



FIRST GULF CORPORATION

Preliminary Environmental Impact Study

545 Dunlop Street West, City of Barrie



January 2022– 22-3905

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Introduction

Dillon Consulting Limited (“Dillon”) was retained by First Gulf Corporation (“First Gulf”) to complete a Preliminary Environmental Impact Study (EIS) in support of an application for proposed development at 545 Dunlop Street West (the “Subject Property”), City of Barrie (the “City”) (Figure 1). The Subject Property is zoned for industrial development by the City of Barrie, and is bound to the west by Dunlop Street West, to the north by a utility corridor, to the south by stormwater infrastructure, and to the east by a storage facility. The majority of the Subject Property consists of an area of flat fill as a result of over 20 years of fill disposal, of which has begun to naturalize into open meadow, with wetland and treed areas. The Subject Property and adjacent lands within 120 metres (m) of its boundary are considered the “Study Area” for the Preliminary EIS (Figure 1).

The Study Area was investigated during initial field surveys and during desktop reviews. It was determined that Lake Simcoe Region Conservation Authority (LSRCA) regulated areas and designated natural heritage features are mapped in the Study Area, including Ministry of Natural Resources and Forestry (MNRF)-mapped watercourses, wetlands and woodlands (Figure 2). Note that no MNRF-identified wetlands occur on the Subject Property. Due to the presence of natural heritage features in the Study Area, any proposed development must be evaluated to determine the potential for adverse effects on the City’s Natural Heritage System. As such, an EIS is required in support of the proposed development. It should be noted that field surveys and results presented in this report are preliminary due to seasonality. A Revised EIS will be prepared following detailed field work to be completed in 2023.

The purpose of this Preliminary EIS is to:

- Document existing conditions of the natural environment;
- Determine the potential limits of development;
- Evaluate the potential for environmental impacts associated with the proposed development application and associated works (grading, stormwater management (SWM), etc.); and,
- Recommend mitigation, restoration, enhancement measures to enhance, preserve and/or restore natural features, and if necessary, compensation when other options are exhausted.

At the onset of the project, Dillon consulted with the LSRCA to identify the extent of natural heritage surveys required. This Preliminary EIS has been prepared in general accordance with the TOR submitted to the LSRCA and the City on August 18, 2022, approved by the City on September 7, 2022. Comments were received by the LSRCA on September 9, 2022, which were incorporated into the attached Revised TOR (Appendix A). Most of the field work described in the Revised TOR will be completed in the spring/summer season of 2023, of which the results will be included in a Revised EIS.



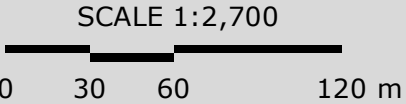
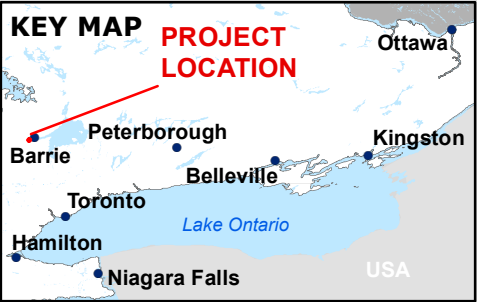
545 DUNLOP ST. W., BARRIE
PRELIMINARY EIS

FIRST GULF

PROJECT LOCATION

FIGURE 1

- Subject Property
- Study Area (120 m)
- Arterial
- Local Road
- Watercourse (MNR)



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR, LAKE SIMCOE REGION CONSERVATION AUTHORITY,
CITY OF BARRIE, DILLON CONSULTING

MAP CREATED BY: DDR
MAP CHECKED BY: AC / JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 18N



PROJECT: 22-3905
STATUS: DRAFT
DATE: 2022-09-23

2.0 Policy Context

The following sections have been prepared to identify the applicable land use planning policies related to the natural environment. Various regulatory agencies and legislative authorities have established a number of policies with the purpose of protecting ecological features and functions as outlined below. Table 1 lists the policies and legislation that apply to the protection of natural heritage features within the City as well as supporting guidance documents and resources consulted respective to these policies, where applicable. This table also includes additional background information sources used to help identify and define natural heritage features within the province of Ontario, and Eco-region 6E specifically.

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 can be read in their entirety for a more detailed understanding of the land use policy framework applicable to the Study Area.

Table 1: Policies, Legislation and Background Resources Searched

Acts and Policy	Plans, Guidelines and Supporting Documents
Government of Canada	
<i>Species at Risk Act</i> , 2002	--
<i>Migratory Birds Convention Act</i> , 1985	--
Province of Ontario	
Provincial Policy Statement, 2020	Policies within Section 1.1 and 2.1, specifically Section 2.1.1 and 2.1.2 related to natural heritage features and Section 2.2 related to water
<i>Endangered Species Act</i> , 2007	MNRF Species at Risk in Ontario (SARO) List (<i>Ontario Regulation 230/08</i>) and General (<i>Ontario Regulation 242/08</i>)
<i>Lake Simcoe Protection Act</i> , 2008	Lake Simcoe Protection Plan, 2009 Policies 6.33-6.34
Ministry of Natural Resources and Forestry	MNRF Natural Heritage Information Centre (NHIC) Square #17PK0114, 17PK0214, 17PK0113 • <i>Species of Conservation Concern</i>; • <i>Species at Risk (SAR)</i>; and • <i>Natural heritage features</i>.
	Ministry of Natural Resources and Forestry (MNRF) Land Information Ontario (LIO) database
	Ecological Land Classification for Southern Ontario, Second Approximation, 2008.
	<i>Natural Heritage Reference Manual</i> , Second Edition, 2010.
	MNRF <i>Significant Wildlife Habitat Technical Guide</i> (2000) • <i>Significant Wildlife Habitat Eco-region 6E Criterion Schedules</i>, 2015.

Acts and Policy	Plans, Guidelines and Supporting Documents
<i>Endangered Species Act</i> (2007)	O. Reg. 230/08 - the Species at Risk in Ontario (SARO) List, O. Reg. 242/08 (General), and O. Reg. 830/21 (Exemptions – Barn Swallow, Bobolink, Eastern Meadowlark and Butternut), September 2022. NHIC Square #17PJ2286, 17PJ2386, 17PJ2285 & 17PJ2385 • SAR occurrence records.
Municipal Policies	
City of Barrie Official Plan	City of Barrie Official Plan and Schedules (Council Adopted Version 2022)
Conservation Authority	
<i>Conservation Authorities Act</i> , 1990	Lake Simcoe Region Conservation Authority (LSRCA) Regulation Mapping <i>Ontario Regulation (O. Reg.). 179/06.</i> LSRCA Implementation Guidelines (2022)
Wildlife Atlases	
Wildlife Atlases	Ontario Breeding Birds Atlas (OBBA) Square #17TPK01
	Christmas Bird Count (CBC) count circle ONBW, data accessed September 2022.
	Ontario Reptile and Amphibian Atlas- online data accessed September 2022.
	Ontario Butterfly Atlas- online data accessed September 2022.
	Atlas of the Mammals of Ontario, 1994.

Policies within each document that relate to the natural environment and apply to the Study Area are outlined in subsequent sections.

2.1 Provincial Policy Statement, 2020

The *Provincial Policy Statement, 2020 (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 2.1, Natural Heritage, and policy 2.2, Water, which provides for the protection and management of natural heritage and water resources, which include the following:

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat;
- Significant areas of natural and scientific interest (ANSIs);

- Fish habitat;
- Sensitive surface water features; and
- Sensitive ground water features.

The PPS defines “significant” to mean:

- *In regard to wetlands, coastal wetlands and ANSI, an area identified as provincially significant by the Ontario Ministry of Natural Resources and Forestry (MNRF) using evaluation procedures established by the province, as amended from time to time;*
- *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 MNRF; and*
- *In regard to other features and areas in policy in 2.1, 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 follows guidance outlined in the *Natural Heritage Reference Manual* (MNRF, 2010) and the *Significant Wildlife Habitat Technical Guide Eco-Region 6E Criterion Schedules* (MNRF, 2015), where applicable.

2.2 City of Barrie Official Plan, 2022

The City’s Official Plan (OP) was approved in April 2010, then revised in 2018. The OP was further refined in February 2022 and is awaiting approval from the province. The policies mentioned below refer to the updated 2022 OP version as adopted by City Council.

The Subject Property is within *Employment Area* and *Designated Greenfields Area* (Map 1, Appendix B), as well as *Industrial* and *Non-industrial Employment Area* on Map 2 (Appendix B). Additionally, natural features on the Subject Property generally overlap with *Environmental Protection Area (EPA) Level 1 with Existing Development Designation Subject to 5.4.2.1.d* (Map 3, Appendix B).

The City OP policy 5.4.2.1 d) states:

Notwithstanding the land use limitations applicable to properties identified as Level 1, where a land use designation, as found on Map 2, permits other forms of development, such development may proceed subject to the policies of Level 2 and the appropriate planning application processes.

Therefore, the proposed development is subject to policies related to EPA - Level 2, which is detailed in policy 5.4.2.2:

- a) *Level 2 resources represent other significant components of the Natural Heritage System that also have a high level of protection. The features and function of these areas include: significant valleylands; provincially significant life science areas of natural and scientific interest; significant wildlife habitat; minimum vegetation protection zones and connectivity linkages; significant woodlands less than 4.0 hectares in size; woodlands greater than 4.0 hectares in size and less than 10.0 hectares; and woodlands within 30.0 metres of a Level 1 feature.*
- b) *Development shall not be permitted with the features in Level 2 unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.*
- c) *An environmental impact study will be required to be completed by a qualified professional for any proposed development or site alteration in or within 120.0 metres of an area identified as Level 2 on Map 3.*

Policies within the City's OP are discussed further within this report as they apply to the Subject Property.

2.3 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 the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation under *Ontario Regulation (O. Reg.). 179/06*.

The LSRCA regulates development, interference with wetlands, and alterations to shorelines and watercourses in accordance with *O. Reg. 179/06* made under the *Conservation Authorities Act*. The regulation applies to natural or hazardous areas (i.e., areas in and near rivers, streams, floodplains, wetlands, and slopes) in LSRCA Regulated Areas.

Portions of the Subject Property fall within LSRCA Regulated Areas (LSRCA, 2022 & City of Barrie, 2022, Appendix B) and therefore require consultation and permitting in association with the LSRCA prior to work on the Subject Property.

Select policies applicable to the development of the Subject Property are included below.

Policy 8.4.3 states that the LSRCA requires a minimum 30 m setback (herein referred to as a vegetation protection zone (VPZ)) from the boundary of all unevaluated wetlands for all new development.

However, Policy 8.4.4 states:

Notwithstanding 8.4.3, the Authority may permit development within 30 metres of an unevaluated wetland provided that the development will have no negative impact on the hydrologic function of the wetland. Depending upon the nature and scale of the proposed development, the Authority has the discretion of requiring the submission of a hydrologic study prepared to the satisfaction of the Authority to demonstrate that there will be no negative impacts on the wetland as a result of the proposed development. The submission shall also include a landscaping and habitat restoration plan to enhance the ecological features and functions associated with the wetland.

In addition, policy 8.3.3(b) of the LSRCA Implementation Guidelines (2022b) states that “the LSRCA may grant approval for development within a wetland provided that there is a demonstrated need and no reasonable alternative location exists outside the wetland”.

The LSRCA will also consider the compensation for the loss of wetland features and functions when no reasonable alternatives exist (policy 8.5.2). As such the LSRCA has developed an *Ecological Offsetting Policy* (2021) to guide proponents through compensation processes.

2.4 Lake Simcoe Protection Plan, 2009

The *Lake Simcoe Protection Plan (LSPP)* was established under the *Lake Simcoe Protection Act*, 2008, with the purpose of protecting and restoring the ecological health of the Lake Simcoe Watershed (LSPP, 2009). The LSPP includes key natural heritage feature and key hydrologic feature policies pertaining to development and site alteration. Under the LSPP, key natural heritage features are *wetlands, significant woodlands, significant valleylands* and natural areas abutting Lake Simcoe. Key hydrologic features are *wetlands, permanent and intermittent streams, and lakes* other than Lake Simcoe.

Designation of lands as outside of existing settlement areas or within settlement areas determines which LSPP key natural heritage/hydrologic feature policies apply. The Study Area falls within existing settlement areas; therefore, Policies 6.32-6.35 of the LSPP apply:

6.32-DP *Policies 6.32 - 6.34 apply to existing settlement areas and areas of Lake Simcoe adjacent to these lands, including the littoral zone, and these areas are not subject to policies 6.1 – 6.3, 6.5, 6.11 and policies 6.20 - 6.29.*

- 6.33-DP *An application for development or site alteration shall, where applicable:*
- a. *Increase or improve fish habitat in streams, lakes and wetlands, and any adjacent riparian areas;*
 - b. *Include landscaping and habitat restoration that increase the ability of native plants and animals to use valleylands or riparian areas as wildlife habitat and movement corridors;*
 - c. *Seek to avoid, minimize and/or mitigate impacts associated with the quality and quantity of urban run-off into receiving streams, lakes and wetlands; and*
 - d. *Establish or increase the extent and width of a vegetation protection zone adjacent to Lake Simcoe to a minimum of 30 metres where feasible.*
- 6.34-DP *Where, through an application for development or site alteration, a buffer is required to be established as a result of the application of the PPS, the buffer shall be composed of and maintained as natural self-sustaining vegetation.*
- 6.35-DP *For greater certainty, where lands have been incorporated into a settlement area after the effective date of the Plan, an application for development or site alteration within those lands are subject to the policies in this Chapter other than policies 6.32 to 6.34.*

As the proposed development is within 120 m of wetlands, this Preliminary EIS was prepared to aid in the natural heritage evaluation. A minimum 30 m VPZ is suggested to be retained and/or restored on either side of the wetlands to buffer against developmental impacts. The VPZ is discussed in greater detail in Section 9.1.

2.5 Endangered Species Act, 2007

With the enactment of the provincial *Endangered Species Act (ESA)*, 2007, Ontario has strong policies in place for the protection and recovery of Species at Risk (SAR). The *ESA* protects species and their habitats. When a species is listed as Endangered (END) or Threatened (THR) under the *ESA*, 2007, its habitat is afforded protection under the Act. There are three applicable regulations under the *ESA*, 2007; *O. Reg. 230/08* - the Species at Risk in Ontario (SARO) List, *O. Reg. 242/08* (General), and *O. Reg. 830/21* (Exemptions – Barn Swallow, Bobolink, Eastern Meadowlark and Butternut). These regulations serve to identify which species and habitats receive protection and provide direction on the current implementation of the *ESA*.

2.6 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 END or THR under SARA, 2002. Endangered or Threatened species are considered 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)* and aquatic species (fish and mussels) anywhere they occur. There are no federal lands located within the Study Area. Therefore, SARA applies only to SAR migratory birds and SAR fish in the Study Area.

2.7 Migratory Birds Convention Act, 1994

The *MBCA* (1994) and associated regulations protect and conserve migratory birds, their eggs, and their nests. The *MBCA* was recently updated in 2022. 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.

3.0 Background Review

Dillon conducted a background data review to inform the development of the TOR and the biophysical inventory for this Preliminary EIS and the proposed 2023 field work. The following sections provide a brief summary of the existing environmental conditions within the Study Area.

3.1 Natural Features Records and Mapping

Records and mapping of various natural heritage features were reviewed in preparation of this Preliminary 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 report. These features are described in general in this section of this Preliminary EIS, and are further detailed in the biophysical inventory section.

3.1.1 Watershed Summary

The Subject Property is located in the watershed jurisdiction of the LSRCA. Background information from the LSRCA was reviewed and summarized.

The Subject Property is within the Lake Simcoe watershed, which spans 3,400 square kilometres (km²) and 20 municipalities (LSRCA, 2016a). Land use within the watershed consists of wetlands (13%), forests (13%) as well as both urban (8%) and rural communities (LSRCA, 2016a). Further, the Subject Property falls within the rural designation of the Barrie Creeks subwatershed, which covers an area of approximately 37.5 km² (LSRCA, 2016a). The Subject Property is situated north of the Oak Ridges Moraine; watercourses north of the moraine drain into Lake Simcoe. Lake Simcoe is the province's fourth-largest lake and provides environmental and economic value.

