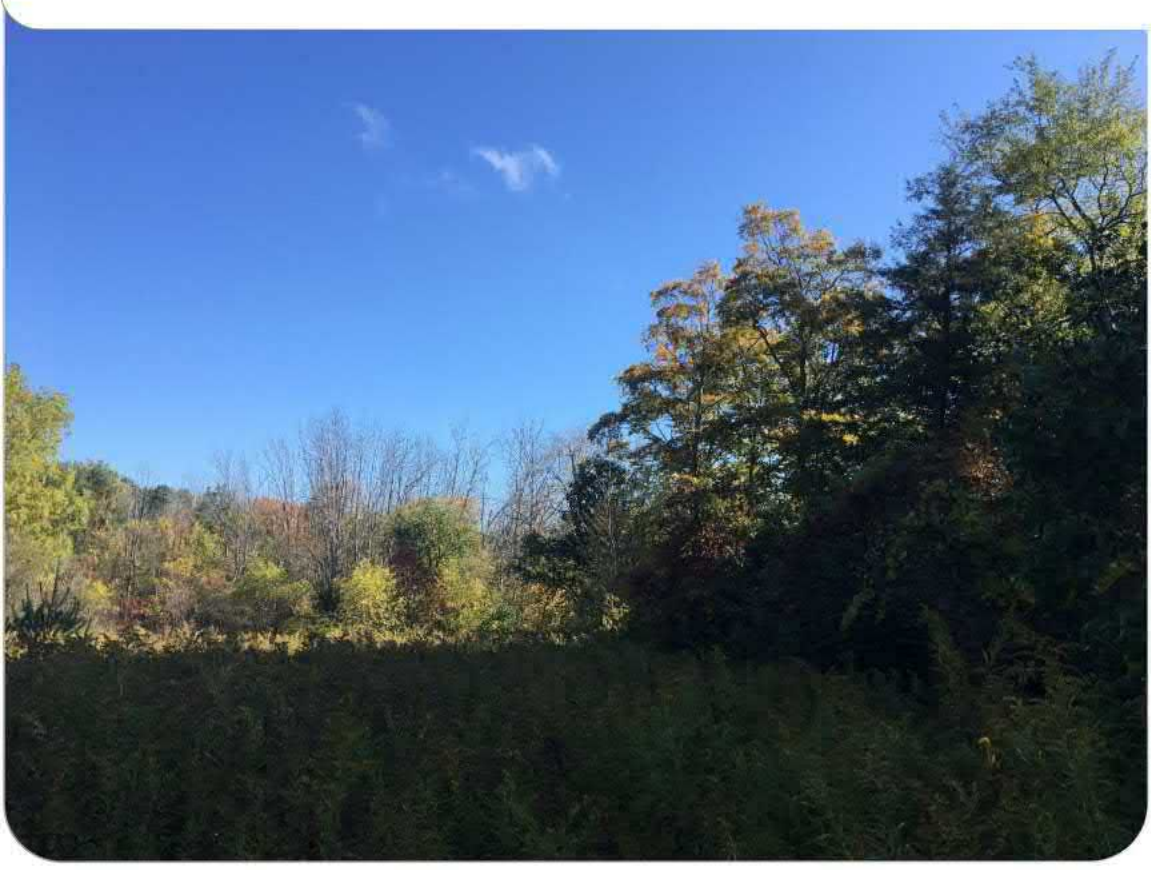
DILLON CONSULTING

BROCK ROAD DUFFINS FOREST INC.

Environmental Impact Study

2055 Brock Road, Pickering, Ontario



December 2021 - 19-1589

Table of Contents

Figures

Tables

Appendices

References

1.0 Introduction

Dillon Consulting Limited (Dillon) was retained by Brock Road Duffins Forest Inc. to complete an Environmental Impact Study (EIS) in support of a development application for the proposed development at 2055 Brock Road (PIN 264390851, Parts of Lot 19, Concession 2) in the City of Pickering (the City), Ontario (the "Property"). Adjacent lands within 120 metres (m) of the Property boundary are considered the "Study Area" for the EIS (**Figure 1**).

In brief, the Study Area consists of cultural and natural areas. While lands to the north and east in the Study Area consist of residential and transportation land uses, tablelands of the Property are currently vacant and consist of areas of disturbed meadow. Woodlands within the riparian corridor of the West Duffins Creek are located farther south and east within the Study Area. Parkland and Community Centres (i.e. the Pickering Islamic Centre) exist north and west within the Study Area.

The purpose of the EIS is to:

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

This EIS represents an update to support a third application submission for the proposed development. Dillon had previously assisted with the submission of an EIS for the second submission (dated March 2020) which updated the 2009 EIS completed previously for the Study Area by Watershed Management Ecology (WME), and the 2012 EIS Update Letter prepared by Genivar. The EIS Update Letter (2012) provided a peer review of the submitted 2009 EIS against recent findings of the October 2011 *Environmental Servicing Plan Update for the Duffins Precinct Southern Lands for the City of Pickering* (ESPU; Sernas Associates) for which the Study Area is located.

For context on the first submission, the 2009 EIS was initially drafted using feedback provided by the Toronto and Region Conservation Authority (TRCA); the 2009 EIS was submitted in support of a development application for a mixed use development. Consultation has continued for the Study Area since the firstand second submissions to ensure the updated EIS meets requirements of the Region, the City, and the TRCA. Comments were received on the second submission from the Region on October 28, 2020 and December 7, 2020, from the City on August 17, 2021, and from the TRCA on September 11, 2020; this third version of the EIS addresses the agency feedback.

BROCK ROAD DUFFINS FOREST INC.
2055 BROCK ROAD
ENVIRONMENTAL IMPACT STUDY

FIGURE 1
PROJECT LOCATION

Property Boundary
Study Area
Water Body

1:10,000
0 50 100 200 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF
IMAGERY DATE: 2018

MAP CREATED BY: GM/LK
MAP CHECKED BY: CV
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 19-1589
STATUS: FINAL
DATE: 2020-03-31

FILE LOCATION: I:\GIS\191589 - 2055 Brock Road EIS\mxd\Figure 1 Project Location.mxd

2.0 Overview of Policy Framework

The Study Area is subject to three levels of planning policies: federal, provincial, and municipal. For purposes of the following discussion, the most recent updated versions of the applicable documents have been reviewed. This section is not intended to constitute a complete land use planning assessment as it focuses on the relevant environmental policies and regulations. The documents referenced below should be read in their entirety for a more detailed understanding of the land use policy framework to the Study Area and surrounding area.

Policies within each document that relate to the natural environment and apply to the Study Area are outlined in subsequent sections. Relevant planning policy schedules and maps for the Study Area are provided in **Appendix A** for reference.

2.1 Federal Framework

2.1.1 Migratory Birds Convention Act, 1994

The *Migratory Birds Convention Act (*MBCA) came into effect in Canada on June 23, 1994. The purpose of the MBCA is to protect and conserve migratory bird species (this definition includes species populations, individuals, and their nests). There are three applicable regulations under the MBCA: *Designations of Regulatory Provisions for Purposes of Enforcement* (SOR/2017-108), *Migratory Bird Sanctuary Regulations* (C.R.C., C. 1036), and *Migratory Birds Regulations* (C.R.C., C. 1035). These regulations serve to define protected Bird Sanctuary Areas that receive protection, and identify prohibited actions against Migratory Birds and within Migratory Bird Sanctuaries.

Migratory Bird Sanctuaries (MBS) are designated by the Act for each province and provide safe refuge for migratory birds in terrestrial and marine environments. No designated MBS are located within the Study Area; however, based on the location of the Study Area relative to Lake Ontario potential stop over habitat for migratory birds may be provided in woodlands and wetlands within the riparian corridor of West Duffins Creek. The potential for migratory birds to occur within the Study Area is discussed further in **Section 4.3.4**.

2.2 Provincial Framework

2.2.1 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 areas of natural and scientific interest, an area identified as provincially significant by the Ontario Ministry of Natural Resources using evaluation procedures established by the Province, as amended from time to time;*
- *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 Ontario Ministry of Natural Resources; 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 follow 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.

Significance of natural features identified within the Study Area is further discussed in **Section 4.4** of this report.

2.2.2 A Place to Grow: Growth Plan for the Greater Golden Horseshoe, 2019

Pursuant to the Places to Grow Act, 2005, the Growth Plan for the Greater Golden Horseshoe, 2019 (Growth Plan) was approved on June 16, 2006 (MMAH, 2005). The Growth Plan has been amended four times since its release in 2006. The first amendment was released in January 2012, and contains policies, schedules and definitions that apply in the Simcoe Sub-area (MMHA, 2012). The second amendment was released in June 2013, to update and extend the Growth Plan's population and employment forecasts (MMAH, 2013). Following the third amendment (July 1, 2017); the fourth and most recent amendment came into effect on May 16, 2019 (MMAH, 2019).

The Growth Plan requires the identification of water resource systems and the protection of key hydrologic features and key hydrologic areas, similar to the level of protection provided in the Greenbelt (MMAH, 2019). This provides a consistent framework for water protection across the Greater Golden Horseshoe (GGH), and builds on existing plans and policies. The Growth Plan also provides for the identification and protection of natural heritage systems in the GGH outside of the Greenbelt Area and settlement areas in order to provide consistent and long-term protection for natural heritage systems across the GGH (MMAH, 2019).

Section 4.2.2 of the Greater Golden Horseshoe Growth Plan states that the Natural Heritage System mapping will exclude lands within settlement area boundaries that were approved and in effect as of May 16, 2019. As per Section 4.2.2(6), beyond the Natural Heritage System, including within settlement areas, the municipality will continue to protect any other natural heritage features in a manner that is consistent with the PPS.

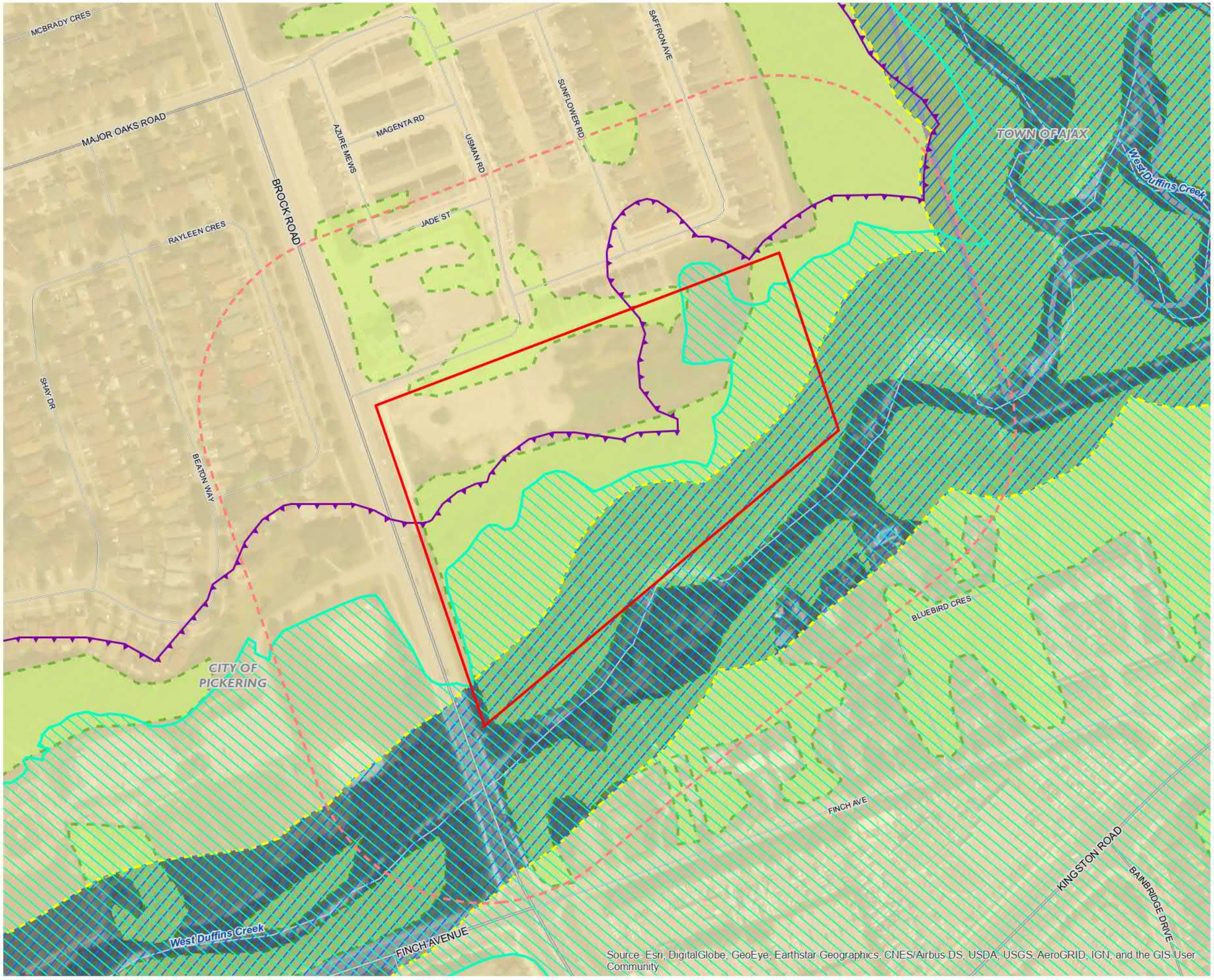
As per Schedule 4 of the Greater Golden Horseshoe Growth Plan (**Appendix A**), the Study Area is designated as "*Built-Up Area*". Policies regarding *Built-Up Areas* are listed under Section 2.2.2 of the GPGGH, speak to minimum intensification targets for residential development in delineated *Built-Up Areas*.

2.2.3 The Greenbelt Plan, 2017

Pursuant to the Greenbelt Act, 2005, the Greenbelt Plan was introduced in 2005 (MMAH) as a sub strategy to the original 2005 Growth Plan and the PPS (2014) to define growth and development within the GGH along with the Oakridge's Moraine Conservation Plan (ORMCP), and the Niagara Escarpment Plan (NEP). The Greenbelt Plan was recently updated in 2017; the update to the Greenbelt Plan was approved by the Lieutenant Governor in Council, Order in Council No. 1025/2017 as an amendment to the Greenbelt Plan on July 1, 2017.

Lands that fall within the Greenbelt Area are delineated in Ontario Regulation 59/05 and areas shown on Schedule 1 (**Appendix A**). Designated lands under Schedule 1 of the Greenbelt Plan protect agricultural resources as well as natural heritage and water resources. The entire Study Area is identified as "*Settlement Areas Outside of the Greenbelt*" (Map 63, Schedule 1; **Appendix A**). Within the Study Area, the ravine system located to the south and east within the West Duffins Creek riparian corridor are designated as "*Urban River Valleys*"(Map 63, Schedule 1; **Appendix A**) of the Greenbelt Plan. The Urban River Valley designations of the Greenbelt Plan identified within the Study Area are depicted in **Figure 2**(Planning Policies).

As per Policy 1 under Section 6.2 (Urban River Valley Policies) of the Greenbelt Plan, "Only publicly owned lands are subject to the policies of the Urban River Valley designation. Any privately owned lands within the boundary of the Urban River Valley area are not subject to the policies of this designation. For the purposes of this section, publicly owned lands means "*lands in the ownership of the Province, a municipality or a local board, including a conservation authority.*"



BROCK ROAD DUFFINS FOREST INC.
2055 BROCK ROAD
ENVIRONMENTAL IMPACT STUDY

FIGURE 2
NATURAL HERITAGE

- Property Boundary
- Study Area
- Watercourse
- Municipal Boundary

Greenbelt Plan (2017)

- Greenbelt Outer Boundary (Schedule 1)
- Urban River Valley (Schedule 1)
- Settlement Area Outside of the Greenbelt

Ministry of Natural Resources and Forestry

- MNRF Wooded Area

Toronto and Region Conservation Authority

- Conceptual Regulated Area Limit (2019, approx.)
- Floodplain (2019, approx.)

1:2,500

0 25 50 100 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, TRCA

MAP CREATED BY: GM/LK
MAP CHECKED BY: CV
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 191589
STATUS: FINAL
DATE: 2020-03-31

FILE LOCATION: I:\GIS\191589 - 2055 Brock Road EIS\mxd\Figure 2 Natural Heritage.mxd

2.2.4 Endangered Species Act, 2007

In June 2008, the *Endangered Species Act*, 2007 (ESA) came into effect in Ontario. The purpose of the ESA is to identify species at risk (SAR) based on the best available scientific information; to protect SAR and their habitats, to promote the recovery of SAR; and to promote stewardship activities to assist in the protection and recovery of SAR in Ontario. There are two applicable regulations under the ESA; *Ontario Regulation 230/08* (the SARO List); and, *Ontario Regulation 242/08* (General). These regulations serve to identify which species and habitat receive protection and provide direction on the current implementation of the ESA by the Ministry of Environment, Conservation and Parks (MECP).

The potential for SAR and SAR habitat to be present within the Study Area is discussed further in **Section 3.2.3** and **Section 4.4.6** of this report.

2.2.5 Conservation Authority Act, 1990

Ontario Regulation 166/06, made under the authority of Section 28 of the Conservation Authorities Act, is intended to ensure public safety and protect property with respect to natural hazards and to safeguard watershed health by preventing pollution and destruction of sensitive environmental areas such as wetlands, shorelines and watercourses.

Ontario Regulation 166/06 establishes Regulated Areas where development could be subject to flooding, erosion or dynamic beaches, river or stream valley with depressional features associated with a river or stream, hazardous lands, wetlands, or other areas where development could interfere with the hydrologic function of a wetland. Under Ontario Regulation 166/06, any proposed development, interference or alteration within a Regulated Area requires a permit from TRCA.

The east and south boundaries of the Study Area associated with the riparian corridor and floodplain of the West Duffins Creek are located within the TRCA Regulated Area (**Figure 2**). Floodplain mapping provided by the TRCA is also depicted in **Figure 2**.

2.2.5.1 Toronto and Region Conservation Authority Living City Policies, 2014

The Living City Policies (LCP) for Planning and Development in the Watershed of the TRCA, November 2014 is a conservation authority policy document that guides the implementation of TRCA's legislated and delegated roles and responsibilities in the planning and development approvals process (TRCA, 2016). Policies within Section 7 of the LCP apply to applications circulated to TRCA for comment under the Planning Act. Section 7 of the LCP is structured with protection policies (Section 7.3) that seek to set aside lands from development (the Natural System made up of natural features, natural hazards and water resources, and restoration areas), followed by a set of policies for management of developable lands (Section 7.4). These are followed by Section 7.5 (Input and Plan Review) that speaks to implementation of all Section 7 policies.

Overall, the policies in Section 7 respect the legislative framework for environmental planning, seeking to align with the objectives of municipalities and other partners for building sustainable communities (TRCA, 2014). The policies also reflect the unique characteristics of TRCA's watersheds and are informed by an integrated approach to watershed management.

Under Section 7.3.1.2, of the LCP, it is the policy of the TRCA:

a) *That natural features and areas include: valley and stream corridors; wetlands; fish habitat, woodlands, wildlife habitat, habitat of endangered and threatened species, Species of Concern, Areas of Natural and Scientific Interest (ANSIs), key natural heritage features as per Provincial plans, Environmentally Significant Areas (ESAs).*
b) *That all natural features and areas within the Natural System be protected from development, site alteration, and infrastructure in accordance with the Natural System policies in 7.3.1.*
c) *That any natural feature or area isolated from the Natural System (e.g., tableland woodlands, tableland wetlands, headwater drainage features), be assessed in accordance with federal, provincial and municipal requirements, and TRCA standards, to determine the need to protect the natural feature or area and its functions, and any potential connection to the Natural System.*
d) *To not support modifications to natural features and areas to accommodate or facilitate development except in accordance with this document, and in particular the policies in Section 7.4 (Environmental Management) and Sections 8.4 to 8.13 (Regulation).*

Under Section 7.3.1.3 Natural Hazards of the LCP, it is the policy of the TRCA:

a) *To implement the delegated responsibility to represent the "Provincial Interest" on natural hazards in the review of policy documents and development proposals processed under the Planning Act to ensure consistency with Section 3.1, Natural Hazards, of the PPS.*
b) *That development and site alteration be directed to areas outside hazardous lands (flood hazard, erosion hazard, dynamic beach hazard) and hazardous sites (unstable soils, unstable bedrock), except as may be permitted by the policies under sections 7.4 and 7.5 and 8.4 to 8.13.*
c) *That the limit and extent of hazardous lands and hazards sites be determined in a manner consistent with Provincial standards and TRCA standards and in accordance with policies in Section 7.4.3 of the LCP. Such limits will be based on the natural state of the area without the use of mitigation or remediation works, unless the proposed works are consistent with the recommendations of an approved environmental assessment or comprehensive environmental study for the area, approved by the TRCA.*
d) *That as components of the Natural System, a buffer be applied to the limit of hazardous lands and hazardous sites, in accordance with Section 7.3.1.4. This buffer shall include the applicable erosion access allowances.*

e) That TRCA will work with member municipalities to provide and update mapping of hazardous lands and hazardous sites and recommend to municipalities that these lands be designated and zoned appropriately in municipal planning documents.

f) That no new lots be created within hazardous lands and hazardous sites, except for dedication to a public agency for protection purposes.

g) That development, and site alteration not be permitted in areas that would be rendered inaccessible to people and vehicles due to hazardous lands and hazardous sites, unless the site has safe access appropriate for the nature of the development and the natural hazard.

h) That development and site alteration not be permitted in hazardous lands and hazardous sites where the use is:

i. An institutional use including hospitals, long-term care homes, retirement homes, pre-schools, school nurseries, day cares and schools;

ii. An essential emergency service such as that provided by fire, police, and ambulance stations, and electrical substations; or

iii. Uses associated with the disposal, manufacture, treatment, or storage of hazardous substances.

As per Section 7.3.1.4 of the LCP, with regards to providing buffers to Valley or Stream Corridors, Wetlands, Woodlands and the Regional flood plain, it is policy of the TRCA:

a) That all areas of potential natural cover be protected for restoration and enhancement, in accordance with the Natural System policies in 7.3.1.

b) That when any of the following apply:

i. potential natural cover cannot be protected as described in policy 7.3.1.4 a); or

ii. there exists an isolated natural feature and/or a natural hazard that warrants protection but it is not captured, or not entirely captured, by 7.3.1 e) i) and ii), the limit of the Natural System be determined by the greater of the outer limits of the natural feature and/or natural hazard to development or site alteration, as follows:

- *Valley or Stream Corridors – a 10-metre buffer from the greater of the long term stable top of slope/bank, stable toe of slope, Regulatory flood plain, meander belt, and any contiguous natural features or areas;*
- *Woodlands a 10 m buffer from the dripline and any contiguous natural features or areas;*
- *Wetlands – a 30-metre buffer from provincially significant wetlands and a 10-metre buffer for all other wetlands and any contiguous natural features or areas.*

2.3 Municipal Framework

2.3.1 Durham Regional Official Plan, Consolidated 2020

The Durham Regional Official Plan (ROP) was adopted by Regional Council on July 14, 1976, and approved by the Minister of Housing on March 17, 1978. The ROP has been amended several times since it was first approved; the ROP was first replaced in November of 1993, and again in June of 2009. The most recent version of the ROP is represented by the Office Consolidation dated May 26, 2020; however, several Sections of the ROP are under appeal by the Ontario Municipal Board (OMB).

