Plan, Government of Ontario, 2017

The Oak Ridges Moraine Conservation Plan is an ecologically based plan that provides land use and resource management planning direction to stakeholders on how to protect the ecological and hydrological features and functions of the 190,000 hectares of land and water within the Moraine. Land use planning must be coordinated with infrastructure planning to comply with the requirements of section IV 41 and implement the Plan (Government of Ontario, 2017).

The Plan requires that all new or upgraded infrastructure must be supported by the necessary studies, assessments and documentation to demonstrate that the project will address stormwater management (IV 41 1.2 (c)), utilize low impact development and green infrastructure (IV 41 1.2 (d), and assess actions to reduce greenhouse gas emissions (IV 41 1.2 (e)) (Government of Ontario, 2017).

The proposed Project will utilize low impact development measures to mitigate the effects of runoff by managing it as close to the source as possible, and the future electrification of the GO rail network will reduce greenhouse emissions.

1.2.1.9 York Region Official Plan, York Region, 2016

The York Region Official Plan provides policies to guide economic, environmental and community building decisions to manage growth. The policies in this Plan aim to strengthen the connections between the natural and built environment, job opportunities, human services, transportation and public health. A well-integrated public transit system is essential to enhancing the quality of life for residents and workers in York Region. The proposed Project will comply with the provisions of the Oak Ridges Moraine Conservation Plan (6.2.8 York Region, 2016), as well as the policies listed in section 6.2 of the York Region Official Plan.

The York Region Transportation Master Plan (section 7.0 York Region, 2016) sets immediate and long term public transit goals that form the basis for the transit network. The Plan aims to provide transit service that is convenient and accessible to everyone in York Region by working with partners, such as Metrolinx, to complete the transit network and enhancements (7.2.22 York Region, 2016). To achieve higher transit usage, parking and drop-off facilities should be created (7.2.25 (e)) and intermodal terminals should be created (7.2.25 (f)) and enhanced for future requirements (York Region 2016).

Metrolinx is committed to employing best management practices both during construction as well as in the future operation of the Proposed Station and Layover Site.

1.2.2 Municipal Plans and Policies

1.2.2.1 Town of Whitchurch-Stouffville Official Plan and Zoning By-Law

According to the Town of Whitchurch-Stouffville Official Plan, the proposed Site is situated within a designated Major Transit Station Area in the Town of Whitchurch-Stouffville Official Plan, Amendment No. 137. Permitted uses under this designation allow for transportation and related ancillary uses, including maintenance, industrial and commercial. The lands west of the Lincolnville GO Station are privately owned and are not proposed to be acquired for GO Station Uses. However, the lands may be used for non-residential uses compatible with and/or supportive of GO Station use.

1.3 PURPOSE OF THE TRANSIT PROJECT

The purpose of the Project is to expand the existing Lincolnville Layover and GO Station to accommodate increased service and support the need for additional train storage and maintenance associated with the planned growth and service improvements on the Stouffville rail corridor.

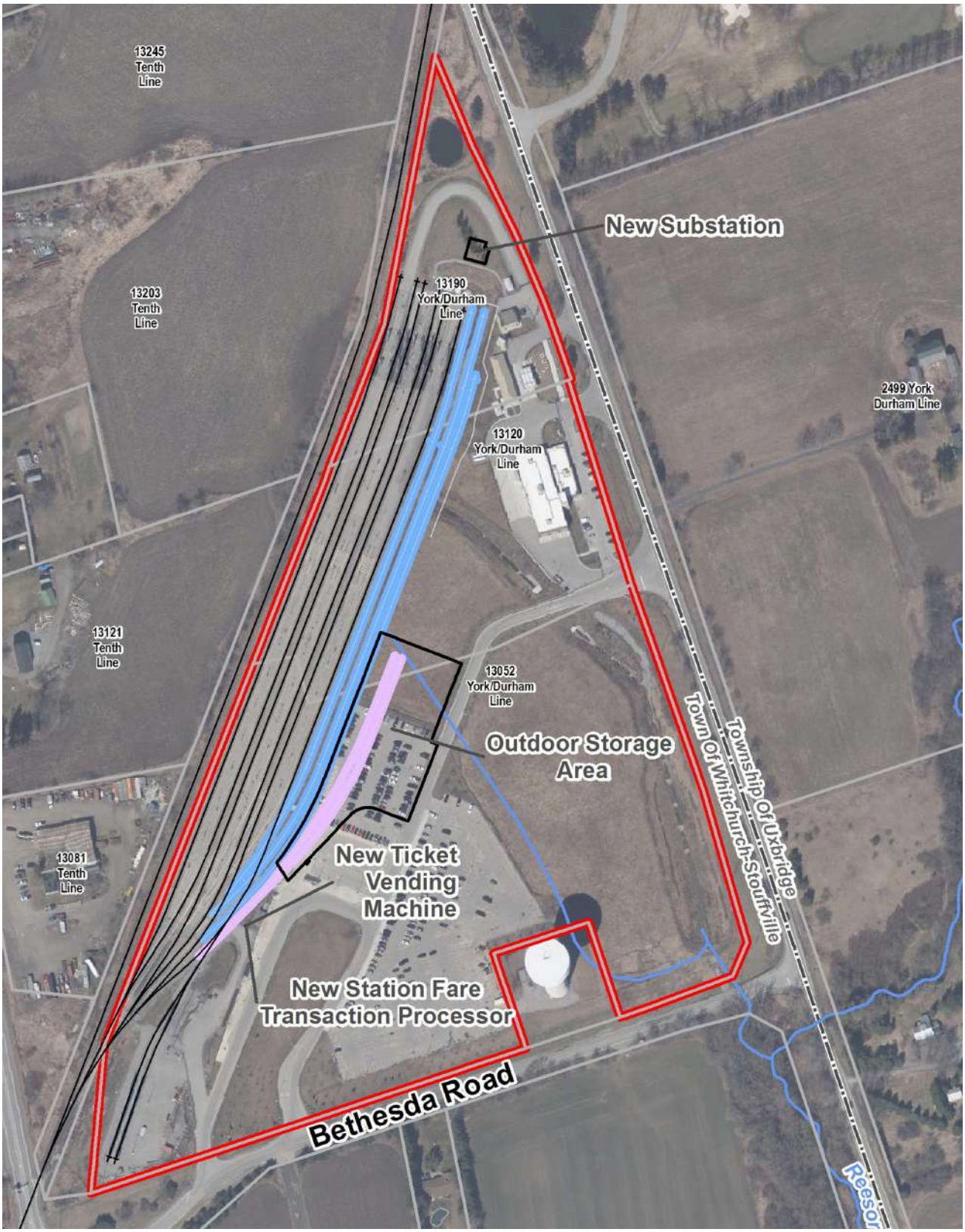
1.4 DESCRIPTION OF THE STUDY AREA

The Study Area for the Project is comprised of an irregularly-shaped parcel of land located at 6840 Bethesda Road and 13190 York-Durham Line, and situated at the northwest portion of the Bethesda Sideroad and York-Durham Line intersection, in the Town of Whitchurch-Stouffville, Regional Municipality of York. The site is currently occupied by:

- The Lincolnville Rail and Bus Maintenance Facility - located within the northeast portion of the site
- The Lincolnville GO Station and parking area - located within the south-central portion of the site
- The Lincolnville Layover Facility - located within the southwest portion of the site.

The Study Area is limited to the parcel of land owned by Metrolinx, however some of the environmental investigations have reviewed broader areas, as described below. The Study Area is shown in Figure 1-2.

Figure 1-2: TPAP Study Area



To complete the specific environmental and technical studies required for this TPAP, discipline-specific Assessment Areas have been defined that extend beyond the Study Area (for instance, a broader regional area was used for groundwater and land use purposes, while the terrestrial and cultural heritage assessment included additional buffers beyond the property boundary). These Assessment Areas are described in greater detail in Section 3.0 of this EPR, and summarized in Table 1-1.

Table 1-1: Assessment Areas by Discipline Study

Discipline Study	Assessment Area
Terrestrial Ecosystems Assessment	Within 120 m of the Study Area.
Fisheries Habitat (Surface Water and Aquatic) Assessment	Desktop assessment of the Reesor Creek subwatershed, and field assessment within the limits of the Study Area.
Hydrogeological Assessment	Desktop assessment of existing conditions and well water records within the limits of the Study Area and within 500m of the Study Area.
Soils Assessment	Drilling of boreholes to the east of the existing storage tracks to depths of approximately 3-5m and a review of conditions within 500 m of the Study Area.
Tree Inventory and Arborist Report	Study Area.
Land Use Planning Assessment	Study Area and adjacent properties.
Stage 1-2 Archaeological Assessment	Approximately 12.3 hectares of land in an irregular shape surrounding the Study Area, to encompass the Study Area and adjacent lands for which Archaeological Potential has been identified, including a channeled tributary of West Duffins Creek and Stouffville Creek.
Cultural Heritage Screening	The Study Area plus properties within a 50 m buffer of the Study Area.
Air Quality Evaluation	Study Area and surrounding area extending 500 m from the property lines.
Preliminary Acoustic Assessment	Study Area and surrounding area extending 500 m from the property lines.
Traffic Impact Study	Study Area and adjacent intersections.

1.5 PRE-PLANNING ACTIVITIES

In 2012, Metrolinx announced the expansion of the Stouffville rail corridor as part of the “Next Wave” of “Big Move” projects. A number of studies were undertaken to determine how best to implement the expansion of the line, and it was determined that as a result of the expansion, the Lincolnville Layover and GO Station would require upgrades and additional train storage.

Beginning in the spring of 2016, in advance of completing the conceptual planning for the Lincolnville Layover and GO Station, environmental and technical studies were completed that inventoried existing environmental conditions within the Study Area (see Table 1-1 above for Assessment Area information). The environmental and technical studies informed design work to determine how best to implement the required upgrades to the Layover Facility. A feasibility study was then completed in the fall of 2017 to determine conceptual design details for the required upgrades at the Layover Facility, including new GO Station features. In advance of commencing the TPAP for the proposed improvements to the Layover Facility, Metrolinx consulted with project stakeholders (including government agencies, elected officials, and members of the public) and Indigenous communities to determine the level of interest in the project and to get feedback on the preliminary design details. The Project involved a number of key activities, which were undertaken before, and in preparation for the commencement of the TPAP.

Although not required under the legislation, the MOECC recommends that Pre-Planning activities are undertaken in advance of commencing the TPAP (MOECC, 2014). The TPAP is a time-limited process, therefore the exemption of a particular project from the requirements of Part II of the EAA depends on following the prescribed steps in the regulation and complying with the prescribed time limits, Pre-Planning activities provide more certainty to the proponent that the prescribed steps can be undertaken within the prescribed time limits. Pre-Planning allows proponents to enter the TPAP well-prepared, and with an understanding of, and proposed resolution for the key issues. Pre-Planning activities undertaken in advance of releasing the Notice of Commencement of this TPAP included the development of a draft EPR, and updating design decisions based on input received from consultation activities. The development of the draft EPR involved confirming the project description, outlining the results of effects assessments, determining required mitigation measures and commitments for obtaining permits and approvals, as well as monitoring activities during and after construction activities. The following sections outline the planning process conducted during the key phases of the project prior to commencing the TPAP, namely:

- Environmental studies
- Pre-Planning consultation

The outcome of the planning process is described in subsequent chapters.

1.5.1.1 Environmental Studies

Environmental and technical studies were undertaken in 2016 and 2017 to determine the existing environmental conditions within and in the vicinity of the Lincolnville Layover and GO Station. Environmental studies provide a snapshot of existing conditions in order to assess the extent of the potential effects associated with the proposed improvements, identify appropriate mitigation measures and inform progressive design decisions.

Natural, technical, social and cultural conditions were characterized through the completion of the following environmental studies:

- Terrestrial Ecosystems Assessment
- Fisheries Habitat (Surface Water and Aquatic) Assessment
- Stormwater Management
- Hydrogeological Assessment
- Soils Assessment
- Tree Inventory and Arborist Report
- Land Use Planning Assessment
- Stage 1 - 2 Archaeological Assessment
- Cultural Heritage Screening
- Air Quality Evaluation
- Acoustic Assessment
- Traffic Impact Study

The results of these studies are summarized in Section 3.0. The detailed reports are available in Appendix A.

1.5.1.2 Pre-Planning Consultation

Consultation for this Project occurred in two main stages – Pre-Planning activities undertaken prior to the Notice of Commencement of the TPAP; and regulated TPAP consultation activities undertaken following the Notice of Commencement of the TPAP. Pre-Planning activities included consultation to help inform the eventual TPAP. Consultation activities were undertaken to help inform design decisions and proposed improvements to the site, and identify possible environmental effects and required mitigation measures. Pre-Planning consultation activities included obtaining input from government agencies, elected officials, members of the public, and Indigenous communities.

Details of public consultation activities, comments and questions received, and Metrolinx responses are provided in Section 6.0 of this EPR.

1.6 TRANSIT PROJECT ASSESSMENT PROCESS (TPAP)

This EPR has been prepared in accordance with the *Environmental Assessment Act* (EAA) and Ontario Regulation (O. Reg.) 231/08.

The EAA defines the environment as:

- Air, land and water
- Plant and animal life, including human life
- The social, economic and cultural conditions that influence the life of humans or a community
- Any building, structure, machine or other device or thing made by humans
- Any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities
- Any part of or combination of the foregoing and the interrelationships between any two or more of them.

An Environmental Assessment (EA) is required for all large-scale projects undertaken by public bodies that have the potential to affect the environment. These projects require approval from the Government of Ontario before proceeding to the next phase.

O. Reg. 231/08: Transit Projects and Metrolinx Undertakings acknowledges that certain types of transit projects have more predictable environmental effects that are more readily managed, and that a more streamlined approach to EA is appropriate for these projects. This EA process for transit projects is known as the Transit Project Assessment Process (TPAP) and involves a planning process that protects the environment, but shortens the timeline for the completion of transit projects to six months for commencement, review and approval. By following the TPAP for certain approved projects, the Transit Projects Regulation exempts the proponent of the transit project (i.e., Metrolinx) from the requirements under Part II of the *EAA.*

O. Reg. 231/08 describes the requirements of the TPAP for transit projects, and defines the types of transit projects that can be assessed under the TPAP. Schedule 1 of O. Reg. 231/08 describes the types of undertakings to which the TPAP applies.

The Lincolnville Layover and GO Station Improvements Project meets the TPAP requirements as presented in Schedule 1 of O. Reg.231/08, as it relates to the following undertakings:

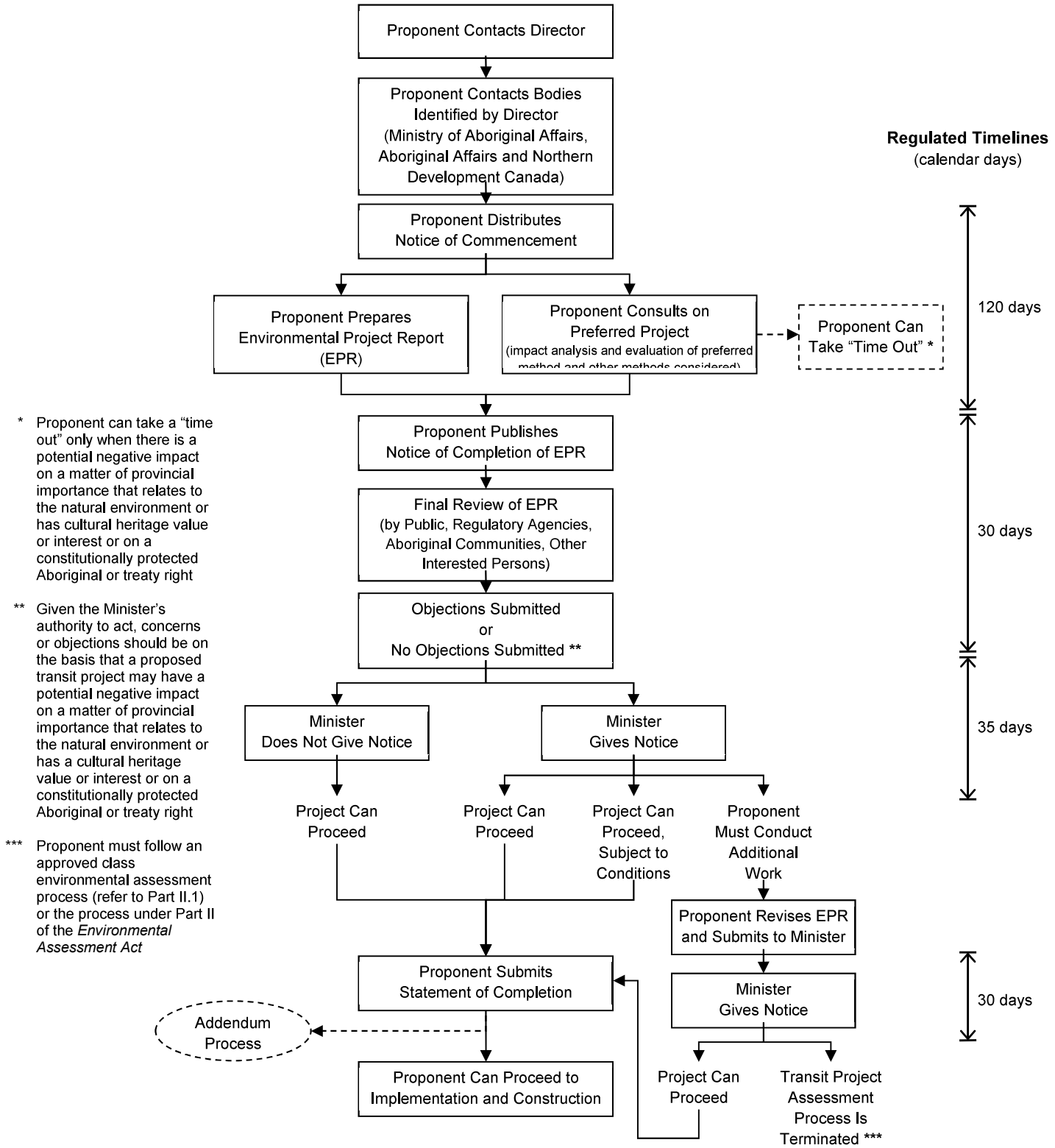
> *Subsection 2(1) – 4 Construction or modification of tracks required to increase the commuter rail service (including a change to All-Day Service) on an existing rail corridor, including such activities as:*
>
> > *v. construction and/or relocation of storage yard facilities; and*

vi. construction of additional switches

The TPAP is focused on an assessment of the environmental effects of a transit project, and allows for decision-making to be completed within approximately six months. Prior to commencing the TPAP, Pre-Planning activities, including Pre-Planning consultation, were undertaken in order to allow Metrolinx to meet the TPAP timelines. The TPAP follows six key steps, illustrated in Figure 1-3 (below):

1. Contact with the MOECC and identification of interested agencies and Indigenous communities.
2. Issuance of the Notice of Commencement of TPAP.
3. Assessment Process and Consultation with project stakeholders (government agencies, elected officials, and members of the public) and Indigenous communities.
4. Issuance of the Notice of Completion of the EPR (within 120 days following the Notice of Commencement).
5. Provision of 30 days for the government agencies, elected officials, members of the public, and Indigenous communities (and other interested persons) to review the EPR.
6. 35 days for the Minister of the Environment and Climate Change to review the EPR, followed by the submission of a Statement of Completion by the proponent.

Figure 1.3: The TPAP process (MOECC, 2014)



* Proponent can take a "time out" only when there is a potential negative impact on a matter of provincial importance that relates to the natural environment or has cultural heritage value or interest or on a constitutionally protected Aboriginal or treaty right

** Given the Minister's authority to act, concerns or objections should be on the basis that a proposed transit project may have a potential negative impact on a matter of provincial importance that relates to the natural environment or has a cultural heritage value or interest or on a constitutionally protected Aboriginal or treaty right

*** Proponent must follow an approved class environmental assessment process (refer to Part II.1) or the process under Part II of the *Environmental Assessment Act*

A TPAP study must assess the potential effects of a proposed project on the natural, social, and cultural environments, and identify mitigation measures to reduce or eliminate any potential negative effects. Technical, safety, and economic considerations are also included in the assessment of effects and determination of project feasibility. Public consultation is an important component of the TPAP, and this TPAP study has provided opportunities to government agencies, elected officials, members of the public, Indigenous communities, and other interested persons such as businesses and special interest groups to review and comment on Project documents and decisions.

The preparation of the EPR includes the assessment of environmental effects and determination of mitigation measures following several steps that include input from consultation efforts and result in design progression such that effects are minimized or mitigated. Key steps in the process are as follows:

- Conducting an inventory of existing environmental features, including natural, social and technical features that could be affected by project work.
- Determining the potential effects of the proposed works on those environmental features.
- Developing mitigation measures to reduce or eliminate effects.
- Consultation with government agencies, elected officials, members of the public, and Indigenous communities.

The details of the steps followed for this TPAP, and the outcome of those steps are described in Sections 2.0 through 6.0 of this Environmental Project Report (EPR).

1.7 OBJECTION PROCESS, MINISTER'S REVIEW AND STATEMENT OF COMPLETION

The submission of this EPR and the issuance of the Notice of Completion trigger the beginning of the 30-day public/agency review period. During this time, if government agencies, elected officials, members of the public, Indigenous communities or other interested persons have concerns about the transit project described herein, objections can be submitted to the Minister of the Environment and Climate Change. After the 30-day review period has ended, any objections received will not be considered, and the Minister has 35 days within which certain authority may be exercised.

Persons wishing to submit an objection for the Minister to consider should provide the following information:

- Name, mailing address, organization or affiliation (where applicable), daytime telephone number, email address (where possible)
- Contact details of the proponent including, name, address, and phone number

- Brief description of the proponent's undertaking
- Basis for why further study is required, including identification of any negative impacts concerning a matter of provincial importance that relates to the natural environment or has cultural or heritage value or interest, or a constitutionally protected Aboriginal or treaty right that was not identified in the proponent's EPR.
- Summary of how the person(s) objecting has participated in the Project's consultation process

Whether there is a public objection or not, the Minister may act within the 35-day period to issue one of the following three notices to the proponent:

1. A notice to proceed with the transit project as planned in its EPR;
2. A notice that requires the proponent to take further steps, which may include further study or consultation; or
3. A notice allowing the proponent to proceed with the transit project subject to conditions.

The Minister may give notice allowing the proponent to proceed with its transit project but can only take action if there is a potential for a negative effect on a matter of Provincial importance that relates to the natural environment or has cultural heritage value or interest, or on a constitutionally protected Indigenous or treaty right. If the Minister issues a notice to proceed with the transit project as planned, or if the Minister does not act within the 35-day period, Metrolinx will issue a Statement of Completion and proceed to implementation.

The TPAP will be completed when Metrolinx submits a Statement of Completion to the Director of the Environmental Assessment and Approvals Branch of the MOECC and the MOECC Regional Director. Metrolinx will also post the Statement of Completion on the Project website, at www.metrolinx.com/lincolnville. The Statement of Completion will indicate that Metrolinx intends to proceed with the transit project in accordance with either:

1. The EPR;
2. The EPR subject to conditions set out by the Minister; or
3. The Revised EPR.

Construction or implementation of a transit project subject to the TPAP cannot begin until the requirements of the process have been met. Subject to these requirements, the transit project may proceed once additional required permits and approvals are received. Further details on the timing of implementation are presented in Section 7.0.

1.8 TPAP ADDENDUM PROCESS

The Project presented in this EPR is not a static plan, nor is the context in which it is being assessed, reviewed, approved, constructed, and used. Given the potential for changes to the Project resulting from the approvals, detailed design, and construction process, it is important to include the responsibilities of the proponent should changes to the Project be required.

This EPR identifies the effects associated with the Project as presented in the following pages, and the Study Area in which the Project can feasibility be constructed. The actual layout of the project elements is subject to detailed design and any change from that shown in this EPR, unless it results in an environmental effect which cannot be accommodated within the committed mitigation measures, does not require additional approval under *O. Reg. 231/08*.

The TPAP includes provisions (in Section 15 of the Regulation) for proponents to make changes to a transit project after the Statement of Completion is submitted to the Director of the Environmental Assessment and Approvals Branch of MOECC and the MOECC Regional Director.

In compliance with Section 15(1) of the Regulation, Metrolinx will prepare an addendum to the EPR which is subject to a 30-day comment period if there is a proposed change to the Project that is inconsistent with the EPR after the Statement of Completion is issued. A change that is inconsistent with the EPR is generally defined as one for which the effects have not been accounted for in the EPR, either directly or through a contingency planning approach in which a worst-case scenario has been contemplated and protocol for addressing change has be included in the EPR. If the proposed change would result in a lesser impact than planned for and meets the mitigation intents identified in the EPR, it may be deemed to be consistent with the EPR and therefore no addendum is required. Change to the Project may also be required if there is significant lapse of time (i.e., ten years) between the Statement of Completion and the start of construction, which will require a formal review of the Project in accordance with Section 16 of the Regulations.

The EPR addendum must include the following information:

- A description of the proposed change
- The reason for the proposed change
- An assessment and evaluation of any impacts that the proposed change might have on the environment
- A description of any proposed measure for mitigating any negative effects that the proposed might have on the environment
- A statement of whether the proponent is of the opinion that the proposed change is significant (or not), and reason for the opinion

If changes to the Project indicate that an addendum is required, Metrolinx will have the option of proceeding with the Project changes under the provisions/requirements of the TPAP process in the *Environmental Assessment Act* (EAA) and Ontario Regulation (O. Reg.) 231/08: Transit Projects and Metrolinx Undertakings. The requirement for an addendum does not apply to a change that is required to comply with another Act, a regulation made under another Act, or an order, permit, approval or other instrument issued under another Act.

1.8.1 Addendum to the Lincolnville Layover and GO Station Project

An EPR Addendum will be required as a result of potential changes to the existing GO Station facility. The EPR Addendum will be prepared in accordance with the requirements of O. Reg. 231/08, and will include required consultation and documentation activities. Details on the potential changes to the EPR that could result in an addendum are outlined in Section 7.4.

1.9 ENVIRONMENTAL PROJECT REPORT (EPR) ORGANIZATION

The documentation of the TPAP, as provided in this EPR, will be submitted to MOECC within 120 days of publishing the Notice of Commencement. This EPR documents the existing environmental conditions within the Study Area (and broader Assessment Areas where applicable), the potential environmental effects of the Project, recommended mitigation measures, the consultation process followed, and future commitments for the Project. Details of the TPAP activities are presented in appendices to this document. The contents of this document are as follows:

Section 1 Introduction and Study Process: Overview and purpose of the project.

Section 2 Project Description: Describes the preferred design.

Section 3 Existing Conditions: Describes the existing environmental conditions in each discipline-specific Assessment Area that could be affected by the proposed Project.

Section 4 Effects Assessment: Describes the positive and negative effects of the preferred design, and operational features included in the design to mitigate negative effects.

Section 5 Climate Change: Describes the potential effects of the project on climate conditions and the potential effects of climate change on the project.

Section 6 Consultation: Describes the approach to consultation, the consultation activities undertaken and feedback received throughout the study, as well as Metrolinx's responses to feedback.

Section 7 Permits and Approvals and Commitments and Future Work: Lists permitting and approvals requirements, and exemptions to requirements, if any, applicable to Metrolinx for this project.

Section 8 References: Lists publication details of all documents referenced in the EPR.

Appendix A Environmental Reports

Appendix A1 Terrestrial Ecosystems Assessment: Desktop and field inventory (where required) of all natural heritage features, including vegetation, habitats, wildlife, species at risk sightings.

Appendix A2 Fisheries Habitat (Surface Water and Aquatic) Assessment: Desktop and field inventory (where required) of all hydrological features on the site.

Appendix A3 Stormwater Management Report: Outlines the stormwater management infrastructure currently on the site and identifies additional stormwater management infrastructure required to be included in the design of proposed improvements to the site in order to maintain water quality, quantity, and balance.

Appendix A4 Hydrogeological Assessment: Inventory of groundwater conditions and groundwater quality.

Appendix A5 Soils Assessment: Inventory of soil conditions and potential for contamination.

Appendix A6 Tree Inventory and Arborist Report: Field assessment of location, species, and condition of trees and woody vegetation (shrubs) on the site.

Appendix A7 Land Use Planning Assessment: Desktop assessment of area land use legislation and policy.

Appendix A8 Stage 1 - 2 Archaeological Assessment: Desktop and field assessment (where required) of potential for encountering archaeological resources during construction activities.

Appendix A9 Cultural Heritage Screening: Desktop review of potential cultural heritage buildings, landscapes and built features, and current cultural features.

Appendix A10 Air Quality Evaluation: Emissions profile of train and operations, and other local sources of noise, vibration, and air emissions.

Appendix A11 Preliminary Acoustic Assessment: Sources of noise and receptors.

Appendix A12 Traffic and Transportation: Report assessing traffic implications of construction activities and projected traffic conditions upon completion of the upgrades, as compared to current and projected future traffic conditions without the upgrades.

Appendix A 13 Feasibility Study: Report outlining the need for upgrades to the Existing Lincolnville Layover and GO Station facilities.

Appendix B Record of Consultation and Consultation Report: Includes communications log and correspondence, meeting agendas, presentations and minutes, notices and media releases, and website content.

2.0 PROJECT DESCRIPTION (PREFERRED DESIGN METHOD)

The Lincolnville Layover and GO Station Improvements Project includes the proposed expansion of the Lincolnville Layover and GO Station to allow for additional overnight train storage through the addition of three new tracks and associated storage and maintenance infrastructure.

The conceptual design shown in this EPR includes mitigation measures to minimize or eliminate environmental effects, and to improve environmental features or functions where possible. The project details provided herein are considered conceptual, and are subject to refinement as planning progresses. Measures and dimensions are approximate and may vary slightly as they are refined during the detailed design process.

The key components of the design and construction activities are described below.

- The removal of existing platforms and replacement with storage tracks which may necessitate the realignment of existing storage tracks and associated facilities for a total of nine storage tracks.
- Upgrades to the existing systems, including but not limited to electrical, communication, and mechanical systems.

In addition, the following other improvements are required to facilitate the proposed work:

- Grading and drainage modifications, including upsizing an existing stormwater management pond, and the construction of a retaining wall.
- Two new diesel fueling stations will be installed adjacent to the tracks.
- Track construction and realignment of the existing tracks will be done in phases in order to maintain the yard operation and minimize effects on passenger service during the construction.

The proposed improvements will allow for additional train storage, while maintaining maintenance and fueling operations to current standards. The proposed improvements will allow full through movement for rail cars into and out of the MOW tracks and yard area, and allow for the continued use of existing utilities. Maintenance activities will remain the same, however will be expanded to accommodate the additional trains. Although track geometry and alignment will be adjusted for the Layover Facility, no change to the existing Stouffville rail corridor is required. GO Station operations will be maintained during construction through construction staging.

METRIC

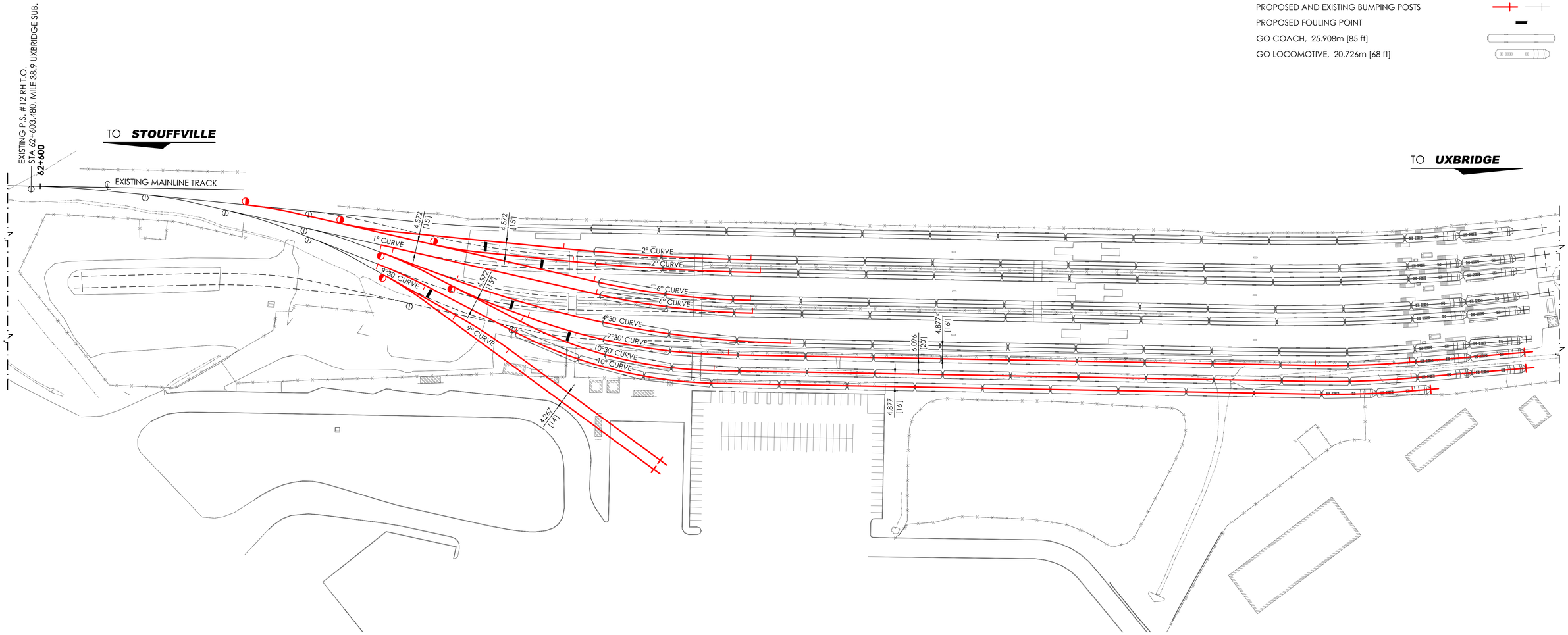
ALL DIMENSIONS SHOWN ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE NOTED.

GENERAL NOTES

1. PROPOSED TRACK DESIGN SPEED = 50 MPH PASSENGER, 15 MPH FREIGHT.

LEGEND

- PROPOSED P.S. #8 TURNOUT
- EXISTING P.S.
- PROPOSED CENTERLINE TRACK
- EXISTING CENTERLINE TRACK
- EXISTING CENTERLINE TRACK TO BE REMOVED/REALIGNED
- PROPOSED AND EXISTING BUMPING POSTS
- PROPOSED FOULING POINT
- GO COACH, 25.908m [85 ft]
- GO LOCOMOTIVE, 20.726m [68 ft]



PLAN - PROPOSED TRACK LAYOUT - OPTION 2

H 1:750

NOT FOR CONSTRUCTION

METROLINX PROJECT NO. 159106

REFERENCE DRAWINGS		ISSUE			REVISIONS		
		1	17.04.17	ISSUED FOR INFORMATION ONLY			
DWG NO.	TITLE	NO.	DATE	ISSUED FOR	REV.	DATE	

DRAWN BY: S.L.B. 17/04/04	DESIGNED BY: M.Y. 17/04/04
CHECKED BY: M.Y. 17/04/05	APPROVED BY: M.Y. 17/04/05
SCALE: 1:750	FULL SIZE ONLY

0 10 1:750 40m

Stantec
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METROLINX
An agency of the Government of Ontario

LINCOLNVILLE LAYOVER

OPTION 2 – LAYOVER SITE

PROPOSED TRACK ALIGNMENT
GENERAL LAYOUT

CONTRACT NO.	DWG. NO.	REV.	SHEET
RQQ-2015-CST-080	T-002	0	2/3

W:\active\113520010\preliminary\Vial\drawings\170417 Scope Change - Conceptual Design\T-002.dwg
2017/04/17 3:10 PM By: Briscoe, Shaleva

2.1 INFLUENCE OF CONSULTATION ON THE DESIGN

As a result of TPAP consultation activities, updates to the proposed design of the Lincolnville Layover and GO Station have been made to address comments received from project stakeholders.

Key design updates made in response to stakeholder comments include:

- Notes were added to design drawings to address groundwater recharge considerations.
- Notes were added to design drawings to address water balance and stormwater flow within the Study Area.

The following sections describe the details of the proposed design for the Lincolnville Layover and GO Station.

2.2 KEY DESIGN COMPONENTS

Key design components and other design details are illustrated conceptually in Figure 2-1. Based on the findings of the Feasibility Study, additional storage tracks are proposed southeast of the existing tracks and the existing storage tracks and associated facilities are proposed to be realigned. The proposed works will also include upgrades to the existing electrical and mechanical systems.

The proposed new tracks overlap existing landscape features such as drainage and graded slopes, the existing west parking lot and passenger pick-up and drop off (PPUDO) area, and various servicing buildings (two bike shelters, a pedestrian shelter and Ticket Vending Machine (TVM)), all of which will require additional changes to the site. Additionally, an existing parking area will be expanded and converted to an asphalt storage area. These improvements also require the relocation of the existing MOW tracks on-site. Encroachment on existing infrastructure will be managed through staging so that the existing Layover and passenger platforms can remain operational during construction.

The key design components of the proposed improvements are summarized below.

2.2.1 Platform Removal

The removal of existing platforms and replacement with storage tracks will be required. Construction will be staged to allow for platforms to remain open throughout construction activities, and will be replaced as construction progresses.

2.2.2 Track Work

Track geometry will change as a result of the proposed work. New switches will be added and minor realignment of existing tracks will be done in order to accommodate additional tracks.

Track work will include alterations to access and service roads on the site to realign them with the new track geometry. Three additional tracks (tracks 8, 9, and 10) will be accommodated south of the existing tracks, and result in a total of nine storage tracks when the Project is completed.

2.2.3 System Upgrades

Upgrades to the electrical system are expected to include the addition of a new substation and a direct current (DC) battery room for the Facility, among other equipment changes to the medium voltage (MV) transformer, main switchboard, panels, and wiring. The current system connects to an existing hydro pole, and an additional pole will be required.

The electrical load and service capacity will be reviewed and adjusted as required during the design development and final stages of the project.

The substation and new station will require building services, including lighting, receptacles, fire detection, communication, closed-circuit television (CCTV) systems, and security systems. The building services shall be provided according to the requirements of the Ontario Electrical Safety Code.

Other mechanical improvements include air-brake cabinets, and a secondary containment liner. Process waste will be extended to accommodate new tracks, and a leak detection system will be modified to allow for extension for the new tracks.

Overhead supports will also be provided for future electrification to align with the long-term vision of the Metrolinx transit system.

2.2.4 Grading and Drainage Modifications

Grading will follow the Town of Whitchurch-Stouffville By-Law 2017-017-RE filling and site alteration standards. The additional three storage tracks required infringe on existing features such as ditching, graded slopes, and other infrastructure (parking, PPUDO, various servicing buildings). The design includes grading elements comprising of ditching to collect existing and proposed drainage. A retaining wall is required at the North-East portion of the site due to infringement on the sloped embankment. Access roads will be designed to drain into the drainage structures. Staging will be required to ensure that the existing Layover and passenger platforms remain operational during construction.

2.2.5 Site Servicing

Servicing for the Project will follow Town of Whitchurch-Stouffville and York Region requirements, and Ontario provincial and MOECC standards. The servicing infrastructure will consist of various stormwater management features to collect and store water, piping, trench drains, and drainage ditching with corrugated steel pipe (CSP) culverts to convey the site drainage.

Sanitary and water are not required for expansion servicing. Metrolinx will utilize as much of the existing infrastructure as possible to promote positive drainage on the site.

The drainage from the Existing Layover Expansion will be added into the existing Channel Pond that runs through the site. The existing Channel Pond will be upsized to provide quality and quantity control for the proposed work along with any erosion controls required. The capacity of the exiting culverts will be analyzed and upsized if required. All MOECC and TRCA regulations will be adhered to.

2.2.6 New Diesel Fueling Stations

Two new diesel fueling stations shall be installed on concrete pads between Track # 8 and # 9, as well as east of Track # 10. It is anticipated that only one train will be fueled at any given time on the existing and new tracks. Diesel piping will be modified to accommodate two new fueling stations. Pumps and existing accessories will remain without upgrades.

Diesel exhaust fluid (DEF) dispensers and a stainless steel drip tray will be installed. The drip tray will be designed to tie into the existing drainage system.

2.3 CONSTRUCTION PHASING

Maintaining pedestrian use of the GO station will remain a priority throughout construction, which is set to begin in 2018. All existing site accesses will be maintained during construction. Preliminary construction staging plans are as follows:

- **STAGE 1**: Temporary platforms will be built and fare equipment will be relocated to new customer access. PPUDO being reconstructed, will remain open. Temporarily remove 73 parking spaces in the west parking lot due to limit of construction (80 parking stalls available); 414 parking spaces in eastern lot still available.
- **STAGE 2**: Restore 24 parking spaces to west parking lot (104 parking stalls available); all parking spaces in eastern lot still available. Limited access to GO Station Access during track cutover (estimated 72 hours).
- **STAGE 3**: Maintain 104 parking stalls available within west parking lot; all parking spaces in eastern lot still available. Limited access to GO Station Access during track cutover (estimated 48 hours).
- **STAGE 4**: Maintain 104 parking stalls available within west parking lot; all parking spaces in eastern lot still available. Limited access to GO Station Access during track cutover (estimated 48 hours).
- **STAGE 5**: Maintain 104 parking stalls available within west parking lot; all parking spaces in eastern lot still available. Limited access to GO Station Access during track cutover (estimated 48 hours).

- **STAGE 6**: PPUDO will be relocated, and west parking lot to be removed all parking spaces in eastern lot still available.

It is projected that construction stages will maintain vehicular access and internal circulation at all times. A portion of parking stalls in the west parking lot will be lost during construction. The bus loop and PPUDO will be maintained during all stages, although temporary facilities may be provided as required. A final layout is being developed which includes a smaller PPUDO throughout the construction stage in its current location.

The GO Station Access may be closed for up to 72 hours at a time during Stages 2-5; alternate site access will be available during that time. No significant traffic effects are anticipated as a result of site traffic being diverted to an access referred to as the South Layover Access. The South Layover Access is accessible from York Durham Line. With traffic diverted to the South Layover Access, the Study Area's intersections continue to operate at a good level of service and within capacity during the weekday a.m. and p.m. peak hours.

3.0 EXISTING CONDITIONS

This Section of the EPR describes the existing environmental conditions within the Project Study Area (and broader Assessment Areas, where applicable). The existing conditions are used as the basis for measuring the potential environmental effects of the proposed works.

The following subsections describe the key environmental components of the site, such as natural, social, economic, and cultural conditions, including the following:

- Natural Environment
  - Vegetation and Vegetation Species at Risk
  - Wildlife and Wildlife Species at Risk
  - Surface Water and Aquatic Environment
  - Stormwater Management
  - Hydrology and Groundwater
  - Soils and Geology
  - Tree Inventory
- Social and Economic Environment
  - Land Use and Users Cultural Environment
  - Archaeology
  - Cultural Heritage
- Technical Environment
  - Air Quality
  - Noise and Vibration
  - Traffic and Transportation

Detailed information for each of the environmental components is provided in the background reports located in Appendix A.

3.1 NATURAL ENVIRONMENT

The following sections describe existing conditions related to the natural environment. These include descriptions of:

- Study Area vegetation, including vegetation Species at Risk (SAR)
- Wildlife that was or could be observed within the Study Area, including wildlife SAR
- Surface water within and adjacent to the Study Area and the aquatic environment and species that identified surface water bodies support
- Built and natural features within the Study Area that manage the flow of stormwater within the Study Area
- The flow and quality of groundwater within and adjacent to the Study Area
- The quality of soils within the Study Area and the characteristics of area geology
- Existing trees growing within and adjacent to the Study Area

3.1.1 Vegetation and Vegetation Species at Risk

Vegetation includes plants and the combination of land-based natural features that provide habitat for plant and animal species, including plant species at risk. Species At Risk (SAR) are any plants, animals, birds or fish that are listed as endangered, threatened, special concern or extirpated on the Species at Risk in Ontario (SARO) List provided in O. Reg. 230/08.

3.1.1.1 Methodology

The existing natural environment conditions within 120 m of the Study Area (i.e., Assessment Area) were identified based on a desktop review of relevant secondary source information, as well as correspondence with the Toronto Region Conservation Authority (TRCA) and the Ministry of Natural Resources and Forestry (MNRF). Field investigations were carried out between November 2016 and July 2017 to supplement the existing secondary source information. A botanical inventory was conducted within the Study Area on July 26, 2017.

The MNRF's Natural Heritage Information Centre online database (NHIC 2015) and Land Information Ontario (LIO 2016) Natural Heritage Area Mapping tool were reviewed to identify potential Species at Risk (SAR), provincially rare species and natural areas, Areas of Natural and Scientific Interest (ANSI), and other significant features. Detailed vegetation community mapping and botanical inventories were conducted using the Ecological Land Classification (ELC) system.

Full detail on the vegetation and species at risk can be found in Appendix A1.

3.1.1.2 Existing Conditions

The following vegetation communities are present within the Study Area, and are delineated in Figure 3-1:

- Dry-Fresh Mixed Meadow Ecosite (MEMM3) - A dry mixed meadow ecosite associated with fallow portions of the north of the Study Area. A variety of grasses, goldenrod and asters are present throughout.
- Cattail Graminoid Mineral Meadow Marsh Type (MAMM1-2) - A small marsh community dominated by cattail and reed canary grass.
- Annual Row Crops (OAGM1) - Annual row crops such as corn or soy beans.

641200 641600 642000

4873200 4872800

Sleepy Hollow Lane
10Th Line
York-Durham Line
Bethesda Road
Township Of Uxbridge
Town Of Whitchurch-Stouffville
Reesor Creek Tributary

OAGM1
MEMM3
MAMM1-2
CVI1
SWM
DIST
LAWN
CVI3
HR
WOC
OAG
CVR

N

Stantec

Legend
- Study Area
- 120m Buffer
- Existing Commuter Rail Line
- Major Road
- Minor Road
- Watercourse
- Lower Tier Municipality
- Ecological Land Classfication (Stantec)

ELC Code and Description
CVI1: Transportation
CVI3: Sewage and Water Treatment
DIST: Disturbed
LAWN: Lawn
MAMM1-2: Cattail Graminoid Mineral Meadow Marsh Type
MEMM3: Dry - Fresh Mixed Meadow Ecosite
OAGM1: Annual Row Crops
SWM: Stormwater Management

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1:4,000 (At original document size of 11x17)

Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2016.
3. Orthoimagery © First Base Solutions, 2018. Imagery Date, 2017.
4. ELC - Stantec Nov 2016 B Holden.

Project Location
Regional Municipality Of York

160950996 REVA
Prepared by SPE on 2018-02-15

Client/Project
METROLINX
LINCOLNVILLE STATION

Figure No.
3-1

Title
Study Area Location and Ecological Land Classification

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\\cd1315-f01.work.group.101609\Active\113520001\0_planning\drawing\MXD\APC\Report Figures\EPR\160950996_EPR_Fig03-1_ELC.mxd Revised: 2018-02-15 By: apates

The vegetation species observed in the vicinity of the constructed stormwater management (SWM) feature within the Study Area (shown on Figure 3-1) were noted to be varied and not considered standard vegetation communities found naturally in the region. The SWM feature is described in more detail in Section 3.1.4 below.

In addition, the existing rail line is primarily a mowed grass feature that travels through the Study Area. There are no designated natural areas within the Study Area; however, the following are located within 1 km of the Study Area: Goodwood/Glasgow Wetland Complex; Stouffville Marsh; and Stouffville Forest. None of these features are considered to be close enough to be affected by the proposed improvements at the site.

A total of 67 species of vascular plants were recorded as part of the botanical inventory, of which 25 are native to Ontario and 42 are exotic species not native to the province. A complete list of plant species is identified in Appendix A1. Data from the MNRF indicated that a primary concern with plant SAR within the Assessment Area is Butternut. Habitat for Butternut and other SAR is considered absent following field investigations. No additional SAR species were recorded. None of the vegetation communities and/or species observed within the Study Area were considered provincially at risk or of conservation concern. No plant SAR were observed within the Study Area.

3.1.2 Wildlife and Wildlife Species at Risk

Wildlife and wildlife SAR refer to land-based animals (including mammals, amphibians and birds), that occupy the terrestrial environment for all or a part of their life cycle, including breeding, feeding, or stopover during migration. The presence or absence of significant wildlife habitat is considered indicative of the potential presence of wildlife.

3.1.2.1 Methodology

A desktop review was completed to determine the potential for the presence of SAR and provincially rare species within the Study Area and within 120 m of it. In addition to desktop reviews of secondary source information, information was gathered through correspondence with the MNRF. Following the review, field surveys were carried out between November 2016 and July 2017 to supplement the existing secondary source information. ELC community delineation was undertaken during field investigations within the Study Area to determine the extent of potential habitats of the identified species, and to observe if any SAR were present within the Study Area, or if conditions were conducive to SAR breeding or migration.

Rare or specialized habitats for Amphibian Breeding, Turtle Nesting, and Animal Movement Corridors were targeted as part of the field investigations because of the sensitivity of the habitat to construction disturbances.

Due to the industrial nature of operations in the Study Area (increased noise, human activity, and reduced vegetation), as well as the poor quality of vegetated areas for habitat, feeding and nesting, it was assumed that potential stopover locations for migratory birds within the Assessment Area would not include the Study Area, as more suitable locations (more natural vegetation, naturalized water bodies, less pedestrian and vehicular traffic) are located in the vicinity of the site. As such, a full assessment of migratory bird activities was not undertaken as a part of the assessment of wildlife and SAR.

Full details on the wildlife and species at risk can be found in Appendix A1.

3.1.2.2 Existing Conditions

Potential habitats for four wildlife SAR were identified during preliminary screening: Snapping Turtle *(Chelydra serpentina*), Barn Swallow (*Riparia riparia*), Eastern Meadowlark (*Sturnella magna*) and Bobolink (*Dolichonyx oryzivorus*). In addition, screening determined the potential for habitat areas to exist within the Assessment Area that could support bat species, turtles and amphibians, or be used as migration corridors. The results of field work to verify the presence or absence of species, their habitats, or migration corridors are presented below.

3.1.2.2.1 Bobolink and Eastern Meadowlark

Meadow ELC vegetation communities are considered potentially suitable habitat for Bobolink and Eastern Meadowlark. At the time of field investigation, Eastern Meadowlark were not observed; however, a single male Bobolink was observed to be foraging in the meadow community, and is inferred to be breeding in nearby hayfields based on the poor quality of habitat on-site (i.e., small size, low graminid/forb cover), and an observed lack of song or alarm when encountered. As such, the findings of the field surveys indicated Bobolink and Eastern Meadowlark were not breeding on site.

To confirm the absence of Bobolink breeding on-site, an Information Gathering Form (IGF) was submitted to the MNRF for review. A response from the MNRF was received on September 5, 2017, indicating that they concurred with the above findings.

3.1.2.2.2 Barn Swallow

Barn Swallow nests were not observed on-site. In addition, no structures were observed to have suitable covered ledges for this bird species.

3.1.2.2.3 Endangered Bat Species

Background data from the Atlas of the Mammals of Ontario and the MNRF indicated that three bat SAR, including Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-coloured Bat (*Perimyotis subflavus*), had the potential to occur within the Assessment Area. Field investigations assessed natural and anthropogenic features for

maternity roost habitat suitability. No suitable natural features were present, and no suitable anthropogenic structures were identified (i.e., buildings lacked openings for bat entry and exit).

3.1.2.2.4 Amphibian Breeding Habitat

Aquatic features and other temporary pools within the Study Area are suitable for amphibian breeding. The amphibian survey carried out at the MAMM1 (Cattail Graminoid Mineral Meadow Marsh Type) pond, shown in Figure 3-1, identified a maximum call count of one Green Frog (*Lithobates clamitans*). In addition, the anthropogenic SWM feature identified a maximum call count of one for American Toad (*Anaxyrus americanus*). As such, these features are not considered to be significant habitat.

3.1.2.2.5 Turtle Nesting Habitat

Road or rail corridor shoulders containing loose gravel and/or exposed soil present suitable turtle nesting areas when within range of aquatic features. However, they are not considered candidate SWH. As such, these on-site features are not considered significant habitat. The MAMM1 pond feature was the only candidate habitat for seasonal Turtle Wintering. However, no turtles were observed during 5 basking surveys completed within this feature, and as such, the pond is not considered to be a significant Turtle Wintering Area.

3.1.2.2.6 Animal Movement Corridors

Wildlife traditionally use Migration Corridors to move from one habitat to another, often in response to seasonal habitat changes. These corridors are only considered when wetland breeding amphibian habitat is identified for select species. The surveys for on-site Amphibian Breeding Habitat demonstrated that the existing on-site features are not significant.

3.1.3 Surface Water and Aquatic Environment

The surface water and aquatic environment is encompassed within all permanent bodies of still or flowing water and their riparian area (banks), including all parts of the bodies in which aquatic species may spend parts of their lifecycles.

3.1.3.1 Methodology

A desktop assessment was performed to identify existing water bodies and potential fish habitat within an Assessment Area consisting of the Reesor Creek subwatershed of the Duffins Creek watershed. Field investigations were then conducted within the Study Area to confirm the limits and characteristics of water bodies and aquatic habitat within the Study Area.

Full details on water bodies and fisheries habitat can be found in Appendix A2.

3.1.3.2 Existing Conditions

A desktop analysis and subsequent field investigation identified three aquatic features present within the Study Area (illustrated in Figure 3-2), including a pond, a stormwater management (SWM) feature, and a swale.

The pond, noted at the north end of the site, generally consisted of open water containing sparse submergent aquatic vegetation and surrounded by cattail marsh. The pond was observed to be receiving flows from the north through roadside drainage ditches and was not connected to any aquatic features.

The constructed SWM feature, located along the east side of the Study Area, was noted to consist of a vegetated drainage swale. The Lincolnville Layover and GO Station was reportedly constructed prior to 2012, and is not connected to a waterbody that contains fish.

A straightened, grass-lined swale lined with river stone traversed the central portion of the Study Area, identified as Reach 1, originating north of the existing parking area and flowing in a southerly direction towards Bethesda Side Road before discharging into the south end of the constructed SWM feature. At the southeast corner of the site, water was observed to flow through a concrete weir and culvert prior to flowing beneath Bethesda Road through a corrugated steel pipe culvert and ultimately discharging into Reesor Creek (classified in the Fisheries Management Plan for Duffins and Carruthers Creeks (TRCA 2004) as Small Riverine Coldwater Habitat that supports coldwater fish communities).

Based on the findings of the assessment, Reach 1 consists of a vegetated swale that is poorly connected to downstream habitats and does not function as fish habitat. In addition, the constructed SWM feature located along the east boundary of the Study Area, and pond located within the north portion of the Study Area are not connected to any downstream aquatic habitats and are not considered fish habitat.

It should be noted that while Reach 1 does not function as fish habitat, it contributes flow and nutrients to downstream habitats during spring freshet and storm events. Reach 1 meets the definition of a Headwater Drainage Feature (HDF) as defined in the Evaluation, Classification and Management of Headwater Drainage Features Guidelines (TRCA and CVC 2014). An assessment was completed, in accordance with the guidelines, to determine the function of the HDF and recommend management options that will maintain its function within the watershed. Based on the assessment, Reach 1 has intermittent flow, limited riparian and fish habitat, and functions as a contributing feature to Reesor Creek. Table 3-1 provides a summary of the HDF assessment.

Table 3-1: Headwater Drainage Feature Assessment

Drainage Feature Segment	Hydrology	Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	Management Recommendation
1	Contributing	N/A	Contributing	Contributing	Limited	**Mitigation**

641000 641500 642000

4873500 4873000 4872500

Sleepy Hollow Lane

10Th Line

Town Of Whitchurch-Stouffville

Stormwater Management Facility

Reach 1

Water Tower

Bethesda Road

York Durham Line

Goodwood/Glasgow Wetland Complex

N/a

Township Of Uxbridge

Reesor Creek Tributary

N

Legend

- Study Area
- Existing Communter Rail Line
- Parcel Boundary (York Region)
- Major Road
- Minor Road
- Stormwater Management Facility
- Watercourse
- Trail
- Provincially Significant Wetland
- Unevaluated Wetland (per OWES)
- Environmentally Sensitive Area
- Cold Water
- Lower Tier Municipality
- Greenbelt Designation Boundary
- Oak Ridges Moraine Conservation Plan

0 60 120 metres

1:5,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2016.
3. Orthoimagery © First Base Solutions, 2018. Imagery Date, 2017.
4. York Region Data downloaded from York Region Open Data (20161024).

Project Location
Regional Municipality Of York

160950966 REVA
Prepared by SE on 2018-02-15

Client/Project
METROLINX
LINCOLNVILLE STATION

Figure No.
3-2

Title
Assessment Area Watercourses, Floodplain, Drainage

Disclaimer: This figure has been prepared based on information provided by others as cited under the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result.

\\cd1215-f01.wsnet.worley.com\d1609\Active\115250000\01 planning\Drawing\MXD\APC\Report_Figures\FIG\160950966_EPR_Fig03-2_Watercourses.mxd Revised: 2018-02-15 By: sgrades

3.1.4 Stormwater Management

Stormwater management refers to the elements of the environment (natural or human-made) that affect the flow of precipitation through the environment once it hits the ground.

3.1.4.1 Methodology

A Stormwater Management Report was prepared for the Project that included a desktop review of available source material that included hydrogeological assessments conducted in the area, and relevant guidelines and manuals including from Municipal sources, MOECC and TRCA, as relevant. The Assessment Area includes the Lincolnville Layover and GO Station property, and the drainage area in which it sits.

Further details on the stormwater management conditions within the Study Area can be found in Appendix A3.

3.1.4.2 Existing Conditions

The Site has a total area of 12.4 ha and receives an additional 19.6 ha of external drainage. Quantity and quality controls along with conveyance structures are currently in place within the Study Area. The controls described below are illustrated in Figure 3-3.

Ditches D1 and D2 along with culvert C1 collect drainage from in and around the tracks, along with flow from external areas both west and north of the Site. Ditches D1 and D2 and culvert C1 discharge into segment A of the Channel Pond (Channel Pond (A)).

Drainage from the bus garage area adjacent to York Durham Line is collected by catch basins and piped to segment B of the Channel Pond (Channel Pond (B)). Before discharging to Channel Pond (B), drainage is passed through an oil grit separator unit as well as a grassed swale to provide water quality treatment.

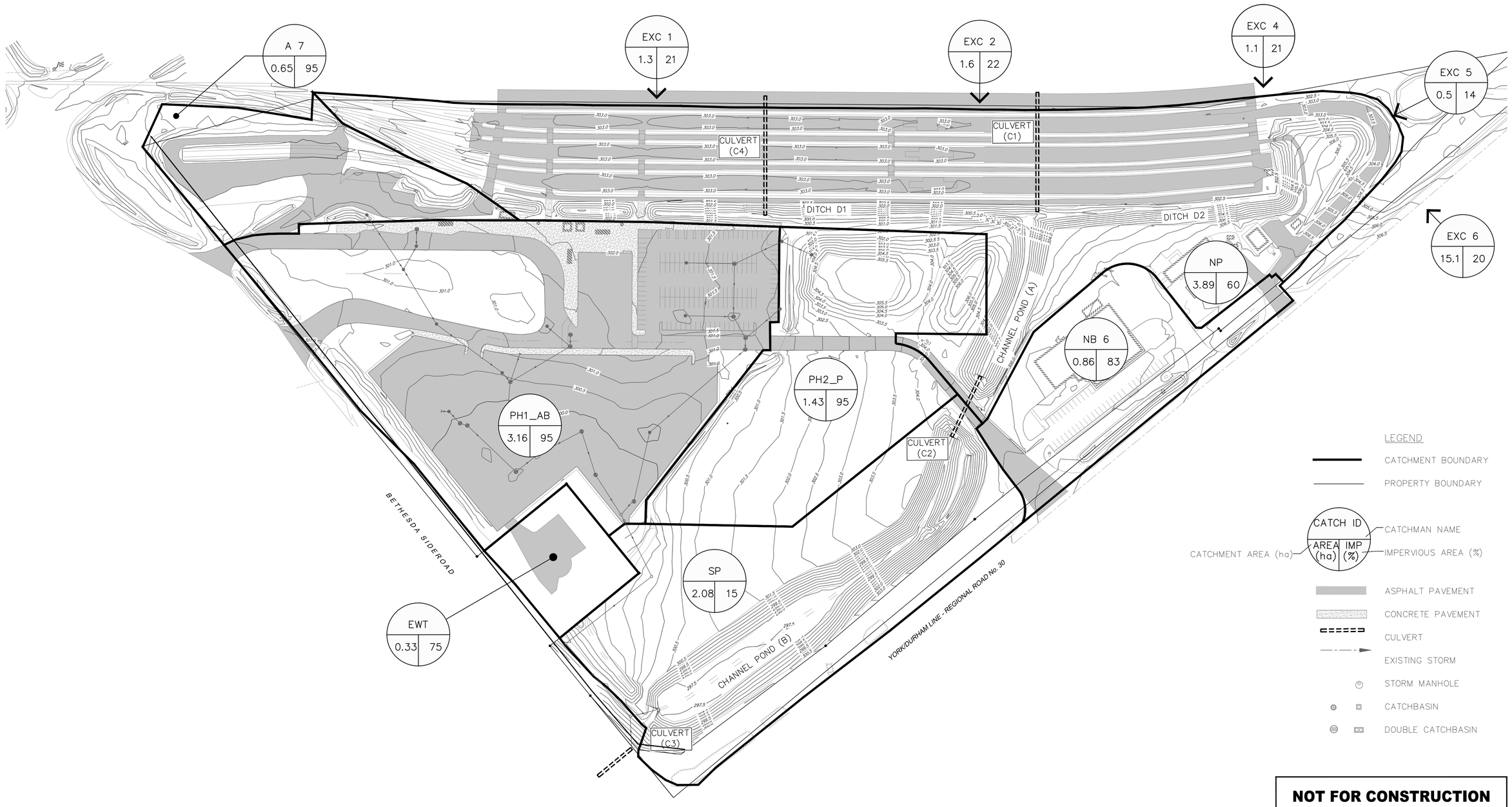
Drainage from parking areas on the southern half of the Site are collected by catch basins and conveyed to a ditch on the Bethesda Road. Overflows from this area are directed to the downstream end of Channel Pond (B) via a rip-rap lined channel. Quality treatment for these areas is provided by an oil grit separator unit. Quantity control is provided through oversized pipes and surface ponding in this area.

Channel Pond (A), culvert C2 and Channel Pond (B) form an engineered channel with a riffle-pool structure that was designed for conveyance and storage (3870 m^3 of active storage available). A control manhole at the downstream end of Channel Pond (B) restricts outflow rates from the system during major events.

Flow from the control manhole at the downstream end of Channel Pond (B) discharges to a roadside ditch adjacent to Bethesda Sideroad and is conveyed under Bethesda Sideroad into an undefined tributary of the Reesor Creek, eventually joining Duffins Creek to the south.

METRIC

ALL DIMENSIONS SHOWN ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE NOTED.



LEGEND

- CATCHMENT BOUNDARY
- PROPERTY BOUNDARY
- CATCH ID — CATCHMAN NAME
- AREA (ha) | IMP (%) — CATCHMENT AREA (ha) / IMPERVIOUS AREA (%)
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CULVERT
- EXISTING STORM
- STORM MANHOLE
- CATCHBASIN
- DOUBLE CATCHBASIN

NOT FOR CONSTRUCTION

METROLINX PROJECT NO. 166313

REFERENCE DRAWINGS		ISSUE			REVISIONS		
		3	17.08.24	ISSUED FOR 50% DD SUBMISSION			
		2	17.08.04	RE-ISSUED FOR 25% DESIGN			
		1	17.06.23	ISSUED FOR 25% DESIGN			
DWG NO.	TITLE	NO.	DATE	ISSUED FOR	REV.	DATE	

DRAWN BY: M.C. 17.08.24	DESIGNED BY: M.C. 17.08.24
CHECKED BY: K.H. 17.08.24	APPROVED BY: K.H. 17.08.24
SCALE: 1:1000	FULL SIZE ONLY

0 10 1:1000 50m

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METROLINX

LINCOLNVILLE LAYOVER

LAYOVER SITE

EXISTING STORM WATER DRAINAGE PLAN

CONTRACT NO.	DWG. NO.	REV.	SHEET
PT-2017-CST-###	C-800	0	

V:\01606\Active\113520010 - GO Lincolnville\drawing\C3D\sheet_files\figC-800.dwg
20170824 10:14 AM By: Case, Marcel

3.1.5 Hydrology and Groundwater

Hydrology and groundwater refer to below-ground water conditions, including the flow of water from the surface into the groundwater, and the presence or absence of drinking water wells.

3.1.5.1 Methodology

A desktop study of policies related to groundwater flowing through the Study Area was undertaken to determine how the existing Layover Facility is affected by government policy. Information and clarification was also gathered from the TRCA and the Regional Municipality of York. A geotechnical investigation was carried out within the Study Area in 2017, from which water samples were obtained and analyzed. It involved the drilling of 9 boreholes to the east of the existing storage tracks to depths of approximately 3-5 m. Existing literature and mapping was reviewed, including a 2007 Geotechnical Investigation of the Study Area, completed by others, and the MOECC's water well records database within 500 m of the site.

Full detail on groundwater conditions can be found in Appendix A4.

3.1.5.2 Existing Conditions

The Town of Whitchurch-Stouffville is supplied by a groundwater supply system consisting of 5 wells. The Study Area lies within the combined wellhead protection areas (WHPA) for three of these supply wells, within a 25-year time of travel zone.

The Site falls within WHPA-D of the Whitchurch-Stouffville Water Supply System. The Site is also located in a Wellhead Protection Area Q1/Q2 with a moderate stress level. The Study Area falls within the Settlement Development Area of the ORMCP, and extra site-specific plans and mitigation measures may be warranted as dictated by both the ORMCP and the York Region Official Plans.