3.1.2 Landforms, Soils and Geology

The Study Area falls within the Simcoe Lowlands in the Lake Simcoe basin and is dominated by sand plains (GEI, 2021). Bedrock geology of the area consists of Verulam Formation composed primarily of limestone and shale (GEI, 2021).

3.1.3 Aquatic Habitat

Based on the background review of resources listed in Table 1, there are mapped watercourses in the Study Area. These features will be discussed further in Section 4.5.5.



**545 DUNLOP ST. W., BARRIE
PRELIMINARY EIS**

FIRST GULF

**MAPPED MNRF NATURAL HERITAGE
FEATURES**

FIGURE 2

- Subject Property
- Study Area (120 m)
- Arterial
- Local Road
- Watercourse (MNRF)
- Unevaluated Wetland (MNRF)
- Woodlands (MNRF)
- Conservation Regulated Area (LSRCA; Approximate)

SCALE 1:2,700

0 30 60 120 m



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, LAKE SIMCOE REGION CONSERVATION AUTHORITY,
CITY OF BARRIE, DILLON CONSULTING

MAP CREATED BY: DDR
MAP CHECKED BY: AC / JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 18N



PROJECT: 22-3905

STATUS: DRAFT

DATE: 2023-01-18

3.1.4 Wetlands

Based on the background review of resources listed in Table 1, several unevaluated wetlands were identified within the Study Area, one of which reaches into the eastern and northern portions of the Subject Property. These wetlands are discussed further in subsequent sections.

3.1.5 Woodlands

Wooded features were identified within the Study Area using resources laid out in Table 1. These wooded features are not mapped within the City's OP as Natural Heritage Features, however, the wooded feature to the west overlap with *EPA Level 1 with Existing Development Designation Subject to 5.4.2.1.d* as shown on the Map 3 of the City's OP. These wooded features are discussed further in subsequent sections.

3.1.6 Valleylands

Based on the background review of resources listed in Table 1, no significant valleylands were identified within the Study Area.

3.1.7 Areas of Natural and Scientific Interest

Based on the background review of resources listed in Table 1, no Areas of Natural and Scientific Interest were identified within the Study Area.

3.2 Species at Risk

A search of the NHIC database and other available wildlife atlases as laid out in Table 1 was conducted to identify historical occurrences of SAR listed under the *ESA* (2007) within the Study Area; results are summarized in Table 2. Note that NHIC records comprise of the 1 kilometre (km) square grid area that overlaps the area, while OBBA records are include within 10 km squares. Observations of SAR within these squares do not necessarily represent observations within the boundaries of the Study Area.

Table 2: Species at Risk with Historical Occurrences within the Background Review Study Area

Scientific Name	Common Name	SARA ¹	ESA ²	S-RANK ³	Info Source ⁴
Birds					
<i>Riparia</i>	Bank Swallow	THR	THR	S4B	OBBA
<i>Hirundo rustica</i>	Barn Swallow	THR	THR	S4B	OBBA
<i>Dolichonyx oryzivorus</i>	Bobolink	THR	THR	S4B	OBBA
<i>Chaetura pelagica</i>	Chimney Swift	THR	THR	S3B	OBBA
<i>Sturnella magna</i>	Eastern Meadowlark	THR	THR	S4B,S3N	OBBA
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	END	END	S3	OBBA, NHIC
Odonata & Lepidoptera					
<i>Erynnis martialis</i>	Mottled Duskywing	---	END	S2	OBA
<i>Somatochlora hineana</i>	Hine's Emerald	END	END	S1	OOA
Herptiles					
<i>Heterodon platirhinos</i>	Eastern Hog-nosed Snake	THR	THR	S3	OHA
<i>Pantherophis gloydi</i> pop. 1	Eastern Foxsnake (Georgian Bay population)	END	THR	S3	OHA
<i>Sistrurus catenatus</i> pop. 1	Massasauga (Great Lakes / St. Lawrence population)	THR	THR	S3	OHA
<i>Emydoidea blandingii</i>	Blanding's Turtle	THR	THR	S3	OHA
Mammals					
<i>Myotis leibii</i>	Eastern Small-footed Myotis	---	END	S2S3	MWH
<i>Myotis septentrionalis</i>	Northern Myotis	END	END	S3	MWH
<i>Pipistrellus subflavus</i>	Tri-colored Bat	END	END	S3?	MWH
<i>Myotis lucifugus</i>	Little Brown Myotis	END	END	S4	MWH
Plants					
<i>Juglans cinerea</i>	Butternut	END	END	S2?	NHIC

¹Federal Species at Risk Act; ²Ontario Endangered Species Act, 2007; ³S-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. ⁴Information sources include: OBBA = Ontario Breeding Bird Atlas; OBA = Ontario Butterfly Atlas; OHA = Ontario Herpetofaunal Atlas; ON = Ontario Nature: Ontario Reptile and Amphibian Atlas; SARA = Species at Risk Act; END=Endangered, THR = Threatened, SC= Special Concern; "—" denotes no information or not applicable.

For the purpose of this report, "SAR bats" refers to Eastern Small-footed Myotis, Northern Myotis, Little Brown Myotis, and Tri-coloured Bat.

3.3 Species of Conservation Concern

The *Significant Wildlife Habitat Technical Guide* (MNRF, 2000) defines Species of Conservation Concern (SCC) as species listed as Threatened or Endangered under the 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 listed as Special Concern under the ESA. Species listed as SCC are not legally protected; however, they are considered under provincial policy, municipal policies and best management practices in this Preliminary EIS.

A search of the NHIC database and other available wildlife atlases was conducted to identify historical occurrences of species listed as SCC (Table 3).

Table 3: Species of Conservation Concern with Historical Occurrences within the Background Review Study Area

Scientific Name	Common Name	SARA ¹	ESA ²	S-RANK ³	Info Source ⁴
Birds					
<i>Chordeiles minor</i>	Common Nighthawk	THR	SC	S4B	OBBA
<i>Coccothraustes vespertinus</i>	Evening Grosbeak	SC	SC	S4B	CBC
<i>Contopus virens</i>	Eastern Wood-pewee	SC	SC	S4B	OBBA
<i>Euphagus carolinus</i>	Rusty Blackbird	SC	SC	S4B,S3N	CBC
<i>Falco peregrinus</i>	Peregrine Falcon	SC	SC	S4	OBBA
<i>Haliaeetus leucocephalus</i>	Bald Eagle	---	SC	S4	CBC
<i>Hylocichla mustelina</i>	Wood Thrush	THR	SC	S4B	OBBA
<i>Podiceps auritus</i>	Horned Grebe	---	SC	S1B, S3N, S4M	CBC
Lepidoptera					
<i>Danaus plexippus</i>	Monarch	SC	SC	S2N,S4B	OBA
Herpetiles					
<i>Chelydra serpentina</i>	Snapping Turtle	SC	SC	S4	OHA, NHIC
<i>Thamnophis sauritus</i>	Eastern Ribbonsnake (Great Lakes population)	SC	SC	S4	OHA
<i>Plestiodon fasciatus pop. 2</i>	Common Five-lined Skink (Southern Shield population)	SC	SC	S3	OHA
<i>Graptemys geographica</i>	Northern Map Turtle	SC	SC	S3	OHA
<i>Sternotherus odoratus</i>	Eastern Musk Turtle	SC	SC	S3	OHA
<i>Pseudacris triseriata pop. 1</i>	Western Chorus Frog (Great Lakes/St. Lawrence – Canadian Shield Population)	THR	---	S4	OHA

¹Federal Species at Risk Act; ²Ontario Endangered Species Act, 2007; ³S-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. ⁴Information sources include: NHIC = Natural Heritage Information Center (Ministry of Natural Resources and Forestry); OBBA = Ontario Breeding Bird Atlas; OBA = Ontario Butterfly Atlas; OHA = Ontario Herpetofaunal Atlas; ON = Ontario Nature: Ontario Reptile and Amphibian Atlas; SARA = Species at Risk Act; END = Endangered, THR = Threatened, SC= Special Concern; “---”denotes no information or not applicable.

4.0 Methodologies

The results of the background review were used to scope the preliminary field study program. This field study program was prepared in accordance with the Revised TOR (Appendix A).

Preliminary field studies were conducted by Dillon staff with qualifications and experience conducting the specific surveys, following the methods outlined below. Field surveys were conducted on the dates listed in Table 4. Weather conditions are listed for surveys where required under the survey methods.

Additional field studies will be conducted during 2023, as detailed in Section 4.5.

Table 4: Dates of Past and Future Field Surveys

Date	Weather ¹	Air Temp (°C)	Survey Type	Dillon Surveyor(s)
April 4, 2022	Cloud cover 100%, wind Beaufort 1, no precipitation	3	Site Reconnaissance, Preliminary ELC	Anna Cunningham
June 6 & 9, 2022	Variable	Variable	Staking of Wetlands and Woodlands	Anna Cunningham Dayna LeClair
August 22, 2022	Cloud cover 80%, wind Beaufort 1, no precipitation	25	Staking of Top of Bank	Anna Cunningham
August 26, 2022	Wind Beaufort 1, no precipitation	22	Fall ELC / Flora Survey	Trevor Goulet
March - July 2023	-	-	Headwater Drainage Feature Assessment	-
April - June 2023	-	-	Amphibian Surveys	-
May - June 2023	-	-	Breeding Bird Survey	-
May - July 2023	-	-	Spring /Summer ELC / Flora Survey	-

¹Calm = Beaufort Scale 0, Light air = Beaufort Scale 1, Light breeze = Beaufort Scale 2, Gentle breeze = Beaufort Scale 3, Moderate breeze = Beaufort Scale 4;

4.1 Ecological Land Classification & Botanical Surveys

The *Ecological Land Classification (ELC) for Southern Ontario* (Lee et al., 1998; Second Approximation, 2008) was used to identify and assess ecological communities within the Subject Property. During field investigations, vegetation was characterized using ELC to map ecological communities to the community, eco site, or vegetation level, where practical. Vegetation studies involve identifying the dominant species in each vegetation community type based on visual estimates of species abundances and biomass.

Vegetation communities were identified using second approximation classifications. Species nomenclature is based on the *Ontario Plant List* (Newmaster et al., 1998) with updates from the *Flora Ontario – Integrated Botanical Information System* (FOIBIS; 2005). In addition, a search of the MNRF's NHIC database was conducted to identify potential significant species. The ecological community boundaries were determined through the review of aerial photography and then further refined through on-site surveys.

It should be noted that the ELC and botanical surveys performed are preliminary. Additional surveys during spring and summer 2023 are scheduled to identify a comprehensive list of habitats and botanical species.

4.2 Agency Staking of Natural Heritage Features

Wetland communities, woodland communities and a top of bank associated with the stormwater easement were identified on the Subject Property through background review and field surveys. A staking exercise was completed by Dillon staff and agency representatives on June 9 (LSRCA and the City) and August 22, 2022 (only LSRCA) to determine the limits of wetland and woodland features within the Subject Property. Delineating the limits of these features allows for calculation of feature size, determination of VPZ's, and compensation area if required.

4.3 Significant Wildlife Habitat Assessment

The *Significant Wildlife Habitat* Technical Guide (MNRF 2000) and associated *Ecoregion 6E Criteria Schedule* (MNRF 2015) are the guidance documents for the identification and evaluation of Significant Wildlife Habitat (SWH) in this area of the province. Potential presence of candidate SWH types was assessed using results from the ELC surveys and other field surveys noted above. The identification of SWH in this report is preliminary and will be updated upon completion of the 2023 field program in the Revised EIS.

4.4 Incidental Wildlife

Incidental observations of wildlife made during the above-noted field surveys 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 will help to determine potential ecological functions, linkages, etc. within the Subject Property. Incidental observations made during 2023 surveys will be included in the Revised EIS.

4.5 Surveys to be completed in 2023

4.5.1 Headwater Drainage Features Assessment

A potential headwater drainage feature (HDF) was identified on the Subject Property associated with the stormwater easement. HDF assessments will align with the timing windows recommended by the *Evaluation, Classification, and Management of Headwater Drainage Features* (Toronto Region Conservation Authority (TRCA) & Credit Valley Conservation (CVC), 2014). Field data will be collected regarding the flow, channel form, aquatic and habitat potential, and vegetation of potential HDFs within the Subject Property. Two to three visits will be required depending on the flow conditions of the feature. The TRCA and CVC HDF document outlines management recommendations for headwater drainage features based on analysis of field investigation results.

Results of 2023 field investigations will be provided in the Revised EIS.

4.5.2 Amphibian Breeding Surveys

Amphibian monitoring will follow the Marsh Monitoring Program protocol (Bird Studies Canada, 2009). In accordance with the protocol, three different surveys will be conducted between April 1 and June 30, 2023, with at least two-weeks between each survey. Surveys will be completed between one half hour after sunset and midnight during evenings with a minimum night temperature of 5 °C, 10 °C, and 17 °C for each of the three respective surveys. Surveys will be conducted areas identified as wetland habitats during the 2022 ELC survey.

The calling activity of individuals estimated to be within 100 m of the observation point will be documented. Individuals beyond 100 m will be documented as outside the count circle and calling activity will not be recorded. Calling activity will then be 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
- Code 3: Calls continuous and overlapping, number of individuals cannot be estimated.

Results of 2023 field investigations will be provided in the Revised EIS.

4.5.3 Breeding Bird Surveys

Breeding bird surveys will follow methods outlined in the Ontario Breeding Bird Atlas (OBBA) Guide for Participants (Cadman et al., 2007), Forest Bird Monitoring Program (Environment Canada, 2006) or the Marsh Monitoring Program (Bird Studies Canada, 2009). Surveys will be conducted between dawn and five hours after sunrise. An assessment of the Study Area will be undertaken to determine the abundance and diversity of the breeding bird community within or directly adjacent to the Subject Properties. Breeding behaviour generally includes, but is not limited to, males singing, nest building, egg incubation, territorial defense, carrying food and feeding young.

The breeding bird surveys will consist of point counts. Point counts are used to establish quantitative estimates of bird abundances in major habitat types within the Study Area. Breeding evidence for each bird species will be documented using the Breeding Bird Atlas Evidence Codes.

Area searches will also be used to survey for breeding birds. Area search surveys will involve noting individual bird species and their corresponding breeding evidence while traversing the Subject Property on foot. The breeding evidence, habitat and location of each bird observation will be noted. Area search routes will be conducted between point count locations throughout the Subject Property.

As grassland birds were incidentally observed during 2022 field surveys, three breeding bird surveys will be conducted from late May to early July in 2023 within the Study Area.

Results of 2023 field investigations will be provided in the Revised EIS.

4.5.4 Botanical Surveys

During the spring and summer seasons of 2023, two additional botanical surveys will be completed within the Subject Property to determine species richness. Spring surveys will be timed to capture woodland ephemerals. The botanical surveys will follow the methods outlined above in Section 4.1. The Revised EIS will include species identified across the three botanical surveys (fall 2022, spring and summer 2023).

Results of 2023 field investigations will be provided in the Revised EIS.

4.5.5 Aquatic Habitat Assessment

While originally proposed in the TOR dated August 18, 2022, an aquatic habitat assessment is not proposed for the summer of 2023 as per the Revised TOR (Appendix A). Further information provided by the City has identified that the feature running along the southern boundary of the Subject Property is a stormwater easement. As such, the intention of this infrastructure is not to be considered fish habitat.

5.0

Biophysical Inventory

A biophysical inventory of natural features within the Study Area occurred in 2022, and will be continued in the 2023 field season in accordance with the methods detailed in Section 4.5 and in accordance with the Revised TOR (Appendix A), with the exception of an aquatic assessment (refer to Section 4.5.5). This Preliminary EIS will be revised to reflect the results of the additional 2023 field work. The analysis of data collected from secondary source information (Section 3.0) and during field studies in 2022 will be used to evaluate the significance of natural heritage features within the Subject Property. Results of preliminary work is summarized below.

5.1

Botanical Surveys

5.1.1

Ecological Land Classification

A total of ten ELC communities were observed within the Subject Property during the August 2022 ELC survey (Table 5). Of these, seven are considered natural communities.