The ROP is the long-range strategic land use policy document for the Region. It provides policies to ensure an improved quality of life for residents of the Region, as well as a long-term regional strategic policy framework to guide growth and development for the area municipalities within the Region while living harmoniously with the natural environment to create healthy and complete, sustainable communities within livable urban spaces (ROP, 2020).

Land use designations assigned by the ROP reflect the anticipated land uses as identified by the Region and identify locations of existing natural features within the Study Area. Designations assigned to the tablelands of the Study Area identify areas for potential development and community growth. Proposed development and site alteration for the Study Area are also required to adhere to development policies of designations for natural features. ROP Schedules containing designations for the Study Area are available in **Appendix A**. ROP designations identified in the Study Area and their associated policies are discussed below (2020).

As depicted by the ROP (2020), ttablelands within the Study Area are designated as "*Living Areas*" (Schedule A) and as "*Urban Areas*" within Schedule B. Whereas lands within the riparian corridor of West Duffins Creek are designated as "*Major Open Space*" within the Greenlands System under Schedule A and as "*Key Natural Heritage and Hydrologic Features"* within Schedule B.Tableland

Policies regarding *Living Areas* are discussed in Section 8B of the ROP (2020); these policies identify appropriate land uses for development and community growth. *Living Areas* comprise of lands consisting of the Regional Urban System (Schedule A). According to Sections 8.1.15 and 8.1.16, *Living Areas* are to provide "*a full range of housing and safe and sustainable communities that exist in harmony with nature.*" As described by Section 8B.1.2, *Living Areas* located along arterial roads are to be developed at higher densities through intensification. Policies for the protection of the "Environment, Greenlands System, and Major Open Space" are provided in Section 2 of the ROP (2017). As stated under Section 2.2.1, "*Major Open Space Areas and Key Natural Heritage and Hydrologic Features shall be given paramount consideration in light of their ecological functions, and scientific, educational and health values."*

Additional policies for *Major Open Space Areas* of the Greenland System are discussed in Section 10A of the ROP (2020). As per Section 10A.1.1, *Major Open Space Areas* include *Key Natural Heritage and Hydrologic Features*; conservation is the predominant land use permitted within lands designated as *Major Open Space*.

As per Section 10A.2.2 of the ROP (2020), a proposal for development or site alteration within *Major Open Space Areas* must demonstrate that

a) *"There will be no negative effects on key natural heritage or hydrologic features or their functions;*
b) *Connectivity between Key Natural Features or Hydrological Features is maintained , or where possible, enhanced for the movement of native plants and animals across the landscape;*
c) *The removal of other natural features not identified as Key Natural Heritage or Hydrologic Features should be avoided. Such features should be incorporated into the planning and design of the proposed use wherever possible. "*

Key Natural Heritage Features identified within the Study Area are protected under Section 2.3, which specifically states that *"Woodlands, wetlands, and peat bogs shall be protected and managed to provide environmental, recreational, and economic benefits to the Region."*

As per Section 2.3.15, the ROP states that "*development or site alteration is not permitted in Key Natural Heritage and/or Hydrologic Features, including any associated vegetation protection zone."* In accordance to Section 2.3.16, for *Key Natural Heritage and/or Hydrologic Features* designated within *Urban Areas*, *"the vegetative protection zone shall be determined through an environmental impact study, in accordance with Policy 2.3.43. The scope of the environmental impact study for any development or site alteration shall be determined in accordance with the Council approved EIS Guideline".*

2.3.2 City of Pickering Official Plan, Consolidated 2018

The most recent version of the City of Pickering Official Plan (OP; Office Consolidation 2018) incorporates two amendments to the former seventh edition of the OP (dated September 2017). The two amendments added new policies and schedules for the protection of the natural environment and countryside areas. The purpose of the City's OP (2018) as described by the Plan's introduction is to provide a "*foundation for building a good community*." As part of the foundation, the City's OP (2018) provides a program to monitor development within the area municipality under the Region and the ROP (2020).

In accordance to the ROP (2020), designations provided by the City OP (2018) for the Study Area reflect the anticipated land uses for community growth, as well as protection measures required for natural features identified.

The City's OP designates tablelands of the Study Area as "*Urban Residential Areas* (Medium Density Areas)", which identify these lands as potential areas for site alteration and development. Conversely, the riparian corridor of the West Duffins Creek is designated and therefore protected as "*Natural Areas of the Open Space System*" under Schedule I of the City's OP (2018). Schedules outlining designations of the City's OP (2018) for the Study Area are provided in **Appendix A**.

Urban Residential Areas identify potential areas for development within the Study Area. Policies regarding this designation are discussed in Section 3.9 of the City's OP (2018); these lands are used "*primarily for housing and related uses, include home occupations and group homes*." Low, medium and high densities are assigned to each area under this designation. Under Table 9 of the City's OP (2018), Medium Density Areas for which the Study Area is located can include a net residential density of over 30 and up to and including 80 dwellings per net hectare.

Riparian corridor areas designated as part of the *Natural Areas of the Open Space System* are protected and intended to be conserved or restored, and used for environmental education and recreation (2018). As per Chapter 3 of the City's OP, the *Open Space System* includes a variety of Key Natural Heritage and Key Hydrologic Features, such as "t*he Rouge-Duffins Wildlife Corridor, the Lake Iroquois shoreline, significant habitat of endangered species, threatened species and special concern species, the City's significant valleylands and stream corridors, shorelines, areas of natural and scientific interest, wetlands, significant woodlands, and significant wildlife and fish habitat.*" As per Section 3.5 of the City's OP (2018), City Council:

a) *"shall recognize as Open Space System on Schedule I, a connected and integrated natural heritage system of significant valleylands and stream corridors; shorelines; areas of natural and scientific interest; wetlands; significant woodlands; major parks, recreational and conservation areas; marina areas, and other major blocks of land comprising natural core areas, corridors; Natural Core Areas and Natural Linkage Areas on the Oak Ridges Moraine; and the Seaton Natural Heritage System within the Central Pickering Development Plan; and*
c) *shall recognize that the Open Space System includes Key Natural Heritage and Key Hydrologic Features which have related minimum areas of influence and minimum vegetation protection zones."*

Natural Areas of the Open Space System under Schedule I of the City's OP (2018) are further identified as part of the City's "*Natural Heritage System (NHS)*" under Schedule IIIA (The Natural Heritage System) (**Appendix A**). Key Natural Heritage and Hydrologically Sensitive Features which form the basis for the City's NHS are shown on Schedules IIB, IIC and IIID (**Appendix A**). Within the NHS, forest communities associated with the riparian corridor of West Duffins Creek are considered "Significant Woodlands" under Schedule IIIB (Key Natural Features). In addition, ravine areas of the West Duffins Creek riparian corridor are designated as "Shoreline, Significant Valleylands and Stream Corridors (Hazard Lands)" under Scheduled IIIC (Key Natural Features/Key Hydrologic Features).As per Table 3 of the City's OP (2018), permissible uses within Natural Areas include "*conservation, environmental protection,*

restoration, education, passive recreation, and similar uses" as well as "*Stormwater management facilities and related works outside Key Natural Heritage and/or Key Hydrologic Features including any associated minimum vegetation protection zone, except for outfalls and related Low Impact Development (LID) works which may be in Key Natural Heritage and/or Key Hydrologic Features*."

3.0 Methodology

The existing conditions information contained in this EIS is based on prior field investigations completed in the Study Area, existing published data, and data made available through various public agencies and web-based mapping programs relating to the Study Area. Additional site reconnaissance activities were conducted by Dillon in 2019 to assist in the verification and further characterization of existing conditions for the Study Area.

3.1 Information Sources

To determine the existing conditions for the Study Area, secondary source information was reviewed to identify known environmental constraint areas, soils, landforms, geological features, significant natural heritage features such as watercourses, woodlands, wetlands and potential wildlife occurrences in relation to the Study Area. As identified in **Section 2.2**, several natural heritage features, as defined under the PPS (2020) require consideration within the EIS.

In addition, historic and current consultant reports were reviewed to further characterize existing conditions and natural heritage features within the Study Area, including:

- 2009 EIS : Phase 1 – 2055 Brock Road, prepared by WME;
- 2012 EIS Update Letter, prepared by Genivar;
- 2011 ESPU: prepared by Sernas Associates;
- 2015 Stormwater Management Report: prepared by GHD Inc.
- 2019 Breeding Bird Surveys – 2055 Brock Road, prepared by Beacon;
- 2019 Geotechnical Investigation - Proposed Residential Development, 2055 Brock Road, prepared by Soil Engineers Ltd.
- 2019 Pre and Post-Development Water Balance Assessment, preparted by Soil Engineers Ltd., Consulting Engineers
- 2020 Hydrogeological Assessment, prepared by Soil Engineers Ltd., Consulting Engineers
- 2021 Butternut Health Assessor's Report, preparted by Altus Group;
- 2021 Tree Inventory and Preservation Plan, Terrastory Environmental Consulting Inc.
- 2021 Functional Servicing Report, prepared by Sabourin Kimble & Associates Ltd.
- 2021 Site Grading Plan, prepared by Sabourin Kimble & Associates Ltd.
- 2021 Wetland Risk Evaluation prepared by Terrapex Environmental Ltd.

3.2 Field Methodology

Field reconnaissance activities conducted by Dillon in October, 2019 were to confirm existing conditions previously documented by Beacon (2019) and WRE (2009) as a result of past field investigations. During

the October site visit, Dillon confirmed the presence/absence of vegetation communities and natural features within the Study Area. As a result of feedback received from the Region, City and TRCA on the second application submission, additional site visits and terrestrial assessments were conducted by Terrastory Environmental Consulting Inc. (Terrastory). A list of dates for field investigations conducted within the Study Area by WME, Beacon and Dillon are provided in **Table 1.**

Table 1: Dates of Field Surveys

Date	Purpose of Visit	Consultant
April, 2009	Natural Feature Staking Activities	WME and TRCA
April 27, 2009	Amphibian Breeding Survey #1	WME
May 6, 2009	Amphibian Breeding Survey #2	WME
May 14, 2009	Amphibian Breeding Survey #3	WME
June 23, 2009	Vegetation Community Assessment and Botanical Inventory	WME
June 25, 2019	Breeding Bird Survey #1	Beacon
July 3, 2019	Breeding Bird Survey #2	Beacon
October 11, 2019	Ecological Land Classification Confirmatory Site Visit	Dillon
August 12, 2021	Tree Inventory	Terrastory
September 14, 2021	Butternut Health Assessment and Wetland Sensitivity Assessment	Terrastory

Survey methodologies utilized in the 2009 EIS, as well as by Beacon (2019), Dillon (2019), and Terrastory (2021) to conduct field investigations within the Study Area are described in the following sub-sections.

3.2.1 Ecological Land Classification

Vegetation communities described in the 2009 EIS were initially delineated using available open source data from the TRCA (2000). Vegetation communities identified by the TRCA were classified using the Ecological Land Classification (ELC) first approximation (Lee et al., 1998). As described in the 2009 EIS, ELC communities provided by the TRCA data set (2000) were evaluated in the field during a single site visit. With the exception of the addition of a single wetland community (Bulrush Mineral Shallow Marsh Type, MASM1-2), all communities identified by the TRCA were supported by WME (2009). A further review of ELC communities for the Study Area was recommended in the 2012 EIS Update Letter based on the results of wetland assessments described in the 2011 ESPU.

Vegetation communities were verified by Dillon in 2019 using the ELC system for Southern Ontario, second approximation (Lee et al., 1998; Lee, 2008) to confirm classifications previously provided for the Study Area. Vegetation studies involved identifying the dominant species in each vegetation community type. Species nomenclature is based on the species lists for Ontario maintained by the NHIC which uses international standards for taxonomy and nomenclature.

The ELC protocol recommends that a vegetation community be a minimum of 0.5 ha in size before it is defined. Based on the composition of vegetation communities within the Study Area, patches of vegetation less than 0.5 ha or disturbed/planted vegetation were described, provided they clearly fit within an ELC vegetation type.

Results of the confirmatory ELC survey completed by Dillon are discussed in **Section 4.3.2**.

3.2.2 Botanical Assessment

Vegetation was surveyed by WME during the June 2009 site visit, were plant species were documented concurrently during ELC community evaluations. As a follow up to this work, a single season (fall) botanical assessment was completed by Dillon within the Study Area on October 11, 2019 . Surveys consisted of wandering transects and/or area searches to determine the presence, richness and abundance of floral species within the Study Area as well as presence/absence of botanical SAR. Species nomenclature recorded is based on the Ontario Plant List (Newmaster *et al,*. 1998).

Results of the botanical surveys are discussed in **Section 4.3.3**.

3.2.2.1 Tree Inventory

As there is the potential for municipal boulevard trees and trees located on private property to be impacted by the proposed development, a tree inventory was conducted by Terrastory for the Property. The tree inventory was conducted on August 12, 2021 in accordance to policies of the City's Tree Protection By-law 6108/03 as well as the City's Tree Inventory, Preservation, and Removal Compensation Requirements.

Data collected for each tree within the proposed limit of development for the Study Area included the identification of species, Diameter at Breast Height (DBH), condition, and location. Data collected during the tree inventory was reviewed by an International Society of Arboriculture Certified Arborist and reported in an arborist report produced for the Study Area

Results of the tree inventory are discussed in **Section 4.3.3.1**.

3.2.3 Endangered, Threatened, and Rare Species

In addition to species occurrences identified through the background review, a search of the NHIC database and other available wildlife atlases was conducted to identify possible occurrences of federal and/or provincial SAR and/or provincially rare species in proximity to the Study Area. SAR are defined as those listed as Endangered or Threatened under the ESA. Species of Conservation Concern (SCC) are defined as species listed as Threatened or Endangered under the federal *Species at Risk Act,* 2002 (SARA), but not under the provincial ESA; species that are provincially rare/tracked (i.e. have a Sub-

national (provincial) Rank of S1 – Critically Imperilled, S2 – Imperilled or S3 – Vulnerable) and/or are listed as Special Concern under the ESA.

A complete screening for SAR and SCC within the Study Area is available in **Appendix C** (Table C-1). Through background review, several SAR and SCC have been identified with the potential to occur within or adjacent to the Study Area (**Table 2**).

Table 2: Species at Risk and Species of Conservation Concern with the Potential to Occur within the Study Area

Scientific Name	Common Name	SARA[1]	ESA[2]	SRANK[3]	Info Source[4]
Species at Risk					
Juglans cinerea	Butternut	END	END	S3?	NHIC; ESPU 20212
Dolichonyx oryzivorus	Bobolink	---	THR	S4B	NHIC, OBBA
Hirundo rustica	Barn Swallow	---	THR	S4B	NHIC, OBBA
Icteria virens virens	Yellow-breasted Chat	END	END	S2B	OBBA
Sturnella magna	Eastern Meadowlark	---	THR	S4B	NHIC, OBBA
Riparia riparia	Bank Swallow	THR	THR	S4B	NHIC, OBBA
Myotis lucifugus	Little Brown Myotis	END	END	S4	MWH
Myotis septentrionalis	Northern Myotis	END	END	S3	MWH
Myotis leibii	Eastern Small-footed Myotis	---	END	S2S3	MWH
Pipistrellus subflavus	Tri-colored Bat	END	END	S3?	MWH
Clinostomus elongatus	Redside Dace	---	END	S2	NHIC
Species of Conservation Concern					
Ammodramus savannarum	Grasshopper Sparrow	SC	SC	S4B	OBBA
Contopus virens	Eastern Wood-pewee	---	SC	S4B	OBBA
Hylocichla mustelina	Wood Thrush	---	SC	S4B	OBBA
Cardellina canadensis	Canada Warbler	THR	SC	S4B	NHIC
Euphagus carolinus	Rusty Blackbird	SC	SC	S4B	NHIC
Chelydra serpentina	Snapping Turtle	SC	SC	S3	NHIC, OHA, ON
Graptemys geographica	Northern Map Turtle	SC	SC	S3	NHIC, OHA
Danaus plexippus	Monarch	SC	SC	S2N, S4B	OBA

[1]Federal Species at Risk Act; [2]Ontario Endangered Species Act, 2007; [3]SRank 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. S5 = Secure, S4 = Apparently Secure, S3 = Vulnerable, S2 = Imperiled, S1 = Critically Imperiled,? = Ranking Uncertain, N= National Ranking, B = within species breeding range. [4]Information sources include: NHIC = Provincially Tracked Species; 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; THR = Threatened, SC= Special Concern; "---"denotes no information or not applicable;.

Of the SAR listed above, Butternut was documented previously within the Study Area in the ESPU 2012. Subsequent surveys by Terrastory in 2021 confirmed the presence of Butternut and Black Ash within the Study Area. Black Ash is currently under consideration for SARA status change and is listed as Threatened by COSEWIC however to-date this species has not been included as a listed species in the ESA (2007). Details regarding both of these species, as well as the potential for other SAR or SCC to occur within the Study Area is discussed further in **Sections 4.4.6** and **4.4.7.**

3.2.3.1 Butternut Health Assessment

Following the confirmation of Butternut on site by Dillon in 2019, a Butternut Health Assessment (BHA) was conducted by Terrastory on September 14, 2021. This assessment was conducted in accordance with "Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the *Endangered Species Act, 2007*". Each Butternut tree within the Study Area was measured and examined for overall health, specifically for the presence/degree of butternut canker infection. None of the trees assessed were tested for hybridity. The assessed trees were numbered on site using numbered orange flagging tape. The numbers at the site correspond to the tree numbers referenced in this report.

Results of the Butternut Health Assessment are discussed in **Section 4.3.3.2**.

3.2.4 Identification of Significant Wildlife Habitat

Criteria for determining significance of wildlife habitat (SWH) follow the guidelines outlined in the Natural Heritage Reference Manual (NHRM; MNRF, 2010), the Significant Wildlife Habitat Technical Guide (SWHTG; MNRF, 2000) and the Ecoregion 6E Criteria Schedules (MNRF, 2015), where applicable.

A review of the MNRF background data and available habitat within the Study Area suggests that the following candidate SWH types may be present within and adjacent to the Study Area:

- Bat Maternity Colonies;
- Turtle Wintering Areas;
- Amphibian Breeding Habitat (Wetland and Woodland);
- Land Bird Migratory Stopover Habitat; and
- Habitat for Special Concern and Rare Wildlife Species
  - Eastern Wood-pewee (*Contopus virens*),
  - Wood Thrush (*Hylocichla mustelina*),
  - Rusty Blackbird (*Euphagus carolinus*).

Based on the list of potential candidate SWH identified, breeding bird surveys and amphibian call surveys were conducted to establish baseline conditions, and to determine whether SWH can be confirmed within the Study Area.

The presence of candidate or confirmed SWH within the Study Area is discussed in **Section 4.4.7**.

3.2.4.1 Breeding Bird Survey

Breeding bird surveys for the Study Area were conducted by Beacon in the spring of 2019. Methods used by Beacon are described in the technical memo available in **Appendix D**. In brief, diurnal breeding bird surveys conducted within the Study Area followed the methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Cadman et al 2007), and were completed in Late June and early-July.

Specifically, surveys consisted of wandering transects throughout the Study Area. Wandering transects were generally conducted between dawn and five hours after sunrise to establish quantitative estimates of bird abundance in suitable habitat types within the Study Area. The general route used by Beacon during wandering transects is provided in the technical memo attached to **Appendix D**. During the surveys, evidence of breeding behaviour was recorded which generally includes, but is not limited to, males singing, nest building, egg incubation, territorial defence, carrying food, and feeding their young.

Results of breeding bird studies within the Study Area are included in **Section 4.3.4.**

3.2.4.2 Amphibian Breeding Survey

Amphibian monitoring surveys for the Study Area were conducted by WME in 2009.Three different surveys were conducted between April 1 and June 30. Each survey was completed during favourable weather conditions between 2100 and 2300 following methods described in the Marsh Monitoring Program protocol (Bird Studies Canada, 2009).

Results of amphibian breeding studies conducted within the Study Area are provided in **Section 4.3.5.**

3.2.4.3 Incidental Wildlife

A general wildlife assessment was completed within the Study Area through incidental observations while on site. Any incidental observations of wildlife were noted, as well as other wildlife evidence such as dens, tracks, and scat, where possible. For each observation, notes, and when possible, photos were taken. These observations helped to determine potential ecological functions, linkages, etc. within the Study Area.

Results relating to incidental wildlife within the Study Area have been included in **Section 4.3.6**.

4.0 Results

The following sections outline the existing environmental conditions determined through the background review and field investigations within the Study Area.

4.1 General Site Description

The Property is 5.06 ha in size, comprising approximately 24.3% of the total Study Area (20.84 ha). In its current state, the Property contains vacant lands, as well as riparian woodlands of the West Duffins Creek. The surrounding land uses within the remaining Study Area are described as follows:

- North: residential subdivisions and community centres (Pickering Islamic Centre);
- West: Brock Road, residential subdivisions and Brock Ridge Community Park;
- East: Wetlands, riparian woodlands, and West Duffins Creek; and
- South: Riparian woodlands, West Duffins Creek and residential properties.

4.2 Aquatic Environment

4.2.1 Watershed Summary

The Study Area is within the Duffins Creek Watershed and the West Duffins Creek Subwatershed (TRCA, 2018). The Duffins Creek is approximately 81 km long and meanders southeast from its headwaters in the Region of York through Uxbridge, Whitchurch-Stouffville, before entering the Region, City, Markham and Ajax to eventually outlet to the north shore of Lake Ontario (TRCA, 2018).

Three significant landscape features are found within the watershed: the Oak Ridges Moraine (ORM), the ORM South Slope, and the Lake Iroquois Plain (TRCA 2018). The watershed is split into three general zones based on the ORM: the upper watershed (the upland area of the ORM), the middle watershed (the ORM South Slope) and the lower watershed (the Lake Iroquois Plain) (TRCA, 2018). Substrates of the Duffins Creek are largely dictated by the three landforms. Substrate within the ORM consist of sand and gravel, whereas glacial debris and till comprise of watercourse substrate within the ORM South Slope. The shoreline of the former Lake Iroquois Plain provides the Duffins Creek watershed with sandy substrates which later transition to clay (TRCA, 2018).

Land use along the corridor of the Duffins Creek watershed predominantly consists of rural landscapes (71%); due to the limited urban development the Duffins Creek watershed is one of the healthiest in the TRCA (TRCA, 2018). The TRCA's Watershed Report Card 2018 rated the water quality in watersheds as "Fair" and forest conditions as "Fair". Streams within the watershed are dominated by cold water communities (TRCA, 2018).

4.2.2 Groundwater

Groundwater was encountered at all of the borehole locations during 2019 site investigations completed by Soil Engineers Ltd. The groundwater levels were measured in the monitoring wells installed in five locations over three sampling days. The depth below ground surface at the five locations ranged between 2.93 m and 6.61 m with an elevation of 82 m and 85.6 m, respectively (Soil Engineers Ltd., 2019a). As a result of these measurements, Soil Engineers Ltd. interpret that shallow groundwater likely flow east/southeast towards West Duffins Creek (2019a).

4.2.3 Fish Habitat

According to Open Source Fish Monitoring Data from the TRCA (2018), 38 fish species were found over 13 years of monitoring in the West Duffins Creek subwatershed. Of the 38 species, 32 were found to be native to the watershed. Two monitoring stations, one each located upstream (DF003WM) and downstream (ACRES-SS) from the Study Area contained fish collection data for the section of the watercourse adjacent to the Study Area. In total, 16 fish species, including Brown Trout (*Salmo trutta*) and Atlantic Salmon (*Salmo salar pop. 2*) were observed in data collected form these two stations over five years of monitoring (i.e.2003, 2006, 2009, 2012, 2015). Species observed within the West Duffins Creek subwatershed and specifically within the reaches adjacent to the Study Area are listed in **Table 3**.