The aquifer in this area is mapped with a vulnerability score of six or less, meaning that there are no significant chemical, pathogen or dense non-aqueous phase liquids (DNAPL) threats that may be identified in this area. Under the *Clean Water Act*, and based on the location of the Lincolnville Layover and GO Station, certain industrial chemicals, including DNAPL, are not allowed to be stored in any way, in any amounts, at the site.

Two separate data sources available from the TRCA were evaluated with respect to Significant Groundwater Recharge Areas (SGRA) and Highly Vulnerable Aquifers (HVA). Based on the most conservative of these two data sources, much of the Site is mapped as a SGRA, with the southeast portion of the Site identified as an area with a HVA (Region of York, 2016).

There are approximately 30 domestic water supply wells located within the 500 m Assessment Area. All but three of these domestic water supply wells are located more than 100 m from the Study Area. The nearest municipal drinking water supply is associated with groundwater supply wells for the town of Whitchurch-Stouffville, located about 1 km to the south. Groundwater levels

reported within these wells generally indicated that a confined sand aquifer is present between approximately 5 m below ground surface (bgs) and 15 m bgs.

A 2007 geotechnical investigation found that groundwater samples taken from the Study Area met the applicable MOECC Standards (as per O. Reg. 153/04) for the parameters analyzed and no issues of potential environmental concern associated with on-site groundwater quality have been identified to date.

The boreholes drilled in 2017 were dry upon completion of the drilling, with the exception of two borehole locations, where free groundwater was measured at depths of 3.2 m bgs and 5.2 m bgs during drilling. Borehole locations and wells are shown in Figure 3-4**.**

Stantec

Legend

- Study Area
- 500m Buffer
- Railway - Operational
- Watercourse
- Parcel Boundary (York Region)
- Provincially Significant Wetland
- Other/Locally Significant Wetland
- Unevaluated Wetland (per OWES)

MOECC Water Well

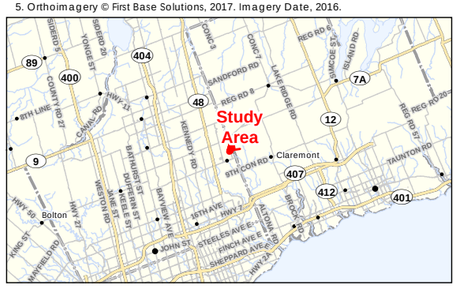
- Livestock
- Industrial
- Commerical
- Monitoring
- Municipal
- Irrigation
- Not Used
- Domestic
- Final Use not specified
- Monitoring and Test Hole
- Test Hole

0 250 500 metres

1:12,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 18N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2016.
3. MOECC Water well locations are approximate and have been positioned based on published UTM coordinates © Queen's Printer for Ontario, 2016.
4. Parcel and Production Well data from York Region.
5. Orthoimagery © First Base Solutions, 2017. Imagery Date, 2016.



Project Location
Regional Municipality Of York

160950996
Prepared by SPE on 2017-11-10

Client/Project
METROLINX
LINCOLNVILLE STATION

Figure No.
3-4

Title
MOECC Water Well Records

Disclaimer: This figure has been prepared based on information provided by others as cited under the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result.

Revised: 2017-11-10 By: sp.ates
\\cd1215-f01.wsdk.group.\01609\active\160950996\planning\drawing\MXD\APC\Report - Figures\EPR160950996 - EPR Fig03-4 MOECC WWR.mxd

3.1.6 Soils and Geology

Soils and geology refer to surface and below-ground conditions of the organic and inorganic compounds that make up the soil and rock that support plant and animal life and human activities and structures, including chemical or other compounds that may have entered the soil as a result of human activities.

3.1.6.1 Methodology

The Assessment Area consists of the Lincolnville Layover and GO Station, in addition to the surrounding area within 500 m of the site, for which a desktop assessment was undertaken. A geotechnical investigation was carried out within the Study Area in 2017, from which soil samples were obtained and analyzed. It involved the drilling of 9 boreholes to the east of the existing storage tracks to depths of approximately 3-5 m. Existing literature and mapping was reviewed, including the results of a 2016 site survey, a 2003 Phase I Environmental Site Assessment (ESA) and a 2007 Geotechnical Investigation at the site, completed by others.

Full detail on soils can be found in Appendix A5.

3.1.6.2 Existing Conditions

The Study Area is generally flat, and slopes in a southerly direction from approximately 306 m above sea level (asl) within the north portion of the Study Area to approximately 300 m asl within the southeast portion.

The Study Area is situated within the Oak Ridges Moraine (ORM) and contains an abundant thickness of granular water-bearing strata within its core overlain on bedrock consisting of Ordovician brown and grey shales located at approximately 60 m below ground surface (bgs).

Surficial geology for the northeast portion of the Study Area is characterized primarily by massive-well laminated deposits of fine-textured glaciolacustrine silt and clay, and by silty to clayey till within the southwest portion of the site. In general, the soil stratigraphy encountered during drilling consisted of an asphalt-paved surface underlain by sand with gravel fill (or a surface vegetation with associated topsoil), overlying a silty clay fill underlain by native sandy silt clay till and silty clay till soils. The silty clay fill materials were observed at depths ranging between 0.9 m to 2.2 m bgs. Bedrock was not encountered during drilling.

A 2003 Phase I ESA did not identify any issues of potential environmental concern within the Study Area, as defined by O. Reg. 153/04. A 2007 Geotechnical Investigation found that soil samples taken from the Study Area met the applicable MOECC Standards for the parameters analyzed. In addition, no issues of potential environmental concern associated with soil quality within the Study Area have been identified to date.

3.1.7 Tree Inventory and Arborist Report

Trees assessed on and in the vicinity of the property include those that have been planted by humans as well as those that have been seeded through natural processes.

3.1.7.1 Methodology

An Arborist Report was developed to identify and determine potential effects to trees and vegetation in relation to the proposed works. Inventoried tree locations were identified through survey by an Ontario Land Survey in conjunction with the project design. Tree bylaws, policies, and guidelines were reviewed for the Town of Whitchurch-Stouffville, TRCA, and the Region of York to identify permitting requirements and guidelines for the methodology used for the inventory and assessment. The Arborist Report is available in Appendix A6.

The tree inventory and assessment was conducted on September 13, 2017. The inventory and Assessment Area was located within the property boundary, and included trees on adjacent lands that overlapped or were very near the property boundary and that may be affected by the expansion or proposed grading work.

The detailed Inventory data includes tree species, general health condition, diameter at breast height (DBH), and dripline radius. Trees were tagged with a numbered steel tree tag. Trees that could not be physically tagged were provided an identification letter such as, ‘A1’, A2’, ‘A3’, etc. Trees and shrubs located in the immediate vicinity of the SWM ponds were identified as areas, for example ‘Area 1’, rather than as individual trees. The tree effects and preservation and protection areas were determined based on the construction limit area identified by Stantec engineering.

3.1.7.2 Existing Conditions

The Study Area includes predominantly newly planted trees, which line the parking lot and entrances of the Facility. There are mature trees included in the inventory that are located on the boulevards of Bethesda Sideroad and York Durham Line.

Tree species included in the inventory are: Fir (*Abies* spp.), Freeman Maple (*Acer x freemanii*), Manitoba Maple (*Acer negundo*), Norway Maple (*Acer platanoides*), Sugar Maple (*Acer saccharum*), Serviceberry (*Amelanchier* sp.), White Ash (*Fraxinus americana*), Honeylocust (*Gleditsia tiracanthos ‘inermis’*), Juniper sp. (*Juniperus* sp.), Apple spp. (*Malus* sp.), Cottonwood (*Populus deltoides*), White Spruce (*Picea glauca*), Colorado Blue Spruce (*Picea pungens ‘glauca’*), Austrian Pine (*Pinus nigra*), White Pine (*Pinus strobus*), Scots Pine (*Pinus sylvestris*), Willow spp. (*Salix* sp.), Eastern White Cedar (*Thuja occidentalis*), and Littleleaf Linden (*Tilia cordata*).

Species included in the SWM pond appeared to be well established saplings. The inventory included the following species: Freeman Maple, Sugar Maple, Alder spp. (*Alnus* sp.), Red Osier Dogwood (*Cornus sericea*), Grey Dogwood (*Cornus racemosa*), Juniper spp., Cottonwood, Trembling Aspen (*Populus tremuloides*), Staghorn Sumac (*Rhus typhina*), Currant spp. (*Ribes* sp.), Black Locust (*Robinia pseudoacacia*), and Willow sp.

3.2 SOCIAL AND ECONOMIC ENVIRONMENT

The following section describes existing conditions related to the social and economic environment. This includes descriptions of the political and policy designations associated with the Study Area and the land uses allowed as a result. It also includes a description of the ways in which people use the land within the Study Area.

3.2.1 Land Use and Users

Land use refers to the ways in which humans modify the landscape to support their everyday living activities, as well as human activities that encourage the use of land by plants and animals. Land users are those humans who undertake activities within the landscape.

3.2.1.1 Methodology

A desktop assessment was undertaken to review existing planning documents and mapping. The desktop review included a review of the land designations within the Study Area and adjacent properties, as well as a desktop search of the Town of Whitchurch-Stouffville Official Plan and the Comprehensive Zoning By-Law 2010-001-ZO to determine the uses of the adjacent lands. Proposed construction activities were reviewed to understand the conditions of and impacts on land users.

Full detail on land use conditions can be found in Appendix A7.

3.2.1.2 Existing Conditions

The Study Area is a designated Major Transit Station Area in the Town of Whitchurch-Stouffville Official Plan Amendment No. 137. Permitted uses under this designation allow for transportation and related ancillary uses, including maintenance, industrial and commercial.

The Town of Whitchurch-Stouffville land use policies identify the need to improve access to the GO Station through various modes of transportation.

The Study Area is zoned Institutional (I) under the Town of Whitchurch-Stouffville Zoning By-law 2010-001-ZO. This zoning designation permits a range of land uses, including Government Services.

In general, the Study Area is situated within a predominantly rural area. Land uses surrounding the Study Area currently consist of a mix of rural, residential, agricultural and recreational

(Granite Golf Club) to the north; York-Durham Line followed by agricultural to the east; Bethesda Side Road followed by agricultural and commercial (i.e., Apache Freight Lines and Sicilia Gardens) to the south; and, commercial/industrial (Barry Welding, Todd Pools, etc.), agricultural, Tenth Line and recreational (i.e., Sleep Hollow Golf and Country Club) to the west. Zoning and property boundary information is provided in Figure 3-5.

The Study Area offers facilities for GO Train passengers to park cars, pick-up and drop off passengers, purchase tickets, and wait to board trains and buses. Pedestrian navigation through the site is provided through paths and walk-ways, and is facilitated by way-finding signage. Access to the Study Area is provided for vehicles and cyclists from Bethesda Side Road near the southwest corner of the property and from York Durham Line near the northeast corner of the property.

RESIDENTIAL AREA
Special Provision 1

RURAL AREA
Special Provision 1

Refer to Policy 12.7.6.7

RURAL AREA
Special Provision 2

Refer to Policy 12.7.23.5.1

RURAL AREA
Special Provision 3

Refer to Policy 12.7.6A.4.3

BETHESDA ROAD

GO

10TH LINE

Reesor Creek

HIGHWAY 48

9TH LINE (REG. ROAD 69)

Refer to Policy 12.7.6A.4.2

YORK-DURHAM LINE REG. ROAD 30

Region of Durham
Township of Uxbridge

Refer to Policy 12.7.19.4.1

MAIN STREET

SEE SCHEDULE F2
WESTERN APPROACH AREA

GO
SEE SCH-F1
COMMUNITY CORE AREA

MAIN STREET

Refer to Policy 12.7.6.5

Refer to Policy 12.7.6.6

Little

Rouge River

GO Transit

Stouffville Creek

EXISTING RESIDENTIAL
Special Provision 2

9TH LINE (REG. ROAD 69)

10TH. LINE

Refer to Policy 12.7.7.4.1

Region of York
Town of Pickering

Town of Whitchurch-Stouffville
Town of Markham

- Existing Residential Area
- Residential Area
- Urban Medium Density Residential Area
- Activity Node Area
- Greenland Area
- Community Park Area
- Cemetery Area
- Gateway Mixed Use Area
- Business Park Area
- Industrial Area
- Special Employment Area
- Rural Area
- Regional Retail Area
- Neighbourhood Retail Area
- Western Approach Area Mixed Use
- Special Provision Area
- Main Street Special Policy Area
- Heritage Area
- Boundary Buffer Area
- Built Boundary
- Arterial Roads
- Collector and Proposed Collector Roads
- Flood Plain Area
- Secondary Plan Boundary
- Proposed 9th Line Realignment
- Towns and Villages Urban Serviced Area
- Gateway Area
- GO GO Transit Station

Community of Stouffville Secondary Plan

Schedule F
Land Use and Transportation Plan

N

0 50 100 200 300 400 500

August 2011

3.3 CULTURAL ENVIRONMENT

The following sections describe existing conditions related to the cultural environment, including buried archaeological artefacts, and surface-level built structures and landscapes considered to be of cultural heritage value.

3.3.1 Archaeology

Archaeology refers to aspects of the environment that provide insight or information on past human use of the landscape that have been buried below the surface of the soil.

3.3.1.1 Methodology

A Stage 1 Archaeological Assessment (AA) was carried out to identify the potential for archaeological resources within the Study Area, consisting of the Lincolnville Layover and GO Station, and included a channeled tributary of West Duffins Creek and Stouffville Creek. The Assessment Area for the Stage 1 Archaeological Assessment is illustrated in Figure 3-6 The Stage 1 AA included a desktop review of relevant historical information, as well as a field visit to observe current conditions within the Study Area. Based on the outcome of the Stage 1 AA, a Stage 2 AA was conducted, involving test pit surveys within the site where proposed infrastructure could be located within areas of archaeological potential.

Archaeological assessments were submitted to the Minister of Tourism, Culture and Sport (MTCS) on August 25, 2017 as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18 (Government of Ontario 1990a). Reports are reviewed to confirm that they address the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations address the conservation, protection and preservation of the cultural heritage of Ontario. When fieldwork and reporting requirements have been addressed to the satisfaction of the MTCS, a letter will be issued by the Ministry stating that the report has been entered into the Ontario Public Register of Archaeological Reports. This letter will quote the recommendations of the archaeological assessment, which will either recommend additional stages of assessment, or state that no further work is required. The Stage 1 and2 AA were entered into the Ontario Public Register of Archaeological Reports on September 5, 2017 and on November 1, 2017, respectively.

Full detail on the Stage 1 and 2 Archaeological Assessments can be found in Appendix A8.

3.3.1.2 Existing Conditions

Archaeological potential can be identified based on a variety of factors, including proximity to previously registered archaeological sites, distance to various types of water sources, soil texture and drainage, glacial geomorphology, elevated topography, and the general topographic variability of an area. Given the proximity of the Study Area to water, including Stouffville Creek, the Study Area and surrounding area are considered to have Indigenous archaeological

potential. In addition, historic transportation routes surround the site, including the Toronto and Nipissing Railway, Bethesda Side Road and Tenth Line. As such, the Study Area and surrounding area are considered to have Euro-Canadian archaeological potential.

The findings of the Stage 1 AA indicated that the majority of the Study Area (i.e., approximately 86%) has been previously subjected to deep and extensive disturbance, which has removed any archaeological potential for these areas. However, a Stage 2 assessment by test-pit survey was recommended for the currently undeveloped portion, located within the southeast portion of the Study Area.

A Stage 2 AA was subsequently undertaken. The findings indicated that the area subjected to test pit survey was previously disturbed, and that no further archaeological investigation is required within the Study Area.

3.3.2 Cultural Heritage

Cultural heritage refers to aspects of the environment that provide insight or information on past human use of the landscape that are visible to the human eye, and include buildings, landscapes, and vegetation.

3.3.2.1 Methodology

A Cultural Heritage Screening Report (CHSR) was completed to identify properties in the vicinity of the Study Area that may have known or potential cultural heritage value or interest (CHVI). Properties within 50 m of the Study Area were screened in consideration of the 2013 Metrolinx Interim Cultural Heritage Management Process, and based on a desktop review of available historical information and mapping, as well as consultation with the MTCS, Ontario Heritage Trust, Town of Whitchurch-Stouffville and the Township of Uxbridge. In addition, a field visit was conducted to confirm and supplement the findings of the desktop review. The Assessment Area for the Cultural Heritage Screening is illustrated in Figure 3-7.

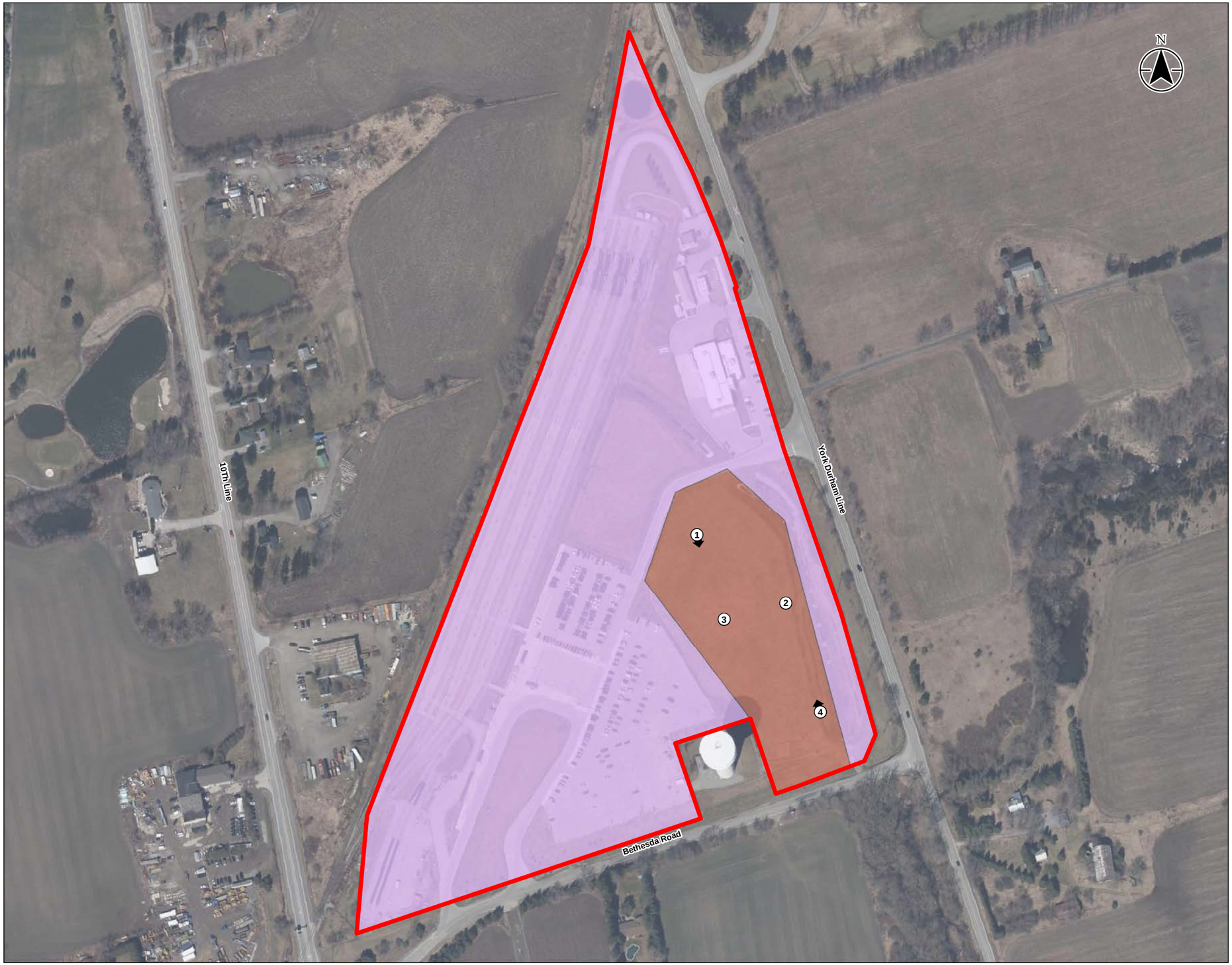
In accordance with the Metrolinx Interim Cultural Heritage Management Process, properties located within 50 m of the Study Area were screened for CHVI based on a series of questions related to age, potential cultural heritage value or interest using O. Reg. 9/06 and proximity to known heritage properties, as well as based on the following considerations:

- **Potential Heritage Property:** The property is owned or occupied by Metrolinx
- **Conditional Heritage Property:** The property is not owned or occupied by Metrolinx, or
- **Adjacent Land:** The property is adjacent to a protected heritage property.

Full detail on cultural heritage conditions can be found in Appendix A9.

3.3.2.2 Existing Conditions

Based on the findings of the cultural heritage screening, five properties located within 50 m of the northwest and northeast boundaries of the Study Area were identified as Conditional Heritage Properties. These properties are outlined in Figure 3-7. There are no properties listed and/or designated under the *Ontario Heritage Act* present within and/or in the vicinity of the Study Area. However, two properties, each of which is located immediately west of the Study Area, are listed in the Town of Whitchurch-Stouffville Built Heritage Inventory. None of the Conditional Heritage Properties are located within the Study Area, with some of the properties being over 100 m from the boundaries of the subject site. The proposed construction activities will take place entirely within the boundaries of the Study Area, therefore it is not anticipated that the construction will result in any changes to the Conditional Heritage Properties and no further heritage evaluation is required.



Stantec

Legend

- Study Area
- Photo Location and Direction
- No Potential (Disturbed) (Stantec 2017)
- Assessed (Test-pit Survey at Judgmental Intervals)

0 60 120 metres

1:3,000 (At original document size of 11x17)

Notes

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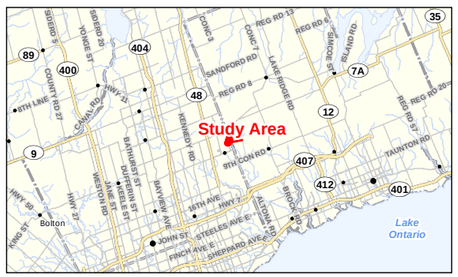

Project Location
Regional Municipality Of York

160950966 REVA
Prepared by SPE on 2017-11-23

Client/Project
METROLINX
LINCOLNVILLE STATION

Figure No.
3-6

Title
Area of Assessment for Stage 1 Archaeological Assessment

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Stantec

Legend

- Study Area
- Parcel Inside 50m Buffer
- Property Boundary
- Existing Communter Rail Line

Base Features

- Major Road
- Minor Road
- Watercourse
- Lower Tier Municipality

Cultural Heritage Features

- Conditional Heritage Property

0 80 160 metres

1:5,000 (At original document size of 11x17)

Notes

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Project Location
Regional Municipality Of York

160950966 REVA
Prepared by SPE on 2018-02-15

Client/Project
METROLINX
LINCOLNVILLE STATION

Figure No.
3-7

Title
Area of Assessment for Cultural Heritage Screening and Conditional Heritage Properties

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3.4 TECHNICAL ENVIRONMENT

The following sections describe existing conditions related to the technical environment. These include descriptions of:

- The quality of the air within the Study Area and emissions emanating from activities within the Study Area.
- Emissions of noise and vibration emanating from the Study Area.
- The movement of cars and other vehicles, in the vicinity of, into, and within the Study Area, including parking options within the Study Area.

3.4.1 Air Quality

Air quality refers to the presence or absence of substances in the air that could cause harm to humans in large enough quantities. This includes substances in gaseous or solid (particulate) form.

3.4.1.1 Methodology

To evaluate existing air quality and potential changes associated with the future expansion at the site, a screening level air quality assessment was undertaken. Background air quality for representative contaminants of concern (COC) was established based on review and analyses of ambient monitoring data from available National Air Pollution Surveillance Network (NAPS) or MOECC-operated monitoring stations considered to be representative of the Study Area. Local air quality effects were assessed by estimating contaminant concentrations at representative sensitive receptors (e.g., residential, school, day care, long-term care land uses) located within 500 m of the Study Area and comparing them to applicable regulatory criteria. The applicable air quality thresholds include the Ontario Ambient Air Quality Criteria (AAQC) (MOECC, 2012), the National Ambient Air Quality Objectives (NAAQOs) (CCME, 1999), and the Canadian Ambient Air Quality Standards (CAAQS) (CCME, 2012). Representative worst-case contaminants were selected for more detailed analysis, including emission and dispersion modelling. Air quality analysis focused on the changes in ambient air quality that can be expected from the proposed Project, but did not consider the broader air quality effects of increased train service on the rail corridor.

Full details on air quality conditions can be found in Appendix A10.

3.4.1.2 Existing Conditions

The Assessment Area consists of a mix of land uses, including institutional, agricultural, environmental, and residential zones. Agricultural and environmental zones are located to the north and east of the Lincolnville Layover and GO Station, and to the west is an Oak Ridges Moraine Countryside zone. Residential zones are located further south, with agricultural and

environmental zones to the north and east. Commercial zones are located to the southeast. Land uses that contain residential dwellings, schools, day care facilities, long-term care facilities or other institutional uses were selected as special receptors for the air quality study.

Air contaminants of concern within the Study Area are associated with diesel and gasoline combustion from road traffic and operation of diesel locomotives products of diesel and gasoline combustion associated with the operation of vehicles and diesel locomotives. To assess air quality, a representative worst-case contaminant for each type of contaminants studied was selected for a more detailed analysis. If the selected worst-case contaminants were assessed to be reasonably low-risk, then the other contaminants in the group would be acceptable. Representative contaminants studied were Nitrogen Oxides (NO_x), Carbon Monoxide (CO), Particulate Matter (PM) acrolein, benzene, lead and Benzo(a)pyrene. While greenhouse gases (ghg) are an important factor to consider in the review of effects on air quality, it has been assumed that the reduction in vehicle miles driven overall will limit the emission of ghg to current or better-than-current levels as a result of more public transit trips taken once the improvements to the Stouffville rail corridor are complete. This is addressed further in Section 5.0.

Twelve sensitive receptors were identified within the Assessment Area, all of which consisted of residential land uses. The locations of sensitive receptors are shown in Figure 3-8.

Background concentrations of air quality COCs were well below their applicable threshold criteria for all of the representative contaminants studied except for one. The annual background concentration of benzene is at 90% of the criteria. Background concentrations of benzo[a]pyrene (B[a]P) for both 24-hour and annual averaging periods exceed the criteria by 25% and over 230%, respectively, but this background exceedance of the AAQC for B[a]P are commonly measured in Ontario, including in rural areas. Background air quality levels are summarized in Figure 3-8 and Table 3-2, on the following pages.

Stantec

Legend

Site Features
- Layover Site
- Study Area
- Existing Commuter Rail Line

Noise Features
- Point of Reception

Existing / Base Features
- Watercourse
- Parcel Boundary (York Region)
- Lower Tier Municipality

0 200 400 metres
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Notes
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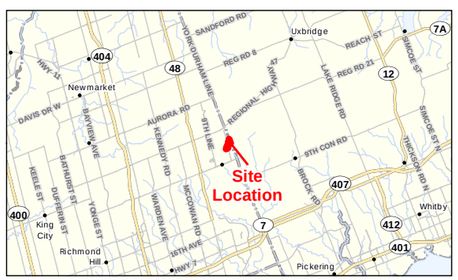

Project Location
Regional Municipality Of York

160950966 REVA
Prepared by SPE on 2018-02-15

Client/Project
METROLINX
LINCOLNVILLE STATION

Figure No.
3-8

Title
Air Quality Assessment Area and Sensitive Air Quality Receptors

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Table 3-2: Summary of Background Air Quality Levels

Contaminant	Criterion (µg/m^3)				Background Concentrations in (µg/m^3)				Percentage of Criterion			
					90th Percentile							
	1-hr	8-hr	24-hr	Annual (or Other)	1-hr	8-hr	24-hr	Annual (or Other) Mean	1-hr	8-hr	24-hr	Annual (or Other)
NO_2	400 [a]	-	200	60 [b]	31		27	15	8%	-	14%	24%
CO	36200[a]	15700	-	-	475	437		307	1%	3%	-	-
$PM_{2.5}$	-	-	30 [a] 28 [c] 27 [d]	 10 [c] 8.8 [d]	14.2	-	12.8	6.6	-	-	- [c]	- [c]
Acrolein	4.5	-	0.4		-	-	0.026	0.013	-	-	7%	-
Benzene	-	-	2.3 [a]	0.45 [a]	-	-	0.64	0.40	-	-	28%	90%
B[a]p	-	-	0.00005	0.00001 [a]	-	-	6.26E-05	3.31E-05	-	-	125%	331%
Lead	0.5	-	-	0.2 (30 days)	-	-	0.0065	0.0042 (30 day)	-	-	1%	2% (30 days)

a. Ontario Ambient Air Quality Criteria (AAQC).

b. National Ambient Air Quality Objective (NAAQO).

c. 24 Hour and Annual Canadian Ambient Air Quality Standard (CAAQS) for Respirable Particulate Matter, effective by 2015. The 24-hour Respirable Particulate Matter Objective is referenced to the 98th percentile daily average concentration averaged over 3 consecutive years. The annual Respirable Particulate Matter Objective is referenced to the 3-year average of the annual average concentrations. The CAAQS is shown here for reference and not directly comparable to the baseline concentrations presented in the table.

d. 24 Hour and Annual CAAQS, effective by 2020. The 24 hour CAAQS is referenced to the 98th percentile daily average concentration averaged over 3 consecutive years. The annual CAAQS is referenced to the 3-year average of the annual average concentrations. The CAAQS is shown here for reference and not directly comparable to the baseline concentrations presented in the table.

3.4.2 Noise and Vibration

Noise and vibration are the perceptible sound and movement that can be generated by an energy source and can result in nuisance or, if strong enough, effects to human health or built structures.

3.4.2.1 Methodology

A predictive noise analysis was carried out to evaluate noise effects on sensitive receptors (i.e., representative locations with noise sensitive areas, including residences, daycares, schools, and churches) associated with existing site operations and the proposed future improvements to the Lincolnville Layover and GO Station. The methodology for the predictive analysis was in accordance with the GO/MOECC Draft Noise and Vibration Assessment Protocol (MOECC/GO Protocol). This desktop analysis includes a review of existing noise sources and existing points of reception (PORs) that may be affected by noise sources. The Assessment Area for the predictive analysis includes the Study Area and the surrounding area extending 500 m from the Study Area. The Assessment Area and identified PORs are illustrated in Figure 3-9.

The draft GO/MOECC Noise and Vibration Assessment Protocol (MOECC/GO Protocol) provides limits with respect to noise and vibration associated with project construction and operation for GO/Metrolinx rail projects. Under the draft provisions a Layover area is defined as an area dedicated to overnight storage of GO trains. As such, noise produced by the operation of the Layover must not exceed 55 dBA at a sensitive receptor. There are no vibration limits for a Layover location.

Noise and vibration analysis focused on the changes in noise and vibration that can be expected from the Project.

Full detail on the acoustic assessment can be found in Appendix A11.

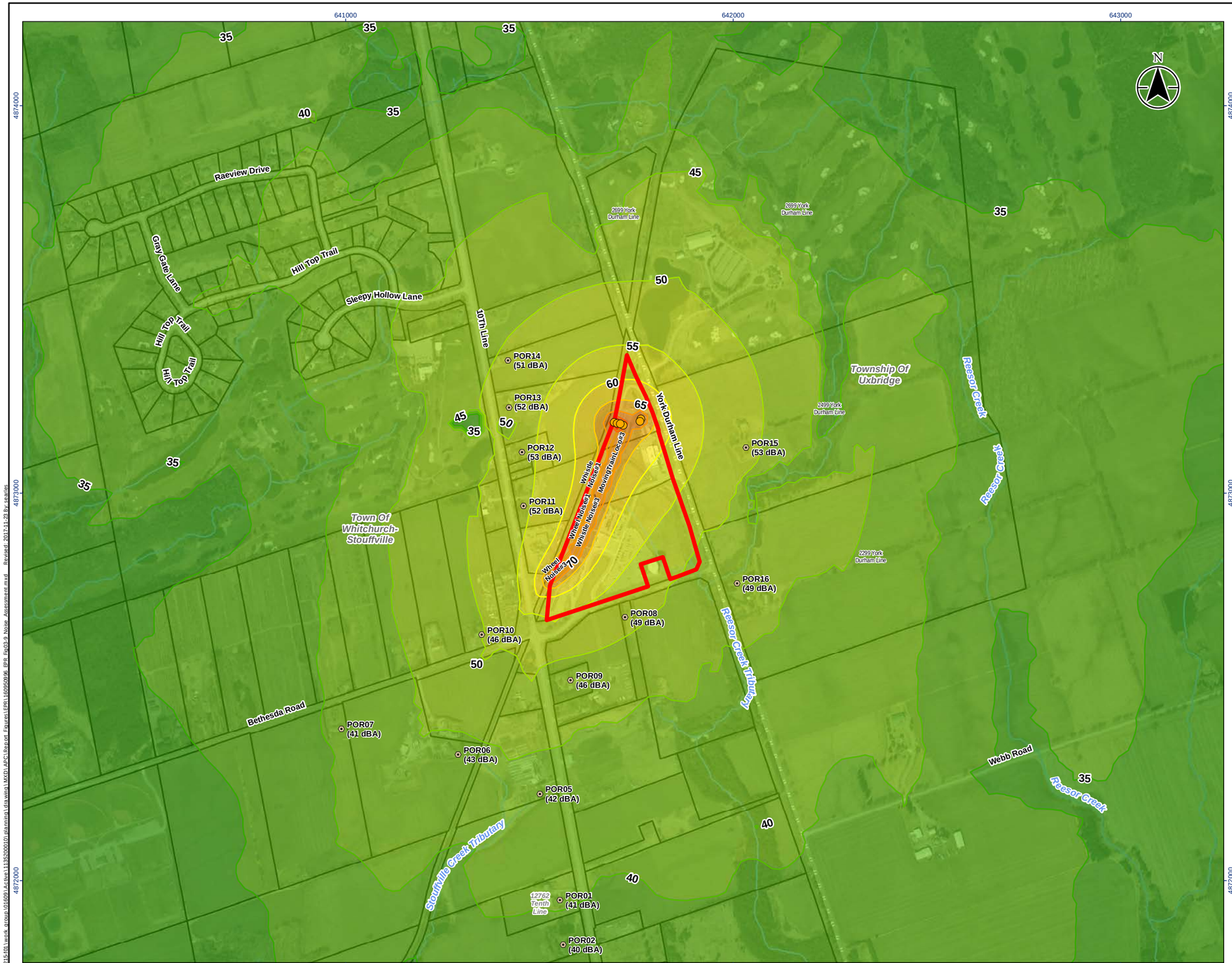
3.4.2.2 Existing Conditions

The Study Area's train-related operation includes moving and idling trains, as well as the intermittent operation of an emergency generator. The Layover Facility accommodates six trains that can be parked overnight. During the morning peak hours these trains leave, one after the other; a train typically warms up and exits the Layover area, boards passengers, and departs the nearby station approximately every 30 to 40 minutes until all six trains have left the Study Area. Similarly, in the afternoon peak hours, trains arrive to drop passengers, and subsequently enter the Layover area to be parked overnight. The typical arrival interval is approximately every 30 to 40 minutes until all six trains have arrived for overnight parking.

During off-peak times, GO Transit bus service runs from the Lincolnville GO Station with a service frequency of approximately every 30 to 40 minutes.

No impulsive noise sources are currently expected within the Study Area. The non-impulsive sources are associated with regular operation (idling and moving trains) and the Layover, as well as emergency equipment. Each train could idle for up to 75 minutes prior to departure in the morning and could stop as soon as they arrive in the evening. A site plan showing non-negligible noise sources in the Study Area is provided in Appendix A11.

Sound level measurements were taken at a representative Metrolinx site. Results of the Noise and Vibration Assessment can be found in Section 4.4.2.



Stantec

Legend

Noise Features
- Point of Reception
- Point Source
- Rail Source

Lower Tier Municipality

Sound Level (dBA)
- < 35
- 35 - 40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- 75 - 80
- 80 - 85
- > 85

Site Features
- Study Area

Existing / Base Features
- Watercourse
- Parcel Boundary

0 200 400 metres

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Notes
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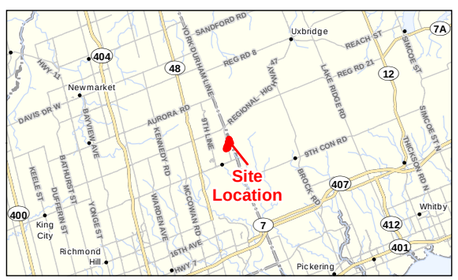

Project Location
Regional Municipality Of York

160950966 REVA
Prepared by SPE on 2017-11-23

Client/Project
METROLINX
LINCOLNVILLE STATION

Figure No.
3-9

Title
Noise Assessment Area and Points of Reception

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3.4.3 Traffic and Transportation

Traffic and transportation elements of the environment encompass all infrastructure and activities that help people to move from place to place.

3.4.3.1 Methodology

A review of available mapping and site visits were performed to better understand the existing transportation conditions within the Assessment Area. The Assessment Area is generally bounded by York Durham Line (CR 30) to the east and Bethesda Side Road to the south, and includes the intersections and roadways surrounding the Study Area.

A horizon year of 2018 was considered for analysis of all Assessment Area intersections, which represents the anticipated construction period. Using the population and employment projections for Whitchurch-Stouffville in the Regional Municipality of York's Official Plan (April 2016), a 2.3% per annum growth rate was derived. The background growth rate is applied to the base year traffic volumes (2017) to estimate the future background growth representing general population and employment increases in the City in 2018. The future traffic volumes during the 2018 construction year for the weekday a.m. and p.m. peak hours were analyzed.

Two conditions were used to consider construction effects:

- Potential Effect on Traffic Operations during Construction with No Closures
- Potential Effect on Transportation Operations during Construction with Temporary Closures

The Traffic Impact Study considered operation effects by using the horizon years of 2019 and 2031 for analysis of all Assessment Area intersections, which represented the full build-out of the subject development and the Metrolinx transit network plan horizon year. Similar to 2018 forecasting, using the population and employment projections for Whitchurch-Stouffville in the Regional Municipality of York's Official Plan (April 2016), the following background traffic growth rate was derived:

- 2019 Horizon Year: 2.3% per annum growth rate
- 2031 Horizon Year: 1.2% per annum growth rate

The background growth rates are applied to the base year traffic volumes to estimate the future background growth representing general population and employment increases in the City.

Full details of the traffic and transportation analysis are available in Appendix A12.

3.4.3.2 Existing Conditions

Existing transportation components, as described below, are shown on Figure 3-10. York-Durham Line consists of a two-lane arterial roadway with a posted maximum speed limit of 60 km/h. This north-south roadway forms an unsignalized t-intersection with Bethesda Side Road, with stop control on the eastbound approach. Tenth Line is a two-lane, north-south arterial road with a posted maximum speed limit of 60 km/h, and forms an unsignalized intersection with Bethesda Side Road with stop control on the eastbound approach. Tenth Line is located to the west of the Study Area, west of the Stouffville GO mainline track.

Bethesda Side Road is a local road, which provides a connection between Tenth Line to York-Durham Line, as well as bus and vehicle access to the existing Lincolnville GO Station and the MOW yard area and tracks.

The GO station consists of one single-sided passenger platform, PPUDO, bus loop, two bus shelters and two bike shelters. Access to the passenger platform is provided via two concrete pathways to the bus loop, bus and bike shelter, vehicle parking areas and PPUDO. Vehicle access to the GO Station amenities is shared with the GO train and bus Facility on the east side of the property along York-Durham Line. Additional vehicle access is provided via Bethesda Side Road, and shared with the entrance to the bus loop. Both vehicle entrances provide access to the on-site parking areas. Internal access roads have a posted maximum speed limit of 25 km/h and 15 km/h, respectively.

Bus service at this location is offered by northbound routes to Uxbridge (i.e., routes 70-B and 71-A and 71) and southbound routes to Stouffville, Mount Joy, Markham, Centennial, Unionville and Union Station (i.e., Routes 70 and 71-A and C)1 of the Stouffville Corridor. There is no local (i.e., York Region Transit) or other transit/bus service operating and/or connecting at this location. North-east of Lincolnville, the service is extended to Goodwood and Uxbridge via bus only. To the south, the Stouffville GO rail corridor continues into the City of Toronto, and eventually to Union Station.

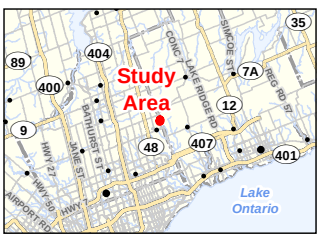
Two parking areas (the “West Parking Area” and the “East Parking Area”) and bus platforms servicing the station are located immediately southeast of the storage tracks. The existing GO Station provides parking space for 567 standard vehicles, and 2 electric vehicle and associated charging units. Designated Carpool parking is also available at this site.

Pedestrian access to trains is provided at a side platform located on the east side of the storage tracks.

The existing Lincolnville GO Station primarily serves the neighbourhoods located to the south of the Facility. Based on Metrolinx's cordon counts collected in the fall 2016, recent peak ridership details are as follows:

Morning (AM) Peak Hour	211 average rail passenger boardings
	22 average bus passenger alightings
Evening (PM) Peak Hour	233 average rail passenger alightings
	22 average bus passenger boardings

A Traffic Impact Analysis was conducted for the intersections in the Assessment Area. The intersections within the Assessment Area operate at good levels of service under existing (2017) traffic conditions.



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Legend

- Existing Lincolnville Layover Facility and Station Site
- Bike Shelter
- Bus Shelter
- Pedestrian Access to Side Platform and Ticket Vending Machines
- Bus Loop
- Drainage Channel
- Drainage Ditch
- Existing Storage Track
- Watercourse
- Municipal Boundary - Lower Tier
- Parcel Boundary (Approximate)
- Waterbody

0 75 150 metres

1:5,000 (at original document size of 8.5x11)

Stantec

Project Location
Regional Municipality Of York

160950996 REVA
Prepared by SPE on 2018-02-15
Technical Review by BCC on 2017-10-02

Client/Project
METROLINX
LINCOLNVILLE STATION

Figure No.
3-10

Title
Lincolnville Layover and Go Station Existing Facility Components

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4.0 ASSESSMENT OF POTENTIAL EFFECTS AND PROPOSED MITIGATION MEASURES

The impact assessment of the proposed improvements to the Lincolnville Layover and GO Station has been developed based on the analysis and results of technical discipline-specific environmental studies documented in the reports listed in Section 1.9 (which are located in Appendices A1 through A12 to this EPR).

The project has been designed to prioritize the avoidance of negative environmental effects, and mitigation measures are provided where avoidance is not feasible. The presentation of potential effects and recommended mitigation measures, monitoring activities and anticipated net effects has been organized in this EPR by the following categories:

- Affected environment (e.g., Natural Environment, Social and Economic Environment, Cultural Environment, and Technical Environment)
- Affected feature (e.g., Terrestrial Habitat, Wildlife, Aquatic Habitat)
- Project phase (e.g., Construction or Operations)

The impact assessment is based on conservative (worst case) assumptions regarding potential effects that could occur as a result of the project. They are also based on existing environmental conditions, as outlined in Section 3.0, and information available at the time of the TPAP. The recommendations contained in this EPR will be reviewed by Metrolinx and updated as necessary during the Detailed Design phase of the project.

The potential for effects has been determined based on an understanding of the conceptual design and how construction and operation of the proposed improvements will interact with existing environmental conditions. Where potential negative effects have been identified, mitigation measures have been recommended to limit or avoid the potential for those effects. Net effects are then defined based on the expected effect following applicable mitigation measures. The project has been designed to prioritize the avoidance of negative environmental effects, and mitigation measures are provided where avoidance is not feasible.

The effects of the Project have been assessed in terms of potential changes to natural, social and cultural environments. Table 4-1, below, outlines the evaluation factors and related criteria.

Table 4-1: Criteria for Assessment of Impacts for Environmental Components

Component of the Environment	Criteria
Natural Environment	
Vegetation and Vegetation Species at Risk	• Loss of existing vegetation communities • Loss of designated vegetation species at risk
Wildlife and Wildlife Species at Risk	• Loss of wildlife (birds, mammals, and herpetofauna) and wildlife habitat (type and quality) • Impediments to wildlife movement and breeding and increases in animal mortality
Surface Water and Aquatic Environment	• Changes to watercourses providing fish habitat • Changes to the sensitivity of fish and fish habitat, extent of fish habitat altered/displaced) • Decreased water quality in watercourses
Stormwater Management	• Changes to stormwater runoff quantity: Potential for increase in peak flows, impact on storm drainage systems and erosion in receiving watercourses • Changes to storm runoff quality: Potential for increase in pollutant loading and effects to water quality
Hydrology and Groundwater	• Reduced groundwater quantity/quality
Soils and Geology	• Reduced soil quality and soil loss • Potential to encounter contaminated material during construction activities
Trees	• Damage to trees and tree removals
Social and Economic Environment	
Land Use and Users	• Potential for land use compatibility conflicts • Potential for nuisance effects to Facility users and neighbouring properties and residences
Cultural Environment	
Archaeology	• Potential for disturbance or destruction of archaeological resources
Cultural Heritage	• Direct and indirect impacts to known built heritage resources and/or cultural heritage landscapes that may be removed or damaged by construction activities
Technical Environment	
Air Quality	• Changes to air quality and increases in GHG emissions impacts during the operational stage of the Project

Component of the Environment	Criteria
Noise and Vibration	• Noise and vibration emissions during construction and operation at sensitive land uses • Potential increase in noise during construction at sensitive receptors
Traffic and Transportation	• Changes to level of service at key Study Area intersections

4.1 NATURAL ENVIRONMENT

4.1.1 Vegetation and Vegetation Species at Risk

4.1.1.1 Potential Construction Effects

Based on the proposed Project footprint, direct loss of vegetation is anticipated to occur within the meadow vegetation community along the eastern edge of the existing Layover tracks. Construction areas and temporary work areas extend beyond the eastern edge of the existing Layover tracks and will result in additional temporary loss of meadow vegetation. Permanent loss of vegetation will be focused on areas within existing meadow features around the Lincolnville GO Station. Meadow areas are considered marginal habitat, and removal will have a limited effect on natural features, with negligible effects to landscape scale corridor function.

As noted in Section 3.0, there are no designated natural areas or vegetation species at risk within the proposed project footprint, therefore, no effects are anticipated.

4.1.1.2 Mitigation Measures for Construction Effects

Areas to be cleared of existing vegetation should be reduced to the smallest area that is reasonably feasible and clearly marked to prevent unnecessary clearing. The construction contractor should ensure that heavy equipment is not placed, and other construction activity does not occur beyond marked areas.

Timing windows for vegetation clearing will be adhered to as outlined in Section 7.4.1.

Where applicable, areas disturbed by temporary construction storage and lay-down should be restored with suitable native seed mixes to stabilize soil and establish self-sustained native vegetation as soon as possible following disturbance. Seed mixes should include fast-growing, short-lived perennial cover crop to stabilize soil and reduce competition from weeding exotics.

An erosion mat may also be used to stabilize final grades where necessary, and should be applied post seeding and mulch application. Manufacturer specifications should indicate the erosion mat is made of biodegradable material (without nylon netting, if available) and designed to allow sufficient light penetration for seed germination.

All seed mixes and other planting lists should be designed to include species adapted to the site conditions, including hardiness zone, soil type, moisture and sun exposure. Seed and other

material should be from local sources where possible. Invasive, non-native species should not be used to prevent introduction into adjacent areas.

Existing native topsoil and seed banks should be preserved, stock piled and reintroduced as the final grade in proposed vegetation restoration areas. Seed banks should be supplemented with native seed mixes to improve native species diversity. Seeding efforts should receive water either through precipitation or irrigation after every seven successive days without rainfall for the first two months after planting.

4.1.1.3 Potential Operations Effects

Operational changes at the site are not anticipated to result in significant effects from the loss of vegetation cover as the overall operations procedures at the Layover Facility will remain the same.

4.1.1.4 Mitigation Measures for Operation Effects

In areas where restoration is proposed, qualitative vegetation monitoring should be completed annually for two years following revegetation activities, to document the establishment of planted material, and implement adaptive management to correct deficiencies. Adaptive management may be triggered by poor survival of planted material, insufficient vegetation cover and the presence of unacceptable non-native and invasive species. Adaptive strategies may include supplemental plantings, and/or control of unacceptable species.

4.1.1.5 Net Effects

Given the predominantly anthropogenic nature of the Study Area, and the implementation of appropriate mitigation measures, effects to vegetation are expected to be minimal. Following the implementation of standard mitigation measures, net effects will be limited to a minor loss of meadow vegetation to accommodate the expanded Project footprint.

4.1.2 Wildlife and Species at Risk

4.1.2.1 Potential Construction Effects

Loss of potentially suitable habitat for SAR occurs in areas requiring vegetation removal.

As described in Section 3.1.2, potential habitat for SAR was identified for Bobolink (*Dolichonyx oryzivorus)*; however, field investigations concluded the species is not breeding on site. MNRF concur and no mitigation measures are required.

Although none were observed on site, slow-moving and ground-dwelling wildlife could be encountered in work areas during construction, including reptiles (snakes and turtles) and amphibians.

4.1.2.2 Mitigation Measures for Construction Effects

Standard mitigation measures such as construction fencing, and sediment control fencing will prevent ground dwelling wildlife from entering the site during construction activities.

Contractors should be aware of potential encounters with wildlife, including reptiles and amphibians, and avoid them. Generally, sediment and construction fencing will also prevent wildlife access; however, there is some potential that individuals may enter the limits of construction.

Although no migratory bird nesting activity was observed on the site, general mitigation measures for migratory birds will help to mitigate against potential negative effects to these birds, should they happen to enter the Study Area prior to or during construction activities. Nesting migratory birds such as the Bobolink *(Dolichonyx oryzivorus)*, Eastern Meadowlark *(Sturnella magna)*, and Barn Swallow *(Hirundo rustica)*, or other potential SAR are protected under the *Migratory Birds Convention Act* (MBCA 1994) and *Migratory Birds Regulations* (MBR 2014). By implementing the timing restrictions for vegetation/structure removal identified in the MBCA, the nests of migratory birds are protected from damage while they are active, including nests in vegetation and on structures. The Primary Nesting Period (the period when the percent of total nesting species is greater than 10%) for this Study Area, as defined by Environment Canada C2 breeding and nesting period, extends from April 1 through to August 31, although nesting also infrequently occurs outside of this period (Environment Canada, 2014). If work affecting potential nesting areas is scheduled to occur outside the Primary Nesting Period restricted period, no mitigation will be required.

In the event that construction is required during that time, an avian biologist must be retained to conduct nest sweeps of the area prior to works commencing, in order to check for nesting activity. The biologist will search for nests (or signs of nesting) of migratory birds to make sure there will be no destruction of active nests protected by the MBCA. Nest searches must be completed within 24 hours of the proposed works. If work is not completed, the search must be repeated to make sure no new nests have been established during that period. A signed and validated avian survey letter summarizing the level of effort and results of the nest sweeps must be prepared following each survey and submitted to Metrolinx (or approved delegate) prior to initiation of the clearing and grubbing activities.

If no nests or signs of nesting are found, clearing or other activities may proceed in the area searched.

At any time of the year, should a nesting bird be present when construction activity is under way, work in the area must cease immediately and a biologist with avian expertise will be required to develop a site-specific mitigation plan that meets all regulatory requirements. Should a nest be located in an area to be disturbed by construction activities, a designated buffer will be delineated, within which no activity will be allowed while the nest is active. The radius of the buffer ranges from 5 – 60 m depending on the species.

Activity restrictions would also depend on the proposed work in relation to the nest location. For example, irregular foot traffic would likely have a very minimal impact to nesting; whereas, regular vibration from heavy machinery may disturb nesting birds enough to abandon their attempt. If a nest is found, it should be checked every few days to determine its status. Once the nest is determined to be inactive (i.e., the nest no longer has young), clearing and other activities in the area may proceed.

Regular visual searches for reptiles (turtles and snakes) and other animals that may enter the site prior to construction activities commencing are recommended to address potential interactions. A thorough visual search of work areas will be conducted by construction contractors before work commences each day. If reptiles are encountered during construction, they should be permitted reasonable time to leave the area. If an animal must be moved outside the construction zone, a qualified biologist will be consulted to determine appropriate handling protocols. Any observations of SAR must be reported to MNRF within 48 hours.

4.1.2.3 Potential Operations Effects

It is not anticipated that the Bobolink or slow-moving/ground dwelling wildlife will be significantly affected by the proposed improvements at the site as there are no significant changes to operational procedures proposed.

4.1.2.4 Mitigation Measures for Operational Effects

Operational effects are not expected to affect the Bobolink or slow-moving/ground dwelling wildlife. Therefore, no mitigation measures are required for the operational phase.

4.1.2.5 Net Effects

Due to the limited potential for interaction with wildlife, the above mitigation measures are proposed to mitigate negative effects by restricting access to the site by wildlife and wildlife SAR, and by confirming wildlife and wildlife SAR are not present prior to commencing construction activities. As no SWH or SAR are anticipated to be present during construction activities, no net effects are anticipated as a result of construction or operations of the proposed improvements.

4.1.3 Surface Water and Aquatic Environment

4.1.3.1 Potential Construction Effects

Potential effects to fish habitat include indirect effects resulting from changes to Reach 1 affecting flow and nutrients to the downstream habitat in Reesor Creek. Because the proposed improvements may require alterations to Reach 1, and Reach 1 contributes to off-site fish habitat downstream, indirect effects are possible as a result of flow alteration/reduction or erosion/sedimentation within the Study Area.

If flows are reduced, it could render the downstream habitat unusable by fish to carry out their life processes.

Introduction of sediment can affect fish due to increased turbidity of the water column, which can impair vision and subsequent feeding by fish that are sight-hunters. Suspended sediments can also abrade gill membranes leading to physical stress, and impact prey organism's behavioral changes (i.e., avoidance, etc.). Heavier sediments can deposit on bottom substrates that may be used for spawning, incubation of juvenile fish, or food production, thereby affecting those habitat functions.

4.1.3.2 Mitigation Measures for Construction Effects

Although direct effects are not anticipated, requirements under the *Fisheries Act* will be addressed including any Self-Assessments or permitting that may be required. Prior to finalizing detailed design, a Self-Assessment will be undertaken by a qualified professional to determine whether, following the implementation of appropriate mitigation measures, further assessment and review is required by DFO. This will be conducted to confirm there will be no direct effects using DFO's Self-Assessment process. If the result of the Self-Assessment process suggests that potential harm could be caused to a fish- or a fisheries-supporting waterbody, Metrolinx must contact DFO for a formal review or authorization under the *Fisheries Act*.

Best management practices (BMPs) and standards are available to guide the design of mitigation measures. MOECC's Guideline B-6 *Guidelines for Evaluating Construction Activities Impacting on Water Resources* (1995), the *Erosion and Sediment Control Guideline for Urban Construction* (TRCA 2006), the *Sustainable Technologies Evaluation Program* (TRCA 2016), and the *Ontario Provincial Standards for Roads and Public Works* (Ontario Ministry of Transportation 2015) will be referenced when developing erosion and sediment control plans.

Potential indirect effects to fish habitat will be mitigated with standard environmental protection measures, which may include the following, as appropriate:

- Timing of the work to reduce the risk of effects to fish by avoiding sensitive life periods such as spawning. Reesor Creek (to which Reach 1 contributes) is a coldwater watercourse. The typical timing window provided by government agencies allows work that could affect the Creek to proceed from July 1 to September 15.
- Preventing sediment from entering waterbodies by trapping sediments as close to the source as possible (using methods such as silt fencing or filter logs).
- Reducing the area and duration of soil exposure to the extent possible.
- Diverting runoff away from exposed soils.
- Keeping runoff velocities low.

- Implementing debris/waste containment and removal.
- Retaining existing vegetation where feasible.
- Completing post-construction site restoration where applicable (i.e., application of cover and re-vegetation of cleared areas), and monitoring until the area has restabilized.
- The construction activities should be monitored by an onsite Environmental Specialist to verify that the contract constraints and provisions are adhered to and to recommend remedial action in the event of an emergency or unforeseen situation.

Mitigation measures will be implemented to reduce the risk of spills from entering natural features during construction, the same mitigation measures from Section 4.1.3.4 will be used during construction. A Hazardous Materials and Fuel Handling plan will be developed prior to construction.

4.1.3.3 Potential Operations Effects

The proposed improvements are not anticipated to affect the existing pond, located at the northern edge of the property. The pond does not have an outlet and is therefore not connected to any aquatic habitats located downstream, and is therefore not anticipated to result in negative effects to fish or fish habitat. The stormwater management facility located on the eastern boundary of the property is not considered fish habitat. Operational effects are not expected to affect either of these aquatic features on the property.

4.1.3.4 Mitigation Measures for Operation Effects

Mitigation measures will also be implemented to reduce the risk of spills from entering natural features during operation, as this could negatively affect the aquatic environment. Mitigation measures for spills include:

- All toxic material shall be stored in secure enclosures and equipment should be refueled at minimum 30 m away from any sensitive natural areas to avoid potential effects from accidental spills;
- An adequate supply of spills cleanup materials/kits shall be maintained at various locations within the work site. Spills and leaks should be captured, contained and cleaned up immediately; and
- Contaminant spills shall be reported as per the *Environmental Protection Act*, 1990. All toxic chemicals and contaminants must be disposed of offsite in approved disposal sites under appropriate MOECC regulations.

4.1.3.5 Net Effects

The proposed improvements are unlikely to result in serious harm to fish due to the limited function of Reach 1 as fish habitat. Because the existing surface water features within the Study

Area do not directly support fish or fish habitat, mitigation measures are focused on minimizing the potential off-site effects of the proposed construction and operations of improvements to the Lincolnville Layover and GO Station on aquatic features (namely, Reesor Creek). By maintaining the quality and quantity of flows from the Study Area into Reesor Creek, no net effects are anticipated.

4.1.4 Stormwater Management

4.1.4.1 Potential Construction Effects

The new layover tracks are proposed within existing Drainage Ditches D1 and D2, which currently collect flows from in and around the tracks, as well as flows from external areas located to the west and north of the Study Area. Additionally, an existing parking area will be expanded and converted to an asphalt storage area which will be drained by the existing parking lot's storm sewer system. As such, the approximate area of the existing property to be modified by the proposed improvements is approximately 3.0 ha (7.4 ac) and results in an increase of impervious surface area within the Study Area from approximately 60% to 65%.

To accommodate the new tracks within the existing Layover Facility, Drainage Ditches D1 and D2 will require the conversion to track area that will generally consist of half asphalt and half granular ballast.

The existing stormwater management system has sufficient excess storage capacity to accommodate the modifications around the new tracks and storage area. Therefore, no additional quantity control measures are required; however, some modifications are required to manage the quality of future flows and limit erosion.

The following element will be incorporated into the design of the proposed improvements to mitigate potential changes to stormwater flows.

4.1.4.2 Mitigation Measures for Construction Effects

It is anticipated that the mitigation provided by the erosion and sediment control measures will be sufficient to mitigate potential effects on the water balance during construction.

4.1.4.3 Potential Operations Effects

Future operations will not affect the flow of stormwater within or beyond the Study Area, as the conversion of existing and installation of new stormwater management features will account for changes to the Layover Facility footprint, and existing drains and ditches will be extended and realigned as required.

4.1.4.4 Mitigation Measures for Operational Effects

The following elements will be incorporated into the design of the proposed improvements to mitigate potential changes to stormwater flows.

Runoff associated with the modified asphalt storage area will be collected by the existing parking lot stormwater system which can be accommodated by the existing oil grit separator (OGS) unit. The need for an additional OGS unit to accommodate the increase in impervious surface area (asphalt-paved surfaces) will be confirmed during detailed design.

Runoff from the additional track areas south of culvert C1 will be passed through a new bioretention cell to achieve an enhanced level of water quality control (i.e., 80% TSS removal), as defined by the MOECC, prior to discharge into Channel Pond (A). The new bioretention cell will allow 129 m^3 of surface storage to ensure 80% TSS removal per the design requirements of Stormwater Management Planning and Design Manual (MOE, 2003). The catchment area for the bioretention cell includes both on site (approximately 3.0 ha) and external areas (approximately 1.3 ha). An OGS unit will provide pretreatment to minimize sedimentation and clogging within the bioretention cell. Engineered soil and plant matter will provide additional quality improvement.

The proposed modifications are expected to affect a retention volume of approximately 130 m3 of runoff to achieve retention of 5 mm of rainfall during a storm event. Erosion control retention will be provided in the aggregate in the proposed bioretention cell.

4.1.4.5 Net Effects

Water quality and water balance will be maintained for storm flows originating from within the Study Area during construction and operations. As such, no net effects are anticipated following the proposed design recommendations.

4.1.5 Hydrology and Groundwater

4.1.5.1 Potential Construction Effects

Construction dewatering has the potential to negatively affect water well quality and quantity depending on the location and condition of the private wells identified for this project. The need for, and extent of, private well monitoring during construction should be confirmed as part of final design, once dewatering requirements, proposed construction activity and potential zone of influence are confirmed.

Although threat vulnerability mapping has not identified significant chemical, pathogen or dense non-aqueous phase liquid (DNAPL) threats to groundwater supplies, it is important to implement mitigation measures during construction activities to protect against potential accidents and spills.

It is anticipated that the objectives of the ORMCP can be met within the Study Area, and consideration will be given to the ORMCP during the planning and design phases. The York Region Official Plan is required by the ORM *Conservation Act* to be conformant with the ORMCP. All work completed at the Site must be in compliance with the York Region Official Plan (York Region, 2016) as it relates to hydrogeological functions.

4.1.5.2 Mitigation Measures for Construction Effects

As the Site has been classified as a SGRA, the site design must account for groundwater recharge, and maintain the quality of recharge water based on the potential for additional impermeable surfaces.

The need for a pre-and post-construction water balance for the Site will be confirmed during the design phase. A water balance will enable proper plans to be developed to maintain preconstruction infiltration rates across the Site.

The York Region's Risk Management Department will be contacted to review the detailed design prior to construction.

If dewatering activities are required discharge water may be released to the environment, dependent on water quality. In this case, appropriate sediment and erosion control measures must be in place. Additional mitigation measures will be determined based on the expected volume and quality of dewatering and the discharge location. The need for and extent of water quality testing during dewatering activities will be confirmed as part of final design. A sediment and erosion control plan associated with construction dewatering and long term operation may be required upon completion of the final design.

If dewatering estimates are anticipated to exceed 50,000 L/day, a permit must be obtained from the MOECC. This permit may be in the form of a Permit to Take Water (PTTW), when dewatering estimates are greater than 400,000 L/day, or through application on the Environmental Activity and Sector Registry (EASR), where dewatering is anticipated to be greater than 50,000 L/day but less than 400,000 L/day. The need for a PTTW/EASR and associated mitigation measures will be confirmed as part of final design. If a PTTW application is required, a report will be prepared in support of the water taking application and will include:

- Details on the potential effects of the taking and the management of the discharge water
- Details on the potential effects of taking and the management of the discharge water, including targets for pollutant concentrations (typically Total Suspended Solids), how these targets will be achieved, quantity controls and monitoring requirements

The requirements of the Clean Water Act policies will be considered where applicable during the design phase of the project. In accordance with the *ORM Conservation Act*, a Site Management and Contingency Plan should be developed for any areas falling within the WHPA of a municipal system. The need for a Site Management and Contingency Plan will be confirmed as part of the

design phase. If required, this plan will be specific to any activities proposed for the Site, and be focused on the prevention of pollution with consideration of any relevant policies developed under the *Clean Water Act* (2006).

A Hazardous Materials and Fuel Handling Plan will be developed prior to construction activities to confirm that fuels and other hazardous materials are handled and stored in a safe manner. This plan will take into consideration the Study Area's location within a WHPA and associated Vulnerable Areas. Hazardous materials and fuel storage, refueling and maintenance of construction equipment will occur within the designated areas only.

4.1.5.3 Potential Operations Effects

Long-term effects to any residential wells near the Site are not anticipated, as activities in this location are already established.

The Wellhead Protection Area, Significant Groundwater Recharge Area, and Highly Vulnerable Aquifer are at risk of contamination due to spills and infiltration of contaminants that could enter the site as a result of operations. Site activities that may cause threats to the groundwater must be confirmed as a part of design activities to determine if additional mitigation measures are required under Oak Ridges Moraine Conservation Plan (ORMCP) policies.

Significant dewatering is not anticipated during operations, however if excavations encounter a high water table and groundwater dewatering is required during operations, additional mitigation measures will be necessary as described below.

Grading will be required in various areas of the Site requiring excavation or fill material. The largest proposed decrease in elevation is a proposed 4 m cut for the construction of a proposed ditch. Domestic wells to the west and northwest of the Site, which are interpreted to be upgradient, are approximately 3 m to 5 m higher than the ground surface elevation of the site. These wells are generally constructed deeper than 18 m BGS based on MOECC records. It is not expected that wells will be negatively affected by the proposed cut. As a precautionary measure a domestic well survey of residential properties within 200 m of the Site will be undertaken to identify if any other shallow domestic wells exist which may potentially be affected by the creation of the ditch.

4.1.5.4 Mitigation Measures for Operational Effects

The following measures are recommended in areas mapped as HVA or SGRA:

- The requirements of the Source Protection planning policies, as they apply to HVA or SGRA, will be considered during the design phase of the project.
- Refueling of equipment will be carried out in proper spill containment areas for SGRA and HVA, whenever possible, to minimize potential effects to groundwater quality in the event that an accidental release occurs.

- Best management protocols with respect to the handling and storage of chemicals (such as used oil, degreasers and salt) shall be implemented during construction and operation such as secondary containment of any temporary or permanent fuel storage, maintaining spill response kits onsite, and preparation of a spill response plan and proper management.
- A Risk Management Plan shall be prepared to address chemical use and storage during operations, and shall include the staff training on the use of spill kits, spill response, and secondary containment.
- Winter maintenance activities shall be undertaken by persons who are certified by Smart About Salt, and best management practices for salt and snow shall be implemented.