The location, type, and boundaries of these communities are delineated in Figure 3. Each of the vegetation communities surveyed within the Subject Property are considered common in Ontario.

Table 5: Ecological Land Classification

ELC Code	Classification	Description	Photo # (Appendix C)
CVI	Transportation and Utilities – Hydro Corridor	Hydro corridor north of the Subject Property.	-
CVI_1	Transportation	Dunlop Street West right-of-way.	-
CVC_2	Light Industry	Includes portions of the storage business located off of Ferndale Drive North.	-
FODM8-1	Fresh-Moist Poplar Deciduous Forest	Habitat dominated by Trembling Aspen (<i>Populus tremuloides</i>), Green Ash (<i>Fraxinus pennsylvanica</i>), Freeman's Maple (<i>Acer x freemanii</i>).	1
MAM	Meadow Marsh	Meadow marsh located west of Dunlop Street that appears to be dominated by cattails.	-
MAMM1	Graminoid Mineral Meadow Marsh	Habitat dominated by European Common Reed (<i>Phragmites australis</i> ssp. <i>australis</i>), Narrow-leaved Cattail (<i>Typha angustifolia</i>), Common Boneset (<i>Eupatorium perfoliatum</i>), and Purple Loosestrife (<i>Lythrum salicaria</i>).	2

ELC Code	Classification	Description	Photo # (Appendix C)
MEM	Mixed Meadow	Habitat dominated by Wild Carrot (<i>Daucus carota</i>), Goldenrod spp., Garden Bird's-foot Trefoil (<i>Lotus corniculatus</i>), and Smooth Brome (<i>Bromus inermis</i>).	3
SWDM3; FODM3-1 Inclusion	Maple Mineral Deciduous Swamp Dry-Fresh Poplar Deciduous Forest Inclusion	Habitat dominated by Freeman's Maple, Paper Birch (<i>Betula papyrifera</i>), and Green Ash.	4
WODM5-1	Fresh-Moist Poplar Woodland	Habitat dominated by Trembling Aspen, Balsam Poplar (<i>Populus balsamifera</i>), and White Willow (<i>Salix alba</i>).	5
TAGM5	Hedgerow	Dominated by deciduous trees and shrubs	6

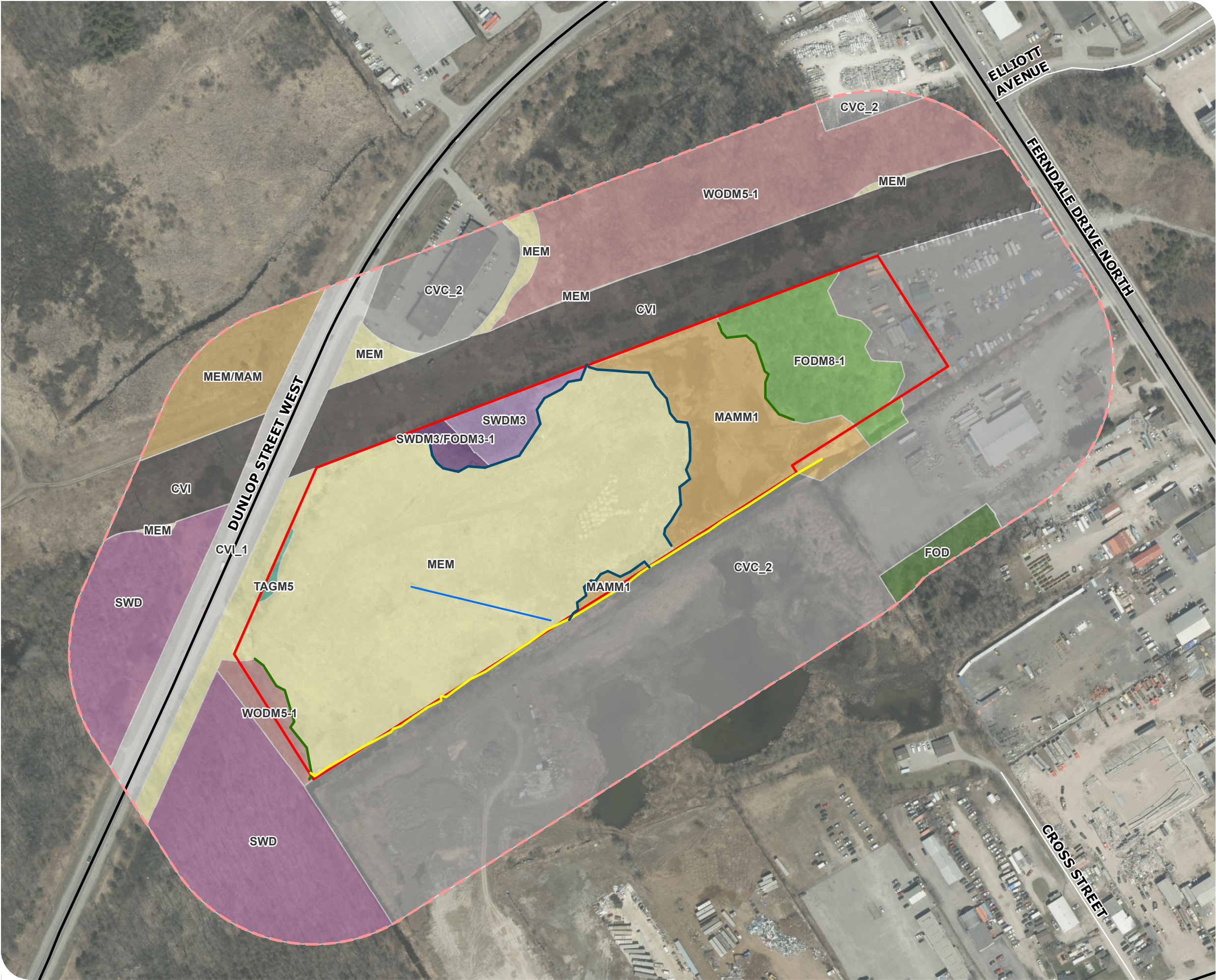
5.1.2 Vegetation Surveys

A total of 82 plant species were documented during 2022 field studies. Of the 82 species, 52% (43 species) are listed as native species in the province of Ontario, and 45% (37 species) 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). A total of 1.5% of the plants (includes one group) could only be identified to genus level; therefore, a SRank was not assigned. These plants are in the rush group (*Juncus* sp.) which contains several similar species that are difficult to differentiate between at specific life stages. Surveys were completed during growing season, therefore unidentified species were a result of a lack of plant structures present on individual plants. The remaining 1.5% of species was unranked (Noble Yarrow, *Achillea nobilis*).

Of the 43 native species, all are considered to be common (S4) to very common (S5) in the province of Ontario. One SAR, Black Ash (*Fraxinus nigra*, END) was identified on the Subject Property. This species is further discussed in Section 5.6. No other botanical SAR were observed during field surveys.

The Co-efficient of Conservatism (CC) provides additional information on the nature of the vegetation communities within the Subject Property. 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 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 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. The mean CC value for the site was 3.38 out of a possible 10, indicating a highly disturbed landscape.

A list of the vegetation species observed within the Subject Properties has been included in Appendix D.



545 DUNLOP ST. W., BARRIE PRELIMINARY EIS

FIRST GULF

RESULTS OF BIOPHYSICAL INVENTORY

FIGURE 3

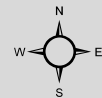
- Subject Property
- Study Area (120 m)
- Arterial
- Local Road
- Potential HDF (Dillon)
- Unevaluated Wetland as Staked by the LSRCA and City on June 9, 2022
- Woodland as Staked by the LSRCA and City on June 9, 2022
- Top of Bank as Staked by the LSRCA on August 22, 2022

Ecological Land Classification

- CVC_2: Light Industry, including SWM Facilities
- CVI: Transportation and Utilities - Hydro Corridor
- CVI_1: Transportation
- FOD: Deciduous Forest
- FODM8-1: Fresh-Moist Poplar Deciduous Forest
- MAMM1: Graminoid Mineral Meadow Marsh Ecosite
- MEM/MAM: Mixed Meadow/Meadow Marsh
- MEM: Mixed Meadow
- SWD: Deciduous Swamp
- SWDM3/FODM3-1: Maple Mineral Deciduous Swamp Ecosite / Dry-Fresh Poplar Deciduous Forest
- SWDM3: Maple Mineral Deciduous Swamp Ecosite
- TAGM5: Fencerow
- WODM5-1: Fresh-Moist Poplar Woodland

SCALE 1:2,700

0 30 60 120 m



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR/LAKE SIMCOE REGION CONSERVATION AUTHORITY,
CITY OF BARRIE, DILLON CONSULTING
MAP CREATED BY: DDR
MAP CHECKED BY: AC / GB / JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N



PROJECT: 22-3905

STATUS: FINAL

DATE: 2023-01-18

5.2 Wetlands

There are two unevaluated wetland communities identified within the Study Area; however, there is strong evidence that these wetlands were formulated unnaturally due to poor management of stormwater infrastructure along the south-end of the Subject Property that leads into Ferndale Drive.

The wetland boundaries were staked with Dillon and a representative from the LSRCA and the City on June 9, 2022 to delineate the feature limits (Figure 3).

The unevaluated wetland pocket of SWDM3 (0.37 ha) community on the Subject Property appears to contain marginal habitat, as it is edged by historical fill sites and bounded by clearing activities related to the hydro corridor to the north. Additionally, the two MAMM1 (1.23 ha) marsh communities are dominated by invasive species (European Common Reed).

Additional surveys, which include the analysis of soils, will be conducted to characterize these wetland communities are proposed in 2023.

5.3 Woodlands

The City defines woodlands as *“treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas, excluding cultivated fruit or nut orchards or Christmas tree plantations, and vary in their level of significance at the local, regional and provincial levels.”*

Several treed communities have been identified within the Study Area, three of which are within the Subject Property. As the City does not define significance of woodlands, the *Natural Heritage Reference Manual* (MNR, 2010) has been applied in this Preliminary EIS. This manual defines a significant woodland as *“...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...”*

The three treed features that were identified on the Subject Property include the following as shown on Figure 3:

- WODM5-1 feature (“western woodland”);
- SWDM3 feature (“north-central woodland”); and,
- FODM8-1 feature (“eastern woodland”).

Due to the small size of the north-central and eastern woodlands (> 2 ha), these features are unlikely to be considered significant as the *Natural Heritage Reference Manual* (MNR 2010) details that woodland significance starts at 2 ha, but increases in size as the percent canopy cover increases within a municipality. However, the western woodland is considered Significant due to its size (>11.0 ha) and the presence of an SCC, Eastern Wood-pewee (*Contopus virens*, SC) was identified in this habitat feature. Due to its large size, the western woodland could also contain SAR habitat, as well as habitat for other SCC.

Additional surveys to characterize these treed communities are proposed in 2023.

5.4 Aquatic Habitat

A stormwater easement has been identified along the southern boundary of the Property. The resulting infrastructure has a defined top of bank outside of where it overlapped with the unevaluated wetland. The easement is contained within the floodplain regulation limits.

It is likely that this easement is incidentally providing habitat for aquatic species in the Study Area. However, the intent of this human-made feature was to provide SWM function to the surrounding area. Therefore, the project team, with direction from the City, is treating this feature as infrastructure rather than a watercourse.

A smaller drainage feature that outlets to the aforementioned easement was located centrally on the Subject Property (refer to Figure 3 for its location). This feature was not well-defined during site reconnaissance, and it is possible that it is more suitably classified as a headwater drainage feature (HDF). It will require further assessment during spring freshet and will be studied in the spring of 2023.

5.5 Incidental Species

Several incidental species were observed during field surveys and are listed below in Table 6. One SAR, Eastern Meadowlark (*Sturnella magna*, THR) was observed in the meadow community on the Subject Property. Two SCC, Eastern Wood-pewee (*Contopus virens*) (WODM5-1) and Monarch (*Danaus plexippus*) (MEM) were also identified. Other species observed are considered common and secure in the province of Ontario (S-Rank of S5).

Table 6: Incidental Wildlife Observed within the Subject Properties

Scientific Name	Common Name	SARA ¹	ESA ²	S-Rank ³
Birds				
<i>Corvus brachyrhynchos</i>	American Crow	---	---	S5
<i>Carduelis tristis</i>	American Goldfinch	---	---	S5
<i>Turdus migratorius</i>	American Robin	---	---	S5B
<i>Poecile atricapillus</i>	Black-capped Chickadee	---	---	S5
<i>Cyanocitta cristata</i>	Blue Jay	---	---	S5
<i>Corvus corax</i>	Common Raven	---	---	S5
<i>Picoides pubescens</i>	Downy Woodpecker	---	---	S5
<i>Sturnella magna</i>	Eastern Meadowlark	THR	THR	S4B,S3N
<i>Sturnus vulgaris</i>	European Starling	---	---	SNA
<i>Contopus virens</i>	Eastern Wood-pewee	SC	SC	S4B
<i>Anas platyrhynchos</i>	Mallard	---	---	S5
<i>Zenaidura macroura</i>	Mourning Dove	---	---	S5
<i>Cardinalis</i>	Northern Cardinal	---	---	S5
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	---	---	S5
<i>Larus delawarensis</i>	Ring-billed Gull	---	---	S5
<i>Melospiza melodia</i>	Song Sparrow	---	---	S5B
<i>Actitis macularia</i>	Spotted Sandpiper	---	---	S5B
<i>Gallinago delicata</i>	Wilson's Snipe	---	---	SNA
Herptiles				
<i>Lithobates pipiens</i>	Northern Leopard Frog	---	---	S5
<i>Lithobates clamitans</i>	Green Frog	---	---	S5
<i>Anaxyrus americanus</i>	American Toad	---	---	S5
N/A	Snake sp.	N/A	N/A	N/A
N/A	Tadpole sp.	N/A	N/A	N/A
Mammals				
<i>Sylvilagus floridanus</i>	Eastern Cottontail	---	---	S5
<i>Canis latrans</i>	Coyote	---	---	S5
<i>Odocoileus virginianus</i>	White-tailed Deer	---	---	S5
Lepidoptera				
<i>Danaus plexippus</i>	Monarch	SC	SC	S2N,S4B

¹Federal Species at Risk Act (Source: SARA Public Registry, 2007); ²Provincial Endangered Species Act (Source: MNRF website, 2007); ³Subnational (Provincial) Rank (Source: MNRF National Heritage Information Centre website, 2007); Species at Risk

5.6

Species at Risk

Black Ash was identified on the Subject Property during field surveys, which is listed as END under the ESA (2007). However, under a new Minister's regulation (*O. Reg. 23/22*), protection for Black Ash is temporarily paused for two years from the time when it is added to the Species at Risk in Ontario List (SARO List) regulation (*O. Reg. 230/08*), which came into force on January 26, 2022.

As previously mentioned in Section 5.5, Eastern Meadowlark (THR) was identified using the meadow habitat within the Subject Property during its breeding season (June). As such, three breeding bird surveys are planned for 2023, as detailed in Section 4.5.3, in order to determine habitat availability and usage of the Subject Property by this species and other avian SAR.

There is also the potential for treed communities within the Study Area to support SAR bats. Mitigation related to these species are discussed in Section 9.2, which include tree removal outside of the bird and bat breeding windows.

No other SAR were observed during field surveys; however, further studies to assess SAR presence on the Subject Property will occur in 2023.

5.7

Significant Wildlife Habitat

Candidate SWH was identified on the Subject Property for Special Concern and Rare Wildlife Species: Eastern Wood-pewee (SC), which was identified within the western woodland.

The following potential Candidate SWH was also identified for the Subject Property:

- Amphibian Breeding Habitat (Woodland)
 - FODM8-1 and SWDM3 habitat – low wet areas identified in FODM8-1 habitat
 - Amphibian breeding habitat SWH identification will rely on results of 2023 amphibian surveys, as a certain abundance of amphibians is required to confirm SWH
- Amphibian Breeding Habitat (Wetland)
 - SWDM3 habitat – American Toad identified
- Bat Maternity Colonies
 - FODM8-1, WODM5-1 and SWDM3 habitats

Further field studies in 2023 will occur to further assess these preliminary findings, which will be included in a Revised EIS along with necessary mitigation measures.