Table 3: Fish Species Observed in West Duffins Creek through TRCA Environmental Monitoring

Scientific Name	Common Name	SARA[1]	ESA[2]	SRANK[3]	Observed in West Duffins Subwatershed[4]	Observed in Study Area[5]
Alosa pseudoharengus	Alewife	---	---	SNA	●	---
Ambloplites rupestris	Rock Bass	---	---	S5	●	---
Ameiurus nebulosus	Brown Bullhead	---	---	S5	●	---
Amia calva	Bowfin	---	---	S4	●	---
Catostomus commersoni	White Sucker	---	---	S5	●	●
Cottus bairdi	Mottled Sculpin	---	---	S5	●	---
Culaea inconstans	Brook Stickleback	---	---	S5	●	●
Cyprinella spiloptera	Spotfin Shiner	---	---	S4	●	---
Cyprinus carpio	Common Carp	---	---	SNA	●	---
Dorosoma cepedianum	Gizzard Shad	---	---	S4	●	---
Esox lucius	Northern Pike	---	---	S5	●	---
Etheostoma caeruleum	Rainbow Darter	---	---	S4	●	---
Etheostoma nigrum	Johnny Darter	---	---	S5	●	●
Lampetra appendix	American Brook Lamprey	---	---	S3	●	---
Lepomis gibbosus	Pumpkinseed	---	---	S5	●	●
Lepomis macrochirus	Bluegill	---	---	S5	●	---
Luxilus cornutus	Common Shiner	---	---	S5	●	●
Micropterus dolomieu	Smallmouth Bass	---	---	S5	●	●
Micropterus salmoides	Largemouth Bass	---	---	S5	●	---
Neogobius melanostomus	Round Goby	---	---	SNA	●	---
Nocomis biguttatus	Hornyhead Chub	---	---	S4	●	---
Notemigonus crysoleucas	Golden Shiner	---	---	S5	●	---
Notropis atherinoides	Emerald Shiner	---	---	S5	●	---
Notropis hudsonius	Spottail Shiner	---	---	S5	●	---
Notropis stramineus	Sand Shiner	---	---	S4	●	---
Noturus flavus	Stonecat	---	---	S4	●	●
Oncorhynchus kisutch	Coho Salmon	---	---	SNA	●	---
Oncorhynchus mykiss	Rainbow Trout	---	---	SNA	●	●

Scientific Name	Common Name	SARA[1]	ESA[2]	SRANK[3]	Observed in West Duffins Subwatershed[4]	Observed in Study Area[5]
Perca flavescens	Yellow Perch	---	---	S5	●	---
Percina caprodes	Logperch	---	---	S5	●	---
Pimephales notatus	Bluntnose Minnow	---	---	S5	●	---
Pimephales promelas	Fathead Minnow	---	---	S5	●	●
Rhinichthys atratulus	Blacknose Dace	---	---	S5	●	●
Rhinichthys cataractae	Longnose Dace	---	---	S5	●	●
Salmo salar pop. 2	Atlantic Salmon (Lake Ontario Population)	---	---	SX	●	●
Salmo trutta	Brown Trout	---	---	SNA	●	●
Salvelinus fontinalis fontinalis	Brook Trout	---	---	S5	●	---
Semotilus atromaculatus	Creek Chub	---	---	S5	●	●

[1]Federal Species at Risk Act; [2]Ontario Endangered Species Act; [3]SRank 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. S5 = Secure, S4 = Apparently Secure, S3 = Vulnerable, S2 = Imperiled, S1 = Critically Imperiled, SX = extirpated, SNA = unsuitable target for conservation activities; [4]TRCA Open Source Environmental Monitoring Data for Fish Sampling conducted for the West Duffins Creek; [5]TRCA Open Source Environmental Monitoring Data for Fish Sampling conducted for the West Duffins Creek for stations ACRES-SS and DF003WM.

The Duffins Creek Watershed is known to provide habitat for Redside Dace (*Clinostomus elongatus*). Redside Dace are listed as endangered and therefore are protected under the ESA (2007). Despite the presence of other cool/cold water fish species through environmental monitoring of the TRCA (2018), DFO SAR mapping did not indicate that the section of the West Duffins Creek within the Study Area or downstream to the Study Area are not considered habitat for Redside Dace (DFO, 2018).

Based on the results of the background review, fish habitat exists in the Study Area within West Duffins Creek (MNRF 2018).

4.3 Terrestrial Environment

4.3.1 Landforms, Soils and Surficial Geology

The Study Area is located within the Iroquois Plain physiographic region, situated between Lake Ontario and the ORM, which is characterized by Sand Plans comprising the former shoreline of Lake Iroquois (Chapman and Putnam, 1984). Physiographic mapping of the area indicates that the Study Area is bounded by the ORM South Slope and Peel Plain to the north (Chapman and Putnam, 1984).

Bedrock geology of the area consists of Upper Ordovician shale, limestone, dolostone and siltstone of the Georgian Bay Formation (Ministry of Northern Development and Mines, 1991; Chapman and Putnam, 1984). Bedrock is overlain with glaciomarine deposits of the Pleistocene period, including sand, gravelly sand, and gravel (Ministry of Northern Development and Mines; MNDM, 1991). Surficial geology of the Study Area is represented by Stone-poor, sandy silt to silty-sand-textured till located on the Study Area's tablelands; modern alluvial deposits of clay sand, silt sand and gravel containing organic remains are characterized within the riparian corridor of the West Duffins Creek (MNDM, 2010).

Soils observed within the Study Area are consistent with geology records reported: deposits and substrate within the Study Area reflect the presence of the former shoreline of Lake Iroquois. Soils of the Study Area tablelands are predominantly comprised of soils of the Brighton series which consist of well-drained, grey-brown podzolic soils of calcareous sand, and gravelly sand-loam (Canada Department of Agriculture, 1949). Lands to the west along brock road are consistent with the Wobern Series which are comprised of calcareous brown loam till (Canada Department of Agriculture, 1949). Soils of the West Duffins Creek Corridor are comprised of bottomland alluvial soil types with variable drainage (Canada Department of Agriculture, 1949).

Background information compiled for the Study Area was confirmed by a geotechnical investigation conducted by Soil Engineers Ltd. (2019b). As a result of the investigation, soils of the Study Area were described as containing silty clay, glacial till, and sand. Borehole investigations by Soil Engineers Ltd (2019b) reported that layers of topsoil were inconsistently found throughout the Study Area. Furthermore, earth fill was detected within the majority of borehole core samples, indicating evidence of past stripping and grading activities (Soil Engineers Ltd., 2019b).

Topographic surveys completed by Ontario Land Surveyor Ltd. on October 20, 2011, confirm that the Study Area is sloped south, southeast and east towards the riparian corridor of the West Duffins Creek (Wallace, 2011). Tablelands within the Study Area and lands to the north are relatively flat (Wallace, 2011).

4.3.2 Ecological Land Classification

Vegetation communities identified by the TRCA and WME in the 2009 report and confirmed by Dillon in 2019 are depicted in **Figure 3** (Field Investigation Results). In total, Dillon confirmed 12 communities within the Study Area.

In general, the natural communities identified were limited to the south, southeast and east of the Study Area. Tablelands of the Study Area consist of disturbed Dry-Fresh Mixed Meadow (MEMM3); mixed meadow communities gradually sloped eastward to transition to a small pocket of Bulrush Mineral Shallow Marsh (MASM1-2). The marsh community is located directly adjacent to an area of Green Ash Mineral Deciduous Swamp Forest (SWDM2); the boundary of the swamp continues east and extends beyond the Study Area. Northern limits of the Green Ash Mineral Deciduous Swamp Forest

consist of Dry-Fresh Deciduous Shrub Thicket (THDM2). The approximate boundaries of wetland communities identified within the Study Area are consistent with findings reported in the 2011 ESPU and 2012 EIS Update Letter.

Forest communities to the south along the ridge of the West Duffins Creek valleylands are comprised of Fresh-Moist Sugar Maple Deciduous Forest (FODM6); this community transitions to southern-laying Fresh-Moist White Cedar Coniferous Forest (FOCM4-1) and Dry-Fresh White Cedar Coniferous Woodland (WOCM1-4) communities within the ravine bottomlands. As indicated by TRCA open data(2000) and field reconnaissance confirmation, White Cedar Woodlands (WOCM1-4) also exist south of the West Duffins Creek.

Cultural vegetation communities dominated the Study Area in the north and northwest. Single-family residential subdivisions (CVR_3) are the dominant land use present within the Study Area. Additional community areas (Commercial and Institutional – Pickering Islamic Centre; CVC) and parkland (CGL_2; Brock Ridge Community Park) exist to the north and west. Cultural areas within the Study Area are connected by Brock Road (Transportation; CVI_1) which bisects the Study Area from north to south.

Table 4 outlines the communities documented during the 2019 ELC surveys and summarizes dominant vegetation cover. Photos of vegetation communities are provided in **Appendix E**. A compiled list of plant species observed on site from all surveys is provided in **Appendix F**.

Table 4: Ecological Land Classification

ELC Code	Classification	Total within Study Area (ha)	Vegetation	Comments	Photograph (Appendix E)
Natural Communities					
MEMM3	Dry-Fresh Mixed Meadow	2.42	This ecosite is dominated by goldenrod (*Solidago* sp.), with additional species such as Daisy Fleabane *(Erigeron annuus*), Purple Vetch (*Vicia americana*), Red Raspberry (*Rubus idaeus*), New England Aster (*Symphyotrichum novae-angliae*), Riverbank Grape (*Vitis riparia*), and Common Burdock (*Arctium minus*). Clusters of scattered young trees throughout the ecosite include Manitoba Maple (*Acer negundo*) and Scots Pine (*Pinus sylvestris*).	One MEMM3 polygon was observed on disturbed areas of cleared vegetation lands, on tablelands of the Study Area, adjacent to West Duffins Creek valleylands. An additional polygon of mixed meadow (mowed lawn) identified along right-of way of Brock Road.	1, 2, 3
FODM6	Fresh-Moist Sugar Maple Deciduous Forest	1.54	Canopy dominated by Sugar Maple (*Acer saccharum*) and American Beech (*Fagus grandifolia*), with Eastern Hemlock (*Tsuga canadensis*), American Basswood (*Tilia americana*), and Eastern White Pine (*Pinus strobus*). Ground cover consists of young Sugar Maple, Sensitive Fern (*Onoclea sensibilis*), and False Solomon's Seal (*Maianthemum racemosum*).	One polygon located along the valleyland ridge of the riparian corridor of the West Duffins Creek. Evidence of human disturbance (garbage) and excavations into the valley ridge were identified within this community. Dust and noise impacts to vegetation was present in areas adjacent to Brock Road.	4, 5, 6
FOCM4-1	Fresh-Moist White Cedar Coniferous Forest	1.67	The canopy is dominated by Eastern White Cedar (*Thuja occidentalis*), with individual trees consisting of Manitoba Maple, European Buckthorn (*Rhamnus cathartica*), and dead Green Ash (*Fraxinus pennsylvanica*). The ground cover was dominated of European Swallowwort (*Vincetoxicum rossicum*), with few isolated occurrences of Ostrich Fern (*Matteuccia struthiopteris*).	One polygon located within the valley bottomlands of the West Duffins Creek riparian corridor. Dust and noise impacts to vegetation was present in areas adjacent to Brock Road.	7, 8
WOCM1-2	Dry-Fresh White Cedar Coniferous Woodland	0.83	Ecosite dominated by Eastern White Cedar and dead Green Ash with Staghorn Sumac (*Rhus typhina*) observed along Brock Road. Ground cover was dominated of European Swallowwort and Garlic Mustard (*Alliaria petiolata*).	One polygon located directly north of the West Duffins Creek.	9
WODM5	Fresh-Moist Deciduous Woodland	2.33	Dominated by Poplar species (*Populus* sp.).	Located east within the Study Area, as well as south of the West Duffins Creek.	---
MASM1-2	Bulrush Mineral Shallow Marsh Type	0.07	Wetland community dominated by Narrow-leaved Cattail (*Typha angustifolia*), Reed Canary Grass (*Phalaris arundinacea*), and Purple Joe Pye Weed (*Eutrochium purpureum*).	One polygon located east within the mixed meadow ecosite of the Study Area	10, 11
THDM2	Dry-Fresh Deciduous Shrub Thicket	0.24	Dominated by Hawthorn species (*Crataegus* sp.) and European Buckthorn. Additional tree species located along the ecosite periphery include American Elm (*Ulmus americana*), Eastern Cottonwood (*Populus deltoides*), and Black Walnut (*Juglans nigra*).	One polygon located in the northeastern corner of the Study Area.	12
SWMD2-2	Green Ash Mineral Deciduous Swamp Forest	0.67	Dominated by dead Green Ash, as well as Black Walnut, and American Elm. Groundcover included Water Horsetail (*Equisetum fluviatile*).	One polygon located along the eastern boundary of the Study Area.	13, 14, 15
OAO	Open Aquatic	0.51	This ecosite consists of the West Duffins Creek.	One polygon.	16
FOD	Deciduous Forest	0.67	Deciduous forest community containing Sugar Maple, American Beech, and American Basswood.	Polygons located along the West Duffins Creek, west of Brock Road.	---
Cultural Communities					
TAGM5	Fencerow	0.16	Tree species identified within the Study Area along the Brock Road frontage includes Freeman Maple (*Acer freemanii*), Manitoba Maple, Yellow Birch (*Betula alleghaniensis*), American Basswood, Large-toothed Aspen (*Populus grandidentata*), and European Buckthorn.	One polygon located along Brock Road that extends northward from deciduous woodlands of the West Duffins Creek riparian corridor.	17
CGL_2	Parkland	1.42	Baseball diamonds and greenspace consisting of mowed lawn and landscaping trees.	Parkland located southwest in the Study Area.	17
CVR_3	Residential	5.64	Subdivision of residential town homes, containing mowed lawns and landscaped trees.	Located north and northeast within the Study Area. Additional residential areas are located south of the West Duffins Creek.	18, 19
CVC	Commercial and Institutional	0.91	Building (Pickering Islamic Centre) with associated parking lots.	Located north within the Study Area.	19
CVI_1	Transportation	1.76	Brock Road, Usman Road, and Sunflower Road.	Municipal roads located east and north within the Study Area	20

BROCK ROAD DUFFINS FOREST INC.
2055 BROCK ROAD
ENVIRONMENTAL IMPACT STUDY

FIGURE 3
FIELD INVESTIGATION RESULTS

- Property Boundary
- Study Area
- Butternut
- Black Ash
- Individual Tree (TIPP, 2021)
- Tree Grouping (TIPP, 2021)
- Watercourse
- Staked ESA (April 2009)
- Staked ESA (May 2006)
- Staked Top of Bank (November 1990, rev April 2009)
- Wetland Boundary (Beacon and TRCA; ESPU, 2011)

Ecological Land Classification

- CGL_2: Parkland
- CVC: Commercial and Institutional
- CVI_1: Transportation
- CVR_3: Single Family Residential
- FOCM4-1: Fresh Moist White Cedar Coniferous Forest
- FOD: Deciduous Forest
- FODM6: Fresh Moist Sugar Maple Deciduous Forest
- WOCM1-2: Dry Fresh Cedar Coniferous Woodland
- WODM5: Fresh Moist Deciduous Woodland
- MEMM3: Dry Fresh Mixed Meadow Ecosite
- MASM1-2: Bulrush Mineral Shallow Marsh
- SWDM2-2: Green Ash Mineral Deciduous Swamp
- OAO: Open Aquatic
- TAGM5: Treed Hedgerow
- THDM2: Deciduous Shrub Thicket

1:2,500

0 25 50 100 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, TRCA, ALTUS GROUP, TERRASTORY

MAP CREATED BY: LK
MAP CHECKED BY: CV
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 191589
STATUS: FINAL
DATE: 2021-11-10

FILE LOCATION: K:\2019\191589\mxd\Figure 3 Field Investigation Results_20211109.mxd

4.3.3 Botanical Assessment

A total of 102 plant species were documented within the Study Area; of which, 46 were observed by Dillon during the 2019 field investigations. Another 22 species consisted of additional species identified within the Study Area in the 2009 EIS from during field investigations, as well as in data sets acquired from the TRCA. An additional 28 species were observed by Terrastory during a Wetland Risk Evaluation. Of the 102 species, three (3) were identified to genus level only. Of the remaining 99 species, 72 are listed as native species and are considered to be Apparently Secure (S4) to Secure (S5) in the province of Ontario. In addition, twenty-three (23) 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), and one species was unranked (SRank of SU). One tree species observed within the Study Area (Butternut, *Juglans cinerea*) is listed as rare or uncommon in Ontario (SRank of S3), and is listed as Endangered by the ESA (2007). Subsequent surveys by Terrastory resulted in additionaltwelve (12) Butternut observations and the detection of Black Ash (*Fraxinus nigra*; listed as Threatened by COSEWIC). Additionally, one SAR species (Kentucky Coffee-tree; *Gymnocladus diocus*) was observed by Terrastory. This species is listed as imperilled in Ontario (SRank of S2), and is listed as Threatened by the ESA (2007). Based on the location of this tree within the municipal right of way (ROW) of Usman Road and a DBH of 4 cm, this tree is very likely a recently planted landscape tree and not of native origin. No other SAR or SCC plants were identified during vegetation surveys.

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

The mean CC value for the site was 4.19 out of a possible 10, indicating a moderately disturbed landscape. A full list of the vegetation species observed within the Study Area has been included in **Appendix F**.

Potential impacts related to vegetation within the Study Area are included in **Section 7.1.2**.

4.3.3.1 Tree Inventory

A total of 23 individual trees and 4 tree groupings were inventoried within the limits of development and 6 m adjacent to the Property on August 12, 2021 by Terrastory. Of the inventoried trees, 11 individual trees are located within municipal lands within the ROW for Usman and Brock Roads. The remaining 12 individual trees and 3 tree groupings are located within the limit of development of the

Property, and one tree grouping is located within 6 m of the limit of development . For additional details please see the Tree Inventory and Preservation Plan (Terrastory, 2021; **Appendix G**). All trees assessed were tagged as a result of the tree inventory.

Thirteen (13) of the 27 inventoried trees / groupings are in fair to good condition; nine (9) of the inventoried trees are in fair condition; Three (3) of the inventoried trees are in fair to poor condition; and the remaining two (2) trees are in poor condition. Eleven tree species were observed during the tree inventory. A list of trees identified as municipal trees and private trees is provided in **Table 5**.

Table 5: Tree Species identified within and adjacent to the Limit of Development

Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]	Municipal Tree	Private Tree	Total Trees Inventoried
Acer negundo	Manitoba Maple	---	---	S5	---	2	**2**
Acer rubrum	Red Maple	---	---	S5	4	---	**4**
Acer saccharum	Sugar Maple	---	---	S5	---	3	**3**
Acer x freemanii	Freeman's Maple	---	---	SNA	4	---	**4**
Gymnocladus dioicus	Kentucky Coffee-tree	THR	THR	S2	1	---	**1**
Juglans nigra	Black Walnut	---	---	S4	---	3	**3**
Pinus strobus	Eastern White Pine	---	---	S5	---	2	**2**
Quercus alba	White Oak	---	---	S5	1	---	**1**
Salix spp.	Willow species	---	---	---	---	1	**1**
Tilia cordata	Little-leaf Linden	---	---	SNA	1	---	**1**
Ulmus pumila	Siberian Elm	---	---	SNA	---	5	**5**
					TOTAL TREES INVENTORIED		**27**

[1]Federal Species at Risk Act, 2002. [2]Provincial Endangered Species Act, 2007. [3]Provincial Conservation ranking (SRank) where S4= Apparently Secure, S5= Secure and SNA = Unsuitable target for Conservation Activities.

4.3.3.2 Butternut Health Assessment

A total of twelve Butternut trees were assessed by Terrastory in the Study Area on September 14, 2021, ranging in diameter at breast height (DBH) from 1 cm to 49 cm. The health of each tree was assessed and categorized as follows:

- A Category 1 tree is one that is affected by butternut canker to such an advanced degree that retaining the tree would not support the protection or recovery of butternut in the area.
- A Category 2 tree is one that is not affected by butternut canker, or is affected by butternut canker but the degree to which it is affected is not too advanced and retaining the tree could support the protection of recovery of Butternut in the area, and is considered "retainable".

Of the twelve Butternut trees assessed in the Study Area, nine were Category 1 and three were Category 2. The Butternut trees assessed are shown in **Figure 3**. The BHA Report produced by Terrastory

(Number 269-TPX) is provided in **Appendix H**. The BHA was submitted by Terrastory to the MECP for review on November 16, 2021.

4.3.4 Breeding Bird Survey

A total of 13 bird species were observed within the Study Area by Beacon in 2019 (**Table 6**). Twelve of the reported bird species observed are considered Apparently Secure (SRank of S4) or Secure (SRank of S5) by the province. The remaining species, European Starling (*Sturnus vulgaris*), is not considered a suitable target for conservation activities (SRank of SE or SNA). None of the bird species identified within the Study Area are designated as SAR or SCC.

Table 6: Breeding Bird Survey Results

Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]	Breeding Evidence[4]
Agelaius phoeniceus	Red-winged Blackbird	---	---	S4	S
Bombycilla cedrorum	Cedar Waxwing	---	---	S5B	S
Cardinalis cardinalis	Northern Cardinal	---	---	S5	F
Cyanocitta cristata	Blue Jay	---	---	S5	S
Geothlypis trichas	Common Yellowthroat	---	---	S5B	S
Melospiza melodia	Song Sparrow	---	---	S5B	S
Poecile atricapillus	Black-capped Chickadee	---	---	S5	S
Quiscalus quiscula	Common Grackle	---	---	S5B	S
Spinus tristis	American Goldfinch	---	---	S5B	S
Spizella passerina	Chipping Sparrow	---	---	S5B	S
Sturnus vulgaris	European Starling	---	---	SNA	F
Turdus migratorius	American Robin	---	---	S5B	F
Zenaida macroura	Mourning Dove	---	---	S5	S

[1]Federal Species at Risk Act (Source: SARA Public Registry, 2007); [2]Provincial Endangered Species Act (Source: MNRF website, 2007); [3]SRank 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. S5 = Secure, S4 = Apparently Secure, S3 = Vulnerable, S2 = Imperiled, S1 = Critically Imperiled, SX = extirpated, SNA = unsuitable target for conservation activities, B = within the Species breeding range in Ontario.

[4]Breeding Bird Codes from Breeding Bird Atlas of Ontario (Cadman et al. 2007)

Observed

X *Species observed in its breeding season (no breeding evidence)*

Possible

H *Species observed in its breeding season in suitable nesting habitat*

S *Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season*

Probable

P *Pair observed in suitable nesting habitat in nesting season*

T *Permanent territory presumed through registration of territorial song, or the occurrence of an adult bird, at the same place, in breeding habitat, on at least two days a week or more apart, during its breeding season.*

D *Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation*

V *Visiting probable nest site*

A *Agitated behaviour or anxiety calls of an adult*

B *Brood Patch on adult female or cloacal protuberance on adult male*

N *Nest-building or excavation of nest hole, except by a wren or a woodpecker*

F/0 *Flyover*

Confirmed

NB *Nest-building or excavation of nest hole by a species other than a wren or a woodpecker*

DD *Distraction display or injury feigning*

NU *Used nest or egg shells found (occupied or laid within the period of the survey)*

FY *Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight*

AE *Adult leaving or entering nest sites in circumstances indicating occupied nest*

FS *Adult carrying fecal sac*

CF *Adult carrying food for young*

NE *Nest containing eggs*

NY *Nest with young seen or heard*

Potential impacts to breeding birds as well as general wildlife are discussed further in **Section 7.0**.