4.1.5.5 Net Effects

Careful management of water balance and water quality through site design elements, and limiting dewatering during construction are not anticipated to result in net effects to area wells or drinking water sources. As no soil contaminants are anticipated to be encountered during construction, and design elements will specifically address pathogens, chemicals, or DNAPL substances that could be used during operations, no net effects are anticipated to the recharge water within the Oak Ridges Moraine.

4.1.6 Soils and Geology

4.1.6.1 Potential Construction Effects

Spills and releases associated with site construction may affect on-site soil quality. In addition, stripping of the existing surficial organics and topsoil will be required as part of construction. Topsoil stripped during the site preparation program is not considered suitable for reuse in any application other than general landscaping on the site. In addition, some of the existing fill materials are not suitable to support the proposed Facility improvements. Excavated fill material will require removal or will be reused on-site, where feasible. Previous classification of on-site subsurface soils indicated that excess soils generated from future excavation activities would be classified as non-hazardous. Additional soil characterization may be required during excavation/construction activities to determine the suitability of excess soils for reuse within the Study Area. Geotechnical studies will be undertaken prior to construction to determine the presence of fill or impacted soils, and the presence of contaminated soils or groundwater. Where soils are proposed for reuse on the site, soil characterization shall determine soil quality and the potential for contaminants to migrate offsite or into Reach 1. Soil characterization will determine whether soils can be reused onsite or if they must be disposed of at an appropriate facility.

4.1.6.2 Mitigation Measures for Construction Effects

A Hazardous Materials and Fuel Handling Plan will be developed prior to construction activities to confirm that fuels and other hazardous materials are handled and stored in a safe manner. This plan will take into consideration the Study Area's location within a WHPA and associated Vulnerable Areas. Hazardous materials and fuel storage, refueling and maintenance of construction equipment will occur within the designated areas only.

The Contractor will develop, implement, and maintain a site-specific Health and Safety Plan and a Spill Prevention and Response Plan. Personnel will be trained in how to apply the plans. In addition, the plans will be reviewed on a regular basis to strengthen their effectiveness to facilitate continuous improvement. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. A spill response kit will be on-site at all times during construction. Spills will be reported to the Ontario Spills Action Centre at 1-800-268-6060.

Should visual or olfactory evidence of contamination be identified in the excess soils generated during construction activities, appropriate tests to determine contaminant levels will be undertaken, and appropriate action will be taken as per the Spill Prevention and Response Plan. If the excess soil exceeds the applicable MOECC Standard, it will be disposed of offsite at an accepting MOECC-licensed facility in accordance with the MOECC's most current guidance document entitled, *"Management of Excess Soil – A Guide for Best Management Practices"* and other applicable legislation.

Any excavated materials will be stockpiled temporarily in accordance with the MOECC's guidance document entitled, *"Management of Excess Soil – A Guide for Best Management Practices"*.

Construction of the proposed improvements is expected to generate excess soil that cannot be reused on site due to its geotechnical properties or quality of the excess soil. In all cases the on-site and off-site beneficial reuse of excess soil will be explored by the Project team and will be undertaken in accordance with Excess Soil – A Guide to Best Management Practices (MOECC, January 2014). A qualified person will oversee site work where excess soils may be generated, or where soils may be moved or stockpiled. It is noted that the MOECC is presently contemplating the creation of a Regulation to govern excess soil management. Should this Regulation come into force within the implementation of the project the requirements will be incorporated, as applicable.

Prior to construction, a Soil Management Plan will be prepared to address any contamination found during construction works. The Soils Management Plan will also address proper handling of all excess materials, including those that may be potentially contaminated, according to applicable legislation, regulations and standard procedures.

4.1.6.3 Potential Operations Effects

Spills and releases associated with site operations can affect on-site soil quality. In order to address potential soil quality effects, design, and operational procedures, including spills response protocols, will be developed as part of detailed design activities and implemented to control contaminant releases during operations. As such, no effects to on-site soils are anticipated in association with Facility operations.

4.1.6.4 Mitigation Measures for Operational Effects

A Hazardous Materials and Fuel Handling Plan will be developed to confirm that fuels and other hazardous materials are handled and stored in a safe manner. This plan will take into consideration the Study Area's location within a WHPA and associated Vulnerable Areas. Hazardous materials and fuel storage, refueling and maintenance of operation equipment will occur within the designated areas only.

An Operations Phase Spill Prevention and Response plan will be developed, implemented and maintained. Metrolinx staff will be trained in spill prevention and response procedures. The location of the Spill Prevention and Contingency Plan and associated spill response materials will be provided to staff at all times during operations.

4.1.6.5 Net Effects

Contaminated soils are not anticipated to be encountered and a contaminant management plan will be developed in advance of construction. Design elements will be implemented to control contaminant releases during operations. Therefore, no net effects to soils or geology are anticipated as a result of the construction and operation of the improved Facility.

4.1.7 Trees

4.1.7.1 Potential Construction Effects

Through review of the construction limits and proposed design, the Arborist Report identified that tree effects will be predominantly limited to trees located within the construction limit area.

Trees to be removed are predominantly newly planted trees and include species such as: Freeman Maple, Sugar Maple, Manitoba Maple, Cottonwood, White Ash, Willow spp., White Pine, and Austrian Pine. Tree removal is considered minimal: 12 trees in good condition with a DBH of 10cm, and 19 trees in good, fair, or poor condition with a DBH of less than 10cm, for a total of 31 trees to be removed from the Study Area.

Trees that will be near construction activities but will not be affected by the construction were identified to be retained. Potential effects to retained trees are soil compaction, mechanical damage and root damage.

4.1.7.2 Mitigation Measures for Construction Effects

Trees to be retained will be protected with tree protection fencing (TPF) during construction as identified on the Tree Management Plan drawings within the Arborist Report (Stantec, November 7, 2017). Trees located at a distance of 20 m or greater from construction activities were identified to be retained but TPF is not required.

Upon installation of the TPF, the Contractor shall contact a Certified Arborist to review and approve the fencing and its location prior to commencement of any site work. The protection fencing shall remain intact throughout construction activities. The fencing will be inspected weekly and, if required, repaired. The fencing shall be removed at the completion of all site works.

When the necessary project approvals are received and prior to the commencement of tree removals, all trees designated for preservation must be flagged in the field. All designated preservation areas must be left standing and undamaged during site works. Removals are to be completed outside of migratory bird nesting season from April 1 to August 31. Removals may take place during this restricted time only if the requirements of the *MBCA* are met and the site is routinely monitored for evidence of nesting activity by qualified individuals.

The tree protection zone (TPZ) is the area around a retained tree that is to be protected by TPF. The TPZ shall not be used for any type of storage (e.g., storage of debris, construction material, surplus soils, and construction equipment). No trenching or tunneling for underground services shall be located within the TPZ. Construction equipment shall not be allowed to idle or exhaust within the TPZ.

Trees shall not have any rigging cables or hardware of any sort attached or wrapped around them, nor shall any contaminants be dumped within the protective areas. Furthermore, no contaminants shall be dumped or flushed where they may come into contact with the feeder roots of the trees. In the event that roots from retained trees are exposed, or if it is necessary to remove limbs or portions of trees after construction has commenced, a Certified Arborist shall be informed and the proper actions addressing regulatory requirements shall be undertaken.

Upon completion of the tree removals, all felled trees are to be removed from the site. No lumber or brush from the clearing is to be stored on the site. Any chipping, cutting or brush cleanup are to be completed outside of the bird nesting season. These works may take place during this restricted time only if the requirements of the *MBCA* are met and nesting activity is routinely monitored by qualified individuals.

The following is the process that shall be carried out if tree removals are requested during the restricted time indicated in the *MBCA*:

- Contact a qualified individual (e.g., Wildlife Biologist) to determine if nesting birds are within the tree removal disturbance area.

- If the qualified individual has determined that there are nesting birds onsite, there will be no tree removals/chipping conducted within the boundary set out by the specialist. Tree removals can resume within this area at the end of the nesting season, August 31, or if the qualified individual has determined the birds have left.
- If the qualified individual determines there are no migratory birds nesting within the disturbance area, the contractor has 24 hours to conduct removals. At the end of 3 days, if removals and chipping is not complete, the qualified individual will return to the site and proceed with another assessment. If there are still no birds, work can resume for another 3 days. This process will continue until all removals and chipping is complete.

The Town of Whitchurch-Stouffville currently does not have any tree by-laws or policies that identify compensation requirements for the removal or injury of trees. The Region of York's Forest Conservation Bylaw would not apply to the tree effects on this project site as there are no treed areas that would meet their criteria of a forest in the by-law.

Because the Study Area is located partially within a TRCA regulated area, the TRCA will review the Arborist Report for tree effects as a part of the Voluntary Project Review, and may provide input on an appropriate compensation plan. No construction activities are proposed within the TRCA regulated area.

Metrolinx is establishing a Vegetation Compensation Protocol for Metrolinx Regional Express Rail (RER) projects and vegetation that is removed will be compensated for in accordance with the provisions of this protocol. The protocol will include standards and objectives for compensation of municipally-owned trees and privately-owned trees, and account for municipal and regional/Conservation Authority permitting and approvals requirements. Metrolinx will be looking to partner with Conservation Authorities and municipalities to develop the final compensation plan. Tree plantings will be targeted in areas away from daily operational activities and high traffic areas to the extent possible, so that the potential for damage during operations will be limited. A Landscape Plan will also be developed as part of the Vegetation Compensation Protocol.

4.1.7.3 Potential Operations Effects

Trees could be affected by ongoing operations as a result of spills, root compaction due to stray pedestrian or vehicular traffic, or deteriorated soil or water quality as a result of surface salting during the winter.

4.1.7.4 Mitigation Measures for Operational Effects

Maintenance staff will monitor all trees on the property and prune or fell hazard trees as required. Tree replacement may be required to compensate adjacent landowners if the condition of their trees deteriorates as a result of new growing conditions caused by the project (i.e., sunscaled). Metrolinx will develop options for the end use of trees removed from Metrolinx property e.g., reuse/recycling options.

4.1.7.5 Net Effects

As identified above, the Project will require the removal of 31 trees. A tree replacement strategy is proposed to address the net effect of the tree removal, and no net effects are anticipated once plantings are established.

4.2 SOCIAL AND ECONOMIC ENVIRONMENT

4.2.1 Land Use and Users

4.2.1.1 Potential Construction Effects

The Study Area is currently designated as a "Major Transit Station Area" under the Town of Whitchurch-Stouffville Official Plan, and zoned "Institutional" under the Town's Comprehensive Zoning By-Law, permitting the current use, and the future use of the Study Area. There are no proposed changes to the existing land use as a result of the proposed improvements. Therefore, there are no anticipated land use effects associated with the proposed improvements.

The proposed improvements to the Lincolnville Layover and GO Station will have minimal environmental and land use compatibility effects. The land use regime supports the existing use and expansion, which will be confirmed through the design phase of the project. The Town of Whitchurch-Stouffville has identified the need to improve access to the GO Station through various modes of transportation. Ultimately, the proposed improvements will benefit the community of Stouffville by improving connectivity and access to public transit.

During construction activities, passengers may be temporarily inconvenienced as parking facilities are reduced, site access is temporarily altered or relocated, and pedestrian access to platforms and other Station facilities are altered. As a result, some delays may occur and line-ups may be longer than usual for short periods of time. Transit users and surrounding land users may also experience temporary nuisance effects due to increased noise, vibration, dust and traffic associated with construction activities.

4.2.1.2 Mitigation Measures for Construction Effects

As no land use compatibility effects are associated with the Project, no specific mitigation measures are required. Mitigation measures related to potential nuisance effects are outlined in Sections 4.4.1 (Air Quality), 4.4.2 (Noise and Vibration) and 4.4.3 (Traffic and Transportation). Construction best management practices and monitoring will include the development of a protocol to identify and resolve issues associated with construction-related nuisance effects.

Although the Layover/Station property is not subject to municipal or conservation authority approvals, Metrolinx will conduct consultation with the Town of Whitchurch-Stouffville, the Regional Municipality of York and TRCA to offer the opportunity to review the development

plans and comment on the design. These consultation activities will allow Metrolinx to address concerns that typically would arise as a result of permitting efforts.

Traffic controls and wayfinding measures will be in place and monitored for effectiveness during construction of the proposed Project, as required. In addition, Metrolinx's community office located at 4142 Sheppard Ave. E. is open every Tuesday, Wednesday, and Thursday from 11 am to 2:30 pm for the community to visit and discuss any questions or concerns. Members of the public can also contact Metrolinx with any concerns by calling 416-202-5837 or emailing Azim.Ahmed@metrolinx.com.

The Construction Contractor will be responsible for monitoring site conditions throughout construction activities. Daily monitoring will be performed by the site supervisor to confirm site conditions (and implement mitigation measures as required).

4.2.1.3 Potential Operations Effects

There is potential for nuisance effects related to operation and maintenance of the Facility, as addressed in Sections 4.4.1 (Air Quality), 4.4.2 (Noise and Vibration) and 4.4.3 (Traffic and Transportation).

4.2.1.4 Mitigation Measures for Operations Effects

As no land use compatibility effects are associated with the Project, no specific mitigation measures are required. Mitigation measures related to potential nuisance effects are outlined in Sections 4.4.1 (Air Quality), 4.4.2 (Noise and Vibration) and 4.4.3 (Traffic and Transportation).

4.2.1.5 Net Effects

No net effects are anticipated for land use compatibility. Net effects due to potential nuisance effects are outlined in Sections 4.4.1 (Air Quality), 4.4.2 (Noise and Vibration) and 4.4.3 (Traffic and Transportation).

4.3 CULTURAL ENVIRONMENT

4.3.1 Archaeology

4.3.1.1 Potential Construction Effects

No archaeological resources were identified during the Stage 1 and Stage 2 archaeological assessments for the Study Area. Thus, in accordance with Section 2.2 and Section 7.8.4 of the MTCS' 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011), no further archaeological work is required for the Study Area. No archaeological direct or indirect effects are anticipated during construction of the proposed improvements.

4.3.1.2 Mitigation Measures for Construction Effects

No mitigation is required for archaeological resources, as there are no direct or indirect effects anticipated for this project.

Should previously undocumented archaeological resources be discovered or suspected of being discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990a). The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990a). The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (Government of Ontario 2002) requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Government and Consumer Services.

4.3.1.3 Potential Operations Effects

As no archaeological resources were identified, and operations will not require additional excavation, no archaeological effects are anticipated during the ongoing operations at the site.

4.3.1.4 Net Effects

As there were no artefacts found during investigations, and mitigation measures appropriately address potential newly-identified artefacts found during construction activities, no net effects are anticipated for archaeological resources.

4.3.2 Cultural Heritage

4.3.2.1 Potential Construction Effects

Potential effects on the five identified Conditional Heritage Properties are not anticipated because all planned improvements for the Lincolnville Layover and GO Station are expected to take place within the existing property. Since none of the identified Conditional Heritage Properties are located on the property, no direct effects to these properties are anticipated.

Construction activities will take place further than 50 m from the buildings located on the Conditional Heritage Properties, and therefore vibration effects are not anticipated. In addition, there will be construction mitigation measures for erosion control; given these measures, and the separation of the construction footprint from the Conditional Heritage Properties by municipal roads or existing infrastructure, grading effects are not anticipated. Therefore, no indirect effects on the properties are anticipated.

4.3.2.2 Mitigation Measures for Construction Effects

No mitigation measures are required for cultural heritage resources, as there are no direct or indirect effects anticipated for this project.

4.3.2.3 Potential Operations Effects

It anticipated that ongoing operations at the site will not result in higher vibrations than those currently generated at the site, or that operations will result in any off-site grading effects, and therefore cultural heritage resources are not anticipated to be affected as a result of operations. Therefore, no direct or indirect effects on the properties are anticipated as a result of operations.

4.3.2.4 Mitigation Measures for Operational Effects

No mitigation measures are required for cultural heritage resources, as there are no direct or indirect effects anticipated for this project.

4.3.2.5 Net Effects

No net effects are anticipated for cultural heritage resources, as there are no direct or indirect effects anticipated for this project.

4.4 TECHNICAL ENVIRONMENT

4.4.1 Air Quality

4.4.1.1 Potential Construction Effects

During construction activities, emissions are expected to be primarily associated with fuel combustion from construction vehicles and equipment, as well as from fugitive dust from construction activities. While these emissions have the potential to cause a nuisance to GO patrons and nearby residents, significant adverse changes in air quality are not expected. An addendum report for the relocation of the train station and parking lot will include a detailed assessment including estimation and modelling of PM_{10} and fugitive dust from re-supension at the parking lot and paved parking lot road dust.

4.4.1.2 Mitigation Measures for Construction Effects

Although future increases in emissions are not considered significant, technically and economically feasible mitigation measures to reduce or maintain air contaminant emissions during construction will be undertaken:

- Develop and implement an Air Quality Management Plan for the construction phase in accordance with industry standard.
- Wet or cover open dirt areas, unpaved roads, or material storage piles that may emit dust.

- Stabilize construction access and roadways to reduce the tracking of construction sediment (mud and dirt) onto public roads by construction equipment.
- Regularly undertake road sweeping at access and egress points.
- Use temporary barriers to prevent soil erosion and control wind flow during construction phases for locations where potential dust could be generated.
- Introduce a no-idling policy to control mobile equipment and other vehicle emissions where applicable Regulate mobile equipment to travelling speed inside the construction area to prevent excessive dust generation.
- Ensure proper maintenance of equipment and vehicles operating in work areas.
- Undertake proper planning of construction phases and effectively use construction equipment to reduce dust, including use of due diligence during material loading, unloading, and transferring activities to avoid excessive dust generation.
- Usage of non-chemical dust suppressant to reduce fugitive dust emissions from temporary unpaved roads or parking lots.

4.4.1.3 Potential Operations Effects

Future air emission sources are expected in association with an increase in vehicular traffic volumes, and an increase in the frequency of locomotives on-site. Trains are expected to startup in the morning within the Layover area, then proceed to the station site for passenger boarding.

Both train traffic and vehicle traffic in the parking lot area are expected to increase in volume; however, emission effects are not considered significant.

The predicted cumulative concentrations (i.e., maximum predicted concentration plus background levels) were compared for the existing and future scenarios. Most contaminants were predicted to be below the applicable criteria, with the exception of 24-hour and annual benzene concentrations and 24-hour and annual Benzo(a)Pyrene (B(a)P) concentrations, which exceeded the criteria for both existing and future concentrations. This is in part due to high background levels of some of these contaminants, especially B(a)P, which are commonly measured across southern Ontario.

Increases to the cumulative concentrations associated with the proposed improvements were predicted for all contaminants, ranging between a 13% increase in B(a)P to a 50% increase in NO_2.

It is anticipated that with the phase-in of newer fleets of locomotives in the future, air quality effects will be lower than those predicted due to more stringent emissions standards. The identified air quality effects are considered to be acceptable as they are within the range of established MOECC criteria. An assessment of the effects of plans for electrification of the locomotive fleet is not in the scope of this assessment.

4.4.1.4 Mitigation Measures for Operational Effects

MOECC air quality criteria will be met for all contaminants except those that already exceed the criteria due to high background levels, therefore emission mitigation measures for the operation phase are not required.

4.4.1.5 Net Effects

No net effects have been identified in association with the construction and operation of the proposed improvements. Standard mitigation measures will control dust and emissions during construction. In addition, operations are not anticipated to result in air quality exceedances to MOECC criteria, other than for substances that currently exceed MOECC criteria due to existing, high background concentrations.

4.4.2 Noise and Vibration

4.4.2.1 Potential Construction Effects

Increases in ambient noise levels at nearby receptor locations are expected in association with construction activities. These increases are anticipated to be temporary in nature and are considered to be a short-term nuisance to GO patrons and area residents. Metrolinx will endeavor to abide by existing municipal noise by-laws for the duration of construction activities whenever feasible.

4.4.2.2 Mitigation Measures for Construction Effects

Based on the results of the assessment, noise control mitigation measures are not required within the Study Area. The public may make a noise complaint under the Town of Whitchurch-Stouffville By-Law No. 2015-172-RE by contacting the Town's Customer Service Centre.

Metrolinx will adhere to the Town of Whitchurch-Stouffville By-Law 2015-172-RE (Whitchurch, 2015), and if there will be a need to complete work outside of the hours allowed in the by-law, Metrolinx shall seek the required exemptions and permits directly from the Town of Whitchurch-Stouffville in advance of any works preformed outside the allowable times.

Construction equipment will meet the sound level criteria from NPC-300, will be well maintained and operated with effective muffling devices as needed.

A Complaint Response Protocol will be put in place for the project that includes procedures for receiving and addressing construction noise complaints. This protocol will include contact information, records management and issues resolution.

4.4.2.3 Potential Operations Effects

Sources of noise associated with the improved Facility include moving and idling trains, as well as an emergency generator. Trains will move into the storage tracks for overnight parking at a slow speed to stop, or move out of the storage tracks to the station site at a slow speed to stop. Therefore, no impulsive sources are expected in association with Facility operations. The non-impulsive sources are associated with regular operation (idling and moving trains) of the Facility, as well as emergency equipment. Each train engine could idle for up to 75 minutes prior to departure in the morning and could stop as soon as they arrive in the evening.

According to the MOECC and GO Transit document entitled, 'Draft Protocol for Noise and Vibration Assessment', The Acoustic Noise Assessment predicts that noise emissions during the Lincolnville Layover and GO Station's predictable worst case operation do not exceed the MOECC and GO Transit Draft Protocol criteria (55 dBA over any hour) at the PORs. Therefore, there is no requirement for additional noise control. It is concluded that the location can be operated in compliance with MOECC's limits. No noise control is recommended for the design of the proposed improvements.

4.4.2.4 Mitigation Measures for Operational Effects

Based on the results of the assessment, noise control mitigation measures are not required within the Study Area. The public may make a noise complaint under the Town of Whitchurch-Stouffville By-Law No. 2015-172-RE by contacting the Town's Customer Service Centre.

A Complaint Response Protocol will be put in place for the project that includes procedures for receiving and addressing operation noise complaints. This protocol will include contact information, records management and issues resolution.

In addition, Metrolinx's community office located at 4142 Sheppard Ave. E. is open every Tuesday, Wednesday, and Thursday from 11 am to 2:30 pm for the community to visit and discuss any questions or concerns. Members of the public can also contact Metrolinx with any concerns by calling 416-202-5837 or emailing Azim.Ahmed@metrolinx.com.

4.4.2.5 Net Effects

Although slight noise increases are anticipated, as a result of operations changes, because they meet the MOECC criteria for noise limits, net effects are not anticipated to be noticeable to the average observer at the points of reception studied.

4.4.3 Traffic and Transportation

4.4.3.1 Potential Construction Effects

Traffic: Construction activities are anticipated to commence in 2018. As part of the proposed Facility improvements, the west portion of the PPUDO is being reconstructed, and the West Parking Area will be removed. In general, traffic effects associated with construction activities are expected to be limited. Construction activities will be carried out in stages, and will maintain vehicular access and internal circulation during construction activities. A portion of parking stalls in the West Parking Area will be lost during construction; however, the bus loop and PPUDO will be maintained throughout construction. It is anticipated that an adequate number of parking stalls will remain in the East Parking Area to accommodate projected parking demand throughout construction activities.

Existing site access (i.e., York-Durham Line on the east side of the property, and Bethesda Side Road on the south side of the property) will be maintained during construction, with the exception of an approximately 72-hour period, at which time vehicle access to the York-Durham Line entrance will be diverted to the Bethesda Side Road entrance. The study area intersections (i.e., Tenth Line and Bethesda Side Road, and York-Durham Line and Bethesda Side Road) will continue to operate at a good level of service during peak travel hours.

Transit: Local transit services do not operate out of the Study Area, and it is understood that a connection to the local transit network is not being planned. As such, construction activities are not anticipated to affect local transit routes.

Pedestrians and Cyclists: Due to the remote location of the Study Area, pedestrian and bicycle trips are not considered a common means of accessing the Lincolnville Layover and GO Station. Construction activities are not anticipated to affect local pedestrian or cyclist access to the Study Area. Existing covered bike storage and access routes will be maintained.

4.4.3.2 Mitigation Measures for Construction Effects

Construction staging will maintain vehicular access and internal circulation during construction activities. The bus loop and PPUDO will be maintained during all stages.

Pedestrian crosswalks will be provided within the Study Area to direct pedestrians from the parking lot and to the station platform.

4.4.3.3 Potential Operations Effects

Study Area intersections are expected to operate at a good level of service and within capacity during the peak morning and evening travel times in the 2019 and 2031 horizon years.

The removal of the entire West Parking Area is not anticipated to affect future parking use, as the current parking at the facility operates at approximately 40% capacity.

4.4.3.4 Mitigation Measures for Operational Effects

No operational effects mitigation measures are required for traffic and transportation resources, as there are no direct or indirect effects anticipated for this project.

4.4.3.5 Net Effects

Access to the Study Area will be maintained, and traffic will continue to operate at acceptable levels at all intersections. As such, net effects to traffic and transportation are not expected in association with the construction or operation of the improved Facility.

4.5 SUMMARY OF POTENTIAL EFFECTS, MITIGATION MEASURES, NET EFFECTS AND MONITORING REQUIREMENTS

Table 4-2 summarizes the effects, mitigation measures and proposed monitoring for the various components of the environment described in the previous sections of the EPR.

Metrolinx is responsible for confirming that the recommendations are met but may direct a third party to undertake future activities (i.e., contractor, technical consultant). The intent of this table is to provide a summary of those commitments and responsibility of third-parties where Metrolinx determines applicability. These are recommendations that will be confirmed as project planning advances.

Table 4-2: Summary of Effects, Mitigation Measures and Monitoring

Component of the Environment	Potential Effects	Mitigation Measures	Mitigation Responsibility	Net Effects	Monitoring Activity	Monitoring Responsibility
Natural Environment						
Vegetation and Vegetation Species at Risk (refer to Section 4.1.1) Construction Effects	Direct loss of vegetation where removal of vegetation is required for construction, including permanent loss of vegetation around the Lincolnville GO Station.	• Minimize the area of clearing/avoid construction activities beyond construction areas. • Remove vegetation in accordance with the guidelines indicated in the *Migratory Bird Conservation Act*. • Preserve local seed banks if appropriate, use native seed mixes for restoration efforts, and store and reuse existing topsoil where appropriate. • Restore areas disturbed during construction immediately following construction activities. • Implement measures to limit erosion during construction activities.	Metrolinx/ Contractor	There will be a minor loss of vegetated areas following recommended mitigation measures.	Monitor revegetated areas annually for two years and implement adaptive management to correct deficiencies. The success of compensation vegetation will be monitored in accordance with the Vegetation Compensation Protocol for Metrolinx Projects.	Contractor/ Consultant
Vegetation and Vegetation Species at Risk (refer to Section 4.1.1) Operational Effects	Operational changes at the site are not anticipated to result in significant effects from the loss of vegetation cover.	• Adaptive management strategies may include supplemental plantings, and/or control of unacceptable species.	Metrolinx/ Contractor	There will be a minor loss of vegetated areas following recommended mitigation measures.	Monitor revegetated areas annually for two years and implement adaptive management to correct deficiencies. The success of compensation vegetation will be monitored in accordance with the Vegetation Compensation Protocol for Metrolinx Projects.	Metrolinx/ Contractor
Migratory Birds (refer to Section 4.1.2) Construction Effects	Although no nests or suitable habitat was found within the Study Area, if nests are established before construction activities commence, construction could disturb or destroy nests during clearing of vegetation and removal of structures.	• Avoid vegetation (trees, shrubs and herbaceous vegetation) clearing/removal and structure removal during primary nesting period (April 1 - August 31). • If construction is required during the primary nesting period, an avian biologist must be retained to conduct nest sweeps of the area prior to works within 24 hours of works occurring. • If no nests or signs of nesting are found, clearing or other activities may proceed in the area searched.	Metrolinx/ Contractor / Consultant	No net effects following recommended mitigation and potential monitoring measures.	If nests are found, an Environmental Inspector or qualified biologist will regularly monitor construction to confirm that activities do not encroach into nesting areas or disturb active nesting sites.	Consultant (Environmental Inspector)

Table 4-2: Summary of Effects, Mitigation Measures and Monitoring

Component of the Environment	Potential Effects	Mitigation Measures	Mitigation Responsibility	Net Effects	Monitoring Activity	Monitoring Responsibility
		• At any time of the year, should a nesting bird be present when construction activity is under way, work that could disrupt nesting activities in the area must discontinue and a biologist with avian expertise will be required to develop a site-specific mitigation plan that meets all regulatory requirements.				
Migratory Birds (refer to Section 4.1.2) Operational Effects	It is not anticipated that migratory birds will be affected by the proposed improvements as there are no significant changes to operational procedures proposed.	• No mitigation measures are required for the operational phase.	Metrolinx/ Consultant	No net effects following recommended mitigation and potential monitoring measures.	No monitoring activities are required.	Not applicable.
Bird Species at Risk – Bobolink and Eastern Meadowlark (refer to Section 4.1.2) Construction Effects	Although individuals were not observed breeding at the site, construction may disturb or destroy nests during clearing of vegetation and removal of buildings.	• Mitigation measures provided for migratory birds are also applicable to bird SAR.	Metrolinx/ Contractor / Consultant	No net effects following recommended mitigation and potential monitoring measures.	Monitoring activities will be developed in accordance with any registration and/or permitting requirements under the ESA, 2007.	Consultant (Environmental Inspector)
Bird Species at Risk – Bobolink and Eastern Meadowlark (refer to Section 4.1.2) Operational Effects	It is not anticipated that Bobolink and Eastern Meadowlark will be affected by the proposed improvements as there are no significant changes to operational procedures proposed.	• No mitigation measures are required for the operational phase.	Metrolinx/ Consultant	No net effects following recommended mitigation and potential monitoring measures.	No monitoring activities are required.	Not applicable.
Bird Species at Risk – Barn Swallow (refer to Section 4.1.2) Construction Effects	Suitable breeding habitat does not exist for this species. Construction may disturb or destroy nests during clearing of vegetation and removal of buildings.	• Mitigation measures provided for migratory birds are also applicable to bird SAR.	Metrolinx/ Contractor / Consultant	o net effects following recommended mitigation and potential monitoring measures.	Monitoring activities will be developed in accordance with any registration and/or permitting requirements under the ESA, 2007.	Consultant (Environmental Inspector)
Bird Species at Risk – Barn Swallow (refer to Section 4.1.2) Operational Effects	It is not anticipated that Barn Swallow will be affected by the proposed improvements as there are no significant changes to operational procedures proposed.	• No mitigation measures are required for the operational phase.	Metrolinx/ Consultant	No net effects following recommended mitigation and potential monitoring measures.	No monitoring activities are required.	Not applicable.
Potential Turtle Wintering Area and slow-moving and ground-dwelling Wildlife (refer to Section 4.1.2) Construction Effects	Slow-moving and ground-dwelling wildlife could be encountered in work areas during construction, including reptiles (snakes and turtles) and amphibians.	• Mitigation measures for Vegetation will also mitigate the effects on slow-moving and ground-dwelling wildlife. • Regular visual searches for reptiles (turtles and snakes) are recommended.	Metrolinx/ Consultant (Detailed Design) / Contractor	No net effects following recommended mitigation and monitoring measures.	An Environmental Inspector will regularly monitor that activities are conducted in accordance with mitigation plans and work is conducted from within the specified work zones, where applicable.	Consultant (Environmental inspector)

Table 4-2: Summary of Effects, Mitigation Measures and Monitoring

Component of the Environment	Potential Effects	Mitigation Measures	Mitigation Responsibility	Net Effects	Monitoring Activity	Monitoring Responsibility
		• If reptiles are encountered during construction, they should be permitted to flee the area, or moved outside the construction area in consultation with a qualified biologist. • Any observations of SAR should be reported to MNRF within 48 hours			Compensation vegetation will be monitored in accordance with the Vegetation Compensation Protocol for Metrolinx Projects.	
Potential Turtle Wintering Area and slow-moving and ground-dwelling Wildlife (refer to Section 4.1.2) Operational Effects	It is not anticipated that slow-moving/ground dwelling wildlife will be significantly affected by the proposed improvements at the site, as there are no significant changes to operational procedures proposed.	• No mitigation measures are required for the operational phase.	Metrolinx/ Consultant	No net effects following recommended mitigation and potential monitoring measures.	No monitoring activities are required.	Not applicable.
Surface Water and Aquatic Environment (refer to Section 4.1.3) Construction Effects	Site grading and site water management could alter flow regimes of Reach 1 and negatively affect downstream habitat. Erosion and downstream sediment transport via Reach 1 could affect fish habitat	• Time work on Reach 1 to meet July 1 to September 15 coldwater fisheries timing window. • Prevent sediment from entering waterbodies. • Reducing the area and duration of soil exposure. • Reduce runoff velocities, and divert runoff away from exposed soils • Implement debris/waste containment and removal. • Retain existing vegetation where feasible. • Complete post-construction site restoration and restore disturbed substrate areas to pre-construction conditions to the extent possible. • A Hazardous Materials and Fuel Handling Plan will be developed before the construction phase begins. • All toxic material will be stored in secure enclosures away from sensitive areas to prevent leaks and spills. • Spill cleanup materials will be maintained at the work site. • Contaminant spills will be reported as per the *Environmental Protection Act*, 1990.	Consultant (Detailed Design)/ Contractor	No net effects following recommended mitigation measures.	An Environmental Inspector will conduct regular inspections to monitor that construction and restoration activities are conducted in accordance with mitigation plans and all work is conducted from within the specified work zones, where applicable.	Consultant (Environmental Inspector)

Table 4-2: Summary of Effects, Mitigation Measures and Monitoring

Component of the Environment	Potential Effects	Mitigation Measures	Mitigation Responsibility	Net Effects	Monitoring Activity	Monitoring Responsibility
Surface Water and Aquatic Environment (refer to Section 4.1.3) Operational Effects	Operational effects are not anticipated to affect Reach 1.	• A Hazardous Materials and Fuel Handling Plan will be developed before the construction phase begins. • All toxic material will be stored in secure enclosures away from sensitive areas to prevent leaks and spills. • Spill cleanup materials will be maintained at the work site. • Contaminant spills will be reported as per the *Environmental Protection Act*, 1990.	Consultant (Detailed Design)/ Contractor	No net effects following recommended mitigation measures.	No monitoring activities are required.	Not applicable.
Stormwater management (refer to Section 4.1.4) Construction Effects	An increase in the impervious surface could affect water balance.	• The MOECC's Guideline B-6 Guidelines for Evaluating Construction Activities Impacting on Water Resources will be referenced when developing erosion and sediment control plans. • Design of new or altered features to take into account additional impervious surfaces and potential changes to runoff quantity and quality. • Runoff associated with the modified asphalt storage area will be collected by the existing parking lot stormwater system. • Runoff from the additional track areas will be passed through a new bioretention cell to achieve an enhanced level of water quality. • An Erosion and Sediment Control Plan (ESC) will be developed prior to construction in consultation with the TRCA.	Consultant (Detailed Design)/ Contractor	Water quality and water balance will be maintained for storm flows. No net effects following design criteria.	No monitoring activities are required.	Not applicable.
Stormwater management (refer to Section 4.1.4) Operational Effects	Future operations will not affect the flow of stormwater within or beyond the Study Area.	• Runoff from the additional track areas will be passed through a new bioretention cell to achieve an enhanced level of water quality. • A water balance analysis will be conducted for the areas of the site where modifications are proposed.	Consultant (Detailed Design)/ Contractor	Water quality and water balance will be maintained for storm flows. No net effects following design criteria.	No monitoring activities are required.	Not applicable.

Table 4-2: Summary of Effects, Mitigation Measures and Monitoring

Component of the Environment	Potential Effects	Mitigation Measures	Mitigation Responsibility	Net Effects	Monitoring Activity	Monitoring Responsibility
Groundwater Quality and Quantity (refer to Section 4.1.5) Construction Effects	Construction dewatering and final end uses of the Site may negatively affect water well quality and quantity of private wells. Construction has the potential for accidents and spills.	• An Environmental Mitigation and Monitoring Plan will be developed prior to construction. • Where dewatering will occur and discharge is proposed to the natural environment, appropriate sediment and erosion control measures should be in place. A Permit to Take Water or an EASR may be required. • The need for and extent of private well water quality testing, sediment and erosion control, active drainage, and a permit to take water will be confirmed as part of final design, if required. • Use of a Contractor who is certified by Smart About Salt, and best management practices for salt and snow shall be implemented.	Consultant (Detailed Design)/ Contractor	No net effects following recommended mitigation measures to limit construction dewatering and manage spills risks.	An Environmental Inspector will conduct regular inspections, to confirm that the Hazardous Materials and Fuel Handling Plan is followed.	Consultant (Environmental Inspector)
Groundwater Quality and Quantity (refer to Section 4.1.5) Operational Effects	The surrounding groundwater is at risk of contamination due to spills and infiltration of contaminants that could enter the site as a result of operations. Operational dewatering is not anticipated, however could be required if excavations encounter a high water table.	• The requirements of the Clean Water Act policies, as they apply to HVA or SGRA, should be considered during the design phase of the project. • Refueling of equipment will be carried out in proper spill containment areas whenever possible. • Best management protocols should be implemented during construction and operation such as a Risk Management Plan, secondary containment of any temporary or permanent fuel storage, maintaining spill response kits onsite, and preparation of a spill response plan and proper management. • Winter maintenance activities shall be undertaken by persons who are certified by Smart About Salt.	Consultant (Detailed Design)/ Contractor	No net effects following recommended mitigation measures to limit operational dewatering and manage spills risks.	An Environmental Inspector will conduct regular inspections, to confirm that the Hazardous Materials and Fuel Handling Plan is followed.	Consultant (Environmental Inspector)

Table 4-2: Summary of Effects, Mitigation Measures and Monitoring

Component of the Environment	Potential Effects	Mitigation Measures	Mitigation Responsibility	Net Effects	Monitoring Activity	Monitoring Responsibility
Significant Groundwater Recharge Area (SGRA) and Highly Vulnerable Aquifer (HVA) (refer to Section 4.1.5) Construction Effects	Construction dewatering and final end uses of the Site could negatively affect groundwater quality and quantity.	• The requirements of the Clean Water Act policies, as they apply to HVA or SGRA, should be considered during the design phase of the project. • Refueling of equipment will be carried out in proper spill containment areas whenever possible. • Best management protocols should be implemented during construction and operation such as a Risk Management Plan, secondary containment of any temporary or permanent fuel storage, maintaining spill response kits onsite, and preparation of a spill response plan and proper management. • The need for a pre-and post-construction water balance for the Site should be confirmed during the design phase.	Consultant (Detailed Design)/ Contractor	TBD	An Environmental Inspector will conduct regular inspections, to confirm that the Hazardous Materials and Fuel Handling Plan is followed.	Consultant (Environmental Inspector)
Significant Groundwater Recharge Area (SGRA) and Highly Vulnerable Aquifer (HVA) (refer to Section 4.15) Operational Effects	The surrounding groundwater is at risk of contamination due to spills and infiltration of contaminants that could enter the site as a result of operations. Operational dewatering is not anticipated, however could be required if excavations encounter a high water table.	• The requirements of the Clean Water Act policies, as they apply to HVA or SGRA, should be considered during the design phase of the project. • Refueling of equipment will be carried out in proper spill containment areas whenever possible. • Best management protocols should be implemented during construction and operation such as a Risk Management Plan, secondary containment of any temporary or permanent fuel storage, maintaining spill response kits onsite, and preparation of a spill response plan and proper management. • Winter maintenance activities shall be undertaken by persons who are certified by Smart About Salt.	Consultant (Detailed Design)/ Contractor	No net effects following recommended mitigation measures to limit operational dewatering and manage spills risks.	An Environmental Inspector will conduct regular inspections, to confirm that the Hazardous Materials and Fuel Handling Plan is followed.	Consultant (Environmental Inspector)

Table 4-2: Summary of Effects, Mitigation Measures and Monitoring

Component of the Environment	Potential Effects	Mitigation Measures	Mitigation Responsibility	Net Effects	Monitoring Activity	Monitoring Responsibility
Well Head Protection Area D (WHPA-D) of the Whitchurch-Stouffville Water Supply System (refer to Section 4.1.5) Construction Effects	Spills of DNAPL or other listed chemicals at the site could negatively affect municipal water supplies.	• The York Region's Risk Management Department will be contacted to make a detailed review of the design prior to construction. • In accordance with the ORM *Conservation Act*, a Site Management and Contingency Plan should be developed for any areas falling within the WHPA of a municipal system. • Storage requirements for the existing rail use on the site should be discussed with the Ministry to determine best management practices for existing industrial uses within highly restricted zones such as this one. • A Hazardous Materials and Fuel Handling Plan will be developed before the construction phase. • An emergency response and communications plan, including a spill response plan, will be developed and followed throughout the operation. • Hazardous material and fuel storage, refueling and maintenance of trains and equipment will occur within designated areas only. • Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. • Winter maintenance activities will be undertaken by persons certified by Smart About Salt.	Consultant (Detailed Design)/ Contractor	TBD	An Environmental Inspector will conduct regular inspections, to confirm that the Hazardous Materials and Fuel Handling Plan is followed.	Construction Contractor (Environmental Inspector)
Well Head Protection Area D (WHPA-D) of the Whitchurch-Stouffville Water Supply System (refer to Section 4.1.5) Operational Effects	The surrounding groundwater is at risk of contamination due to spills and infiltration of contaminants that could enter the site as a result of operations. Operational dewatering is not anticipated, however could be required if excavations encounter a high water table.	• The requirements of the Clean Water Act policies, as they apply to HVA or SGRA, should be considered during the design phase of the project. • Refueling of equipment will be carried out in proper spill containment areas whenever possible.	Consultant (Detailed Design)/ Contractor	No net effects following recommended mitigation measures to limit operational dewatering and manage spills risks.	An Environmental Inspector will conduct regular inspections, to confirm that the Hazardous Materials and Fuel Handling Plan is followed.	Consultant (Environmental Inspector)

Table 4-2: Summary of Effects, Mitigation Measures and Monitoring

Component of the Environment	Potential Effects	Mitigation Measures	Mitigation Responsibility	Net Effects	Monitoring Activity	Monitoring Responsibility
		• Best management protocols should be implemented during construction and operation such as a Risk Management Plan, secondary containment of any temporary or permanent fuel storage, maintaining spill response kits onsite, and preparation of a spill response plan and proper management. • Winter maintenance activities shall be undertaken by persons who are certified by Smart About Salt.				
Soil Quality (refer to Section 4.1.6) Construction Effects	Potential for excess soil or other construction waste to be generated and require management including re-use on site, re-use off-site or disposal.	• A Hazardous Materials and Fuel Handling plan will be developed prior to construction activities to confirm that fuels and other hazardous materials are handled and stored in a safe manner. • All excavated materials will be stockpiled temporarily in accordance with MOECC's guidelines. • A Soil Management Plan will be prepared by a qualified person prior to construction to address any contamination found during construction work and the management of all excess soils. • The construction contractor will be required to develop and implement a site-specific Health and Safety Plan and a Spill Prevention and Contingency Plan. • An Excess Materials Management Plan will be developed to address handling of excess materials and will have regard to the MOECC's 2014 *Excess Soil – A Guide to best Management Practices.* • Geotechnical studies will be undertaken prior to construction to determine the presence of fill or impacted soils, and the presence of contaminated soils or groundwater.	Consultant (Detailed Design)/ Contractor	No net effects are anticipated as a result of construction and operation.	Should visual or olfactory evidence of contamination be identified in the excess soils generated during construction activities, appropriate tests to determine contaminant levels will be undertaken. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. A spill response kit will be on-site at all times during construction. Spills will be reported to the Ontario Spills Action Centre at 1-800-268-6060.	Construction Contractor (Environmental Inspector)

Table 4-2: Summary of Effects, Mitigation Measures and Monitoring

Component of the Environment	Potential Effects	Mitigation Measures	Mitigation Responsibility	Net Effects	Monitoring Activity	Monitoring Responsibility
Soil Quality (refer to Section 4.1.6) Operational Effects	Potential for spills and releases associated with site construction and site operations to affect on-site soil quality.	• A Hazardous Materials and Fuel Handling Plan will be developed to confirm that fuels and other hazardous materials are handled and stored in a safe manner. • An Operations Phase Spill Prevention and Contingency Plan will be developed, implemented and maintained.	Consultant (Detailed Design)/ Contractor Metrolinx	No net effects are anticipated as a result of construction and operation.	Should visual or olfactory evidence of contamination be identified in the excess soils generated during operation activities, appropriate tests to determine contaminant levels will be undertaken. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. A spill response kit will be on-site at all times during construction. Spills will be reported to the Ontario Spills Action Centre at 1-800-268-6060.	Construction Contractor (Environmental Inspector)
Tree Inventory (refer to Section 4.1.7) Construction Effects	Trees to be disturbed and removed during construction activities	• Standard tree protection fencing and timing for vegetation removal – no works inside tree protection fencing. • Clearly mark and protect trees not designated for removal. • Construction equipment will not be allowed to idle or exhaust within the TPZ. • Trees shall not have any rigging cables or hardware of any sort attached or wrapped around them, nor shall any contaminants be dumped within the protected areas. • All felled trees are to be removed from the site, no lumber or brush from the clearing is to be stored on the site. • Construction best practices to limit spills and compaction from affecting roots of trees to be retained. • Metrolinx will coordinate tree replacement/ compensation with public agencies through implementation of the Vegetation Compensation Protocol and Landscape Plan. • The required process will be carried out if tree removal are requested during restricted time indicated in the *Migratory Birds Convention Act*.	Consultant (Detailed Design)/ Contractor	The Project will require the removal of 31 trees. Limited net effects to be compensated for through the implementation of the Metrolinx Vegetation Compensation Protocol.	Tree protection fencing shall be inspected periodically during construction activities and repaired as required. Maintenance staff will monitor all trees and undertake required maintenance throughout operations.	Construction Contractor (Environmental Inspector) Metrolinx maintenance staff

Table 4-2: Summary of Effects, Mitigation Measures and Monitoring

Component of the Environment	Potential Effects	Mitigation Measures	Mitigation Responsibility	Net Effects	Monitoring Activity	Monitoring Responsibility
Tree Inventory (refer to Section 4.1.7) Operational Effects	Trees could be affected by ongoing operations as a result of spills, root compaction due to stray pedestrian or vehicular traffic, or deteriorated soil or water quality as a result of surface salting during the winter.	• Metrolinx will coordinate tree replacement/ compensation with public agencies through implementation of the Vegetation Compensation Protocol. • The required process will be carried out if tree removal are requested during restricted time indicated in the Migratory Birds Convention Act.	Consultant (Detailed Design)/ Contractor	Limited net effects to be compensated for through the implementation of the Metrolinx Vegetation Compensation Protocol.	Maintenance staff will monitor all trees during the first year of operation and undertake required maintenance, as required.	Construction Contractor (Environmental Inspector) Metrolinx maintenance staff
Existing Land Uses (refer to Section 4.2.1) Construction Effects	Temporary disruption to site users during construction activities.	• Signage and wayfinding aides during construction to help guide vehicular, cyclist, and pedestrian traffic around construction areas. • Provide advanced notice of construction activities and construction staging to help users plan their trip. • Traffic controls and wayfinding measures will be in place and monitored for effectiveness during construction, as required. • Members of the public can contact Metrolinx with any concerns.	Consultant (Detailed Design)/ Contractor	Nuisance effects during construction will be temporary.	Construction activities will be monitored by a qualified Environmental Inspector	Consultant (Environmental Inspector)
Existing Land Uses (refer to Section 4.2.1) Operational Effects	There is potential for nuisance effects related to operation and maintenance of the Facility.	• No land use compatibility effects are associated with the Project, no specific mitigation measures are required. • Mitigation measures related to potential nuisance effects are outlined in Air Quality, Noise and Vibration and Traffic and Transportation.	Not applicable.	No net effects.	Construction activities will be monitored by a qualified Environmental Inspector	Contractor/ Consultant (Environmental Inspector)
Archaeological Resources (refer to Section 4.3.1) Construction Effects	No archaeological artefacts found. No effects anticipated.	• No mitigation measures required.	Not applicable.	No net effects.	No monitoring activities are required.	Not applicable.
Archaeological Resources (refer to Section 4.3.1) Operational Effects	No archaeological artefacts found. No effects anticipated.	• No mitigation measures required.	Not applicable.	No net effects.	No monitoring activities are required.	Not applicable.
Built Heritage (refer to Section 4.3.2) Construction Effects	No effects anticipated on Conditional Heritage Properties.	• No mitigation measures required.	Not applicable.	No net effects.	No monitoring activities are required.	Not applicable.

Table 4-2: Summary of Effects, Mitigation Measures and Monitoring

Component of the Environment	Potential Effects	Mitigation Measures	Mitigation Responsibility	Net Effects	Monitoring Activity	Monitoring Responsibility
Built Heritage (refer to Section 4.3.2) Operational Effects	No effects anticipated on Conditional Heritage Properties.	• No mitigation measures required.	Not applicable.	No net effects.	No monitoring activities are required.	Not applicable.
Technical Environment						
Air Quality (refer to Section 4.4.1) Construction Effects	Emissions from fuel combustion and fugitive dust during construction activities could temporarily decrease air quality.	• Develop and implement an Air Quality Management Plan for the construction phase to address dust, idling vehicles, and other emissions sources. • Use temporary barriers to prevent soil erosion and control wind flow. • Introduce no-idling policy to control mobile equipment and other vehicle emissions. • Ensure proper maintenance of equipment and vehicles operating in work areas. • Proper planning of construction phases and effective use of construction equipment to reduce dust and emissions. • A non-chemical dust suppressant, such as Gorilla-Snot will be used during excavation/construction activities.	Consultant (Detailed Design)/ Contractor	No net effects following recommended construction best management practices mitigation measures. Operations effects within range of allowable effects under MOECC air quality requirements.	No monitoring activities are required. Construction activities will be monitored by a qualified Environmental Inspector	Not applicable. Consultant (Environmental Inspector)
Air Quality (refer to Section 4.4.1) Operational Effects	Increase in volumes of train and vehicular traffic may decrease air quality, but will remain within MOECC allowable air quality limits.	• No mitigation measures required.	Not applicable.	No net effects.	No monitoring activities are required.	Not applicable.
Noise (refer to Section 4.4.2) Construction Effects	The project is compliant with MOECC limits without the requirement for noise control. No noise control is recommended for this project.	• The public may make a noise complaint under the Town of Whitchurch-Stouffville By-Law No. 2015-172-RE by contacting the Town's Customer Service Centre. • Metrolinx will adhere to the Town of Whitchurch-Stouffville By-Law 2015-172-RE. • Construction equipment will meet the sound level criteria from NPC-300, will be well maintained and operated with effective muffling devices as needed. • A protocol will be developed to identify and resolve issues associated with construction-related nuisance effects.	Metrolinx / Contractor	No net effects	Construction equipment will be monitored for excess noise.	Construction Contractor (Environmental Inspector)

Table4-2: Summary of Effects, Mitigation Measures and Monitoring

Component of the Environment	Potential Effects	Mitigation Measures	Mitigation Responsibility	Net Effects	Monitoring Activity	Monitoring Responsibility
Noise (refer to Section 4.4.2) Operational Effects	The project is compliant with MOECC limits without the requirement for noise control. No noise control is recommended for this project.	• The public may make a noise complaint under the Town of Whitchurch-Stouffville By-Law No. 2015-172-RE by contacting the Town's Customer Service Centre. • Metrolinx will adhere to the Town of Whitchurch-Stouffville By-Law 2015-172-RE. • A protocol will be developed to identify and resolve issues associated with operation-related nuisance effects.	Metrolinx / Contractor	No net effects	No monitoring activities are required.	Not applicable.
Vehicular Traffic (refer to Section 4.4.3) Construction Effects	Temporary disturbance to vehicular traffic and parking areas during construction.	• Construction staging will maintain vehicular access and internal circulation at all times. • The bus loop and PPUDO will be maintained during all stages.	Consultant (Detailed Design)/ Contractor	Temporary effects during construction can be mitigated by following recommended mitigation measures.	Construction activities will be monitored by a qualified Environmental Inspector.	Contractor / Consultant (Environmental Inspector)
Vehicular Traffic (refer to Section 4.4.3) Operational Effects	No effects anticipated on vehicular traffic during operation.	• No mitigation measures required.	Not applicable.	No net effects.	No monitoring activities are required.	Not applicable.

5.0 CLIMATE CHANGE CONSIDERATIONS

Climate change is usually associated with any significant change in long-term weather patterns. Changes in the composition of the atmosphere include processes resulting in the alteration of global temperature and precipitation. These processes can ultimately lead to increased occurrence of extreme weather events such as floods, droughts, ice storms and heat waves. In an effort to mitigate the effect climate change can have on the environment, government agencies have created strategies and guidelines to reduce the rate of greenhouse gas (GHG) emissions into the atmosphere, including carbon dioxide.

The Government of Ontario has committed to reducing GHG emissions to 80% below 1990 levels by 2050 and has established two mid-term targets of 15% below 1990 levels by 2020 and 37% below 1990 levels by 2030 (MOECC, 2015).

The Ministry of Environment and Climate Change (MOECC) has developed a Climate Change Strategy (MOECC, 2015), which outlines the five areas that Ontario will focus on in order to achieve the GHG reduction targets, including:

1. A prosperous low-carbon economy with world-leading innovation, science and technology.
2. Government collaboration and leadership.
3. A resource-efficient, high-productivity society.
4. Reducing GHG emissions across sectors.
5. Adapting and thriving in a changing climate.

Metrolinx, an agency of the Province of Ontario, is committed to ensuring that the transit network, including new facilities, will have a low-carbon footprint and contribute to a clean and healthy environment for future generations (Metrolinx, June 2013), goals which are aligned with the MOECC Climate Change Strategy. Metrolinx will also align with the spirit of Bill 6, an Act to enact the *Infrastructure for Jobs and Prosperity Act* (2015). Section 3.11 of Bill 6 states that:

> *"Infrastructure planning and investment should minimize the impact of infrastructure on the environment and respect and help maintain ecological and biological diversity, and infrastructure should be designed to be resilient to the effects of climate change."*

5.1 SUSTAINABILITY

Metrolinx has developed a Five-Year Sustainability Strategy 2013-2018 that outlines goals regarding how Metrolinx will implement a plan to meet the needs of the public and continue to improve the transportation system. Metrolinx's Sustainability Strategy is based on the International Association of Public Transport (UITP) and the American Public Transportation Association (APTA) sustainability commitments. These associations aim to enhance quality of life and promote sustainable transportation in urban areas. Both of these programs support

becoming more sustainable by following a framework of requirements and measuring progress year over year. Deliverables listed in the Five-Year Strategy include:

- Establish an executive-sponsored corporate Sustainability Framework by 2015, addressing energy use, emissions and environmental management, and develop and implement workplans and supporting policies for priority initiatives.
- Attain APTA Sustainability Commitment Gold status by 2017 and UITP Sustainability Charter Full Signatory status by 2016.
- Establish a corporate Climate Adaptation Plan covering facilities, practices and protocols, by 2018.
- Introduce cleaner twin-engine Tier 4 locomotives to the GO Transit fleet in 2016, beginning an ongoing conversion program.

The strategies outlined in the UITP and APTA are consistent with the five MOECC Climate Change Strategy areas, as outlined above. APTA works to improve and advance public transportation and has set Transit Sustainability Guidelines. The guidelines outline emission and pollution control as well as how to efficiently use resources. UITP desires to improve quality of life by supporting and working to advance sustainable transportation in urban areas. UITP has written a Climate Action with Public Transport report. The report discusses recommendations to further mitigate climate change through the use of public transit. Some of the recommendations include having stronger international and local policies and bridging the financial gap between sustainable technologies and non-renewable resources. The UITP and APTA guidelines will help Metrolinx move towards the vision of achieving Ontario's Climate Change Strategy.

In planning and implementing the Project and additional initiatives to support RER on the Stouffville rail corridor, Metrolinx will continue to apply the key components of the Sustainability Strategy as applicable. This will include consideration of how future improvements to train service to mitigate climate change effects can be accommodated as part of the current improvements, and looking for opportunities to support sustainable transportation in project design.

5.2 EFFECT OF THE PROJECT ON CLIMATE CHANGE

The effect of the Project on climate change has been considered, specifically on how the Project would reduce the natural environment's ability to remove carbon from the atmosphere, and how the Project may support efforts to reduce GHG emissions.

5.2.1 Transit

The implementation of the proposed improvements to the Lincolnville Layover and GO Station will support improved transit services, thereby promoting public transportation and transit

supportive neighbourhoods. Public transportation is a beneficial service that can reduce traffic congestion and reduce the need for new road infrastructure, as well as reduce carbon emissions and air quality concerns associated with automobile use. Improvements to transit will decrease the average commute time, even with an increasing population (Metrolinx 2008). Consequently, more people will use public transportation, which will result in a decrease to vehicular GHGs emitted per resident, leaving the air cleaner (Metrolinx 2008).

5.2.2 Vegetation

As noted in the Tree Inventory Plan (see Appendix A6 of this report), the construction will require the removal of trees and vegetation, which will result in a temporary loss of an existing carbon sink within the local environment of the Assessment Area. The majority of the trees to be removed are Manitoba Maple, a short-lived species.

Measures for the compensation of existing tree loss and replacement have been specified in the Arborist Report. The location and species of trees to be planted will be developed during the detailed design phase of the Project.

5.3 EFFECTS OF CLIMATE CHANGE ON THE PROJECT

Consideration has been given to how the changing climate has the potential to affect the Project and the proposed infrastructure for both the present (pre-construction and construction phases of the Project), as well as the future long-term operation of the Lincolnville Layover and GO Station.

5.3.1 Stormwater Management (SWM)

Precipitation, whether it is rainfall, snowfall, or other forms of frozen/liquid water, is the key climate and weather-related variable of concern in SWM. As a result of climate change, storm events are predicted to become more intense, which can result in larger volumes of precipitation at one time. Other climate variables such as temperature are major inputs to evaporation and snowmelt processes. Increases in temperature are likely to affect precipitation and snowmelt runoff volumes discharged to storm drainage systems, however, temperature is not considered in storm sewer design.

Current SWM practices include the use of Intensity-Duration-Frequency (IDF) data and design storms (e.g., Chicago Storm, Regional Storm) to design and size SWM features. A detailed SWM Plan will be implemented during the detailed design phase of the Project so that runoff from rainfall addresses the Town of Whitchurch-Stouffville's Sustainable Development Guidelines (January 2012). The SWM design may incorporate Low Impact Development (LID) measures, as appropriate, as LID technology has been successfully implemented in past projects.

5.3.2 Erosion and Sediment Control

An increase in storm intensity can make erosion and sedimentation more likely in the Study Area, especially during construction. Erosion and sediment control (ESC) measures will be implemented during the construction phase of the Project so that stormwater runoff entering area sewers is not laden with sediment. The Greater Golden Horseshoe Area Conservation Authorities (GGHACA) Erosion and Sediment Control Guidelines for Urban Construction (December 2006) will be followed so that the proper ESC measures are installed during construction and monitored frequently, especially following heavy precipitation events, to identify damage and maintain or repair the controls as needed.

6.0 CONSULTATION PROCESS

In accordance with Section 8 of *Ontario Regulation 231/08*, this section summarizes the consultation activities carried out with project stakeholders (public, property owners, review agencies, elected officials, and interested groups) and Indigenous communities during the course of the Project, including a summary of feedback and comments received and how they were considered. A Project Contact List (Appendix B) was continually updated in response to Project feedback and was utilized to inform stakeholders of key Project milestones.

6.1 CONSULTATION OVERVIEW

6.1.1 Approach to Consultation

The objectives for the consultation program were openness, transparency, access to information, early and ongoing opportunities for input, responsiveness, accountability, and accessible and accurate documentation. These objectives support the purpose of the TPAP, which is to support the design and delivery of a transit solution in a manner that addresses the objectives of provincial and regional transit policy, while limiting negative environmental effects.

Focused consultation activities have been tailored to meet the individual needs of the different groups being consulted. Different consultation activities provided the types of information requested by the different groups. For example, direct meetings with government review agencies allowed for a detailed review of specific design components that would require government permits prior to construction; while a public meeting allowed for a broad overview of the project and an opportunity for other stakeholders and Indigenous communities to ask specific questions of the project team based on their particular interests.

Feedback was sought throughout the Pre-Planning and TPAP stages of the study. Consultation activities included meeting review agencies and elected officials on an as-needed basis in advance of, and throughout the duration of the TPAP study, as well as early consultation prior to the formal initiation of the TPAP, and final consultation as part of the regulated process following the Notice of Commencement.

A contact list was developed, and updated throughout the Pre-Planning and TPAP stages of the study to identify interested parties. The following parties were included in the contact list:

- Government agencies and entities: contacted to confirm if they have an interest in the Project. Following initial contact, detailed technical information was provided on request for the agencies and entities to confirm that regulatory requirements have been met and to identify permits and approvals that are required.
- Elected officials: contacted as key stakeholders who understand the perspectives of and represent the constituency, and can communicate project updates to interested individuals who contact them for more information.

- Members of the public, special interest groups, property owners, utilities and the business community: Members of the public were consulted through a direct mail-out of project information delivered via Canada Post mail drop distribution to approximately 7,500 residents throughout the Stouffville, Claremont and Uxbridge communities, and through a public meeting to present project information and conclusions.

- Indigenous communities: Potentially interested Indigenous communities included Williams Treaties First Nation communities and the Métis Nation of Ontario, and others as identified by the MOECC and Ministry of Transportation. Project information was provided to the communities to determine their levels of interest in the Project. Communities were also asked to provide input on how they perceive their Aboriginal or treaty rights to be affected by the Project, and preferred engagement methods. All listed communities were contacted early during, and follow-up contact was made to confirm interest.

The Pre-Planning stage of the study commenced with the identification by Metrolinx of the need for the Project and the development of a Feasibility Study. Consultation activities undertaken as part of Pre-Planning activities included the following key steps:

- Project introduction letters were sent to all contacts on the mailing list to describe the Project.

- Meetings with review agencies and elected officials were conducted to introduce and describe the Project.

- Letters were mailed to Indigenous communities to introduce the Project and determine community interest and potential effects on Treaty Rights.

- A public meeting was held on October 26, 2017 to show existing conditions, introduce the Project and describe the steps of the TPAP, and public meeting information was provided on the Project website and comments were requested by November 17, 2017.

- A dedicated Project website and email address were created, www.metrolinx.com/lincolnville and lincolnville@metrolinx.com, to encourage feedback, for receipt of comments and questions, and to post available project documentation.

The TPAP stage of the study commenced with the issuance of a Notice of Commencement. Consultation activities undertaken thereafter, as a part of the TPAP, included the following key steps:

- Notice of Commencement distributed to project stakeholders (including government agencies, elected officials, and members of the public) and Indigenous communities and published to local media and on the Project website, and environmental reports made available for public review.

- Notice of Online Engagement distributed to project stakeholders (including government agencies, elected officials, and members of the public) and Indigenous communities and published to local media and on the Project website.

- Online engagement for stakeholders and Indigenous communities was undertaken, including encouraging digital feedback through an online survey, by providing a dedicated email address for receipt of comments and questions, and the providing of a link on www.metrolinxengage.com through which comments and questions could be submitted.
- Ongoing consultation with project stakeholders (including government agencies, elected officials, and members of the public) and Indigenous communities.
- Notice of Completion distributed to project stakeholders (including government agencies, elected officials, and members of the public) and Indigenous communities and published to local media and on website, and EPR made available in hard copy and electronic formats for public review.
- Final 30-day review of this EPR by interested parties.

Metrolinx has the ultimate responsibility for the safe and effective implementation of the Project, and will manage consultation approaches consistently with applicable regulations and standards, making reasonable effort to resolve issues, and track outstanding issues and commitments through subsequent Project phases.

6.1.2 Record of Consultation

Comments and questions arising from consultation activities were tracked and managed on an ongoing basis and incorporated into the development of the EPR as appropriate. All documents produced for consultation activities, including a comment tracking table and registry, were maintained as a part of a Record of Consultation (Appendix B). The Record of Consultation includes the following:

- A Consultation Log that documents consultation activities and includes information on relevant correspondence, notices, presentation materials and communication items for the Project.
- A Comment Tracking Table used to track comments received and responses provided.
- Copies of correspondence letters between Metrolinx and interested parties (contact details redacted as required to meet privacy legislation).
- Copies of notices and presentation materials, website content, agendas and meeting minutes.
- A commitments registry which tracks commitments made during the TPAP, including those that have been addressed in the EPR, and those that will require additional activity after the issuance of the Notice of Completion.

6.1.3 Identification of Interested Parties

Potentially interested parties were initially identified through review of MOECC's Government Review Team (GRT) list, reaching out to local and regional municipal bodies and agencies with

jurisdiction in the Study Area, obtaining a list of Indigenous community contacts from the MOECC and MTO, developing a distribution map for Canada Post mailings within the Stouffville, Claremont and Uxbridge communities, obtaining a list of property owners within 30m of the Study Area, and identifying any elected officials who may have an interest in the Project. The contact list for the Project has evolved throughout the EA process, based on the level of interest expressed by individuals or additional guidance received by regulatory bodies throughout the study. A mailing list and mailing distribution map was prepared and is included in Appendix B.

6.1.3.1 Agencies and Public Bodies

Representatives from the following public bodies were included in the stakeholder mailing list.