6.0

Ecological Function

Natural features within the Study Area were assessed to determine their ecological function. The Study Area consists predominantly of historic fill that has been naturalizing into meadow habitat, with treed areas and wetlands. Over the last 20 years, fill has been added to the Subject Property with the intention of developing it into an industrial site as designated in the City's Official Plan (refer to Section 2.2 for more details on this designation). As the Subject Property and the southern stormwater easement have been neglected, naturalization has begun to occur with the creation of meadow and meadow marsh habitat.

Regarding connectivity of the site, the Subject Property is bounded by Dunlop Street West to the west, a commercial property and hydro corridor to the north, a storage facility to the east, and a stormwater easement to the south. The municipal roads, as well as other cultural land uses (adjacent commercial properties) fragment natural heritage features present within the Study Area. Additionally, the hydro corridor present fragments the north-central and eastern woodlands on the Subject Property from the larger woodland north of the Study Area. Furthermore, this hydro corridor can be cleared at any time for necessary works, which greatly impacts the connectivity of the natural heritage features in the Study Area. During preliminary visits, it was obvious that cleared vegetation material was piled and discarded in the north-central and eastern woodlands.

Potential habitat for SAR and SCC were identified on the Subject Property associated with the woodlands and the meadow habitats. Two SAR, Black Ash (END) and Eastern Meadowlark (THR) were identified on the Subject Property, as well as one SCC, Eastern Wood-pewee (SC). Further detailed field studies will occur in 2023 to assess for presence of other at-risk species and candidate SWH.

Most treed communities on the Subject Property are small, in poor condition and fragmented. At times, these features may provide ecological corridors for wildlife movement and migration, and provide cover, forage, refuge and nesting habitat for a variety of wildlife. Animal scat, tracks, and foraging evidence (White-tailed Deer, Eastern Cottontail, Coyote) were observed within the Subject Property, indicating that the natural heritage features are used by nearby wildlife. However evidence of disturbance to the natural communities on the Subject Property was identified during preliminary site visits. These disturbances included the presence of several invasive and non-native species, as well as gravel piles, litter, and evidence of the Subject Property's historical use as a fill site.

Proposed Works

The proposed new use for the Subject Property is an office / warehouse space with six units total, with a total area of 347,680 square feet. A 3 m landscape buffer has been included in the design. The proposed development will also include parking for vehicles and loading bays for tractor trailers (refer to the Overall Site Plan by Powers Brown Architecture, 2023). A SWM pond is proposed for the eastern portion of the Subject Property. The southern stormwater easement and western woodland have been incorporated into the development design. Furthermore, the Landscape Plan (Cosburn Giberson Landscape Architects [CGLA] 2023) details the plantings that will be included in the proposed development design, which is discussed further in Section 9.5.

Construction of the proposed development would include the removal of trees and ground vegetation from the Subject Property, grading of the property, construction of the buildings, placement of hardscape (e.g. driveways) and underground servicing for sanitary water. Clearing activities will include the removal of vegetation from non-significant woodlands, unevaluated wetland and meadow areas.

The project team met with the LSRCA shortly after the pre-consultation meeting to discuss the feasibility of development works within the eastern portion of the property within the natural features. A virtual meeting was held on May 31, 2022, and the LSRCA was in general agreement with the proposed location provided a feature-based water balance could be completed to show that drainage conditions in a post-development scenario could be supported.

The associated impacts of this proposed development and mitigation measures are discussed further in the sections below.

8.0

Impact Assessment

8.1

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 industrial development include the following:

- Diversion of surface water flows;
- Erosion and sedimentation into natural features (retained woodland and wetland areas);
- Tree and vegetation removal; and
- Loss of/ disturbance to wildlife habitat and wildlife in general.

8.1.1

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, run off, stream flow regime, water quality, stream channel erosion, and wildlife habitat. The most notable difference to the Subject Property will be the removal of vegetation and addition of impervious surfaces as a type of surface cover (i.e., parking lots, rooftops, etc.). Impervious surfaces prevent infiltration of water into the soils and the removal of the vegetation removed the evapotranspiration component of the natural water balance.

It is expected that the engineering report included with this submission will detail SWM (following the *LSRCAs Technical Guidelines for Stormwater Management Submissions* (2016b)) and that a feature based water balance will be prepared following Site Plan finalization. These reports will be reviewed and referenced in the Revised EIS.

8.1.2

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. It is expected at an ESC plan will be developed in support of the Revised EIS.

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.

8.1.3 Tree and Vegetation Removal

The proposed development plan indicates tree and ground vegetation removal will occur up to the limit of the Subject Property in order to facilitate grading and construction of the development. This work will include the proposed removals of non-significant woodland and unevaluated wetland features to accommodate development (Figure 4). Compensation for these feature removals will be discussed in the Revised EIS upon finalization of the Site Plan, and will reference LSRCA's *Ecological Offsetting Policy* (2021). This is further detailed in Section 9.1.

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.

In addition to feature removal, the proposed development will result in 83 individual tree removals throughout the Subject Property. Further details on proposed individual tree removals and mitigation as required by the City has been prepared under separate cover and can be found in the *545 Dunlop Street West Arborist Report* (Cosburn Giberson Landscape Architects, 2022).

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

Wildlife may be impacted due to vegetation clearing during construction within the proposed development area. Ground vegetation will be removed in the majority of the development area, which may contain wildlife habitat for a number of species. More specifically, wildlife 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/or
- Loss of general wildlife habitat.

8.1.4.1 Potential SAR/SCC Habitat Loss

Removal of trees from the north-central and eastern woodlands may impact SAR and SWH as described in Section 5.6 & 5.7. Mitigation measures required to reduce impact on these habitats are discussed in Section 9.0.



545 DUNLOP ST. W., BARRIE
PRELIMINARY EIS

FIRST GULF

CONSTRAINTS ANALYSIS

FIGURE 4

- Subject Property
- Study Area (120 m)
- Arterial
- Local Road
- Unevaluated Wetland as Staked by the LSRCA and City on June 9, 2022
- Woodland as Staked by the LSRCA and City on June 9, 2022
- Swamp (Dillon)
- Meadow Marsh (Dillon)
- Unevaluated Wetland Vegetation Protection Zone (30 m applied to be conservative, but subject to change with further study)
- Woodland (Dillon)
- Woodland Vegetation Protection Zone (10 m)

SCALE 1:2,700

0 30 60 120 m



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR, LAKE SIMCOE REGION CONSERVATION AUTHORITY,
CITY OF BARRIE, DILLON CONSULTING
MAP CREATED BY: DDR
MAP CHECKED BY: AC / GB / JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N



PROJECT: 22-3905
STATUS: FINAL
DATE: 2023-01-18

While Black Ash (END) was identified within the eastern woodland community, regulations for Black Ash protection is temporarily paused until January 2024 (O. Reg. 23/22). Until that time, general mitigation for tree removals should be considered for this species and is outlined further in Section 9.0.

8.2 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.

8.2.1 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 Subject Property are already disturbed (trash, vehicular traffic / fragmentation, and presence of invasive species), impacts as a result of the proposed development are expected to be minimal.

8.2.2 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 Subject Property (i.e., European Common Reed, Garlic Mustard). In order to improve ecological function, removal of invasive species is recommended.

9.0

Mitigation and Opportunities for Enhancement

Mitigation involves the 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 Subject Property. A variety of mitigation techniques can be used to reduce or eliminate the above-mentioned impacts. These measures include a SWM Plan, Erosion and Sediment Control Plan. Each mitigation measure is introduced below. Detailed mitigation measures will be finalized in consultation with LSRCA and City as part of the preliminary and detailed design of the development.

9.1

Natural Heritage Buffers

Natural heritage features were staked with a City and LSRCA representative on June 9, 2022, and with LSRCA on August 22, 2022. The VPZ boundaries and designation of these features may be further refined after detailed field surveys in 2023 and agency consultation.

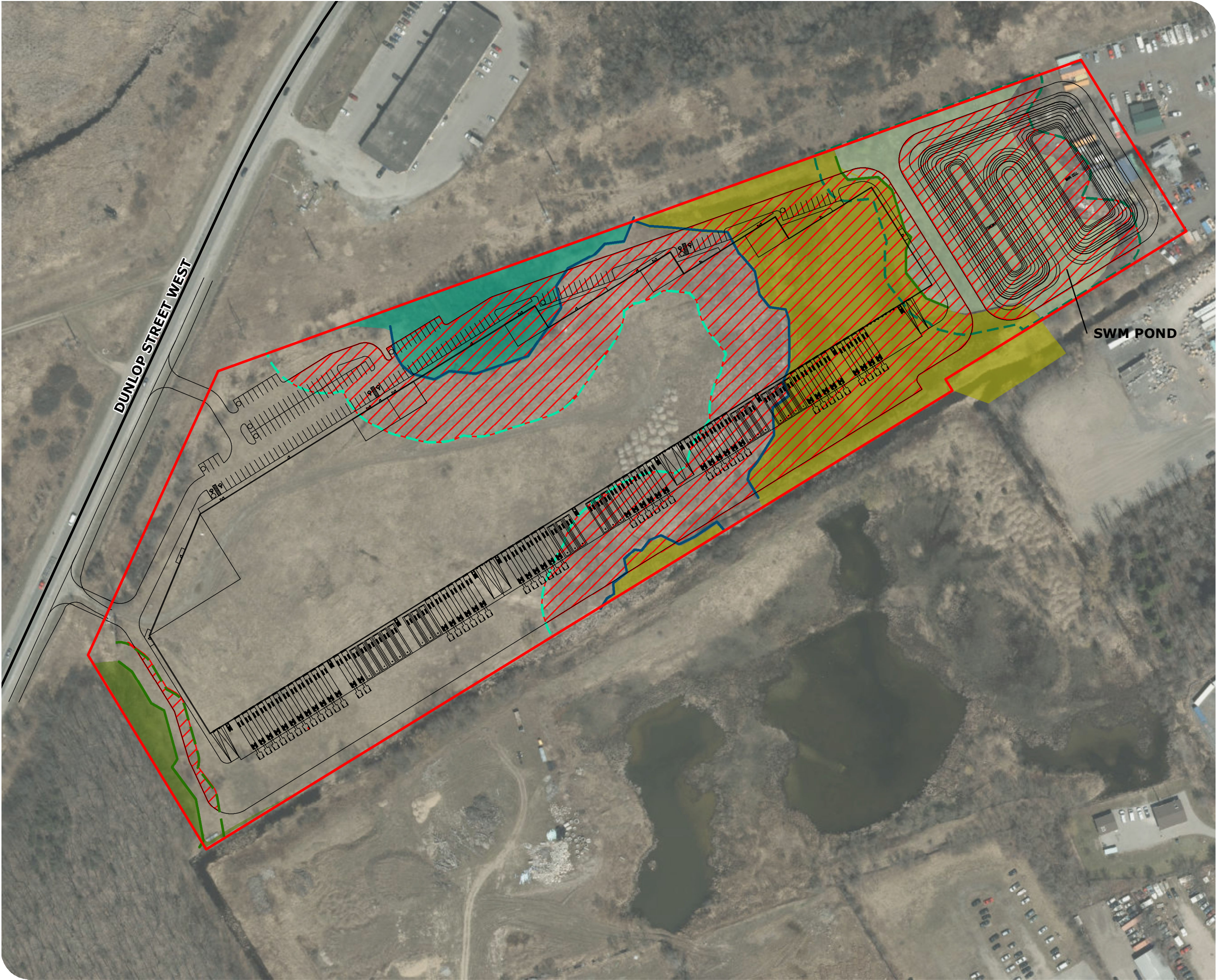
As recommended by policy 8.4.3 of the LSRCA's Watershed Development regulations, a 30 m VPZ is assigned for wetland features. As such, the SWDM3 and MAMM1 communities within the Subject Property have received a 30 m VPZ as shown on Figure 4. As previously mentioned, these buffers will be confirmed through future detailed work and agency consultation. The 30 m VPZ have been applied conservatively at this time until confirmatory surveys can be completed. These surveys will confirm that this area meets the definition or not of a wetland based on soils present, as it is expected that vegetation community has established because of poor drainage and surface water pooling.

The western woodland feature (WODM5-1) is identified as part of the City's *EPA Level 1 with Existing Development Designation Subject to 5.4.2.1.d*. As detailed in Section 2.2 these features are being treated as Level 2 Environmental Protection Areas due to underlying land use designations. In aiming to follow best ecological practices, a 10 m VPZ to woodlands has been recommended as supported by the *Natural Heritage Reference Manual* (MNRF 2010) (Figure 4).

There are areas where the buffer and natural heritage features are proposed for removal to facilitate development (Figure 5). Compensation following LSRCA's *Ecological Offsetting Policy* (2021) for these buffer and feature removals will be discussed in the Revised EIS upon finalization of the Site Plan.

It is expected that the compensation to be proposed will result in an overall benefit to the City's natural heritage.

Natural heritage buffers will be planted as detailed in CGLA's Landscape Plan (2023), which is discussed further in Section 9.5.



**545 DUNLOP ST. W., BARRIE
PRELIMINARY EIS**

FIRST GULF

IMPACTS ASSESSMENT

FIGURE 5

- Subject Property
- Arterial
- Unevaluated Wetland as Staked by the LSRCA and City on June 9, 2022
- Woodland as Staked by the LSRCA and City on June 9, 2022
- Site Plan (Powers Brown Architecture - January 20, 2023)
- Woodland (Dillon)
- Significant Woodland (Dillon)
- Woodland Vegetation Protection Zone (10 m)
- Swamp (Dillon)
- Unevaluated Wetland Vegetation Protection Zone (30 m applied to be conservative, but subject to change with further study)
- Proposed Impacted Area
- Meadow Marsh (Dillon)

SCALE 1:1,700

0 30 60 120 m



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR/LAKE SIMCOE REGION CONSERVATION AUTHORITY,
CITY OF BARRIE, DILLON CONSULTING
MAP CREATED BY: DDR
MAP CHECKED BY: AC / GB / JB
MAP PROJECTION: NAD 1983 CSRS UTM ZONE 17N



PROJECT: 22-3905
STATUS: FINAL
DATE: 2023-01-20

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 (April 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;
- Should any clearing be required during the active bat season (April 1 – September 30), species-specific monitoring will be required prior to clearing activities to monitor for SAR bat species. This monitoring may include acoustic surveys, snag density calculations and/or mapping of snag cavity trees;
- Schedule vegetation clearing and grading activities to avoid disturbance to breeding amphibians and other sensitive wildlife species, where possible;
- Where possible, increase the distance of construction equipment used from the woodland edge to avoid disturbing wildlife;
- Limit the use of lighting, where possible;
- Planting of Common Milkweed (*Asclepias syriaca*) within the proposed SWM facilities 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 are 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.

9.3 Erosion and Sediment Control Plan

Construction activity, especially operations involving the handling of earthen material, dramatically increases the availability of sediment for erosion and transport by surface drainage. 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 extremely important component of land development and plays an important 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. It is important that the control measures 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.

It is expected that an Erosion and Sediment Control Plan will be developed for the proposed development. The plan may include, but is not limited to, installation of geotextile silt fences, rock check dams, ditch checks, mud mats, temporary sediment ponds, designated topsoil stockpile areas, and cut-off swales and ditches to divert surface flows to the appropriate sediment control area; with provisions for re-vegetating the area as soon as construction is completed. More specifically, the plan may include the following measures:

- Standard duty silt fencing (OPSD 219.110) and/or other equivalent erosion and sediment controls should be installed around the perimeter of the work area to clearly demarcate the construction area and prevent erosion and sedimentation into adjacent habitats. Erosion and sediment control measures should be monitored regularly to check they are functioning properly and if issues are identified should be dealt with promptly;
- Stockpiling of excavated material should not occur outside the delineated work area. If stockpiling is to occur outside of this area, silt fencing should be used to contain any spoil piles to prevent sedimentation into adjacent areas. Further, stockpiling of excavated materials will not occur within 30 m of the stormwater easement;
- A spill response plan should be developed and implemented as required; and/or
- The use of silt socks, dewatering ponds, etc. should be implemented to avoid sedimentation and erosion in adjacent areas as required. If dewatering requires more than 50,000 litres (L) of water to be pumped per day, appropriate permits must be obtained from the MECP prior to the dewatering.