4.3.5 Amphibian Survey

As reported in the 2009 EIS, no amphibian species were heard or observed during amphibian call surveys within the Study Area. Furthermore, no amphibians were heard or observed incidentally during the October 2019 site visit by Dillon.

4.3.6 Incidental Wildlife

Incidental wildlife species observed within the Study Area by Dillon in 2019 are listed below in **Table 7.** An additional seven (7) species provided in digital data of the TRCA were reported to occur within the Study Area in the 2009 EIS. All of the incidental species observed are listed as either Secure (SRank of S5) or Apparently Secure (SRank of S4) in Ontario. No SAR or SCC were incidentally observed within the Study Area.

Table 7: Incidental Wildlife Observations

Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]	Observed By Dillon[4]	TRCA Digital Data[5]
Birds						
Buteo jamaicensis	Red-tailed Hawk	---	---	S5	●	---
Cyanocitta cristata	Blue Jay	---	---	S5	●	---
Dryobates villosus	Hairy Woodpecker	---	---	S5	---	●
Dumetella carolinensis	Gray Catbird	---	---	S4B	---	●
Falco sparverius	American Kestrel	---	---	S4	●	---
Melospiza melodia	Song Sparrow	---	---	S5B	●	---
Myiarchus crinitus	Great Crested Flycatcher	---	---	S4B	---	●
Passerina cyanea	Indigo Bunting	---	---	S4B	---	●
Poecile atricapillus	Black-capped Chickadee	---	---	S5	●	---
Sitta canadensis	Red-breasted Nuthatch	---	---	S5	---	●
Spinus tristis	American Goldfinch	---	---	S5B	●	---
Vireo olivaceus	Red-eyed Vireo	---	---	S5B	---	●
Zonotrichia albicollis	White-throated Sparrow	---	---	S5B	●	---
Mammals						
Sylvilagus floridanus	Eastern Cottontail	---	---	S5	●	---
Sciurus carolinensis	Eastern Gray Squirrel	---	---	S5	●	---
Tamiasciurus hudsonicus	Red Squirrel	---	---	S5	●	---
Odocoileus virginianus	White-tailed Deer	---	---	S5	●	---
Herptiles						
Hyla versicolor	Gray Treefrog	---	---	S5	---	●

[1]Federal Species at Risk Act (Source: SARA Public Registry, 2007); [2]Provincial Endangered Species Act (Source: MNRF website, 2007); [3]SRank 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. S5 = Secure, S4 = Apparently Secure, S3 = Vulnerable, S2 = Imperiled, S1 = Critically Imperiled, SX = extirpated, SNA = unsuitable target for conservation activities, B = within the Species breeding range in Ontario. [4] Incidental wildlife observed by Dillon during 2019 field reconnaissance activities.[5] Species reported in the 2009 EIS provided in TRCA digital data sets.

Potential Impacts to wildlife are provided in **Section 7.1.4**.

4.4 Natural Heritage Features

4.4.1 Environmentally Significant Areas

The Major-Spink Environmentally Significant Area No. 97 is defined by the TRCA within the riparian corridor of the West Duffins Creek system. A TRCA study for Major-Spink Environmentally Significant Area is provided in **Appendix B** (TRCA, 2006). According to the study, the Major-Spink area meets the criteria for an Environmentally Significant Area because the riparian corridor as a whole is considered highly diverse and contains 15 plant communities (TRCA, 2006). Furthermore, breeding bird studies in the Major-Spink Environmentally Significant Area resulted in high species diversity (30 species) and an overall high species richness (TRCA, 2006).

According to the 2009 EIS, the limit of the Major-Spink Environmentally Significant Area was staked by the TRCA for an application under a previous owner. A site walk with the TRCA and WME took place in June 2009 to confirm and revise the Environmentally Significant Area boundary.

The staked boundary for the Environmentally Significant Area is provided in **Figure 4**. Potential impacts to the Major-Spink Environmentally Significant Area are described **Section 7.0**.

4.4.2 Wetlands

Three unevaluated wetland communities were identified within the Study Area through the background review. Two of these wetland communities were confirmed by Dillon during the 2019 site visit.

Using open-source data from the TRCA (2000), one wetland vegetation community (Jewelweed Forb Mineral Meadow Marsh, MAMM2-1) was identified within the Study Area in the 2009 EIS. An additional wetland community was identified adjacent to the MAMM2- area during staking activities with the TRCA (June 2009); this community (Bulrush Mineral Shallow Marsh Type, MASM1-2) was assessed and delineated during follow-up assessments occurring in June of 2009. Both unevaluated wetland communities were mapped in the 2009 EIS report.

Wetland boundaries within the Study Area were later delineated in 2011 by Beacon and the TRCA as part of the 2012 ESPU; the limits for unevaluated wetlands differed from those described in the 2009 EIS. In their evaluation, Beacon and the TRCA identified two communities comprising a single wetland unit (i.e. MASM1-2 and SWDM2). The area of MASM1-2 identified by Beacon and the TRCA was similar to that described in the 2009 EIS. However, contrary to the findings of the 2009 EIS, the unevaluated MASM1-2 wetland community was observed to connect to an area of Green Ash Swamp (SWDM2) located farther east within woodlands of the Study Area (2012 ESPU). Wetland communities previously delineated by Beacon and the TRCA (2012 ESPU) were confirmed by Dillon in 2019; both communities were found to be dry during the site visit.

The boundary of unevaluated wetlands as defined in the 2012 ESPU are mapped within **Figure 4**. Potential impacts to wetland communities within the Study Area as a result of the proposed developmentare discussed further in **Section 7.0.**

BROCK ROAD DUFFINS FOREST INC.
2055 BROCK ROAD
ENVIRONMENTAL IMPACT STUDY

FIGURE 4
PROPOSED DEVELOPMENT IMPACTS

- Property Boundary
- Study Area
- Proposed Development Plan
- Proposed Landscaping
- Extent of Proposed Underground Parking
- Tree / Grouping to be Removed
- Tree / Grouping to be Retained

Natural Heritage Features

- Black Ash
- Butternut
- Watercourse
- Regional Floodline (SKA)
- Wetland Boundary (Beacon and TRCA; ESPU, 2011)
- Unevaluated Wetlands
- Significant Woodlands
- Significant Valleylands

Staked Features and Buffers

- Staked ESA (April 2009)
- Staked ESA (May 2006)
- Staked ESA 10 m Buffer
- Staked Top of Bank (November 1990, rev April 2009)
- Staked Top of Bank 10 m Buffer
- Butternut 25 m Setback
- Wetland 15 m Buffer (ESPU, 2011)
- Floodplain 10 m Buffer

Significant Wildlife Habitat

- Confirmed SWH for Special Concern and Rare Wildlife (Black Ash)
- Candidate Bat Maternity Roost
- Candidate Landbird Migratory Stopover Area

Species at Risk Habitat

- Butternut
- Potential SAR Bat Habitat

1:2,500

0 25 50 100 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, TRCA, TERRASTORY, ALTUS GROUP

MAP CREATED BY: LK
MAP CHECKED BY: CV
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 191589
STATUS: FINAL
DATE: 2021-12-16

FILE LOCATION: K:\2019\191589\mxd\Figure 4 Proposed Development Impacts_20211216.mxd

4.4.3 Woodlands

As described previously in **Section 2.8**, woodlands of the Study Area (i.e. FODM6, SWDM2-2-, FOCM4-1, FOD, WOCM1-2 and WODM5) associated with riparian cover of the West Duffins Creek are considered Significant by Schedule IIIB of the City's OP (2018; **Appendix A**). While criteria for significance is not provided in the City's OP (2018) or the ROP (2017), the woodland likely is considered significant as it meets several criteria of the NHRM (MNRF, 2010): the woodland is designated as within the Regional Greenlands System, provides linkages to other natural features (i.e. wetlands), is located within 30 m to fish habitat and maintains greater than 30 m of riparian habitat to the West Duffins Creek (Table 7-2; MNRF, 2010).

Based on the information provided in the 2009 EIS and the 2012 EIS Update Letter, the dripline for the Significant Woodland has not yet been staked. However, it is noted that the limits of forest communities are contained within the staked boundary of the Major-Spink Environmentally Significant Area (**Figure 4**).

Significant Woodlands identified within the Study Area are mapped within **Figure 4** (Proposed Development Impacts). Potential impacts related to woodlands within the Study Area are included in **Section 7.1.2.**

4.4.4 Valleylands

As described in **Section 2.8**, topography comprising of the riparian corridor for the West Duffins Creek is designated as Significant Valleylands under Schedule IIIC of the City's OP (2018; **Appendix A**). While criteria is not provided in the City's OP (2018) or the ROP (2017), the Valleyland is considered significant as it meets several criteria of the NHRM (MNRF, 2014). As per Section 8.3.1 of the NHRM (2014), the riparian corridor of the West Duffins Creek meets criteria for significance as it has; greater than 30 m of riparian habitat extending from the east and west banks of the watercourse. Significant Woodlands on the north and south banks of the West Duffins Creek are contiguous and provide linkage opportunities to other natural areas identified in the Regional Greenland System (2018).

Valleylands of the Study Area are less-well defined as the riparian corridor consists of rolling topography as well as more prominent ridgelines; as such, valleylands boundaries within the Study Area likely consist of a combination of the regional floodline, elevation contours and the staked top of bank. According to the 2009 EIS, the initial limit for the Significant Valleyland top of bank (TOB) was taken from open source data from the TRCA (2000). The TOB for the Significant Valleylands was later confirmed during staking activities conducted by the TRCA and WME in June 2009. During this time, revisions to the TOB in the southeastern corner of tablelands within the Study Area were established. Dillon staff noted that the valley ridge was impacted by human disturbance during field investigations in 2019; isolated excavation activities along the valley ridge were documented within the Study Area (**Appendix F,** Photo 6).

In accordance to Section 8.3 of the NHRM (2014), for a "less well-defined stream corridor," Significant Valleylands of the Study Area were delineated by linking the staked TOB, the flooding hazard limit, and existing riparian vegetation (**Figure 4**). The floodplain for the wetlands present in the eastern section of the Study Area were provided by SKA Consulting Engineers (2021); this linework is considered an update from the EIS produced for the second submission which previously used regulated floodplain mapping from the TRCA.

Significant Valleylands, as well as the revised TOB identified in the 2009 EIS are mapped within **Figure 4**. Potential impacts to Significant Valleylands are discussed in **Section 7.0.**

4.4.5 Areas of Natural and Scientific Interest

No Life Science or Earth Science Areas of Natural or Scientific Interest exist within or adjacent to the Study Area (NHIC, 2018).

4.4.6 Species at Risk and Species at Risk Habitat

As noted in **Section 4.3.3**, twelve Butternut currently exist within the Study Area within the Green Ash Mineral Deciduous Swamp Forest (SWDM2; **Appendix E,** Photo 16). A Butternut Health Assessment was conducted for these trees to determine if these trees are infected by Butternut Canker. Of the twelve, nine were infected to an non-retainable degree. All twelve Butternut will be given a 25 m buffer. Four Black Ash are also present within the Study Area, however located well outside of the development limits within retained forest habitat; while this species is anticipated to be uplisted to the ESA (2007) no formal direction for habitat has been provided to-date for this species from the MECP.

While potential habitat exists, Barn Swallow, Bank Swallow, Eastern Meadowlark, Bobolink, and Yellow-breasted Chat were not observed by Beacon within the Study Area during 2019 breeding bird surveys.

While targeted surveys for snag and cavity trees were not performed for the Study Area, potential habitat for SAR bat species exists within the deciduous forests (FODM6, FOCM4-1, WODM5, WOCM1-2, and FOD) and swamp communities (SWDM2). No snag or cavity trees were identified within the hedgerow communities (TAGM5) by Dillon during the 2019 field investigations, and therefore it is assumed hedgerows do not provide habitat for SAR bats.

While reaches of the West Duffins Creek are known to provide habitat for Redside Dace, sections of the watercourse adjacent or downstream of the Study Area have not been mapped as habitat for this species by the DFO (2018). In addition, this species was not identified in open source data by the TRCA (2018). Based on this information, Regulated Habitat for this species does not exist within the Study Area.

No other SAR or SAR habitat was identified within the Study Area during the 2019 field surveys. Potential impacts related to SAR are addressed further in **Section 7.1.5.**

4.4.7 Significant Wildlife Habitat

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

While surveys for snag and cavity trees were not formally conducted for the Study Area, Candidate SWH for Bat Maternity Colonies have the potential to occur within communities comprising the Significant Woodlands (FODM6, SWDM2-2, WODM5, FOCM4-1, WOCM1-2 and FOD) of the West Duffins Creek riparian corridor.

Similarly, Significant Woodlands of the Study Area likely provide candidate SWH for Landbird Migratory Stopover Areas. While breeding bird surveys were completed for the Study Area in 2009 and 2019, the number and seasonal timing of surveys conducted do not qualify to confirm SWH. While candidate SWH is present, we note that preliminary avian species richness and diversity data reported as a result of the 2009 and 2019 breeding bird surveys do not meet criteria for SWH.

As reported in the 2009 EIS, no frog species were observed during the amphibian call surveys. Based on the results of the 2009 EIS, SWH for wetland or woodland Amphibian Breeding Habitat likely does not exist within the Study Area.

While Eastern Wood-pewee, Wood Thrush and Rusty Blackbird had the potential to occur within vegetation communities of the Study Area, these species were not observed incidentally by Dillon staff or by Beacon during 2019 breeding bird surveys. As these species were not observed, SWH for Special Concern or Rare Wildlife does not exist within the Study Area.

As mentioned previously, Black Ash have been recently listed federally as threatened under SARA (2002). Since four trees were identified within the Green Ash Mineral Deciduous Swamp (SWDM2) by Terrastory, this vegetation community is considered Confirmed SWH for Special Concern and Rare Wildlife (**Figure 4**).

Aquatic features within the Study Area (the West Duffins Creek and unevaluated wetlands) do not contain suitable habitat to provide Candidate SWH for Turtle Overwintering Habitat. While a permanent source of water is present within the West Duffins Creek (OAO), geological and soil records indicate that the substrate is unsuitable (i.e. clay, silt, sand) to support hibernating turtles (Soil Engineers Inc., 2019; MNRF, 2015). Similarly, the unevaluated wetland communities identified east within the Study Area were reported as dry during the October site visit.

Candidate SWH identified as a result of the background review and field investigations are mapped within **Figure 4.** Potential impacts to wildlife habitat are discussed in **Section 7.1.4**.

5.0 Ecological Function

Natural features within and adjacent to the Study Area were assessed to determine their ecological function. As described above, the Study Area and surrounding lands consists predominantly of residential (CVR), institutional (CVC), and park lands (CGL), reflecting the Living Areas designation of the ROP (2017; Schedule A) and the Urban Residential Areas designation of the City's OP (2018; Schedule I). At the larger landscape scale, forests (FOD, FODM6, FOCM4-1, WOCM1-2, SWDM2-2 and WODM5) within the riparian corridor of the West Duffins Creek are designated as part of the Regions Greenland System (Schedule A; 2017) and are considered Key Natural Features and Key Hydrological Features of the City's OP (Schedule I; 2018). As confirmed through the 2019 field investigations, it was determined that riparian habitat of the West Duffins Creek contains Significant Woodlands and Significant Valleylands that provide candidate SWH for migratory birds and bats, respectively. Additional habitat in these natural features was also identified for SAR bats, 12 Butternut trees and 4 Black Ash trees. Significant Woodlands, Significant Valleylands identified in the Study Area are encompassed by the boundary of the Major-Spink Environmentally Significant Area (TRCA, 2006). A small area of unevaluated wetland extends from the riparian corridor into the area of disturbed mixed meadow.

While natural communities within the Regional Greenland System may act as an ecological corridor for wildlife movement/migration and may provide forage, refuge and nesting habitat for a variety of wildlife, these areas displayed evidence of significant anthropogenic disturbance. Excavations and dumping of trash within the valleyland ridge were noted during the 2019 field investigations. In addition, ground cover of several forest communities was dominated by invasive species such as European Swallowwort and Garlic Mustard. Noise and dust from the Brock Road were also noted as additional impacts to the forest communities during the 2019 field investigations. Municipal roads also likely limit the movement of wildlife within the Study Area from east to west.

The associated potential impacts of the development and proposed mitigation measures are discussed in **Sections 7.0** and **8.0**.

6.0 Description of Proposed Development

The site plan for the Study Area located at 2055 Brock Road is for residential development (**Figure 4**). Buildings proposed in the site plan include one high rise condominium (Block A), as well as stacked townhouses (Blocks B, C and D). The high rise condominium will consist of a podium (4 storeys) and tower (20 storeys) and is anticipated to provide 307 units. Stacked Townhouses in the remaining Blocks are anticipated to provide 9 (Block B) and 32 (Blocks C and D) units each, respectively. Above ground visitor parking, as well as two underground parking lots are also proposed to accommodate residents. An outdoor amenity area (0.1 ha) is planned to be located centrally within the site plan in the middle of the four proposed buildings.

Construction of the proposed development would include vegetation clearing and grading activities, as well as the placement of driveways, sidewalks, and underground servicing for stormwater, sanitary and water. Clearing activities will include the removal of disturbed meadow vegetation identified within tablelands of the Study Area. While clearing activities may require the removal of select trees within the disturbed meadow and hedgerows, trees of the Significant Woodland will be retained and protected within staked limits for Major-Spink Environmentally Significant Area. Other natural features (unevaluated wetlands, Significant Valleylands, candidate SWH and SAR habitat) will also be retained and protected by this staked boundary for the proposed development and applicable setbacks.

The proposed development, associated impacts and mitigation measures are discussed further in **Sections 7.0** and **8.0**.

7.0 Impact Identification and Analysis

7.1 Direct Impacts

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

- Tree and vegetation removal;
- Diversion of stormwater flows;
- Dewatering of aquifers;
- Impacts to wetlands;
- Sedimentation of natural features; and
- Disturbance to wildlife and wildlife habitat.

7.1.1 Tree and Vegetation Removal

While clearing activities will be required to remove select trees and ground vegetation, vegetation removals within the Study Area are minimal, as the proposed site plan is limited to tablelands containing disturbed mixed meadow (MEMM3) and treed hedgerows (TAGM5) (**Figure 4**). Approximately 1.25 ha of the disturbed mixed meadow community and 0.02 ha of the treed hedgerow is proposed for removal to accommodate the site plan. In addition, vegetation clearings may also require the removal of select small trees within the meadow area. A tree inventory was conducted by Terrastory on August 12, 2021, and is detailed in the Tree Inventory and Preservation Plan in **Appendix G**.

Trees located within the municipal ROW are protected by the City Street Tree By-law. Trees located within the development footprint are protect by the City Private Tree By-Law. To compensate for these removals a Landscaping Plan was prepared for the Property by MMBC Planning (2021). Additional restoration and landscape plantings will occur within the development limits of the property (**Figure 4**) to accommodate the site plan.

As indicated in the Tree Inventory and Preservation Plan (Terrastory, 2021), a total of 12 individual trees and 3 tree groupings are recommended for removal to accommodate the proposed development. The majority of the trees proposed for removal are non-native species. The trees anticipated for removal are identified in **Table 6.**

Table 8: Trees Proposed for Removal within the Property

Tag ID[1]	Scientific Name	Common Name	Diameter at Breast Height (cm)	Condition[2]	Ownership and Rationale for Removal
13	*Pinus strobus*	White Pine	~5-10	Fair to Good	Private: within footprint of proposed development
14	*Acer negundo*	Manitoba Maple	~10-15	Fair	Private: within footprint of proposed development
1358	*Acer saccharum*	Sugar Maple	53	Fair	Private: within footprint of proposed development
1359	*Acer saccharum*	Sugar Maple	39	Fair	Private: within footprint of proposed development
1360	*Acer negundo*	Manitoba Maple	~15-18	Fair	Private: within footprint of proposed development
1361	*Salix sp.*	Willow Species	17	Fair	Private: within footprint of proposed development
1362	*Juglans nigra*	Black Walnut	16	Fair to Good	Private: within footprint of proposed development
1363	*Juglans nigra*	Black Walnut	13	Fair	Private: within footprint of proposed development
1364	*Juglans nigra*	Black Walnut	20	Fair to Good	Private: within footprint of proposed development
1365	*Ulmus pumila*	Siberian Elm	32, 20	Fair to Poor	Private: within footprint of proposed development
1366	*Acer saccharum*	Sugar Maple	16	Fair to Good	Private: within footprint of proposed development
1367	*Ulmus pumila*	Siberian Elm	15	Poor	Private: within footprint of proposed development
1368	*Ulmus pumila*	Siberian Elm	18	Fair to Poor	Private: within footprint of proposed development
1369	*Ulmus pumila*	Siberian Elm	14	Poor	Private: within footprint of proposed development
1370	*Ulmus pumila*	Siberian Elm	16	Poor	Private: within footprint of proposed development

[1]Tree Identification number used in Terrastry Environmental Consulting Inc. 2021 Inventory. [2]Condition as assessed by Terrastory Consulting Inc. Arborist Report.

The remaining trees included in the inventory conducted by Terrastory are to be retained in the proposed development. No grading is proposed within buffers of woodlot/wetlands as indicated by the Site Grading Plan (S.K.A., 2021)

Mitigation for the removal of ground vegetation and select public trees within the Study Area are provided in **Section 8.2**

7.1.2 Diversion of Stormwater Flows

Surface flows within the Property and Study Area were evaluated in the Pre- and Post-Development Water Balance Assessment by Soil Engineers Ltd (2020). Under existing conditions, it was estimated that

the Property receives a total of 873 mm of precipitation per year. Of the annual precipitation, 81% (710 mm/year) is estimated to occur as evapotranspiration, whereas 9% (73 mm/year) is estimated to occur as annual runoff and 10% (90 mm/year) is anticipated to infiltrate grounds of the Study Area. Under pre-development conditions, the estimated annual runoff estimated for the Property was 3,702.6 m^3/year; these calculations are a reflection of the existing land use within the Property (Soil Engineers Ltd., 2020). The Property is currently vacant and contains large areas of flat, pervious area (disturbed meadow).

As depicted in **Figure 4**, areas of impervious coverage are anticipated to increase under the post-development conditions. The foundations of four buildings, parking lots and roads are proposed for the Study Area. As a result of the proposed development, Soil Engineers Ltd. estimate that a total of 10,690.8 m^3/year will occur as annual runoff; representing an increase of approximately 65.4% (6,988.2 m^3/year) from pre-development conditions (Soil Engineers Ltd., 2020).

In the report by Soil Engineers Ltd., it is anticipated that 7,723.5 m^3/year will be contributed as annual runoff from proposed building rooftops (3,754.1 m^3/year) and paved areas (3,969.4 m^3/year) for the proposed development (2020). As a result of the proposed mitigation, the estimated annual runoff for the Property is estimated to increase by 7% in the post-development conditions (Soil Engineers Ltd., 2020).

The increase in annual runoff estimated under the post-development conditions is not anticipated to impact wetland communities (i.e. MASM1-2 and SWDM2-2) within the Study Area as this change is in-line natural fluctuations in annual weather patterns (TRCA, 2017).

Mitigation regarding the proposed stormwater management plan is provided in **Section 8.3**.