Federal Government

- Canadian Environmental Assessment Agency
- Transport Canada

Provincial Government

- Infrastructure Ontario
- Ministry of Indigenous Relations and Reconciliation
- Ministry of Community Safety and Correctional Services
- Ministry of Environment and Climate Change
- Ministry of Municipal Affairs and Housing
- Ministry of Natural Resources and Forestry
- Ministry of Tourism, Culture and Sport
- Ministry of Transportation
- Ontario Growth Secretariat
- Toronto and Region Conservation Authority

Municipal Government and Related Municipal Bodies

- Town of Whitchurch-Stouffville
- Municipal police, fire and emergency services
- vivaNext

- York Catholic District School Board
- York Region
- York Region District School Board- Planning Services
- City of Pickering
- Durham Region
- Town of Uxbridge

6.1.3.2 Elected Officials

The following elected officials were contacted as part of the Project and included in the stakeholder list:

Members of Parliament

- Markham-Stouffville – Jane Philpott

Members of Provincial Parliament

- Oak Ridges-Markham – Helena Jaczek
- Durham – Granville Anderson

Regional and Municipal Officials

- Town of Whitchurch-Stouffville – Justin Altman (Mayor), Iain Lovvat (Councillor Ward 5)
- City of Pickering – Dave Ryan (Mayor), Shaheen Butt (Councillor Ward 3)
- Town of Uxbridge – Gerri Lynn O'Connor (Mayor), Pamela Beach (Councillor Ward 1)
- Durham Region - Roger M. Anderson (CEO and Chair), David Pickles (Councillor Ward 3

6.1.3.3 Other Stakeholders

Stakeholders who may have an interest in the project and were not identified through GRT review and consultation with agencies were contacted through email, where email addresses were available, and direct mail where address information was available. The stakeholders contacted include:

Interest Groups and Community-Based Organizations

- Business improvement areas
- Transport Action Ontario

Individuals and Land Owners

- Property and business owners, as well as ratepayer groups, community organizations, and local interest groups within 2 km of the Project.
- Additional residents and businesses in the surrounding communities of Stouffville, Claremont and Uxbridge.

Businesses

- MTS Allstream
- Local Businesses

Utilities

- Enbridge Pipelines Inc.
- Hydro One Networks Inc.
- Local telecommunication companies

6.1.3.4 Identification of Indigenous Communities

As required under O. Reg. 231/08, Metrolinx sent a letter to the Director, Environmental Assessment and Approvals Branch at the MOECC, (October 11, 2017), requesting a list of bodies that may assist in identifying Indigenous communities which may have an interest in this TPAP study. The Ministry of Transportation was also consulted for a list potentially-interested Indigenous communities (September 14, 2017), as is typical for Metrolinx projects. The Ministry of Indigenous Relations and Reconciliation (MIRR) was contacted through email correspondence (October 13, 2017), and the Aboriginal and Treaty Rights Information System (ATRIS) of Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) was referenced to further develop the list of Indigenous communities that may have an interest in this TPAP study.

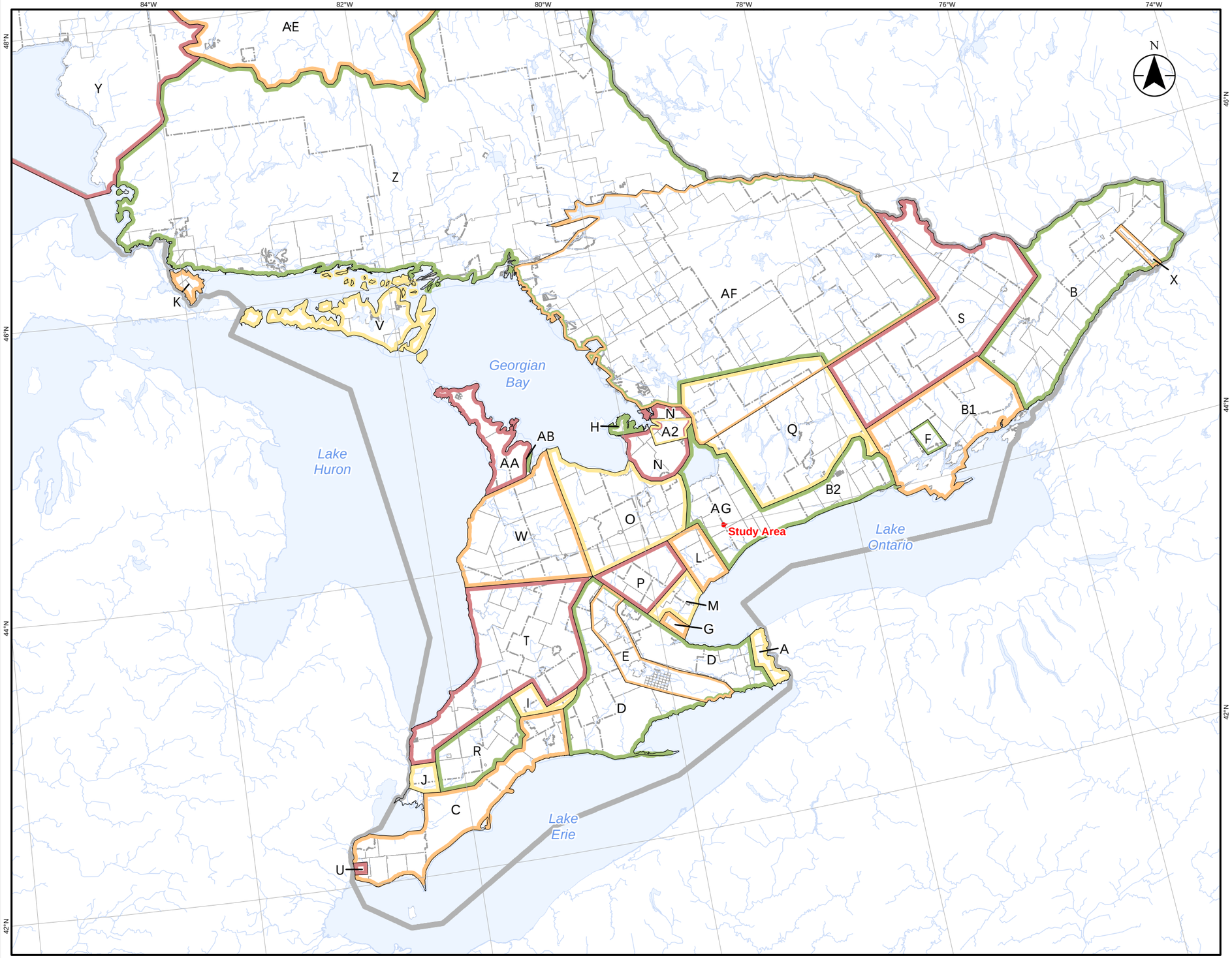
Indigenous communities are considered to be separate stakeholders, and are provided the same public consultation opportunities as the general public, in addition to community-specific engagement opportunities. The consultation process for Indigenous communities included confirming Indigenous interest in the project and determining how each interested Indigenous community would like to be engaged.

Metrolinx contacted the following Indigenous communities:

- Six Nations Grand River
- Haudenosaunee Confederacy Chiefs Council

- Huronne-Wendat Nation
- Alderville First Nation
- Beausoleil First Nation
- Chippewas of Georgina Island
- Chippewas of Mnjikaning (Rama) First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Mississaugas of Scugog Island First Nation
- Kawartha Nishnawbe First Nation
- Métis Nation of Ontario
- Mississauagas of the New Credit

The locations of the Study Area and the above-listed communities are shown on Figure 6-1



Legend

- Study Area
- Municipal Boundary - Upper Tier
- Municipal Boundary - Lower or Single Tier
- Watercourse
- Waterbody

A	Treaty No. 381, May 9th, 1781 (Mississauga and Chippewa)
B	Crawford's Purchase, October 9th, 1783 (Algonquin and Iroquois)
B1	Crawford's Purchase, October 9th, 1783 (Mississauga)
B2	Crawford's Purchases, 1784, 1787 And 1788 (Mississauga)
A2	John Collins' Purchase, 1785 (Chippewa)
C	Treaty No. 2, May 19th, 1790 (Odawa, Chippewa, Pottawatomi, and Huron)
D	Treaty No. 3, December 2nd, 1792 (Mississauga)
E	Haldimand Tract:from the Crown to the Mohawk, 1793
F	Tyendinaga:from the Crown to the Mohawk, 1793
G	Treaty No. 3 3/4:from the Crown to Joseph Brant, October 24th, 1795
H	Treaty No. 5, May 22nd, 1798 (Chippewa)
I	Treaty No. 6, September 7th, 1796 (Chippewa)
J	Treaty No. 7, September 7th, 1796 (Chippewa)
L	Treaty No. 13, August 1st, 1805 (Mississauga)
M	Treaty No. 13A, August 2nd, 1805 (Mississauga)
N	Treaty No.16, November 18th, 1815 (Chippewa)
O	Treaty No. 18, October 17th, 1818 (Chippewa)
P	Treaty No. 19, October 28th 1818 (Chippewa)
Q	Treaty No. 20, November 5th, 1818 (Chippewa)
R	Treaty No. 21, March 9th, 1819 (Chippewa)
S	Treaty No. 27, May 31st, 1819 (Mississauga)
T	Treaty No. 27½, April 25th, 1825 (Ojibwa and Chippewa)
U	Treaty No. 35, August 13th, 1833 (Wyandot or Huron)
V	Treaty No. 45, August 9th, 1836 (Chippewa and Odawa, "For All Indians To Reside Thereon")
W	Treaty No. 45½, August 9th, 1836 (Saugeen)
X	Treaty No. 57, June 1st, 1847 (Iroquois of St. Regis)
Z	Treaty No. 61, September 9th, 1850 (Robinson Treaty:Ojibwa)
AA	Treaty No. 72, October 30th, 1854 (Chippewa)
AB	Treaty No. 82, February 9th, 1857 (Chippewa)
AF	Williams Treaty, October 31st and November 15th, 1923 (Chippewa and Mississauga)
AG	Williams Treaty, October 31st, 1923 (Chippewa)

0 75 150 km

1:3,000,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 Statistics Canada Lambert
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2016.
3. Treaty boundaries adapted from Morris 1943 (1964 reprint).

Project Location
Province of Ontario

160950966 REVA
Prepared by SPE on 2017-11-23

Client/Project
METROLINX
LINCOLNVILLE STATION

Figure No.
6-1

Title
Project Area in Relation to Surrounding Indigenous Community Locations

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

\\cd1215-f01.work.group.\01609\Active\160950010\planning\gis\mxd\EPR\160950966_EPR_Fig06-1_Treaties.mxd Revised: 2017-11-23 By: sfarles

6.1.4 Influence of Consultation on the TPAP/EPR

Consultation activities undertaken throughout the study were documented and incorporated into the EPR. Key comments received include input on project design, requests for inclusion on the Project mailing list, and requests to review and comment on project information and environmental reports.

Comments and questions received by the Project team were considered and addressed in the report or through direct follow-up by the Project Team.

Comments on Project design included input into existing conditions and potential Project effects. As a result of these comments and questions, updates to the conceptual design of the proposed improvements to the Lincolnville layover and GO Station were made where appropriate. These include the addition of mitigation measures to address groundwater recharge and water balance within the Study Area, and commitments to adhere to specific timing windows for construction activities that could affect breeding birds, fisheries, and other wildlife, and for the monitoring of vegetation post-construction.

Requests to be added to the Project mailing list resulted in the identification of additional contacts for consultation during Pre-Planning and the TPAP phases of the study, and refinements were made to the contact list. As updated contact details were provided for specific agency contacts, additional refinements were made.

Requests for Project information and environmental reports were responded to as soon as the Project information and reports were available. The Stage 1 and2 Archaeological assessments were provided to the Huronne-Wendat First Nation for review at their request.

Details of comments and questions received and Project Team responses (including changes made to the EPR or Project designs) are available in the comment tracking table and registry in Appendix B.

6.2 PRE-PLANNING CONSULTATION

In advance of issuing the Notice of Commencement for the TPAP, Metrolinx consulted with members of the public, property owners, review agencies, Indigenous communities, elected officials, and other potentially interested groups. The objective of consultation activities during the Pre-Planning phase of the project was to introduce potentially interested parties to the Project, receive early information on potential concerns, and determine the level of interest in future consultation activities moving forward.

6.2.1 Public Consultation

6.2.1.1 Project Website

A project website (www.metrolinx.com/lincolnville) was developed to provide an overview of the TPAP and Project information and to keep the public informed of public consultation opportunities, provide a summary of the public meeting, and to afford an opportunity to the public to provide comments. The website was updated with the following Project information and notices throughout the Pre-Planning phase of the study:

- Summary of the Project
- Project Contact Information
- Feasibility Study Report
- Notice of Public Meeting
- Public Meeting Story Boards

6.2.1.2 Public Meeting

A Notice of Public Meeting was prepared to invite members of the public, property owners, review agencies, Indigenous communities, elected officials, and interested groups to attend the meeting to learn about the Project and provide their questions and/or comments to members of the Project Team. The Notice of Public Meeting was published in the Sun Tribune Newspaper on September 27 and October 12, 2017. The Notice was also delivered via Canada Post mail drop distribution to approximately 7,500 residents throughout the Stouffville, Claremont and Uxbridge communities, and posted on the Project website.

The Public Meeting was held at Ballantrae Community Centre on October 26, 2017. The purpose of the Public Meeting was to introduce the Project and Project team, with the intention of providing information early in the process. Table 6-1 summarizes the key details of the Public Meeting.

At the meeting, attendees were encouraged to register at the door to be placed on the Project Mailing List, and to fill out comment forms (electronically through email to lincolnville@metrolinx.com, or on paper) following the session. It was requested that comments be returned by November 17, 2017.

The Public Meeting used poster board displays to provide an interactive tool for stakeholders to learn about the Project. The display boards presented as part of the Public Meeting included: background information related to the Stouffville rail corridor and RER commitments; the existing environmental conditions at the Lincolnville Layover and GO Station; the TPAP Process; and, next steps in the Project. The display boards were also posted on the Project

website on October 26, 2017, to allow those unable to attend the Public Meeting to review the materials online.

The public meeting allowed Metrolinx to gather feedback on the Project and respond to questions and concerns. All comments and questions raised during the Public Meeting were addressed by the Project team. Meeting minutes, a copy of the poster board displays, and comment forms collected at the Public Meeting can be found in the RoC, in Appendix B.

Table 6-1: Summary of Key Public Meeting Details

Township	Whitchurch-Stouffville
Date and Time	October 26, 2017 | 6:00 p.m. to 8:00 p.m.
Location	Ballantrae Community Centre 5592 Aurora Road Whitchurch-Stouffville, ON L4A 7X3
Number of Attendees	8
Feedback Forms Received	2
Information Presented and Made Available	Background information related to the Stouffville rail corridor and RER commitments; the existing environmental conditions at the Lincolnville Layover and GO Station; the TPAP Process; and, next steps in the Project.
Topics Discussed	Background information, Feasibility Study, Study Area existing conditions, and TPAP steps and timelines

6.2.2 Agency Consultation

Agency consultation in the Pre-Planning phase of the Project focused on two key items: introducing the Project to government reviewers and municipal contacts; and seeking regulatory guidance from agencies on the Project and the TPAP.

Initial consultation with Agencies included introducing the Project through an introduction letter and a request for information regarding any required regulatory processes that the Project would be required to follow. Metrolinx also sent the MOECC a letter requesting direction on Indigenous consultation for the Project. Metrolinx offered Agency representatives a chance to meet to discuss the Project, including any concerns or requirements that needed to be met.

Agency consultation included information requests, telephone conversations, email correspondence, and meetings with agency representatives. The Ontario Ministry of Tourism, Culture and Sport, and the Ontario Heritage Trust were also contacted to collect information that was used to develop the baseline studies and Technical Study Reports. Metrolinx will continue to consult representatives from these agencies and others as the Project progresses through the TPAP. A summary of Agency consultation activities is provided below.

- TRCA: Correspondence and meeting on existing conditions, project design, groundwater management and requirements for Voluntary Permit Review process.
- MOECC: Request for input on potentially-interested Indigenous communities, meeting to discuss TPAP approach.
- MNRF: Request for confirmation that species at risk are not likely to occupy the Study Area.
- MTCS, and the Ontario Heritage Trust: contacted to collect information that was used to develop the baseline studies and Technical Study Reports.
- Regional Municipality of York: correspondence related to Clean Water Act policies and groundwater management.

6.2.3 Elected Officials Consultation

Elected officials at the federal and provincial level in whose jurisdiction the Layover Facility falls were included on the Project mailing list. Municipal and Regional Councillors for the Wards in which the Layover Facility falls (Whitchurch-Stouffville Ward 5) and the wards adjacent to it (City of Pickering and Durham Region Ward 3 and Town of Uxbridge Ward 1) were also included on the Project mailing list. The full mailing list is available in Appendix B.

A meeting was convened with, and at the request of, a elected representatives from the City of Pickering and Durham Region, Ward 3 to introduce the Project and discuss Project information and the TPAP next steps. Pickering Ward 3 is located adjacent to Whitchurch-Stouffville Ward 5.

6.2.4 Indigenous Community Consultation

During the Pre-Planning phase of the Project, Metrolinx engaged with potentially affected Indigenous communities to understand their level of interest in the Project, gather feedback on the Draft Archaeological Assessment results, and determine the community's consultation needs and/or requirements.

O. Reg. 231/08 stipulates that at a minimum, Proponents must make reasonable and good faith efforts to engage with Indigenous communities by:

- Giving each Indigenous community on the contact list a copy of the Notice of Commencement.
- Ensuring Indigenous communities are provided with an opportunity to participate in the consultation process.
- Following up with telephone calls to ensure that Indigenous communities are aware of the Project.
- Provide Indigenous communities with notification of consultation events such as Public Meetings.

- Provide relevant Project documentation and other material when requested.
- Discussing potential negative impacts of the Project on any constitutionally protected Indigenous and/or Treaty rights that may be identified and measures to mitigate these negative impacts.
- Ensuring consultation is flexible enough to meet the specific and unique needs of the Indigenous communities.

Thirteen Indigenous communities were contacted separately regarding the Project, and provided with a Project Introduction letter. The letter provided the opportunity to tailor the engagement approach to meet their requests. During Pre-Planning activities, the focus of Metrolinx's engagement was on establishing a relationship with these communities, introducing the Project, identifying and confirming their potential interest in the Project, ascertaining an understanding of their potentially affected Indigenous and Treaty rights, obtaining information about community-specific consultation preferences, and providing an opportunity to review and comment on the Draft Archaeological Assessment results. One community responded to the Project Introduction letter, requesting an opportunity to review the Stage 1 and2 Archaeological Assessment Reports, and had no revisions. Correspondence with Indigenous communities can be found in Appendix B.

6.2.5 Other Stakeholder Consultation

A Notice of Public Meeting was sent to project stakeholders on October 13, 2017 in multiple formats (i.e., email notices, mail drops, newspaper notices, etc) to invite community clubs, associations and environmental groups with a potential interest in the Project and other interested persons to attend the October 26, 2017 Public Meeting (see Section 6.2.1.2, above for more information) to learn about the Project and provide their questions and/or comments to members of the Project Team. Materials were made available to all stakeholders on the Project Website after the meeting to allow for ongoing opportunities to review the Project information and provide feedback to the Project Team.

6.2.6 Summary of Comments and Responses

Table 6-2 provides a summary of all comments received from consultation activities during the Pre-Planning phase of the Project. This table demonstrates the types of comments raised during consultation on the Project and how Metrolinx has address them. A complete record of all comments and questions raised and their corresponding responses can be found in the RoC in Appendix B.

Table 6-2: Summary of Comments Received and Responses Provided During Pre-Planning Activities

Stakeholder/ commenter	Topic	Comment/Concern	Response/ influence on the Project and/or Draft EPR
Regional Municipality of York	Source Water Protection	• Encouraging Low Impact Development (LID) measures. • Use a contractor who is certified by Smart about Salt.	• LID measures will be examined as a part of detailed design. • All Metrolinx snow contractors are required to be Smart About Salt certified.
TRCA	Natural Environment	• Requested wellhead protection area and nearby wells to be included in mapping. • Requested environmental baseline studies for review.	• Mapping updated. • Reports provided.
Huronne-Wendat First Nation	Archaeology	• Requested to review Stage 1-2 Archaeological Assessment. • Based on review, community determined no concerns regarding potential Indigenous archaeological artefacts	• Assessment report provided. • No additional concerns noted.
Local municipal Councillors	Public consultation	• Metrolinx should consider holding the next public meeting within the Town of Whitchurch-Stouffville.	• This will be considered during the TPAP Addendum for the proposed new GO Station site.

6.3 TPAP CONSULTATION

6.3.1 Notice of Commencement

Metrolinx issued the Notice of Commencement on November 30, 2017 in order to inform project stakeholders (government agencies, elected officials, members of the public) and Indigenous communities of the initiation of the TPAP. The notice was issued in different media, as summarized in Table 6-3, below, including direct mailing, newspaper publication, and electronic media. The Notice of Commencement included information about the Project and TPAP as well as how to provide comments. A copy of the Notice of Commencement is provided in Appendix B.

Table 6-3: Publication Details for Notice of Commencement

Media	Date of Publication	Audience
Newspapers: Stouffville Sun Tribune and Ajax Pickering News Adviser (two postings each)	November 30, 2017 and December 7, 2017	General public, Whitchurch-Stouffville community.
Direct mailing (Canada Post)	November 30, 2017	Property owners and residents/businesses within the communities of Stouffville, Claremont and Uxbridge.
Email	November 30, 2017	Elected officials, government agencies, Indigenous communities, project mailing list, those who signed in at the public meeting.
www.metrolinx.com/lincolnville	November 30, 2017	General public, interested parties.
Twitter (@Metrolinx)	November 30, 2017	General public, followers of Metrolinx's twitter feed.
Facebook (www.facebook.com/metrolinx)	November 30, 2017	General public, fans of Metrolinx's facebook page.

6.3.2 Public Consultation

Project documents and details were available on the Project website throughout the TPAP for public review and comment. Documents available include project notices, public meeting story boards and comment sheets, and Draft environmental reports. The public and interested parties were able to submit comments through the dedicated Project email address, via facebook posts and twitter tweets, and via telephone throughout the TPAP process. A very limited number of comments were received. Project specific comments are summarized in the table below.

Table 6-4: Summary of Public Consultation Comments Received and Responses During the TPAP.

Topic	Comment/Concern	Response/ influence on the Project and/or Draft EPR
Project Design	• Your proposed reconfiguration of Lincolnville station will substantially increase the distance from the parking lot to the trains.	• Metrolinx will do our best to minimize the impact to users of our GO train and bus services from this location.
Construction Phase	• Request information about how the bus and rail passenger service will be affected during construction.	• Metrolinx will provide updates during the construction phase.

The majority of the comments received were not regarding Project specifics (i.e., correcting contact information, requests to be kept informed on the Project, train whistle concerns, future service concerns and requesting copies of reports).

6.3.2.1 Notice of Public Engagement

Metrolinx issued of Public Engagement on January 18, 2017 in order to inform project stakeholders (government agencies, elected officials, members of the public) and Indigenous communities of the online engagement opportunity. The Notice was issued in different media, as summarized in Table 6-5, below, including direct mailing, newspaper publication, and electronic media. The Notice of Public Engagement included information announced the availability of an online engagement opportunity from January 18 to February 2 during which time project stakeholders and Indigenous communities could provide feedback through an online survey, and review a presentation summarizing the project, environmental effects, and proposed mitigation measures for the Project.

Table 6-5: Publication Details for Notice of Public Engagement

Media	Date of Publication	Audience
Newspapers: Stouffville Sun Tribune and Ajax Pickering News Adviser (two postings each)	January 18, 2018	General public, Whitchurch-Stouffville community.
Direct mailing (Canada Post)	January 18, 2018	Property owners and residents/businesses within the communities of Stouffville, Claremont and Uxbridge.
Email	January 19, 2018	Elected officials, government agencies, Indigenous communities, project mailing list, those who signed in at the public meeting.
www.metrolinx.com/lincolnville and https://www.metrolinxengage.com/en/engagement-initiatives/whitchurch-stouffville	January 19, 2018	General public, interested parties.
Twitter (@Metrolinx)	January 19, 2018	General public, followers of Metrolinx's twitter feed.
Facebook (www.facebook.com/metrolinx)	January 19, 2018	General public, fans of Metrolinx's facebook page.

6.3.3 Agency Consultation

Government agencies were provided the Notice of Commencement and Notice of Public Engagement and were invited to provide comments and questions during the TPAP comment period. Key review agencies which had identified an interest in the Project (this included MOECC, Town of Whitchurch-Stouffville, York Region, TRCA and MTCS) were provided an opportunity to review and comment on the Draft EPR and supporting documents. During that time 117 responses were received. A high level summary of key comments and Metrolinx's responses, are below:

Stakeholder/ commenter	Topic	Comment/Concern	Response/ influence on the Project and/or Draft EPR
MOECC	Air Quality	• It is not clear how the proponent will address local air quality impacts if contaminated soils are encountered. • The emissions from the locomotives and the parking lot should be summarized in the final AQA Report.	• Dust resulting from construction activities will be minimized by watering or applying other dust suppressants as required. • This information will be provided in the final AQA Report.
MOECC	General	• The reader would benefit from a detailed site map.	• A detailed Existing Site Map has been added to the Report.
MOECC	Groundwater	• The effect of the new facilities on infiltration should be assessed; adverse impacts should be mitigated at the design stage.	• Best efforts are being made to ensure that pre-development infiltration/recharge rates are maintained.
Town of Whitchurch-Stouffville	Groundwater	• The proposed expansion is inside a WHPA; the York Region's Risk Management Department should be contacted for detailed review.	Report has been updated to include a detailed review from York Region's Risk Management Department.
Town of Whitchurch-Stouffville	Construction Management	• Metrolinx is responsible to ensure public safety during construction.	• Pedestrian access has been analyzed and incorporated into current staging design drawings to ensure the safety of all customers.
York Region	Groundwater	• It is strongly recommended that Risk Management Measures are put in place	• Metrolinx is committed to employing best management practices

Stakeholder/ commenter	Topic	Comment/Concern	Response/ influence on the Project and/or Draft EPR
		in respect to chemical use and storage. • Dense Non-Aqueous Phase Liquids (DNAPLs) are prohibited within WHPA-C under the Clean Water Act, 2006. • The Development proposed on the subject property is within the WHPA and Oak Ridges Moraine.	both during construction and future operation. • Metrolinx does not plan to store or use any DNAPLs during construction, or later ongoing operation and maintenance. • Metrolinx is committed to following best management practices during both construction and ongoing operation and maintenance.
TRCA	Stormwater Management	• Please revise the SWM Report to include the increase in impervious areas as a result of the proposed works. • Please clarify the expected impacts to Reach 1 and provide mitigation measures to address these impacts.	• Reports updated to include the increase in impervious areas. • Flow will be diverted from the bioretention swale to compensate for the reduced length and runoff.
TRCA	Trees	• To replace the lost trees, it is encouraged that a native plant restoration plan be developed through Metrolinx's Vegetation Compensation Protocol.	• Report updated to include development of a Landscape Plan following Metrolinx's Vegetation Compensation Protocol.
MTCS	Archaeology	• Text does not appropriately describe the role of MTCS in archaeology.	• Report updated to clearly describe the role of MTCS.

6.3.4 Elected Officials Consultation

Elected officials were provided with the Notice of Commencement, Notice of Public Engagement, and invited to provide comments and questions throughout the TPAP process. During that time no responses were received.

6.3.5 Indigenous Communities Consultation

The Indigenous communities identified as having a potential interest in the Project were sent letters including the TPAP Notice of Commencement on November 17, 2017 and Notice of Public Consultation on January 19 and 22, 2018 by direct mail. Follow-up phone calls were made to all communities to confirm receipt of the Notices. Follow-up emails were sent to the communities providing a summary of the TPAP process, consultation efforts completed during the Pre-Planning phase of the study, and a schedule of TPAP dates, including the anticipated date of the Notice of Completion and the opportunity to comment on the Project. Indigenous communities contacted during the TPAP are listed in Appendix B.

No comments or questions were received from Indigenous community contacts after publishing the Notice of Commencement.

6.3.6 Other Stakeholder Consultation

The comments received from other stakeholders were requesting to be added to the Project Contact list. No other comments or questions were received from businesses or organizations or area property owners.

6.3.7 Notice of Completion

The Notice of Completion of the EPR was issued on February 22, 2018, addressing the O. Reg. 231/08 requirement to issue the notice within 120 days following the Notice of Commencement. The Notice of Completion of the EPR was published in the same media outlets and electronic media sources as the Notice of Commencement. The Notice was also mailed to interested parties on the Contact List, including anyone who requested to be added to the list throughout the Project study, and anyone who signed in with address information at the Public Meeting. Publication details for the Notice of Completion are outlined in Table 6-6. A draft Notice of Completion is included in Appendix B.

Table 6-6: Publication Details for Notice of Completion

Media	Date of Publication	Audience
Newspapers: Stouffville Sun Tribune and Ajax Pickering News Adviser (two postings each)	February 22, 2018 and March 1, 2018	General public, Whitchurch-Stouffville community

Media	Date of Publication	Audience
Direct mailing (Canada Post)	February 22, 2018	Property owners and residents/businesses within the communities of Stouffville, Claremont and Uxbridge, people who signed in at the public meeting with address details, anyone who requested to be added to the Project mailing list
Email	February 22, 2018	Elected officials, government agencies, Indigenous communities, those who signed in at the public meeting
www.metrolinx.com/lincolnville	February 22, 2018	General public, interested parties
Twitter (@Metrolinx)	February 22, 2018	General public, followers of Metrolinx's twitter feed
Facebook (www.facebook.com/metrolinx)	February 22, 2018	General public, fans of Metrolinx's facebook page

If an interested party has concerns about the Project, they are welcome to submit objections to the MOECC Environmental Approvals Access and Service Integration Branch for the Minister to consider. Objections must be provided in writing and can only be submitted during the 30-day review period for the EPR, commencing at the issuance of the Notice of Completion. A copy should also be provided to the Director, EAB of the MOECC and Metrolinx as the proponent. Information required for the objection must include:

- Contact information (name, mailing address, organization or affiliation, phone number and email address)
- Proponent (Metrolinx) contact information (name, address, phone number and representative/agency phone number)
- Brief description of the proponent's (Metrolinx) proposed undertaking, including location
- Basis for why further study is required, including relevance to Indigenous or treaty rights and matters of provincial importance that were not considered in the EPR
- Summary of how the objector has been involved in the consultation process (e.g. meetings, phone calls, emails, etc.)

The Ministry will forward a copy of the objections to Metrolinx for consideration. It is noted that Metrolinx will have less than a week to comment on the objections. During this time, Metrolinx can identify where in the EPR the appropriate information can be found, or provide the missing information.

Following the 30-day review period, the Minister has 35 days to provide comment and decide whether the Project has a negative effect on matters of provincial importance or Aboriginal or Treaty Rights. At this point the Minister can approve the Project as planned, allow it to proceed subject to conditions, require the proponent to take further steps including further study or consultation, or choose to terminate the TPAP if they feel the EPR does not address these effects.

6.3.8 Summary of Key Comments and Responses

Table 6-7 provides a high level summary of key comments received during the TPAP phase of the Project. This table is intended to provide interested reviewers with a snapshot of the types of comments raised and guidance provided during the TPAP and how they were addressed by Metrolinx. A complete record of all comments and corresponding responses can be found in the RoC in Appendix B.

Table 6-7: Summary of Comments Received and Responses Provided During TPAP

Topic	Summary of Key Comment/Concern	Response and Influence on the Project
Groundwater and Surface Water	• The Study Area is located within a WHPA and as such must meet specific requirements set-out by both the Region and TRCA.	• Metrolinx is undertaking ongoing consultation with TRCA and York Region throughout all phases of the Project to ensure that requirements are being met including, fueling requirements and spill prevention and response.
	• Source Protection Policies should be considered for this Project.	• Policies under the Clean Water Act will be applied during the design phase of the Project. Ongoing coordination with York Region and TRCA throughout the design phase will allow for these policies to be addressed.
	• How are the effects of a reduced drainage area as a result of implementation of this Project be mitigated, including loss of channel length and anticipated effects?	• Though the project will reduce the drainage area and length of the existing channel, the detailed design includes measures for diverting flows to address this.
Air Quality	• How will local air quality be affected if contaminated soils are encountered?	• During construction, the Contractor will be required to apply water or another dust suppressants.
Soils	• The Soils Management Plan and/or the Excess Materials Management Plan should describe project oversight and soil quality considerations.	• A Soil Management Plan will be developed in accordance with the Excess Soil – a Guide for Best Management Practices (January 2014), industry best practices and all applicable laws.
	• There is not enough recent information or commitments to describe the very limited soils preliminary assessment.	• As the project progresses through detailed design and towards implementation, additional site investigation work will be undertaken to include the appropriate level

Topic	Summary of Key Comment/Concern	Response and Influence on the Project
		of detail to support design and construction activities, as required.
Stormwater Management	• Will upstream properties be effected as a result of an increase in water surface elevation? • Where are the locations of the proposed OGS unit, and the existing OGS units?	• An analysis will be completed, and text added to the report to confirm no adverse effects on upstream properties. • The location of other existing and proposed OGS units will be shown on the SWM figures.
Trees	• To replace the lost trees, it is encouraged that a native plant restoration plan be developed.	• The report has been updated to include the development of a Landscape Plan.
Traffic	• What are the operational impacts due to the loss of the entire west parking lot?	• The removal of the west parking lot is not anticipated to have any impacts related to capacity as a result of the proposed Project.

6.4 FUTURE CONSULTATION REQUIREMENTS

Metrolinx has committed to ensuring that consultation with project stakeholders (government agencies, elected officials, members of the public) and Indigenous communities will continue beyond the TPAP process for the Project.

Following the completion of the TPAP study, further studies or consultation may be required, resulting in a refinement of the results presented in this EPR. If refinements lead to changes to the Project that are inconsistent with the EPR, such as a new station location, these will be documented in an addendum to the EPR. Significant changes to the EPR will be accompanied by a notification of the change to the project stakeholders (government agencies, elected officials, members of the public) and Indigenous communities, as required in the regulation.

6.4.1 Public Consultation

Metrolinx is committed to continuing to consult and communicate with stakeholders and other interested parties beyond the TPAP. Specifically, Metrolinx will:

- Design and implement a response strategy to address/resolve potential construction-related concerns.

- Maintain the Project website throughout the detailed Design and construction phases where the public can access updated information on the Project.
- Continue discussions/consultation with project stakeholders (government agencies, elected officials, members of the public) and Indigenous communities, as required.

6.4.2 Agency Consultation

In addition to carrying out the TPAP, there are a number of additional federal, provincial, municipal and other permit and approval processes that Metrolinx will follow (further details are outlined in Section 7.0 of this EPR). As a part of obtaining permits and approvals, Metrolinx will consult with permitting agencies, and follow associated public notification or consultation practices as applicable.

6.4.3 Consultation with Elected Officials

As a part of Metrolinx's ongoing efforts to keep the community informed throughout the design and construction of the proposed works, Metrolinx welcomes inquiries and comments from elected officials wishing to keep their electorate informed. As the Project advances, project updates will be posted to the Project website.

6.4.4 Indigenous Consultation Commitments

As a part of Metrolinx's ongoing efforts to keep the community informed throughout the design and construction of the proposed works, Metrolinx welcomes inquiries and comments from Indigenous communities wishing to keep their community members informed. As the Project advances, Project updates will be posted to the project website.

6.4 FUTURE CONSULTATION REQUIREMENTS

Metrolinx has committed to ensuring that consultation with project stakeholders (government agencies, elected officials, members of the public) and Indigenous communities will continue beyond the TPAP process for the Project.

Following the completion of the TPAP study, further studies or consultation may be required, resulting in a refinement of the results presented in this EPR. If refinements lead to changes to the Project that are inconsistent with the EPR, such as a new station location, these will be documented in an addendum to the EPR. Significant changes to the EPR will be accompanied by a notification of the change to the project stakeholders (government agencies, elected officials, members of the public) and Indigenous communities, as required in the regulation.

6.4.1 Public Consultation

Metrolinx is committed to continuing to consult and communicate with stakeholders and other interested parties beyond the TPAP. Specifically, Metrolinx will:

- Design and implement a response strategy to address/resolve potential construction-related concerns.
- Maintain the Project website throughout the detailed Design and construction phases where the public can access updated information on the Project.
- Continue discussions/consultation with project stakeholders (government agencies, elected officials, members of the public) and Indigenous communities, as required.

6.4.2 Agency Consultation

In addition to carrying out the TPAP, there are a number of additional federal, provincial, municipal and other permit and approval processes that Metrolinx will follow (further details are outlined in Section 7.0 of this EPR). As a part of obtaining permits and approvals, Metrolinx will consult with permitting agencies, and follow associated public notification or consultation practices as applicable.

6.4.3 Consultation with Elected Officials

As a part of Metrolinx's ongoing efforts to keep the community informed throughout the design and construction of the proposed works, Metrolinx welcomes inquiries and comments from elected officials wishing to keep their electorate informed. As the Project advances, project updates will be posted to the Project website.

6.4.4 Indigenous Consultation Commitments

As a part of Metrolinx's ongoing efforts to keep the community informed throughout the design and construction of the proposed works, Metrolinx welcomes inquiries and comments from Indigenous communities wishing to keep their community members informed. As the Project advances, Project updates will be posted to the project website.

7.0 PERMITS AND APPROVALS, AND COMMITMENTS AND FUTURE WORK

All applicable permits, licenses, approvals and monitoring requirements under environmental laws will be reviewed, confirmed and obtained by Metrolinx prior to the construction of the Project. An outline of key legislation and regulations that are anticipated to apply to the proposed improvements to the Lincolnville Layover and GO Station are outlined below. These will be confirmed prior to commencing construction. A detailed list of potentially applicable permits and approvals requirements that will be confirmed during detailed design is provided in Section 7.3.

7.1 CANADIAN ENVIRONMENTAL ASSESSMENT ACT 2012 (CEAA)

The Regulations Designating Physical Activities under the *Canadian Environmental Assessment Act (CEAA) 2012* identify the physical activities (i.e., types of projects) that constitute "designated projects" that may require a Federal EA. A review of the Regulations was carried out by Metrolinx within respect to the Project. Based on this review, this Project does not constitute a designated project under *CEAA, 2012*.

CEAA, 2012 also outlines requirements for determination of the likelihood of significance environmental effects for a physical activity that is carried out on federal lands, or outside of Canada, in relation to a physical work and that is not a designated project (Section 67 of *CEAA 2012)*. All of the proposed work for the Project will be carried out on lands owned by Metrolinx. As such, the requirements under *CEAA, 2012* do not apply.

7.2 PERMITS AND APPROVALS

In accordance with *O. Reg. 231/08*, a Notice to Proceed will be issued by the Minister of the Environment and Climate Change if there are no outstanding issues on a matter of provincial importance that relates to the natural environment, cultural heritage/interest, or on a constitutionally protected Aboriginal or treaty right. In addition to carrying out the TPAP in accordance with *O. Reg 231/08*, there are also a number of other provincial, municipal, and other approvals/permits required for this Project prior to implementation. Accordingly, the following section summarizes the anticipated permits and approvals based on the preferred design and input received from stakeholders to date.

In addition to the commitments to future work outlined in Section 7.3, the permits and approvals required for the proposed works may identify the need for additional mitigation. Any additional mitigation measures required in connection with a permit or approval will be incorporated as appropriate into project design and implemented.

7.2.1 Federal

No Federal permits or approvals are required for the Project. A DFO Self-Assessment will be completed during detailed design to determine the need for *Fisheries Act* authorizations.

7.2.2 Provincial

There are a number of Provincial permit, approval, and agreement requirements for the detailed design and construction stage of the Project. The following sections identify the Provincial requirements that are anticipated to be required for the work activities associated with the Project. Table 7-1 provides a broader list of other potentially applicable approvals, that should be confirmed as design advances.

7.2.2.1 Ministry of the Environment and Climate Change Permit to Take Water

Dewatering activities were previously governed by the Permit to Take Water (PTTW) process in compliance with O. Reg. 387/04, issued under Section 34 of the Ontario *Water Resources Act* (OWRA), 1990, for temporary water takings from the environment that exceed 50,000 litres/day. This includes water drawn from groundwater and surface water. However, in March 2016, the MOECC introduced a new water taking regulation that allows for construction related dewatering to proceed under the Environmental Activity Sector Registry (EASR) requirements if dewatering volumes are above the O. Reg 387/04 threshold (e.g., 50,000 litres/day) but below 400,000 litres/day.

The need for dewatering during construction activities will be confirmed prior to construction, as will the permitting/registration requirements. The requirements for dewatering during construction are dependent on the locations, depth and extent of excavation required for the Project. Significant dewatering is not anticipated during operations, however if excavations encounter a high water table and groundwater dewatering is required during operations, additional mitigation measures may be necessary.

7.2.2.2 Ministry of Tourism, Culture and Sport

A Stage 1 and Stage 2 AA were completed for the Project. The Stage 1 AA findings indicate the majority of the Study Area has been previously disturbed. The Stage 2 AA findings indicate that the area subjected to test pit survey was previously disturbed, and that no further archaeological investigation is required within the Study Area. The Stage 1 and2 AA were entered into the Ontario Public Register of Archaeological Reports on September 5, 2017 and on November 1, 2017, respectively.

A CHSR was completed to identify properties in the vicinity of the Study Area that may have known or potential cultural heritage value or interest, but no properties were identified within a distance where effects would be anticipated from the Project.

No permits or approvals related to archaeological or cultural heritage resources are required.

7.2.2.3 Toronto and Region Conservation Authority (TRCA)

Under the *Conservation Authorities Act*, administered by the MNRF, conservation authorities have been established to manage watersheds throughout most of southern Ontario. In 2006, the Minister of MNRF approved revisions to the "Development, Interference and Alteration" regulations for each conservation authority, which enable conservation authorities to control development through a permitting process in areas prone to water-related natural hazards, such as shorelines, river and stream valleys, floodplains, watercourses, and wetlands. The conservation authority permitting process is designed to deal with issues related to flooding, erosion, dynamic beaches, pollution and conservation of land.

Metrolinx is exempt from TRCA Regulations (e.g., *Ontario Regulation 166/06 – Toronto and Region Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* (O. Reg. 166/06)) and is not required to apply for or obtain permits from the TRCA. Metrolinx will engage the TRCA and adhere to the requirements of the TRCA's Voluntary Review Process with respect to works within TRCA regulated areas and to address the risk of flooding and erosion. No construction activities for this Project are proposed in the TRCA regulated areas. Metrolinx will continue to engage TRCA throughout the detailed design so that the final design addresses stakeholder concerns.

7.2.3 Municipal

There are a number of municipal permit, approval and agreement requirements to be considered for all phases of the Project. Metrolinx is exempt from municipal regulations and policies and is not subject to municipal permit and approval requirements. Although formal approval will not be sought, Metrolinx's policy is to adhere to the intent of the relevant permit and approval process to the greatest extent possible.

The study area is within the Town of Whitchurch-Stoufville, Regional Municipality of York. Metrolinx will continue to communicate and engage with the municipalities throughout detailed design and prior to construction to confirm that any municipal concerns are addressed to the greatest extent possible prior to commencement of construction activities.

Items that may require review with municipalities include, but are not limited to:

- Building permit and site plan applications
- SWM plans
- Tree removals
- Noise By-law Exemption
- Clean Water Act requirements

7.2.4 Timing Windows and Preventive Measures

It is recognized that there are overlapping timing windows related to restrictions on certain construction activities, and Metrolinx will consult further with the applicable regulatory agencies to determine a suitable approach for construction scheduling. In accordance with the *Migratory Birds Convention Act*, if vegetation removal or other development activity must occur during the migratory nesting period of April 1 to -August 31, a certified avian biologist must complete a nesting survey within 24 hours of commencement of work to document the presence or absence of active nesting habitats. In addition, work that may have a downstream effect on Reesor Creek should proceed between July 1 and September 15.

7.2.5 Other

Metrolinx will address the requirements of any other applicable permits or approvals that may be identified upon completion of the TPAP as required.

7.3 SUMMARY OF PERMITS AND APPROVALS

A preliminary list of the potentially applicable permitting and approval requirements for the Project are identified in Table 7-1. Additional requirements may be identified or confirmed during detailed design, or as ongoing consultation progresses. Metrolinx will commence construction once all relevant permits/approvals have been obtained from the appropriate authorities.

Table 7-1: Permitting and Approvals Requirements

Permit/Approval Name	Regulatory Authority	Legislation & Regulation	Description of Activities Covered
PROVINCIAL			
Notice to Proceed	MOECC	*Environmental Assessment Act* O. Reg 231/08 (Transit Projects & Metrolinx Undertakings)	Must be obtained before the project can proceed to implementation. The project meets the definition of a transit project under O. Reg 231/08 and is subject to the Transit Project Approval Process.
Air Environmental Compliance Approval (ECA) or EASR	MOECC	*Air Pollution – Local Air Quality Regulation – O. Reg 419/05* *Ozone Depleting Substances and Other Halocarbons Regulations – O. Reg 463/10*	Required for a facility with an operation that emits one or more contaminants into the air to permit the discharge of the contaminant into the air. ECA or Environmental Activity and Sector Registry (EASR) applicability to be determined based on design details.
Noise Environmental Compliance Approval	MOECC	*Environmental Protection Act* *Part II.1* *O. Reg. 1/17: Registrations Under Part II.2 of the Act – Activities Requiring Assessment of Air Emissions*	An ECA for the Facility may be required if equipment generating noise emissions, such as a diesel generator, is proposed for the Facility during detailed design.
Environmental Compliance Approval (Stormwater Management)	MOECC	*Ontario Water Resources Act* Section 53	A stormwater management plan, if required, is to provide an integrated treatment train approach to water management that is premised on providing control at the lot level and in conveyance followed by end-of-pipe controls. This combination of controls is the only means of meeting the multiple criteria for water balance, water quality, erosion control and water quantity.
Environmental Activity Sector Registry (EASR)	MOECC	*O. Reg 63/16: Registrations Under Part II.2 of the Act – Water Taking*	Required if temporary water takings are estimated to be greater than 50,000 L/day, but less than 400,000 L/day.
Permit to Take Water (PTTW)	MOECC	*Ontario Water Resources Act* (O. Reg 128/03) Section 34	Required if temporary water takings are estimated to be greater than 400,000 L/day; the need for dewatering during construction activities will be confirmed during detailed design.
Notification	MOECC	*Clean Water Act*, 2006	A Section 59 Notice from the York Region's Risk Management office may be required under the *Clean Water Act*. The Notice will contain conditions or prohibitions of specific activities included in the development application. As part of the Section 59 process, the need for a Risk Management Plan will likely be identified, which would document the activities at the site that are potential threats to the quality and/or quantity of source water for the nearby municipal wells, and describes the measures required to prevent the activity from posing a significant threat to drinking water.
ESA Permit	MNRF	*Endangered Species Act* *Section 17* O. Reg 242/08	If required, the ESA Permit protects habitat and individuals of wildlife species designated as Threatened, Endangered, or extirpated in Ontario. Prohibits damage or destruction to the habitat of the listed species. If the project affects a listed species or its habitat. Applicability is determined based on finding provincially listed species at risk or their habitat within/adjacent to the project. Consultation with the MNF is recommended to address suitable habitat for bobolink (protected by the ESA 2007) that is present at the Site. An Information Gathering Form has been submitted to solicit comment from the MNRF, who determined that an authorization under the ESA 2007 is not required at this time. This will be confirmed prior to construction.
Stage I & II Archaeological Assessment MTCS Sign off	MTCS	*Ontario Heritage Act*	Review of the completed Stage 1 and 2 Archaeological Assessment is required from the MTCS. A letter will be issued by the Ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.
Heritage Assessment MTCS Sign off	MTCS	*Ontario Heritage Act*	Review of the completed Heritage Assessment is required from the MTCS.

Table 7-1: Permitting and Approvals Requirements

Permit/Approval Name	Regulatory Authority	Legislation & Regulation	Description of Activities Covered
Notice of Project	Ministry of Labour	*Occupational Health and Safety Act* Regulation for Construction Projects - O. Reg. 213/91 Section 6(1)	The constructor must provide a Notice of Project to the Ministry of Labour prior to starting projects that meet the standards set out in the Regulation.
Notification	-	*Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33*	Requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Government and Consumer Services. Should human remains be encountered during construction activities, all work on site must cease and notification will be required.
TSSA Registration	TSSA		The Technical Standards and Safety Authority's (TSSA) Fuels Safety Program regulates the transportation, storage, handling and use of fuels in Ontario.
OTHER AGENCIES			
Development, Interference with Wetlands and Alterations to Shorelines and Watercourses permit	TRCA	*Conservation Authorities Act R.S.O.* 1990, C. 27, O. Reg. 166/06 *Crown Agency Act* *R.S.O. 1990, C. 48, s.1*	Related to works within the regulated flood plain and within watercourses, and sign-off on Stormwater Management Plan. In accordance with the *Crown Agency Act* and the *Conservation Authorities Act*, as a Crown Agency, Metrolinx is exempt from the regulatory approval process under Section 28 of the *Conservation Authorities Act*. Metrolinx will engage the TRCA through the Voluntary Permit Review process.
MUNICIPAL			**Although Metrolinx, as a Provincial Agency, is not subject to municipal permits and approval, Metrolinx policy is to adhere to the intent of the relevant permits/approvals requirements to the greatest extent possible, and to submit applications for review and information.**
Excess Load Permit	York Region	York Region By-law No. 2010-15	This permit may be required for commercial vehicles to carry a load heavier or larger than the maximum limit in the *Highway Traffic Act*. Approval is only given for roads in York Region. This could be required for the transportation of equipment or materials to the site and will be determined through detailed design.
Load Exemption Permit	York Region		This permit is for trucks whose load is heavier than the maximum posted weight of five tonnes per axle on designated sections of Regional roads. This could be required for the transportation of equipment or materials to the site and will be determined through detailed design.
Survey and Inspection Permit	York Region		This type of permit is for Investigation and Day lighting (i.e., opening the road or boulevard to locate underground utilities), Land Survey (i.e. measurements taken to locate property boundaries for various construction projects) and Inspection (i.e. used to check the condition of a Regional asset such as a bridge or culvert). Would be required for surveys undertaken as part of detail design activities, as applicable.
Sewer Use Bylaw	York Region		Regulates the release of water and waste into the sanitary and storm sewer systems. Although water and waste is not planned during construction activities, if dewatering is anticipated during construction, it may be feasible to release it to the storm sewer. Details to be determined during detailed design.
Building By-Law	Town of Whitchurch-Stouffville		Metrolinx will consult with the City and provide an opportunity to comment.
Noise By-Law	Town of Whitchurch-Stouffville		Limitations to daily and weekly timing of construction works will be implemented in accordance with local noise by-laws and where feasible.
Site Alteration By-Law	Town of Whitchurch-Stouffville		Regulates alteration to grade (topography) of a property through movement, removal or placement of topsoil, soil or fill. Some minor grading is proposed and Metrolinx will conform with the intent and spirit of the Site Alteration By-Law by including all grading plans in design drawings to be submitted to the municipality for consultation.

Table 7-1: Permitting and Approvals Requirements

Permit/Approval Name	Regulatory Authority	Legislation & Regulation	Description of Activities Covered
Schedule Implications			
Terrestrial	Environment Canada	*Migratory Birds Convention Act*	If vegetation removal or other development activity must occur during the migratory nesting period of April 1 – August 31, a certified avian biologist must complete a nesting survey within 24 hours of commencement of work to document the presence or absence of active nesting habitats. (see Section 4.1.1.4 – mitigation measures, for more details)
Provincial Guidelines & Plans			
Requirements for addressing contaminants	MOECC	*Environmental Protection Act* O. Reg. 347	Contaminated soils or groundwater encountered during construction must be appropriately characterized and disposed of.
Standards and Guidelines for Conservation of Provincial Heritage Properties	MTCS	-	Guidelines set out in this document apply to all Metrolinx properties.

7.4 COMMITMENTS AND FUTURE WORK

The EPR commitments are developed to satisfy the requirements of O. Reg. 231/08. The purpose of the commitments is to facilitate the implementation of the proposed improvements to the Linconlville Layover and GO Station in accordance with the mitigation measures and monitoring activities described in the EPR and in a manner that does not result in negative impact on matters of provincial interest related to the natural environment, cultural heritage, or constitutionally protected Aboriginal or treaty rights.

Establishing EPR commitments also satisfies the requirements of the TPAP Guide. The Guide prescribes that the monitoring actions identified in the EPR respecting the mitigation measures must be carried out and reported. A summary of EPR commitments is provided in Table 7-2.

The responsible parties for implementation of EPR commitments are outlined as follows:

- Metrolinx will be responsible to oversee the Contract Administrator and Contractor to ensure compliance with the EPR;
- The Contract Administrator will be responsible for monitoring and reporting on the commitments in the EPR; and
- The Contractor will be responsible to execute the commitments in the EPR.

7.4.1 Summary of Mitigation and Monitoring Requirements

Upon completion of the TPAP, Metrolinx will finalize Detailed Design of the proposed improvements to the Layover Facility, while seeking the necessary permits and approvals. Consultation will continue through detailed design and construction where required for obtaining permits, informing interested parties of construction updates, and coordinating with municipalities and Indigenous communities (if required).

The key objectives of monitoring activities are as follows:

1. Confirm accuracy of predictions in EPR
2. Facilitate compliance with regulatory standards, approval requirements, etc.
3. Track the status and resolution of EA commitments and requirements
4. Augment EA information if needed
5. Evaluate the effectiveness of mitigation measures
6. Identify where effects/conditions do not meet regulatory requirements so that contingency measures can be taken.

In advance of commencing construction activities, mitigation measures will be implemented as outlined in Section 4.0, and monitoring activities will continue throughout construction activities, and upon completion of construction where required. Monitoring commitments made in Section 4.0 are summarized below in Table 7-2. Final, detailed monitoring plans will be developed as part of detailed design activities.

Table 7-2: Mitigation and Monitoring Activities by Project Phase

Environmental Component	Mitigation Measure (or related action)	Relevant Project Phase: Mitigation	Monitoring Activity Requirements	Relevant Project Phase: Monitoring
Vegetation	Implement erosion and sediment controls	Pre-construction	Annual revegetated areas inspections	Post construction for two years
	Avoid vegetation clearing and removal during primary nesting period	Construction		
	Minimal removal of vegetation	Construction		
	Reuse of existing native topsoil and seed banks will be preserved and reintroduced	Construction and Post construction		
	Revegetate disturbed areas	Post construction		
Migratory Birds	Avoid vegetation clearing and removal during primary nesting period	Construction	Nest sweeps and monitoring (if applicable)	Construction
	Stop work if nesting activities are observed in construction areas	Construction		
Bird SAR – Bobolink, Eastern Meadowlark, Barn Swallow	Mitigation measures provided for migratory birds are also applicable to bird SAR.	Construction	Bobolink activities monitoring (if applicable)	Construction
Potential Turtle Wintering Area and slow-moving and ground-dwelling Wildlife	Exclusion fencing	Pre-construction and construction	Construction fencing inspections	Periodically during construction
			Visual inspections for species	Periodically during construction
Surface Water	Detailed water balance will be provided at Detail Design	Pre-construction	Construction activities monitoring	Construction

Environmental Component	Mitigation Measure (or related action)	Relevant Project Phase: Mitigation	Monitoring Activity Requirements	Relevant Project Phase: Monitoring
			Monitor site restoration activities	Post construction
	Develop an Environmental Mitigation and Monitoring Plan	Pre-construction		
	Implement erosion and sediment controls	Pre-construction and construction		
	Implement erosion and sediment controls	Construction		
	Time work to meet coldwater timing window.	Construction		
	Manage risks of spills	Construction		
	Complete site restoration	Post construction		
Stormwater Management (SWM) Features	Provide detailed water balance at Detail Design	Pre-construction	No monitoring activities are required	Not applicable
	Implement erosion and sediment controls	Construction		
	Encourage on-site infiltration of stormwater	Operation		
Soil Quality	Prepare Health and Safety Plan	Pre-construction	Construction activities monitoring	Construction
	Prepare Soil Management Plan	Pre-construction		
	All excavated materials will be stockpiled in accordance with MOECC's guidelines	Construction		
	Undertake testing of contaminated soils as required and according to applicable legislation	Construction		

Environmental Component	Mitigation Measure (or related action)	Relevant Project Phase: Mitigation	Monitoring Activity Requirements	Relevant Project Phase: Monitoring
	Prepare Hazardous Materials and Fuel Handling Plan	Construction and operation		
	Prepare Spill Prevention and Response Plan	Construction and operation		
	Contact MOECC's York-Durham District Office if contaminated soils are present	Construction and Operation		
	Winter maintenance activities by persons certified by Smart About Salt	Operation		
Groundwater Quality and Quantity	Confirm the need for and extent of water quality testing	Pre-construction	Hazardous Materials and Fuel Handling monitoring Environmental Mitigation and Monitoring Plan	Construction and operations
	Complete an Environmental Management Plan	Pre-construction		
	Implement sediment and erosion control measures	Pre-construction and Construction		
	Discharge dewatering, if required, to the natural environment	Construction		
	Develop Risk Management Plan.	Construction and Operation		
	Contractor certification Smart About Salt	Construction and Operation		
Significant Groundwater Recharge Area (SGRA)	Construction Best management protocols	Construction	Hazardous Materials and Fuel Handling monitoring	Construction and operation
	Refueling best management practices	Construction and operation		
	Maintain water balance	Construction and operation		

Environmental Component	Mitigation Measure (or related action)	Relevant Project Phase: Mitigation	Monitoring Activity Requirements	Relevant Project Phase: Monitoring
	Spill response planning and management	Construction and operation		
	Secondary containment of any temporary or permanent fuel storage	Operations		
Highly Vulnerable Aquifer (HVA)	Construction best management protocols	Construction	Hazardous Materials and Fuel Handling monitoring	Construction and operation
	Spill response planning and management	Construction and operation		
	Refueling best management practices	Construction and operation		
	Secondary containment of any temporary or permanent fuel storage	Operation		
Well Head Protection Area D (WHPA-D)	Construction best management protocols	Construction	Hazardous Materials and Fuel Handling monitoring as per Town of Whitchurch-Stouffville's Site activities, by York Region's Risk Management Department	Construction and operations
	Refueling best management practices	Construction and operation		
	Spills response planning and management	Construction and operation		
	Secondary containment of any temporary or permanent fuel storage	Operation		

Environmental Component	Mitigation Measure (or related action)	Relevant Project Phase: Mitigation	Monitoring Activity Requirements	Relevant Project Phase: Monitoring
Trees	Flag designated trees for preservation	Pre-construction	Tree protection fencing inspections	Construction
	Rigging cables or hardware will not be attached to the trees	Construction		
	Tree protection Construction best practices	Construction	Maintenance staff will monitor all trees and undertake required maintenance during first year of operation	Operations
	No idling of construction equipment in Tree Protection Zone (TPZ)	Construction		
	Avoid vegetation clearing and removal during primary nesting period	Construction		
	Remove all felled trees, lumber and brush.	Construction		
	Landscape Plan developed in accordance with Metrolinx's Vegetation Compensation Protocol	Post construction		
Existing Site Users	Provide advanced notice of construction activities and construction staging	Pre-construction and construction	Construction activity monitoring	Construction
	Implement signage and wayfinding aides	Construction		
	The implementation Traffic controls	Construction		
	Members of the public can contact Metrolinx with any concerns	Construction and Operations		
Air Quality	Construction best management protocols including an Air Quality Management Plan	Construction	Construction activity monitoring	Construction

Environmental Component	Mitigation Measure (or related action)	Relevant Project Phase: Mitigation	Monitoring Activity Requirements	Relevant Project Phase: Monitoring
	Reducing dust emissions with a non-chemical dust suppressant or water	Construction		
	Construction phasing	Construction		
Noise	Construction equipment will meet NPC-300 criteria	Construction	Construction activity monitoring	Construction
	Adhere to By-Law 2015-172-RE	Construction		
	Local Noise By-Law and Protocol to identify and resolve issues associated with noise	Construction and operation		
Vehicular Traffic	Construction staging	Construction	Construction activity monitoring	Construction

7.4.2 Environmental Mitigation and Monitoring Plan

The Environmental Mitigation and Management Plan (EMMP) will outline environmental protection measures for natural environment and socio-economic features located on or adjacent to the project site. The EMMP will include both general and site-specific environmental protection measures based on project-specific requirements, past project experience, current industry best management practices, and consistency with federal and provincial construction mitigation practices. The EMMP will:

- Outline environmental protection measures related to project activities
- Provide instructions for carrying out construction activities to minimize environmental effects
- Serve as reference information for the environmental inspection staff to support decision-making and provide links to more detailed information.

The EMMP will be developed based on a combination of desktop review and a review of existing field survey data to provide project-related environmental mitigation measures and follow-up commitments to be addressed during the detailed engineering design, construction and post-construction reclamation phases.

The EMMP will be developed with the goal of ensuring that construction is completed in compliance with environmental approvals, commitments and obligations. A core component of the EMMP will be engaging an Environmental Monitor, which will provide the following services in implementing the EMMP:

- Conduct a routine monitoring program to confirm that environmental protection measures are conducted as planned;
- Identify and provide direction to remediate any unexpected environmental occurrences (i.e., failure of environmental protection measures, damage to protection measures resulting from unexpected storms);
- Provide expert guidance to project staff during construction to ensure that the environment is protected according to environmental approvals, commitments and obligations;
- Confirm that any commitments or requirements developed in accordance with regulatory authorities are carried out as planned, and recommend additional protection measures, if required;
- Document environmental protection measures, deficiencies and methods to address environmental deficiencies carried out by project staff;
- Where required, act as a liaison between Metrolinx and regulatory agencies when issues arise during construction;
- Conduct additional field programs as required (i.e., fish rescue programs); and

- Identify appropriate timing windows (e.g., in-water works, breeding bird season) and clear sites for construction where required.

The EMMP will outline how environmental monitoring staff will address deficiencies with the Contract Administrator and construction contractor so that these issues can be resolved in a timely manner to avoid negative impacts to the environment.

The EMMP will also outline procedures for construction monitoring staff to provide direction to the construction contractor for location of environmental protection measures that require site specific considerations, or “field fit”. They will also identify areas that may require additional environmental protection measures not identified on the construction drawings. Any additional environmental mitigation measures will be discussed with Metrolinx staff prior to directing the contractor to install them.

7.5 EPR ADDENDUM

There are constraints at the existing GO Station that Metrolinx is working to address. As outlined in the Feasibility Study (Stantec, 2017), due to its proximity to a layover yard, the existing GO Station services are limited. In addition, there are no public washrooms, waiting rooms, and/or a station building on-site. The existing station site has limited space to accommodate the modifications required at the GO Station to:

- Meet the requirements of RER service improvements being planned along the Stouffville rail corridor
- Satisfy the policies, goals and objectives related to transit planning, including but not limited to providing transportation choices, comfort and convenience, multi-modal integration and, an attractive, well-planned region
- Continue to provide a safe and comfortable experience for GO customers

The activities associated with the existing and future layover and bus operations, including maintenance, fueling, sanding and storage, are not conducive to an enhanced, comfortable customer experience.

Based on the service upgrades required as part of the RER program, anticipated growth in ridership, and transit planning goals and objectives, the following improvements are anticipated to be required at the Lincolnville GO Station:

- Parking for 668 vehicles (with space for expansion in the future)
- Electrical vehicle parking and charging stations, and 12 accessible parking spaces
- Passenger platforms with new canopies and new enclosed waiting areas
- Modified PPUDO for a minimum of 24 vehicles with one taxi/drop off area near the platform

- Bus loop with four shelters and bus bays adjacent to station platform
- Cycling pathways and associated amenities
- Canopy-covered single rail platform
- New mechanical, electrical and communication services building
- Provisions for one 300 m^2 station building in the future

Given the upgrades required to the GO Station and the expansion of the Layover Facility, opportunities to relocate the existing station to a suitable site to achieve service objectives will be explored. Consideration of developing a new station on a separate site provides an opportunity to offer improved amenities and a more comfortable experience for GO commuters, while avoiding conflicts with storage and maintenance activities, and accommodating the anticipated ridership growth associated with Metrolinx's RER service improvement commitments.

If changes to the GO Station location or facilities are contemplated, they will be examined in further detail in an addendum to this EPR.