9.4 Environmental Monitoring Plan

The Environmental Monitoring Plan (EMP) will be carried out 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.

9.5 Landscaping Plan

Restoration plantings will occur throughout the proposed industrial development and SWM facilities. The Landscaping Plan prepared by CGLA (2023) details the proposed plantings for the project, which includes:

- A mix of deciduous and coniferous trees and shrubs throughout the development and buffer areas;
- Perennials and grasses in the matrix of tree and shrub plantings; and,
- A Restoration Planting Plan specifically for the proposed SWM facilities.

The following monitoring and maintenance measures for the SWM facilities is also recommended in CGLA's Plan (2023):

- Removal of invasive tree and shrubs (i.e., buckthorn) where applicable;
- Watering and weeding of newly planted areas as required for proper establishment of plantings; and,
- Providing monitoring to determine the success of the plantings, with monitoring reports to be submitted to the City.

Overall, the Landscaping Plan proposes planting of 207 trees and 1845 shrubs on the Subject Property.

Summary and Conclusion

This Preliminary EIS was prepared for the proposed development located at 545 Dunlop Street West in the City of Barrie. The findings of the preliminary biophysical inventory, which consisted of secondary source reviews and limited initial field studies, are presented in this Preliminary EIS. This report has been prepared due to the presence of natural heritage features within and adjacent to the Subject Property.

The majority of the Subject Property consists of an area of flat fill as a result of over 20 years of fill disposal, of which has begun to naturalize into open meadow, with wetland and treed areas. A stormwater easement is present in the southern portion of the Subject Property.

Potential habitat for SAR bats was identified associated with the treed features. The stormwater easement is not considered to support fish or aquatic SAR species. Black Ash (END) was identified on the Subject Property; no protection is currently required for this species under *O. Reg. 23/22*. Eastern Meadowlark (THR) was also identified on the Subject Property; more detailed field surveys will be required to determine potential habitat presence and mitigation measures is required for this species.

The proposed development will require the removal of trees and ground vegetation within the Subject Property outside of the significant woodland. Based on the proposed Overall Site Plan, anticipated impacts may include disturbance to potential wildlife habitat, erosion and sedimentation, as well as diversion of surface water flows.

Further field studies are proposed in order to complete a Revised EIS. The required 2023 surveys are:

- Amphibian breeding habitat (3 surveys);
- Breeding bird survey (3 surveys);
- Botanical Surveys (2 surveys, spring/summer); and
- Headwater drainage feature surveys (2-3 surveys, spring/summer).

Impacts to the features and habitat identified within and adjacent to the Subject Property will be reduced by implementing the mitigation, restoration, and management measures described in this Preliminary EIS and any other reports it has referred to. Provided the mitigation measures described in this Preliminary EIS and subsequent Revised EIS's are implemented, it is Dillon's opinion that the proposed development will result in an overall positive impact on the City's natural heritage.

Appendix A

Terms of Reference

Memo



To: Dave Ruggle, Lake Simcoe Region Conservation Authority
Emma Dias, Lake Simcoe Region Conservation Authority
Celeste Kitsemetry, City of Barrie

From: Anna Cunningham, Dillon Consulting Limited

Date: September 22, 2022

Subject: Revised Environmental Impact Study Terms of Reference for 545 Dunlop Street West, City of Barrie

Our File: 22-3905

Introduction

Dillon Consulting Limited (Dillon) has been retained by First Gulf Development Corporation (First Gulf) to undertake an Environmental Impact Study (EIS) for the proposed development of the property located at 545 Dunlop Street West (the “Subject Property”), City of Barrie (the “City”), within the County of Simcoe (the “County”). The Subject Property is depicted in the attached Figure 1 (Attachment A), which also illustrates the environmental features identified through background review within and adjacent to the Subject Property at a landscape level. Through a due diligence exercise completed by Dillon in April of 2022, it was determined that the Subject Property consists primarily of meadow, as well as portions of a drainage feature, wetlands, woodland and some light industry.

The first draft of the TOR was submitted on August 18, 2022. City acceptance was received September 7, 2022, while LSRCA comments were received on Friday, September 9th, 2022. These comments have been include in Attachment B.

The City Official Plan (OP) mapping shows that the Subject Property is located within an area designated as *Employment Area and Designated Greenfields Area* (Map 1), as well as *Industrial* and *Non-industrial Employment* on Map 2. Additionally, natural features on the Subject Property generally overlap with *Environmental Protection Area (EPA) Level 1 with Existing Development Designation Subject to 5.4.2.1.d* (Map 3). Additionally, the creek and its floodplain, wetlands and a potential headwater drainage feature (HDF) in the south-west portion of the Subject Property are regulated by the Lake Simcoe Region Conservation Authority (LSRCA).

Two wooded features were identified on the Subject Property using MNRF’s NHIC mapping (refer to Figure 1). This wooded feature is mapped as part of the City’s Natural Heritage Features (Schedule H, City OP). No valleylands or Areas of Natural and Scientific Interest (ANSI) or Environmentally Significant Areas (ESA) were identified on the Subject Property through background review.

The purpose of this EIS is to document the existing conditions of the natural environment, and specifically, the presence of significant natural features as outlined in Section 2 of the Provincial Policy

Statement (PPS. 2020). The EIS will identify the potential impacts that the proposed development may have on these features, and develop recommendations that will appropriately minimize or eliminate impacts to natural features.

In keeping with the general policies of the City, we have prepared the following Revised Terms of Reference (TOR) which has taken into consideration the LSRCA comments. Below, we present the Revised 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 EIS must be undertaken by a qualified professional in environmental or related sciences to provincial standards and/or the satisfaction of the LSRCA and the City.
- ☒ A visit to the site may be required by LSRCA and/or the City prior to, during, or upon receipt of the EIS.
- ☒ As per agencies discussions on May 5, 2022, the staking of significant natural features (i.e., woodlands, wetlands, top of bank) with the LSRCA and the City was requested. 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: LSRCA and the City visited the Subject Property on June 9, 2022. During this visit, the wetland and woodland boundaries were confirmed by the agencies. It was also noted by the representative from the City that the woodlands on the northern and eastern portion of the Subject Property (as shown on Figure 1) could be removed as a result of the proposed development.

LSRCA will be returning to site on August 22, 2022 to finalize the top of bank associated with the southern creek.

Existing Conditions

- ☒ The existing conditions of the property must be clearly described and clearly mapped on aerial photographs. A background review section will include the relevant natural heritage information secondary sources (e.g. species atlases, databases), list of relevant existing studies (if available) and a map of existing features.

Note: Existing conditions will be defined through a review of background information in combination with on-site field surveys. Background documents to be reviewed include, but are not limited to, the following secondary sources:

- Aerial Photography; and
- Land Information Ontario - Natural Resource and Values Information System; including:
 - Bedrock Geology of Ontario, Southern Sheet (Ontario Geological Survey, 1991); and
 - Physiography of Southern Ontario (Chapman and Putnam, 1984).
- City of Barrie Official Plan; and
- Natural Heritage Information Centre; including:
 - MNRF Natural Heritage Information Centre (NHIC) database (MNRF, 2019);
 - MNRF Make a Map: Natural Heritage Areas (MNRF, 2019a);
 - Natural Heritage Reference Manual (MNRF, 2010);
 - MNRF Significant Wildlife Habitat Technical Guide (MNRF, 2000); and
 - Significant Wildlife Habitat Ecoregion 6E Criteria Schedules (MNRF, 2015).
- Wildlife Atlases, including:
 - Ontario Breeding Bird Atlas (Cadman et al., 2007);
 - Ontario Butterfly Atlas (Toronto Entomologists Association, 2019);
 - Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019); and
 - Mammals of the Western Hemisphere (NatureServe, 2007).
- Citizen Science Databases, including:
 - e-Bird; and
 - i-Naturalist.
- Watershed and Natural Heritage Reports (e.g., Conservation Authority Watershed Reports).

- ☒ The description must include the zoning and all designations of all Official Plan(s) on the Subject Property. This includes any land use designations from other municipal planning documents, such as Secondary Plans. Current provincial legislation, regulations, plans and associated policies that apply to the Subject Property and adjacent lands will be considered.
- ☒ Land use designations from any other applicable planning documents (i.e., Greenbelt Plan, Oak Ridges Moraine Conservation Plan, etc.) must be clearly described and the limits identified in the mapping.
- ☒ The EIS 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 LSRCA and the planning authority.
- ☒ All designated environmental features (i.e., Natural Heritage System 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.

Field Surveys

- ☒ If applicable, natural hazards (hazard lands, floodplains, flood and erosion hazards of streams and valleylands, etc.) will be identified and addressed. The location of any LSRCA Regulated Areas will be identified and discussed in the report.

Vegetation

- ☒ A survey of vegetation community types should be undertaken during the main growing season (late May to July). The vegetation communities must be identified using the Ecological Land Classification (ELC) (Lee et. Al., 1998) 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 (single season inventory). 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.

Note: ELC and flora data will be collected in late August of 2022 for use in the Preliminary EIS Report. ELC data will then be reviewed in the spring and summer of 2023 during flora investigations, and will be further detailed in the Revised EIS Report, if applicable.

- ☒ Botanical surveys are required to identify rare or uncommon species. The list must include an analysis for the presence of federal and provincial threatened or endangered species.

Note: Flora data will be collected in August of 2022 for use in the Preliminary EIS Report. Species at Risk trees such as Butternut (*Juglans cinerea*) will be searched for during this survey. Flora data will then be collected in spring and summer of 2023, and will be detailed in

the Revised EIS Report. Special consideration will be taken to identify woodland ephemerals, as woodland removal is proposed.

- ☒ A tree inventory and subsequent Arborist Report/Tree Protection Plan is required to support a Site Application for the Subject Property. It is important to note that the inventory/plan is to be completed by a recognized tree management professional (i.e. certified arborist, registered professional forester or landscape architect).

Wildlife

- ☒ The EIS requires a breeding bird survey. The survey will be conducted during the breeding bird season between dawn and 5 hours after sunrise, and will be conducted by a qualified professional. A minimum of two surveys are required, and they will follow generally accepted scientific protocols (i.e. the 2001 Ontario Breeding Bird Survey Guide for Participants). The two surveys will be scheduled to occur between the prescribed May 24-June 15 (1st survey) and June 15-July 10 (2nd survey) timing windows and will be spaced a minimum of 10 days apart. Surveys will follow the weather and timing requirements as outlined in the reference document. A list of the breeding birds will be included in the report. The list is to include an analysis for the presence of federally, provincially, or locally rare, threatened or endangered species.

Note: Incidental observations and secondary source information (such as eBird and other citizen science resources) will be utilized to characterize the avian community in the Preliminary EIS. Breeding bird data will then be collected in the breeding season in 2023, and will be detailed in the Revised EIS Report. If habitat on the site is deemed suitable for grassland birds, a third breeding bird survey will be conducted.

- ☒ The EIS 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. The three surveys will occur between April and July 5; surveys will each occur when nighttime temperatures are a minimum of 5°C, 10°C and 17°C, respectively. 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 LSRCA.

Note: Incidental observations and secondary source information (such as Ontario Nature and other citizen science resources) will be utilized to characterize the amphibian community in the Preliminary EIS. Breeding amphibian data will then be collected in the breeding season in 2023, and will be detailed in the Revised EIS Report.

- ☐ The EIS requires a survey for Lepidoptera and Odonata (butterflies and moths, dragonflies and damselflies). The survey will be conducted in accordance with protocols of the Ontario Butterfly Atlas. The survey will be conducted during the active season (late May-early October). A list of the observed Lepidoptera and Odonata species will be included in the report. The list is to include an analysis for the presence of federal, provincial, threatened or endangered species.

Note: Lepidoptera & Odonata surveys are not proposed as no suitable habitat for endangered or threatened species were identified in background review.

- ☐ Reptile (turtles and snakes) visual encounter or “basking” surveys are required. Turtle surveys should be conducted during the turtle active season (i.e. ice-off to late October) and in accordance with the *Survey Protocol for Blanding’s Turtle in Ontario* (MNRF, 2015). Snake surveys should be conducted throughout the active season (May- July), following the *Survey Protocol for Ontario’s Species at Risk Snakes* (MNRF, 2016).

Note: Reptile surveys are not proposed as no suitable habitat was identified in background review; the wetland on the property was not observed to support turtle life processes. Incidental observations to assist in wetland characterization will be completed through alternative surveys (breeding birds, vegetation etc.).

Aquatics

- ☐ A fisheries habitat assessment shall be provided due to the presence of suitable fish habitat. Existing data regarding fish species shall be obtained from the LSRCA 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 Subject Property.

Note: Since the submission of the first draft TOR in August of 2022, it has been brought to Dillon’s attention that further information provided by the City to First Gulf has identified the feature running along the southern boundary of the Subject Property as a stormwater easement. As such, the intention of this feature is not to provide habitat for fish and therefore, we have removed the fisheries habitat assessment from our 2023 field program.

- ☐ 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 has been excluded from the work plan. Fish sampling may be included if deemed necessary by the agencies.

- ☒ 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.

Constraints Map

- ☒ Mapping (at a minimum) shall consist of the following:
 1. Maps must have titles, figure numbers, north arrows, legends and scales or scale bars;
 2. A site location map that provides the regional or watershed context of the Property;
 3. The extent of natural heritage features identified will be clearly demarcated on an air photo base, if applicable;
 4. The locations of watercourses and waterbodies and an indication of their flow;
 5. Vegetation communities will be delineated and identified using ELC;
 6. The location of rare, threatened or endangered species and/or populations will be identified, if appropriate;
 7. The location of important wildlife features (i.e., hibernacula, den, stick nest, etc.) will be identified;
 8. Established minimum buffer requirements and regulated areas (e.g. floodplains, wetlands); and
 9. Locations of all survey stations are to be included.
- ☒ The EIS will include a discussion of the limit of development map and identify whether there are differing levels of constraint.
- ☒ The EIS will include a constraints analysis that identifies the minimum buffer sizes required by the applicable policies and regulations and provide an assessment of whether further buffering is needed beyond the minimum requirements.

Assessment of Features and Functions

- ☒ A functional assessment of the property 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 property 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.
- ☒ The biophysical analysis will address current policy, technical documents and legislation including, but not limited to, the Greenbelt Plan (2017), PPS (2020), Natural Heritage Reference Manual (2010), Significant Wildlife Habitat Technical Guide (2000), Significant Wildlife Habitat Ecoregion 6E Criteria Schedules (2015), etc.
- ☒ A Species at Risk (SAR) screening will be included in the EIS. The SAR screening is to include the information from the MNRF NHIC database, a review of any SAR municipal lists, databases

such as e-Bird and i-Naturalist, and discussions with the Ministry of Environment, Conservation and Parks (MECP). Any correspondence from MECP is to be included in the EIS.

- ☒ A Significant Wildlife Habitat screening will be conducted for the Property using the MNRF 2015 SWH Criteria Schedules for EcoRegion 6E. Candidate SWH will be ruled out or confirmed based on the results from applicable field surveys. The SWH screening will be included in the EIS.
- ☒ A functional assessment of the Subject Property describing the ecology of the natural heritage features and functions (including components of the NHS, Core Areas, and/or functional linkages between features) within and adjacent to the Subject Property shall 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.
- ☒ A catchment-based / feature-based water balance is required to confirm that the proposed development does not negatively alter the drainage patterns and moisture regimes of woodlands, wetlands and watercourse on and adjacent to the site.
- ☒ Removal of wetland or woodland features, if proposed, will be subject to the LSRCA's Ecological Offsetting Policy (2021). To be eligible, the EIS must demonstrate how the proposed development addresses the offsetting prerequisites, including but not limited to, conformity with applicable natural heritage policies, implementation of the mitigation hierarchy, and preparation of a detailed ecological offsetting strategy. Additionally, edge management / landscape / restoration / planting plans may also be required.