7.1.3 Dewatering of Aquifers

As per the report by Soil Engineers Ltd., the estimated zone of influence for construction dewatering could reach a maximum of 11.4 m away from the conceptual dewatering arrays considered for the construction of the underground parking structure. No water supply wells, bodies of water, water courses, wetlands, or any natural features are present within the conceptual zone of influences for the construction dewatering arrays. Given that the southern and eastern portions of the site are heavily forested, with no development being anticipated for these portions of the site, it is likely that West Duffins Creek and its associated natural features will be located outside the conceptual zone of influence for construction dewatering (Soil Engineers Ltd., 2020).

7.1.4 Impacts to Wetlands

Summarize results of wetland risk assessment report from Terrapex

Based on the feedback received from the TRCA on the second application submission, a wetland risk evaluation was conducted by Terrapex Environment Limited (Terrapex; 2021). The wetland risk assessment was conducted in accordance with criteria of the TRCA 2017 Wetland Water Balance Risk Evaluation. The risk evaluation included a hydrological and wetland sensitivity analysis.

As part of the analysis, it was determined by Terrapex that the post-construction catchment area of the wetland would be 93.4% of the catchment area measured under existing conditions (a 6.6% reduction in size). Under the TRCA's criteria, this reduction is considered a low magnitude change. Similarily, based on hydrological reports from Soil Engineers Ltd. (2021), the temporary dewatering rates and impacts to the local recharge area estimated are also considered to be low magnitude of hydrological change under the TRCA's criteria.

Wetland sensitivity was evaluated by assessing the vegetation community, flora, fauna, presence of significant wildlife habitat, and hydrological classification using field data from the first and second EIS. As discussed previously in **Section 4.3.2**, wetland communities consisted of Cattail Mineral Shallow Marsh (MAS2-1; medium sensitivity), Forb Mineral Meadow Marsh (MAM2-10; low sensitivity) and Green Ash Mineral Deciduous Swamp (SWDM2; medium sensitivity). Overall the total sensitivity rating for wetland vegetation communities was provided a medium, as it was considered tolerant of slight hydrological change. In addition, sensitive flora (Hop Sedge, *Carex lupulina)* and fauna (Gray Tree Frog, *Hyla versicolor* ; Leopard Frog, *Lithobates pipiens*), as well as habitat for Black Ash (listed as Threatened under the SARA),were present in the wetland unit. While the wetlands within the Property exists as a topographic depression and is fed by overland flow, these features are evaluated with the contiguous palustrine units present to the east within the greater Study Area. Based on the evaluation of the criteria above, the wetland is considered highly sensitive.

Following the 2017 criteria of the TRCA, Terrastory determined that the resulting overall risk assigned to the wetland water balance was considered low.

7.1.5 Sedimentation of Natural Features

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 projects that plays a large role in the protection of downstream watercourses and aquatic habitat.

In addition, the potential impacts of changes to land use and land cover can include changes to surface water infiltration, runoff, streamflow regime, water quality, downstream channel erosion, and wildlife habitat. As a result, there is the potential for impacts to occur if construction best management practices are not implemented.

Potential impacts may include, but are not limited to:

- Disturbance to or loss of vegetation due to the deposition of dust and/or overland mobilization of soil; and
- Disturbance and sedimentation to the West Duffins Creek, Major-Spink Environmentally Significant Area, Significant Woodlands and Significant Valleylands due to the mobilization of soil during excavations and construction activities.

Refer to **Section 8.4** for mitigation measures related to erosion and sedimentation within the Study Area.

7.1.6 Disturbance to Wildlife and Wildlife Habitat

Wildlife within the Study Area has the potential to be temporarily impacted by construction activities within the proposed development area. Habitat for 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; and
- Disturbance to wildlife as a result of noise associated with construction activities, particularly during breeding periods.

Candidate SWH for Bat Migratory Roosts and Landbird Migratory Stopover Areas was identified within designated natural features (i.e. Significant Woodlands, Significant Valleylands, unevaluated wetlands, and Major-Spink Environmentally Significant Area) of the Study Area. These areas were also identified as habitat for SAR: confirmed habitat for Butternut as well as a potential habitat for SAR bats were identified within Significant Woodlands of the Study Area.

Impacts to habitat for Butternut, bats (candidate SWH and SAR), and migratory birds (candidate SWH) are discussed in the following sections.

7.1.6.1 Disturbance to Butternut

As discussed previously in **Section 4.4.6**, twelve Butternut currently exist within the Study Area within the Green Ash Mineral Deciduous Swamp Forest (SWDM2). Following the Species Recovery Strategy for this Butternut, a 25 m buffer has been applied to protect each of the twelve trees (**Figure 4).** The 25 m buffer of two of the Butternut trees (trees #5 and #6) will partially overlap with the development footprint; however, based on the DBH of these trees (7 cm and 2 cm respectively), no impact to the trees or their root zones is expected. No impacts are anticipated to occur to the remaining 10 Butternut trees as a result of the proposed development, as they are to be protected within the limits of Significant Woodlands.

7.1.6.2 Disturbance to Black Ash

As discussed previously in **Section 4.4.6**, four Black Ash currently exist within the Study Area within the Green Ash Mineral Deciduous Swamp Forest (SWDM2). No buffer has been applied to these trees, but they are within the 25 m buffer of four of the Butternut trees mentioned above (**Figure 4).** No impacts are anticipated to occur to the four Black Ash trees as a result of the proposed development, as they are to be protected within the limits of Significant Woodlands.

7.1.6.3 Disturbance to Bats and Bat Habitat

While specific habitat surveys for bats were not completed for the Study Area, Significant Woodlands of the West Duffins Creek riparian corridor were identified as candidate SWH for Bat Maternity Roosts and potential habitat for SAR bat species (**Figure 4**). No direct impacts are anticipated to occur to either habitat within Significant Woodlands as no vegetation clearing activities are proposed for this area. Although portions of hedgerows may be removed as a result of the proposed development, individual trees of this community likely do not provide habitat for bats as no snag/cavity trees were observed in individual trees during the 2019 site visit.

7.1.6.4 Disturbance to Migratory Birds

As discussed in Section 4.4.7, the Significant Woodlands and Major-Spink Environmentally Significant Area has the potential to provide candidate SWH for Landbird Migratory Stopover Areas. While direct impacts to habitat are not anticipated as a result of the proposed development, the addition of condominium and townhouse residential buildings in the Study Area may cause increased fatalities to migratory birds during spring and fall migration.

Common building designs of urban landscapes impose many hazards to migratory birds. It is common for multistorey buildings (apartments and offices) to have large surface areas consisting of glass windows. Glare, reflections from nearby vegetation, and light pollution from glass surfaces are the primary cause of bird fatalities. Birds can become confused by optical illusions imposed by glass surfaces, which can lead to fatal collisions.

Refer to **Section 8.6** and **Section 8.6.1** for mitigation measures for construction for the development area and bird strike analysis following the Toronto Green Standard (2014) Bird-Friendly Development Guidelines, respectively.

7.2 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.

7.2.1 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. The proposed development is adjacent to existing highly urbanized areas, thus the impact of disturbance is expected to be minor.

Mitigation measures related to wildlife are addressed in **Section 8.6**.

7.2.2 Colonization of Non-native and/or Invasive Species

Results of the botanical survey and data reviewed from background resources provide evidence that the Study Area, including areas of natural features (Significant Woodlands, Significant Valleylands, and Major-Spink Environmentally Significant Area) contain a high proportion of invasive and exotic plant species. Despite the existing conditions, additional physical site disturbance may introduce additional exotic and/or invasive flora species to the surrounding vegetation communities, primarily to the riparian habitat of West Duffins Creek in the south and south-east of the Study Area

Invasive flora can establish in disturbed sites and can encroach onto adjacent undisturbed lands more efficiently than native flora. This type of colonization has occurred within the Significant Valleylands and Significant Woodlands within and adjacent to the Study Area, such as European Swallowwort (*Vincetoxicum rossicum*), Manitoba Maple (*Acer negundo*) and European Buckthorn (*Rhamnus cathartica*).

Impacts due to the colonization of invasive and exotic species can be largely mitigated through the use of native species in landscaping plans.

Mitigation measures related to the control of invasive species are addressed in **Section 8.2**.

8.0 Proposed Mitigation Measures

Mitigation involves the avoidance or minimization 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 Study Area. The impact assessment of the proposed development plan highlighted four potential direct impacts, which include tree and vegetation removal, diversion of surface water flows, sedimentation of natural features, dewatering of aquifers, and disturbance to wildlife.

A variety of mitigation techniques can be used to minimize or eliminate the above-mentioned impacts. These measures include enhancement of the buffer areas through a Bird-Friendly Design, Landscaping and Planting Plan, a Stormwater Management (SWM) Plan, Erosion and Sediment Control Plan and an Environmental Monitoring Plan. Each mitigation measure is introduced below. Detailed mitigation measures will be finalized in consultation with the TRCA and City as part of the preliminary and Detailed Design of the proposed development.

8.1 Natural Heritage Buffers

The proposed development will be limited to the boundaries shown in **Figure 4**; the limit for the proposed development was previously agreed to in the submitted 2009 EIS.

The site plan positions development outside of the required 10 m buffer applied from the staked boundary for Major-Spink Environmentally Significant Area (April 2009) and 15 m buffer from unevaluated wetlands. The buffer for Major-Spink Environmentally Significant Area encompasses natural features and associated vegetation protection zones for Significant Woodlands, Significant Valleylands (10 m) within the Study Area. A buffer for Significant Woodlands was not agreed to as part of the 2009 EIS as this feature would be protected by the boundary of Major-Spink Environmentally Significant Area. In accordance to Section 7.3.1.4 of the TRCA LCP (2014), a 10 m buffer was applied to the area of Significant Valleylands defined by the regional floodline; the site plan was previously agreed to and established with consideration of the floodplain buffer. Based on the floodplan mapping provided by SKA Consulting Engineers, there are no encroachments to this 10 m floodplain buffer by the proposed development depicted by **Figure 4**.

In its current state, the buffer area for Major-Spink Environmentally Significant Area consists of low quality habitat (disturbed meadow) and contains invasive species as a result of existing disturbances within the Study Area. As described in **Section 8.2**, to prevent the colonization of invasive species and maximize ecological function within the buffer area, planting of native species is recommended. Plantings will also increase the quality of habitat within the buffer and provide better protection to plants and wildlife utilizing the natural features.

Details of the buffer plantings are to be included in the Landscaping and Planting Plan, outlined in **Section 8.2** below.

8.2 Landscaping and Planting Plan

The proposed development will require the removal of ground vegetation and select trees within the Study Area. As a result, a Landscaping and Planting Plan was prepared by MHBC Planning to off-set proposed vegetation removal and propose enhancements to buffers of natural areas where possible. Compensation plantings of trees are generally based on the number of removals required to facilitate construction of the development. Trees within the Significant Woodlands will not be impacted by the proposed development.

In accordance with the City's Tree Inventory, Preservation, and Removal Compensation Requirements, all trees greater than 15 cm DBH will require compensation in the form of replacement plantings or cash-in-lieu. Based on the Tree Inventory and Protection Plan (Terrastory, 2021) 10 individual trees and one tree grouping meet this criteria and will require compensation. Tree compensation shall be calculated as follows:

- Trees with a caliper of 15 cm to 29 cm DBH at a compensation ratio of 1:1
- Trees with a caliper of 30 cm to 49 cm DBH at a compensation ratio of 2:1
- Trees with a caliper of 50 cm to 74 cm DBH at a compensation ratio of 3:1

Based on the above ratios planting of 20 trees will be required to adhere to compensation requirements.

As noted in **Section 4.3.3**, twelve Butternut currently exist within the Study Area within the Green Ash Mineral Deciduous Swamp Forest (SWDM2; **Appendix E,** Photo 16). Section 23.7 (10) of Ontario Regulation 242/08 of the ESA (2007) outlines requirements to be followed should Butternut trees be killed or harmed. All twelve Butternut trees fall within the Significant Woodland of the Study Area and will not be impacted by development. All twelve Butternut will be given a 25 m protection buffer. The 25 m buffer of two of the Butternut trees (#5 and #6) will partially overlap with the development footprint; however, based on the DBH of these trees (7 cm and 2 cm respectively), no impact to the trees or their root zones is expected. Four Black Ash are also present within the Study Area and fall within the 25 m buffer of the adjacent Butternut trees. The BHA for the 12 Butternut trees was submitted by Terrastory to the MECP on November 16, 2021; to-date, a response from the MECP has note been provided. Based on the preliminary findings of the BHA, no compensation plantings are anticipated for the Property in support of the proposed development.The preliminary proposed plantings for buffer enhancement areas include:

- A mix of native deciduous and coniferous trees and shrubs throughout the development and buffer area;
- Sodding within the residential portions of the development; and

- A native seed mix recommended by suppliers for enhancement within buffer areas.

The following monitoring and maintenance measures may also be recommended for compensation planting areas:

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

The following additional measures are recommended to protect trees within the Study Area during site preparation and construction activities:

- Prior to construction, trees to be preserved will be protected with City-approved tree protection hoarding. This hoarding shall be maintained for the duration of construction and shall not be removed until authorized by the Consulting Arborist. Hoarding shall be constructed at the location as noted on the Tree Preservation and Removal Plan.
- The limits of protection hoarding shall be confirmed in the field by the Consulting Arborist and the City's Urban Forestry Department.
- Areas within the protection hoarding shall remain undisturbed for the duration of site construction and shall not be used for the storage of excavated fill, building materials, structures or equipment.
- Minor grading works will be permitted at the edge of the preservation zone as required to correct localized depressions adjacent to the new development, under the supervision of the Consulting Arborist.
- Where root systems of trees to be preserved are exposed or damaged by construction work, they shall be trimmed neatly by a qualified Arborist in accordance with acceptable arboriculture practice. The exposed area should be backfilled with appropriate material to prevent desiccation.
- No cables of any type shall be wrapped around or installed in trees to be preserved. No contaminants will be dumped or flushed where feeder roots of trees exist.
- Following construction, the limits of the Tree Protection Zone shall be inspected by the Consulting Arborist and the City. Remaining hazardous trees or limbs will be removed by a qualified Arborist as directed by the Consulting Arborist.

8.3 Integrated Stormwater Management Plan

A Functional Servicing and Stormwater Management Report (FSSR) for the Property was produced by SKA Consulting Engineers (2021). Stormwater management (SWM) strategies proposed for the Property in the FSSR were developed with regard to SWM infrastructure approved for the northern property (i.e. the Kindwin Lands); the FSSR for the Kindwin Lands was previously produced by GHD (2015). Both FSSRs for the Property and Kindwin Lands were developed using the information provided in the 2011 ESPU.

As reported in the 2011 ESPU, pre-and post-development infiltration volumes were estimated for an area encompassing the Property and Kindwin Lands. The estimated infiltration deficit (11,600m^3/a) was then pro-rated for each area depending on the respective size and the anticipated number of development blocks (SKA Consulting Engineers, 2021). As a result of the assessment in the 2011 ESPU, the Property was estimated to have an infiltration deficit of 1,240 m^3/a.

To meet water balance requirements under post-development conditions, all roof drainage (0.48 ha) collected for the proposed development will be directed towards the unevaluated wetlands (MASM1-2 and SWDM2-2) (SKA Consulting Engineers, 2021). Roof drainage will be directed by a clean water collector system at the southeastern limit of the development (SKA Consulting Engineers, 2021). A flow spreader is proposed for the outfall of the clean water collector to avoid point source contributions to the unevaluated wetland communities (SKA Consulting Engineers, 2021).

Minor stormwater drainage for the Property would also be conveyed to the existing SWM pond in the Kindwin Lands to the north (SKA Consulting Engineers, 2021). Flows from this SWM pond are eventually discharged directly to West Duffins Creek via an infiltration trench (SKA Consulting Engineers, 2021; GHD, 2012). As reported in the FSSR for the Kindwin Lands, the SWM pond has been designed to provide sufficient permanent pool and extended detention volumes to meet an "Enhanced" level quality and erosion control requirements for the drainage area for the West Duffins Creek (GHD, 2015; SKA Consulting Engineers, 2021). Quality control measures provided in Table 3.2 of the Ministry of Environment (MOE) Stormwater Management Planning and Design Manual (2003) were used to determine quality control requirements (GHD, 2015).

As indicated by SKA Consulting Engineers and the approved FSR for the Kindwin Lands (2021), major storm system flows will be conveyed directly to the West Duffins Creek (2021).

8.4 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 that plays a large role in the protection of downstream watercourses and aquatic habitat.

Control measures must be selected that are appropriate for the erosion potential of the site should 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 are required.

In addition, an Erosion and Sediment Control Plan will be developed as part of Detailed Design 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 demarcate the construction area and prevent erosion and sedimentation into adjacent habitats. Erosion and sediment control measures should be monitored regularly to ensure 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 watercourses;
- A spill response plan should be developed and implemented as required; and
- 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 before the dewatering.

8.5 Environmental Monitoring Plan

The Environmental Monitoring Plan (EMP) will be carried out, if required, through the duration of construction activities on-site to ensure 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 may be implemented during active construction periods for the development with the following frequency:

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

Protected vegetation areas may require periodic monitoring to ensure 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.

8.6 Wildlife Impact Mitigation Plan

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

- Clearing vegetation outside the breeding bird season (April 1 to August 31) and active Bat Season (May 1 – October 31);
- 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 *Migratory Birds Convention Act*;
- Schedule vegetation clearing and grading activities to avoid disturbance to amphibians and other sensitive wildlife species, where possible;
- Where possible, maximize the distance of construction equipment used from the woodland/wetland edge to avoid disturbing wildlife;
- Limit the use of lighting, where possible. Avoid light effects entering the Significant Woodlands, Major-Spink Environmentally Significant Area, or unevaluated wetlands (MASM1-2) (eliminate light trespass), where possible;
- Installation of wildlife exclusion fencing and escape routes, which direct wildlife away from the construction area and to more suitable habitat (e.g., Significant Woodlands, Significant Valleylands, Major-Spink Environmentally Significant Area, or unevaluated wetlands);
- 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;
- Construction crews working on site should be educated on local wildlife and take appropriate measures for avoiding wildlife; and
- Should an animal be injured or found injured during construction they should be transported to an appropriate wildlife rehabilitation center.

8.6.1 Bird Strike Analysis

In cooperation with the Fatal Light Awareness Program (FLAP) and Lights Out Toronto, the City of Toronto released the City of Toronto Green Development Standard for Bird-Friendly Development Guidelines (2007). The guidelines recommend mitigation for building design to reduce fatal collisions by migrating birds.

The presence of reflective glare and light pollution are the main factors contributing to increased bird fatalities within urban areas. The goal of design criteria within the guidelines is to recommend methods for reducing the presence of these two factors within new buildings. For the proposed development within the Study Area of 2055 Brock Road, the following mitigation strategies from the guideline should be considered in building design:

The glass of exterior walls should reduce reflective glare by:

- Installing exterior walls that create visual markers;
- Install glass with fritted patterns or embedded abstract shapes;
- Adhering translucent film or decals to the exterior of windows;
- Using glass with paned framing; and
- Installing decorative Grilles and Louvres to windows

Reflective glare from windows should be reduced by:

- Designing exterior glass walls at an angle;
- Installing internal screens behind exterior glass walls; and
- Including awnings, overhangs, and sun screens above windowed-walls.

To reduce light pollution by:

- Installing external decorative lighting that projects light downward; and
- Modify building operations to reduce the use of lighting after hours of primary use.

In addition, stewardship packages for residents and owner/operators of new buildings regarding bird-friendly operations should be distributed; packages should identify the significant and sensitivity of the natural environment the Study Area (specifically for Major-Spink Environmentally Significant Area). Specific design requirements meeting criteria of the guidelines will be chosen during the Detailed Design phase.

9.0 Summary

The EIS was prepared for the proposed development located at 2055 Brock Road, legally described as Lot 19 of Concession 2, within the City of Pickering, of the Region of Durham. The findings of the 2019 field investigations, which consisted of secondary source reviews and past consultant reports, ELC, and botanical surveys, are presented in the EIS. Subsequent surveys by Terrastory in 2021 to conduct a tree inventory and Butternut Health Assessment are also included. The EIS was required due to the presence of natural heritage features within and adjacent to the Study Area.

The majority of the Study Area consists of residential lands (Single family residential; CVC_3), with areas of Significant Woodlands, Significant Valleylands, and unevaluated wetlands associated with the riparian corridor of West Duffins Creek. These three natural features are contained within staked boundaries of Major-Spink Environmentally Significant Area. A total of 10 natural vegetation communities and 75 plant species were identified within the Study Area. As a result of 2019 field investigations, candidate SWH for Landbird Migratory Stopover Areas was identified within Significant Woodlands and the Major-Spink Environmentally Significant Area. Deciduous forest communities identified within Significant Woodlands were also considered candidate SWH for Bat Maternity Roosts, potential habitat for SAR bats, as well as confirmed habitat for twelve Butternut trees.

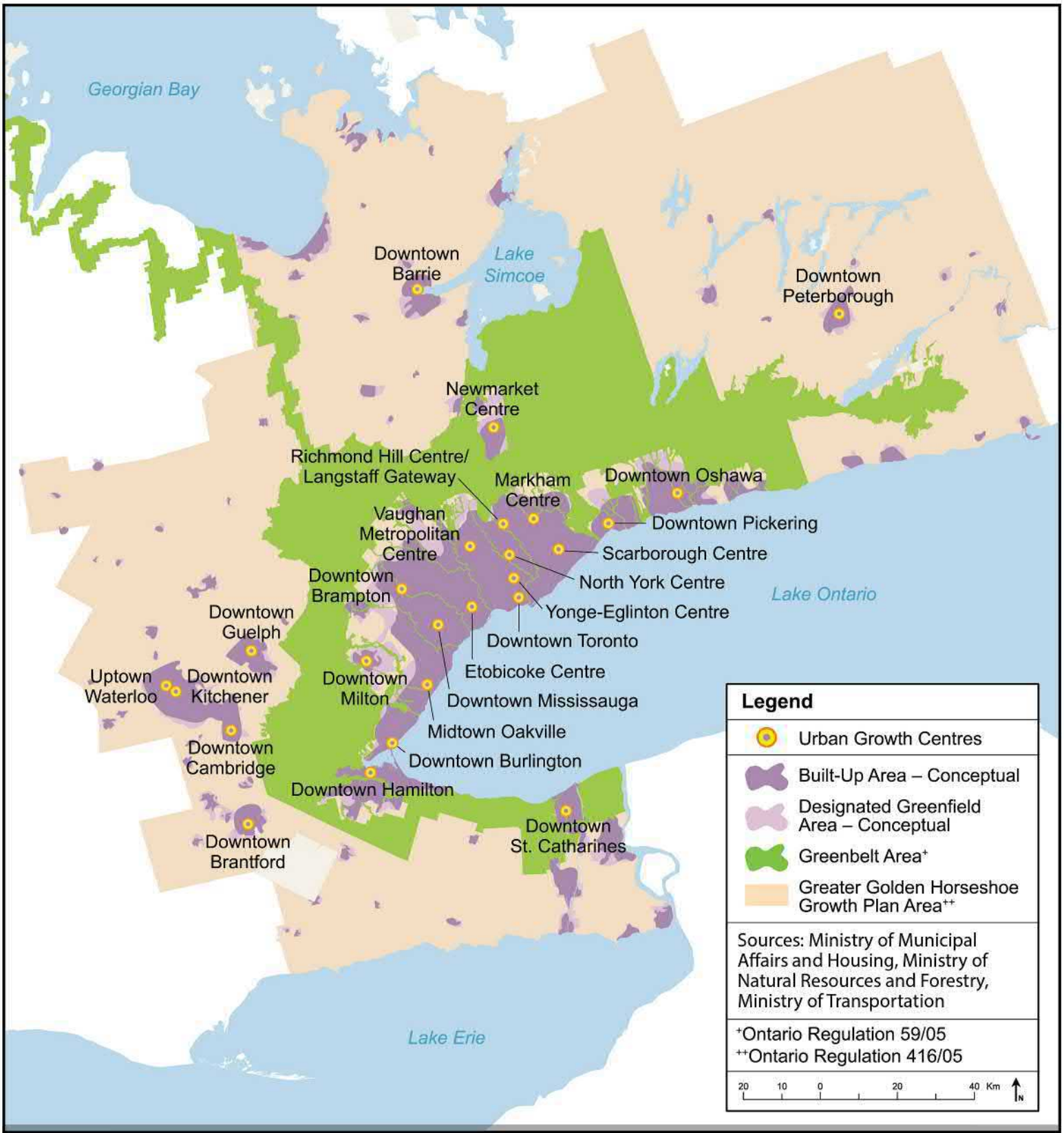
The proposed development will require the removal of ground vegetation and select trees within disturbed meadow and hedgerow areas of the Study Area. Based on the proposed development, potential impacts may include disturbance to candidate wildlife habitat (migratory birds), erosion and sedimentation, as well as diversion of surface water flows to the West Duffins Creek.