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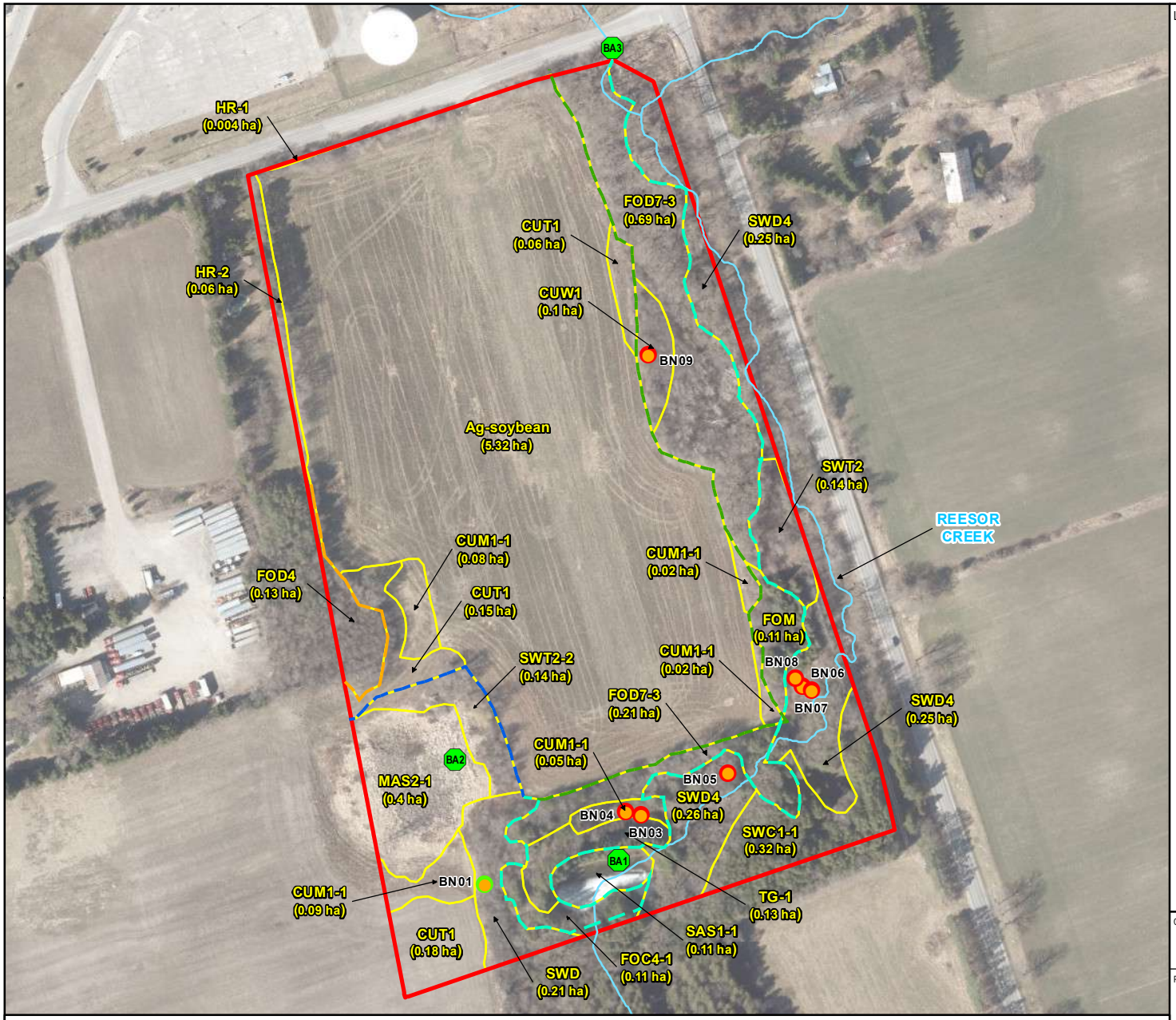

LEGEND

- Breeding Amphibian Survey
- Butternut - Retainable
- Butternut - Non-Retainable
- Watercourse
- Wetland Limit (Palmer, 2019)
- Wetland Staked Limit (May 10, 2017)
- Significant Woodland Staked Limit (May 10, 2017)
- Black Locust Woodland Staked Limit (May 10, 2017)
- ELC Community
- Subject Property (9.57 ha)

1. Staked on May 10 2017

0 10 20 40 60 80 100
METRE SCALE

North American Datum 1983
Universal Transverse Mercator Projection Zone 17

Scale: 1:3,000
Page Size: Letter (8.5 x 11 inches)

Drawn: SM
Checked: RC
Date: Nov 29, 2022

NORTH

Source Notes:
Imagery (2021) provided by York Region map service.

ELC LEGEND

Terrestrial System
Forest (FO)
FOC4-1: Fresh-Moist White Cedar Coniferous Forest Type
FOM: Mixed Forest Community Class
FOD4: Black Locust Deciduous Forest Ecosite
FOD7-3: Fresh-Moist Willow Lowland Deciduous Forest Type

Cultural (CU)
CUM1-1: Dry-Moist Old Field Meadow Type
CUT1: Mineral Cultural Thicket Ecosite
CUW1: Mineral Cultural Woodland Ecosite

Wetland Communities
Swamp (SW)
SWD4: Mineral Deciduous Swamp Ecosite
SWT2: Mineral Thicket Swamp Ecosite
SWT2-2: Willow Mineral Thicket Swamp Type

Marsh (MA)
MAS2-1: Cattail Mineral Shallow Marsh Type

Shallow Water (SA)
SAS1-1: Pondweed Submerged Shallow Aquatic Type

Anthropogenic
Agricultural: Wheat
TG-1: Tree Group
HR-1: Maple Hedgerow
HR-2: Hedgerow

CLIENT
Stateview Homes

PROJECT
Stateview Homes York Durham Line Ecology

TITLE
Existing Environmental Conditions

Palmer

REF. NO. 2108204-2-3

Figure 2

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Community of Stouffville
Secondary Plan Amendment
Phase 3 Lands
Natural Environment Background Report

Prepared for:
The Town of Whitchurch-Stouffville
37 Sandiford Drive, 4th Floor
Stouffville, ON L4A 7X5

Project No. 1433

Date: November 2013

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Community of Stouffville
Secondary Plan Amendment
Phase 3 Lands
Natural Environment Background Report

Project Team

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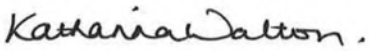
Christy Humphrey	Terrestrial and Wetland Biologist
Ken Burrell	Terrestrial and Wetland Biologist
Nyssa Clubine	Environmental Analyst / Geomorphic Coordinator

Report submitted on November 22, 2013



Katharina Walton, Project Manager

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1.0 Introduction

A Growth Management Strategy was completed recently for the Town of Whitchurch-Stouffville to manage the pressures for growth as set out in the 2011-2014 Corporate Strategic Plan. The Growth Management Strategy was Phase 1 in a two-phased project for the Town. Phase 2 of the project is a Secondary Plan Amendment to accommodate projected residential and employment growth in the Community of Stouffville Phase 3 development lands (see Figure 1). Phase 2 includes the preparation of this environmental background report, including the refinement of a Natural Heritage System for the Phase 3 Lands.

This work involved a detailed review of existing information. The various sources of existing information in data and map form were consolidated, along with field surveys to confirm natural features and boundaries. This information was used to develop a Natural Heritage System for the Phase 3 Lands based on a refinement of the municipality's existing Greenlands system and the Toronto and Region Conservation Authority's (TRCA) Terrestrial Natural Heritage System (TNHS).

Figure 1

Stouffville Phase 3 Lands

Study Area

Legend

- Phase 3 Lands
- Municipal Boundary
- Road
- Proposed Road
- Railway
- Contour (5m)
- Watercourses
- Waterbodies

638400 639300 640200 641100 642000

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Ninth Line
Tenth Line
York Durham Line
Reesor Creek
Hwy 48 Tributary
Stouffville Reservoir
Stouffville Creek
Main Street

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Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc. This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNR© Copyright: Queen's Printer Ontario. Imagery: York 2012.

Project: 1428
Date: September 25, 2013

NAD83 - UTM Zone 17
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2.0 Study Methods

A range of background studies and policy documents were reviewed as they pertain to the study area, including the Whitchurch-Stouffville Natural Features & Greenlands Study (Gartner Lee 2000), Oak Ridges Moraine Conservation Plan (MMAH 2002), Greenbelt Plan (MMAH 2005), Rouge River Watershed Plan (TRCA 2007a) and Implementation Guide (TRCA 2008), Region of York Official Plan Review (2013), Watershed Report Cards (TRCA 2013a, b), Fisheries Management Plans for the Rouge River (TRCA 2011) and Duffins Creek (TRCA 2004), Great Lakes Conservation Blueprint (Henson and Brodribb 2005), and the TRCA's Natural Heritage System Strategy (2007b).

The Ministry of Natural Resources (MNR), Aurora District office, and TRCA were contacted for available information on natural heritage within the study area. The Natural Heritage Information Centre's (NHIC) Biodiversity Explorer website was queried for information with regards to significant species and protected natural areas. The background review included review of available mapping, recent ortho-rectified air photos, and legacy data (e.g. significant plant and wildlife species, designated natural areas).

Initial species lists were compiled to provide information on species reported from the local vicinity (10x10km survey squares 17PJ37 and 17PJ47) using the various wildlife atlases including the Ontario Mammal Atlas (Dobbyn 1994), Ontario Breeding Bird Atlas (OBBA) (BSC et al. 2006), Reptile and Amphibian Atlas (Ontario Nature 2013), Ontario Odonata Summary Atlas (NHIC 2005), and Ontario Butterfly Atlas (TEA 2012). All wildlife species identified as nationally significant (COSEWIC 2013) or provincially significant (MNR 2013) were cross-referenced with species and habitats known to occur within the study area.

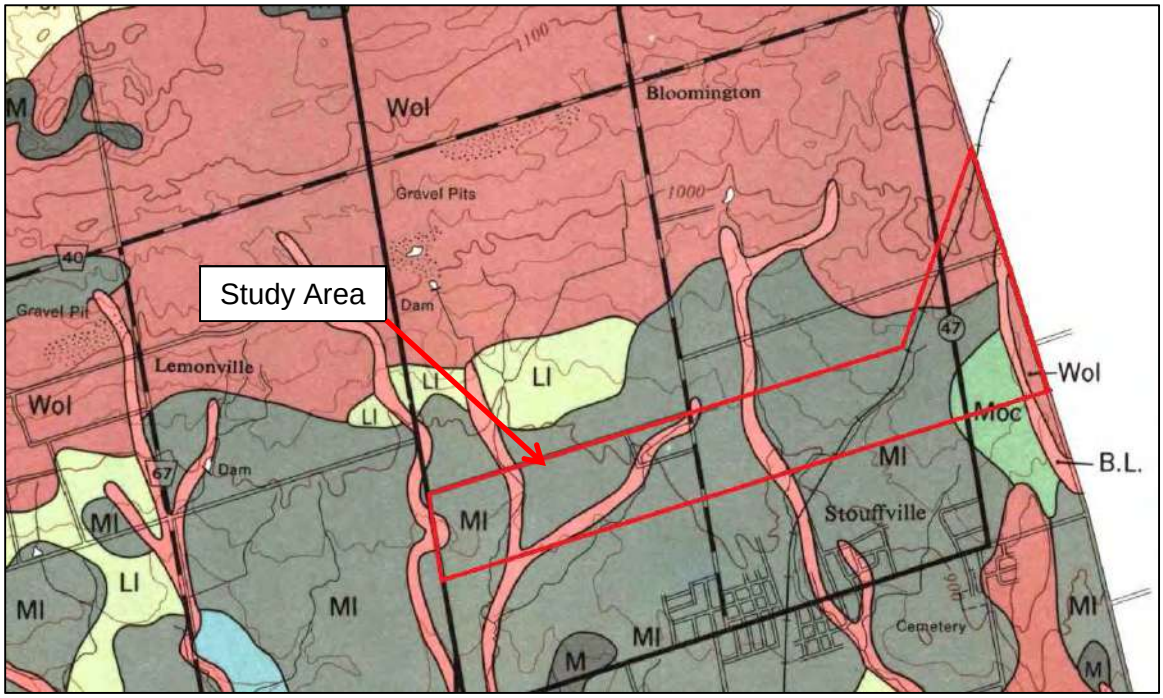
Two field visits were conducted in August 2013. The first visit was conducted on August 7, during which vegetation within the study area was characterized using the Ecological Land Classification (ELC) system (Lee et al. 1998) and bird and wildlife observations were noted. The second visit was conducted on August 19 to confirm some of the ELC classifications at a more detailed level, following a concept development workshop held on August 15, 2013.

3.0 Existing Conditions

3.1 Surficial Geology and Soils

The study area falls within the Oak Rides Moraine (see Oak Ridges Moraine Conservation Plan Land Use Designation Map in Appendix I). The Oak Ridges Moraine is an irregular ridge of sandy hills stretching 160km from the Niagara Escarpment in the west to the Trent River in the east (MMAH 2009). It is the watershed divide between western Lake Ontario to the south and Lake Simcoe, Georgian Bay, and the Trent River system to the north. Locally, the Oak Ridges Moraine manifests itself as hummocky terrain consisting of kames and kettles with several kettle lakes and ponds scattered across the landscape. This topography ends abruptly just north of Bethesda Road and is the most southerly geological surface expression of the Oak Ridges Moraine in the area (Gartner Lee 2000). The moraine consists primarily of coarse glacial deposits, including sand, silt and gravels. Smaller patches of fine grained sediment can be found scattered across the landform that consist of silt, clay and glacial till. Along the north and south edges of the moraine, coarse grained sediments are buried and fine grained silt till forms a poorly drained cap (Gartner Lee 2000). This till cap is known as the Halton till, and is generally described as a clayey silt to silt till that is 1 to 15m thick (Hoffman and Richards 1955). The Halton till forms gently rolling topography, dissected with many tributary and headwater channels. Along the south edge of the Oak Ridges Moraine, where the till is thinner, significant groundwater discharge occurs and forms a series of headwater streams that flow into the Rouge River and Duffins Creek. South of Bethesda Road the till cap thickens and is the dominant physiography within the study area.

The *Soil Survey of York County* (Hoffman and Richards 1955) shows the majority of the study area comprised of the Milliken soil series (MI), a loam soil with imperfect drainage. A portion of the soil map from that study is shown in Figure 2, which depicts the various soil types within the study area. The Milliken soils are medium textured brown shaly calcareous till. The topography is moderately to gently sloping. Bottom lands (B.L.) associated with watercourses dissect the Milliken soil unit and are composed of irregularly stratified alluvial deposits. A small area of Monoghan (Moc) clay loam soil is situated near the eastern boundary of the study area. This soil unit is comprised of brown, calcareous, gritty clay till with imperfect drainage and is gently sloping. The far eastern extent of the study area is comprised of Woburn (Wol) loam, which is a medium textured brown shaly calcareous till with good drainage on steep slopes.

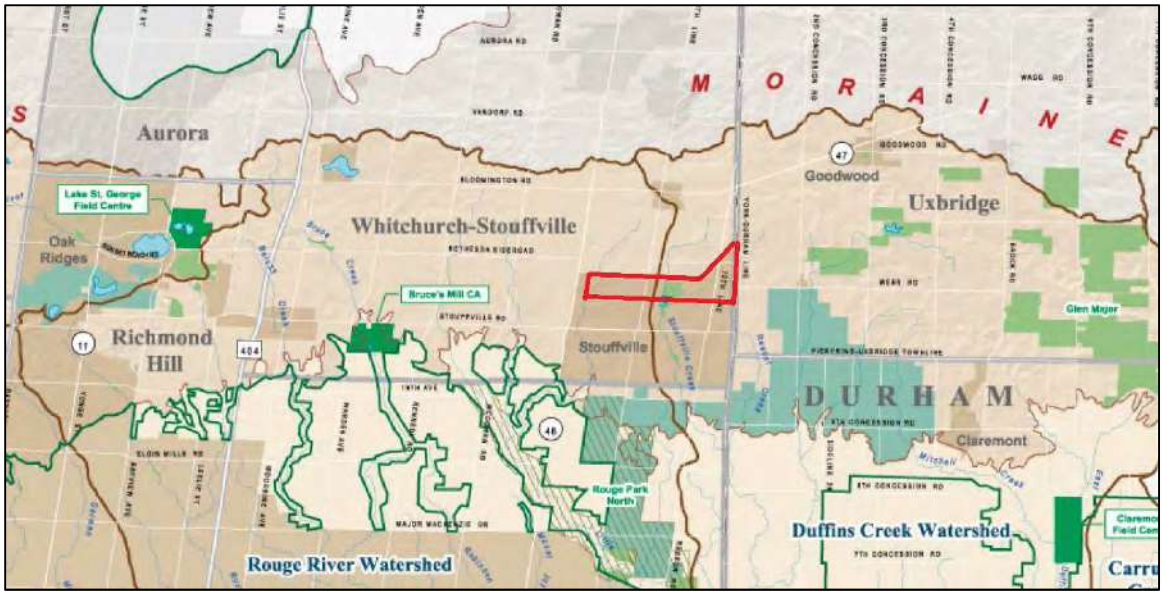


Source: Hoffman and Richards 1955

Figure 2. Soil Survey of York County

3.2 Drainage

The study area falls entirely within the Toronto and Region Conservation Authority's (TRCA) jurisdiction and is split between the Rouge River Watershed and the Duffins Creek Watershed. The west portion of the study area falls within the Little Rouge Subwatershed and the east portion is within the West Duffins Creek Subwatershed (Figure 3). The Rouge River watershed drains a total of 336km^2 and originates along the southern slope of the Oak Ridges Moraine where groundwater springs form the headwaters of three tributaries: Berczy Creek, Bruce Creek and Little Rouge River. The headwaters of the Little Rouge River are located in the vicinity of the study area and have been identified in MNR mapping as coldwater systems (Gartner Lee 2000). The northeast portion of the study area contains the headwaters of Stouffville Creek and Reesor Creek, which feed into the West Duffins subwatershed and eventually into Duffins Creek, which drains a total of 287km^2. The headwaters of both the Rouge River and Duffins Creek are coldwater channels that support an array of fish species. Stouffville Creek is considered warmwater because of the presence of the Stouffville reservoir, an online pond, and the lack of woody riparian vegetation (TRCA 2002). Field observations by NRSI biologists, however, indicate that the creek is coldwater within the Phase 3 Lands (upstream of the reservoir), as water temperatures were measured to be 12°C when air temperatures were 28°C on August 19, 2013. In addition, many areas of groundwater discharge into the stream were observed, including iron staining.



Source: TRCA 2005

Figure 3. Major Watershed Boundaries in Relation to the Study Area

3.3 Natural Systems and Areas

The study area falls entirely within Ontario's Greenbelt and Oak Ridges Moraine (ORM) Conservation Plan Area. Maps of these areas are contained in Appendix I. The study area is within a designated Settlement Area of the Oak Ridges Moraine Plan. This land use designation allows for urban development to occur. Immediately north of the study area the lands are designated "Natural Linkage Area" (identified on Figure 4) and "Countryside Area" in the Oak Ridges Moraine Plan. Natural Linkage Areas are designated areas that protect connections between Natural Core Areas of the ORM, as well as protect river and stream corridors. Countryside Areas provide a transition between agricultural areas and rural areas, as well as buffer Natural Core Areas and Natural Linkage Areas from urbanized Settlement Areas. Countryside Areas contain prime agricultural lands and provide protection to natural features (MMAH 2002). The Greenbelt Plan identifies the lands encompassing the study area as "Towns and Villages".

York Region has developed a comprehensive Greenlands System that identifies and connects key natural heritage features, key hydrologic features, and adjacent lands in a linked system. This system takes a natural heritage system and features based approach to preserving natural features. It incorporates previously designated Natural Core Areas and Natural Linkages within the Oak Ridges Moraine Conservation Plan, features within the Natural Heritage System within the Protected Countryside of the Greenbelt Plan and lands necessary to maintain these features within a system.

The Town of Whitchurch-Stouffville has designated a portion of the subject lands as Greenland System within its Official Plan (2011) (see Figure 4 of this report). The Community of Stouffville Secondary Plan is Section 12 of the Town's Official Plan, and the Greenland System is shown on Schedule F-3 of the Secondary Plan (included in Appendix I of this report) and addressed primarily in Sections 12.3.2 and 12.5.2. The

Greenland System is a system of natural open space which includes stream valleys, wetlands and forested areas (Section 12.3.2.i). It has been established to protect the key natural features and functions within the Community and "shall be maintained, enhanced, and expanded" (Section 12.3.2.iii).

The TRCA (2007b) developed a Natural Heritage System Strategy for the lands under its jurisdiction. The Strategy is "designed to protect and improve biodiversity by increasing the quality and amount of forest and wetland habitats by building upon the existing terrestrial system and optimizing the opportunities for native species diversity" (p. 1). The TNHS, identified on Figure 4 of this report, is based on existing natural cover and potential natural cover, and was developed on a regional scale as a *model*, which is to be refined by area municipalities based on more detailed information to be included in Official Plans. The TNHS is supported in the Rouge River Watershed Plan (TRCA 2007a).

Stouffville Marsh, central to the Phase 3 Lands (Figure 4), is a locally significant natural feature. The wetland was formally evaluated in 1985 by the TRCA. It is 36.34ha in area (Varga pers. comm. 2013). The wetland supports an open water submergent marsh community surrounded by cattail marsh, with an herbaceous marsh and large seepage-fed conifer swamp upstream. A map of the marsh with its various vegetation communities is included in Appendix I. Stouffville Marsh is part of a large band of wetlands to the east and west that support seepage-fed swamps fed by the Oak Ridges Moraine Upper Aquifer. The wetlands provide critical base flows to the watercourses and support coldwater habitat. The only wetland in this band of wetlands that has been evaluated to date is Stouffville Marsh, whose evaluation recently underwent a desktop update by the MNR. All wetlands in the area have been mapped by MNR through airphoto interpretation and ground-truthing along roads and other public right-of-ways (Varga pers. comm. 2013). Steve Varga, MNR wetland biologist, recommends that evaluations be completed on the unevaluated wetlands using the Ontario Wetland Evaluation System by qualified individuals, as development in the area progresses (Varga pers. comm. 2013).

3.4 Vegetation

3.4.1 Vascular Flora

Detailed vegetation inventories were beyond the scope of this study. A list of all vegetation species known from the study area is included in Appendix II. This list, comprising 251 species, includes data obtained from the TRCA for the area, as well as data specific to Stouffville Marsh. Species observed by NRSI biologists during field surveys are also included.

A search of the study area on the NHIC database (MNR 2010) for all 1km squares covering the study area, as well as a list of species known in the area provided by the TRCA, listed 2 significant vegetation species: butternut (*Juglans cinerea*) and Schweinitz's sedge (*Carex schweinitzii*). Butternut is an Endangered species in Ontario and Canada (MNR 2013, COSEWIC 2013); Schweinitz's sedge is considered Vulnerable (S3) in Ontario (MNR 2010). American Ginseng (*Panax quinquefolius*) was reported by Gartner Lee (2000) from within Whitchurch-Stouffville. This species is

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Ninth Line
Tenth Line
York-Durham Line
Stouffville Marsh
Main Street
North Line

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Figure 4

Stouffville Phase 3 Lands

Natural Systems and Areas

Legend

- Phase 3 Lands
- Municipal Boundary
- Road
- Proposed Road
- Railway
- Watercourses
- Provincially Significant Wetland (PSW)
- Other Wetland (Non-PSW)
- Existing Natural Cover (TNHS (TRCA))
- Potential Natural Cover (TNHS (TRCA))
- ORM Natural Linkage Area
- Town's Greenlands System

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Map Produced by Natural Resource Solutions Inc. This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNR© Copyright: Queen's Printer Ontario. Imagery: York 2012.

Project: 1428
Date: October 17, 2013

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considered Endangered in Ontario and Canada (MNR 2013, COSEWIC 2013). The latter 2 species are not known from the Phase 3 Lands specifically, but several butternut trees are reported from the eastern portion of the subject lands. Butternut prefers riparian habitats, but is also found on rich, moist, well-drained loams, and well-drained gravels, especially those of limestone origin (COSEWIC 2003).

The TRCA has developed a ranking system for flora and fauna. L1, L2, and L3 species are considered significant. Table 1 lists the 56 significant species reported from the study area. Table 2 lists the 52 locally significant species reported from the study area as identified by Riley (1989) and Varga et al. (2000). The majority of species have habitat preferences that range from upland woods to wetlands.

Table 1. TRCA Significant Plant Species Reported From the Study Area

Common Name	Scientific Name	TRCA Rank
Golden Groundsel	*Packera aureus*	L2
Gold-thread	*Coptis trifolia*	L2
Red Pine	*Pinus resinosa*	L2
Showy Lady's Slipper	*Cypripedium reginae*	L2
Tall Leafy Green Orchis	*Platanthera hyperborea*	L2
Twinflower	*Linnaea borealis ssp. longiflora*	L2
American Marsh-pennywort	*Hydrocotyle americana*	L3
American Royal Fern	*Osmunda regalis var. spectabilis*	L3
American Yew	*Taxus canadensis*	L3
Beaked Sedge	*Carex utriculata*	L3
Bluebead-lily	*Clintonia borealis*	L3
Bristle-stalked Sedge	*Carex leptalea ssp. leptalea*	L3
Bristly Sedge	*Carex comosa*	L3
Butternut	*Juglans cinerea*	L3
Canada Plum	*Prunus nigra*	L3
Carolina Spring Beauty	*Claytonia caroliniana*	L3
Chestnut Sedge	*Carex castanea*	L3
Cinnamon Fern	*Osmunda cinnamomea*	L3
Common Floating Pondweed	*Potamogeton natans*	L3
Creeping Partridge-berry	*Mitchella repens*	L3
Dwarf Scouring-rush	*Equisetum scirpoides*	L3
Fringed Black Bindweed	*Polygonum cilinode*	L3
Golden Saxifrage	*Chrysosplenium americanum*	L3
Green-fruited Bur-reed	*Sparganium emersum ssp. emersum*	L3
Indian Tobacco	*Lobelia inflata*	L3
Indian-pipe	*Monotropa uniflora*	L3
Inland Sedge	*Carex interior*	L3
Large-flowered Bellwort	*Uvularia grandiflora*	L3
Leatherwood	*Dirca palustris*	L3
Lesser Panicled Sedge	*Carex diandra*	L3
Montane Blue-eyed-grass	*Sisyrinchium montanum*	L3
Multi-coloured Blue-flag	*Iris versicolor*	L3
Naked Mitrewort	*Mitella nuda*	L3

Narrow-leaved Willow-herb	*Epilobium leptophyllum*	L3
Northern Long Beech Fern	*Phegopteris connectilis*	L3
Northern Maidenhair Fern	*Adiantum pedatum*	L3
Oak Fern	*Gymnocarpium dryopteris*	L3
Panic Grass	*Panicum columbianum*	L3
Pinesap	*Monotropa hypopithys*	L3
Plantain-leaved Sedge	*Carex plantaginea*	L3
Purple Avens	*Geum rivale*	L3
Rattlesnake Fern	*Botrychium virginianum*	L3
Rose Twisted-stalk	*Streptopus roseus*	L3
Sharp-lobed Hepatica	*Anemone acutiloba*	L3
Smaller Enchanter's Nightshade	*Circaea alpina*	L3
Smaller Yellow Lady's Slipper	*Cypripedium parviflorum var.makasin*	L3
Smooth-sheathed Sedge	*Carex laevivaginata*	L3
Speckled Alder	*Alnus incana spp. rugosa*	L3
Spikenard	*Aralia racemosa ssp. racemosa*	L3
Spring Clearweed	*Pilea fontana*	L3
Star-flower	*Trientalis borealis ssp. borealis*	L3
Tamarack	*Larix laricina*	L3
Two-leaved Bishop's Cap	*Mitella diphylla*	L3
Water Horsetail	*Equisetum fluviatile*	L3
White Spruce	*Picea glauca*	L3
Wild Red Currant	*Ribes triste*	L3

Table 2. Locally Significant Plant Species Reported From the Study Area

Common Name	Scientific Name	York (Varga 2000)	York-Metro (Riley 1989)
American Marsh-pennywort	*Hydrocotyle americana*	U	X
American Royal Fern	*Osmunda regalis var. spectabilis*	U	X
Beaked Sedge	*Carex utriculata*	U	X
Black Maple	*Acer saccharum ssp. nigrum*	R4	X
Black Snakeroot	*Sanicula marilandica*	U	
Black Walnut	*Juglans nigra*	R	R-1 Nat
Blue Cohosh	*Caulophyllum giganteum*	R	
Bristle-stalked Sedge	*Carex leptalea ssp. leptalea*	U	X
Bristly Sedge	*Carex comosa*	U	X
Broad-leaved Reed Grass	*Cinna latifolia*	U	X
Canada Plum	*Prunus nigra*	U	
Carolina Spring Beauty	*Claytonia caroliniana*	U	X
Common Evening-primrose	*Oenothera biennis*	U	X
Common Floating Pondweed	*Potamogeton natans*	U	X
Fennel-leaved Pondweed	*Potamogeton pectinatus*	U	X
Fringed Black Bindweed	*Polygonum cilinode*	R1	X
Golden Groundsel	*Packera aureus*	R5	R-4
Golden Saxifrage	*Chrysosplenium americanum*	R6	R-2

Golden-fruited Sedge	*Carex aurea*	U	X
Greater Duckweed	*Spirodela polyrhiza*	U	X
Indian-pipe	*Monotropa uniflora*	U	
Le Conte's Violet	*Viola affinis*	U	X
Leatherwood	*Dirca palustris*	U	X
Lesser Panicled Sedge	*Carex diandra*	U	R-3
Montane Blue-eyed-grass	*Sisyrinchium montanum*	U	X
Narrow-leaved Willow-herb	*Epilobium leptophyllum*	U	X
Northern Long Beech Fern	*Phegopteris connectilis*	R8	X
Panic Grass	*Panicum columbianum*		R-4
Pinesap	*Monotropa hypopithys*	R6	
Plantain-leaved Sedge	*Carex plantaginea*	XU	X
Poison-ivy	*Toxicodendron radicans ssp. negundo*	R5	R-3
Pubescent Sedge	*Carex hirtifolia*	U	X
Purple Avens	*Geum rivale*	U	X
Rattlesnake Manna Grass	*Glyceria canadensis*	R3	
Red Pine	*Pinus resinosa*	X+	R-4
Rough Bedstraw	*Galium asprellum*	U	X
Rough Sedge	*Carex scabrata*	U	X
Sandbar Willow	*Salix exigua*	U	X
Showy Lady's Slipper	*Cypripedium reginae*	R9	X
Small-fruited Bulrush	*Scirpus microcarpus*	U	X
Smooth Rose	*Rosa blanda*	U	
Smooth-sheathed Sedge	*Carex laevivaginata*	R8	R-4
Spikenard	*Aralia racemosa ssp. racemosa*	U	X
Spring Clearweed	*Pilea fontana*	U	R-3
Tall Beggar-ticks	*Bidens vulgata*	R9	R-3
Tall Coneflower	*Rudbeckia laciniata*	R4	X
Tall Leafy Green Orchis	*Platanthera hyperborea*	R6	X
Twinflower	*Linnaea borealis ssp. longiflora*	R10	X
Virginia Wild Rye	*Elymus virginicus var. virginicus*	XU	X
White Rattlesnake-root	*Prenanthes alba*	R8	X
Wild Bergamot	*Monarda fistulosa*	U	X
Wild Red Currant	*Ribes triste*	U	X

3.4.2 Vegetation Communities

The natural vegetation within the study area was classified broadly into ELC Community Series by NRSI biologists in August 2013. The ELC mapping is shown on Figure 5. ELC mapping obtained from the TRCA for certain areas (mostly associated with Stouffville Marsh) were taken into consideration during the delineation of the vegetation communities. The existing natural vegetation communities are tied closely to the watercourses that traverse the Phase 3 Lands. Communities are dominated mostly by swamps, with some areas of marsh and upland forest. Agricultural fields form the matrix of the study area, and the crops grown in 2013 have been identified on Figure 5 as well. The fields are mostly planted with corn and soy. Some fields have been left fallow, allowing for meadows to become established in various degrees of succession.

Figure 5

Stouffville Phase 3 Lands

Vegetation Communities

638400 639300 640200 641100 642000

4873100 4872400 4871700 4871000 4870300

Ninth Line
Tenth Line
York Durham Line
Main Street

CVR_1 CVC_2 CVI_1 Soy CVR_4 SWDM4-1 TAGM1 FOM CVR_2 WOMM4 MAMM3 MASM1-1 Hay/Alfalfa SWT FOC2-2 OAGM3 IAGM1 SAGM2 SWC Corn CGL_4 WODM5-1 Wheat MAMM1 SWM MEMM4 MEGM2 SWM Pond FOD FODM8-1 CVR_1 MEMM3 FOM SWTM3 MAMM3 MEGM3-8 FODM11 TAGM5 THDM5 SWD CVC_1/CGL_4 IAGM1 MEFM4 MAM OAG SWMM1-1 OW WOD

Path: X:\1433_WhitchurchStouffville\NRSI_1433_Fig5_ELC_15K_2013_09_25_KEB.mxd

Legend

- Phase 3 Lands
- Municipal Boundary
- Road
- Proposed Road
- Watercourses
- Waterbodies
- Ecological Land Classification

(CGL_4) Recreational
(CVC_1/CGL_4) Golf Course / Recreation
(CVC_2) Parkland
(CVI_1) Transportation (highways, roads, railways, parking, airports)
(CVR_1) Low Density Residential
(CVR_2) High Density Residential
(CVR_4) Rural Property
(FOC2-2) Dry-Fresh White Cedar Coniferous Forest Type
(FOD) Deciduous Forest
(FODM11) Naturalized Deciduous Hedge-row Ecosite
(FODM8-1) Fresh-Moist Poplar Deciduous Forest Type
(FOM) Mixed Forest
(IAGM1) Agricultural Buildings
(MAM) Meadow Marsh
(MAMM1) Graminoid Mineral Meadow Marsh Ecosite
(MAMM1-2) Cattail Graminoid Mineral Meadow Marsh Type
(MAMM3) Mixed Mineral Meadow Marsh Ecosite
(MASM1-1) Cattail Mineral ShallowMarsh Type
(MEFM4) Fresh-Moist Forb Meadow Ecosite
(MEGM2) Fresh-Moist Graminoid Tallgrass Prairie Ecosite
(MEGM3-8) Reed Canary Grass Graminoid Meadow Type
(MEMM3) Dry-Fresh Mixed Meadow Ecosite
(MEMM4) Fresh-Moist Mixed Meadow Ecosite
(OAG) Open Agriculture
(OAGM3) Specialty Crops
(OW) Open Water
(SAGM2) Orchard
(SWC) Coniferous Swamp
(SWD) Deciduous Swamp
(SWDM4-1) Willow Mineral Deciduous Swamp Type
(SWM) Mixed Swamp
(SWMM1-1 / SWM) White Cedar-Hardwood Mineral Mixed Swamp Type
(SWT) Thicket Swamp
(SWTM3) Willow Mineral Deciduous Thicket Swamp Ecosite
(TAGM1) Coniferous Plantation
(TAGM5) Fencerow
(THDM5) Fresh-Moist Deciduous Thicket Ecosite
(WOD) Deciduous Woodland
(WODM5-1) Fresh-Moist Poplar Deciduous Woodland Type
(WOMM4) Fresh-Moist Mixed Woodland Ecosite

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Map Produced by Natural Resource Solutions Inc. This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNR© Copyright: Queen's Printer Ontario. Imagery: York 2012.

Project: 1428
Date: September 25, 2013

NAD83 - UTM Zone 17
Size: 11x17"
1:15,000

N

0 200 400 600 800 1,000 Metres

4.0 Wildlife

4.1 Birds

A list of all birds reported from the study area is included in Appendix II. This includes 131 species reported from the two OBBA (BSC et al. 2006) squares that cover the study area, and 29 species observed by NRSI biologists during road-side surveys on August 7, 2013. The significant species known from the study area are listed in Table 3. Based on the habitat preferences of each species, bank swallow (*Riparia riparia*), barn swallow (*Hirundo rustica*), Canada warbler (*Cardellina canadensis*), cerulean warbler (*Setophaga cerulea*), chimney swift (*Chaetura pelagica*), eastern wood-pewee (*Contopus virens*), and wood thrush (*Hylocichla mustelina*) may be found within the study area. These species are found predominantly in woodlands or anthropogenic areas. NRSI biologists observed bank swallow and barn swallow within the Phase 3 Lands.

4.2 Herpetofauna

According to the Reptile and Amphibian Atlas (Ontario Nature 2013), 17 species of herpetofauna have been reported from the vicinity of the study area including 3 species of turtle, 3 species of snake, 3 species of salamander, and 8 species of frogs and toads. In addition, the MNR reports the presence of milksnake (*Lampropeltis triangulum*) from the study area. Appendix II lists the herpetofauna reported from the study area. NRSI biologists observed American toad (*Anaxyrus americanus*) and green frog (*Lithobates clamitans melanota*) during field work.

Table 4 lists the Species at Risk reported from the Atlas: snapping turtle (*Chelydra serpentina serpentina*), milksnake (*Lampropeltis triangulum triangulum*), and western chorus frog (*Pseudacris triseriata*). Based on habitat preference, all of these species may be found within the study area. Snapping turtle and chorus frog prefer ponds and wetlands. Milksnake is a habitat generalist being found in forests, meadows, and agricultural areas.

4.3 Mammals

A total of 25 mammal species have been reported from the study area based on the Mammal Atlas of Ontario (Dobbyn 1994). The MNR also has reported northern myotis (*Myotis septentrionalis*) from the study area. A complete list of mammal species reported from the study area and their current status is included in Appendix II. Little myotis (*Myotis lucifugus*) and northern myotis are considered Endangered in Canada (COSEWIC 2013) and Ontario (MNR 2013). These bat species are facing the extreme threat of extirpation because of white-nose syndrome, a fungal infection causing death in almost every bat it infects. Little myotis roosts in forests and anthropogenic areas, and forages primarily over wetland and along forest edges (OMNR 2000). Northern myotis roosts in similar areas to little myotis, but forages within forests (OMNR 2000).

Table 3. Significant Bird Species Reported From the Study Area

Common Name	Scientific Name	SRANK[1]	COSSARO[2]	COSEWIC[3]	Habitat Preference	Record Source	Suitable Habitat Within Phase 3 Lands?
Bank Swallow	*Riparia riparia*	S4B		T	Banks along shorelines, gravel pits; long, tall banks with regular erosion that maintains the vertical face, telephone and hydrolines (MNR 2000).	OBBA, NRSI	Yes
Barn Swallow	*Hirundo rustica*	S4B	THR	T	Farmlands or rural areas; cliffs, caves, rock niches; buildings or other man-made structures for nesting; open country near body of water. This species forages in grassy fields, cleared ROW's, cottages and farms (MNR 2000; COSEWIC 2011).	OBBA, NRSI	Yes
Bobolink	*Dolichonyx oryzivorus*	S4B	THR	T	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; an area sensitive species requiring tracts of grassland >50ha. In Ontario, hayfields and pastures are preferred but they are usually absent from grain fields and row crops (COSEWIC 2010).	OBBA	No
Canada Warbler	*Cardellina canadensis*	S4B	SC	T	An interior forest species; breeds in cool, moist, mixed coniferous-deciduous forests with a well-developed understory; often in wet alder or cedar bottomlands. This species requires at least 30ha of mature woodland space. However, in Ontario known to breed in areas as small as 10ha (MNR 2000; Reitsma et al. 2010).	OBBA	Yes

Common Name	Scientific Name	SRANK[1]	COSSARO[2]	COSEWIC[3]	Habitat Preference	Record Source	Suitable Habitat Within Phase 3 Lands?
Cerulean Warbler	*Setophaga cerulea*	S3B	THR	E	Prefers mature deciduous woodland and Carolinian forests, however will nest in second growth forests in Ontario. Area sensitive species requiring tract of forest area >100ha in size. In Ontario it's known to breed in areas as small as 10ha (COSEWIC 2010; OMNR 2000).	OBBA	Yes
Chimney Swift	*Chaetura pelagica*	S4B, S4N	THR	T	Commonly found in urban areas near buildings; nests in hollow trees, crevices of rock cliffs, chimneys; highly gregarious; feeds over open water. Due to land clearing, hollow trees are increasingly rare and chimney swifts are now mainly associated with urban and rural area where there are large concentrations of chimneys for nest sites and communal roosts. In Ontario, this species uses air vents, outhouses, silos, and old garages in equal frequency to chimneys (Cink and Collins 2002).	OBBA	Yes
Eastern Meadowlark	*Sturnella magna*	S4B	THR	T	Open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas >10ha in size. This species breeds in Ontario, and favours well concealed grasslands and prairie habitats for nesting (Jaster et al. 2012).	OBBA	No

Common Name	Scientific Name	SRANK[1]	COSSARO[2]	COSEWIC[3]	Habitat Preference	Record Source	Suitable Habitat Within Phase 3 Lands?
Eastern Wood-Peewee	*Contopus virens*	S4B		SC	Deciduous and mixed forest edges, clearings, roadways, and open water areas (MNR 2000).	OBBA	Yes
Golden-winged Warbler	*Vermivora chrysoptera*	S4B	SC	T	Early successional habitat; shrubby, grassy abandoned fields with small deciduous trees bordered by low woodland and wooded swamps. In Ontario, territories are typically in wetlands at the edge of tamarack bogs, alder and willow wetlands; area sensitive species requires >10ha of habitat (Confer et al. 2011).	OBBA	No
Wood Thrush	*Hylocichla mustelina*	S4B		T	Woodlands ranging from small (3ha) and isolated to large and contiguous. Tall trees with a thick understory (MNR 2000).	OBBA	Yes

[1]MNR 2010; [2] MNR 2013; [3]COSEWIC 2013.

For legend, see Appendix III.

Table 4. Significant Herpetofaunal Species Reported From the Study Area

Common Name	Scientific Name	SRANK[1]	COSSARO[2]	COSEWIC[3]	Habitat Preference[4]	Record Source	Suitable Habitat Within Phase 3 Lands?
Eastern Milksnake	*Lampropeltis triangulum*	S3	SC	SC	Farmlands, meadows, hardwood or aspen stands; pine forest with brushy or woody cover; river bottoms or bog woods; hides under logs, stones, or boards or in outbuildings; often uses communal nest sites.	Reptile and Amphibian Atlas, NHIC	Yes
Snapping Turtle	*Chelydra serpentina serpentina*	S3	SC	SC	Permanent, semi-permanent fresh water; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites; may nest at some distance from water.	Reptile and Amphibian Atlas, NHIC	Yes
Western Chorus Frog	*Pseudacris triseriata pop.2 (Gr. Lakes/St. Lawrence - Canadian Shield Population)*	S3	NAR	T	Roadside ditches or temporary ponds in fields; swamps or wet meadows; woodland or open country with cover and moisture; small ponds and temporary pools.	Reptile and Amphibian Atlas	Yes

[1]MNR 2010; [2]MNR 2013; [3]COSEWIC 2013; [4]MNR 2000.

For legend, see Appendix III.

4.4 Butterflies, Dragonflies, and Damselflies

According to the Ontario Butterfly Atlas (TEA 2013), 33 butterfly species are known to occur in vicinity of the study area. NRSI observed cabbage white (*Pieris rapae*) and monarch (*Danaus plexippus*) from the Phase 3 Lands during field visits in August 2013. The latter was not recorded in the Butterfly Atlas but is considered a species of Special Concern in Ontario (MNR 2013) and Canada (COSEWIC 2013). Monarch requires milkweed species (*Asclepias* sp.) for their larvae to feed on, which is usually common in meadows and along forest edges. In addition, common sootywing (*Pholisora catullus*), classified as Vulnerable (S3) in Ontario (MNR 2010) is known from the study area. This butterfly species is found in open areas and disturbed areas where lamb-quarters (*Chenopodium album var. album*) is abundant (Layberry et al. 1998). A complete list of species known from the area is provided in Appendix II.

The Ontario Odonata Summary Atlas (MNR 2005) lists 43 dragonfly and damselfly species from the study area. This includes a single significant species: azure bluet (*Enallagma aspersum*), which is listed as Vulnerable (S3) in Ontario (MNR 2010). This species is associated with a wide variety of shallow ponds, both man-made and natural. It prefers ponds without fish, such as vernal ponds (Lam 2004). A complete list of species known from the study area is provided in Appendix II.

4.5 Fish

The TRCA completed a detailed assessment of the aquatic systems in the Rouge and Duffins watersheds in 2007, including a review of existing conditions by subwatershed. Data provided by the TRCA did not include redside dace (*Clinostomus elongatus*), however personal communication indicates that redside dace is listed within the fish collection records currently available for the study area (Guillette pers. comm. 2013), and this species has been identified as occurring in the area by the NHIC (2010), Gartner Lee (2000), and the MNR (Thompson pers. comm. 2013). The watercourses feeding into the Rouge River system, in the western portion of the Phase 3 Lands, provide contributing habitat to redside dace, and occupied habitat is found immediately south of the study area (Burkart pers. comm. 2013). Redside dace is listed as Endangered in Ontario (MNR 2013) and Canada (COSEWIC 2013). Redside dace is known from relatively small, clear headwater streams with pool and riffle habitats having abundant overhanging vegetation, usually found in meadows, pasture, and shrub habitats (COSEWIC 2007). The mid- and upper portions of the Rouge River watershed support the highest concentration of redside dace populations in Canada (MNR 2011). A complete list of fish known from the study area as provided by the TRCA (2013) is found in Table 5.

The TRCA has identified target species for management efforts within the Little Rouge River Subwatershed and the Stouffville Creek Subwatershed in Fisheries Management Plans written 2011 and 2004 respectively. The target species in the vicinity of the study area are Atlantic salmon (*Salmo salar*), American brook lamprey (*Lampetra appendix*), brook trout (*Salvelinus fontinalis*), mottled sculpin (*Cottus bairdii*), rainbow darter (*Etheostoma caeruleum*), and redside dace.

Table 5. Fish Species Known From the Study Area

Common Name	Scientific Name	Date Most Recently Recorded	SRANK[1]	COSSARO[2]	COSEWIC[3]
Blacknose Dace	*Rhinichthys obtusus*	6/14/2005	SNR		
Bluntnose Minnow	*Pimephales notatus*	5/23/1984	S5	NAR	
Brassy Minnow	*Hybognathus hankinsoni*	5/23/1984	S5		
Brook Stickleback	*Culaea inconstans*	8/23/2001	S5		
Brook Trout	*Salvelinus fontinalis*	7/28/2005	S5		
Coho Salmon	*Oncorhynchus kisutch*	8/17/1989	SNA		
Common Shiner	*Luxilus cornutus*	5/23/1984	S5		
Creek Chub	*Semotilus atromaculatus*	8/23/2001	S5		
Fathead Minnow	*Pimephales promelas*	6/14/2005	S5		
Johnny Darter	*Etheostoma nigrum*	8/23/2001	S5		
Longnose Dace	*Rhinichthys cataractae*	7/29/1985	S5		
Mottled Sculpin	*Cottus bairdii*	7/28/2005	S5		
Northern Redbelly Dace	*Chrosomus eos*	8/17/1989	S5		
Pumpkinseed	*Lepomis gibbosus*	7/30/1985	S5		
Rock Bass	*Ambloplites rupestris*	8/31/2000	S5		
White Sucker	*Catostomus commersonii*	8/23/2001	S5		

[1]MNR 2010; [2]MNR 2013; [3]COSEWIC 2013.

For the legend, see Appendix III.

5.0 Natural Heritage System

5.1 What is a Natural Heritage System?

A natural heritage system is defined as follows:

> *"A system made up of natural features and areas, linked by natural corridors which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems. These systems can include lands that have been restored and areas with the potential to be restored to a natural state"* (Provincial Policy Statement 2005).

The MNR provides guidance in identification of a natural heritage system in their *Natural Heritage Reference Manual* (MNR 2010). Using the MNR approach, the fundamental components of a natural heritage system consist of cores and linkages. Core areas are generally the building blocks of the natural heritage system and consist of large natural areas which perform vital ecological functions, such as provincially significant wetlands and significant woodlands. Cores are identified based on a number of aspects including size, integrity, shape, rare species and other significant designations, as well as other factors. Linkages, or corridors, are components of the natural heritage system that allow movement of wildlife and plant species. Methods and criteria for identifying core areas and linkages have been well researched and are documented in numerous publications (Environment Canada 2013, MNR 1999, MNR 2010, Ontario Nature 2004). One aspect of identifying cores and linkages is the need to consider the local context and landscape scale of the planning area. It is key to understand the landscape in and around the study area when identifying natural heritage systems.

5.2 How was the Study Area Natural Heritage System Developed?

The study area Natural Heritage System (NHS) is based on the natural features present within the study area which were confirmed through field work and air photo interpretation, as well as review of the boundaries of the natural heritage features and systems identified in policy documents and through other studies. The NHS delineation also took into account concepts of identifying core areas and associated linkages. These pre-existing designations include:

- Natural feature mapping included in the Town's Community of Stouffville Secondary Plan was reviewed and included where it was verified that it included a natural area as opposed to a developed park or other developed area (e.g. residential neighbourhood). Official Plan mapping includes the Greenland System.

- The Region of York's Greenlands System was reviewed and included where it coincided with natural features present within the Phase 3 Lands.

- The Great Lakes Conservation Blueprint (Henson and Brodribb 2005) is a large-scale natural heritage system analysis of the Great Lakes Region that identifies specific areas that will help conserve biodiversity. The Blueprint maps protected areas, natural heritage lands, and priority stewardship lands by ecodistrict. It also provides charts with detailed information about species and vegetation

communities to be protected. The Stouffville study area falls within the Whitby Ecodistrict 6E-4 of the Blueprint.

- The TRCA's Terrestrial Natural Heritage System Strategy (TNHSS) is a model to be used by municipalities in developing and refining Natural Heritage Systems within their jurisdiction. The TNHSS is based on existing natural cover and potential natural cover.

- Streams were included in the NHS. Watercourses provide an excellent opportunity to create linkages between natural features that would otherwise be separated.

Additional guidance was provided by the Oak Ridges Moraine Technical Papers (MMAH et al. undated) which provide direction on implementing the Oak Ridges Moraine Conservation Plan. The guidelines established for identifying key natural heritage features (Technical Paper 1) and significant woodlands (Technical Paper 7) were used to establish the NHS and more particularly the buffers within the Stouffville Phase 3 Lands area. The York Region Official Plan (2013) states that woodlands on the Oak Ridges Moraine will be evaluated for significance based on the requirements of the Oak Ridges Moraine Conservation Plan and its associated technical papers (Section 2.2.45.e). Significant woodlands are identified as any forest 4ha or greater in size, as the subject lands fall within the ORM Settlement Area.

Open upland areas such as meadows were not included in the NHS, although such areas provide necessary habitat for many wildlife species, including Species at Risk such as bobolink (*Dolichonyx oryzivorus*), eastern meadowlark (*Sturnella magna*), and barn swallow. Any development within the area will have to have regard for Species at Risk, and where applicable an evaluation will be carried out as part of specific development applications for areas outside the NHS. There are currently no large blocks of meadow and upland thickets within the Phase 3 Lands.

Floodplain areas must also be considered when they extend beyond the established Natural Heritage System. Existing floodplain areas are mapped in the Town's Zoning By-law 2010-001-ZO Schedules 47, 48, and 49, which cover the Phase 3 Lands. Floodplain limits may be refined through the subdivision process.

5.3 Establishment of Buffers

Buffers are areas of permanent vegetation surrounding a natural heritage feature in order to protect the feature and its functions by mitigating the impacts of adjacent land use. Where buffers are unvegetated at their establishment, they are restored to a natural state through seeding and/or planting. Typically buffers are required around woodlands, wetlands and watercourses. Woodland buffers are prescribed based on protecting the trees and their root zones, as well as allowing an area for edge trees and limbs to fall without damaging personal property. Aquatic and wetland buffers are required to protect feature, form and function, as well as the species that inhabit them. The Oak Ridges Moraine Conservation Plan specifies minimum vegetation protection zones (i.e. buffers) for key natural heritage features.

The Region of York's Official Plan (2013, Section 2.2.26) states the following:

> *That in the Urban Area and Towns and Villages, as designated on April 22, 2002, where secondary plans, official plans, zoning by-laws, or Master Environmental Servicing or Functional Servicing Plans are approved based on environmental studies that have identified minimum vegetation protective zones that are different from those identified in the Oak Ridges Moraine Conservation Plan, then the standards established within those plans shall prevail.*

Similarly, the Town's Official Plan (2011, Section 3.2.9.i) states that in Settlement Areas,

> *where the Secondary Plan, Official Plan or Zoning By-law or Master Environmental Servicing or Functional Servicing Plans are approved based on environmental studies that have [...] identified Minimum Vegetation Protection Zones that are different from those identified in the Oak Ridges Moraine Conservation Plan, then the standards established within those plans shall prevail.*

The watercourses in the western portion of the study area are part of the Rouge Watershed, which require a 30m buffer from the meander belt for the protection of redside dace. As the meander belt widths are unknown at this time, the full buffers have not been mapped.

As such, the following buffers are recommended:

- A 30m buffer from either side of the watercourse becomes part of the NHS, to remain consistent with ORM (MMAH 2002) and Greenbelt Plan (MMAH 2005) policies.
- A 30m buffer from either side of the meander belt on watercourses within the Rouge River watershed.
- A 10m woodland buffer, measured from the dripline of the trees; this includes cultural woodlands.
- Wetlands have a buffer of 30m, which is consistent with the ORM, Greenbelt Plan, and Official Plan.

Currently meadows and upland thickets do not represent a substantive portion of land cover, nor are there any large blocks of this habitat in the study area. As such, other than buffers and stream corridors, there are no meadows or thickets in the NHS.

Within the Phase 3 Lands few areas require woodland buffers, as most of the forested areas are dominated by swamp. An upland forest is found on the eastern side of Stouffville Marsh and along a portion of the railway tracks bisecting the site. In addition, a narrow conifer and mixed forest is found at the far eastern extent of the subject lands. A 10m woodland buffer is sufficient in these areas because adjoining lands are farmed and the area under the dripline has been tilled for decades; no tree roots would be found near the surface where such regular agricultural practices have taken place. The upland forests are connected to a larger system that provides protection to the upland forests as well.

5.4 The Natural Heritage System

The proposed NHS and its buffers are shown on Figure 6, with the exception of redside dace habitat as meander belt widths are unknown at this time. Buffers were mapped as explained above; however, where existing development abuts a natural feature, buffer widths were modified. The following modifications were made:

- Wetland buffers were reduced to 15m adjacent to existing development.
- Buffers on streams were reduced to 15m adjacent to existing development.
- Buffers were eliminated adjacent to roads.

In the case of re-development, the full buffer widths shall be implemented. In general, the proposed NHS is very similar to the Town's Greenland System and TRCA's TNHS. One small area differs as it is not part of the proposed NHS. A crescent-shaped meadow marsh is located west of Tenth Line, east of the railway tracks. This marsh is identified in the Greenland System and the TNHS, and was the subject of a site inspection on August 19, 2013. The marsh surrounds a poorly defined drainage feature that does not appear to provide direct fish habitat. The marsh is very narrow and is dominated by reed canary grass (*Phalaris arundinacea*). It originates on a farmed property amongst greenhouses. As this feature does not appear to provide significant habitat and is a narrow finger protruding from the system, it was not included in the NHS. A preliminary desktop assessment of the poorly defined drainage feature was conducted, using the TRCA and CVC (2013) headwater drainage guideline. Several assumptions were made on the condition of the drainage feature, including the amount and frequency of flow, that the feature does not contain fish and does not contain spawning habitat or good cover for fish, and that no breeding amphibians are present. With these assumptions in mind, and following the management recommendation flow chart (TRCA and CVC 2013), the poorly defined drainage feature is recommended for "Conservation". Based on this management recommendation the feature and its riparian corridor can be maintained, relocated or enhanced. On-site flows should be maintained or replaced using mitigation measures and/or wetland creation. External flows should also be maintained or replaced. Natural channel design techniques should be used to maintain or enhance the overall productivity of the drainage feature. The drainage feature must remain connected to the downstream system. The function of this channel may be replicated through stormwater management.

Since the NHS was established without property access and therefore without site specific surveys, some refinements to the NHS boundary may be anticipated if site specific surveys are completed, as for instance, part of an Environmental Impact Study, specifically with regards to Species at Risk and Significant Wildlife Habitat. Landowners must provide due diligence with regards to Species at Risk and adherence to the Endangered Species Act. Guidance can be sought from the MNR. Redside dace habitat requires a 30m buffer from the meander belt, once this is established. The known locations of butternut are included in the NHS. The habitats that are currently available within the Phase 3 Lands that provide potential habitat for significant wildlife and plant species reported from the area have been included in the NHS as well.

The proposed NHS will protect ecological features and functions into the future. Species movement and sustainability is ensured through a connected system both within the study area and to natural features outside the study area boundaries. The NHS is intended to provide a wide range of benefits to the residents of Stouffville, including

improved air and water quality water, recreational opportunities, and flood attenuation and erosion control, as well as nature appreciation.

638400 639300 640200 641100 642000

4873100 4872400 4871700 4871000 4870300

Ninth Line
Tenth Line
York Durham Line
Main Street

638400 639300 640200 641100 642000

Path: X:\1433_WhitchurchStouffville\NRSI_1433_Fig6_NHS_15K_2013_10_16_KEB.mxd

Figure 6

Stouffville Phase 3 Lands

Natural Heritage System

Legend

- Phase 3 Lands
- Municipal Boundary
- Natural Heritage System (NHS)(NRSI)
- Railway
- Watercourses

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Project: 1428
Date: October 16, 2013

NAD83 - UTM Zone 17
Size: 11x17"
1:15,000

N

0 200 400 600 800 1,000 Metres

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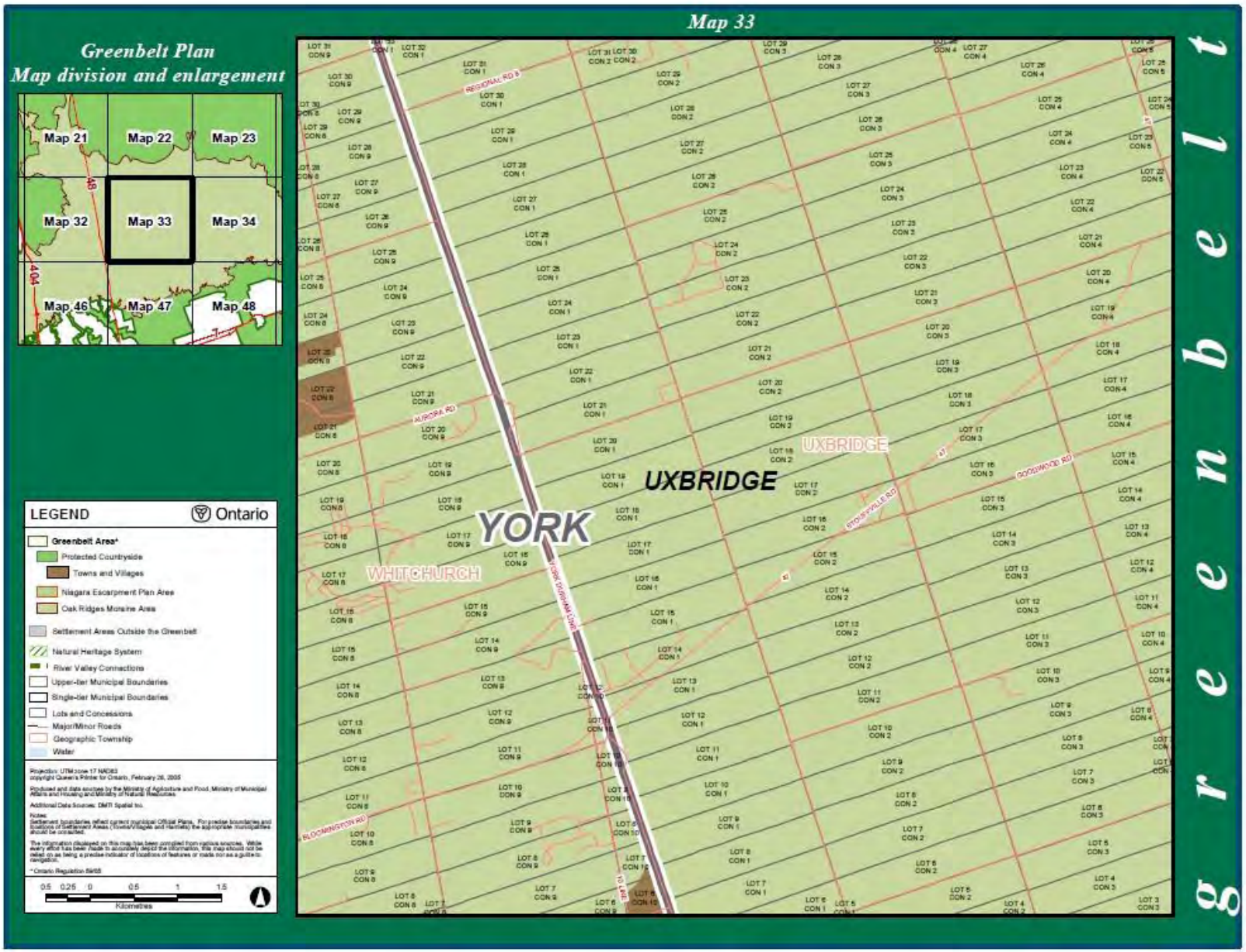
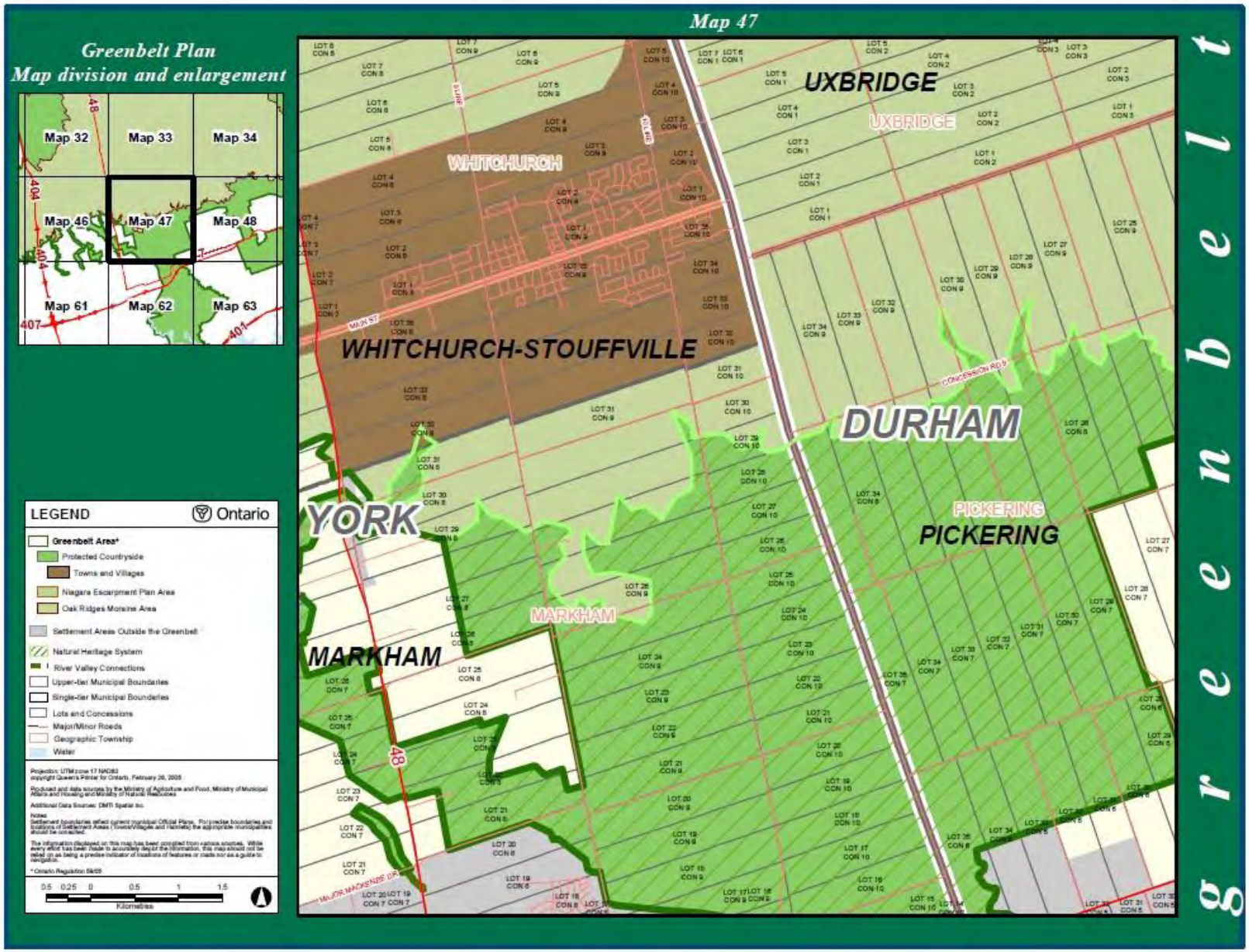
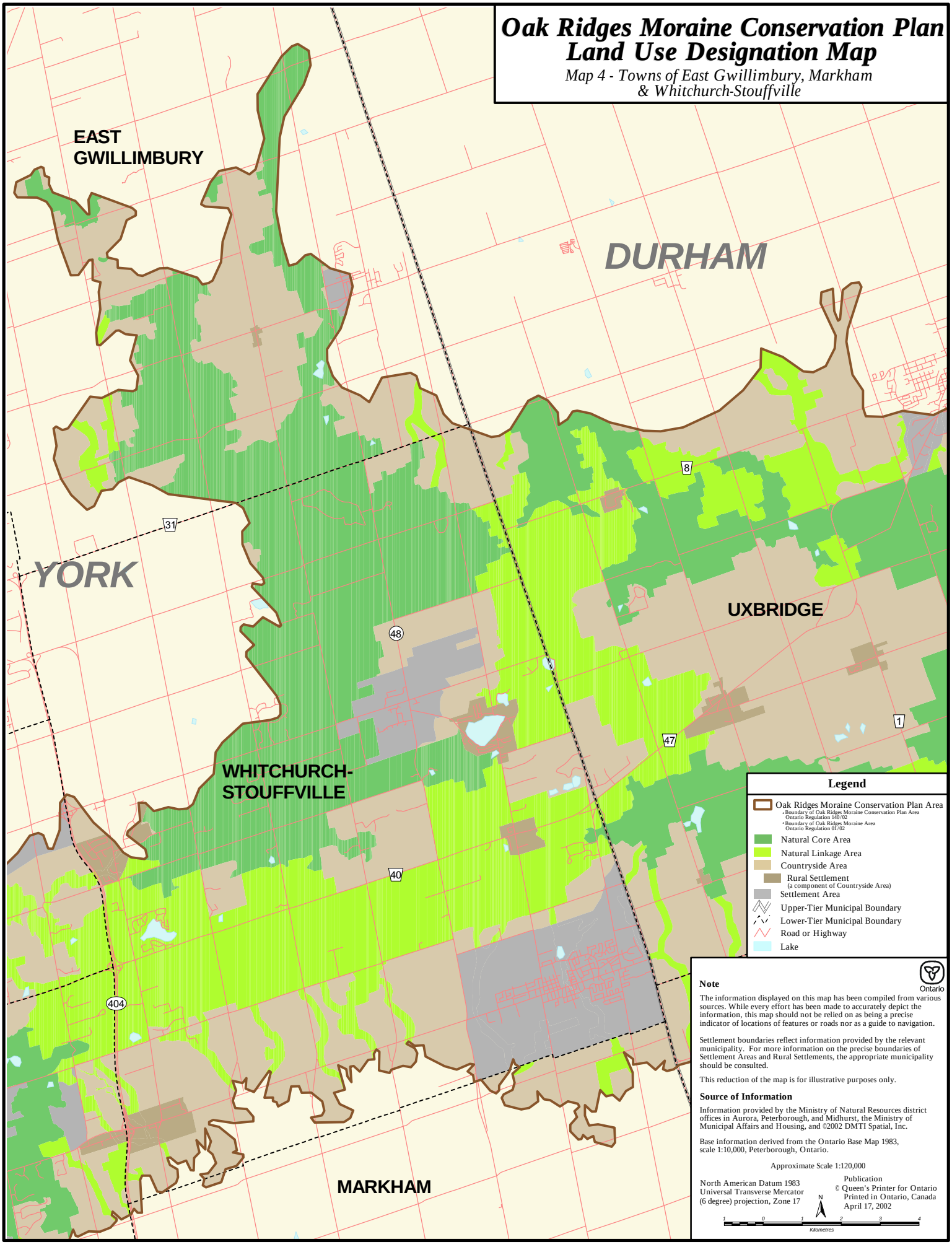
APPENDIX I
Mapping


Map 33
Greenbelt Plan
Map division and enlargement
Map 21
Map 22
Map 23
Map 32
Map 33
Map 34
Map 46
Map 47
Map 48
404
48
LEGEND
Ontario
Greenbelt Area*
Protected Countryside
Towns and Villages
Niagara Escarpment Plan Area
Oak Ridges Moraine Area
Settlement Areas Outside the Greenbelt
Natural Heritage System
River Valley Connections
Upper-tier Municipal Boundaries
Single-tier Municipal Boundaries
Lots and Concessions
Major/Minor Roads
Geographic Township
Water
0.5 0.25 0 0.5 1 1.5
Kilometres
YORK
UXBRIDGE
WHITCHURCH
AURORA RD
REGIONAL RD 5
STOUFFVILLE RD
GORDONWOOD RD
BLOOMINGTON RD
47
greenbelt


Map 47
Greenbelt Plan
Map division and enlargement
Map 32
Map 33
Map 34
Map 46
Map 47
Map 48
Map 61
Map 62
Map 63
404
407
401
48
UXBRIDGE
WHITCHURCH
WHITCHURCH-STOUFFVILLE
DURHAM
YORK
MARKHAM
PICKERING
MAIN ST
CONCESSION RD 9
MAJOR MACKENZIE DR
LEGEND
Ontario
Greenbelt Area*
Protected Countryside
Towns and Villages
Niagara Escarpment Plan Area
Oak Ridges Moraine Area
Settlement Areas Outside the Greenbelt
Natural Heritage System
River Valley Connections
Upper-tier Municipal Boundaries
Single-tier Municipal Boundaries
Lots and Concessions
Major/Minor Roads
Geographic Township
Water
Kilometres
greenbelt

Oak Ridges Moraine Conservation Plan
Land Use Designation Map

Map 4 - Towns of East Gwillimbury, Markham & Whitchurch-Stouffville



Legend

- Oak Ridges Moraine Conservation Plan Area
  - Boundary of Oak Ridges Moraine Conservation Plan Area Ontario Regulation 140/02
  - Boundary of Oak Ridges Moraine Area Ontario Regulation 01/02
- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement (a component of Countryside Area)
- Settlement Area
- Upper-Tier Municipal Boundary
- Lower-Tier Municipal Boundary
- Road or Highway
- Lake

Note

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations of features or roads nor as a guide to navigation.