Species at Risk

Should SAR or their habitat be identified during the EIS process and confirmed in the field the MECP will be notified and we will address SAR requirements, as outlined in the *Endangered Species Act, 2007*, under separate cover with the MECP. The City and/or LRSCA will be informed of MECP approvals that may be required.

Ecological Impact Study

Description of the Proposed Development

- ☒ The EIS will include a preliminary development plan showing the type(s) and location(s) of the proposed development overlain on a recent aerial photo. The site plan will clearly show setbacks and/or buffers, including distances from the proposed development to environmental features designated for protection, where applicable.

- ☒ The EIS will describe other relevant issues (i.e., servicing, stormwater management, municipal drainage, open space dedication, hazards, etc.) from an ecological perspective, pending receipt of relevant reports from other disciplines, should they have the potential to impact the identified natural heritage features. These can be highlighted within the proposed development description or, where applicable, under the potential impacts and mitigation sections.

Impact Assessment

- ☒ The potential direct, indirect and cumulative impacts to the features and functions of natural areas will be identified and discussed.
- ☒ An assessment of the potential impact on wildlife at a local, watershed and provincial (if applicable) level will be provided.
- ☒ In the case of significant natural features (as confirmed through field studies), the EIS will 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 EIS will determine appropriate buffers from significant natural features.
- ☒ If applicable, where natural features or natural vegetation communities are proposed for removal, the quantity of removal must also be included.
- ☒ An assessment of the potential impact on the Natural Heritage System, including any linkage areas that have been identified will also be included, if applicable.

Recommendations and Mitigation Measures

- ☒ Avoidance of Natural Heritage System features 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 identified natural areas.
- ☒ In cases where a linkage area has been identified on the Property, the EIS will demonstrate how it will be integrated into the proposed development plan.
- ☒ The EIS should provide a detailed outline of mitigation measures intended to eliminate or reduce potential construction-related impacts to areas designated for protection. 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.
- ☒ Mitigation for negative impacts on the natural features or their ecological functions (or to achieve no net negative impact) may include, at the discretion of the planning authority in conjunction with the LSRCA, approaches to replace lost areas or functions. If acceptable,

replacement must, to the extent possible, occur within the same subwatershed as the proposed development or site alteration. The appropriate amount of replacement will be determined through consultation with the City and/or LSRCA and will be agreed to by all parties in writing.

- ☒ If applicable, the EIS will include opportunities for restoration or enhancement of natural heritage or hydrologic features or their functions.

Monitoring

- ☒ If monitoring is required, the details of a monitoring program is generally agreed to in writing by the City and/or LSRCA, and other necessary parties.

Conclusion

- ☒ The EIS will summarize the key findings of the report including the biophysical inventory and analysis, assessment of potential impacts, impact avoidance measures, mitigation measures and opportunities for environmental enhancement.
- ☒ The EIS will include recommendations respecting whether the proposal should proceed as planned; or whether the proposal should proceed subject to conditions (if applicable).

In addition, the EIS will consider the following:

- ☒ Conformity with the policies and requirements of the City OP;
- ☒ Conformity with the policies and requirements of other applicable planning documents (i.e. Greenbelt Plan etc.); and
- ☒ Conformity with the requirements of the LSRCA.

Information Request

At this time, we kindly request any of the following background information, if applicable/available:

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

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

Please let us know if you have any questions.

Yours sincerely,

DILLON CONSULTING LIMITED

A handwritten signature in black ink, appearing to read 'Anna Cunningham', with a small circular stamp to the right.

Anna Cunningham, B.Sc.
Project Manager

Attachment A

Figure



FILE LOCATION: G:\cad\GIS\MN8926-005-002\Product\Client\DueDiligence\F1_DesignatedNaturalHeritageFeatures.mxd

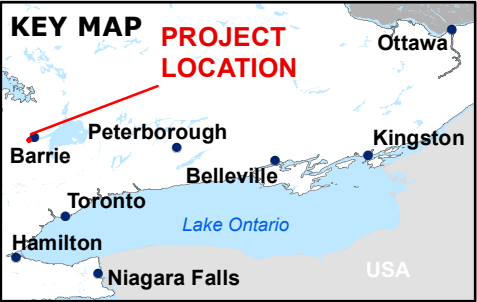
**545 DUNLOP ST. W., BARRIE
DUE DILLIGENCE**

FIRST GULF

**DESIGNATED NATURAL HERITAGE
FEATURES**

FIGURE 1

- Subject Property
- Conservation Regulated Area (LSRCA; Approximate)
- Watercourse (MNRF)
- Wetland (MNRF)
- Woodlands (MNRF)



SCALE 1:2,500



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, LAKE SIMCOE REGION CONSERVATION AUTHORITY,
CITY OF BARRIE, DILLON CONSULTING

MAP CREATED BY: DDR
MAP CHECKED BY: AC
MAP PROJECTION: NAD 1983 CSRS UTM Zone 18N



PROJECT: MN-8926-005-002
STATUS: DRAFT
DATE: 2022-04-06

Attachment B

TOR Correspondence



Cunningham, Anna <acunningham@dillon.ca>

Environmental Impact Study Terms of Reference for 545 Dunlop Street West, City of Barrie

Celeste Kitsemetry <Celeste.Kitsemetry@barrie.ca>

Wed, Sep 7, 2022 at 3:21 PM

To: "Cunningham, Anna" <acunningham@dillon.ca>, "d.ruggle@lsrca.on.ca" <d.ruggle@lsrca.on.ca>, Emma Dias <e.dias@lsrca.on.ca>

Cc: Peter Henley <PHenley@firstgulf.com>, Alicia Persaud <apersaud@firstgulf.com>

Apologies for the delay in this response.

Please note that City of Barrie staff are satisfied with the proposed Terms of Reference for the captioned project.

Regards,

Celeste

Celeste Kitsemetry, RPP

Senior Planner

City of Barrie

Central Ontario's Premier Waterfront Community

Development Services

70 Collier Street, P.O. Box 400

Barrie ON L4M 4T5

Tel: 705-739-4220 ext. 4430

Fax: 705-739-4270

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From: Cunningham, Anna <acunningham@dillon.ca>

Sent: Thursday, August 18, 2022 1:02 PM

To: d.ruggle@lsrca.on.ca; Emma Dias <e.dias@lsrca.on.ca>; Celeste Kitsemetry <Celeste.Kitsemetry@barrie.ca>

Cc: Peter Henley <PHenley@firstgulf.com>; Alicia Persaud <apersaud@firstgulf.com>

Subject: Environmental Impact Study Terms of Reference for 545 Dunlop Street West, City of Barrie

Hello,

Please find attached the Environmental Impact Study Terms of Reference for [545 Dunlop Street West, City of Barrie](#).

We look forward to receiving any comments or questions you may have.

Warm regards,

Anna

Anna Cunningham
Dillon Consulting Limited
111 Farquhar Street, Suite 301
Guelph, Ontario, N1H 3N4
T - 519.571.9833 ext. 3160
F - 519.571.7424
M - 905.767.1720
acunningham@dillon.ca
www.dillon.ca

Upcoming Vacation: September 9, 12 & 27, 2022

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 **545 Dunlop TOR_2022-08-18.pdf**
2034K



Cunningham, Anna <acunningham@dillon.ca>

Environmental Impact Study Terms of Reference for 545 Dunlop Street West, City of Barrie

Erin Fitzpatrick <E.Fitzpatrick@lsrca.on.ca>

Fri, Sep 9, 2022 at 3:20 PM

To: "acunningham@dillon.ca" <acunningham@dillon.ca>

Cc: Emma Dias <E.Dias@lsrca.on.ca>, Liam Munnoch <L.Munnoch@lsrca.on.ca>

Hello Anna,

Thank you for your patience while I reviewed the proposed Terms of Reference for [545 Dunlop Street West, Barrie](#). For ease of reference on my end, I have also completed our EIS Terms of Reference Checklist (attached) based on the work plan outlined in your TOR, as well as any additional requirements I feel are relevant to the subject site. Your proposed TOR is generally acceptable, though I would add some additional points of clarification as follows:

- If habitat on the site is suitable for grassland birds, please include a third breeding bird survey.
- The TOR indicates that a three-season vegetation assessment will be completed. Please ensure that the spring survey is appropriate for identification of woodland ephemerals, particularly, as woodland removals may be proposed as part of the site plan.
- A catchment-based / feature-based water balance is required to confirm that the proposed development does not negatively alter the drainage patterns and moisture regimes of woodlands, wetlands and watercourse on and adjacent to the site. This is likely incorporated in your EIS section of the TOR (second bullet under Description of Proposed Development), but I wanted to highlight this requirement on our end.
- Removal of wetland or woodland features, if proposed, will be subject to the LSRCA's Ecological Offsetting Policy (2021). To be eligible, the EIS must demonstrate how the proposed development addresses the offsetting prerequisites, including but not limited to, conformity with applicable natural heritage policies, implementation of the mitigation hierarchy, and preparation of a detailed ecological offsetting strategy.
- Edge management / landscape / restoration / planting plans may also be required

When preparing your report, please ensure you refer to the LSRCA Checklist to ensure completeness.

Please note that we find it difficult to provide meaningful comments on a preliminary EIS where seasonal surveys have not been completed. We feel that this information is critical to determining the ecological functions and related significance of natural heritage features. As a result, we are generally not able to confirm development limits until the full EIS, with seasonal data and related assessments, has been reviewed. This is particularly important where removal of any features is proposed.

All of our information is publicly available at the following link:

[LSRCA Geo Discovery](#) or <https://data.lsrca.on.ca/navigo/show?id=30fb4f7d1b0a025b&disp=default>

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

Kind Regards,

Erin

Erin Fitzpatrick, M.Sc.

Natural Heritage Ecologist

Lake Simcoe Region Conservation Authority

120 Bayview Parkway,

Newmarket, Ontario L3Y 3W3

905-895-1281 ext. 286 | 1-800-465-0437 | Mobile: 289-716-5840

e.fitzpatrick@LSRCA.on.ca | www.LSRCA.on.ca

Twitter: @LSRCA

Facebook: LakeSimcoeConservation

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From: Emma Dias <E.Dias@lsrca.on.ca>

Sent: August 22, 2022 1:12 PM

To: Erin Fitzpatrick <E.Fitzpatrick@lsrca.on.ca>

Subject: FW: Environmental Impact Study Terms of Reference for [545 Dunlop Street West, City of Barrie](#)

Hi Erin!

Hope you had a nice weekend. Liam and I were out on site with Anna and Peter today. She mentioned the proposal will be have preliminary EIS work with the bulk of it coming in after the spring of 2023. I am wondering if you can review this ToR and get back to Anna with any comments/questions you may have?

Thanks!

Emma Dias

Junior Planning and Natural Heritage Analyst

Lake Simcoe Region Conservation Authority

120 Bayview Parkway, Newmarket, Ontario L3Y 3W3

905-895-1281, ext. 247 | 1-800-465-0437 | Mobile: 289-231-0365

e.dias@LSRCA.on.ca | www.LSRCA.on.ca

Twitter: @LSRCA

Facebook: LakeSimcoeConservation

From: Cunningham, Anna <acunningham@dillon.ca>

Sent: August 18, 2022 1:02 PM

To: Dave Ruggle <D.Ruggle@lsrca.on.ca>; Emma Dias <E.Dias@lsrca.on.ca>; Celeste Kitsemetry <celeste.kitsemetry@barrie.ca>

Cc: Peter Henley <PHenley@firstgulf.com>; Alicia Persaud <apersaud@firstgulf.com>

Subject: Environmental Impact Study Terms of Reference for 545 Dunlop Street West, City of Barrie

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Hello,

Please find attached the Environmental Impact Study Terms of Reference for 545 Dunlop Street West, City of Barrie.

We look forward to receiving any comments or questions you may have.

Warm regards,

Anna

Anna Cunningham
Dillon Consulting Limited
111 Farquhar Street, Suite 301
Guelph, Ontario, N1H 3N4
T - 519.571.9833 ext. 3160
F - 519.571.7424
M - 905.767.1720
acunningham@dillon.ca
www.dillon.ca

Upcoming Vacation: September 9, 12 & 27, 2022

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[Quoted text hidden]

2 attachments



545 Dunlop TOR_2022-08-18.pdf

9/19/22, 12:42 PM

Dillon Consulting Limited Mail - Environmental Impact Study Terms of Reference for 545 Dunlop Street West, City of Barrie

2034K



LSRCA EIS TOR checklist_545 Dunlop St W_9Sept2022.pdf

844K

1. General Information:

Date: September 9, 2022

Address: 545 Dunlop Street West, Barrie

Name of consulting firm: Dillon Consulting

Contact information: Anna Cunningham (acunningham@dillon.ca)

2. Identify all potential natural heritage and hydrologic features in the study area (check all that apply):

**The LSRCA recognizes that this is a preliminary assessment to determine what studies may be suitable for the property. A site visit may be required to verify the presence/absence of features.*

- | | |
|---|--|
| ☒ Wetland | ☒ Drainage feature/watercourse |
| ☒ Woodland | ☐ Kettle lake |
| ☐ Valleyland | ☐ Seepage area or spring |
| ☒ Grassland or meadow | ☐ Lake or pond (and their littoral zone) |
| ☒ Wildlife habitat | ☐ Lake Simcoe shoreline |
| ☐ Area of natural and scientific interest (ANSI) | ☐ Natural areas abutting Lake Simcoe |
| ☐ Sand barren, savannah or tallgrass prairie | ☒ Habitat of endangered and threatened species |
| ☐ Alvar | ☒ Fish habitat |

3. Activities to be undertaken and studies required for a complete NHE/EIS submission**:

*** Some activities/studies are pre-selected (☒) as they are a minimum requirement for NHE/EIS submissions.*

- ☒ Consult with the appropriate Municipal and Conservation Authority staff, as required, to establish the required scope of study.
- ☒ Identify an appropriate study area - generally the area of anticipated disturbance plus 120 m.
- ☒ Collect and include applicable background information and current environmental mapping for natural heritage and hydrologic features, and the natural heritage system within and surrounding the study area.
- ☒ Identify and provide detailed descriptions of natural heritage and hydrologic features in the study area, their function, and the broader natural heritage system that they are within. Determine the significance of these natural heritage and hydrologic features under applicable policy.
- ☒ Evaluate existing vegetation communities using Ecological Land Classification (ELC) for Southern Ontario (Lee et al. 1998. Ecological Land Classification for Southern Ontario: first approximation and its applications. SCSS Field Guide FG-02). Provide a description of ELC communities in the study area and include completed ELC field sheets as an appendix.
- ☒ Conduct a three -season vegetation inventory in the **late spring/summer/fall**. Include the inventory categorized by ELC community as an appendix and denote any Species at Risk and/or provincially/locally rare species.
- ☐ Conduct three (3) breeding amphibian surveys as per the Marsh Monitoring Program protocol (Bird Studies Canada). Observational salamander surveys may be required if potential habitat exists in the study area. Include completed field sheets as an appendix.