These impacts will be avoided or minimized by implementing the mitigation, restoration, and management measures described in this report. Impacts to migratory birds and migratory stopover SWH can be mitigated if bird friendly design are incorporated into the building architecture. To ensure the maintenance of existing surface water run-off patterns, a SWM plan and/or a functional servicing report has also been prepared to maintain existing surface water runoff patterns. In addition, an Erosion and Sediment Control Plan and a dewatering plan will be developed at Detailed Design to ensure the natural features located in proximity to the proposed development are not adversely affected as a result of construction activities. In addition, a tree inventory and arborist report were completed in 2021 by Terrastory. A total of 24 individual trees and 4 tree groupings were inventoried. A total of 12 individual trees and 3 tree groupings are recommended for removal to accommodate the proposed development, with the remaining 12 individual trees and 1 tree grouping recommended to be retained. A subsequent Landscaping Plan and Planting Plan was developed for the Study Area. These reports will quantify the required tree removals, as well as determine compensation and mitigation to assist in preventing anthropogenic disturbance and the spread of non-native, invasive species. Lastly, an Environmental

Monitoring Plan is recommended during construction to monitor impacts on the natural environment and to ensure mitigation measures are implemented.

Appendix A

Planning Policy Schedules



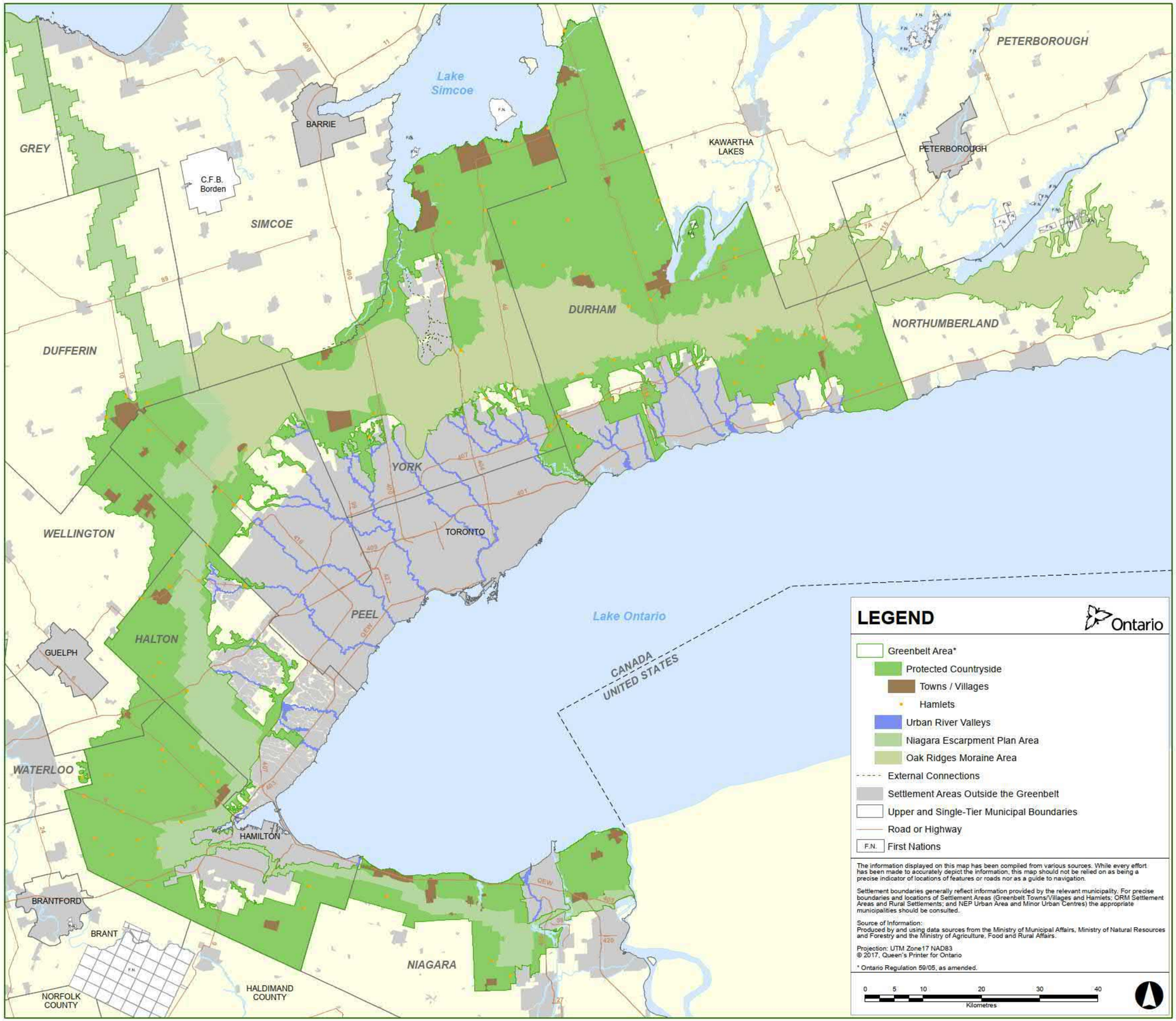
Ontario

SCHEDULE 4

Urban Growth Centres

Note: The information displayed on this map is not to scale, does not accurately reflect approved land-use and planning boundaries, and may be out of date. For more information on precise boundaries, the appropriate municipality should be consulted. For more information on Greenbelt Area boundaries, the Greenbelt Plan should be consulted. The Province of Ontario assumes no responsibility or liability for any consequences of any use made of this map.

greenbelt PLAN 2017



LEGEND

Ontario

- Greenbelt Area*
- Protected Countryside
- Towns / Villages
- Hamlets
- Urban River Valleys
- Niagara Escarpment Plan Area
- Oak Ridges Moraine Area
- External Connections
- Settlement Areas Outside the Greenbelt
- Upper and Single-Tier Municipal Boundaries
- Road or Highway
- F.N. First Nations

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

Settlement boundaries generally reflect information provided by the relevant municipality. For precise boundaries and locations of Settlement Areas (Greenbelt Towns/Villages and Hamlets; ORM Settlement Areas and Rural Settlements; and NEP Urban Area and Minor Urban Centres) the appropriate municipalities should be consulted.

Source of Information:
Produced by and using data sources from the Ministry of Municipal Affairs, Ministry of Natural Resources and Forestry and the Ministry of Agriculture, Food and Rural Affairs.

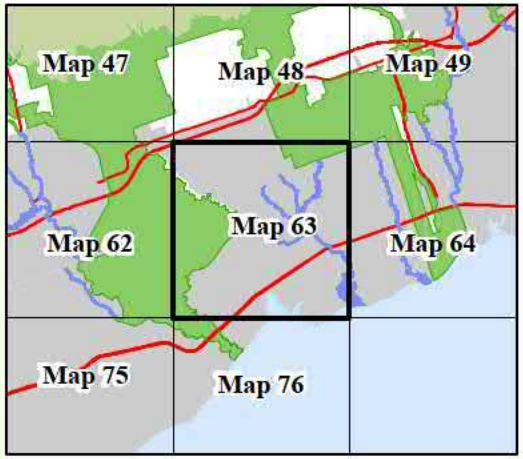
Projection: UTM Zone17 NAD83

* Ontario Regulation 59/05, as amended.

0 5 10 20 30 40
Kilometres

Schedule 1: Greenbelt Area

greenbelt



LEGEND

Ontario

- Greenbelt Area*
  - Protected Countryside
    - Natural Heritage System
    - Towns / Villages
  - Urban River Valleys
  - Niagara Escarpment Plan Area
  - Oak Ridges Moraine Area
- External Connections
- Settlement Areas Outside the Greenbelt
- Upper Tier Municipal Boundaries
- Lower & Single Tier Municipal Boundaries
- Lots and Concessions
- Major Road or Highway
- Minor Road
- F.N. First Nations

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

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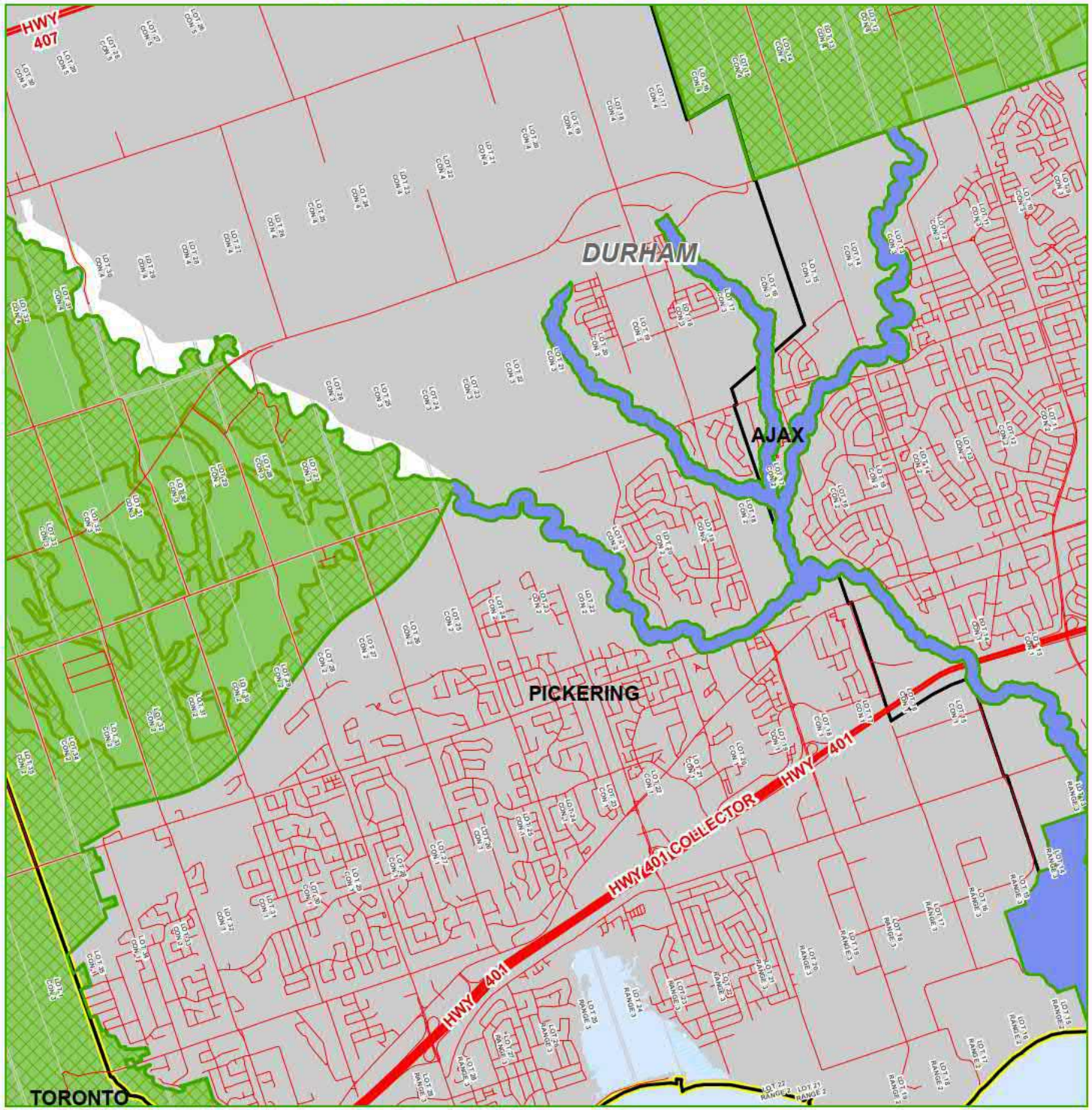
Projection: UTM Zone17 NAD83

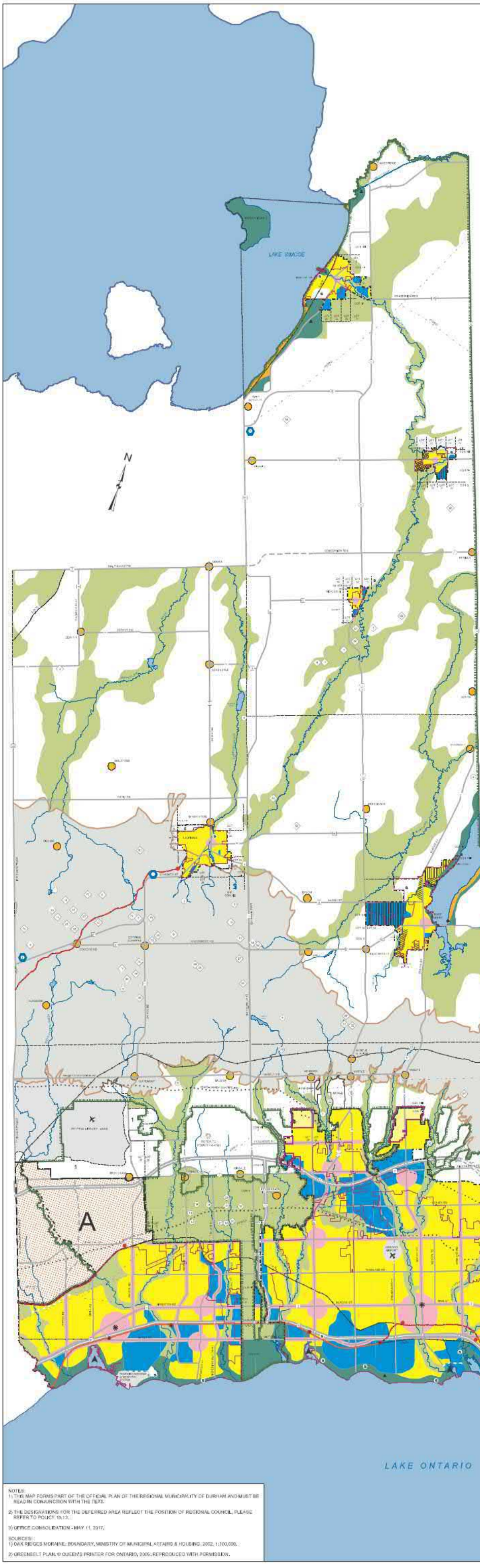
* Ontario Regulation 59/05, as amended.

0 0.25 0.5 1 1.5 2
Kilometres



OFFICIAL PLAN OF THE REGIONAL MUNICIPALITY OF DURHAM

SCHEDULE 'A'
REGIONAL STRUCTURE



LEGEND

URBAN SYSTEM

- URBAN AREA BOUNDARY
- URBAN AREA BOUNDARY DEFERRED
- REGIONAL CENTRE
- URBAN GROWTH CENTRE
- REGIONAL CORRIDOR
- LIVING AREAS
- EMPLOYMENT AREAS
- S MUNICIPAL SERVICE
- AREAS DEVELOPABLE ON FULL/PARTIAL MUNICIPAL SERVICES
- AREAS DEVELOPABLE ON MUNICIPAL WATER SYSTEMS & PRIVATE WASTE DISPOSAL SYSTEMS
- AREAS DEVELOPABLE ON PRIVATE WELLS & MUNICIPAL SEWER SYSTEMS
- AREAS DEVELOPABLE ON PRIVATE WELLS & PRIVATE WASTE DISPOSAL SYSTEMS
- BUILT BOUNDARY

RURAL SYSTEM

- PRIME AGRICULTURAL AREAS

RURAL SETTLEMENTS :

- HAMLET
- RURAL EMPLOYMENT AREA (SEE TABLE E3 FOR DESCRIPTION)
- COUNTRY RESIDENTIAL SUBDIVISION (SEE TABLE E2 FOR DESCRIPTION)
- SHORELINE RESIDENTIAL
- REGIONAL NODE (SEE SECTION 8C FOR DESCRIPTION)
- AGGREGATE RESOURCE EXTRACTION AREA (SEE TABLE E1 FOR DESCRIPTION)

GREENLANDS SYSTEM

- MAJOR OPEN SPACE AREAS
- OAK RIDGES MORAINE AREAS
- WATERFRONT AREAS
- OAK RIDGES MORAINE BOUNDARY
- GREENBELT BOUNDARY
- TOURIST ACTIVITY / RECREATIONAL NODE
- WATERFRONT PLACE
- OPEN SPACE LINKAGE
- WATERFRONT LINKS

TRANSPORTATION SYSTEM

SEE SCHEDULE C FOR DESIGNATIONS

THE FOLLOWING IS SHOWN SELECTIVELY, FOR EASE OF INTERPRETATION OF OTHER DESIGNATIONS ONLY.

EXISTING		FUTURE
	ARTERIAL ROAD	
	FREEWAY	
	INTERCHANGE	
	GO RAIL	
	GO STATION	

SPECIAL AREAS

- 2 SPECIAL STUDY AREA
- A SPECIFIC POLICY AREA
- D2 DEFERRED BY MINISTER OF MUNICIPAL AFFAIRS
- APPEALED TO O.M.B.
- REFER TO POLICY 7.3.11p)
- LANDS APPEALED TO OMB, REFER TO POLICY 14.13.7

NOTES:
1) THIS MAP FORMS PART OF THE OFFICIAL PLAN OF THE REGIONAL MUNICIPALITY OF DURHAM AND MUST BE READ IN CONJUNCTION WITH THE TEXT.

2) THE DESIGNATIONS FOR THE DEFERRED AREA REFLECT THE POSITION OF REGIONAL COUNCIL. PLEASE REFER TO POLICY 16.13.

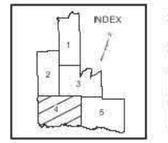
3) OFFICE CONSOLIDATION - MAY 11, 2017.

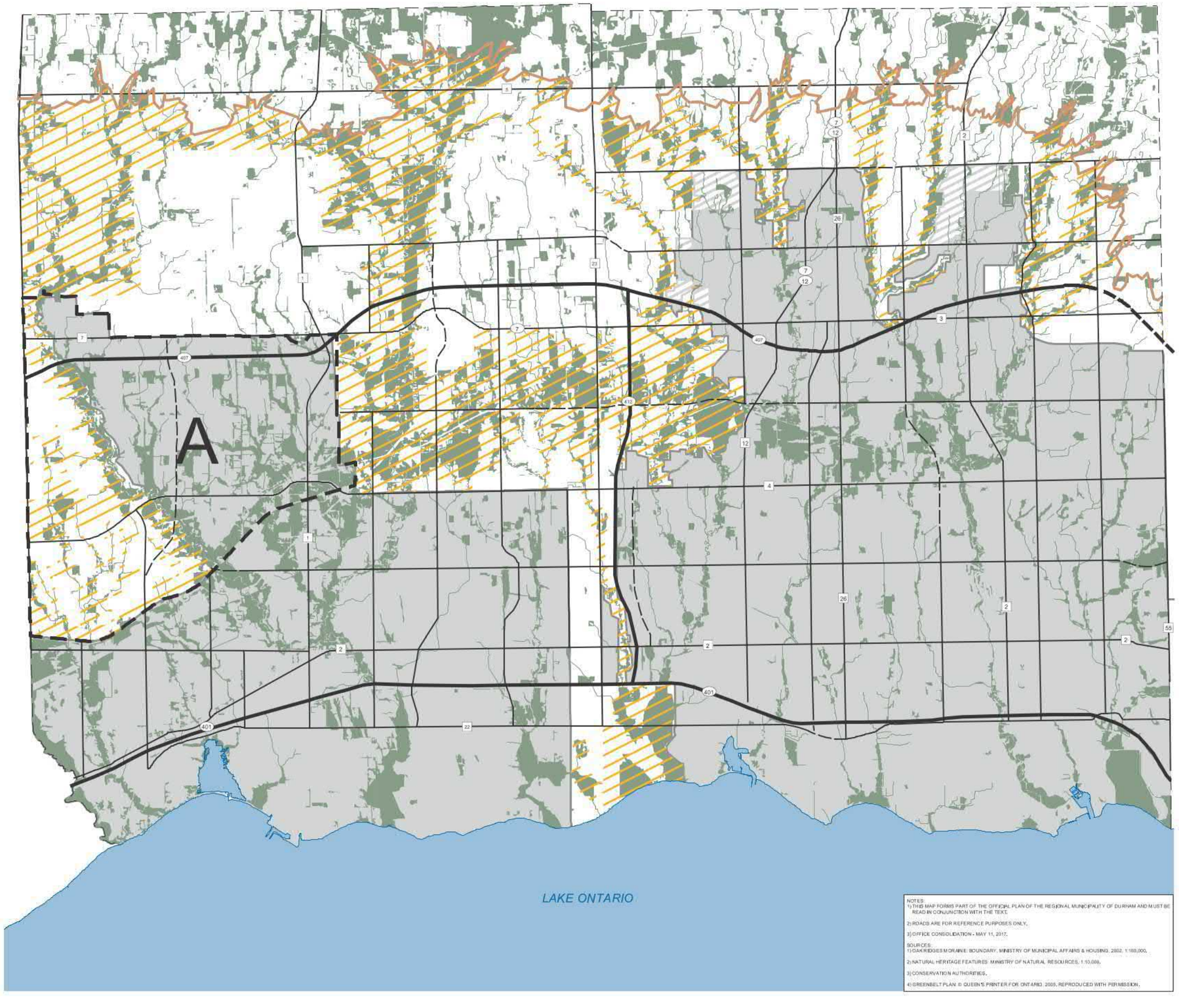
SOURCES:
1) OAK RIDGES MORAINE: BOUNDARY, MINISTRY OF MUNICIPAL AFFAIRS & HOUSING, 2002, 1:100,000.

2) GREENBELT PLAN, © QUEEN'S PRINTER FOR ONTARIO, 2005. REPRODUCED WITH PERMISSION.

OFFICIAL PLAN OF THE REGIONAL MUNICIPALITY OF DURHAM

SCHEDULE 'B' - MAP 'B1d' GREENBELT NATURAL HERITAGE SYSTEM & KEY NATURAL HERITAGE AND HYDROLOGIC FEATURES





LEGEND

- KEY NATURAL HERITAGE AND HYDROLOGIC FEATURES
- GREENBELT NATURAL HERITAGE SYSTEM
- OAK RIDGES MORAINE CONSERVATION PLAN AREA BOUNDARY
- URBAN AREA
- LANDS APPEALED TO OMB, REFER TO POLICY 14.13.7.
- SPECIFIC POLICY AREA

NOTES:
1) THIS MAP FORMS PART OF THE OFFICIAL PLAN OF THE REGIONAL MUNICIPALITY OF DURHAM AND MUST BE READ IN CONJUNCTION WITH THE TEXT.