Settlement boundaries reflect information provided by the relevant municipality. For more information on the precise boundaries of Settlement Areas and Rural Settlements, the appropriate municipality should be consulted.

This reduction of the map is for illustrative purposes only.

Source of Information

Information provided by the Ministry of Natural Resources district offices in Aurora, Peterborough, and Midhurst, the Ministry of Municipal Affairs and Housing, and ©2002 DMTI Spatial, Inc.

Base information derived from the Ontario Base Map 1983, scale 1:10,000, Peterborough, Ontario.

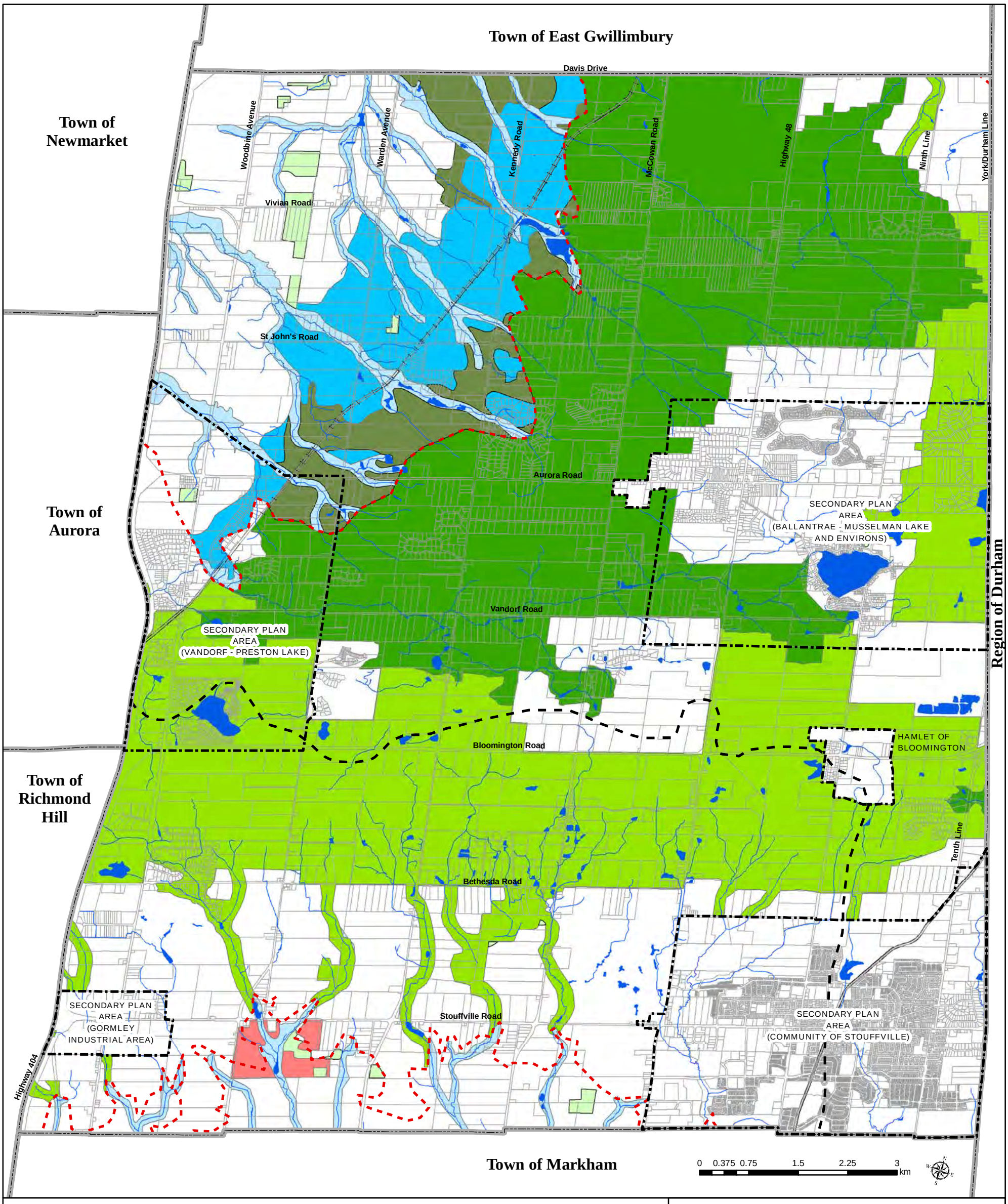
Approximate Scale 1:120,000

North American Datum 1983
Universal Transverse Mercator
(6 degree) projection, Zone 17

Publication
© Queen's Printer for Ontario
Printed in Ontario, Canada
April 17, 2002

N

1 0 1 2 3 4
Kilometres



LEGEND

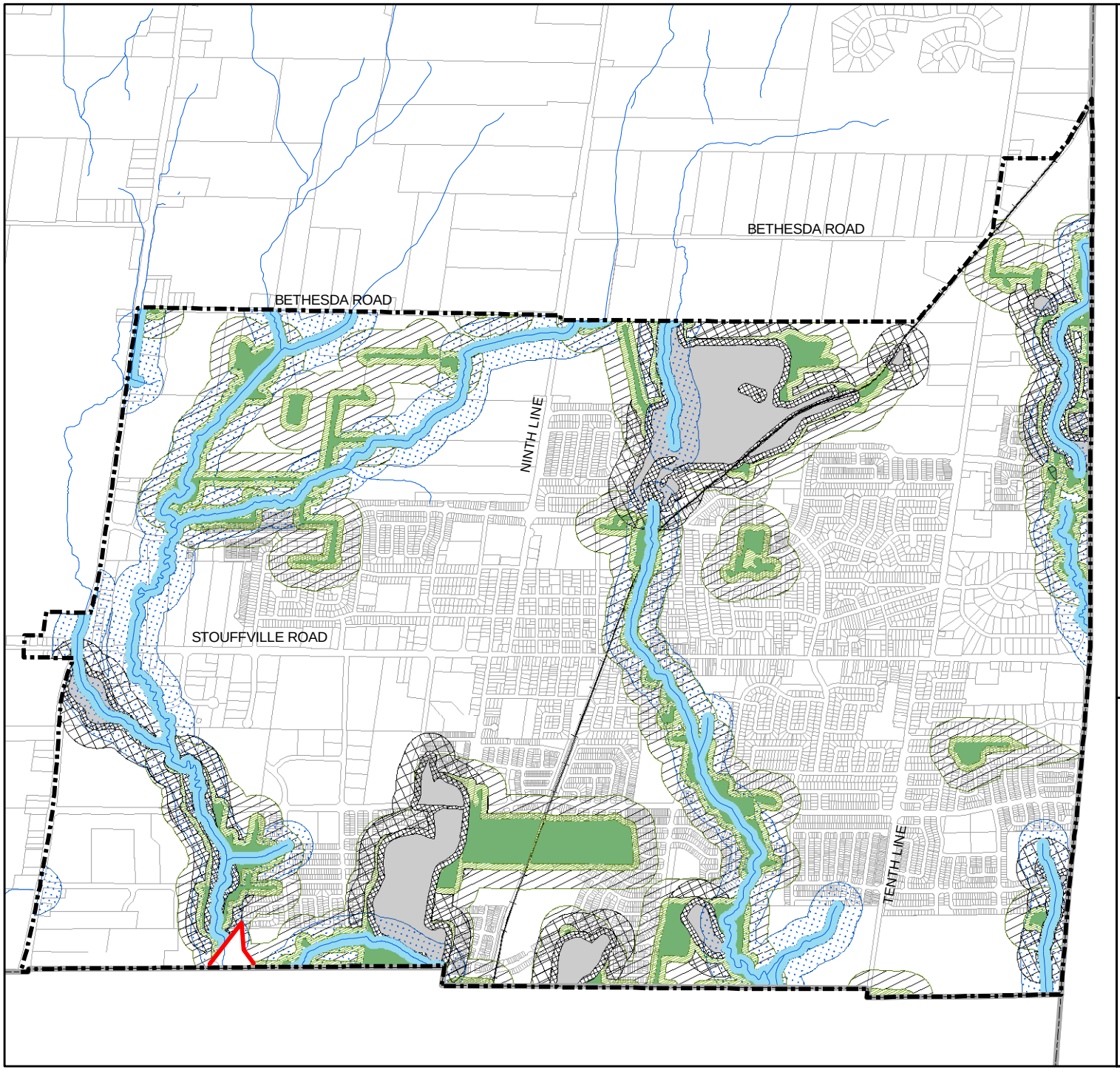
- SECONDARY PLAN BOUNDARY
- OAK RIDGES MORAINE PLAN BOUNDARY
- ROUGE PARK NORTH MANAGEMENT PLAN AREA
- ORM NATURAL CORE AREA
- ORM NATURAL LINKAGE AREA
- SIGNIFICANT ENVIRONMENTAL AREA
- MAJOR WOODLAND AREA
- WATER MANAGEMENT AREA
- PUBLIC OPEN SPACE AREA
- TABLELAND WOODLOT AREA

TOWN OF
WHITCHURCH - STOUFFVILLE
OFFICIAL PLAN

Schedule "A"

Greenlands System

AUGUST 31, 2011



Legend

- SECONDARY PLAN AREA BOUNDARY
- LAKES & WATERCOURSES
- WETLANDS
- WETLANDS 30m MINIMUM VEGETATION PROTECTION ZONE
- WETLANDS 120m AREA OF INFLUENCE
- WOODLANDS
- WOODLANDS 30m MINIMUM VEGETATION PROTECTION ZONE
- WOODLANDS 120m AREA OF INFLUENCE
- STREAMS
- STREAMS 30m MINIMUM VEGETATION PROTECTION ZONE
- STREAMS 120m AREA OF INFLUENCE
- OAK RIDGES MORAINE BOUNDARY

TOWN OF
WHITCHURCH - STOUFFVILLE
OFFICIAL PLAN

Schedule "F-3"

Greenland System

0 0.15 0.3 0.6 0.9 1.2
km

JULY 31, 2007

STOUFFVILLE MARSH

h S
M
c S1
X
gc M3
re M1
su W2
hc* S

SIDEROAD BETHESDA
BAYBERRY STREET
FORSYTH FARM ROAD
PENDUTCH CIRCLE
GREENWOOD ROAD
ALDERWOOD STREET
ASPEN CRESCENT
IRONWOOD CRESCENT
LINDEN LANE
MILLARD STREET
OPAL COURT
WILLOW WAY
HEMLOCK DRIVE
CHURCH STREET
FAIRGATE CRESCENT
PARK DRIVE
DEBBORAH PLACE
FREDERICK STREET
MANITOBA STREET
NORTH STREET

Ontario

Scale 1:5,000 (approx.)

0 50 100 200 300 Metres

Legend

- MNR Evaluated Wetland
- MNR Identified Wetlands
- c S17 Wetland Vegetation Community

FILE ID: 2013-65-ST

PUBLICATION

© Queen's Printer for Ontario
Printed in Ontario, Canada
September, 2013.

Cartography by Aurora District Geomatics.

Universal Transverse Mercator (6 degree) projection, Zone 17. North American Datum 1983

SOURCE OF INFORMATION

Information provided by the Ministry of Natural Resources district office in Aurora.
Ministry of Natural Resources - Aurora District 50 Bloomington Road West, Aurora, ON L4G 3G8

Base information derived from the Ontario Base Map, 1983 at a scale of 1:10,000 and the Natural Resources Values Information System (NRVIS).

NOTE

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should be viewed as illustrative only. Do not rely on it as being a precise indicator of routes, locations of features, nor as a guide to navigation.

For detailed information on natural features such as their location, size or status, the individual files held by the Aurora district office of the Ministry of Natural Resources should be consulted.

Imagery capture date Spring 2011 copyright, J.D. Barnes and Land Information Ontario

Map is subject to area/site specific appeal. See Appendicies 2A & 2B.

MAP 2

REGIONAL GREENLANDS SYSTEM

Regional Greenlands System

Greenlands System Vision

Urban Area

Towns and Villages

Hamlet

Oak Ridges Moraine Conservation Plan

Oak Ridges Moraine Boundary

Oak Ridges Moraine Plan Area

Greenbelt Plan

Greenbelt Plan Area Boundary

Greenbelt Protected Countryside / Hamlet

Area Subject to the Lake Simcoe Protection Plan

Provincial Highways

Existing

Controlled Access Highway

Under Construction

Municipal Boundary

Regional Boundary

*The Greenlands System Vision identified on Map 2 of this Plan is intended to conceptually identify, with broad arrows, the general location of corridors within and beyond the Region that will perform major linkage functions on a Regional scale and will be further assessed as part of ongoing planning initiatives

5 2.5 0 5 Km

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Office of the Chief Administrative Officer
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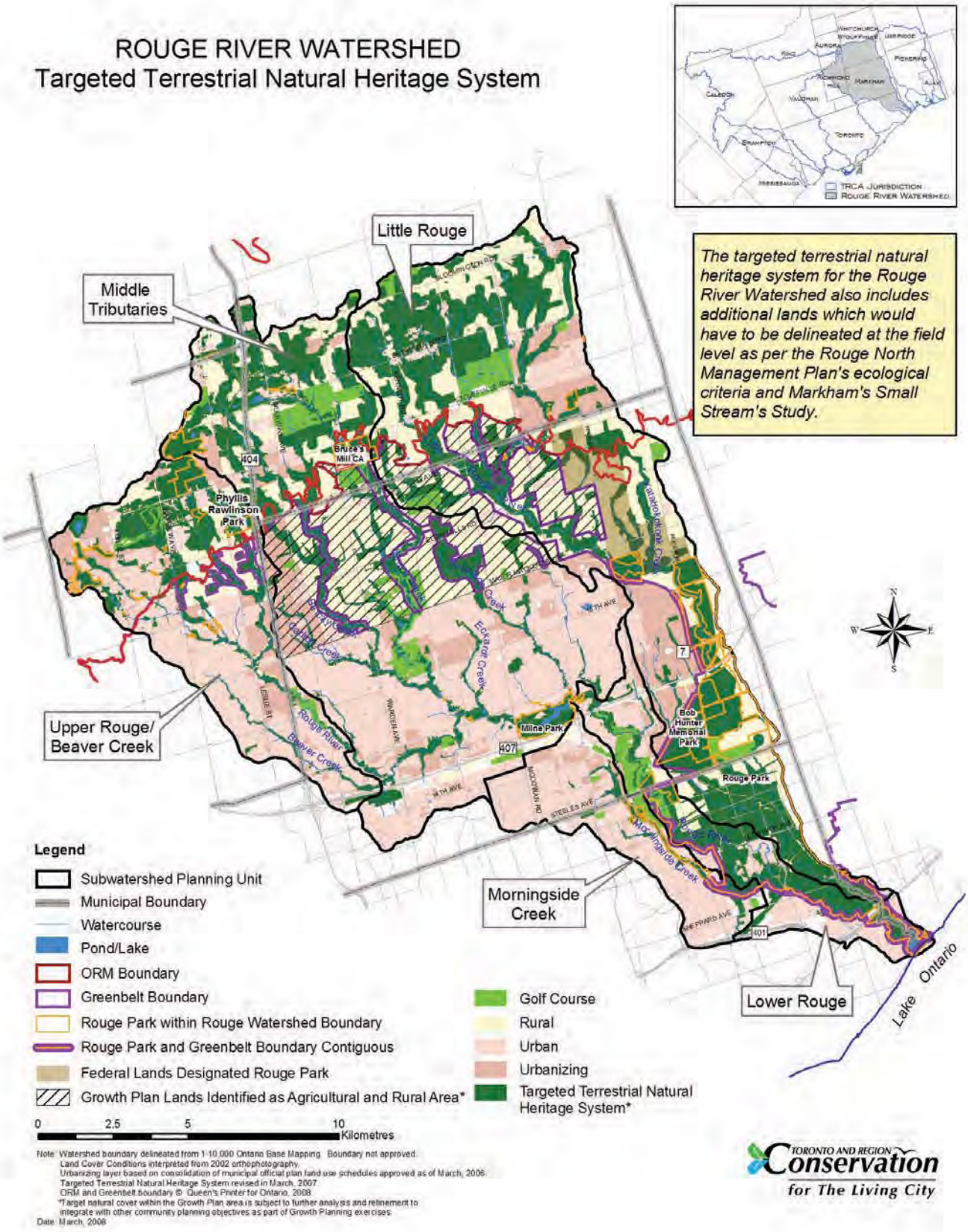
© Copyright, The Regional Municipalities of Durham and Peel, County of Simcoe, City of Toronto
© Queen's Printer for Ontario 2003-2010, Includes Greenbelt and Oak Ridges Moraine Boundaries and Water Features

R:\PlanningCadastre\2012\20121205_ROPAHearingMaps\Tools\ROPA1&2\Map2_ROPA1_2.mxd

Figure 5-2: Targeted Terrestrial Natural Heritage System



APPENDIX II

Wildlife Species Lists:

Plants
Birds
Mammals
Herpetofauna
Butterflies, Dragonflies, and Damselflies

Vascular Plants Reported From the Study Area

Scientific Name	Common Name	CC	CW	WI	SRANK	COSSARO	COSEWIC	York (Varga 2000)	York-Metro (Riley 1989)	TRCA Rank	Species Known From the Study Area
Dennstaedtiaceae	**Bracken Fern Family**										
Pteridium aquilinum var. latiusculum	Eastern Bracken	2	3		S5			X	X		X
Dryopteridaceae	**Wood Fern Family**										
Athyrium filix-femina var. angustum	Northern Lady Fern	4	0		S5			X			X
Cystopteris bulbifera	Bulblet Fern	5	-2		S5			X	X		X
Dryopteris cristata	Crested Wood Fern	7	-5		S5			X	X		X
Dryopteris intermedia	Evergreen Wood Fern	5	0		S5			X	X		X
Dryopteris marginalis	Marginal Wood Fern	5	3		S5			X	X		X
Gymnocarpium dryopteris	Oak Fern	7	0		S5			X	X	L3	X
Matteuccia struthiopteris var. pensylvanica	Ostrich Fern	5	-3		S5			X	X		X
Onoclea sensibilis	Sensitive Fern	4	-3		S5			X	X		X
Polystichum acrostichoides	Christmas Fern	5	5		S5			X	X		X
Equisetaceae	**Horsetail Family**										
Equisetum arvense	Field Horsetail	0	0		S5			X	X		X
Equisetum fluviatile	Water Horsetail	7	-5		S5			X	X	L3	X
Equisetum hyemale ssp. affine	Scouring-rush	2	-2		S5			X	X		X
Equisetum scirpoides	Dwarf Scouring-rush	7	-1		S5			X	X	L3	X
Ophioglossaceae	**Adder's Tongue Family**										
Botrychium virginianum	Rattlesnake Fern	5	3		S5			X	X	L3	X
Osmundaceae	**Royal Fern Family**										
Osmunda cinnamomea	Cinnamon Fern	7	-3		S5			X	X	L3	X
Osmunda regalis var. spectabilis	American Royal Fern	7	-5		S5			U	X	L3	X
Adiantaceae	**Maidenhair Fern Family**										
Adiantum pedatum	Northern Maidenhair Fern	7	1		S5			X	X	L3	X
Thelypteridaceae	**Beech Fern Family**										
Phegopteris connectilis	Northern Long Beech Fern	8	5		S5			R8	X	L3	X
Cupressaceae	**Cypress Family**										
Thuja occidentalis	White Cedar	4	-3		S5			X	X		X

Scientific Name	Common Name	CC	CW	WI	SRANK	COSSARO	COSEWIC	York (Varga 2000)	York-Metro (Riley 1989)	TRCA Rank	Species Known From the Study Area
Pinaceae	**Pine Family**										
Abies balsamea	Balsam Fir	5	-3		S5			X	X		X
Larix decidua	European Larch		5	-1	SE2			X			X
Larix laricina	Tamarack	7	-3		S5			X	X	L3	X
Picea abies	Norway Spruce		5	-1	SE3			X			X
Picea glauca	White Spruce	6	3		S5			X	X	L3	X
Pinus resinosa	Red Pine	8	3		S5			X+	R-4	L2	X
Pinus strobus	Eastern White Pine	4	3		S5			X	X		X
Pinus sylvestris	Scot's Pine		5	-3	SE5			X	X		X
Tsuga canadensis	Eastern Hemlock	7	3		S5			X	X		X
Taxaceae	**Yew Family**										
Taxus canadensis	American Yew	7	3		S5			X	X	L3	X
Aceraceae	**Maple Family**										
Acer negundo	Manitoba Maple	0	-2		S5			X	X		X
Acer platanoides	Norway Maple		5	-3	SE5			X	X		X
Acer rubrum	Red Maple	4	0		S5			X	X		X
Acer saccharinum	Silver Maple	5	-3		S5			X	X		X
Acer saccharum ssp. saccharum	Sugar Maple	4	3		S5			X	X		X
Acer saccharum ssp. nigrum	Black Maple	7	3		S4?			R4	X		X
Acer spicatum	Mountain Maple	6	3		S5			X	X		X
Anacardiaceae	**Sumac or Cashew Family**										
Rhus hirta	Staghorn Sumac	1	5		S5			X	X		X
Toxicodendron radicans ssp. negundo	Poison-ivy	5	-1		S5			R5	R-3		X
Apiaceae	**Carrot or Parsley Family**										
Cryptotaenia canadensis	Honewort	5	0		S5			X	X		X
Daucus carota	Wild Carrot		5	-2	SE5			X	X		X
Hydrocotyle americana	American Marsh-pennywort	7	-5		S5			U	X	L3	X
Sanicula marilandica	Black Snakeroot	5	3		S5			U			X
Araliaceae	**Ginseng Family**										
Aralia nudicaulis	Wild Sarsaparilla	4	3		S5			X	X		X
Aralia racemosa ssp. racemosa	Spikenard	7	5		S5			U	X	L3	X
Aristolochiaceae	**Duchman's-pipe Family**										
Asarum canadense	Wild Ginger	6	5		S5			X	X		X

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Asclepiadaceae	**Milkweed Family**										
Asclepias incarnata ssp. incarnata	Swamp Milkweed	6	-5		S5			X			X
Asclepias syriaca	Common Milkweed	0	5		S5			X			X
Asteraceae	**Composite or Aster Family**										
Ambrosia artemisiifolia	Common Ragweed	0	3		S5			X	X		X
Bidens cernua	Stick-tight	2	-5		S5			X	X		X
Bidens frondosa	Devil's Beggar-ticks	3	-3		S5			X	X		X
Bidens vulgata	Tall Beggar-ticks	5	-3		S5			R9	R-3		X
Conyza canadensis	Horseweed	0	1		S5			X	X		X
Erigeron annuus	Daisy Fleabane	0	1		S5			X	X		X
Erigeron philadelphicus ssp. philadelphicus	Philadelphia Fleabane	1	-3		S5			X	X		X
Eupatorium perfoliatum	Perfoliate Thoroughwort	2	-4		S5			X	X		X
Eupatorium maculatum ssp. maculatum	Spotted Joe-pye-weed	3	-5		S5			X	X		X
Eurybia macrophylla	Large-leaved Aster	5	5		S5			X	X		X
Euthamia graminifolia	Flat-topped Bushy Goldenrod	2	-2		S5			X	X		X
Hieracium caespitosum ssp. caespitosum	Field Hawkweed		5	-2	SE5			X	X		X
Packera aureus	Golden Groundsel	7	-3		S5			R5	R-4	L2	X
Prenanthes alba	White Rattlesnake-root	6	3		S5			R8	X		X
Rudbeckia laciniata	Tall Coneflower	7	-4		S5			R4	X		X
Solidago altissima var. altissima	Tall Goldenrod	1	3		S5			X	X		X
Solidago flexicaulis	Zig-zag Goldenrod	6	3		S5			X	X		X
Solidago gigantea	Giant Goldenrod	4	-3		S5			X	X		X
Solidago rugosa ssp. rugosa	Rough Goldenrod	4	-1		S5			X	X		X
Symphyotrichum cordifolium	Heart-leaved Aster	5	5		S5			X	X		X
Symphyotrichum lanceolatum var. lanceolatum	Tall White Aster	3	-3		S5			X			X
Symphyotrichum lateriflorum var. lateriflorum	Calico Aster	3	-2		S5			X	X		X
Symphyotrichum novae-angliae	New England Aster	2	-3		S5			X	X		X
Symphyotrichum puniceum	Purple-stemmed Aster				S5						X
Tussilago farfara	Coltsfoot		3	-2	SE5			X	X		X
Balsaminaceae	**Touch-me-not Family**										
Impatiens capensis	Spotted Touch-me-not	4	-3		S5			X	X		X
Berberidaceae	**Barberry Family**										
Caulophyllum giganteum	Blue Cohosh				S5			R			X
Podophyllum peltatum	May-apple	5	3		S5			X	X		X

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Betulaceae	**Birch Family**										
Alnus incana spp. rugosa	Speckled Alder	6	-5		S5			X	X	L3	X
Betula alleghaniensis	Yellow Birch	6	0		S5			X	X		X
Betula papyrifera	White Birch		2		S5			X	X		X
Carpinus caroliniana ssp. virginiana	Blue Beech	6	0		S5			X	X		X
Ostrya virginiana	Hop Hornbeam	4	4		S5			X	X		X
Boraginaceae	**Borage Family**										
Echium vulgare	Blueweed		5	-2	SE5			X	X		X
Myosotis laxa	Smaller Forget-me-not	6	-5		S5			X	X		X
Brassicaceae	**Mustard Family**										
Cardamine diphylla	Two-leaved Toothwort	7	5		S5			X			X
Campanulaceae	**Bellflower Family**										
Lobelia inflata	Indian Tobacco	3	4		S5			X	X	L3	X
Caprifoliaceae	**Honeysuckle Family**										
Linnaea borealis ssp. longiflora	Twinflower	7	0		S5			R10	X	L2	X
Viburnum lentago	Nannyberry	4	-1		S5			X	X		X
Viburnum opulus	Guelder Rose		0	-1	SE4			X	X		X
Cornaceae	**Dogwood Family**										
Cornus alternifolia	Alternate-leaved Dogwood	6	5		S5			X			X
Cornus stolonifera	Red-osier Dogwood	2	-3		S5			X			X
Cucurbitaceae	**Gourd Family**										
Echinocystis lobata	Prickly Cucumber	3	-2		S5			X	X		X
Dipsacaceae	**Teasel Family**										
Dipsacus fullonum ssp. sylvestris	Wild Teasel		5	-1	SE5			X	X		X
Elaeagnaceae	**Oleaster Family**										
Elaeagnus angustifolia	Russian Olive		4	-1	SE3			X	X		X

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Fabaceae	**Pea Family**										
Amphicarpaea bracteata	Hog Peanut	4	0		S5			X	X		X
Glycine max	Soya Bean		5	-1	SE2						X
Lotus corniculatus	Bird's-foot Trefoil		1	-2	SE5			X	X		X
Melilotus alba	White Sweet-clover		3	-3	SE5			X	X		X
Trifolium pratense	Red Clover		2	-2	SE5			X	X		X
Vicia cracca	Tufted Vetch		5	-1	SE5			X	X		X
Fagaceae	**Beech Family**										
Fagus grandifolia	American Beech	6	3		S5			X	X		X
Grossulariaceae	**Currant Family**										
Ribes species	Currant species										X
Ribes triste	Wild Red Currant	6	-5		S5			U	X	L3	X
Juglandaceae	**Walnut Family**										
Carya cordiformis	Bitternut hickory	6	0		S5			X	X		X
Juglans cinerea	Butternut	6	2		S3?	END	E	X	X	L3	X
Juglans nigra	Black Walnut	5	3		S4			R	R-1 Nat		X
Lamiaceae	**Mint Family**										
Lycopus americanus	Cut-leaved Water-horehound	4	-5		S5			X	X		X
Lycopus uniflorus	Northern Water-horehound	5	-5		S5			X	X		X
Mentha arvensis ssp. borealis	American Wild Mint	3	-3		S5			X			X
Monarda fistulosa	Wild Bergamot	6	3		S5			U	X		X
Scutellaria galericulata	Hooded Skullcap	6	-5		S5			X	X		X
Monotropaceae	**Indian Pipe Family**										
Monotropa hypopithys	Pinesap	6	5		S4			R6		L3	X
Monotropa uniflora	Indian-pipe	6	3		S5			U		L3	X
Oleaceae	**Olive Family**										
Forsythia species											X
Fraxinus americana	White Ash	4	3		S5			X			X
Fraxinus nigra	Black Ash	7	-4		S5			X			X
Fraxinus pennsylvanica	Green Ash	3	-3		S5			X			X

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Onagraceae	**Evening-primrose Family**										
Circaea alpina	Smaller Enchanter's Nightshade	6	-3		S5			X	X	L3	X
Circaea lutetiana ssp. canadensis	Yellowish Enchanter's Nightshad	3	3		S5			X	X		X
Epilobium leptophyllum	Narrow-leaved Willow-herb	7	-5		S5			U	X	L3	X
Oenothera biennis	Common Evening-primrose	0	3		S5			U	X		X
Papaveraceae	**Poppy Family**										
Sanguinaria canadensis	Bloodroot	5	4		S5			X	X		X
Plantaginaceae	**Plantain Family**										
Plantago lanceolata	Ribgrass		0	-1	SE5			X	X		X
Polygonaceae	**Smartweed Family**										
Polygonum cilinode	Fringed Black Bindweed	2	5		S5			R1	X	L3	X
Rumex crispus	Curly-leaf Dock		-1	-2	SE5			X	X		X
Portulacaceae	**Purslane Family**										
Claytonia caroliniana	Carolina Spring Beauty	7	3		S5			U	X	L3	X
Primulaceae	**Primrose Family**										
Lysimachia ciliata	Fringed Loosestrife	4	-3		S5			X			X
Lysimachia thyrsiflora	Tufted Loosestrife	7	-5		S5			X			X
Trientalis borealis ssp. borealis	Star-flower	6	-1		S5			X		L3	X
Pyrolaceae	**Wintergreen Family**										
Pyrola elliptica	Shinleaf	5	5		S5			X			X
Ranunculaceae	**Buttercup Family**										
Actaea rubra	Red Baneberry	5	5		S5			X	X		X
Anemone canadensis	Canada Anemone	3	-3		S5			X	X		X
Anemone acutiloba	Sharp-lobed Hepatica	6	5		S5			X	X	L3	X
Caltha palustris	Marsh-marigold	5	-5		S5			X	X		X
Coptis trifolia	Gold-thread		-3		S5			X	X	L2	X
Ranunculus species	Buttercup species										X
Ranunculus recurvatus var. recurvatus	Hooked Buttercup	4	-3		S5			X	X		X
Thalictrum dioicum	Early Meadow-rue	5	2		S5			X	X		X
Rhamnaceae	**Buckthorn Family**										
Rhamnus cathartica	Common Buckthorn		3	-3	SE5			X	X		X

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Rosaceae	**Rose Family**										
Crataegus species	Hawthorn species										X
Fragaria virginiana	Wild Strawberry				S5				X		X
Geum canadense	White Avens	3	0		S5			X	X		X
Geum rivale	Purple Avens	7	-5		S5			U	X	L3	X
Malus domestica											X
Prunus avium	Cherry Plum		5	-2	SE4			X			X
Prunus nigra	Canada Plum	4	4		S4			U		L3	X
Prunus pensylvanica	Pin Cherry	3	4		S5			X			X
Prunus virginiana ssp. virginiana	Choke Cherry	2	1		S5			X			X
Rosa blanda	Smooth Rose	3	3		S5			U			X
Rubus idaeus ssp. melanolasius	Wild Red Raspberry	0	-2		S5			X	X		X
Rubus pubescens	Dwarf Raspberry	4	-4		S5			X			X
Sorbus aucuparia	European Mountain-ash		5	-2	SE4			X			X
Rubiaceae	**Madder Family**										
Galium asprellum	Rough Bedstraw	6	-5		S5			U	X		X
Galium palustre	Marsh Bedstraw	5	-5		S5			X	X		X
Galium triflorum	Sweet-scented Bedstraw	4	2		S5			X	X		X
Mitchella repens	Creeping Partridge-berry	6	2		S5			X	X	L3	X
Salicaceae	**Willow Family**										
Populus balsamifera ssp. balsamifera	Balsam Poplar	4	-3		S5			X	X		X
Populus deltoides ssp. deltoides	Eastern Cottonwood	4	-1		SU			X+			X
Populus tremuloides	Trembling Aspen	2	0		S5			X	X		X
Salix species	Willow species										X
Salix amygdaloides	Peach-leaved Willow	6	-3		S5			X	X		X
Salix bebbiana	Long-beaked Willow	4	-4		S5			X	X		X
Salix discolor	Pussy Willow	3	-3		S5			X	X		X
Salix eriocephala	Heart-leaved Willow	4	-3		S5			X	X		X
Salix exigua	Sandbar Willow	3	-5		S5			U	X		X
Salix petiolaris	Slender Willow	3	-4		S5			X	X		X
Saxifragaceae	**Saxifrage Family**										
Chrysosplenium americanum	Golden Saxifrage	8	-5		S5			R6	R-2	L3	X
Mitella diphylla	Two-leaved Bishop's Cap	5	2		S5			X	X	L3	X
Mitella nuda	Naked Mitrewort	6	-3		S5			X	X	L3	X
Tiarella cordifolia	False Mitrewort	6	1		S5			X	X		X
Solanaceae	**Nightshade Family**										
Solanum dulcamara	Bitter Nightshade		0	-2	SE5			X	X		X

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Thymelaeaceae	**Mezereum Family**										
Dirca palustris	Leatherwood	7	0		S4?			U	X	L3	X
Tiliaceae	**Linden Family**										
Tilia americana	American Basswood	4	3		S5			X	X		X
Tilia cordata	Small Leaf Linden				SE1						X
Ulmaceae	**Elm Family**										
Ulmus americana	White Elm	3	-2		S5			X	X		X
Urticaceae	**Nettle Family**										
Laportea canadensis	Wood Nettle	6	-3		S5			X	X		X
Pilea fontana	Spring Clearweed	5	-3		S4			U	R-3	L3	X
Pilea pumila	Dwarf Clearweed	5	-3		S5			X	X		X
Verbenaceae	**Vervain Family**										
Verbena hastata	Blue Vervain	4	-4		S5			X	X		X
Verbena urticifolia	White Vervain	4	-1		S5			X	X		X
Violaceae	**Violet Family**										
Viola affinis	Le Conte's Violet	6	-3		S4?			U	X		X
Viola conspersa	American Dog Violet	4	-2		S5			X	X		X
Viola pubescens	Downy Yellow Violet	5	4		S5			X	X		X
Viola sororia	Woolly Blue Violet	4	1		S5			X	X		X
Vitaceae	**Grape Family**										
Parthenocissus vitacea	Woodbine	3	3		S5			X	X		X
Vitis riparia	Riverbank Grape	0	-2		S5			X	X		X
Alismataceae	**Water-plantain Family**										
Sagittaria latifolia	Broad-leaved Arrowhead	4	-5		S5			X	X		X
Araceae	**Arum Family**										
Arisaema triphyllum	Jack-in-the-pulpit	5	-2		S5			X	X		X
Cyperaceae	**Sedge Family**										
Carex species	Sedge species										X
Carex arctata	Drooping Wood Sedge	5	5		S5			X	X		X
Carex aurea	Golden-fruited Sedge	4	-4		S5			U	X		X
Carex castanea	Chestnut Sedge	7	-4		S5					L3	X
Carex comosa	Bristly Sedge	5	-5		S5			U	X	L3	X
Carex cristatella	Crested Sedge	3	-4		S5			X	X		X
Carex diandra	Lesser Panicled Sedge	7	-5		S5			U	R-3	L3	X

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Carex gracillima	Graceful Sedge	4	3		S5			X	X		X
Carex hirtifolia	Pubescent Sedge	5	5		S5			U	X		X
Carex hystericina	Porcupine Sedge	5	-5		S5			X	X		X
Carex interior	Inland Sedge	6	-5		S5			X	X	L3	X
Carex lacustris	Lake-bank Sedge	5	-5		S5			X	X		X
Carex laevivaginata	Smooth-sheathed Sedge	8	-5		S4			R8	R-4	L3	X
Carex leptalea ssp. leptalea	Bristle-stalked Sedge	8	-5		S5			U	X	L3	X
Carex peckii	Peck's Sedge	6	5		S5			X	X		X
Carex plantaginea	Plantain-leaved Sedge	7	5		S5			XU	X	L3	X
Carex pseudocyperus	Cypress-like Sedge	6	-5		S5			X	X		X
Carex retrorsa	Retrorse Sedge	5	-5		S5			X	X		X
Carex scabrata	Rough Sedge	8	-5		S5			U	X		X
Carex stipata	Awl-fruited Sedge	3	-5		S5			X	X		X
Carex utriculata	Beaked Sedge	7	-5		S5			U	X	L3	X
Carex vulpinoidea	Fox Sedge	3	-5		S5			X	X		X
Schoenoplectus tabernaemontani	American Great Bulrush	5	-5		S5			X	X		X
Scirpus atrovirens	Dark-green Bulrush	3	-5		S5			X	X		X
Scirpus microcarpus	Small-fruited Bulrush	4	-5		S5			U	X		X
Iridaceae	**Iris Family**										
Iris versicolor	Multi-coloured Blue-flag	5	-5		S5			X	X	L3	X
Sisyrinchium montanum	Montane Blue-eyed-grass		-1		S5			U	X	L3	X
Juncaceae	**Rush Family**										
Juncus dudleyi	Dudley's Rush	1	0		S5			X	X		X
Juncus tenuis	Path Rush	0	0		S5			X	X		X
Lemnaceae	**Duckweed Family**										
Lemna minor	Lesser Duckweed	2	-5		S5			X	X		X
Spirodela polyrhiza	Greater Duckweed	4	-5		S5			U	X		X
Liliaceae	**Lily Family**										
Allium tricoccum	Wild Leek	7	2		S5			X	X		X
Clintonia borealis	Bluebead-lily	7	-1		S5			X	X	L3	X
Erythronium americanum ssp. americanum	Yellow Dog's-tooth Violet	5	5		S5			X	X		X
Maianthemum canadense	Wild Lily-of-the-valley	5	0		S5			X	X		X
Maianthemum racemosum ssp. racemosum	False Solomon's Seal	4	3		S5			X	X		X
Polygonatum pubescens	Hairy Solomon's Seal	5	5		S5			X	X		X

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Streptopus roseus	Rose Twisted-stalk	7	0		S5			X	X	L3	X
Trillium erectum	Purple Trillium	6	1		S5			X	X		X
Trillium grandiflorum	White Trillium	5	5		S5			X	X		X
Uvularia grandiflora	Large-flowered Bellwort	6	5		S5			X	X	L3	X
Orchidaceae	**Orchid Family**										
Cypripedium parviflorum var.makasin	Smaller Yellow Lady's Slipper				S5					L3	X
Cypripedium reginae	Showy Lady's Slipper	7	-4		S4			R9	X	L2	X
Platanthera hyperborea	Tall Leafy Green Orchis	5			S5			R6	X	L2	X
Poaceae	**Grass Family**										
Bromus inermis ssp. inermis	Awnless Brome		5	-3	SE5			X	X		X
Calamagrostis canadensis	Blue-joint Grass	4	-5		S5			X	X		X
Cinna latifolia	Broad-leaved Reed Grass	7	-4		S5			U	X		X
Dactylis glomerata	Orchard Grass		3	-1	SE5			X	X		X
Elymus virginicus var. virginicus	Virginia Wild Rye	5	-2		S5			XU	X		X
Glyceria canadensis	Rattlesnake Manna Grass	7	-5		S4S5			R3			X
Glyceria striata	Fowl Meadow Grass	3	-5		S5			X	X		X
Leersia oryzoides	Rice Cut Grass	3	-5		S5			X	X		X
Panicum columbianum	Panic Grass								R-4	L3	X
Phalaris arundinacea	Reed Canary Grass	0	-4		S5			X	X		X
Phleum pratense	Timothy		3	-1	SE5			X	X		X
Phragmites australis	Common Reed	0	-4		S5			X	X		X
Poa palustris	Fowl Meadow Grass	5	-4		S5			X	X		X
Trisetum aestivum	Summer Wheat		5	-1	SE1			X	X		X
Potamogetonaceae	**Pondweed Family**										
Potamogeton natans	Common Floating Pondweed	5	-5		S5			U	X	L3	X
Potamogeton pectinatus	Fennel-leaved Pondweed	4	-5		S5			U	X		X
Smilacaceae	**Catbrier Family**										
Smilax herbacea	Herbaceous Carrion Flower	5	0		S4			X	X		X
Sparganiaceae	**Bur-reed Family**										
Sparganium emersum ssp. emersum	Green-fruited Bur-reed	5	-5		S5			X	X	L3	X
Typhaceae	**Cattail Family**										
Typha angustifolia	Narrow-leaved Cattail	3	-5		S5			X	X		X
Typha latifolia	Broad-leaved Cattail	3	-5		S5			X	X		X

CC - Coefficient of Conservatism
CW - Coefficient of Wetness
WI - Weediness Index

Birds Reported From the Study Area

Scientific Name	Common Name	SRANK	COSSARO	COSEWIC	OBBA		NRSI Obs. Aug. 7, 2013
					17PJ37	17PJ47	
	DUCKS, GEESE & SWANS						
Branta canadensis	Canada Goose	S5			CO	CO	X
Cygnus olor	Mute Swan	SNA			CO		
Cygnus buccinator	Trumpeter Swan	S4	NAR	NAR		PO	
Aix sponsa	Wood Duck	S5			CO	PR	
Anas rubripes	American Black Duck	S4			PR		
Anas platyrhynchos	Mallard	S5			CO	CO	
Lophodytes cucullatus	Hooded Merganser	S5B, S5N			CO	PO	
	PARTRIDGES, GROUSE & TURKEYS						
Phasianus colchicus	Ring-necked Pheasant	SNA			PO	PO	
Bonasa umbellus	Ruffed Grouse	S4			CO	CO	
Meleagris gallopavo	Wild Turkey	S5			PO	CO	X
	GREBES						
Podilymbus podiceps	Pied-billed Grebe	S4B, S4N			CO		
	HERONS & BITTERNS						
Ardea herodias	Great Blue Heron	S4B				PO	
Butorides virescens	Green Heron	S4B			CO	PR	
	VULTURES						
Cathartes aura	Turkey Vulture	S5B			PR	PO	
	HAWKS, KITES & EAGLES						
Pandion haliaetus	Osprey	S5B			PR	PO	
Circus cyaneus	Northern Harrier	S4B	NAR	NAR	PO	PR	
Accipiter striatus	Sharp-shinned Hawk	S5	NAR		PO	PO	
Accipiter cooperii	Cooper's Hawk	S4	NAR	NAR	CO	CO	
Accipiter gentilis	Northern Goshawk	S4	NAR	NAR	CO	CO	
Buteo lineatus	Red-shouldered Hawk	S4B	NAR	NAR	CO		
Buteo platypterus	Broad-winged Hawk	S5B			CO	PR	
Buteo jamaicensis	Red-tailed Hawk	S5	NAR	NAR	CO	PO	X
	RAILS, GALLINULES & COOTS						
Rallus limicola	Virginia Rail	S5B			PR	PO	
Porzana carolina	Sora	S4B				PR	
Gallinula galeata	Common Gallinule	S4B				CO	
	PLOVERS						
Charadrius vociferus	Killdeer	S5B, S5N			CO	CO	X
	SANDPIPERS & PHALAROPES						
Actitis macularia	Spotted Sandpiper	S5			CO	PR	
Gallingo delicata	Wilson's Snipe	S5B			PO	PR	
Scolopax minor	American Woodcock	S4B			PR	CO	
	GULLS, TERNS & SKIMMERS						
Larus delawarensis	Ring-billed Gull	S5B, S4N					X

Scientific Name	Common Name	SRANK	COSSARO	COSEWIC	OBBA		NRSI Obs. Aug. 7, 2013
					17PJ37	17PJ47	
	PIGEONS & DOVES						
Columba livia	Rock Pigeon	SNA			CO	PR	X
Zenaida macroura	Mourning Dove	S5			CO	PR	X
	CUCKOOS & ANIS						
Coccyzus americanus	Yellow-billed Cuckoo	S4B			PR	PR	
Coccyzus erythropthalmus	Black-billed Cuckoo	S5B			PR	PR	
	TYPICAL OWLS						
Megascops asio	Eastern Screech-Owl	S4	NAR	NAR	PR	CO	
Bubo virgianus	Great Horned Owl	S4			CO	CO	
Strix varia	Barred Owl	S5			PR		
Asio otus	Long-eared Owl	S4				PO	
	SWIFTS						
Chaetura pelagica	Chimney Swift	S4B, S4N	THR	T	PR	PO	
	HUMMINGBIRDS						
Archilochus colubris	Ruby-throated Hummingbird	S5B			CO	PO	
	KINGFISHERS						
Megaceryle alcyon	Belted Kingfisher	S4B			CO	PR	X
	WOODPECKERS						
Sphyrapicus varius	Yellow-bellied Sapsucker	S5B			PR	PO	
Picoides pubescens	Downy Woodpecker	S5			CO	PR	
Picoides villosus	Hairy Woodpecker	S5			CO	CO	
Colaptes auratus	Northern Flicker	S4B			CO	CO	
Dryocopus pileatus	Pileated Woodpecker	S5			CO	PO	
	CARACARAS & FALCONS						
Falco sparverius	American Kestrel	S4			CO	CO	
	TYRANT FLYCATCHERS						
Contopus virens	Eastern Wood-Pewee	S4B		SC	CO	PR	
Empidonax alnorum	Alder Flycatcher	S5B			PR	PR	
Empidonax traillii	Willow Flycatcher	S5B			PO	PO	
Empidonax minimus	Least Flycatcher	S4B			PR	PO	
Sayornis phoebe	Eastern Phoebe	S5B			CO	CO	
Myiarchus crinitus	Great Crested Flycatcher	S4B			CO	CO	X
Tyrannus tyrannus	Eastern Kingbird	S4B			CO	CO	X
	VIREOS						
Vireo flavifrons	Yellow-throated Vireo	S4B			PO		
Vireo gilvis	Warbling Vireo	S5B			PR	PR	
Vireo olivaceus	Red-eyed Vireo	S5B			CO	PR	

Scientific Name	Common Name	SRANK	COSSARO	COSEWIC	OBBA		NRSI Obs. Aug. 7, 2013
					17PJ37	17PJ47	
	CROWS & JAYS						
Cyanocitta cristata	Blue Jay	S5			CO	CO	X
Corvus brachyrhynchos	American Crow	S5B			CO	CO	X
Corvus corax	Common Raven	S5			PO		
	LARKS						
Eremophila alpestris	Horned Lark	S5B			PR	PR	
	SWALLOWS						
Progne subis	Purple Martin	S4B			PO	PO	
Tachycineta bicolor	Tree Swallow	S4B			CO	CO	
Stelgidopteryx serripennis	Northern Rough-winged Swallow	S4B			PR	PO	
Riparia riparia	Bank Swallow	S4B		T	CO	CO	X
Petrochelidon pyrrhonota	Cliff Swallow	S4B			CO	CO	X
Hirundo rustica	Barn Swallow	S4B	THR	T	CO	CO	X
	CHICKADEES & TITMICE						
Poecile atricapillus	Black-capped Chickadee	S5			CO	CO	X
	NUTHATCHES						
Sitta canadensis	Red-breasted Nuthatch	S5			CO	PR	
Sitta carolinensis	White-breasted Nuthatch	S5			CO	PR	
	CREEPERS						
Certhia americana	Brown Creeper	S5B			PR	PR	
	WRENS						
Troglodytes aedon	House Wren	S5B			CO	PR	
Troglodytes hiemalis	Winter Wren	S5B			PR	CO	
Cistothorus platensis	Sedge Wren	S4B	NAR	NAR	PO		
Cistothorus palustris	Marsh Wren	S4B			PR		
	KINGLETS						
Regulus satrapa	Golden-crowned Kinglet	S5B			CO	PR	
	THRUSHES						
Sialia sialis	Eastern Bluebird	S5B	NAR	NAR	CO	CO	
Catharus fuscescens	Veery	S4B			CO	CO	
Catharus guttatus	Hermit Thrush	S5B			PR	PR	
Hylocichla mustelina	Wood Thrush	S4B		T	PR	PR	
Turdus migratorius	American Robin	S5B			CO	CO	X
	MOCKINGBIRDS & THRASHERS						
Dumetella carolinensis	Gray Catbird	S4B			PR	CO	X
Mimus polyglottos	Northern Mockingbird	S4			PR	CO	
Toxostoma rufum	Brown Thrasher	S4B			PR	PR	
	STARLINGS						
Sturnus vulgaris	European Starling	SNA			CO	CO	X

Scientific Name	Common Name	SRANK	COSSARO	COSEWIC	OBBA		NRSI Obs. Aug. 7, 2013
					17PJ37	17PJ47	
	WAXWINGS						
Bombycilla cedrorum	Cedar Waxwing	S5B			CO	PR	X
	WOOD-WARBLERS						
Seiurus aurocapillus	Ovenbird	S4B			CO	CO	
Parkesia noveboracensis	Northern Waterthrush	S5B			PR	CO	
Vermivora chrysoptera	Golden-winged Warbler	S4B	SC	T		PR	
Vermivora chrysoptera x pinus	Brewster's Warbler				PO		
Vermivora cyanoptera	Blue-winged Warbler	S4B				PO	
Mniotilta varia	Black-and-white Warbler	S5B			PR	CO	
Oreothlypis ruficapilla	Nashville Warbler	S5B			PR	CO	
Geothylpis philadelphia	Mourning Warbler	S4B			PR	PR	
Geothylpis trichas	Common Yellowthroat	S5B			CO	CO	X
Setophaga ruticilla	American Redstart	S5B			PO	CO	
Setophaga cerulea	Cerulean Warbler	S3B	THR	E	PO		
Setophaga magnolia	Magnolia Warbler	S5B			PR	PR	
Setophaga fusca	Blackburnian Warbler	S5B			PR		
Setophaga petechia	Yellow Warbler	S5B			PR	CO	
Setophaga pensylvanica	Chestnut-sided Warbler	S5B			CO	PO	
Setophaga caerulescens	Black-throated Blue Warbler	S5B			PR		
Setophaga pinus	Pine Warbler	S5B			CO	CO	
Setophaga coronata	Yellow-rumped Warbler	S5B			PR	PR	
Setophaga virens	Black-throated Green Warbler	S5B			PR	PR	
Cardellina canadensis	Canada Warbler	S4B	SC	T	PO	CO	
	SPARROWS						
Pipilo erythrophthalmus	Eastern Towhee	S4B			PR	PR	
Spizella passerina	Chipping Sparrow	S5B			CO	CO	X
Spizella pallida	Clay-colored Sparrow	S4B			PR		
Spizella pusilla	Field Sparrow	S4B			CO	CO	
Pooecetes gramineus	Vesper Sparrow	S4B			PR	PR	
Passerculus sandwichensis	Savannah Sparrow	S4B			CO	PR	
Ammodramus savannarum	Grasshopper Sparrow	S4B			PR	PO	
Melospiza melodia	Song Sparrow	S5B			CO	CO	X
Melospiza lincolnii	Lincoln's Sparrow	S5B			PR		
Melospiza georgiana	Swamp Sparrow	S5B			CO	PR	
Zonotrichia albicollis	White-throated Sparrow	S5B			PR	CO	
	CARDINALS & ALLIES						
Piranga olivacea	Scarlet Tanager	S4B			CO	PR	
Cardinalis cardinalis	Northern Cardinal	S5			CO	PR	X
Pheucticus ludovicianus	Rose-breasted Grosbeak	S4B			CO	PR	
Passerina cyanea	Indigo Bunting	S4B			CO	CO	X

Scientific Name	Common Name	SRANK	COSSARO	COSEWIC	OBBA		NRSI Obs. Aug. 7, 2013
					17PJ37	17PJ47	
	BLACKBIRDS						
Dolichonyx oryzivorus	Bobolink	S4B	THR	T	CO	PR	
Agelaius phoeniceus	Red-winged Blackbird	S4			CO	CO	X
Sturnella magna	Eastern Meadowlark	S4B	THR	T	CO	PR	
Quiscalus quiscula	Common Grackle	S5B			CO	CO	
Molothrus ater	Brown-headed Cowbird	S4B			PR	PR	X
Icterus galbula	Baltimore Oriole	S4B			CO	PR	
	FINCHES						
Carpodacus purpureus	Purple Finch	S4B			PR	PR	
Carpodacus mexicanus	House Finch	SNA			CO	PR	
Loxia leucoptera	White-winged Crossbill	S5B			CO		
Spinus pinus	Pine Siskin	S4B			PO		
Spinus tristis	American Goldfinch	S5B			CO	PR	X
	OLD WORLD SPARROWS						
Passer domesticus	House Sparrow	SNA			CO	PR	X

Mammals Reported From the Study Area

Scientific Name	Common Name	SRANK	COSSARO	COSEWIC	Ontario Mammal Atlas
Canis latrans	Coyote	S5			X
Castor canadensis	Beaver	S5			X
Condylura cristata	Star-nosed Mole	S5			X
Didelphis virginiana	Virginia Opossum	S4			X
Eptesicus fuscus	Big Brown Bat	S5			X
Glaucomys sabrinus	Northern Flying Squirrel	S5			X
Lepus americanus	Snowshoe Hare	S5			X
Lepus europaeus	European Hare	SE			X
Marmota monax	Woodchuck	S5			X
Mephitis mephitis	Striped Skunk	S5			X
Mus musculus	House Mouse	SE			X
Mustela frenata	Long-tailed Weasel	S4			X
Mustela vison	Mink	S5			X
Myotis lucifugus	Little Myotis	S4	END	E	X
Myotis septentrionalis	Northern Myotis	S3?	END	E	
Odocoileus virginianus	White-tailed Deer	S5			X
Ondatra zibethicus	Muskrat	S5			X
Parascalops breweri	Hairy-tailed Mole	S4			X
Peromyscus leucopus	White-footed Mouse	S5			X
Peromyscus maniculatus	Deer Mouse	S5			X
Procyon lotor	Raccoon	S5			X
Sciurus carolinensis	Gray Squirrel	S5			X
Sorex cinereus	Masked (Common) Shrew	S5			X
Tamias striatus	Eastern Chipmunk	S5			X
Tamiasciurus hudsonicus	Red Squirrel	S5			X
Vulpes vulpes	Red Fox	S5			X

Reptiles and Amphibian Species Reported From the Study Area

Scientific Name	Common Name	SRANK[1]	COSSARO[2]	COSEWIC[3]	Reptile and Amphibian Atlas
Turtles					
Chelydra serpentina serpentina	Snapping Turtle	S3	SC	SC	X
Chrysemys picta marginata	Midland Painted Turtle	S5			X
Trachemys scripta elegans	Red-eared Slider	SNA			X
Snakes					
Lampropeltis triangulum	Eastern Milksnake	S3	SC	SC	
Nerodia sipedon sipedon	Common Watersnake	S5	NAR	NAR	X
Storeria occipitomaculata occipitomaculata	Northern Red-bellied Snake	S5			X
Thamnophis sirtalis sirtalis	Eastern Gartersnake	S5			X
Salamanders					
Ambystoma hybrid pop. 3	Jefferson/Blue-spotted Salamander Complex	S2			X
Notophthalmus viridescens viridescens	Red-spotted Newt	S5			X
Plethodon cinereus	Eastern Red-backed Salamander	S5			X
Toads and Frogs					
Anaxyrus americanus	American Toad	S5			X
Hyla versicolor	Tetraploid Gray Treefrog	S5			X
Pseudacris triseriata pop. 2	Western Chorus Frog *(Great Lakes/St. Lawrence - Canadian Shield Population)*	S3	NAR	T	X
Pseudacris crucifer	Spring Peeper	S5			X
Lithobates catesbeiana	American Bullfrog	S4			X
Lithobates clamitans melanota	Northern Green Frog	S5			X
Lithobates pipiens	Northern Leopard Frog	S5	NAR	NAR	X
Lithobates sylvatica	Wood Frog	S5			X

[1]MNR 2010; [2]MNR 2013; [3]COSEWIC 2013

Butterfly Species Reported From the Study Area

SCIENTIFIC NAME	COMMON NAME	SRANK	COSSARO	COSEWIC	Butterfly Atlas	NRSI Observed
Lycaeana phlaeas	American Copper	S5			X	
Vanessa virginiensis	American Lady	S5			X	
Papilio polyxenes	Black Swallowtail	S5			X	
Lycaena hyllus	Bronze Copper	S5			X	
Pieris rapae	Cabbage White	SNA			X	X
Papilio canadensis	Canadian Tiger Swallowtail	S5			X	
Colias philodice	Clouded Sulphur	S5			X	
Coenonympha tullia	Common Ringlet	S5			X	
Cercyonis pegala	Common Wood-Nymph	S5			X	
Nympahlis vaualbum	Compton Tortoiseshell	S5			X	
Euphyes vestris	Dun Skipper	S5			X	
Polygonia comma	Eastern Comma	S5			X	
Cupido comyntas	Eastern Tailed Blue	S5			X	
Lethe eurydice	Eyed Brown / Northern Eyed Brown	S5			X	
Speyeria cybele	Great Spangled Fritillary	S5			X	
Polygonia progne	Grey Comma	S5			X	
Erynnis juvenalis	Juvenal's Duskywing	S5			X	
Hesperia leonardus	Leonard's Skipper	S4			X	
Megisto cymela	Little Wood-Satyr	S5			X	
Aglais milberti	Milbert's Tortoiseshell	S5			X	
Danaus plexippus	Monarch	S2N, S4B	SC	SC		X
Nymphalis antiopa	Mourning Cloak	S5			X	
Pieris oleracea	Mustard White	S4			X	
Wallengrenia egeremet	Northern Broken Dash	S5			X	
Enodia anthedon	Northern Pearly-Eye	S5			X	
Colias eurytheme	Orange Sulphur	S5			X	
Polygonia interrogationis	Question Mark	S5			X	
Vanessa atalanta	Red Admiral	S5			X	
Limentis arthemis astyanax	Red-spotted Purple	S5			X	
Celastrina ladon	Spring Azure	S5			X	
Satyrium liparops	Striped Hairstreak	S5			X	
Polites themistocles	Tawny-edged Skipper	S5			X	
Limenitis archippus	Viceroy	S5			X	
Limenitis arthemis arthemis	White Admiral/Banded Purple	S5			X	

Dragonflies and Damselflies Reported From the Study Area

Scientific Name	Common Name	SRANK	COSSARO	COSEWIC	Odonata Atlas
Aeshna constricta	Lance-tipped Darner	S5			X
Aeshna interrupta	Variable Darner	S5			X
Aeshna tuberculifera	Black-tipped Darner	S4			X
Aeshna umbrosa	Shadow Darner	S5			X
Amphiagrion saucium	Eastern Red Damsel	S4			X
Anax junius	Common Green Darner	S5			X
Argia fumipennis violacea	Violet Dancer	S5			X
Basiaeschna janata	Springtime Darner	S5			X
Calopteryx maculata	Ebony Jewelwing	S5			X
Celithemis elisa	Calico Pennant	S5			X
Chromagrion conditum	Aurora Damsel	S5			X
Cordulegaster diastatops	Delta-spotted Spiketail	S4			X
Cordulegaster maculata	Twin-spotted Spiketail	S4			X
Enallagma antennatum	Rainbow Bluet	S4			X
Enallagma aspersum	Azure Bluet	S3			X
Enallagma boreale	Boreal Bluet	S5			X
Enallagma carunculatum	Tule Bluet	S5			X
Enallagma civile	Familiar Bluet	S5			X
Enallagma ebrium	Marsh Bluet	S5			X
Enallagma exsulans	Stream Bluet	S5			X
Enallagma hageni	Hagen's Bluet	S5			X
Enallagma vesperum	Vesper Bluet	S4			X
Epitheca canis	Beaverpond Baskettail	S5			X
Epitheca cynosura	Common Baskettail	S5			X
Epitheca pinceps	Prince Baskettail	S5			X
Epitheca spinigera	Spiny Baskettail	S5			X
Erythemis simplicicollis	Eastern Pondhawk	S5			X
Gomphus exilis	Lancet Clubtail	S5			X
Gomphus spicatus	Dusky Clubtail	S5			X
Ischnura verticalis	Eastern Forktail	S5			X
Ladona julia	Chalk-fronted Corporal	S5			X
Lestes forcipatus	Sweetflag Spreadwing	S4			X
Lestes rectangularis	Slender Spreadwing	S5			X
Lestes unguiculatus	Lyre-tipped Spreadwing	S5			X
Leucorrhinia intacta	Dot-tailed Whiteface	S5			X
Libellula luctuosa	Widow Skimmer	S5			X
Libellula pulchella	Twelve-spotted Skimmer	S5			X
Libellula quadrimaculata	Four-spotted Skimmer	S5			X
Nehalennia irene	Sedge Sprite	S5			X
Plathemis lydia	Common Whitetail	S5			X
Sympetrum obtrusum	White-faced Meadowhawk	S5			X
Sympetrum vicinum	Yellow-legged (Banded) Meadowhawk	S5			X
Tramea lacerata	Black Saddlebags	S4			X

APPENDIX III
Legend

Legend

Provincial Rank (SRANK)	COSSARO	COSEWIC
S1 - Critically Imperiled	*NAR - Not at Risk*	*NAR - Not at Risk*
S2 - Imperiled	*SC - Special Concern*	*SC - Special Concern*
S3 - Vulnerable	*THR - Threatened*	*T - Threatened*
S4 - Apparently Secure	*END - Endangered*	*E - Endangered*
S5 - Secure		

CC - Coefficient of Conservatism: This value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific habitat integrity.
CW - Coefficient of Wetness: This value, ranging from -5 (obligate wetland) to 5 (upland) provides the probability of a species occurring in wetland or upland habitats.
WI - Weediness Index: This value, ranging from -1 (low) to -3 (high) quantifies the potential invasiveness of non-native plants. In combination with the percentage of non-native plants, it can be used as an indicator of disturbance.