- Conduct two (2) dawn breeding bird surveys between May 24 and July 15, under appropriate conditions, with a minimum of 10 days between surveys, and record all occurrences and breeding behaviors. Point counts, wandering transects or a combination of the two must be used according to features present and site conditions. Include completed field sheets as an appendix. A third survey will be required if suitable grassland bird habitat is present.
- ☒ Record observations of all wildlife occurrences and behaviours and assess wildlife habitat function.
- ☒ Screen for Species at Risk (SAR), listed under the *Endangered Species Act, 2007*, based on existing or potential habitat. Additional species-specific surveys may be required if SAR habitat is present (e.g. butternut health assessments, snag surveys, bat acoustic monitoring surveys, evening whip-poor-will surveys, etc.), please contact the Ministry of Environment, Conservation and Parks (MECP) for further direction. Include any relevant correspondence with the MECP as an appendix
- ☒ Assess for Significant Wildlife Habitat (e.g. turtle nesting or wintering area, reptile hibernaculum, woodland raptor nesting habitat, seeps, springs, etc.) as per the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNR, January 2015).
- ☒ Identify any ecological linkages or movement corridors within the study area. Demonstrate how connectivity within and between natural heritage and hydrologic features will be maintained and, where possible, improved or restored to allow for the effective dispersal and movement of plants and animals.
- ☒ Provide a general description of the methodology, dates, timing, and locations of completed field surveys.
- Confirm the boundaries of any wetland and/or woodland features on the property through a staking exercise with the LSRCA. Boundary points must be surveyed with a high-accuracy GPS device (accurate to within 10 cm). A professional Ontario Land Surveyor (OLS) may be required to attend. Wetland staking exercises must be completed between June 15 and September 30 (exceptions may apply). Note that a site visit fee may apply. Wetland, woodland and top of bank stakings were completed in 2022 with LSRCA staff
- Complete an aquatic habitat assessment for all drainage features/watercourses in the study area, including characterization of hydrologic features (i.e. permanent, intermittent, ephemeral, headwater drainage feature) and suitability as fish habitat. Include a description of instream and riparian cover, bank stability, substrate composition, stream morphology, dimensions and gradient, thermal regime indicators, potential barriers, woody debris distribution, aquatic vegetation, groundwater seepage areas, etc.
- Complete a catchment-based water balance for the study area to assess how existing drainage conditions and moisture regimes that support sensitive hydrologic features (e.g. wetland, woodlands, watercourse) may be impacted by the proposed development. Demonstrate how current hydrologic inputs will be maintained post-development. Please note, the water balance assessment may also be a requirement under other provincial policies, therefore the NHE/EIS should coordinate with/summarize the water balance work undertaken by others.
- Recommend the dimensions of an appropriate vegetation protection zone (VPZ)/buffer to natural heritage and hydrologic features required to mitigate impacts from the proposed development. Recommendations for restoration/plantings should be provided for all buffers.
- ☒ Provide a detailed description of the proposed development.

- ☒ Map the following information separately on current high quality ortho-air photos:
 - 1) ELC vegetation communities, natural heritage and hydrologic features and their associated VPZs, and the proposed development and anticipated limit of disturbance (e.g. grading limits); and,
 - 2) ELC vegetation communities, survey locations, other environmental features (e.g. linkages, wildlife corridors, seeps, springs, stick nests, wildlife habitat, rare species, invasive species, etc.), and existing structures and/or trails.
- ☒ Assess the potential direct, indirect, and cumulative impacts of the proposed development on natural heritage and hydrologic features, the natural heritage system, and related ecological and hydrologic functions.
- ☒ Develop and provide an appropriate avoidance/mitigation/restoration strategy to address the potential impacts of the proposed development.
- ☒ Demonstrate how the proposed development is in conformity with all federal, provincial, regional, and municipal natural heritage policies applicable in the Lake Simcoe watershed.
- ☒ Complete one final report for circulation and approval, prepared by qualified professionals, in an electronic format as well as one (1) hard copy.

4. Additional studies or plans that may be required include:

- ☒ Landscape/Restoration/Planting Plan
- ☒ Edge Management Plan
- ☐ Tree Inventory/Arborist Report/Tree Preservation Plan
- ☐ Trails Impact Study
- ☒ Ecological Offsetting Strategy (please refer to [LSRCA's Ecological Offsetting Policy](#))
- ☐ Environmental Monitoring Plan/Report
- ☐ Fluvial Geomorphological Assessment
- ☐ Natural Channel Design

5. Additional notes and/or requirements:

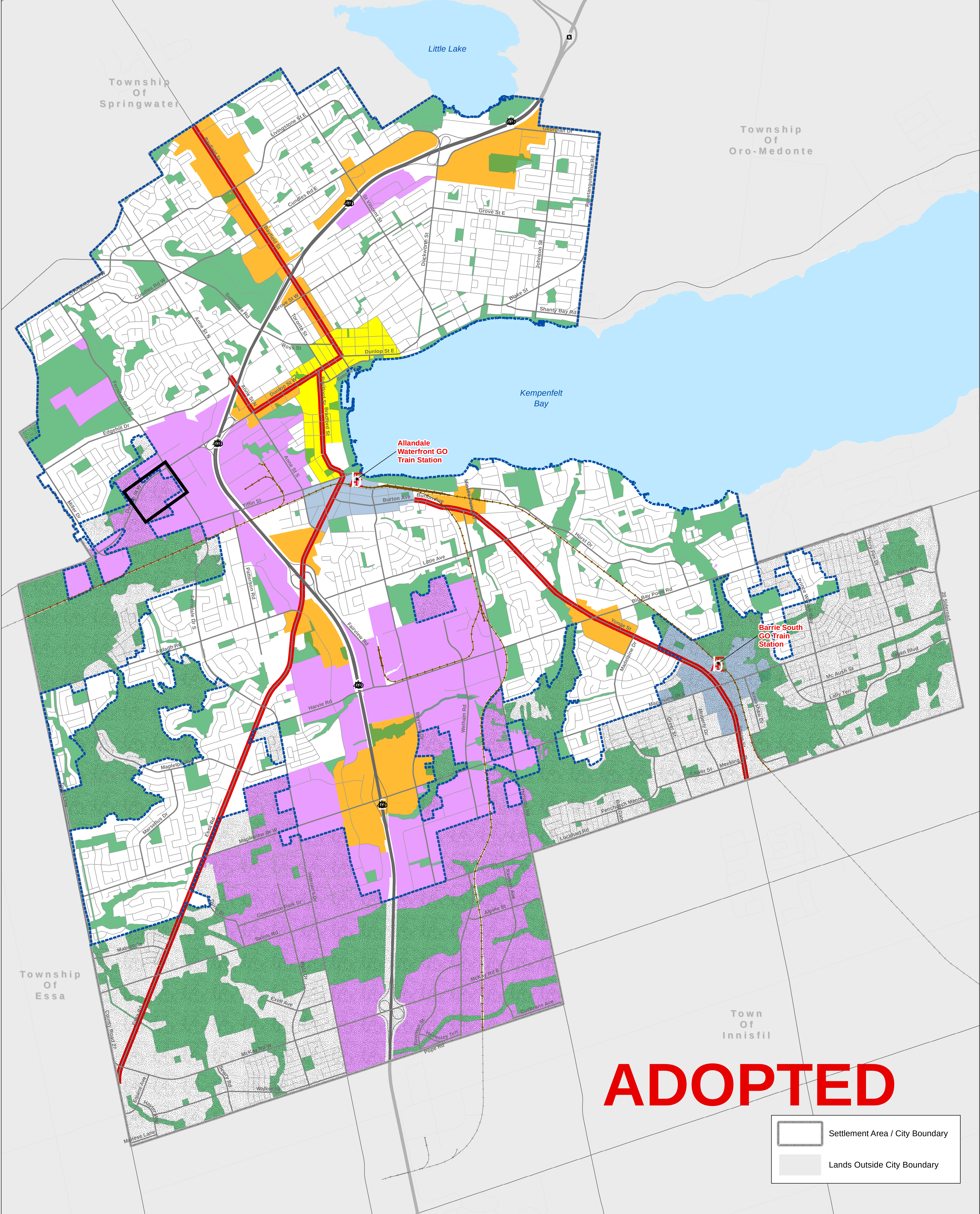
Completed by Erin Fitzpatrick, LSRCA Natural Heritage Ecologist on September 9, 2022. This expands upon the TOR submitted by Dillon Consulting, dated August 18, 2022.

Please note that changes to the study area, the proposed development, and/or policy changes may require additional information/studies.

Please provide current field survey data in the NHE/EIS submission. Field survey data will be considered valid for five (5) years from the date the survey was conducted, except for Species at Risk screenings, which are valid for one (1) year. If outdated field data is provided, additional surveys may be required.

Appendix B

Policy Schedules



ADOPTED

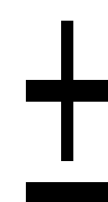
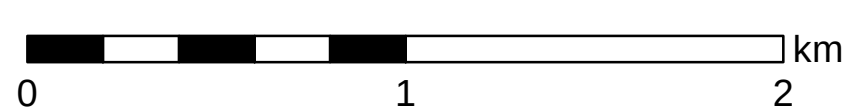
	Settlement Area / City Boundary
	Lands Outside City Boundary



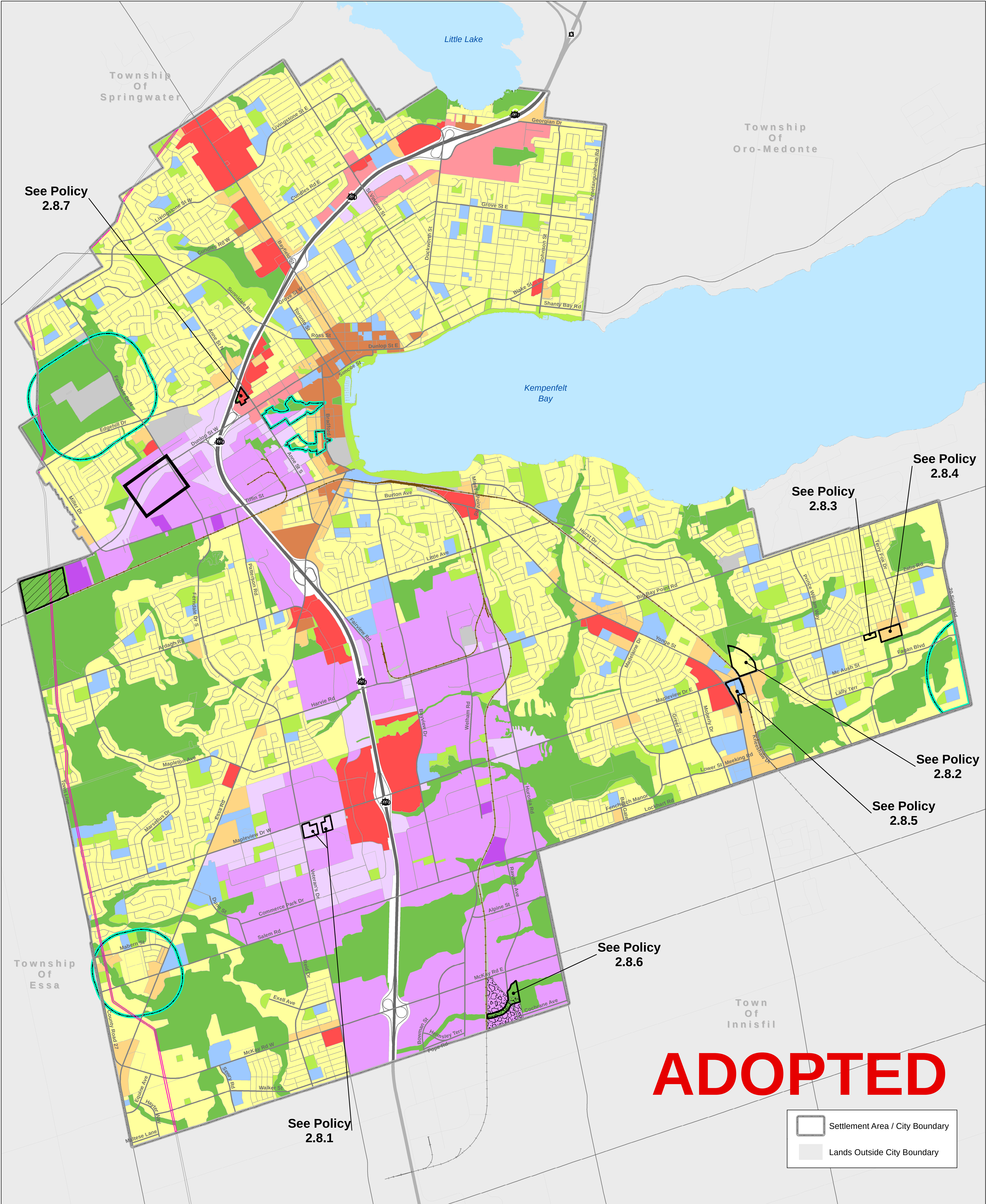
OFFICIAL PLAN
MAP 1
Community Structure
February 2022

	Major Transit Station		Major Transit Station Area (MTSA)		Natural Heritage System and Greenspace
	Intensification Corridor		Strategic Growth Area		Built-up
	Proposed Urban Growth Centre (UGC)		Employment		Designated Greenfield Area (DGA)

* The built-up area was released on April 2, 2008 and corresponds to any area within the settlement area boundary that is not designated greenfield area.
** Certain features like roads, parks and trails within the undeveloped designated greenfield area are conceptual and subject to change.



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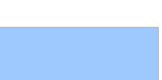


OFFICIAL PLAN

MAP 2

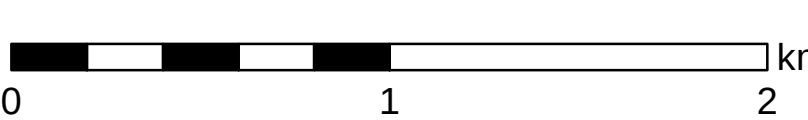
Land Use Designations

February 2022

 Neighbourhood Area	 Employment Area - Non Industrial	 Waste Disposal Assessment Area
 Medium Density	 Employment Area - Industrial	 Extractive Industrial
 High Density	 Employment Area - Restrictive Industrial	 Defined Policy Area
 Strategic Employment and Economic District (SEED)	 Natural Heritage System	 Application Before the Local Planning Appeal Tribunal (LPAT)
 Commercial District	 Greenspace	 TransCanada Pipeline Right-of-way
 Community Hub	 Infrastructure and Utility	 Approximate Study Area location

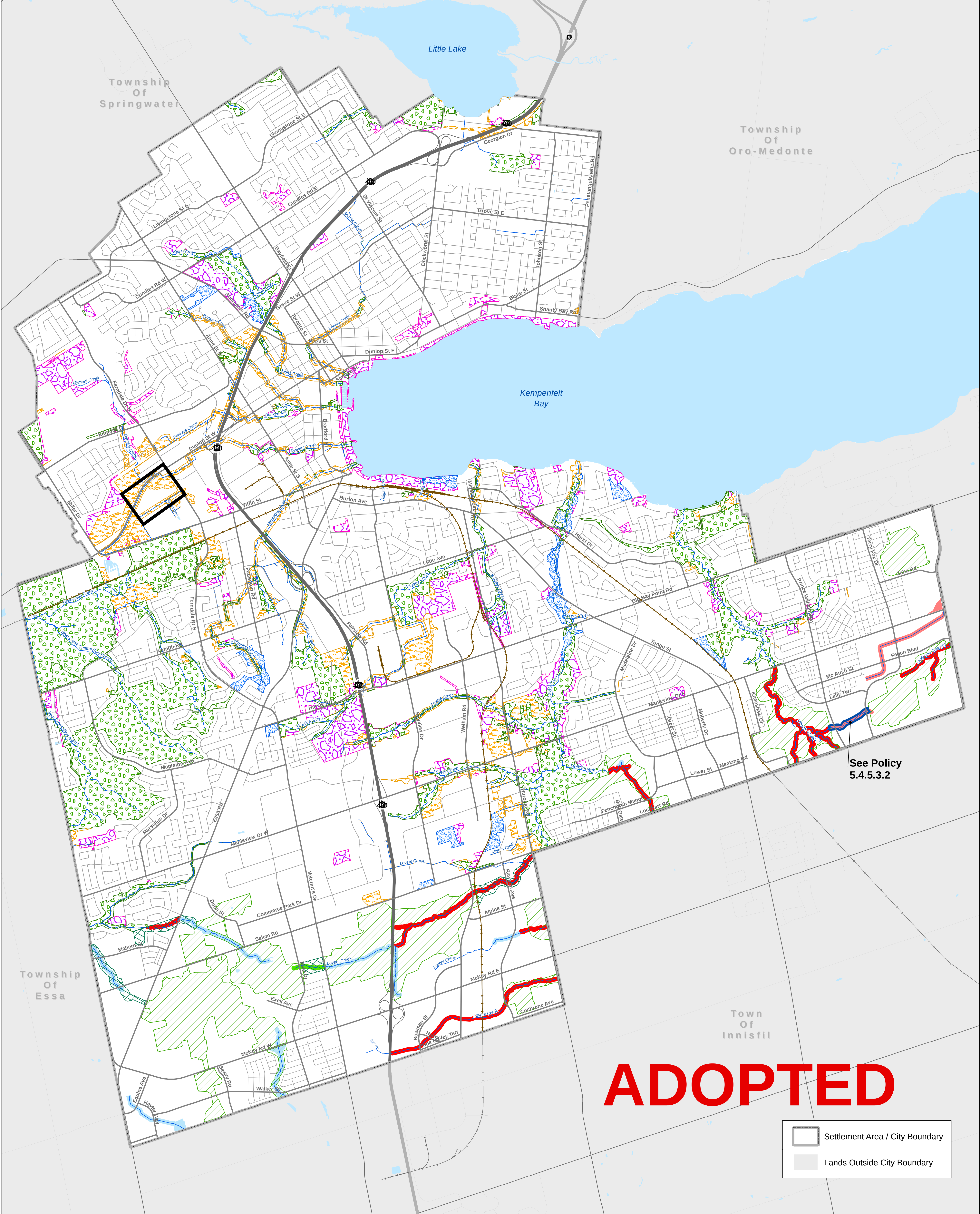
*** All land use designations extend to the centre line of the right-of-way for streets. Land use designations, where applicable, extend to/terminate at the boundary of the right-of-way for provincial highways, rail corridors and utility corridors.**