2) ROADS ARE FOR REFERENCE PURPOSES ONLY.

3) OFFICE CONSOLIDATION - MAY 11, 2017.

SOURCES:
1) OAK RIDGES MORAINE: BOUNDARY, MINISTRY OF MUNICIPAL AFFAIRS & HOUSING, 2002, 1:100,000.

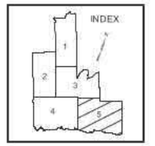
2) NATURAL HERITAGE FEATURES: MINISTRY OF NATURAL RESOURCES, 1:10,000.

3) CONSERVATION AUTHORITIES.

4) GREENBELT PLAN: © QUEEN'S PRINTER FOR ONTARIO, 2005, REPRODUCED WITH PERMISSION.

OFFICIAL PLAN OF THE REGIONAL MUNICIPALITY OF DURHAM

SCHEDULE 'B' - MAP 'B1e' GREENBELT NATURAL HERITAGE SYSTEM & KEY NATURAL HERITAGE AND HYDROLOGIC FEATURES



LEGEND

- KEY NATURAL HERITAGE AND HYDROLOGIC FEATURES
- GREENBELT NATURAL HERITAGE SYSTEM
- OAK RIDGES MORAINE CONSERVATION PLAN AREA BOUNDARY
- URBAN AREA
- LANDS APPEALED TO OMB, REFER TO POLICY 14.13.7.
- SPECIFIC POLICY AREA

LAKE ONTARIO

NOTES:
1) THIS MAP FORMS PART OF THE OFFICIAL PLAN OF THE REGIONAL MUNICIPALITY OF DURHAM AND MUST BE READ IN CONJUNCTION WITH THE TEXT.

2) ROADS ARE FOR REFERENCE PURPOSES ONLY.

3) OFFICE CONSOLIDATION - MAY 11, 2017.

SOURCES:
1) OAK RIDGES MORAINE: BOUNDARY, MINISTRY OF MUNICIPAL AFFAIRS & HOUSING, 2002, 1:100,000.

2) NATURAL HERITAGE FEATURES: MINISTRY OF NATURAL RESOURCES, 1:10,000.

3) CONSERVATION AUTHORITIES.

Schedule I to the

Pickering Official Plan

Edition 8

Sheet 1 of 3

Open Space System

- Seaton Natural Heritage System
- Natural Areas
- Active Recreational Areas
- Marina Areas
- Hamlet Heritage Open Space

Rural Settlements

- Rural Clusters
- Rural Hamlets

Land Use Structure

Urban Residential Areas

- Low Density Areas
- Medium Density Areas
- High Density Areas

Mixed Use Areas

- Local Nodes
- Community Nodes
- Mixed Corridors
- Specialty Retailing Node
- City Centre

Employment Areas

- General Employment
- Prestige Employment
- Mixed Employment

Freeways and Major Utilities

- Controlled Access Areas
- Potential Multi Use Areas

Seaton Symbols

- DP District Park
- CP Community Park
- HS High School

Other Designations

- Prime Agricultural Areas
- D1 Deferrals
- Greenbelt Boundary

Schedule III A to the

Pickering Official Plan

Edition 8

Resource Management: The Natural Heritage System

Natural Heritage System

Greenbelt Natural Heritage System

D55

Schedule III B to the

Pickering Official Plan

Edition 8

Resource Management: Key Natural Heritage Features

- Significant Woodlands
- Rouge-Duffins Wildlife Corridor
- Areas of Natural and Scientific Interest
- Former Lake Iroquois Shoreline
- Altona Forest Policy Area

Other Map Elements

- Oak Ridges Moraine Boundary
- Greenbelt Boundary

City of Pickering
City Development Department
© July, 2018
This Map Forms Part of Edition 8 of the Pickering Official Plan and Must Be Read in Conjunction with the Other Schedules and the Text.

Schedule III C to the

Pickering Official Plan

Edition 8

Resource Management:
Key Natural Heritage Features/
Key Hydrologic Features

- Shorelines, Significant Valley Lands and Stream Corridors (May include Hazardous Lands)
- Wetlands
- Fish Habitat
- Watershed Boundary
- Flood Plain Special Policy Areas
- Permanent & Intermittent Streams

Appendix B

Major-Spink Environmentally Significant Area Report

ESA No. 97

Major-Spink Area

GENERAL DESCRIPTION

Major-Spink Area lies to the east of Brock Road, north of Kingston Road, in the Towns of Pickering and Ajax. The area is located on the sand plain which was deposited in the shallow water environment of the glacial Lake Iroquois. Most of the soil is fine-grained sand (Sibul et al. 1977).

Much of the flood plain is dominated by willows (Salix spp.) and Manitoba Maple (Acer negundo). South of the river, patches of Eastern Hemlock (Tsuga canadensis) occur, while north of the river and east of Brock Road is an extensive mature forest of mixed species. The variety of tree species is a result of the change in moisture conditions, from the wet flood plain to the drier slopes.

CRITERIA FULFILLED

Criterion 5

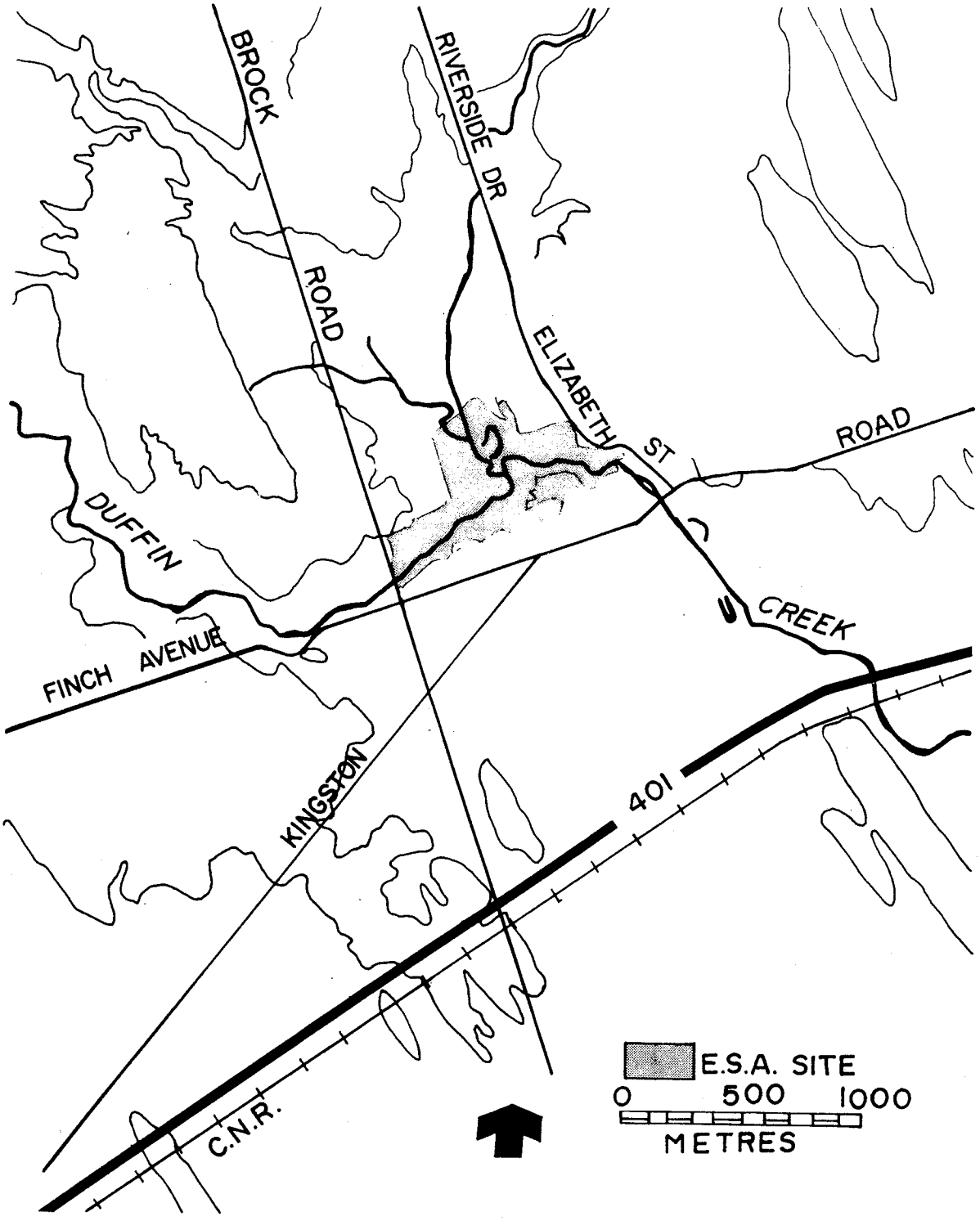
Fifteen different plant communities were identified in the relatively small area. This is considered unusually high diversity within the MTRCA region. Twenty-one tree species and 30 bird species were recorded in the area. A large number of individuals of each bird species were present.

COMMENTS

Two specimens of the nationally and provincially rare Black Walnut (Juglans nigra) occur in the area; however one is in poor health and both are probable escapes.

The area had fairly high bird activity, with 30 species being observed. Among these was the Ruffed Grouse (Bonasa umbellus).

ESA No. 97


BROCK
ROAD
RIVERSIDE DR
ELIZABETH ST
ROAD
DUFFIN
CREEK
FINCH AVENUE
KINGSTON
401
C.N.R.
E.S.A. SITE
0 500 1000
METRES

ESRI ArcExplorer 2.0

Brock Road and Finch Road - Pickering

Municipal Names (MUNICIPALI)
Watercourse
ESAs
TRCA Watersheds

KM
0 0.01 0.02

N

Thursday, Jun 8 2006

Appendix 2

Appendix C

SAR and SCC Screening

Table C-1: Species at Risk and Species of Conservation Concern with the Potential to Occur Within the Study Area for 2055 Brock Road, Pickering Ontario.

Scientific Name	Common Name	SARA Status[1]	ESA Status[2]	SRank[3]	Information Source[4]	Regulated Habitat	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur
Birds									
Chaetura pelagica	Chimney Swift	THR	THR	S4B,S4N	OBBA	No	Commonly found in urban areas near buildings; nests in hollow trees, crevices of rock cliffs, chimneys; highly gregarious; fees over open water.	Yes	Potential habitat for this species is available in riparian woodlands and open aquatic areas associated with the West Duffins Creek corridor.
Ixobrychus exilis	Least Bittern	THR	THR	S4B	OBBA	No	Deep marshes, swamps, bogs; marshy borders of lakes, ponds, streams, ditches; dense emergent vegetation of cattail, bulrush, sedge; nests in cattails; intolerant of loss of habitat and human disturbance.	No	Suitable habitat for this species is unavailable within the Study Area
Chordeiles minor	Common Nighthawk	THR	SC	S4B	OBBA	No	Open ground; clearings in dense forests; gravel beaches or barren areas with rocky soils; open woodlands; flat gravel roofs.	No	Suitable habitat for this species is unavailable within the Study Area
Ammodramus savannarum	Grasshopper Sparrow	SC	SC	S4B	OBBA	No	Well-drained grassland or prairie with low cover of grasses, taller weeds on sandy soil; hayfields or weedy fallow fields; uplands with ground vegetation of various densities; perches for singing; requires tracts of grassland > 10 ha.	No	Suitable habitat for this species is unavailable within the Study Area
Falco peregrinus	Peregrine Falcon	SC	SC	S3B	NHIC	No	Rock cliffs, crags, especially situated near water; tall buildings in urban centres; threatened by chemical contamination; reintroduction efforts have been attempted in numerous locations throughout Ontario.	No	Suitable habitat for this species is unavailable within the Study Area
Hirundo rustica	Barn Swallow	THR	THR	S4B	OBBA	No	Farmlands or rural areas; cliffs, caves, rock niches; buildings or other man-made structures for nesting; open country near body of water.	Yes	Buildings within residential areas (CVR) provide suitable breeding habitat for this species. Open mixed meadow (MEMM3) and open aquatic areas (OAO) communities within the Study Area may provide potentially suitable foraging habitat for this species.
Riparia riparia	Bank Swallow	THR	THR	S4B	NHIC, OBBA	No	Sand, clay or gravel river banks or steep riverbank cliffs; lakeshore bluffs of easily crumbled sand or gravel; gravel pits, road-cuts, grassland or cultivated fields that are close to water; nesting sites are limiting factor for species presence..	Yes	Open aquatic areas (OAO) of West Duffins Creek within the Study Area may provide suitable habitat for this species
Dolichonyx oryzivorus	Bobolink	THR	THR	S4B	OBBA	No	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 ha.	Yes	Mixed meadow (MEMM3) within the Study Area may provide suitable breeding and foraging habitat for this species.
Euphagus carolinus	Rusty Blackbird	SC	SC	S4B	NHIC	No	Openings in coniferous woodlands bordering bodies of water; tree-bordered marshes, beaver ponds, muskegs, bogs, fends or wooded swamps; stream borders with alder, willow; wooded island on lakes.	Yes	Coniferous woodlands adjacent to West Duffins Creek may provide suitable habitat for this species.
Sturnella magna	Eastern Meadowlark	THR	THR	S4B	OBBA	No	Open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas >10 ha in size.	Yes	Mixed meadow (MEMM3) within the Study Area may provide suitable breeding and foraging habitat for this species.
Cardellina canadensis	Canada Warbler	THR	SC	S4B	OBBA	No	An interior forest species; dense, mixed coniferous, deciduous forests with closed canopy, wet bottomlands of cedar or alder; shrubby undergrowth in cool moist mature woodlands; riparian habitat usually requires at least 30 ha.	Yes	Valley bottomlands of the West Duffins Creek riparian corridor within the Study Area may provide suitable habitat for this species.

Icteria virens virens	Yellow-breasted Chat	END	END	S2B	OBBA	No	Thickets, tall tangles of shrubbery beside streams, ponds; overgrown bushy clearings with deciduous thickets; nests above ground in bush, vines etc..	Yes	Thicket communities (THDM2) associated with the West Duffins Creek riparian corridor may provide suitable habitat for this species.
Vermivora chrysoptera	Golden-winged Warbler	THR	SC	S4B	OBBA	No	Early successional habitat; shrubby, grassy abandoned fields with small deciduous trees bordered by low woodland and wooded swamps; alder bogs; deciduous, damp woods; shrubbery clearings in deciduous woods with saplings and grasses; brier-woodland edges; requires >10 ha of habitat.	No	Suitable habitat for this species is unavailable within the Study Area
Hylocichla mustelina	Wood Thrush	END	SC	S4B	OBBA	No	Carolinian and Great Lakes-St. Lawrence forest zones; undisturbed moist mature deciduous or mixed forest with deciduous sapling growth; near pond or swamp; hardwood forest edges; must have some trees higher than 12m.	Yes	Woodlands associated with the riparian corridor of the West Duffins Creek may provide suitable habitat for this species.
Contopus virens	Eastern Wood-pewee	SC	SC	S4B	OBBA	No	Open, deciduous, mixed or coniferous forest; predominated by oak with little understory; forest clearing, edges; farm woodlots, parks.	Yes	Woodlands associated with the riparian corridor of the West Duffins Creek may provide suitable habitat for this species.
Empidonax virescens	Acadian Flycatcher	END	END	S2S3B	OBBA	No	Mature, shady, deciduous forests; heavily wooded ravines; creek bottoms or river swamps; availability of good quality habitat is limiting factor; needs at least 30 ha of forest.	No	Suitable habitat for this species is unavailable within the Study Area
Insects									
Danaus plexippus	Monarch	SC	SC	S2N,S4B	OBA	No	Monarchs are most abundant in southern Ontario and Quebec where milkweed plants and breeding habitat are widespread. Only the caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers.	Yes	Mixed meadow (MEMM3) within the Study Area may provide suitable breeding and foraging habitat for this species.
Fish									
Clinostomus elongatus	Redside Dace	END	END	S2	MNRF SAR in Area, NHIC	Yes	The Redside dace is found in pools and slow-moving areas of small streams and headwaters with a gravel bottom. They are generally found in areas with overhanging grasses and shrubs, and can leap up to 10 cm out of the water to catch insects. During spawning, they can be found in shallow parts of streams, which are also popular spawning areas for other minnow species.	Yes	Cool/cold thermal regimes of the West Duffins Creek within the Study Area may provide suitable breeding and foraging habitat for this species.
Herpitiles									
Chelydra serpentina	Snapping Turtle	SC	SC	S3	NHIC, OHA	No	Permanent, semi-permanent fresh water; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites; may nest at some distance from water; often hibernate together in groups in mud under water; home range size ~28 ha.	Yes	Wetland (MASM1-2 and SWDM2-2) and open aquatic areas (OAO) of West Duffins Creek within the Study Area may provide suitable habitat for this species
Heterodon platirhinos	Eastern Hog-nosed Snake	THR	THR	S3	OHA	No	Sandy upland fields, pastures, savannahs, sandy beaches; dry open oak-pine-maple forest with sandy soils; prefer forest areas > 5ha.	No	Suitable habitat for this species is unavailable within the Study Area
Thamnophis sauritus	Eastern Ribbonsnake (Great Lakes population)	SC	SC	S3	OHA	No	Sunny grassy areas with low dense vegetation near bodies of shallow permanent quiet water; wet meadows, grassy marshes or sphagnum bogs; borders of ponds, lakes or streams; hibernates in groups.	No	Suitable habitat for this species is unavailable within the Study Area

Emydoidea blandingii	Blanding's Turtle	THR	THR	S3	OHA	No	Shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft muddy bottoms and aquatic vegetation; basks on logs, stumps, or banks; surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats; hibernates in bogs; not readily observed.	No	While Meadow Marsh (MASM1-2), deciduous swamp (SWDM2) and open aquatic habitats (OAO) within the Study Area may provide suitable breeding habitat for the species, no records exist within the Study Area (NHIC square: 17PJ5457) and records within 10 km of the Study Area (17PJ55; OHA) indicate last observations date back to 2015.
Mammals									
Urocyon cinereoargenteus	Gray Fox	THR	THR	S1	MWH	No	Hardwood forests with a mix of fields and woods; swamps; wooded, brushy or rocky habitats; woodland farmland edge; old fields with thickets; dens in hollow log or tree; individual has numerous winter dens throughout its range which is > 40 ha.	No	Suitable habitat for this species is unavailable within the Study Area
Myotis lucifugus	Little Brown Myotis	END	END	S4	MWH	No	Uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges.	Yes	Woodlands associated with the riparian corridor of the West Duffins Creek within the Study Area may provide suitable habitat for this species.
Myotis septentrionalis	Northern Myotis	END	END	S3	MWH	No	Hibernates during winter in mines or caves; during summer males roost alone and females form maternity colonies of up to 60 adults; roosts in houses, manmade structures but prefers hollow trees or under loose bark; hunts within forests, below canopy.	Yes	Woodlands associated with the riparian corridor of the West Duffins Creek within the Study Area may provide suitable habitat for this species.
Pipistrellus subflavus	Tri-colored Bat	END	END	S3?	MWH	No	Can be found in a variety of forested habitats. They form day roosts and maternity colonies in older forest and occasionally in barns or other structures, and overwinter in caves. They forage over water and along streams in the forest.	Yes	Woodlands associated with the riparian corridor of the West Duffins Creek within the Study Area may provide suitable habitat for this species.
Myotis leibii	Eastern Small-footed Myotis	---	END	S2S3	MWH	No	Prefers to roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees.	Yes	Woodlands associated with the riparian corridor of the West Duffins Creek within the Study Area may provide suitable habitat for this species.
Plants									
Trichophorum planifolium	Few-flowered Club-rush/Bashful Bullrush	END	END	S1	MNRF SAR in Area	Yes	The habitat of Few-flowered Club-rush is most commonly dry white or white-black oak deciduous forest. This species will occur less frequently in dry- fresh red oak forest. Within both forest types the plant is restricted to sunny openings where the sub-canopy and shrub layer are reduced to between 10 and 30 percent closure and the total forest canopy closure is between 40 and 70 percent.	No	Suitable habitat for this species is unavailable within the Study Area
Fraxinus nigra	Black Ash	THR	---	S4	SARA	No	Commonly found in northern swampy woodlands, from eastern Manitoba, throughout Ontario, and as far east as Newfoundland. The Emerald Ash Borer is currently threatening the species across its entire range.	Yes	Woodlands associated with the riparian corridor of the West Duffins Creek within the Study Area provide confirmed habitat for the species: four Black Ash trees exist within deciduous Swamp (SWDM2-2; Terrastory, 2021)
Juglans cinerea	Butternut	END	END	S3?	NHIC	No	Usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found along streams. It is also found on well-drained gravel sites and rarely on dry rocky soil. This species does not do well in the shade, and often grows in sunny openings and near forest edges.	Yes	Woodlands associated with the riparian corridor of the West Duffins Creek within the Study Area provide confirmed habitat for the species: three Butternut exist within deciduous swamp (SWDM2-2; 2009 EIS).

1 – Status identified by the Committee on the Status of Endangered Wildlife in Canada under the federal SARA, 2002;
2 – SAR in Ontario List under the provincial ESA, 2007;
3 – Ontario SRank; S5 = secure; S4= apparently secure; S3 = vulnerable; S2 = imperilled; SX = Extirpated; SH = Possibly Extirpated; SNA = non-native or exotic species to Ontario;

4 – NHIC = MNRF Natural Heritage Information Centre, MNRF SAR in Area = MNRF Species at Risk in Ontario List by area of the province; MNRF Reg. Habitat = MNRF Regulated Habitat (O. Reg. 242/08); MNRF Consult. = MNR Consultation, OBBA = Ontario Breeding Bird Atlas, MWH Digital Distribution Maps of the Mammals of the Western Hemisphere, version 3.0, OHA = Ontario Herpetofaunal Atlas, OOA = Ontario Odonata Atlas; OBA = Ontario Butterfly Atlas; CBC = Christmas Bird Count;
5 – MNRF Significant Wildlife Technical Guide - Appendix G (2000).

Appendix D

Breeding Bird Survey Technical Memo (Beacon Environmental)

October 2, 2019 BEL 219302

Brock Road Duffins Forest Inc.
22 Ross Shinen Lane
Stouffville, ON L4A 0V4

c/o Elyse Snyder, M.Arch, OAA
Kohn Partnership Architects Inc.
116 Spadina Avenue, Suite 501
Toronto, ON M5V 2K6

via email: esnyder@kohnarchitects.com

Attention: Alison Lin

via email : alisonlin77@yahoo.com

Re: Breeding Bird Survey
2055 Brock Road, Pickering, Ontario

Dear Ms. Lin:

Beacon Environmental Limited (Beacon) is pleased to provide the following results of the breeding survey completed for the property located at municipal address 2055 Brock Road, in the City of Pickering, Regional Municipality of Durham (the "subject property").

The subject property is an irregular shaped parcel of land encompassing an area of approximately 1.3 ha (3.24 ac) located on the east side of Brock Road, north of Finch Avenue (**Attachment A – Figure 1**). The subject property is currently undeveloped. Forested valleylands associated with West Duffins Creek are present directly south and east of the subject property. Institutional and residential lands are present to the north, and further residential subdivisions are present west of Brock Road.