Local significance:

Greater Toronto Area (Varga et al. 2000)

Species Status

+	Introduced Species
X^+	Native species that is introduced in that municipality
(+)	Possibly introduced species or a native species that is introduced in some municipalities
X	Common native species or an introduced species that is present
R	Rare native species
E	Extirpated native species that has not been refound at its known locations or its habitat is gone
SR	Species record based on a sight record; all other species records based on herbarium collections
LR	species record based on a literature record
U	Uncommon native species
R^6	Number of stations for a rare native species

Central Ontario Regions (Riley, OMNR 1989)

York and Metropolitan Toronto

R	Native, Present and Rare	≤5 stations known since 1925, R-0 denotes species not known since 1925
X	Native and Present, and all Introduced Species	>5 stations

Memo

TO:	Lynn Barkey and Oliver Minz, Acorn NE Investments Inc. Dave Farrow, Northcape Investments Inc. Walter Cesta, 2647737 Ontario Inc.)
FROM:	Christie Cestra, Dillon Consulting Limited Caitlin Vandermeer, Dillon Consulting Limited
DATE:	February 27, 2020
SUBJECT:	Existing Conditions Memo for Three Properties on Tenth Line in the Town of Whitchurch-Stouffville
OUR FILE:	19-9482, 19-9231, 18-7736

1.0 Introduction

Dillon Consulting limited (Dillon) was retained by Acorn NE Investments Inc., Northcape Investments Inc., and 2647737 Ontario Inc. (the Client Group) to complete biophysical inventories to document the existing conditions of natural features within three adjacent properties (the Study Area) within the Town of Whitchurch-Stouffville (the Town) and the Region of York (the Region) (**Attachment A**: Figure 1). The Study Area has been identified as the lands located between Tenth Line, and York/Durham Line, north of Forsynth Farm Drive and to the south of Bethesda Road. Biophysical inventories for the Study Area are in support of a Natural Heritage Impact Study (NHIS; to be completed at a future date) for residential development proposed to occur within the Study Area.

The purpose of this memo is to document and summarize the existing conditions of the natural environment which were identified as a result of 2019 biophysical inventories. Biophysical inventories of the natural environment were required for the purposes of determining the potential limit of development, and to evaluate the potential for environmental impacts associated with the proposed development.

2.0 Methodology

Information collected during the background review was used to develop the methodologies for the 2019 field program. The field program was developed in accordance with the Terms of Reference (TOR) submitted to Toronto and Region Conservation Authority (TRCA) on April 24, 2019. Approval from the TRCA on the TOR was received on May 13, 2019. Communications for the submission and approval are provided in **Attachment B**.

Field work completed for the Study Area in 2019 follows previous site visits performed individually for the Client Group to complete staking of natural features. Initial agency staking activities for wetlands and woodlands located in the northern portion of the Study Area (Acorn NE Investments Inc.) took place in the spring of 2018 (May 23). Contacts from the Ministry of Natural Resources and Forestry (MNRF) and the TRCA were in attendance during the staking and were in agreement with the resulting boundary of the woodland dripline and wetland boundaries.

Additional preliminary staking activities for the remaining natural features in the Study Area (Northcape Investments Inc. and 2647737 Ontario Inc.) were later conducted in early 2019 (March 9). Staked lines produced for the woodland dripline and ravine top of bank were confirmed by the TRCA during agency staking activities occurring on August 26, 2019.

Biophysical investigations included as part of the 2019 field program for the Study Area occurred between April and September when weather conditions and timing were deemed suitable based on the survey protocols being implemented. Field surveys consisted of the following:

- Ecological Land Classification (ELC) of vegetation communities;
- Botanical surveys;
- Aquatic assessment;
- Breeding bird surveys;
- Amphibian breeding surveys; and
- Incidental wildlife observations.

The dates and environmental conditions observed during each site visit are listed in **Table 1**.

Table 1: Dates and Times of Field Surveys

Date	Weather Conditions	Air Temp (°C)	Purpose of Visit
May 23, 2018	40% cloud cover, light breeze[2], no precipitation	25	Preliminary and agency staking of wetland boundary and forest dripline of Acorn NE Investments Inc. property
March 9, 2019	20% cloud cover, light breeze[2], No precipitation	0	Preliminary staking of woodland dripline and Top of Bank for the Northcape Investments Inc and 2647737 Ontario Inc properties
April 25, 2019	100% cloud cover, light breeze[2], No precipitation	12	Amphibian Breeding Survey #1
May 22, 2019	100% cloud cover, gentle breeze[3], no precipitation	14	Amphibian Breeding Survey #2
May 22, 2019	90% cloud cover	13	Detailed Stream assessment

June 3, 2019	80% cloud cover, light breeze[2], no precipitation	7-8	Breeding Bird Survey #1
June 25, 2019	20% cloud cover, light breeze[2], no precipitation	17-21	Breeding Bird Survey #2 and Spring Botanical Survey
June 26, 2019	10% cloud cover, light breeze[2,] , no precipitation	26	Amphibian Breeding Survey #3
July 17, 2019	20% cloud cover, light breeze[1] , no precipitation	25	Ecological Land Classification and Summer Botanical Survey
August 26, 2019	N/A	25	Agency Staking of Woodland Dripline for the Northcape Investments Inc. and 2647737 Ontario Inc. properties: TRCA in attendance

[0] Calm = Beaufort Scale 0
[1] Light air = Beaufort Scale 1
[2] Light breeze = Beaufort Scale 2
[3] Gentle breeze = Beaufort Scale 3
[4] Moderate breeze = Beaufort Scale 4

The following sub-sections outline the survey protocols used for the 2019 field program.

2.1 Aquatic Stream Assessment

An aquatic assessment was completed for the tributary of Reesor Creek within the Study Area. Information collected during the assessment included (where applicable): channel form, presence/absence of flow, substrate type, channel dimensions (e.g., width and depth), and riparian vegetation. This data was used, in part, to determine the overall health and sensitivity of the tributary.

2.2 Ecological Land Classification

Vegetation communities were assessed using ELC as a first step to identify and assess potential natural heritage features within the Study Area. During the field investigations, vegetation was characterized using the ELC System for Southern Ontario (Lee et al., 1998) in order to classify and map ecological communities to the vegetation level. The ecological community boundaries were determined through the review of aerial photography and then further refined through on site vegetation and tree surveys. Vegetation studies involved identifying the dominant species in each vegetation community type based on visual estimates of species abundances and biomass. Species nomenclature is based on the species lists for Ontario maintained by the NHIC which uses international standards for taxonomy and nomenclature. Soil profiles were also taken in each of the ELC communities identified.

2.3 Botanical Inventory

A two-season vegetation survey was conducted during the appropriate seasonal blooming period. Surveys consisted of wandering transects and/or area searches to determine the presence, richness and

abundance of floral species within the Study Area as well as presence/absence of botanical SAR. Species nomenclature recorded is based on the Ontario Plant List (Newmaster *et al,.* 1998).

2.4 Natural Heritage Features

2.4.1 Wetlands

Staking of the wetland boundaries were completed previously in the spring of 2018 as well as in the winter of 2019. The vegetation communities of wetland units within the Study Area were assessed in during ELC surveys and botanical surveys.

2.4.2 Woodlands

Preliminary dripline staking of woodlands within the Study Area were conducted previously in the spring of 2018 and later in the winter of 2019. As stated previously in **Section 2.0**, the boundaries of the staked driplines were confirmed by agencies on May 23, 2018 (Acorn NE) and on August 26, 2019 (Northcape Investments Inc. and 2647737 Ontario Inc.). The composition of vegetation present in woodland communities was investigated as part of the ELC and vegetation surveys.

2.4.3 Significant Wildlife Habitat

Criteria for determining significance of wildlife habitat follow the guidelines outlined in the Natural Heritage Reference Manual (MNRF 2010) and the Significant Wildlife Habitat Technical Guide Ecoregion 6E Criterion Schedules (MNRF 2015), where applicable.

In order to establish baseline conditions to determine whether SWH exists within the Study Area, breeding bird surveys and amphibian breeding surveys were conducted during the 2019 field season. Field studies for breeding birds and amphibians were paired with incidental wildlife observations throughout the field season to determine potential for wildlife habitat and habitat use within the Study Area.

Breeding Bird Surveys

Diurnal breeding bird surveys conducted within the Study Area followed the methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Cadman et al 2007), and were completed in late-May and late-June in an effort to document both early and late season breeders.

Specifically, surveys consisted of point counts generally conducted between dawn and five hours after sunrise to establish quantitative estimates of bird abundance in suitable habitat types within the Study Area. During the surveys evidence of breeding behaviour was recorded which generally includes, but is not limited to, males singing, nest building, egg incubation, territorial defence, carrying food, and feeding their young.

To supplement the surveys, area searches of the habitat were completed using binoculars to observe species presence and breeding activity between point counts. Area searches involved noting all individual bird species and their corresponding breeding evidence while traversing the habitat on foot.

Amphibian Breeding Surveys

Amphibian monitoring followed the Marsh Monitoring Program protocol (Bird Studies Canada, 2009). In accordance with the protocol, three different surveys were conducted between April 1 and June 30, with at least two-weeks between each survey. Surveys were completed between one half hour after sunset and midnight during evenings with a minimum night temperature of 12 ^{o}C, 14 ^{o}C, and 26 ^{o}C for each of the three respective surveys.

The calling activity of individuals estimated to be within 100 m of the observation point were documented. All individuals beyond 100 m were recorded as outside the count circle and calling activity was not recorded. Calling activity was then ranked using one of the three abundance code categories:

Code 1: Calls not simultaneous, number of individual can be accurately counted;
Code 2: Some calls simultaneous, number of individuals can be reliably estimated; and
Code 3: Calls continuous and overlapping, number of individuals cannot be estimated.

In areas were appropriate habitat exists vernal pools were also visually examined for egg masses and amphibian larvae in conjunction with other field surveys. These searches occurred between April and June when amphibians were concentrated around suitable breeding habitat.

Incidental Wildlife

A general wildlife assessment was completed within the Study Area through incidental observations while on site. Incidental observations of wildlife were noted, as well as other wildlife evidence such as dens, tracks, and scat. For each observation, notes, and when possible, photos were taken. These observations helped to determine potential ecological functions, linkages, etc. within the Study Area.

2.5 Species at Risk and Species of Conservation Concern

In addition to the field surveys, a search of the NHIC database and other available wildlife atlases was conducted to identify possible occurrences of federal and/or provincial Species at Risk (SAR) and/or provincially rare species in proximity to the Study Area. SAR are defined as those listed as Endangered (END) or Threatened (THR) under the provincial *Endangered Species Act* (ESA), 2007. Species of Conservation Concern (SCC) are defined as species listed as Threatened or Endangered under the federal *Species at Risk Act* (SARA) 2002, but not under the provincial ESA; species that are provincially rare/tracked (i.e., have a Sub-national (provincial) Rank of S1 – Critically Imperilled, S2 – Imperilled or S3 – Vulnerable) and/or are designated as Special Concern (SC) under the ESA.

Based on an initial SAR screening conducted for the Study Area the following SAR and SCC listed in **Table 2** have the potential to occur.

Table 2: SAR and SCC with the Potential to Occur within the Study Area

Scientific Name	Common Name	SARA[1]	ESA[2]	Srank[3]
Species at Risk				
Hirundo rustica	Barn Swallow	THR	THR	S4B
Juglans cinerea	Butternut	END	END	S3?
Myotis leibii	Eastern Small-footed Myotis	---	END	S2S3
Myotis lucifugus	Little Brown Myotis	END	END	S4
Myotis septentrionalis	Northern Myotis	END	END	S3
Pipistrellus subflavus	Tri-colored Bat	END	END	S3?
Species of Conservation Concern				
Contopus virens	Eastern Wood-pewee	SC	SC	S4B
Hylocichla mustelina	Wood Thrush	THR	SC	S4B

[1] Federal status under SARA.
[2] Provincial status under the ESA. THR = Threatened; "---" denotes no information or not applicable.
[3] S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common.

3.0 Results and Discussion

The results of our biophysical inventories are summarized below.

3.1 Aquatic Stream Assessment

The tributary of Reesor Creek is a permanent stream that flowed in a southerly direction within the Study Area. The stream contained riffle, run, pool and flat habitat with sand as the dominant substrate; however, silt, gravel, cobble and boulder substrates were also present. The mean wetted width was 2.4 m while the mean bankfull width was 4.7 m. Further, the mean wetted depth was 0.35 m and the mean bankfull depth was 0.85 m. Both banks exhibited signs of erosion with undercut banks and exposed soil.

In-stream habitat consisted of undercut banks (20%), boulders (2%), cobble (1%), overhanging woody debris (30%) and in-stream woody debris (15%). No in-stream habitat was observed in 32% of the stream. No aquatic vegetation was observed. Within the Study Area, 90 - 100% of the stream was shaded by the surrounding forest community. Areas of fine gravel that may be suitable fish spawning habitat were observed within the stream.

Land use around the stream consisted of agriculture and rural roads and as a result, potential pollutants include fertilizers, pesticides and road salt. Upstream, a corrugated steel pipe culvert crossing exists on the neighbouring property and a deteriorating stone bridge was observed within the Study Area.

Reference photos from the aquatic stream assessment can be found in **Attachment C**: Photos 1 - 5.

3.2 Ecological Land Classification

A total of 12 ecological communities were observed within the Study Area during the ELC survey, seven of which are considered natural vegetation communities. The location, type, and boundaries of these communities are delineated in **Attachment A**: Figure 2. Each of the vegetation communities surveyed within the Study Area are considered common in Ontario. **Table 3** outlines the communities documented during ELC surveys and summarizes the dominant vegetation cover. Reference photos for each of the vegetation communities observed can be found in **Attachment C:** Photos 6 - 13.

Natural communities (e.g., woodland, wetland, meadow, etc.) within the Study Area have been disturbed due to adjacent anthropogenic uses (i.e., roads, agriculture, recreational activities, etc.) and contain invasive species such as Reed Canary Grass (*Phalaris arundinacea*), Common Buckthorn (*Rhamnus cathartica)*, and Dog Strangling Vine (*Cynanchum rossicum*). The majority of lands within the proposed development area consist of agricultural lands, meadows adjacent to the agricultural lands and fencerows.

3.3 Botanical Inventory

A total of 104 plant species were documented during 2019 field studies. Of the 104 species, 59% are listed as native species and are considered to be common (S4) to very common (S5) in the province of Ontario. Conversely, 41% of the species observed are listed as introduced species; therefore, a status ranking is not applicable as the species is not a suitable target for conservation activities (SRank of SE or SNA). One SAR species, Butternut, was identified during vegetation surveys; Butternut are listed as threatened and therefore are protected under the ESA (2007).

The Co-efficient of Conservatism (CC) provides additional information on the nature of the vegetation communities within the Study Area. The CC values range from 0 to 10 and represent an estimated probability that a plant is likely to occur in a landscape that is relatively unaltered or is in a pre-settlement condition. For example, a CC of 0 is given to plants such as Manitoba Maple (*Acer negundo*) that demonstrate little fidelity to any remnant natural community, (i.e., may be found almost anywhere). Similarly, a CC of 10 is applied to plants like Shrubby Cinquefoil (*Potentilla fructicosa*) that are almost always restricted to a pre-settlement remnant, i.e., a high quality natural area. Introduced plants were not part of the pre-settlement flora, so no CC values have been applied to these species.

Of the 104 species identified within the Study Area, 5 have a CC value of 7 or greater; Woodland Horsetail (*Equisetum sylvaticum*), Common Oak Fern (*Gymnocarpium dryopteis)*, Michigan Lily (*Lilium michiganese*), Common Wood-sorrell *(Oxalis montana*), and Northern Mountain-ash (*Sorbus decora*). The mean CC value for the site was 2.07 out of a possible 10, indicating a heavily disturbed landscape. A full list of the vegetation species observed within the Study Area has been included in **Attachment D**.

Table 3: Ecological Land Classification Descriptions for Vegetation Communities of the Study Area

ELC Code	Classification	Vegetation	Comments	Photo Attachment C
FODM3-1	Dry-fresh poplar deciduous forest ecosite	This young forest community consists of a canopy dominated almost exclusively by Trembling Aspen (*Populous tremuloides*). Other tree species found in the understorey included Staghorn Sumac (*Rhus typhina*), Common Buckthorn (*Rhamnus cathartica*), and the occasional White Ash (*Fraxinus Americana*). The ground layer is a mix of grass species Awnless Brome (*Bromus inermis)*, Canada Goldenrod (*Solidago Canadensis*), and other species such as Riverbank Grape (*Vitis riparia*), and Tufted Vetch (*Vicia cracca).*	This community occurs once near the southwestern corner of the Study Area, adjacent to agricultural fields to the north and south, and the Tenth line to the west.	**6**
MEGM4	Fresh-moist graminoid meadow ecosite	This meadow area is dominated by Common Reed (*Phragmites australis*) and Reed Canary Grass, with smaller amounts of other grass species. Ground layer is intermixed with other species such as Common Plantain (*Plantago major),* Lance-leaved Aster (*Symphyotrichum lanceolatum*), and Field Horsetail (*Equisetum arvense*).	This community occurs adjacent to the 10th Line in the southwestern corner of the Study Area.	**7**
MEMM3	Dry-fresh mixed meadow ecosite	This community is dominated by Canada Goldenrod and contains abundant Canada Thistle (*Cirsium arvense*) with occasional occurrences of Common Milkweed (*Asclepias syriaca*), Wild Carrot (*Daucus carota*) and grass species such as Awnless Brome and Timothy (*Pleum pretense*). The only tree species present are several mature Norway Maple (*Acer platanoides*)	This community occurs in the central area of the Study Area and is surrounded largely by open agriculture.	**8**
MASM1-1	Cattail Mineral Shallow Marsh Ecosite	This wetland community is dominated by Broad-leaved Cattail (*Typha latifolia*), with an outer border of Reed Canary Grass. Interspersed among the cattail and grasses are other forb species such as Jewelweed (*Impatiens capensis*), Bittersweet Nightshade (*Solanum dulcamara*) and Sensitive Fern (*Onoclea sensiblis*). Shrub species Red-Osier Dogwood (*Cornus sericea*) is occasional and tree species Peachleaf Willow (*Salix amygdaloides*) is rare.	This community is found in the north-east corner of the Study Area and extends beyond the property line to the east.	**9**

ELC Code	Classification	Vegetation	Comments	Photo Attachment C
THDM2	Dry-fresh Deciduous Shrub Thicket Ecosite	This thicket community is dominated by an understorey of Common Buckthorn shrub with an open canopy consisting of Black Cherry (*Prunus serotina*), White Ash, and Apple (*Malus spp*.). The ground layer is dominated by grass species Awnless Brome, with abundant invasive Dog-strangling Vine (*Cynanchum rossicum),* Canada Thistle and Tufted Vetch.	Occurring at the very edge of open agriculture where it meets the adjacent coniferous forest this community occurs only once in the Study Area along the east property line.	--
SWCM1-1	White Cedar Mineral Coniferous swamp	This coniferous swamp community is dominated primarily by a dense stand of Eastern White Cedar (*Thuja occidentalis*) with a very low occurrence of other species such as White Willow (*Salix alba)*, Black Walnut (*Juglans nigra)*, Yellow Birch (*Betula alleghaniensis*) and Green Ash (*Fraxinus pennsylvanica*). Jewelweed dominates the ground layer along with several fern species such as Bulblet Fern (*Cystopteris bulbifera*), Lady Fern (*Athyrium filix-femina*), Oak Fern (Gymnocarpium dryopteris) and Sensitive Fern. Understorey shrubs are rare with Alternate-leaved Dogwood (*Cornus alternafolia*) and Red Osier dogwood present.	This community occurs in the valleylands located at the south east corner of the Study Area, occurring only once.	**10**
FOCM4	Fresh-moist White Cedar Coniferous Forest ecosite	The majority of this community contains a dominant Eastern White Cedar canopy with the occasional occurrence of species such as Manitoba Maple and Black Walnut. The understorey is very open with rare occurrences of shrub species including Red Elderberry (*Sambucus racemosa*), Common Buckthorn, and Alternate-leaved dogwood. Ground layer species are also rare with species such as Enchanter's Nightshade (*Circaea lutetiana*), Wood Sorrel *(Oxalis acetosella*), and Yellow Avens (*Geum aleppicum*) present.	This community consists of two polygons mostly identical in composition on both the east and west borders of the coniferous swamp at the south east corner of the Study Area.	**11**
MEMM4	Fresh-moist mixed meadow ecosite	This community is dominated by Lance-leaved Aster (*Symphyotrichum lanceolatum*), and contains abundant Wild Raspberry (*Rubus idaeus*) and Canada Goldenrod with occasional occurrences of Jewelweed, Philadelphia Fleabane (*Erigeron philadelphicus*). The canopy consists of the occasional Black Walnut or Manitoba Maple trees with an understorey	This community occurs only once in the south east corner of the Study Area between the open agriculture fields and the coniferous forest.	**12**

ELC Code	Classification	Vegetation	Comments	Photo Attachment C
		of Red-Osier Dogwood and White Elderberry (*Sambucus gaudichadiana*) shrub species.		
TAGM5	Fencerow	This community is dominated by grass species Awnless Brome and contains abundant Canada Thistle, Canada Goldenrod, Common Milkweed and Tufted Vetch.	This community occurred only once in the Study Area, separating two areas of open agriculture.	--
OAG	Open Agriculture	This community consists of open agriculture containing planted rowcrop.	This community occupies the majority of the Study Area.	--
OAG	Fallow Field	This community consists of an open agricultural field which was left fallow.	This community is located on the eastern perimeter of the study area adjacent to York Durham line.	--
CVR_4	Single Family Residential	This community consists of a residential building, mowed lawn and planted trees.	This single polygon borders the Tenth Line in the central part of the Study Area.	--

3.4 Natural Heritage Features

3.4.1 Wetlands

Two unevaluated wetlands were identified in the Study Area during the desktop review and later confirmed during ELC surveys. These wetland vegetation communities are identified in **Attachment A**: Figure 2.

A small Cattail Mineral Shallow Marsh (MASM1-1) community exists at the northwest corner of the Study Area. The boundaries of this wetland community within the Study Area were previously staked by Dillon, the MNRF, and the TRCA in May, 2018. The staked boundaries of this wetland community are represented in **Attachment A**: Figure 2. This wetland appears relatively undisturbed within the boundaries of the Study area; however, the larger part of the wetland continues outside the Study Area boundary.

A second wetland community was identified as a White Cedar Mineral Coniferous swamp (SWCM1-1) which exists in the southeast portion of the Study Area. This wetland community is associated with a tributary of the Reesor Creek, and is contained within the limits of a ravine feature. The wetland community extends past the boundary of the Study Area and continues onto adjacent properties located north and south along the watercourse. During field surveys in July a high level of disturbance was noted within this wetland community. Within the boundaries of the Study Area the central portion of this community has been used heavily as a recreational paintball sport park. Makeshift wooden structures, plywood, rubber tires, garbage cans, and other general refuse litters the area and reduces the quality of the wetland habitat significantly (see **Appendix C:** Photo 6). As a result the ground is generally very compacted and natural vegetation in many areas is reduced or absent altogether.

3.4.2 Woodlands

The majority of woodlands within the Study Area are associated directly with the tributary of Reesor Creek (FOCM4 and SWCM1). These woodlands extend north and south along the watercourse beyond the boundaries of the Study Area and contribute to a woodland feature that is approximately 11 ha in size. Additional, smaller forest communities within the Study Area are either isolated in the landscape within agricultural lands (FODM3-1; 0.19 ha) or are located adjacent other natural features (i.e., marsh wetland; MASM1-1) and are comprised of predominantly invasive species.

Woodlands within the Study Area are regulated under multiple local planning policies: The Oak Ridges Moraine Conservation Plan (ORMCP, 2002) and Technical Papers, The York Region Official Plan (YROP; 2010), the Town of Whitchurch-Stouffville Official Plan (2000), and the Community of Stouffville Secondary Plan (July 2018).

Under Section 2.2.45 of the YROP (2010), forest communities associated with Reesor Creek of the Study Area (FOCM4 and SWCM1) are considered Significant Woodlands, as this feature is greater than 4 ha in size and located south of the Oak Ridges Moraine.

Based on policies of the YROP (2011), the ORMCP, and the ORMCP Technical Papers (Papers 1 and 7), the additional isolated woodland (FODM3-1) located adjacent to Tenth Line does not meet minimum criteria for significance. The woodland feature is too small (i.e., less than 0.5 ha) to meet policy requirements of Section 2.2.45 of the YROP (2011) as well as Section 4.6 of Technical Paper 1 of the ORMCP (2002).

3.4.3 Significant Wildlife Habitat

Based on the results of the 2019 field investigations in the Study Area, and as defined in the Ecoregion 6E Criterion Schedules (MNRF 2015), the following candidate Significant Wildlife Habitat (**Attachment A**: Figure 4) have the potential to occur:

- Bat Maternity Colonies; and
- Reptile Hibernaculum.

During the ELC and vegetation surveys, limited potential for bat maternity roosting was incidentally observed within the Study Area. While suitable forest communities were observed in the Study Area (i.e., Poplar Deciduous Forest (FODM3-1), White Cedar Coniferous Forest (FOCM4), White Cedar Coniferous Swamp (SWCM1) and Fencerows (TAGM5)), only the White Cedar Coniferous Forest (FOCM4) and White Cedar Coniferous Swamp (SWCM1) associated with the tributary of Reesor Creek were large enough (> 10 ha) to be considered candidate bat maternal roost SWH. While these suitable woodlands exist within the Study Area, few snags or cavity trees were incidentally observed by field staff during botanical and ELC surveys. Additional formal field studies to identify snag or cavity trees within these woodlands of the Study Area may be required to confirm the absence of potential suitable bat maternity roost habitat in the event that tree removal within these communities to facilitate development is proposed.

In addition, during site visits to the Study Area field staff observed a stone foundation of a former agricultural building within the area of Dry-Fresh Poplar Deciduous Forest (FODM3-1) adjacent to Tenth Line. As the stone foundation appeared to be partially buried under soil and crevices were observed within the foundation face, these anthropogenic structures may provide candidate SWH for reptile hibernacula. Additional studies in early spring may be required to determine the presence of emerging snakes near the potential hibernacula to determine if this anthropogenic structure provides suitable SWH.

Additional field studies (amphibian call surveys and breeding bird surveys) examined criteria to assess potential woodland and wetland Amphibian Breeding Habitat, and Significant Habitat for Special Concern and Rare Wildlife Species. Based on the results of the 2019 breeding bird and amphibian surveys, no SWH was confirmed within the Study Area. The results of these surveys are provided in the following sections.

Breeding Bird Survey

Two breeding bird surveys were conducted at six stations within the Property on June 3 and June 25 of 2019; breeding bird survey locations are depicted in Attachment A: Figure 2.

A total of 38 bird species were observed in the Study Area during breeding bird surveys (Table 4). Of the 38 species observed, one SAR, Barn Swallow (THR) was identified. The remaining 37 birds observed are considered common and secure (S4) to very common (S5) in the province of Ontario based on the provincial conservation rankings assigned by the NHIC.

Table 4: 2019 Breeding Bird Survey Results

Scientific Name	Common Name	SARA[1]	ESA[2]	Srank[3]	Codes for Breeding Evidence[4]
Anas platyrhynchos	Mallard	---	---	S5	X
Branta canadensis	Canada Goose	---	---	S5	X
Meleagris gallopavo	Wild Turkey	---	---	S5	X
Buteo jamaicensis	Red-tailed Hawk	---	---	S5	S
Buteo lineatus	Red-shouldered Hawk	---	---	S4B	X
Charadrius vociferus	Killdeer	---	---	S5B,S5N	X
Colaptes auratus	Northern Flicker	---	---	S4B	S
Myiarchus crinitus	Great Crested Flycatcher	---	---	S4B	S
Sayornis phoebe	Eastern Phoebe	---	---	S5B	S
Tyrannus tyrannus	Eastern Kingbird	---	---	S4B	S
Vireo gilvus	Warbling Vireo	---	---	S5B	S
Vireo olivaceus	Red-eyed Vireo	---	---	S5B	S
Corvus brachyrhynchos	American Crow	---	---	S5B	S
Corvus corax	Common Raven	---	---	S5	X
Cyanocitta cristata	Blue Jay	---	---	S5	S
Hirundo rustica	Barn Swallow	THR	THR	S4B	S
Poecile atricapillus	Black-capped Chickadee	---	---	S5	NY
Troglodytes aedon	House Wren	---	---	S5B	S
Sialia sialis	Eastern Bluebird	---	---	S5B	NY
Turdus migratorius	American Robin	---	---	S5B	S

Scientific Name	Common Name	SARA[1]	ESA[2]	Srank[3]	Codes for Breeding Evidence[4]
Dumetella carolinensis	Gray Catbird	---	---	S4B	S
Sturnus vulgaris	European Starling	---	---	SNA	FY
Bombycilla cedrorum	Cedar Waxwing	---	---	S5B	S
Geothlypis trichas	Common Yellowthroat	---	---	S5B	T
Setophaga petechia	Yellow Warbler	---	---	S5B	S
Setophaga ruticilla	American Redstart	---	---	S5B	S
Melospiza georgiana	Swamp Sparrow	---	---	S5B	S
Melospiza melodia	Song Sparrow	---	---	S5B	T
Passerculus sandwichensis	Savannah Sparrow	---	---	S4B	S
Spizella passerina	Chipping Sparrow	---	---	S5B	S
Cardinalis cardinalis	Northern Cardinal	---	---	S5	S
Passerina cyanea	Indigo Bunting	---	---	S4B	T, P
Agelaius phoeniceus	Red-winged Blackbird	---	---	S4	T, A
Icterus galbula	Baltimore Oriole	---	---	S4B	S
Molothrus ater	Brown-headed Cowbird	---	---	S4B	S
Quiscalus quiscula	Common Grackle	---	---	S5B	S
Carduelis tristis	American Goldfinch	---	---	S5B	S

[1] Federal status under SARA.
[2] Provincial status under the ESA. THR = Threatened; "---" denotes no information or not applicable.
[3] S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common.

[4] Breeding Bird Codes from Breeding Bird Atlas of Ontario (Cadman et al. 2007)

Observed
X Species observed in its breeding season (no breeding evidence)
Possible
H Species observed in its breeding season in suitable nesting habitat
S Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season
Probable
P Pair observed in suitable nesting habitat in nesting season
T Permanent territory presumed through registration of territorial song, or the occurrence of an adult bird, at the same place, in breeding habitat, on at least two days a week or more apart, during its breeding season.
D Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation
V Visiting probable nest site
A Agitated behaviour or anxiety calls of an adult

Confirmed
NB Nest-building or excavation of nest hole by a species other than a wren or a woodpecker
DD Distraction display or injury feigning
NU Used nest or egg shells found (occupied or laid within the period of the survey)
FY Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight
AE Adult leaving or entering nest sites in circumstances indicating occupied nest
FS Adult carrying fecal sac
CF Adult carrying food for young
NE Nest containing eggs
NY Nest with young seen or heard

B Brood Patch on adult female or cloacal protuberance on adult male
N Nest-building or excavation of nest hole, except by a wren or a woodpecker
F/0 Flyover

Amphibian Survey

Amphibian surveys were completed on April 23, May 22, and June 25, 2019, respectively (**Attachment A**: Figure 2). Calls of five frog species, Spring Peeper (*Pseudacris crucifer)*, Wood Frog (*Lithobates sylvaticus*), Grey Tree Frog (*Hyla versicolor*), Green Frog (*Lithobates clamitans*), and American Toad (*Anaxyrus americanus*) were observed within the Study Area during amphibian monitoring surveys. While species richness was moderate, low populations and call codes of each species were generally observed at each station. All five amphibian species observed within the Study Area are listed as *Secure* in the province (S-Ranking of S5), and neither are considered SAR nor SCC in Ontario.

Refer to **Table 5** for a summary of results per survey.

Table 5: 2019 Amphibian Breeding Survey Results

Scientific Name	Common Name	SARA[1]	ESA[2]	Srank[3]	Survey Date (2019)	Call Code[4] (Population Estimate)	Station ID
Pseudacris crucifer	Spring Peeper	---	---	S5	April 25	1(5)	ABH 1
					May 22	1 (2)	ABH 1
					May 22	1(2)	ABH 2
Lithobates sylvaticus	Wood Frog	---	---	S5	April 25	1(3)	ABH 1
Hyla versicolor	Gray Tree Frog	---	---	S5	June 26	1(2)	ABH3
Lithobates clamitans	Green Frog	---	---	S5	June 26	1(2)	ABH3
Anaxyrus americanus	American Toad	---	---	S5	June 26	1(2)	ABH3

[1] Federal Species at Risk Act (SARA) Registry Status;
[2] Ontario Endangered Species Act (ESA) Species at Risk List Status;
[3] S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common;
[4] Call Code: 1 =no overlap in calls, number of individuals can be accurately counted, 2 = some calls simultaneous, number of calls can be reliably estimated, 3 = full chorus and calls overlapping.

Incidental Wildlife

Incidental wildlife species observed within the Study Area are listed below in **Table 6.** With the exception of Barn Swallow and Monarch, incidental species observed are considered common and secure in Ontario (S4 or S5).

Table 6: Incidental Wildlife Observations

Scientific Name	Common Name	SARA[1]	ESA[2]	Srank[3]
Birds				
Turdus migratorius	American Robin	---	---	S5B
Icterus galbula	Baltimore Oriole	---	---	S4B
Hirundo rustica	Barn Swallow	---	THR	S4B
Corvus brachyrhynchos	American Crow	---	---	S5
Cyanocitta cristata	Blue Jay	---	---	S5
Bombycilla cedrorum	Cedar Waxwing	---	---	S5B
Tyrannus tyrannus	Eastern Kingbird	---	---	S4B
Sayornis phoebe	Eastern Phoebe	---	---	S5B
Dumetella carolinensis	Gray Catbird	---	---	S4B
Troglodytes aedon	House Wren	---	---	S5B
Zenaida macroura	Mourning Dove	---	---	S5
Colaptes auratus	Northern Flicker	---	---	S4B
Agelaius phoeniceus	Red-winged Blackbird	---	---	S4
Mammals				
Sciurus carolinensis	Eastern Gray Squirrel	---	---	S5
Procyon lotor	Northern Raccoon	---	---	S5
Odocoileus virginianus	White-tailed Deer	---	---	S5
Herptiles				
Lithobates sylvaticus	Wood Frog	---	---	S5
Lepidoptera				
Danaus plexippus	Monarch	SC	SC	S2N,S4B
Colias philodice	Clouded Sulphur	---	---	S5
Pieris rapae	Cabbage White	---	---	SNA
Odonata				
Calopteryx maculata	Ebony Jewelwing	---	---	S5

Subnational (Provincial) Rank (Source: MNRF National Heritage Information Centre website, 2007)
Federal Species at Risk Act (Source: SARA Public Registry, 2007)
Provincial Endangered Species Act (Source: MNRF website, 2007

One species of Special Concern, Monarch (*Danaus plexippus)* was incidentally observed in the vicinity of the mixed meadow community in the central area of the Study Area during mid-morning of field investigations. The Monarch was transient and did not appear to exhibit any feeding or breeding behavior. The milkweed plants in the area were visually surveyed for butterfly larvae but none were observed. The meadow communities of the Study Area are small in size (less than 10 ha) and generally highly disturbed and would therefore not meet the criteria to be considered significant wildlife habitat.

Incidental observations of Barn Swallow are discussed in more detail in the following section.

3.4.4 Species at Risk and Species at Risk Habitat

Two species at risk were observed during field investigations in the Study Area: Barn Swallow and Butternut. The locations of where these two species were observed are depicted in **Attachment A**: Figures 2 and 3.

Barn Swallow was observed both incidentally and during targeted breeding bird surveys at survey stations 1, 2 and 3 during breeding bird surveys on June 25. This species was observed singing and foraging over open agricultural lands (OAG) and Dry-Fresh Mixed Meadow Habitat (MEMM3) of the Study Area. No active nests or breeding behaviour was observed during surveys. It is likely this species utilizes the Study Area to forage.

Additionally, Butternut, was observed on the edge of the Fresh-Moist White Cedar Coniferous Forest (FOCM4) adjacent to the Fallow Agricultural Field (OAG). While a formal Butternut Health Assessment (BHA) was not performed for either tree, the trees appeared to exhibit signs of Butternut Canker Disease. As the trees are located within significant woodlands of the Study Area, no impacts are anticipated to occur (as tree removal within significant woodlands is not anticipated). A formal BHA conducted by a certified Butternut Health Assessor may be required in the future to determine the extent of Butternut Canker disease and if the tree is retainable and therefore protected under the ESA (2007). As per the Ministry of Natural Resources and Forestry Species Recovery Strategy for Butternut (MNRF 2013), a 25 m buffer from the trunk is required to protect Butternut Habitat. The area protected by a 25 m buffer for the Butternut trees observed in the Study Area are depicted in **Attachment A**: Figure 3.

In addition to the two observed SAR species, select woodlands that are mature enough in age and contain large enough trees within the Study Area have the potential to provide suitable habitat for SAR bat species including Little Brown Myotis, Northern Myotis, Eastern Small-footed Myotis, and Tricolored Bat (**Attachment A**: Figure 3). As mentioned previously, few snags or cavity trees were incidentally observed by field staff during botanical and ELC surveys. Additional formal field studies to identify snag or cavity trees to confirm presence/absence of SAR bat habitat may be required in the event that tree removal within this woodland is required to facilitate development.

4.0 Summary

Natural features (woodlands, and wetlands) within the Study Area that likely provide development constraints are primarily restricted to the ravine areas associated with a tributary of Reesor Creek. Given the findings of the 2019 field program, the following consultation and/or permitting may be required prior to development:

- A formal BHA may be required to determine if Butternut observed within the Study Area are retainable.
- A NHIS should be completed for the Study Area to document existing conditions of the natural environment; confirm the potential limits of development; evaluate the potential for

environmental impacts associated with the proposed development; and recommend mitigation, restoration and enhancement measures to preserve and/or restore natural features.

Should you have any questions or concerns, please do not hesitate to contact us.

Sincerely,

DILLON CONSULTING LIMITED

Christie Cestra, M.Sc.
Associate
Attach.

Attachment A

Figures

DILLON
CONSULTING

STOUFFVILLE PHASE 3 LANDS

PROJECT LOCATION
FIGURE 1

Property Boundary
Railway
Municipal Boundary
Water Body

1:8,000
0 50 100 200 m

N
W E
S

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, REGION OF YORK

MAP CREATED BY: GM
MAP CHECKED BY: CV
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 199334
STATUS: DRAFT
DATE: 2019-04-22

FILE LOCATION: I:\GIS\199334 - Stouffville Phase 3 Lands\mxd\TOR\Figure 1 Project Location.mxd

STOUFFVILLE PHASE 3 LANDS

ECOLOGICAL LAND CLASSIFICATION
FIGURE 2

- Client Group Property
- Property Boundary
- Municipal Boundary
- Water Body
- Amphibian Breeding Habitat Survey Location
- Breeding Bird Survey Location
- Barn Swallow Observation
- Butternut Observation
- Dripline (TRCA/Dillon - August 26, 2019)
- Staked Wetland (TRCA/Dillon/MNRF - May 23 2018)
- Staked Dripline (TRCA/Dillon/MNRF - May 23 2018)

Ecological Land Classification

- 2. CVR_3: Single Family Residential
- 3. FOCM4: Fresh – Moist White Cedar Coniferous Forest
- 5. FODM3-1: Dry – Fresh Poplar Deciduous Forest
- 6. MASM1-1: Cattail Mineral Shallow Marsh
- 7. MEGM4: Fresh - Moist Graminoid Meadow
- 8. MEMM3: Dry - Fresh Mixed Meadow
- 9. MEMM4: Fresh - Moist Mixed Meadow
- 10. OAG: Fallow Field
- 11. OAG: Open Agriculture
- 13. SWCM1: White Cedar Mineral Coniferous Swamp
- 14. TAGM5: Fencerow
- 15. THDM2: Dry - Fresh Deciduous Shrub Thicket

1:2,500

0 25 50 100 m

N W E S

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, REGION OF YORK

MAP CREATED BY: GM
MAP CHECKED BY: CV
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 199334

STATUS: DRAFT

DATE: 2020-02-27

FILE LOCATION: I:\GIS\199334 - Stouffville Phase 3 Lands\mxd\Ecological Land Classification.mxd

STOUFFVILLE PHASE 3 LANDS

SPECIES AT RISK AND SIGNIFICANT WILDLIFE HABITAT
FIGURE 3

- Client Group Property
- Property Boundary
- Municipal Boundary
- Water Body

Species at Risk and Species at Risk Habitat

- Barn Swallow Observation
- Butternut Observation
- 25 m Butternut Setback
- SAR Bat Habitat

Candidate Significant Wildlife Habitat

- Candidate Reptile Hibernaculum
- Candidate Bat Maternity Roost Habitat

1:2,500

0 25 50 100 m

N W E S

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, REGION OF YORK

MAP CREATED BY: GM
MAP CHECKED BY: CV
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 199334
STATUS: DRAFT
DATE: 2020-02-27

FILE LOCATION: I:\GIS\199334 - Stouffville Phase 3 Lands\mxd\Species at Risk and Significant Wildlife Habitat.mxd

Attachment B

Terms of Reference

DILLON
CONSULTING

MEMO

TO: Jackie Burkart, Toronto and Region Conservation Authority
Haiqing Xu, Town of Whitchurch-Stouffville

FROM: Christie Cestra, Dillon Consulting Limited

cc: Mr. Lynn Barkey (Acorn NE Investments Inc.)
Mr. Dave Farrow (Northcape Investments Inc.)
Mr. Walter Cesta (2647737 Ontario Inc.)

DATE: April 24, 2019

SUBJECT: Natural Heritage Evaluation Terms of Reference for three Properties: 12875, 12779, and 12749 Tenth Line, Town of Whitchurch-Stouffville, Regional Municipality of York

OUR FILE: 18-7736, 19-9482, 19-9231

Introduction

Dillon Consulting Limited (Dillon) has been retained to undertake environmental studies for the proposed development of three properties (PIN: 037070123, 037070187, 037070121) located at the civic addresses 12875, 12779, and 12749 Tenth Line (the "Properties", depicted in the attached Figure), owned by Acorn NE Investments Inc., Northcape Investments Inc., and 2647737 Ontario Inc. (the "Client Group"), respectively.

As the Properties are located within the Oak Ridges Moraine (ORM) Settlement Area, environmental studies are required to support a Natural Heritage Evaluation (NHE) under Section 22(3) of the Oak Ridges Moraine Conservation Plan (ORMCP; MMAH 2017). As such, the Client Group and Dillon are taking a pro-active approach in confirming the appropriate environmental studies that are required to complete the NHE.

In keeping with the general policies of the Toronto and Region Conservation Authority (TRCA) Environmental Impact Statement Guidelines (2014), we have prepared the following Terms of Reference (TOR). Below, we present the TOR in a check-list format to ensure that the required work and/or studies are known and agreed to prior to the commencement of work, to facilitate a stream-lined and timely review process.

Terms of Reference

General Policies

☒ The NHE must be undertaken by a qualified professional in environmental or related sciences to the satisfaction of the TRCA.

☒ A visit to the site may be required by the TRCA prior to, during, or upon receipt of the NHE.

☒ The staking of significant natural features (i.e., woodlands, etc.) by the TRCA may be required. Staking will generally occur between the end of May and the end of October. Any staking that

occurs outside of this time may require a confirmatory visit between May and October.

Note: The staking of natural features has already occurred at the 12875 Tenth Line property, on May 22, 2018.

Existing Conditions

☒ The existing conditions of the Properties must be clearly described and clearly mapped on aerial photographs.

☒ The description must include the zoning and all designations of all Official Plan(s) (OP) on the Properties. This includes any land use designations from other municipal planning documents, such as Secondary Plans.

☒ Land use designations from any other applicable planning documents (i.e., Greenbelt Plan) must be clearly described and the limits identified in the mapping.

☒ The NHE shall identify the components of the Natural Heritage System. The boundaries of the Natural Heritage System shall be confirmed in the field by the proponent, mapped on a figure in the report and approved by the TRCA and the planning authority.

☒ All designated environmental features (i.e., Natural Heritage System, Urban River Valleys, or natural features identified in the OPs) must be identified in the mapping and described in the report. These features include provincial or regional Areas of Natural and Scientific Interest (ANSIs), Provincially and Locally Significant Wetlands (PSWs and LSWs), Environmentally Significant Areas (ESAs), etc.

☒ A description of the soils, landforms and surficial geology based on a review of available mapping and literature must be described in the report. Any staking done to date as well as the calculated hazard limits will be provided on constraints mapping. If available, topographical information will be provided on constraints mapping.

☒ Hydrological and hydrogeological resources, including surface water features, recharge/discharge zones, groundwater quality and quantity, groundwater elevations and flow directions, and connections between groundwater and surface water features will be identified based on the information available from the consulting team.

☒ The vegetation communities must be identified using the Ecological Land Classification (ELC) (Lee et. Al., second approximation) system to vegetation type, where possible. The communities must be identified in the mapping, using the appropriate ELC codes, as well as described in the text. As a component of the ELC, a plant list must be included as a component of the report. The list must include an analysis for the presence of federal, provincial, regional and/or watershed rare, threatened or endangered species. This should include information from the NHIC.

☒ A multi-season (late spring/early summer, late summer/early fall) plant survey is required and must be included within the report. The list must include an analysis for the presence of federal, provincial, regional and/or watershed rare, threatened or endangered species. This

should include information from the NHIC. In the event that the late summer/early fall survey is not complete at the time of a submission, the results will be included in a future submission.

☒ The NHE requires a breeding bird survey. The survey must be conducted during the breeding bird season at an appropriate time of day in appropriate weather conditions and by a qualified professional. A minimum of two surveys are required and they must follow generally accepted scientific protocols, not necessarily atlasing methods. A list of the breeding birds is to be included within the report. The list must include an analysis for the presence of federal or provincial rare, threatened or endangered species. Watershed rarity status shall be determined in conjunction with the TRCA.

☒ The NHE requires a breeding amphibian survey. The survey must be conducted during the breeding amphibian season and by a qualified professional. For calling amphibians a minimum of three surveys are required. These surveys must span the full amphibian breeding season to ensure that the peak periods of activity for early and late breeding species are accounted for. For non-calling amphibians, appropriate methodology must be used. A list of the breeding amphibians is required as an appendix. The list must include an analysis for the presence of federal, provincial, threatened or endangered species. Watershed rarity status shall be determined in conjunction with the TRCA.

☒ A fisheries habitat assessment shall be provided due to the presence of suitable fish habitat. Existing data regarding fish species shall be obtained from TRCA and/or the MNRF and used for the fisheries assessment, if available. The assessment shall include a description of watercourses or other fish habitat on and/or adjacent to the Properties.

Note: One watercourse is identified within the 12779 and 12749 Tenth Line properties. A fisheries habitat assessment is not proposed within the 12875 Tenth Line property, as no watercourse features are identified within this property.

☐ The fisheries assessment will include community sampling through electrofishing and/or netting during the appropriate season, under a collection permit issued by the MNRF.

Note: Fish community sampling is not proposed within the Properties. Secondary source information will be utilized instead.

☒ All incidental wildlife observed shall be reported on and listed in the report. The list must include an analysis for the presence of federal or provincial rare, threatened or endangered species. Watershed rarity status shall be determined in conjunction with the TRCA.

☒ A functional assessment of the Properties describing the ecology of the natural heritage features and functions (including components of the Natural Heritage System, Urban River Valley, etc.) within and adjacent to the Properties should be provided. The functional assessment may include ecological function, wetland functions, natural heritage features and landscapes, benefits of importance to humans, and corridors and linkages, as required.

☒ Mapping (at a minimum) shall consist of the following:

a) All mapping must have a title, figure number, north arrow, legend and scale or scale

bar.

b) A site location map that provides the regional or watershed context of the Properties.
c) The extent of the Natural Heritage System and its components must be clearly demarcated on an air photo base, if applicable.
d) The locations of all watercourses and waterbodies.
e) Vegetation communities must be delineated and identified using ELC.
f) The location of any rare, threatened or endangered species and/or populations shall be identified, if appropriate.
g) The location of any important wildlife features (i.e., hibernacula, den, stick nest, etc.) shall be identified.

Evaluation of the Ecological Impacts

☒ An assessment of the potential impacts to the features and functions of natural areas and natural heritage features shall be identified and discussed.

☒ An assessment of the potential impact on wildlife at a local, watershed and provincial (if applicable) level shall be provided using the Ecoregion 6E criterion schedules (MNRF, 2015).

☒ In the case of significant natural features (as confirmed through field studies), the NHE must demonstrate that there is no development or site alteration within the feature with the exception of uses as specified in the OP and/or prior approvals. The NHE must determine appropriate buffers from significant natural features.

☒ If applicable, where natural features or natural vegetation communities are proposed for removal, the quantity of removal shall also be included.

Recommendations and Mitigation Measures

☒ Avoidance of any Natural Heritage System feature is the preferred approach to mitigation unless otherwise specified in the OP and/or prior approvals.

☒ Determine adequate buffers through the identification of the critical function and protection zones of any identified natural areas.

☒ Where avoidance of a feature is not feasible or possible, mitigation approaches/ techniques must be provided. These may include edge management plans, buffer plantings, fencing, low impact designs (LID), etc.

☒ In cases where a linkage area has been identified on a property, the NHE must demonstrate how it will be integrated into the proposed development plan.

☒ Recommendations for Best Management Practices during construction should be provided. This may include silt fencing, tree protection, fencing, identification of timing or seasonal constraints to construction or restoration, etc.

☒ If monitoring is required, the details of a monitoring program must be agreed to in writing by

the TRCA, planning authority and other parties.

Conclusions

The NHE will address conformity with the following:

☒ Conformity with the policies and requirements of the Town of Whitchurch-Stouffville and the Region of York Official Plans.

☒ Conformity with the policies and requirements of other applicable planning documents (i.e., ORMCP, Greenbelt Plan, etc.).

☒ Conformity with the requirements of the TRCA.

Species at Risk

Should any Species at Risk or their habitat be identified during the NHE process and confirmed in the field, the Ministry of the Environment, Conservation and Parks (MECP) will be notified and we will address any Species at Risk requirements as outlined in the *Endangered Species Act, 2007* under separate cover with MECP. The TRCA and the Town will be informed of MECP approvals that are acquired.

Information Request

At this time we are requesting any of the following background information, if available:

- Watercourse/drain classifications and thermal stream classifications;
- Fish community information;
- Natural environment studies in and/or adjacent to the Properties;
- Regionally or locally significant/rare flora, fauna, vegetation communities;
- Any additional natural environment data you may have for the indicated area; and,
- GIS Mapping of Regulation Limits.

We would to thank you for your time in establishing these Terms of Reference with us and look forward to working together with you on this and other projects as we move forward.

Please let me know if you have any questions.

Yours sincerely,

DILLON CONSULTING LIMITED

Christie Cestra, M.Sc.Associate,
Project Manager

Vandermeer, Caitlin <cvandermeer@dillon.ca>

Fwd: Terms of Reference for NHE at 12875, 12779 and 12749 Tenth Line, Stouffville

Cestra, Christie <ccestra@dillon.ca> Tue, May 14, 2019 at 8:13 AM
To: Lynn Barkey <lbarkey@baifdev.com>, "Steve Schaefer (@ SCS)" <sschaefer@scsconsultinggroup.com>
Cc: Kate Roper <kroper@dillon.ca>, Caitlin Vandermeer <cvandermeer@dillon.ca>

Hi Lynn and Steve,

See below. The TRCA has accepted the TOR for the NHE field studies. Still waiting on a response from the Town.

The TRCA has identified that we may need to do a water balance for the wetland at the west end of the Acorn property (which we anticipated). Jackie has requested that we complete their wetland balance risk evaluation to assist in determining the scope of the water balance. Dillon can do part of this, but the remainder needs to be done by the hydrogeologist.

We can discuss at this morning's meeting if you'd like.

Lynn - I'm going to forward this email again to you, Walter and Dave. The water balance doesn't pertain to their properties so I wanted to contact you separately.

Christie

Christie Cestra
Associate
Dillon Consulting Limited
235 Yorkland Boulevard Suite 800
Toronto, Ontario, M2J 4Y8
T - 416.229.4646 ext. 2384
F - 416.229.4692
M - 647.962.6357
CCestra@dillon.ca
www.dillon.ca

Please consider the environment before printing this email

---------- Forwarded message ---------
From: **Jackie Burkart** <Jackie.Burkart@trca.ca>
Date: Mon, May 13, 2019 at 5:08 PM
Subject: RE: Terms of Reference for NHE at 12875, 12779 and 12749 Tenth Line, Stouffville
To: "Cestra, Christie" <ccestra@dillon.ca>
Cc: haiqing.xu@townofws.ca <haiqing.xu@townofws.ca>

Hi Christie, I don’t think I got back to you on this. My apologies.

TRCA has reviewed the terms of reference for the NHE. While we are in agreement with the contents of the Terms of Reference, please note that you will likely need to do a wetland water balance for the wetland on the northernmost property. Please complete the Wetland Water Balance Risk Evaluation to determine the appropriate level of effort required, in consultation with TRCA. Data collection for the wetland water balance should begin ASAP.

https://trca.ca/app/uploads/2017/12/WetlandWaterBalanceRiskEvaluation_Nov2017.pdf

I have forwarded your data request to our GIS team and asked that they deal directly with you.

Kind regards,

Jackie Burkart, RPP

Senior Planner

Development Planning & Permits I Development & Engineering Services

T: 416-661-6600 ext. 5304

E: Jackie.Burkart@trca.ca

A: 101 Exchange Avenue, Vaughan, ON L4K 5R6

Toronto and Region Conservation Authority (TRCA) I trca.ca

From: "Cestra, Christie" <ccestra@dillon.ca>
Sent: Monday, April 29, 2019 12:12 PM
To: Jackie Burkart <Jackie.Burkart@trca.ca>
Subject: Re: Terms of Reference for NHE at 12875, 12779 and 12749 Tenth Line, Stouffville

Hi Jackie,

Yes it is.

Christie

DILLON CONSULTING

CANADA BEST MANAGED COMPANIES Platinum member

Christie Cestra
Associate
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www.dillon.ca

Please consider the environment before printing this email

On Mon, Apr 29, 2019 at 12:09 PM Jackie Burkart <jburkart@trca.on.ca> wrote:

Hi Christie - is 12811 Tenth Line also supposed to be part of your NHE?

Jackie Burkart, RPP
Senior Planner
Development Planning and Permits I Development and Engineering Services

T: 416.661.6600 ext. 5304
E: jburkart@trca.on.ca
A: 101 Exchange Avenue, Vaughan, ON, L4K 5R6

Toronto and Region Conservation Authority (TRCA) | trca.ca

From: "Cestra, Christie" <ccestra@dillon.ca>
To: Haiqing Xu <haiqing.xu@townofws.ca>, Jackie Burkart <jburkart@trca.on.ca>
Cc: Dave Farrow <dfarrow@trinison.com>, Walter Cesta <cestaw@rogers.com>, Lynn Barkey <lbarkey@baifdev.com>, Caitlin Vandermeer <cvandermeer@dillon.ca>, Kate Roper <kroper@dillon.ca>, 187736 <187736@dillon.ca>, 199482 <199482@dillon.ca>, 199231 <199231@dillon.ca>
Date: 04/25/2019 08:14 AM
Subject: Terms of Reference for NHE at 12875, 12779 and 12749 Tenth Line, Stouffville

---

Hello Haiqing and Jackie,

Please find attached a Terms of Reference to complete Natural Heritage Evaluations on three properties in Stouffville (located within the Phase 3 East lands) at 12875, 12779 and 12749 Tenth Line.

If you have any questions, please let me know. I look forward to hearing from you.

Thank you,
Christie

Christie Cestra
Associate
Dillon Consulting Limited
235 Yorkland Boulevard Suite 800
Toronto, Ontario, M2J 4Y8
T - 416.229.4646 ext. 2384
F - 416.229.4692
M - 647.962.6357
CCestra@dillon.ca
www.dillon.ca

Please consider the environment before printing this email

This message is directed in confidence solely to the person(s) named above and may contain privileged, confidential or private information which is not to be disclosed. If you are not the addressee or an authorized representative thereof, please contact the undersigned and then destroy this message.

Ce message est destiné uniquement aux personnes indiquées dans l'entête et peut contenir une information

privilégiée, confidentielle ou privée et ne pouvant être divulguée. Si vous n'êtes pas le destinataire de ce message ou une personne autorisée à le recevoir, veuillez communiquer avec le soussigné et ensuite détruire ce message.

[attachment "Acorn, Northcape, and 2647737 Ontairo Inc. TOR Checklilst_April.24.2019.pdf" deleted by Jackie Burkart/TRCA]

This message is directed in confidence solely to the person(s) named above and may contain privileged, confidential or private information which is not to be disclosed. If you are not the addressee or an authorized representative thereof, please contact the undersigned and then destroy this message.

Ce message est destiné uniquement aux personnes indiquées dans l'entête et peut contenir une information privilégiée, confidentielle ou privée et ne pouvant être divulguée. Si vous n'êtes pas le destinataire de ce message ou une personne autorisée à le recevoir, veuillez communiquer avec le soussigné et ensuite détruire ce message.

Spam
Phish/Fraud
Not spam
Forget previous vote

STOUFFVILLE PHASE 3 LANDS

PROJECT LOCATION
FIGURE 1

Property Boundary
Railway
Municipal Boundary
Water Body

1:8,000
0 50 100 200 m

N
W E
S

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, REGION OF YORK

MAP CREATED BY: GM
MAP CHECKED BY: CV
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 199334
STATUS: DRAFT
DATE: 2019-04-22

FILE LOCATION: I:\GIS\199334 - Stouffville Phase 3 Lands\mxd\TOR\Figure 1 Project Location.mxd

Attachment C

Site Photographs

Site Visit Photos	
Photo 1 May 22, 2019 Tributary of Reesor Creek: Facing downstream.	
Photo 2 May 22, 2019 Tributary of Reesor Creek: Facing downstream. Heavy erosion and fallen cedars that may cause future debris jams.	
Photo 3 May 22, 2019 Tributary of Reesor Creek: Gravel bed that may be suitable fish spawning habitat. Undercut banks present.	

Photo 4 May 22, 2019 Tributary of Reesor Creek: Facing downstream. Boulder substrate with debris from human activities.	
Photo 5 May 22, 2019 Tributary of Reesor Creek: Facing upstream. Upstream corrugated steel pipe culvert on neighbouring property.	
Photo 6 July 18, 2019 FODM3-1 Dry-fresh Poplar deciduous forest	

Photo 7 July 18, 2019 MEGM4 Fresh – moist Graminoid meadow	
Photo 8 July 18, 2019 MEMM3 Dry-fresh Mixed meadow	
Photo 9 July 18, 2019 MASM1-1 Cattail Mineral Shallow Marsh	

Photo 10 July 18, 2019 SWCM1 White Cedar mineral coniferous swamp	
Photo 11 July 18, 2019 FOCM4 Fresh-moist White Cedar Coniferous forest Large area of forest and swamp littered with debris from recreational use (Paintball)	
Photo 12 July 18, 2019 MEMM4 Fresh-moist mixed meadow	

Attachment D

Botanical Species List

DILLON
CONSULTING

Table D-1: Plant List

Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]	CC[4]
Acer negundo	Manitoba Maple	---	---	S5	0
Acer platanoides	Norway Maple	---	---	SNA	---
Acer saccharum	Sugar Maple	---	---	S5	4
Ambrosia artemisiifolia	Annual Ragweed	---	---	S5	0
Anemone canadensis	Canada Anemone	---	---	S5	3
Apocynum androsaemifolium	Spreading Dogbane	---	---	S5	3
Aralia nudicaulis	Wild Sarsaparilla	---	---	S5	4
Arctium lappa	Greater Burdock	---	---	SNA	---
Arisaema triphyllum	Jack-in-the-pulpit	---	---	S5	5
Asarum canadense	Canada Wild-ginger	---	---	S5	6
Asclepias syriaca	Common Milkweed	---	---	S5	0
Athyrium filix-femina var. angustum	Northeastern Lady Fern	---	---	S5	4
Barbarea vulgaris	Bitter Wintercress	---	---	SNA	---
Betula alleghaniensis	Yellow Birch	---	---	S5	6
Bidens frondosa	Devil's Beggarticks	---	---	S5	3
Brassica rapa	Field Mustard/Turnip	---	---	SNA	---
Bromus commutatus	Hairy Brome	---	---	SNA	---
Bromus inermis	Awnless Brome	---	---	SNA	---
Chenopodium album	White Goosefoot	---	---	SNA	---
Cichorium intybus	Chicory	---	---	SNA	---
Circaea canadensis	Broad-leaved Enchanter's Nightshade	---	---	S5	3
Cirsium arvense	Canada Thistle	---	---	SNA	---
Cirsium vulgare	Bull Thistle	---	---	SNA	---
Convolvulus arvensis	Field Bindweed	---	---	SNA	---
Cornus alternifolia	Alternate-leaved Dogwood	---	---	S5	6
Cornus sericea ssp sericea	Red-osier Dogwood	---	---	S5	2

Cynanchum rossicum	European Swallow-wort	---	---	SNA	---
Cystopteris bulbifera	Bulblet Fern	---	---	S5	5
Daucus carota	Wild Carrot	---	---	SNA	---
Dryopteris carthusiana	Spinulose Wood Fern	---	---	S5	5
Echinocystis lobata	Wild Mock-cucumber	---	---	S5	3
Epilobium hirsutum	Hairy Willowherb	---	---	SNA	---
Equisetum arvense	Field Horsetail	---	---	S5	0
Equisetum sylvaticum	Woodland Horsetail	---	---	S5	7
Erigeron canadensis	Canada Horseweed	---	---	S5	0
Erigeron philadelphicus	Philadelphia Fleabane	---	---	S5	1
Eutrochium maculatum* var. *maculatum	Spotted Joe Pye Weed	---	---	S5	3
Festuca spp.	Fescue species	---	---	---	---
Fragaria virginiana	Wild Strawberry	---	---	S5	2
Fraxinus americana	White Ash	---	---	S4	4
Fraxinus pennsylvanica	Green Ash	---	---	S4	3
Geranium robertianum	Herb-Robert	---	---	S5	---
Geum aleppicum	Yellow Avens	---	---	S5	2
Glechoma hederacea	Ground Ivy	---	---	SNA	---
Gymnocarpium dryopteris	Common Oak Fern	---	---	S5	7
Hesperis matronalis	Dame's Rocket	---	---	SNA	---
Hieracium aurantiacum	Orange Hawkweed	---	---	SNA	---
Hieracium caespitosum ssp. caespitosum	Yellow or Field Hawkweed	---	---	SE5	---
Hypericum perforatum	Common St. John's-wort	---	---	SNA	---
Impatiens capensis	Spotted Jewelweed	---	---	S5	4
Juglans cinerea	Butternut	END	END	S3?	6
Juglans nigra	Black Walnut	---	---	S4	5
Lemna minor	Lesser Duckweed	---	---	S5	2
Leonurus cardiaca	Common Motherwort	---	---	SNA	---
Leucanthemum vulgare	Oxeye Daisy	---	---	SNA	---

Lilium michiganense	Michigan Lily	---	---	S5	7
Linaria vulgaris	Butter-and-eggs	---	---	SNA	---
Lonicera tatarica	Tartarian Honeysuckle	---	---	SNA	---
Lotus corniculatus	Garden Bird's-foot Trefoil	---	---	SNA	---
Maianthemum canadense	Wild Lily-of-the-valley	---	---	S5	5
Malus spp.	Apple	---	---	---	---
Matteuccia struthiopteris	Ostrich Fern	---	---	S5	5
Medicago lupulina	Black Medic	---	---	SNA	---
Melilotus albus	White Sweet-clover	---	---	SNA	---
Myosotis scorpioides	True Forget-me-not	---	---	SNA	---
Oenothera biennis	Common Evening Primrose	---	---	S5	0
Onoclea sensibilis	Sensitive Fern	---	---	S5	4
Oxalis montana	Common Wood-sorrell	---	---	S5	8
Oxalis stricta	European Wood-sorrel	---	---	S5	0
Parthenocissus quinquefolia	Virginia Creeper	---	---	S4?	6
Phalaris arundinacea	Reed Canary Grass	---	---	S5	0
Phleum pratense	Common Timothy	---	---	SNA	---
Phragmites australis ssp. americanus	Common Reed	---	---	S4?	---
Picea glauca	White Spruce	---	---	S5	6
Pinus strobus	Eastern White Pine	---	---	S5	4
Pinus sylvestris	Scotch Pine	---	---	SNA	---
Plantago major	Common Plantain	---	---	S5	---
Populus tremuloides	Trembling Aspen	---	---	S5	2
Prunus serotina	Wild Black Cherry	---	---	S5	3
Prunus virginiana	Choke Cherry	---	---	S5	2
Ranunculus acris	Tall Buttercup	---	---	SNA	---
Rhamnus cathartica	Common Buckthorn	---	---	SNA	---
Rhus hirta	Staghorn Sumac	---	---	S5	1

Robinia pseudoacacia	Black Locust	---	---	SNA	---
Rubus odoratus	Purple-flowering Raspberry	---	---	S5	3
Rubus sachalinensis var. sachalinensis	Wild Red Raspberry	---	---	S5	0
Rumex crispus	Curly Dock	---	---	SNA	---
Salix alba	White Willow	---	---	SNA	---
Salix amygdaloides	Peach-leaved Willow	---	---	S5	6
Salix nigra	Black Willow	---	---	S4?	6
Salix x fragilis	(Salix alba X Salix euxina)	---	---	SNA	---
Salix x pendulina	(Salix babylonica X Salix euxina)	---	---	SNA	---
Sambucus canadensis	Common Elderberry	---	---	S5	5
Sambucus racemosa ssp. Pubens	Red-berried Elderberry	---	---	S5	5
Silene vulgaris	Maiden's Tears	---	---	SNA	---
Sinapis arvensis	Corn Mustard	---	---	SNA	---
Solanum dulcamara	Climbing Nightshade or Bittersweet Nightshade	---	---	SNA	---
Solidago altissima ssp. altissima	Eastern Late Goldenrod	---	---	S5	1
Solidago canadensis var. canadensis	Canada Goldenrod	---	---	S5	1
Sorbus decora	Northern Mountain-ash	---	---	S5	8
Symphyotrichum lanceolatum ssp. lanceolatum	Panicled Aster	---	---	S5	3
Symphyotrichum lateriflorum	Starved Aster	---	---	S5	3
Symphyotrichum novae-angliae	New England Aster	---	---	S5	2
Symphyotrichum puniceum var. puniceum	Swamp Aster	---	---	S5	6
Tanacetum vulgare	Common Tansy	---	---	SNA	---
Taraxacum officinale	Common Dandelion	---	---	SNA	---
Thuja occidentalis	Eastern White Cedar	---	---	S5	4
Trifolium pratense	Red Clover	---	---	SNA	---
Trifolium repens	White Clover	---	---	SNA	---

Tussilago farfara	Colt's-foot	---	---	SNA	---
Typha angustifolia	Narrow-leaved Cattail	---	---	SNA	3
Typha latifolia	Broad-leaved Cattail	---	---	S5	3
Verbascum thapsus	Common Mullein	---	---	SNA	---
Vicia cracca	Tufted Vetch	---	---	SNA	---
Viola spp.	Violet species	---	---	---	---
Vitis riparia	Riverbank Grape	---	---	S5	0

[1]Federal Species at Risk Act,
[2]Provincial Endangered Species Act,
[3]Provincial Conservation ranking where SNA= Not Applicable, SE= Non-Native species, S1= Extremely Rare, S2= Very Rare, S3= Rare, S4= Apparently Secure and S5= Secure,
[4]Coefficient of Conservatism

PALMER
ENVIRONMENTAL
CONSULTING
GROUP INC.