**** Certain features like roads, parks and trails within the undeveloped designated greenfield area are conceptual and subject to change.**



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Development Services 3/2/2022



See Policy
5.4.5.3.2

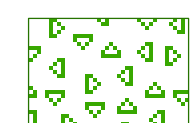
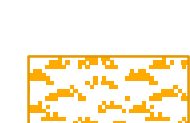
ADOPTED

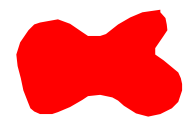
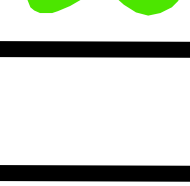
-  Settlement Area / City Boundary
-  Lands Outside City Boundary

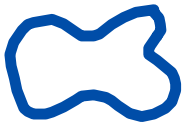
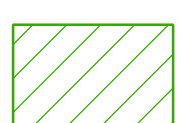
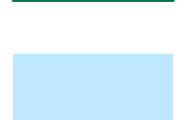


OFFICIAL PLAN
MAP 3
Natural Heritage
Protection Overlays
February 2022

Environmental Protection Area Classification

-  EPA - Level 1
-  EPA - Level 1 with Existing Development Designation Subject to 5.4.2.1.d
-  EPA - Level 2
-  EPA - Level 3

-  High Constraint Stream Corridor Area
-  High (S) Constraint Stream Corridor Area - Special
-  Medium Constraint Stream Corridor Area
-  Low Constraint Stream Corridor Area
-  Approximate Study Area location

-  High (S) Constraint Stream Corridor - Special Policy Area
-  Natural Core Area
-  Natural Linkage Area
-  Waterbody
-  Watercourse

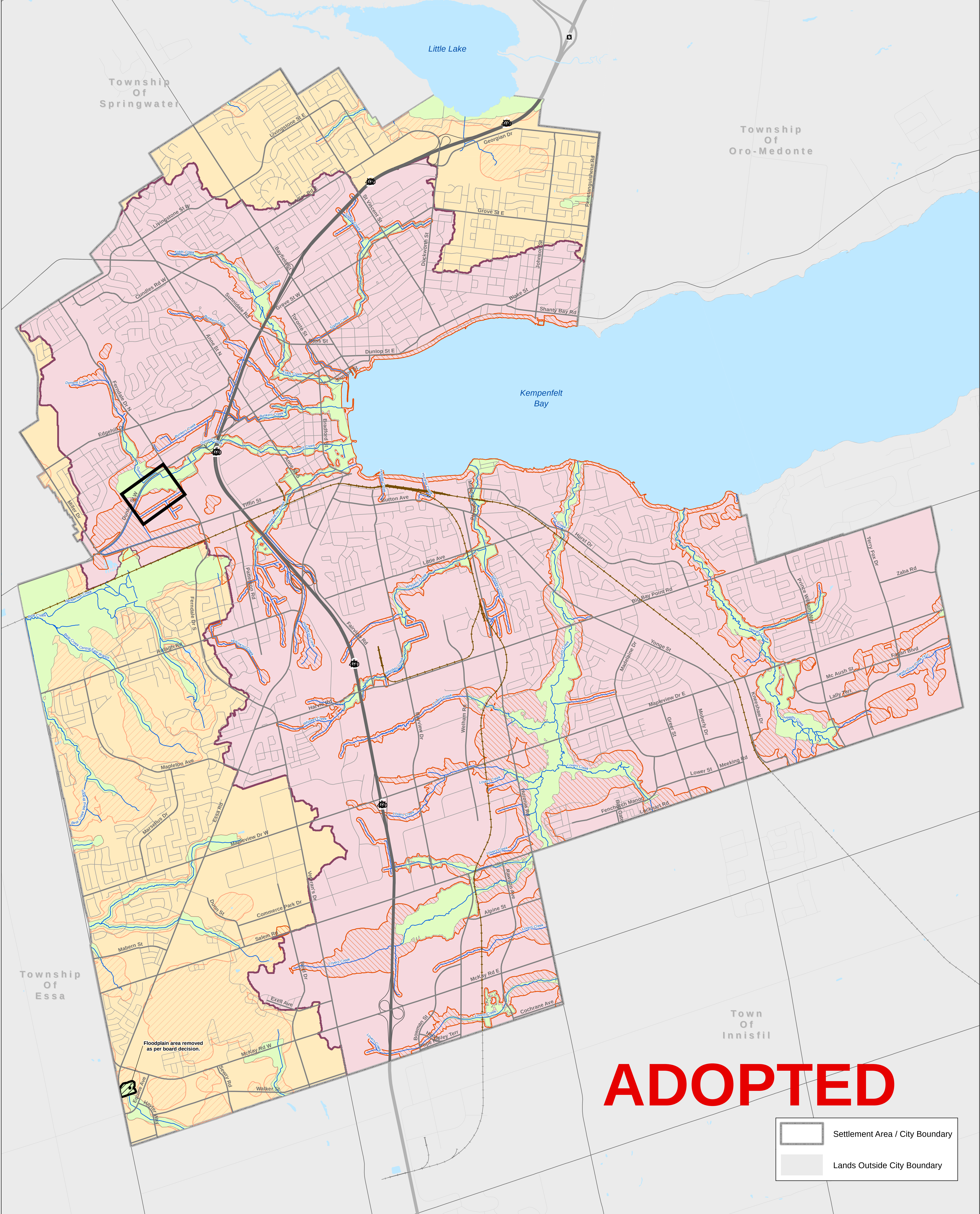
* Where natural heritage protection areas are shown, they are often interconnected and continue beyond the municipal boundary.
** Certain features like roads, parks and trails within the undeveloped designated greenfield area are conceptual and subject to change.

0 1 2 km



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Development Services 3/2/2022



OFFICIAL PLAN
APPENDIX 1
Conservation Authority
Areas
February 2022

Conservation Authority Boundary

- Lake Simcoe Region Conservation Authority (LSRCA)
- Nottawasaga Valley Conservation Authority (NVCA)

Regulated Areas

- LSRCA Regulation Limits
- NVCA Regulation Limits

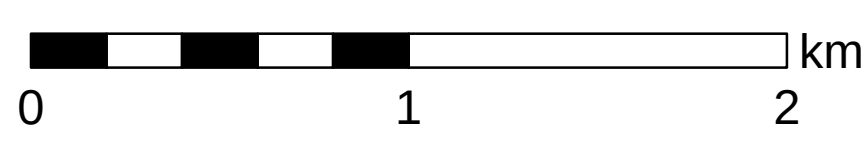
Approximate Study Area location

- Watercourse
- Waterbody

Regulatory Floodplain

- NVCA Floodplain
- LSRCA Floodplain

* As natural features are dynamic, what is shown on this map is approximate and needs to be confirmed with the appropriate conservation authority at the time of development. A study may be required.
** Certain features like roads, parks and trails within the undeveloped designated greenfield area are conceptual and subject to change.



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Appendix C

Site Photos August 26, 2022

Photo 1

August 26,
2022

FODM8-1
Fresh-Moist
Poplar
Deciduous
Forest



Photo 2

August 26,
2022

MAMM1
Graminoid
Mineral
Meadow
Marsh



Photo 3

August 26,
2022

MEM
Mixed
Meadow



Photo 4

August 26,
2022

SWDM3
Maple
Mineral
Deciduous
Swamp



Photo 5

August 26,
2022

WODM5-1
Fresh-Moist
Poplar
Woodland



Photo 6

August 26,
2022

TAGM5
Deciduous
Hedgerow



Appendix D

Botanical Species List

Table D-1: Botanical Species Inventory Results

Scientific Name	Common Name	SARA ¹	ESA ²	SRank ³	CC ⁴
<i>Abies balsamea</i>	Balsam Fir	---	---	S5	5
<i>Acer negundo</i>	Manitoba Maple	---	---	S5	0
<i>Acer saccharinum</i>	Silver Maple	---	---	S5	5
<i>Acer x freemanii</i>	Freeman's Maple	---	---	SNA	---
<i>Achillea nobilis</i>	Noble Yarrow	N/A	N/A	N/A	N/A
<i>Agalinis tenuifolia</i>	Slender Agalinis	---	---	S4S5	7
<i>Alisma gramineum</i>	Narrow-leaved Water-plantain	---	---	S4	6
<i>Alliaria petiolata</i>	Garlic Mustard	---	---	SNA	---
<i>Asclepias syriaca</i>	Common Milkweed	---	---	S5	0
<i>Asparagus officinalis</i>	Garden Asparagus	---	---	SNA	---
<i>Betula papyrifera</i>	Paper Birch	---	---	S5	2
<i>Bromus inermis</i>	Awnless Brome	---	---	SNA	---
<i>Campanula rotundifolia</i>	Harebell	---	---	S5	7
<i>Capsella bursa-pastoris</i>	Common Shepherd's Purse	---	---	SNA	---
<i>Centaurea maculosa</i>	Spotted Knapweed	---	---	SE5	---
<i>Cichorium intybus</i>	Chicory	---	---	SNA	---
<i>Cirsium arvense</i>	Canada Thistle	---	---	SNA	---
<i>Cirsium vulgare</i>	Bull Thistle	---	---	SNA	---
<i>Clematis virginiana</i>	Virginia Virgin's-bower	---	---	S5	3
<i>Cornus racemosa</i>	Gray Dogwood	---	---	S5	2
<i>Cornus sericea ssp sericea</i>	Red-osier Dogwood	---	---	S5	2
<i>Dactylis glomerata</i>	Orchard Grass	---	---	SNA	---
<i>Daucus carota</i>	Wild Carrot	---	---	SNA	---
<i>Echium vulgare</i>	Common Viper's-bugloss	---	---	SNA	---
<i>Elaeagnus angustifolia</i>	Russian Olive	---	---	SNA	---
<i>Equisetum arvense</i>	Field Horsetail	---	---	S5	0
<i>Equisetum variegatum</i>	Variegated Horsetail	---	---	S5	5
<i>Erigeron annuus</i>	Annual Fleabane	---	---	S5	0
<i>Eupatorium perfoliatum</i>	Common Boneset	---	---	S5	2
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	---	---	S5	2
<i>Eutrochium maculatum</i> var. <i>maculatum</i>	Spotted Joe Pye Weed	---	---	S5	3
<i>Fraxinus nigra</i>	Black Ash	---	END	S4	7
<i>Fraxinus pennsylvanica</i>	Green Ash	---	---	S4	3
<i>Gentianopsis crinita</i>	Fringed Gentian	---	---	S5	8
<i>Hypericum perforatum</i>	Common St. John's-wort	---	---	SNA	---
<i>Juncus</i> sp.	Rush sp.	N/A	N/A	N/A	N/A

Scientific Name	Common Name	SARA ¹	ESA ²	SRank ³	CC ⁴
<i>Juniperus virginiana</i>	Eastern Red Cedar	---	---	S5	4
<i>Larix laricina</i>	American Larch	---	---	S5	7
<i>Lonicera tatarica</i>	Tartarian Honeysuckle	---	---	SNA	---
<i>Lotus corniculatus</i>	Garden Bird's-foot Trefoil	---	---	SNA	---
<i>Lythrum salicaria</i>	Purple Loosestrife	---	---	SNA	---
<i>Melilotus albus</i>	White Sweet-clover	---	---	SNA	---
<i>Oenothera biennis</i>	Common Evening Primrose	---	---	S5	0
<i>Onoclea sensibilis</i>	Sensitive Fern	---	---	S5	4
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	---	---	S4?	6
<i>Phalaris arundinacea</i>	Reed Canary Grass	---	---	S5	0
<i>Phleum pratense</i>	Common Timothy	---	---	SNA	---
<i>Phragmites australis</i> ssp. <i>australis</i>	European Common Reed	---	---	SNA	---
<i>Picea glauca</i>	White Spruce	---	---	S5	6
<i>Pinus sylvestris</i>	Scotch Pine	---	---	SNA	---
<i>Poa pratensis</i> ssp. <i>pratensis</i>	Kentucky Bluegrass	---	---	S5	0
<i>Populus balsamifera</i>	Balsam Poplar	---	---	S5	4
<i>Populus grandidentata</i>	Large-tooth Aspen	---	---	S5	5
<i>Populus tremuloides</i>	Trembling Aspen	---	---	S5	2
<i>Potentilla recta</i>	Sulphur Cinquefoil	---	---	SNA	---
<i>Pteridium aquilinum</i>	Bracken Fern	---	---	S5	2
<i>Rhamnus cathartica</i>	Common Buckthorn	---	---	SNA	---
<i>Rhus hirta</i>	Staghorn Sumac	---	---	S5	1
<i>Robinia pseudoacacia</i>	Black Locust	---	---	SNA	---
<i>Rubus idaeus</i> ssp. <i>idaeus</i>	Common Red Raspberry	---	---	SNA	---
<i>Rudbeckia hirta</i> var. <i>pulcherrima</i>	Black-eyed Susan	---	---	S5	---
<i>Rumex crispus</i>	Curly Dock	---	---	SNA	---
<i>Salix alba</i>	White Willow	---	---	SNA	---
<i>Salix fragilis</i>	Crack Willow	---	---	S4?	---
<i>Salix nigra</i>	Black Willow	---	---	S4?	6
<i>Securigera varia</i>	Common Crown-vetch	---	---	SNA	---
<i>Silene vulgaris</i>	Maiden's Tears	---	---	SNA	---
<i>Solidago canadensis</i> var. <i>canadensis</i>	Canada Goldenrod	---	---	S5	1
<i>Sonchus arvensis</i> ssp. <i>arvensis</i>	Field Sow-thistle	---	---	SNA	---
<i>Spiranthes cernua</i>	Nodding Ladies'-tresses	---	---	S5	5
<i>Symphyotrichum novae-angliae</i>	New England Aster	---	---	S5	2
<i>Toxicodendron radicans</i>	Climbing Poison Ivy	---	---	S5	5
<i>Tragopogon dubius</i>	Yellow Goat's-beard	---	---	SNA	---
<i>Trifolium pratense</i>	Red Clover	---	---	SNA	---

Scientific Name	Common Name	SARA ¹	ESA ²	SRank ³	CC ⁴
<i>Tussilago farfara</i>	Colt's-foot	---	---	SNA	---
<i>Typha angustifolia</i>	Narrow-leaved Cattail	---	---	SNA	3
<i>Ulmus pumila</i>	Siberian Elm	---	---	SNA	---
<i>Ulmus rubra</i>	Slippery Elm	---	---	S5	6
<i>Verbascum thapsus</i>	Common Mullein	---	---	SNA	---
<i>Viburnum lentago</i>	Nannyberry	---	---	S5	4
<i>Vicia cracca</i>	Tufted Vetch	---	---	SNA	---
<i>Vitis riparia</i>	Riverbank Grape	---	---	S5	0

¹Federal Species at Risk Act (Source: SARA Public Registry, 2007); ²Provincial Endangered Species Act (Source: MNRF website, 2007); ³Subnational (Provincial) Rank (Source: MNRF National Heritage Information Centre website, 2007); ⁴Co-efficient of Conservatism

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