74 Berkeley Street, Toronto, ON M5A 2W7

Stouffville Bethesda Holdings Natural Environmental Conditions, Whitchurch-Stouffville

12942 York Durham Line

PECG Project #
1510413

Prepared For
Stouffville Bethesda Holdings Inc.

February 20, 2019

February 20, 2019

Joe Valela
Stouffville Bethesda Holdings Inc.
56 The Esplanade, Suite 406
M5E 1A7, ON
jvalela@tercot.com

Dear Mr. Valela:

Re: Stouffville Bethesda Holdings Inc. Property – Natural Environmental Conditions (12942 York Durham Line), Town of Whitchurch-Stouffville

Palmer Environmental Consulting Group Inc. is pleased to submit the attached Natural Environmental Conditions report for the lands located at 12942 York Durham Line in the Town of Whitchurch-Stouffville, York Region. Please let us know if you have question or comments on this submission.

Thank you for the opportunity to work with your team on this project.

Yours truly,

Palmer Environmental Consulting Group Inc.

Dirk Janas, B.Sc.
Principal, Senior Ecologist

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Appendix B. Breeding Bird and Incidental Records from the Subject Property

1 Introduction

Palmer Environmental Consulting Group (PECG) has been retained to undertake an inventory and characterization of the existing natural environmental conditions for the combined properties located at 12942 York Durham Line in the Town of Whitchurch-Stouffville, York Region (see **Figure 1**). The subject property is approximately 24 acres (9.7 ha). The lands currently support a mix of agricultural field, cultural thicket and meadow, as well as woodlands and wetlands. A watercourse flows along the east and south boundaries of the property. PECG ecologists have completed field investigations over the period from 2016 to 2018.

2 Environmental Designation Review

The environmental policies applicable to the subject property have been reviewed with specific relevant policies summarized in the following sections. The environmental policies of the Province, York Region Official Plan (OP), Town of Whitchurch-Stouffville OP, Community of Stouffville Secondary Plan, Toronto and Region Conservation Authority (TRCA), and provincial *Endangered Species Act* (*ESA*) have all been considered. A summary of each policy's *site specific relevance* to the subject property is provided. This analysis is used to assess initial environmental constraints and opportunities on the site in Section 4.0 of this letter report.

2.1 Provincial

There are no Provincially designated significant features found within the subject properties based on background mapping (**Map A**). The Goodwood/Glasgow Provincially Significant Wetland (PSW) Complex is located over 500 m to the northeast of the study area.

Map A – MNRF Biodiversity Mapping shows the Natural Linkage Area of the Oak Ridges Moraine Plan adjacent to the subject property and the Goodwood/Glasgow PSW over 500 m to the northeast.

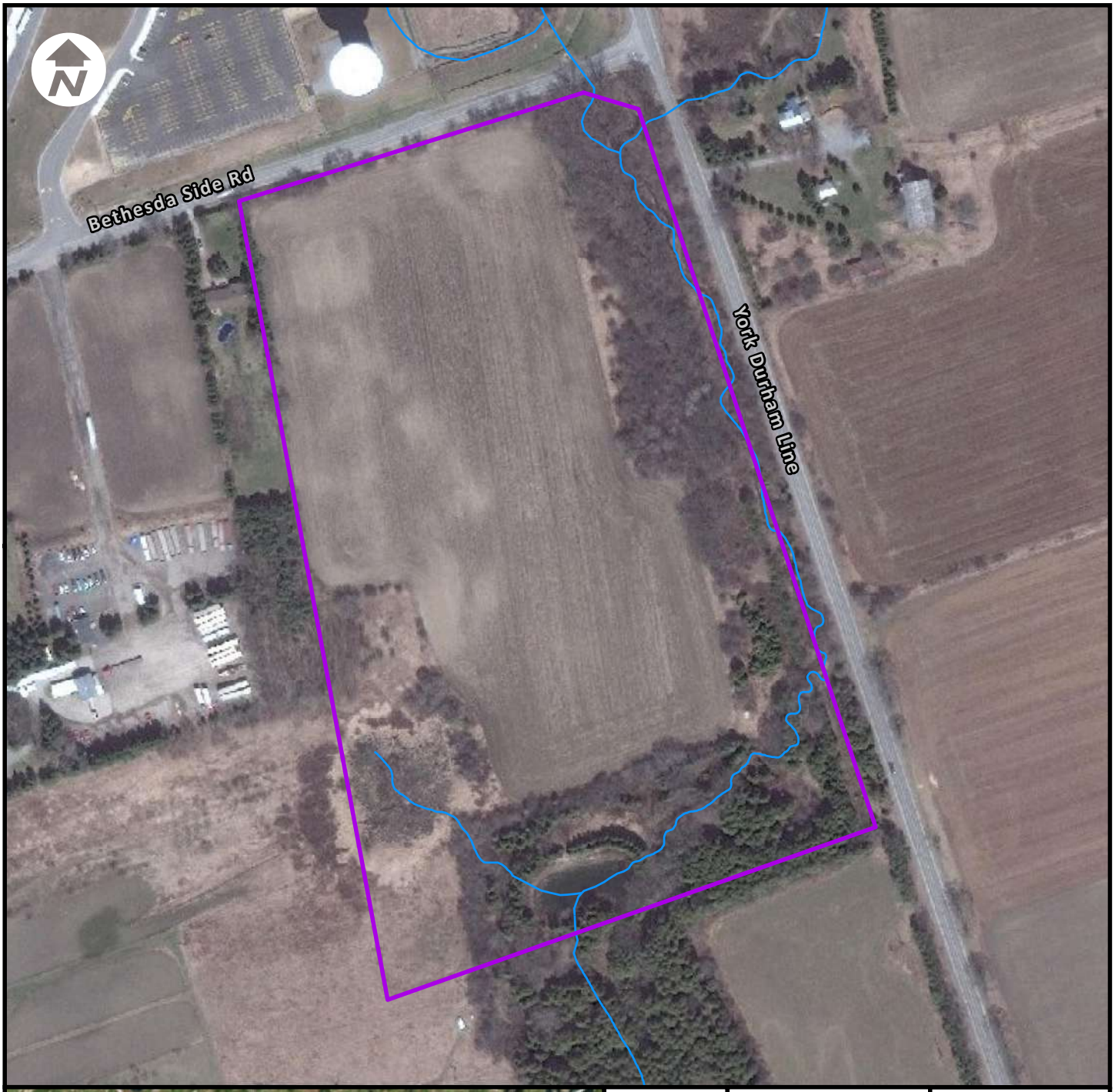
The subject property is located within the Settlement Area designation of the ORMCP for which the Plan's policies are provided in Section 18. Key Natural Heritage Features (KNHF) and Hydrological Sensitive Features (HSF) are present on the subject property: wetlands, fish habitat, significant woodland, significant wildlife habitat, and permanent / intermittent streams. This is associated with the vegetated area along the east and south sides of the property.

2.2 York Region

The subject property is within the Settlement designation and environmental features for on the property that have policy implications include wetlands and woodlands.

2.3 Town of Whitchurch-Stouffville

The Town has mapped Key Natural Heritage Features and Hydrologically Sensitive Features, in accordance with guidance in the ORMCP, on Schedule H (Town-wide) and Schedule F-3 (Secondary Plan Area). Mapped KHNF, HSF, Vegetation Protection Zones and Minimum Area of Influences associated with the subject property are identified on **Map B**.



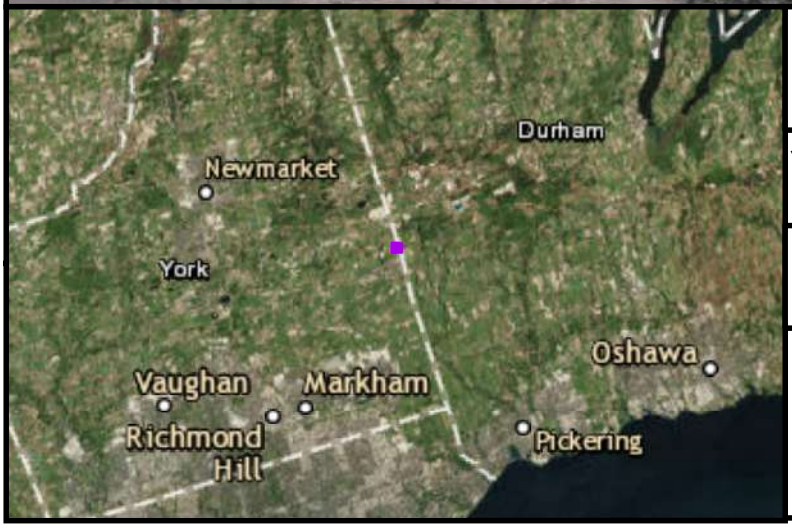


Figure 1

Site Location
DRAFT

Legend
Subject Properties

York-Durham Line Natural Heritage Due Diligence

1:3,000

Nad83 Zone 17 N

0 45 90 180 m

N

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Checked by: DJ
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Imagery Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
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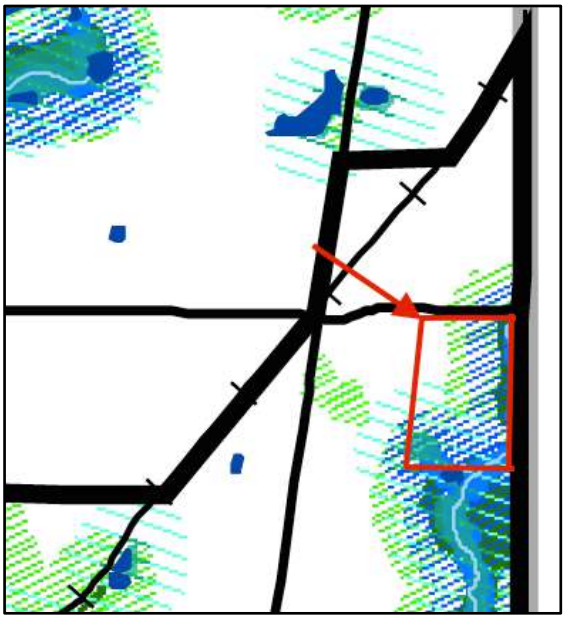
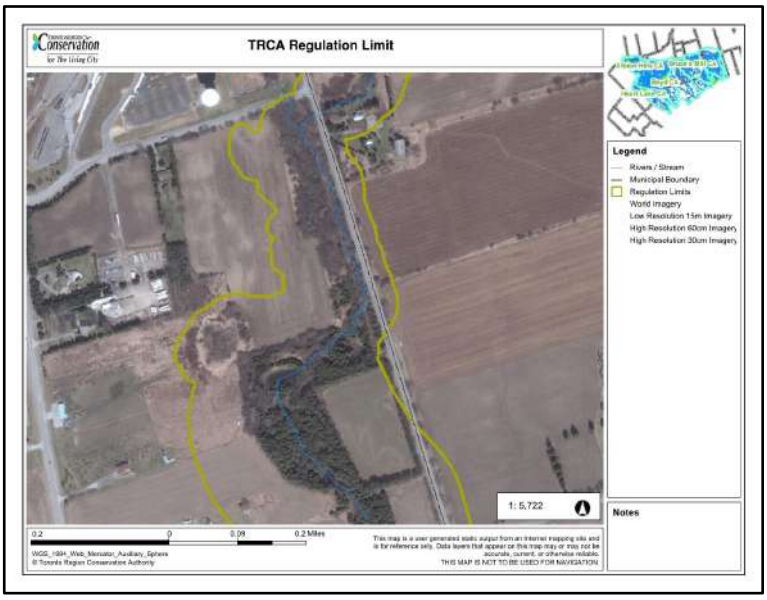


Map B – ORMCP Key Natural Heritage and Hydrologically Sensitive Features mapped for the subject property (Schedule H – Town of Whitchurch-Stouffville).

2.4 Toronto and Region Conservation Authority Policies and Regulations

Regulated lands exist within the limits of the subject properties in association with the watercourse and unevaluated wetland (see **Map C**).



Map C – TRCA Regulation Limits surrounding the study area.

3 Methodology

3.1 Background Review

Background information pertaining to the natural and physical setting of the subject property was gathered and reviewed at the outset of the project. These information sources included:

- Natural Heritage Information Centre (NHIC) natural features and species records mapping;
- Town of Whitchurch-Stouffville Official Plan (July 2017 consolidation);
- York Region Official Plan (April 2016 consolidation); and
- TRCA mapping and information on designated features and species records;

Other sources of information, such as aerial photography and topographic maps, were also consulted prior to commencing field assessments. A request for natural heritage information and data pertaining to the subject property was made to the Ministry of Natural Resources and Forestry (MNRF) and TRCA.

3.2 Field Surveys

3.2.1 Survey Dates

PECG ecologists undertook field investigations to inventory the flora and fauna of the site, assess physical terrain characteristics, and to provide an assessment of the ecological features and functions within the study area. Field investigations were undertaken from May 2016 to May 2018 and are summarized below in **Table 1**.

Table 1. Field Investigation Dates and Tasks

Field Investigation	Dates
Site reconnaissance	May 31st, 2016
Breeding Bird Surveys	June 10 and 24, 2017
Ecological Land Classification	May 31st, 2016; April 28th, 2017
Woodland Staking	May 10th, 2017
Breeding Amphibian Surveys	April 28th and May 25th 2017

3.2.2 Survey Methods

PECG ecologists undertook field investigations to inventory the flora and fauna of the site, assess physical terrain characteristics, and to provide an assessment of the ecological features and functions within the study area.

Vegetation and Flora

Vegetation communities were mapped and described following the Ecological Land Classification (ELC) System for Southern Ontario (Lee *et al*. 1998). Vegetation community boundaries were delineated on field maps through the interpretation of recent aerial photographs and refined in the field. Information collected during ELC surveys includes dominant species cover, community structure, as well as level of disturbance, presence of indicator species, and other notable features.

Breeding Birds

Breeding bird surveys were conducted on the property on June 10 and June 24, 2017 to document the bird communities in all habitat types found on the subject property. Surveys were carried out between 05:40 and 09:10 h to coincide with the dawn chorus. Weather conditions during the surveys were 10% overcast, with calm to light breezes, no precipitation, and temperatures from 15-17°C. On each site visit the surveyor walked through all habitat types of the survey site and walked within 100 meters of all points within the survey area. The surveyor recorded all bird species seen and heard within and flying over the survey area on each site visit. The number, breeding evidence, and approximate location of each bird or bird group was recorded on the site map.

Breeding Amphibians

Amphibian breeding surveys were completed following the Environment Canada's Marsh Monitoring Program protocol (Gartshore *et al*. 2004). The air temperature at the time of the survey was +5°C. Species, calling locations and approximate numbers of calling individuals are recorded and mapped when present. The survey method provides an indication of amphibian abundance during the breeding season.

Species were identified by call, and an abundance code for each species heard calling was assessed by the following the Amphibian Monitoring protocol:

- Code 0 No calls heard.
- Code 1 Calls not overlapping or simultaneous, number of individual frogs can be counted
- Code 2 Calls overlapping or simultaneous, number of individuals can still be distinguished, number of individual frogs cannot be counted, but a reliable estimate of numbers can be made based on location and call voices
- Code 3 Full chorus, calls simultaneous and overlapping, numbers of calling males cannot be reasonably counted or estimated

Other Wildlife

Incidental observations of wildlife were made during all field investigations. PECG ecologists traversed the site, noting any evidence of wildlife or sensitive habitat features (e.g., potential amphibian breeding habitat, stick nests) as well as gaining a general characterization of available habitat.

Species at Risk

Prior to field work, existing Species at Risk (SAR) records were queried through the NHIC database and correspondence with the MNRF. The species noted during this background review and others known through professional experience to have potential to occur in urban environments were considered in the assessment. During field work, the area was screened for potential SAR habitat opportunities and significant wildlife habitat characteristics. Habitat opportunities for SAR on the subject property were

assessed by comparing habitat preferences of species deemed to have potential to occur against current site conditions.

MNRF correspondence dated April 25, 2017 advised the following additional species listed under the *ESA* may have potential to occur:

The following species has been recorded in the study area by MNRF:

- Butternut (*Juglans cinerea*) – Endangered.

The following species have the potential to occur in the study area:

- Eastern small-footed myotis (*Myotis leibii*) – Endangered;
- Little brown myotis (*Myotis lucifugus*) – Endangered;
- Northern Myotis (*Myotis septentrionalis*) – Endangered;
- Tri-coloured bat (*Perimyotis subflavus*) – Endangered;
- Bobolink (*Dolichonyx oryzivorus*) – Threatened;
- Eastern Meadowlark (*Sturnella magna*) – Threatened;
- Monarch (*Danaus plexippus*) – Special Concern, and
- Snapping Turtle (*Chelydra serpentina*) – Special Concern.

Barn Swallow (Threatened) and Butternut (Endangered) were recorded during ecological surveys on the subject property.

4 Existing Environmental Conditions

4.1 Vegetation Communities

Field investigations identified a total of 12 vegetation communities comprising the property. The natural vegetation communities on the property include forest (coniferous, mixed and deciduous), deciduous swamp, thicket swamp, cattail marsh, cultural thicket, cultural woodland, cultural meadow and a shallow water aquatic feature. The anthropogenic communities include hedgerows, a tree grouping and an agricultural field. These communities and their corresponding boundaries are illustrated on **Figure 2** with vegetation community descriptions provided below.

Terrestrial System

Forest (FO)

FOC4-1: Fresh-Moist White Cedar Coniferous Forest Type

This community is dominated by Eastern White Cedar (*Thuja occidentalis*) in the canopy. The ground layer is sparse in this community. These communities are also rich with fern species including Sensitive Fern (*Onoclea sensibilis*), Marsh Fern (*Thelypteris palustris*), Spotted Jewelweed (*Impatiens capensis*) and Cinnamon Fern (*Osmundastrum cinnamomeum*). The soil moisture in this community ranged from moist to fresh.

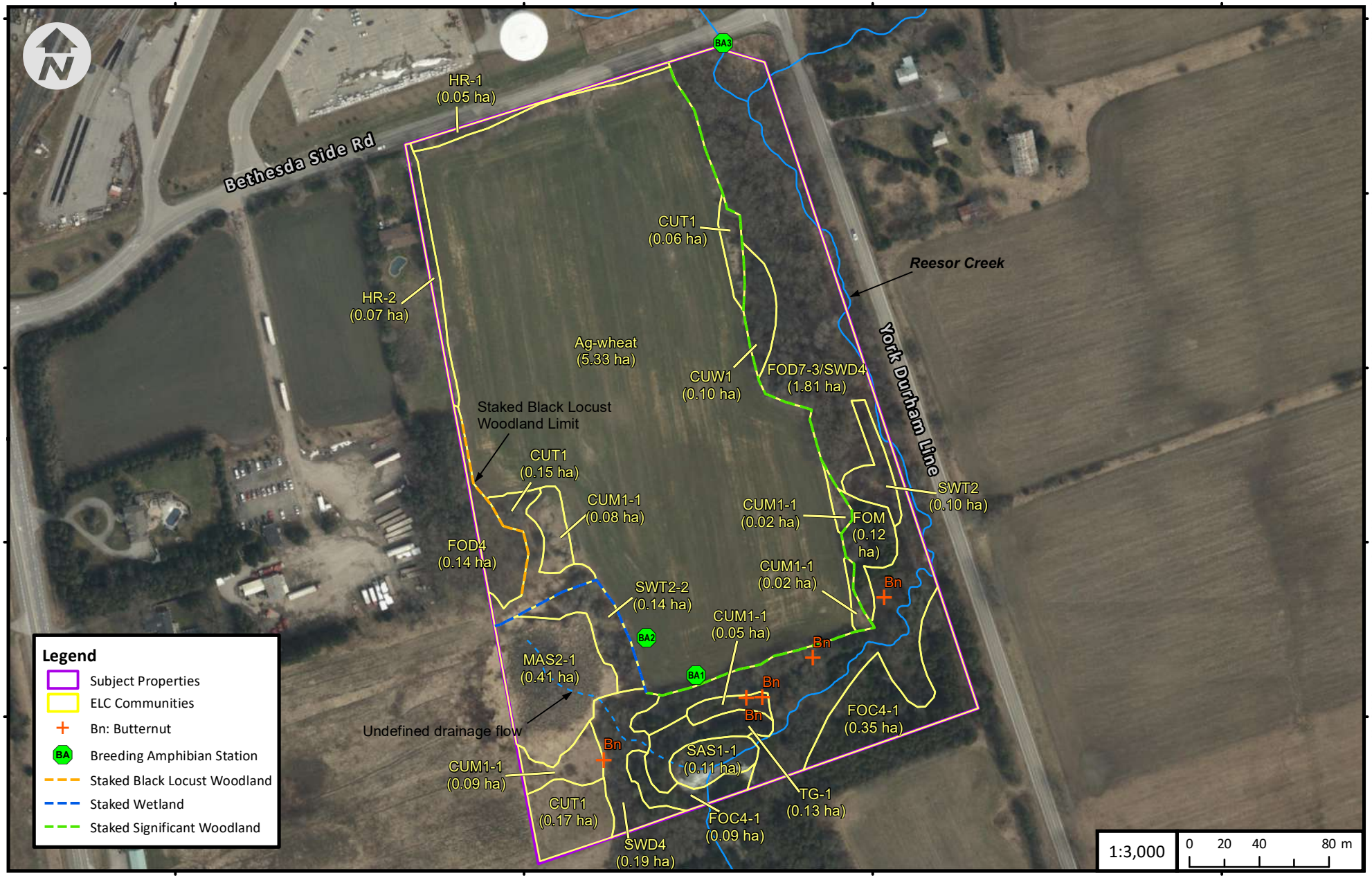


Figure 2 Existing Environmental Conditions

12942 York Durham Line
Natural Heritage Due Diligence

Terrestrial System
Forest (FO)
FOC4-1: Fresh-Moist White Cedar Coniferous Forest Type
FOM: Mixed Forest Community Class
FOD4: Black Locust Deciduous Forest Ecosite
FOD7-3: Fresh-Moist Willow Lowland Deciduous Forest Type

Cultural (CU)
CUM1-1: Dry-Moist Old Field Meadow Type
CUT1: Mineral Cultural Thicket Ecosite
CUW1: Mineral Cultural Woodland Ecosite

Wetland System
Swamp (SW)
SWD4: Mineral Deciduous Swamp Ecosite
SWT2: Mineral Thicket Swamp Ecosite
SWT2-2: Willow Mineral Thicket Swamp Type

Marsh (MA)
MAS2-1: Cattail Mineral Shallow Marsh Type

Shallow Water (SA)
SAS1-1: Pondweed Submerged Shallow Aquatic Type

Anthropogenic
Agricultural: Wheat
TG-1: Tree Grouping
HR-1: Maple Hedgerow
HR-2: Hedgerow

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Checked by: DJ
2/15/2019

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Imagery (2018) York Region

Nad83 Zone 17 N

FOM: Mixed Forest Community Class
This community is a patch of woodland dominated by Apple (*Malus pumila*), Common Buckthorn (*Rhamnus cathartica*) and Alternate-leaved Dogwood (*Cornus alternifolia*).

FOD4: Black Locust Deciduous Forest Ecosite
The canopy is dominated by Black Locust (Robinia pseudoacacia) with occasional Manitoba Maple. The subcanopy is composed of occasional Black Locust, Manitoba Maple, Common Buckthorn and Alternate-leaved Dogwood. The understorey is dominated by Common Buckthorn with occasional Alternate-leaved Dogwood and Chokecherry. The ground layer is composed of Dame's Rocket (*Hesperis matronalis*), Avens (*Geum* sp.), Common Dandelion (*Taraxacum officinale*) and Tufted Vetch (*Vicia cracca*).

FOD7-3: Fresh-Moist Willow Lowland Deciduous Forest Type
The canopy is composed of predominately Crack Willow (*Salix fragilis*) with Manitoba Maple (*Acer negundo*), Red Ash (*Fraxinus pennsylvanica*), American Basswood (*Tilia americana*) and American Elm (*Ulmus americana*), providing greater than 60% cover at a height of 6 to greater than 25 m. The subcanopy is dominated by Manitoba Maple with Red Ash, Common Buckthorn and Alternate-leaved Dogwood, providing greater than 60% cover at a height of 2 to 6 m. The understorey is composed of Red Osier Dogwood (*Cornus sericea*) and Alternate-leaved Dogwood, providing greater than 60% cover at a height of 1 to 2 m. The ground layer is dominated by American Black Currant (*Ribes americanum*), Ostrich Fern (*Matteuccia struthiopteris),* Cranberry Viburnum (*Viburnum opulus*) and Canada Wood Nettle (*Laportea canadensis*), providing greater than 60% cover at a height of 0.2 to 1 m. There are several Butternut (*Juglans cinerea*) trees present in this community at the south end of the property.

Cultural (CU)

CUM1-1: Dry-Moist Old Field Meadow Type
This community is composed of grasses, Orchard Grass (Dactylis glomerata), Tufted Vetch, goldenrod (*Solidago* sp.), Common Milkweed (*Asclepias syriaca*) and Brome Grass (*Bromus inermis*).

CUT1: Mineral Cultural Thicket Ecosite
This community is dominated by Common Buckthorn, Manitoba Maple, Staghorn Sumac (*Rhus typhina*), Red Osier Dogwood.

CUW1: Mineral Cultural Woodland Ecosite
This community is dominated by Common Buckthorn with some apple and Red Osier Dogwood.

Anthropogenic
Agricultural: Wheat
The agricultural field on the property is composed of a wheat crop.

TG-1: Tree Grouping
The tree grouping is composed of planted spruce (*Picea* sp.) and Scotch Pine (*Pinus sylvestris*).

HR-1: Maple Hedgerow

This hedgerow is composed of maple (*Acer saccharum*), Common Buckthorn, apple and Choke Cherry (*Prunus virginiana*).

HR-2: Hedgerow
This hedgerow is composed of Manitoba Maple and Scotch Pine.

Wetland System

Swamp (SW)

SWD4: Mineral Deciduous Swamp Ecosite
The SWD4 community located in the southwestern corner is composed of apple, Manitoba Maple, Balsam Poplar (*Populus balsamifera*) and willow in the canopy. Thee understory is composed of Red Osier Dogwood, Alternate-leaved Dogwood, Common Buckthorn and Choke Cherry. The ground layer is dominated by Avens, Fringed Yellow Loosestrife (*Lysimachia ciliata*), Spotted Jewelweed and Willow-herb (*Epilobium* sp.). There is a Butternut (*Juglans cinerea*) present in this community at the southwestern corner of the property.

SWT2: Mineral Thicket Swamp Ecosite
This small community is dominated by Red Osier Dogwood (*Cornus sericea*), willow (*Salix* sp.) and Sensitive Fern, with scattered Common Buckthorn.

SWT2-2: Willow Mineral Thicket Swamp Type
This community is dominated by willow with occurrences of Red Osier Dogwood in the understorey. The ground layer is composed of Reed Canary Grass, goldenrod and Willow-herb.

Marsh (MA)

MAS2-1: Cattail Mineral Shallow Marsh Type
This marsh community is dominated by Spotted Jewelweed, Reed Canary Grass (*Phalaris arundinacea*), Narrowleaf Cattail (*Typha angustifolia*), smartweed (*Persicaria* sp.) and Bittersweet Nightshade (*Solanum dulcamara*).

Shallow Water (SA)

SAS1-1: Pondweed Submerged Shallow Aquatic Type
This is a pond community is dominated by pondweed (*Potamogeton* sp.) and Common Cattail (*Typha latifolia*).

Photo 1. Shallow March ELC community (MAS2-1)

Photo 2. Edge of Cultural Meadow and Cultural Thicket (west side of property)

Photo 3. Pondweed Submerged Shallow Aquatic community

Photo 4. Watercourse in swamp community in northeast part property

4.2 Flora

A total of 95 species of vascular plants was recorded during field surveys within the property. Of those identified to species, 26 (27%) are native to Ontario. At the study area level, a low percentage of non-native species is generally indicative of low levels of disturbance and often a high floristic quality. The non-native species were predominately found in the cultural communities and the Black Locust deciduous forest.

. The species recorded were mainly ranked as a TRCA L rank of L5 and able to withstand high levels of disturbance. There were several species ranked as L3 and include: Greater Water Dock (*Rumex Britannica*), Butternut and Swamp Red Currant (*Ribes triste*). Red Pine (Pinus resinosa) is ranked as L2. L2 ranked species are unable to withstand disturbance and L3 ranked species are able to withstand minor disturbance. Five Butternut trees were recorded on the property and are ranked as Endangered provincially A complete list of the flora identified on the subject property is provided in **Appendix A**.

4.3 Breeding Birds

A total of 35 bird species were documented on the property, including two species at risk. Five Barn Swallows (*Hirundo rustica*) were found in the agricultural field and seen flying over the property on both site visits in 2017. The species is listed as threatened both nationally and provincially. There are no structures on the property that offer suitable breeding habitat for Barn Swallows. Bobolink (*Dolichonyx oryzivorus*), which was found in the field area of the property, is listed as threatened both nationally and provincially. No evidence of breeding by Bobolink was found on the property and the field currently consists of cultivated row crop.

Most of the birds recorded on the property are considered common in York Region. The most commonly observed species found on the property included birds characteristic of open fields, such as European Starling (*Sturnus vulgaris*), American Goldfinch (*Cardeulis tristis*), Red-winged Blackbird (*Agelaius phoeniceus*), and Song Sparrow (*Melospiza melodia*). Some birds present on the property are more specifically associated with woodlands, including Great Crested Flycatcher (*Myiarchus crinitus*), Red-eyed Vireo (*Vireo olivaceus*), and American Redstart (*Setophaga ruticilla*), while other species are more typically associated with wetlands, including Yellow Warbler (*Dendroica petechial*) and Common Yellowthroat (*Geothlyphis trichas*). One Eastern Wood-Pewee (*Contopus virens*) was heard calling from the eastern woodland.

Area-sensitive species require large areas of continuous habitat for breeding and foraging. The specific habitat requirements vary by species. Five area-sensitive species were found on the property: Hairy Woodpecker (*Picoides villosus*), Black-and-white Warbler (*Mniotilta varia*), American Redstart (*Setophaga ruticilla*), Savannah Sparrow (*Passerculus sandwichensis*), and Bobolink (*Dolichonyx oryzivorus*). Hairy Woodpeckers have territories that cover 4-8 ha and require a number of tall trees and snags >25 cm dbh. One Hairy Woodpecker was found on both site visits along the Hedgerow area on the west side of the property, adjacent to the wetlands. Black-and-white Warbler breeds at edges of large continuous stands of mature or old second growth deciduous or mixed forest, cedar swamps or bogs, and riparian habitat and require in excess of 100 ha of continuous forest. 1 Black-and-white Warbler was found on the second site visit along the Hedgerow in the northwest corner of the property. American Redstart nests in

deciduous or mixed woods with closed canopy of either tall shrubs or dense young trees or mature trees, woodland edges, in upland or lowland and requires >100 ha of forest habitat. Three American Redstarts were found on both site visits in the wooded area along the stream on the property, indicating probable breeding status.

The list of bird species recorded on the property are summarized in **Appendix B**.

4.4 Breeding Amphibians

Several species were recorded on the subject property during the evening auditory surveys and other daytime surveys. Amphibians will congregate to breed in woodland pools and wetlands with standing water that persists into early summer or long enough for tadpoles to emerge.

Breeding amphibian surveys were conducted targeting potentially suitable areas in the study area at three locations. These are identified as Breeding Amphibian (BA) survey sites as shown on **Figure 2**. There was one amphibian species recorded during the evening surveys (May 25) and includes American Bullfrog (*Lithobates catesbeianus*). Two Wood Frogs (*Lithobates sylvaticus*) were heard calling during the daytime surveys on April 28th. Northern Spring Peeper (*Pseudacris crucifer*) and American Toad (*Anaxyrus americanus*) were heard calling 100 m west of the property during the April 28 evening survey. A summary of the surveys is provided in **Table 2**.

Table 2. Breeding Amphibians Recorded from the Study Area (2017)

Breeding Amphibian (BA) Monitoring Station	April 28	May 25
BA-1	No frogs calling	Bull Frog: code 1-1
BA-2	No frogs calling	No frogs calling
BA-3	No frogs calling	No frogs calling

***Note:**

The calling codes are designated according to the Amphibian Road Call Counts (Gartshore *et al.* 2004).
They are as follows:

1 – Individuals of one species can be counted, calls are not overlapping; second number denotes number of individuals.

2 – Calls of one species are overlapping; second number denotes estimated number of individuals.

3 – Full chorus of one species, calls continuous and overlapping, individuals not distinguishable.

The wetlands on the property were not overly productive. The only breeding amphibian location where amphibians were recorded during the evening survey was a singular American Bullfrog heard calling at BA-1 from the Pondweed Submerged Shallow Aquatic Type (SAS1-1). Wood frogs were heard calling during a daytime survey in the Cattail Mineral Shallow Marsh (MAS2-1)/BA-2. All of these locations are associated with areas with permanent standing water or persistent pools where aggregates of amphibians can successfully breed and conditions are suitable for tadpoles to mature and emerge from their aquatic

environment. All species of amphibians recorded from the property are considered common and have no provincial rarity status.

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Appendix A

List of Vascular Plants Recorded from Subject Property

ScientificName	Common Name	GRank	SRANK	Y	6 E 7	7 E 4	ORM	TRCARA
Acer negundo	Manitoba Maple	G5	S5					L+?
Prunus virginiana var. virginiana	Choke Cherry	G5T?	S5					L5
Rhamnus cathartica	European Buckthorn	G?	SE5					L+
Cornus alternifolia	Alternate-leaved Dogwood	G5	S5					L5
Crataegus sp	Hawthorn Species							
Solidago sp	Goldenrod Species							
Vitis riparia	Riverbank Grape	G5	S5					L5
Cornus sericea	Red-osier Dogwood	G5	S5					L5
Salix fragilis	Crack Willow	G?	SE5					L+
Solanum dulcamara	bittersweet nightshade	G?	SE5					L+
Alliaria petiolata	Garlic Mustard	G?	SE5					L+
Equisetum arvense	Field Horsetail	G5	S5					L5
Eurybia macrophylla	Large-leaved Aster	G5	S5					L5
Sorbus aucuparia	European Mountain-ash	G5	SE4					L+
Taraxacum officinale	Common Dandelion	G5	SE5					L+
Vicia cracca	Tufted Vetch	G?	SE5					L+
Phalaris arundinacea	Reed Canarygrass	G5	S5					L+?
Epilobium sp	Willow-herb Species							
Rumex britannica	Greater Water Dock	G5	S4S5		U	R12	U	L3
Salix sp	Willow Species							
Pinus sylvestris	Scots Pine	G?	SE5					L+
Malus pumila	Common Apple	G5	SE5					L+
Asclepias syriaca	Common Milkweed	G5	S5					L5
Bromus inermis	Smooth Brome	G4G5T?	SE5					L+
Cirsium arvense	Canada Thistle	G?	SE5					L+
Dactylis glomerata	Orchard Grass	G?	SE5					L+
Daucus carota	wild carrot	G?	SE5					L+
Erigeron philadelphicus var. philadelphicus	Philadelphia Fleabane	G5T?	S5					L5
Fragaria virginiana ssp. virginiana	wild Strawberry	G5?	SU					L5
Fraxinus americana	White Ash	G5	S5					L5
Leucanthemum vulgare	Oxeye Daisy	G?	SE5					L+
Oenothera biennis	Common Evening-primrose	G5	S5	U	U	U	U	L5
Oxalis stricta	European Wood-sorrel	G5	S5					L5
Plantago major	common Plantain	G5	SE5					L+
Poa compressa	Canada Bluegrass	G?	S5					L+
Poa pratensis ssp. pratensis	Kentucky Bluegrass	G5T	S5					L+
Poa sp	Bluegrass Species							

Rhus typhina	Staghorn Sumac	G5	S5					L5
Rumex crispus	Curled Dock	G?	SE5					L+
Solidago altissima var. altissima	Tall Goldenrod	G?	S5					L5
Solidago canadensis	Canada Goldenrod	G5	S5					L5
Symphyotrichum cordifolium	Heart-leaved Aster	G5	S5					L5
Trifolium pratense	Red Clover	G?	SE5					L+
Trifolium repens	White Clover	G?	SE5					L+
Tussilago farfara	Coltsfoot	G?	SE5					L+
Viburnum lentago	Nannyberry	G5	S5					L5
Impatiens capensis	Spotted Jewelweed	G5	S5					L5
Circaea canadensis ssp. canadensis	Canada Enchanter's Nightshade	G5T5	S5					L5
Geum sp	Avens Species							
Juglans cinerea	Butternut	G4	S2?					L3
Matteuccia struthiopteris var. pensylvanica	Ostrich Fern	G5	S5					L5
Ribes americanum	American Black Currant	G5	S5					L5
Ribes sp	Currant Species							
Ribes triste	Swamp Red Currant	G5	S5	U		R6		L3
Tilia americana	Basswood	G5	S5					L5
Ulmus americana	White Elm	G5?	S5					L5
Viburnum opulus	cranberry viburnum	G5	SE4					L+
Viola pubescens	Downy Yellow Violet	G5	S5					L5
Fraxinus pennsylvanica	Green Ash	G5	S5					L5
Laportea canadensis	Canada Wood Nettle	G5	S5					L5
Populus tremuloides	Trembling Aspen	G5	S5					L5
Agrimonia gryposepala	Hooked Agrimony	G4	S5					L5
Anemonastrum canadense	Canada Anemone	G5	S5					L5
Arctium minus	Common Burdock	G?T?	SE5					L+
Arisaema triphyllum ssp. triphyllum	Jack-in-the-pulpit	G5T5	S5					L5
Dryopteris carthusiana	Spinulose Wood Fern	G5	S5					L5
Echinocystis lobata	Wild cucumber	G5	S5					L5
Fragaria vesca ssp. americana	Woodland Strawberry	G5T?	S5					L5
Geum aleppicum	Yellow Avens	G5	S5					L5
Hesperis matronalis	Dame's Rocket	G4G5	SE5					L+
Lonicera tatarica	Tatarian Honeysuckle	G?	SE5					L+
Parthenocissus vitacea	Thicket Creeper	G5	S5					L5
Picea abies	Norway Spruce	G?	SE3					L+
Pinus resinosa	Red Pine	G5	S5		R13	R2	R13	L2
Prunus serotina	Black Cherry	G5	S5					L5

Robinia pseudoacacia	Black Locust	G5	SE5					L+
Thuja occidentalis	eastern White Cedar	G5	S5					L4
Malus sp	Apple Species							
Typha angustifolia	Narrow-leaved Cattail	G5	S5					L+
Potamogeton sp	Pondweed Species							
Typha latifolia	Broad-leaved Cattail	G5	S5					L4
Picea sp	Spruce Species							
Acer saccharum var. saccharum	Sugar Maple	G5T?	S5					L5
Acer platanoides	Norway Maple	G?	SE5					L+
Bidens sp	Beggar's Ticks Species							
Impatiens pallida	Pale Jewel-weed	G5	S5	R4	R2	U	R4	L4
Lysimachia ciliata	Fringed yellow Loosestrife	G5	S5					L5
Myosotis sp	Forget-me-not Species							
Onoclea sensibilis	Sensitive Fern	G5	S5					L5
Populus balsamifera	Balsam Poplar	G5T?	S5					L5
Ranunculus recurvatus var. recurvatus	Hooked Buttercup	G5	S5					L5
Salix petiolaris	Meadow Willow	G5	S5			R12		L4
Symphyotrichum lanceolatum ssp. lanceolatum	White Panicled Aster	G5T?	S5					L5
Symphyotrichum puniceum var. puniceum	Purple-stemmed Aster	G5T?	S5					L5
Viola sororia	Woolly Blue Violet	G5	S5					L5

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Appendix B

Breeding Birds and Incidental Records from Subject Property

Breeding Birds of York Durham Line Due Diligence

Taxonomic order	Common Name	Scientific Name	Status							Locations						Observed on site visit		
			National Species at Risk COSEWICa	Species at Risk in Ontario Listing a	Provincial breeding season SRANK [b]	TRCA Status d	Regional Status	Area-sensitive (OMNR)c	Highest breeding status e	1	2	3	4	5	6	1	2	3
8	Great Blue Heron	*Ardea herodias*			S4	L3			X					1		1		
19	Canada Goose	*Branta canadensis*			S5	L5			X					30		1		
23	Mallard	*Anas platyrhynchos*			S5	L5			X					2			1	
54	American Kestrel	*Falco sparverius*			S4	L5			X					1		1		
71	Killdeer	*Charadrius vociferus*			S5	L5			X					1		1		
112	Hairy Woodpecker	*Picoides villosus*			S5	L4		A	T				1			1	1	
113	Northern Flicker	*Colaptes auratus*			S4	L4			S				1			1		
122	Eastern Phoebe	*Sayornis phoebe*			S5	L4			S				1				1	
123	Great Crested Flycatcher	*Myiarchus crinitus*			S4	L4			S		1		1			1	1	
124	Eastern Kingbird	*Tyrannus tyrannus*			S4	L5			S		1		1			1	1	
127	Tree Swallow	*Tachycineta bicolor*			S4	L4			H	1						1		
131	Barn Swallow	*Hirundo rustica*	THR	THR	S4	L5			T	4				1		1	1	
132	Blue Jay	*Cyanocitta cristata*			S5	L5			H		1			1		1		
133	American Crow	*Corvus brachyrhynchos*			S5	L5			T		2			4		1	1	
135	Black-capped Chickadee	*Poecile atricapillus*			S5	L5			CF		4		2			1	1	
140	House Wren	*Troglodytes aedon*			S5	L5			T		1					1	1	
154	American Robin	*Turdus migratorius*			S5	L5			H				1				1	
156	Gray Catbird	*Dumetella carolinensis*			S4	L4			T		2		1			1	1	
160	Cedar Waxwing	*Bombycilla cedrorum*			S5	L5			X					5		1	1	
163	European Starling	*Sturnus vulgaris*			SE	L+			H		1			40		1		
169	Red-eyed Vireo	*Vireo olivaceus*			S5	L4			T		3					1	1	
176	Yellow Warbler	*Dendroica petechia*			S5	L5			P		2		1			1	1	
190	Black-and-white Warbler	*Mniotilta varia*			S5	L3		A	S				1				1	
191	American Redstart	*Setophaga ruticilla*			S5	L3		A	T		3					1	1	
196	Common Yellowthroat	*Geothlyphis trichas*			S5	L4			T			1	1			1	1	
202	Northern Cardinal	*Cardinalis cardinalis*			S5	L5			T		1		1			1	1	
204	Indigo Bunting	*Passerina cyanea*			S4	L4			T		1		1			1	1	
208	Chipping Sparrow	*Spizella passerina*			S5	L5			S				2			1		
212	Savannah Sparrow	*Passerculus sandwichensis*			S4	L4		A	T	3						1	1	
215	Song Sparrow	*Melospiza melodia*			S5	L5			A		2	1	3			1	1	
222	Bobolink	*Dolichonyx oryzivorus*	THR	THR	S4	L3		A	S	1						1		
223	Red-winged Blackbird	*Agelaius phoeniceus*			S4	L5			CF		2	7		1		1	1	
226	Common Grackle	*Quiscalus quiscula*			S5	L5			X					2		1		
227	Brown-headed Cowbird	*Molothrus ater*			S5	L5			S		1		1			1		
236	American Goldfinch	*Cardeulis tristis*			S5	L5			P		2		4	4		1	1	

Field Work Conducted On:	Date	Temp (C)	Wind speed (km/h)	Cloud cover (%)	Start time	End time	Level of effort (h:min)	Number of species observed
Site visit 1	*10-Jun-17*	15	6	10	7:10	9:10	2:00	31
Site visit 2	*24-Jun-17*	17	9	10	5:40	7:00	1:20	23
Site visit 3							0:00	0

USE/DELETE SECTIONS/CITATIONS BELOW AS DESIRED/NEEDED

Location 1 - *Hayfield*
Location 2 - *Wooded stream edge*
Location 3 - *Open wetland*
Location 4 - *Hedgerow*
Location 5 - *Flyovers and adjacent areas*

Number of Species:	35
Number of (provincial and national) Species at R	2
Number of S1 to S3 (provincially rare) Species:	0
Number of Regionally Rare Species:	0
Number of Area-sensitive Species:	5

Location 1	Hayfield
Number of Species:	4
Number of (provincial and national) Species at R	2
Number of S1 to S3 (provincially rare) Species:	0
Number of Regionally Rare Species:	0
Number of Area-sensitive Species:	2

Location 2	Wooded stream edge
Number of Species:	17
Number of (provincial and national) Species at R	0
Number of S1 to S3 (provincially rare) Species:	0
Number of Regionally Rare Species:	0
Number of Area-sensitive Species:	1

Location 3	Open wetland
Number of Species:	3
Number of (provincial and national) Species at R	0
Number of S1 to S3 (provincially rare) Species:	0
Number of Regionally Rare Species:	0

Taxonomic order	Common Name	Scientific Name	Status							Locations						Observed on site visit		
			National Species at Risk COSEWICa	Species at Risk in Ontario Listing a	Provincial breeding season SRANK [b]	TRCA Status d	Regional Status	Area-sensitive (OMNR)c	Highest breeding status e	1	2	3	4	5	6	1	2	3
	Number of Area-sensitive Species:		0															
	Location 4	Hedgerow																
	Number of Species:		17															
	Number of (provincial and national) Species at R		0															
	Number of S1 to S3 (provincially rare) Species:		0															
	Number of Regionally Rare Species:		0															
	Number of Area-sensitive Species:		2															
	Location 5	Flyovers and adjacent areas																
	Number of Species:		13															
	Number of (provincial and national) Species at R		1															
	Number of S1 to S3 (provincially rare) Species:		0															
	Number of Regionally Rare Species:		0															
	Number of Area-sensitive Species:		0															

KEY

a COSEWIC = Committee on the Status of Endangered Wildlife in Canada

a Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario)

END = Endangered, THR = Threatened, SC = Special Concern

[b] SRANK (from Natural Heritage Information Centre) for breeding status if:

S1 (Critically Imperiled), S2 (Imperiled),S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure)

SZB (breeding migrants or vagrants) and SR (reported as breeding, but no persuasive documentation) .

SE (exotic, i.e. non-native)

c Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide (Appendix G). 151 p plus appendices.

d Toronto and Region Conservation Authority L rank:

L1 to L3 Regional species of concern from highest to lowest; L4 Urban concern; L5 Secure through region

e Ontario Breeding Bird Atlas Guide to Participants, 2001, p.8.

Appendix E

SAR and SCC Screening Tables

Table E-1: Species at Risk with the Potential to Occur in the General Vicinity of the Study Area

Scientific Name	Common Name	SARA Status[1]	SCA Status[2]	SRank[3]	Information Source[4]	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur
Riparia riparia	Bank Swallow	THR	---	S4B	OBBA	Sand, clay or gravel riverbanks or steep riverbank cliffs; lakeshore bluffs of easily crumbled sand or gravel; gravel pits, road-cuts, grassland or cultivated fields that are close to water; nesting sites are limiting factor for species presence.	No	No suitable riverbanks or cliffs within Study Area.
Hirundo rustica	Barn Swallow	THR	---	S4B	OBBA, NHIC	Farmlands or rural areas; cliffs, caves, rock niches; buildings or other man-made structures for nesting; open country near body of water.	No	No rural man-made rural structure identified within the Study Area.
Hylocichla mustelina	Wood Thrush	THR	---	S4B	OBBA	Carolinian and Great Lakes-St. Lawrence Forest zones; undisturbed moist mature deciduous or mixed forest with deciduous sapling growth; near pond or swamp; hardwood forest edges; must have some trees higher than 12m.	Yes	Woodlands within the Study Area may provide suitable habitat. Refer to field investigation results to confirm species presence.
Dolichonyx oryzivorus	Bobolink	THR	---	S4B	OBBA, NHIC	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 ha.	No	No extensive grasslands or fallow fields greater than 50 ha in size. Agricultural field identified as annual row crop based on recent (2025) aerial imagery.
Chaetura pelagica	Chimney Swift	THR	---	S4B, S4N	OBBA	Commonly found in urban areas near buildings and man-made structures with vertical faces, of which are used as surfaces for nest-building. Nests and roosts are most common in chimneys with preference for larger chimneys with open tops. This species will also nest and roost in hollow trees and crevices of rock cliffs. Nesting and roosting sites are situated near areas of water with an abundance of insects for feeding.	No	No suitable habitat (open expansive chimneys or vertical faces) identified within Study Area.
Vermivora chrysoptera	Golden-winged Warbler	THR	---	S4B	OBBA	Early successional habitat; shrubby, grassy abandoned fields with small deciduous trees bordered by low woodland and wooded swamps; alder bogs; deciduous, damp woods; shrubbery clearings in deciduous woods with saplings and grasses; brier-woodland edges; requires >10 ha of habitat.	No	No extensive shrub communities identified within Study Area.
Melanerpes erythrocephalus	Red-headed Woodpecker	END	---	S3	NHIC	Open, deciduous forest with little understory; fields or pasture lands with scattered large trees; wooded swamps; orchards, small woodlots or forest edges; groves of dead or dying trees; feeds on insects and stores nuts or acorns for winter; loss of habitat is limiting factor; requires cavity trees with at least 40cm dbh; require about 4 ha for a territory.	Yes	Woodlands within the Study Area may provide suitable habitat. Refer to field investigation results to confirm species presence.

Scientific Name	Common Name	SARA Status[1]	SCA Status[2]	SRank[3]	Information Source[4]	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur
Sturnella magna	Eastern Meadowlark	THR	---	S4B	OBBA, NHIC	open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas >10 ha in size.	No	No grasslands or fallow fields greater than 10 ha in size. Agricultural field identified as annual row crop based on aerial imagery.
Cardellina canadensis	Canada Warbler	THR	---	S4B	OBBA	An interior forest species; dense, mixed coniferous, deciduous forests with closed canopy, wet bottomlands of cedar or alder; shrubby undergrowth in cool moist mature woodlands; riparian habitat usually requires at least 30 ha.	Yes	Woodlands within the Study Area may provide suitable habitat. Refer to field investigation results to confirm species presence.
Clinostomus elongatus	Redside Dace	END	---	S2	MNRF Reg. Habitat	This species prefers slow-moving waters of small streams and headwaters containing pool and riffle habitats with a moderate to high gradient. Supporting cover of overhanging grasses and shrubs, undercut banks, and instream cover (boulders and large woody debris) are characteristic. Gravel substrates are most common but may also include a range of silt to boulder substrates. Spawning habitat occurs in shallow gravel riffles. General habitat preferences are for cool, clear waters, where summer water temperatures are near or below 20°C . Suitable pool depths are typically 11 cm to 100 cm, with stream widths typically ranging from 1 m to 10 m. Overwintering occurs in deep pool areas with little current. In Canada, this species is found in a few tributaries of Lake Huron, in streams flowing into western Lake Ontario, the Holland River (a tributary of Lake Simcoe), and Irvine Creek (a tributary of the Grand River and Lake Erie).	No	While the Study Area contains the Reesor Creek (a cold temperature watercourse based on MNR mapping), no record of species occurrences nor critical habitat is mapped by DFO. As such, the Study Area does not overlap with known species distribution.
Myotis lucifugus	Little Brown Myotis	END	END	S4	MWH	Uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges.	Yes	The woodland within the Study Area may provide suitable snags/cavities.
Myotis septentrionalis	Northern Myotis	END	END	S3	MWH	Hibernates during winter in mines or caves; during summer males roost alone and females form maternity colonies of up to 60 adults; roosts in houses, manmade structures but prefers hollow trees or under loose bark; hunts within forests, below canopy.	Yes	The woodland within the Study Area may provide suitable snags/cavities.
Myotis leibii	Eastern Small-footed Myotis	---	END	S2S3	MWH	Roosts in caves, mine shafts, rock crevices, buildings, or hollow trees that are in or near woodland; hibernates in cold dry caves or mines; maternity colonies in caves or buildings; hunts in forests.	Yes	The woodland within the Study Area may provide suitable snags/cavities.
Pipistrellus subflavus	Tri-colored Bat	END	END	S3?	MWH	Can be found in a variety of forested habitats. They form day roosts and maternity colonies in older forest and occasionally in barns or other structures, and overwinter in caves. They forage over water and along streams in the forest.	Yes	The woodland within the Study Area may provide suitable snags/cavities.

Scientific Name	Common Name	SARA Status[1]	SCA Status[2]	SRank[3]	Information Source[4]	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur
Lasionycteris noctivagans	Silver-haired Bat	---	END	S4	MWH	Prefers temperate, hardwoods with ponds or streams nearby; roosts in tree foliage or hollow snags, buildings or caves; somewhat solitary except for small maternity colonies usually found in hollow trees; found in forested areas near watercourses; migrates south in winter.	Yes	The woodland within the Study Area may provide suitable snags/cavities.
Lasiurus borealis	Eastern Red Bat	---	END	S4	MWH	Roosts in leafy trees such as elm and maple but also may use conifers; forage habitat includes over streams, near lights and along field and forest edges; migrates south in winter; prefers to feed over wetlands or open fields; a solitary species.	Yes	The woodland within the Study Area may provide suitable snags/cavities.
Lasiurus cinereus	Hoary Bat	---	END	S4	MWH	Roosts in trees with dense leaf foliage, forest edges or hedgerows; also in city parks; do not use caves; feeds over water or open areas; migrates south in winter; a solitary species, only forming groups while hunting.	Yes	The woodland within the Study Area may provide suitable snags/cavities.
Juglans cinerea	Butternut	END	END	S2?	Dillon	Usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found along streams. It is also found on well-drained gravel sites and rarely on dry rocky soil. This species does not do well in the shade and often grows in sunny openings and near forest edges.	Yes	The woodland within the Study Area may provide suitable habitat for Butternut trees.
Fraxinus nigra	Black Ash	---	END	S4	Dillon	Black Ash is a native tree primarily associated with wetland environments such as fens, floodplains, and swamps. Its expansive geographic range reaches from North Dakota and Manitoba in the west to Newfoundland in the east, extending as far south as the American states of Virginia, Iowa, and Delaware. Notably, Black Ash is the most cold-tolerant of all ash species, with more than half of its entire global population located within Canada.	Yes	The woodland within the Study Area may provide suitable habitat for Butternut trees.

Notes:
[1]Federal Species at Risk Act, 2002 where "---" = not listed, THR = Threatened and END = Endangered.
[2]Provincial Species Conservation Act, 2025 where "---" = not listed, END = Endangered.
[3]Provincial Conservation ranking (SRank) where S2=Imperiled, S3= Rare, S4= Apparently Secure and S5= Secure, B= Breeding, N= Non-breeding, ?= Some uncertainty with the classification due to insufficient information.

Table E-2: Species of Conservation Concern with the Potential to Occur in the General Vicinity of the Study Area

Scientific Name	Common Name	SARA Status[1]	SCA Status[2]	SRank[3]	Information Source[4]	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur
Danaus plexippus	Monarch	END	---	S2N,S4B	OBA	Monarch are commonly found in meadow habitats, abandoned farmland and roadsides where milkweed and wildflowers (such as goldenrods, asters and purple loosestrife) are abundant	Yes	Potential meadow communities within the Study Area may provide suitable habitat.
Contopus virens	Eastern Wood-pewee	SC	---	S4B	OBBA, NHIC	Open, deciduous, mixed or coniferous forest; predominated by oak with little understory; forest clearing, edges; farm woodlots, parks.	Yes	The woodland communities identified within Study Area may provide suitable habitat.

Notes:
[1]Federal Species at Risk Act, 2002 where END = Endangered, SC= Special Concern.
[2]Provincial Species Conservation Act, 2025 where "---" = not listed.
[3]Provincial Conservation ranking (SRank) where S2=Imperiled, S4= Apparently Secure, B= Breeding, N= Non-breeding.

Appendix F

Botanical Species List

Table F-1: Botanical Species List

Scientific Name	Common Name	SARA[1]	SCA[2]	S-Rank[3]	CC[4]
Acer negundo	Manitoba Maple	---	---	S5	0
Acer platanoides	Norway Maple	---	---	SNA	---
Acer saccharum	Sugar Maple	---	---	S5	4
Ambrosia artemisiifolia	Annual Ragweed	---	---	S5	0
Anemone canadensis	Canada Anemone	---	---	S5	3
Apocynum androsaemifolium	Spreading Dogbane	---	---	S5	3
Aralia nudicaulis	Wild Sarsaparilla	---	---	S5	4
Arctium lappa	Greater Burdock	---	---	SNA	---
Arisaema triphyllum	Jack-in-the-pulpit	---	---	S5	5
Asarum canadense	Canada Wild-ginger	---	---	S5	6
Asclepias syriaca	Common Milkweed	---	---	S5	0
Athyrium filix-femina var. angustum	Northeastern Lady Fern	---	---	S5	4
Barbarea vulgaris	Bitter Wintercress	---	---	SNA	---
Betula alleghaniensis	Yellow Birch	---	---	S5	6
Bidens frondosa	Devil's Beggarticks	---	---	S5	3
Brassica rapa	Field Mustard/Turnip	---	---	SNA	---
Bromus commutatus	Hairy Brome	---	---	SNA	---
Bromus inermis	Awnless Brome	---	---	SNA	---
Chenopodium album	White Goosefoot	---	---	SNA	---
Cichorium intybus	Chicory	---	---	SNA	---
Circaea canadensis	Broad-leaved Enchanter's Nightshade	---	---	S5	3
Cirsium arvense	Canada Thistle	---	---	SNA	---
Cirsium vulgare	Bull Thistle	---	---	SNA	---
Convolvulus arvensis	Field Bindweed	---	---	SNA	---
Cornus alternifolia	Alternate-leaved Dogwood	---	---	S5	6
Cornus sericea ssp sericea	Red-osier Dogwood	---	---	S5	2
Cynanchum rossicum	Dog-strangling Vine (or European Swallow-wort)	---	---	SNA	---
Cystopteris bulbifera	Bulblet Fern	---	---	S5	5
Daucus carota	Wild Carrot	---	---	SNA	---
Dryopteris carthusiana	Spinulose Wood Fern	---	---	S5	5
Echinocystis lobata	Wild Mock-cucumber	---	---	S5	3
Epilobium hirsutum	Hairy Willowherb	---	---	SNA	---
Equisetum arvense	Field Horsetail	---	---	S5	0
Equisetum sylvaticum	Woodland Horsetail	---	---	S5	7
Erigeron canadensis	Canada Horseweed	---	---	S5	0
Erigeron philadelphicus	Philadelphia Fleabane	---	---	S5	1
Eutrochium maculatum var. *maculatum*	Spotted Joe Pye Weed	---	---	S5	3

Scientific Name	Common Name	SARA[1]	SCA[2]	S-Rank[3]	CC[4]
Festuca spp.	Fescue species	---	---	---	---
Fragaria virginiana	Wild Strawberry	---	---	S5	2
Fraxinus americana	White Ash	---	---	S4	4
Fraxinus pennsylvanica	Green Ash	---	---	S4	3
Geranium robertianum	Herb-Robert	---	---	S5	---
Geum aleppicum	Yellow Avens	---	---	S5	2
Glechoma hederacea	Ground Ivy	---	---	SNA	---
Gymnocarpium dryopteris	Common Oak Fern	---	---	S5	7
Hesperis matronalis	Dame's Rocket	---	---	SNA	---
Hieracium aurantiacum	Orange Hawkweed	---	---	SNA	---
Hieracium caespitosum ssp. caespitosum	Yellow or Field Hawkweed	---	---	SE5	---
Hypericum perforatum	Common St. John's-wort	---	---	SNA	---
Impatiens capensis	Spotted Jewelweed	---	---	S5	4
Juglans cinerea	Butternut	END	END	S3?	6
Juglans nigra	Black Walnut	---	---	S4	5
Lemna minor	Lesser Duckweed	---	---	S5	2
Leonurus cardiaca	Common Motherwort	---	---	SNA	---
Leucanthemum vulgare	Oxeye Daisy	---	---	SNA	---
Lilium michiganense	Michigan Lily	---	---	S5	7
Linaria vulgaris	Butter-and-eggs	---	---	SNA	---
Lonicera tatarica	Tartarian Honeysuckle	---	---	SNA	---
Lotus corniculatus	Garden Bird's-foot Trefoil	---	---	SNA	---
Maianthemum canadense	Wild Lily-of-the-valley	---	---	S5	5
Malus spp.	Apple	---	---	---	---
Matteuccia struthiopteris	Ostrich Fern	---	---	S5	5
Medicago lupulina	Black Medic	---	---	SNA	---
Melilotus albus	White Sweet-clover	---	---	SNA	---
Myosotis scorpioides	True Forget-me-not	---	---	SNA	---
Oenothera biennis	Common Evening Primrose	---	---	S5	0
Onoclea sensibilis	Sensitive Fern	---	---	S5	4
Oxalis montana	Common Wood-sorrell	---	---	S5	8
Oxalis stricta	European Wood-sorrel	---	---	S5	0
Parthenocissus quinquefolia	Virginia Creeper	---	---	S4?	6
Phalaris arundinacea	Reed Canary Grass	---	---	S5	0
Phleum pratense	Common Timothy	---	---	SNA	---
Phragmites australis ssp. americanus	Common Reed	---	---	S4?	---
Picea glauca	White Spruce	---	---	S5	6
Pinus strobus	Eastern White Pine	---	---	S5	4
Pinus sylvestris	Scotch Pine	---	---	SNA	---

Scientific Name	Common Name	SARA[1]	SCA[2]	S-Rank[3]	CC[4]
Plantago major	Common Plantain	---	---	S5	---
Populus tremuloides	Trembling Aspen	---	---	S5	2
Prunus serotina	Wild Black Cherry	---	---	S5	3
Prunus virginiana	Choke Cherry	---	---	S5	2
Ranunculus acris	Tall Buttercup	---	---	SNA	---
Rhamnus cathartica	Common Buckthorn	---	---	SNA	---
Rhus hirta	Staghorn Sumac	---	---	S5	1
Robinia pseudoacacia	Black Locust	---	---	SNA	---
Rubus odoratus	Purple-flowering Raspberry	---	---	S5	3
Rubus sachalinensis var. sachalinensis	Wild Red Raspberry	---	---	S5	0
Rumex crispus	Curly Dock	---	---	SNA	---
Salix alba	White Willow	---	---	SNA	---
Salix amygdaloides	Peach-leaved Willow	---	---	S5	6
Salix nigra	Black Willow	---	---	S4?	6
Salix x fragilis	(Salix alba X Salix euxina)	---	---	SNA	---
Salix x pendulina	(Salix babylonica X Salix euxina)	---	---	SNA	---
Sambucus canadensis	Common Elderberry	---	---	S5	5
Sambucus racemosa ssp. Pubens	Red-berried Elderberry	---	---	S5	5
Silene vulgaris	Maiden's Tears	---	---	SNA	---
Sinapis arvensis	Corn Mustard	---	---	SNA	---
Solanum dulcamara	Climbing Nightshade or Bittersweet Nightshade	---	---	SNA	---
Solidago altissima ssp. altissima	Eastern Late Goldenrod	---	---	S5	1
Solidago canadensis var. canadensis	Canada Goldenrod	---	---	S5	1
Sorbus decora	Northern Mountain-ash	---	---	S5	8
Symphyotrichum lanceolatum ssp. lanceolatum	Panicled Aster	---	---	S5	3
Symphyotrichum lateriflorum	Starved Aster	---	---	S5	3
Symphyotrichum novae-angliae	New England Aster	---	---	S5	2
Symphyotrichum puniceum var. puniceum	Swamp Aster	---	---	S5	6
Tanacetum vulgare	Common Tansy	---	---	SNA	---
Taraxacum officinale	Common Dandelion	---	---	SNA	---
Thuja occidentalis	Eastern White Cedar	---	---	S5	4
Trifolium pratense	Red Clover	---	---	SNA	---
Trifolium repens	White Clover	---	---	SNA	---
Tussilago farfara	Colt's-foot	---	---	SNA	---
Typha angustifolia	Narrow-leaved Cattail	---	---	SNA	3
Typha latifolia	Broad-leaved Cattail	---	---	S5	3
Verbascum thapsus	Common Mullein	---	---	SNA	---

Scientific Name	Common Name	SARA[1]	SCA[2]	S-Rank[3]	CC[4]
Vicia cracca	Tufted Vetch	---	---	SNA	---
Viola spp.	Violet species	---	---	---	---
Vitis riparia	Riverbank Grape	---	---	S5	0

Notes:
[1]Federal Species at Risk Act, 2002 where "---" = not listed, END = Endangered.
[2]Provincial Species Conservation Act, 2025 where "---" = not listed, END = Endangered.
[3]Provincial Conservation ranking (SRank) where S3= Rare to Uncommon, S4= Apparently Secure, S5= Secure, SNA = Unsuitable target for Conservation Activities.
[4]Coefficient of Conservationism (CC).