Beacon has completed breeding bird surveys to support the natural heritage studies required to move forward with the development application.

Breeding Bird Methodology

Two breeding bird surveys were completed for the subject property on the mornings of June 25, and July 3, 2019 (start times of 7:10 am, and 5:35 am respectively), under ideal weather conditions. The breeding bird community was surveyed using a roving type survey, in which all parts of the subject property were walked and all birds heard or observed and showing some inclination toward breeding were recorded as breeding species. All birds heard and seen were recorded in the location observed on an aerial photograph of the site.

Breeding Bird Results

A total of ten species of birds were recorded breeding and another three species were recorded foraging on the subject property during the 2019 season **(Attachment B).** Most of the breeding birds recorded were commonly encountered generalist species regularly found in urban and urbanizing areas including Song Sparrow (*Melodia melodpiza*), Cedar Waxwing (*Bombycilla cedrorum*), Common Grackle (*Quiscalus quiscula)*, American Goldfinch (*Spinus tristus*), Mourning Dove (*Zenaida macroura*), Black-capped Chikadee (*Poecile atricapillus*), Common Yellowthroat (*Geothlyphis* trichas), Blue Jay (*Cyanocitta cristata)* and Red-winged Blackbird (*Agelaius phoeniceus*). During the field investigations, foraging species observed included American Robin (*Turdus migratorius*), European Starling (*Sturnus vulgaris*), and Northern Cardinal (*Cardinalis cardinalis*).

No species ranked as S1 through S3 (Critically Imperiled through Vulnerable) by the province, or species protected under the ESA were encountered. Area-sensitive birds require larger tracts of suitable habitat in which to breed, or have higher breeding success in larger areas of suitable habitat. No birds considered to be area-sensitive were recorded during the 2019 breeding season.

Species of conservation concern within the TRCA jurisdiction receive a ranking of L1 to L3. No bird species of conservation concern were recorded for the subject property during surveys. The bird species observed are ranked by TRCA as L4, L5 or L+ reflective of species that occur and are generally secure throughout the region or are somewhat tolerant of urban stressors. L4 species are defined as those that occur throughout the region but could show declines if urban impacts are not mitigated effectively.

We trust that this technical letter report meets your project needs at this time. Should you have any question or points of discussion regarding the above, please don't hesitate to contact us anytime.

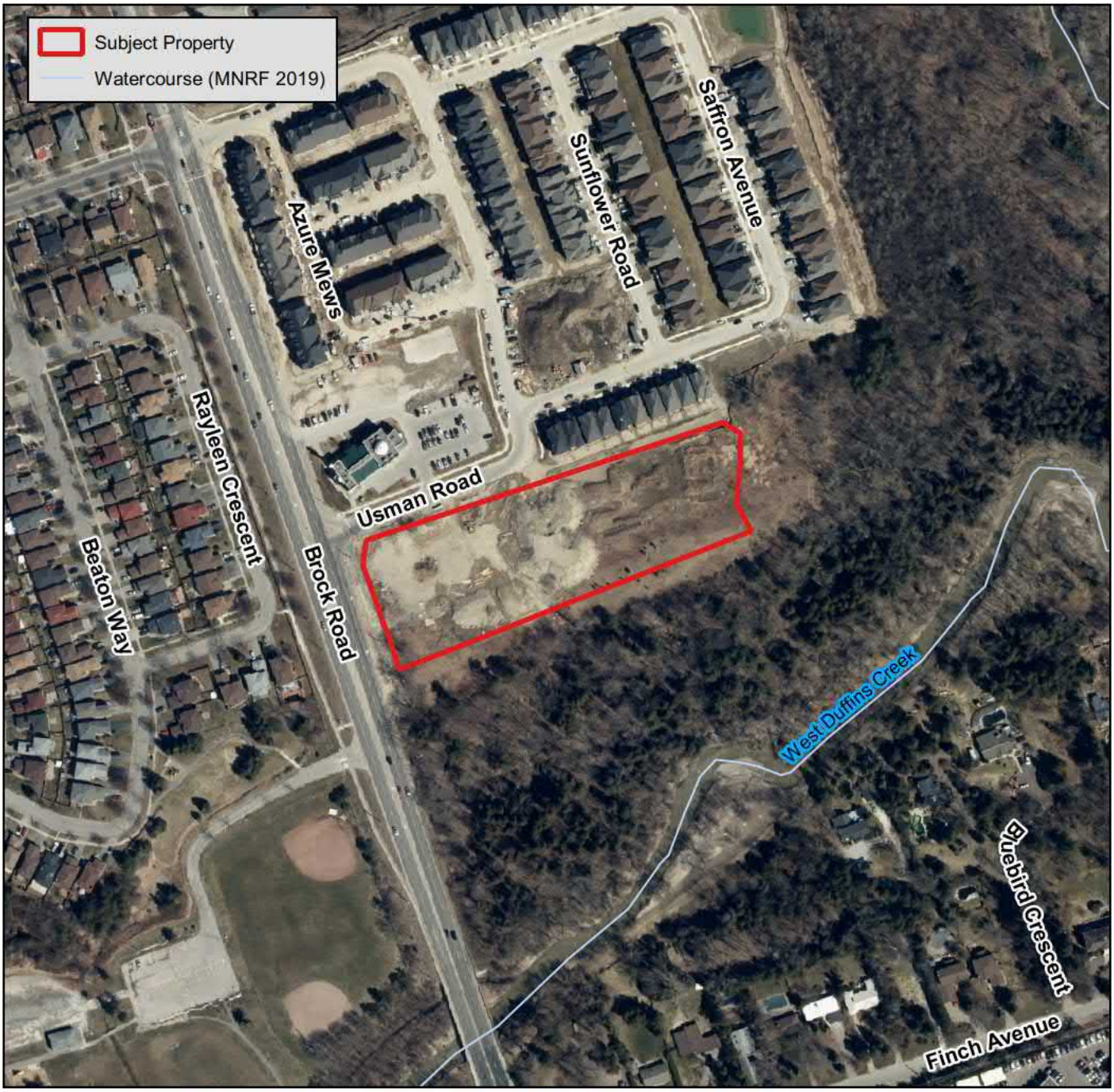
Prepared by:
Beacon Environmental

Lauren Cymbaly, M.E.S.
Ecologist

Reviewed by:
Beacon Environmental

Kristi L. Quinn, B.E.S
Principal, Senior Environmental Planner

Attachment A



Site Location	Figure 1
2055 Brock Road, Pickering, Breeding Bird Survey	
BEACON ENVIRONMENTAL	Project: 219302 Last Revised: September 2019
Client: Brock Road Duffins Forest Inc.	Prepared by: BD Checked by: LC
N 1:3200	Inset Map:1:50000

C:\Dropbox\Dropbox (Beacon)\All GIS Projects\2019\219302 2055 Brock Road Pickering\Q Project Files\2019-09-30 - 2055 Brock Road Pickering - 219302.qgs.qgz

Attachment B

Attachment B

Breeding Birds of 2055 Brock Road, Pickering

Species		Status						Totals
Common Name	Scientific Name	National Species at Risk COSEWICa	Species at Risk in Ontario Listing a	Provincial breeding season SRANK [b]	TRCA Status d	Regional Status	Area-sensitive (OMNR)c	# Breeding Pairs or Territories
Mourning Dove	*Zenaida macroura*			S5	L5			1
Blue Jay	*Cyanocitta cristata*			S5	L5			1
Black-capped Chickadee	*Poecile atricapillus*			S5	L5			1
American Robin	*Turdus migratorius*			S5	L5			F
Cedar Waxwing	*Bombycilla cedrorum*			S5	L5			3
European Starling	*Sturnus vulgaris*			SE	L+			F
Common Yellowthroat	*Geothlyphis trichas*			S5	L4			1
Northern Cardinal	*Cardinalis cardinalis*			S5	L5			F
Chipping Sparrow	*Spizella passerina*			S5	L5			1
Song Sparrow	*Melospiza melodia*			S5	L5			4
Red-winged Blackbird	*Agelaius phoeniceus*			S4	L5			1
Common Grackle	*Quiscalus quiscula*			S5	L5			1
American Goldfinch	*Spinus tristis*			S5	L5			3

Field Work Conducted On: June 25 and July 3, 2019
F indicates foraging birds or those flying over the site
Number of Species: 10 (+3 foraging)
Number of (provincial and national) Species at Risk: 0
Number of S1 to S3 Species: 0
Number of TRCA L1, L2 and L3 Species (Species of Concern): 0
Number of Area-sensitive Species: 0

KEY
a COSEWIC = Committee on the Status of Endangered Wildlife in Canada
a Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario)
END = Endangered, THR = Threatened, SC = Special Concern

[b] SRANK (from Natural Heritage Information Centre) for breeding status if:
S1 (Critically Imperiled), S2 (Imperiled),S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure)
SNA (Not applicable…'because the species is not a suitable target for conservation activities'; includes non-native species)

c Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide (Appendix G). 151 p plus appendices.

d Toronto and Region Conservation Authority L rank (2018):
L1 to L3 Regional species of concern from highest to lowest; L4 Urban concern; L5 Secure through region; L+ Non-native

Appendix E

Site Photographs

Photo :1 October 11, 2019 Northeast view of disturbed and cleared areas of Dry-Fresh Mixed Meadow (MEMM3) within the Study Area.	
Photo 2: October 11, 2019 East view of disturbed areas of Dry-Fresh Mixed Meadow (MEMM3) within the Study Area.	

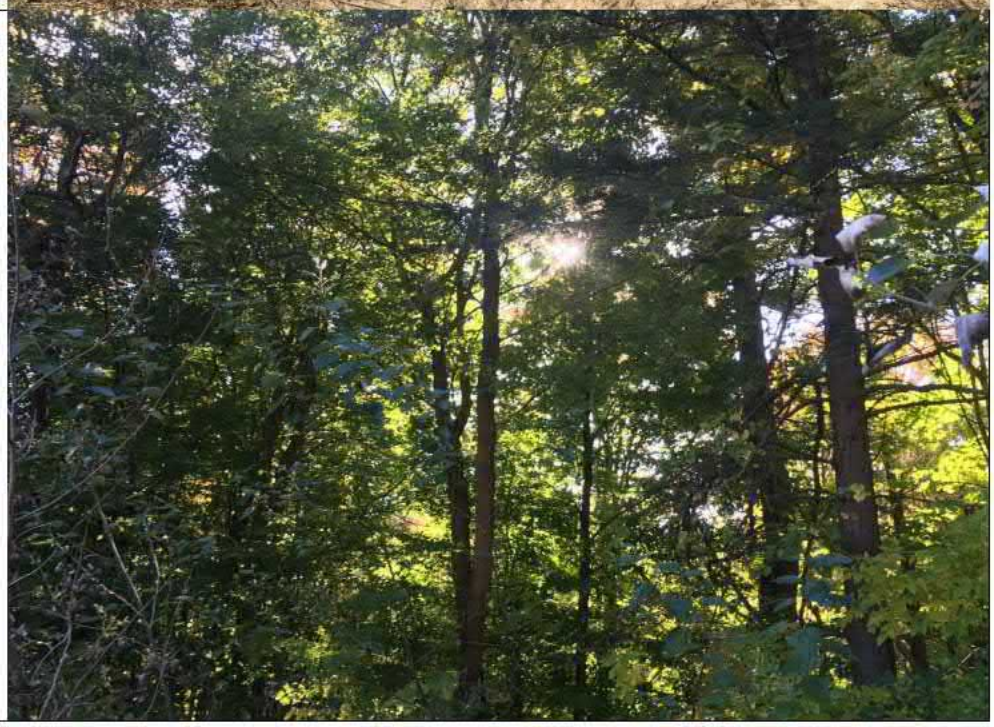
Photo 3: October 11, 2019 North view of disturbed areas of Dry-Fresh Mixed Meadow (MEMM3) adjacent to residential lands (CVR_3) within the Study Area.	
Photo 4: October 11, 2019 Southwest view of Dry-Fresh Sugar Maple Deciduous Forest (FODM6) within riparian corridor of the West Duffins Creek.	

Photo 5: October 11, 2019 East view of Dry-Fresh Sugar Maple Deciduous Forest (FODM6) within riparian corridor of the West Duffins Creek	
Photo 6: October 11, 2019 Evidence of anthropogenic disturbance (excavations of the valley ridge) within the Dry-Fresh Sugar Maple Deciduous Forest (FODM6) community.	

Photo 7: October 11, 2019 East view of Fresh-Moist White Cedar Coniferous Forest (FOCM4-1) located in the bottom lands of the West Duffins Creek riparian corridor.	
Photo 8: October 11, 2019 Patch of European Swallowwort (*Vincetoxicum rossicum*) identified within Fresh-Moist White Cedar Coniferous Forest (FOCM4-1) of the bottom lands of the West Duffins Creek riparian corridor.	

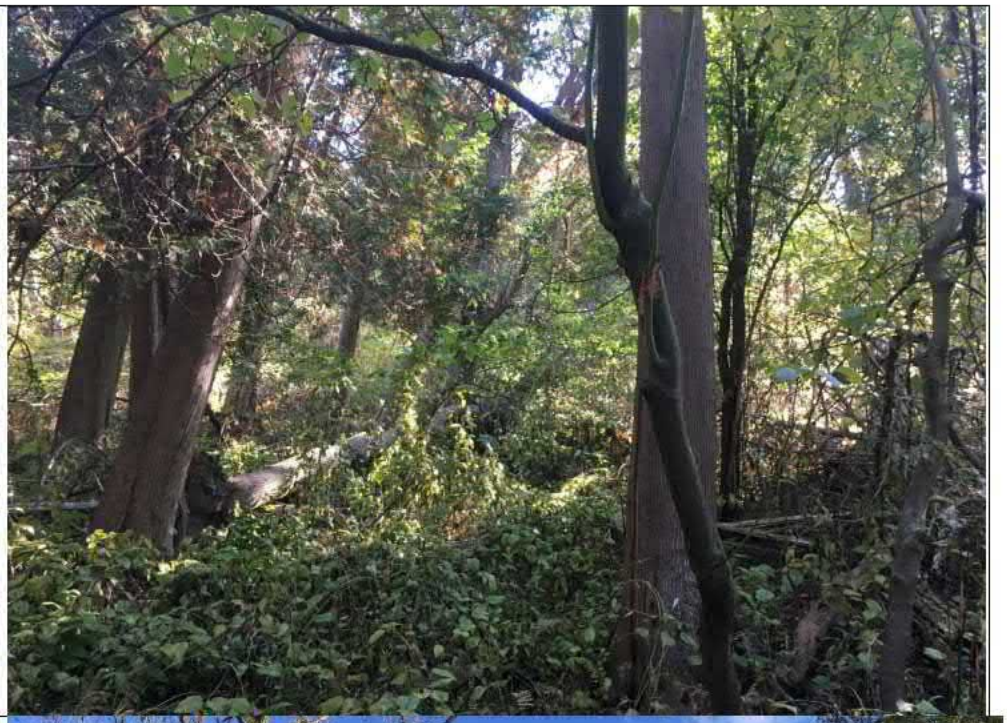
Photo 9: October 11, 2019 South view of Dry-Fresh Cedar Coniferous Woodland (WOCM1-2) located north of the West Duffins Creek.	
Photo 10: October 11, 2019 Northeast view of Bulrush Mineral Shallow Marsh (MASM1-2) located in the eastern section of the Study Area.	

Photo 11: October 11, 2019 East view of Bulrush Mineral Shallow Marsh (MASM1-2) located in the eastern section of the Study Area.	
Photo 12: October 11, 2019 East view of Dry-Fresh Deciduous Shrub Thicket (THDM2) located in the northeast corner of the Study Area.	

Photo 13: October 11, 2019 East view of Ash Mineral Deciduous Swamp forest (SWMD2) located east within the Study Area.	
Photo 14: October 11, 2019 North view of Ash Mineral Deciduous Swamp forest (SWMD2) located east within the Study Area.	

Photo 15: October 11, 2019 Butternut (standing deadwood) located within Ash Mineral Deciduous Swamp forest (SWMD2) located east within the Study Area.	
Photo 16: October 11, 2019 East view of Open Aquatic (OAO) areas of the West Duffins Creek located south of the Study Area	

Photo 17: October 11, 2019 Southwest view of the treed fencerow (TAGM5) and baseball diamonds within parkland (CGL_4) along Brock Road (CVI_1).	
Photo 18: October 11, 2019 North view of residential subdivisions (CVR_3) located north of the Study Area.	

Photo 19: October 11, 2019 North view of residential subdivisions (CVR_3) and community centre (Pickering Islamic Centre; CVC) located north within the Study Area.	
Photo 20: October 11, 2019 Northwest view of Brock Road (CVI_1 Transportation) located west within the Study Area.	

Appendix F

Botanical Species List

Table F-1: Botanical Inventory Results

Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]	Coefficient Conservation[4]	Observed by Dillon[5]	Observed by WME[6]	Observed by Terrastory[7]	TRCA Data[8]
Acer negundo	Manitoba Maple	---	---	S5	0	●	---	---	---
Acer rubrum	Red Maple	---	---	S5	4	---	---	●	---
Acer saccharinum	Silver Maple	---	---	S5	5	●	---	---	---
Acer saccharum	Sugar Maple	---	---	S5	4	●	---	---	---
Acer x freemanii	Freeman's Maple	---	---	SNA	6	●	---	●	---
Actaea pachypoda	White Baneberry	---	---	S5	6	---	---	---	●
Ageratina altissima	White Snakeroot	---	---	S5	5	---	---	●	---
Agrostis stolonifera	Creeping Bentgrass	---	---	SNA	0	---	---	●	---
Alliaria petiolata	Garlic Mustard	---	---	SNA	---	●	---	---	---
Alisma triviale	Northern Water-plantain	---	---	S5	---	---	---	●	---
Anemone quinquefolia	Wood Anemone	---	---	S5	7	---	---	---	●
Amphicarpaea bracteata	American Hog-peanut	---	---	S5	4	---	---	●	---
Apocynum androsaemifolium	Spreading Dogbane	---	---	S5	3	---	---	---	●
Arctium minus	Common Burdock	---	---	SNA	---	●	---	---	---
Arisaema triphyllum	Jack-in-the-pulpit	---	---	S5	5	---	---	---	●
Asarum canadense	Canada Wild-ginger	---	---	S5	6	---	---	---	●
Asclepias syriaca	Common Milkweed	---	---	S5	0	●	---	---	---
Betula alleghaniensis	Yellow Birch	---	---	S5	6	●	---	---	---
Bidens frondosa	Devil's Beggarticks	---	---	S5	3	●	●	---	---
Carex gracillima	Graceful Sedge	---	---	S5	4	---	---	●	---
Carex lupulina	Hop Sedge	---	---	S5	6	---	---	●	---
Caulophyllum thalictroides	Blue Cohosh	---	---	S5	6	---	---	---	●

Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]	Coefficient Conservation[4]	Observed by Dillon[5]	Observed by WME[6]	Observed by Terrastory[7]	TRCA Data[8]
Cirsium arvense	Canada Thistle	---	---	SNA	---	---	---	●	---
Cornus alternifolia	Alternate-leaved Dogwood	---	---	S5	6	---	---	●	---
Cornus racemosa	Gray Dogwood	---	---	S5	2	●	---	---	---
Crataegus sp.	Hawthorn Species	---	---	---	---	●	---	---	---
Dicentra canadensis	Squirrel-corn	---	---	S5	7	---	---	---	●
Elymus virginicus var. virginicus	Virginia Wildrye	---	---	S5	5	---	---	●	---
Epilobium parviflorum	Small-flowered Willowherb	---	---	SNA	---	---	---	●	---
Equisetum arvense	Field Horsetail	---	---	S5	0	---	---	●	---
Equisetum fluviatile	Water Horsetail	---	---	S5	7	●	---	---	---
Equisetum variegatum	Variegated Horsetail	---	---	S5	5	●	---	---	---
Erigeron annuus	Annual Fleabane	---	---	S5	0	●	---	---	---
Erigeron hyssopifolius	Daisy Fleabane	---	---	S5	10	●	---	---	---
Eutrochium maculatum	Spotted Joe Pye Weed	---	---	S5	3	●	●	---	---
Eutrochium purpureum	Purple Joe Pye Weed	---	---	S4	8	●	---	---	---
Fagus grandifolia	American Beech	---	---	S4	6	●	---	---	---
Frangula alnus	Glossy Buckthorn	---	---	SNA	---	---	---	●	---
Fraxinus nigra	Black Ash	---	---	S4	7	---	---	●	---
Fraxinus pennsylvanica	Green Ash	---	---	S4	3	●	---	---	---
Galium palustre	Marsh Bedstraw	---	---	S5	5	---	●	---	---
Glyceria striata	Fowl Mannagrass	---	---	S5	3	---	---	●	---
Gymnocladus dioicus	Kentucky Coffee-tree	THR	---	S2	6	---	---	●	---
Hesperis matronalis	Dame's Rocket	---	---	SNA	---	---	---	●	---
Impatiens capensis	Spotted Jewelweed	---	---	S5	4	---	●	---	---
Juglans cinerea	Butternut	END	END	S3?	6	●	---	●	●

Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]	Coefficient Conservation[4]	Observed by Dillon[5]	Observed by WME[6]	Observed by Terrastory[7]	TRCA Data[8]
Juglans nigra	Black Walnut	---	---	S4	5	●	---	---	---
Juncus tenuis	Path Rush	---	---	S5	0	---	---	●	---
Lotus corniculatus	Garden Bird's-foot Trefoil	---	---	SNA	---	---	●	---	---
Lythrum salicaria	Purple Loosestrife	---	---	SNA	---	---	●	---	---
Maianthemum racemosum	False Solomon's-seal	---	---	S5	4	●	---	---	---
Matteuccia struthiopteris	Ostrich Fern	---	---	S5	5	●	---	---	---
Onoclea sensibilis	Sensitive Fern	---	---	S5	4	●	---	---	---
Osmorhiza longistylis	Smooth Sweet Cicely	---	---	S5	6	---	---	---	●
Parthenocissus inserta	Thicket Creeper	---	---	S5	3	---	---	●	---
Persicaria maculosa	Spotted Lady's-thumb	---	---	SNA	---	---	---	●	---
Phalaris arundinacea	Reed Canary Grass	---	---	S5	0	●	●	---	---
Picea glauca	White Spruce	---	---	S5	6	---	---	---	●
Pinus banksiana	Jack Pine	---	---	S5	5	---	---	●	---
Pinus strobus	Eastern White Pine	---	---	S5	4	●	---	---	●
Pinus sylvestris	Scots Pine	---	---	SNA	---	●	---	---	---
Podophyllum peltatum	May-apple	---	---	S5	5	---	---	---	●
Populus balsamifera	Balsam Poplar	---	---	S5	4	●	---	---	---
Populus deltoides ssp. *deltoides*	Eastern Cottonwood	---	---	S5	4	●	---	---	---
Populus grandidentata	Large-tooth Aspen	---	---	S5	5	●	---	---	---
Populus sp.	Poplar Species	---	---	---	---	●	---	---	---
Prunus serotina	Wild Black Cherry	---	---	S5	3	●	---	---	---
Quercus alba	White Oak	---	---	S5	6	---	---	●	---
Ranunculus acris	Tall Buttercup	---	---	SNA	---	---	●	---	---
Rhamnus cathartica	European Buckthorn	---	---	SNA	---	●	---	---	---
Rhus hirta	Staghorn Sumac	---	---	S5	1	●	---	---	---

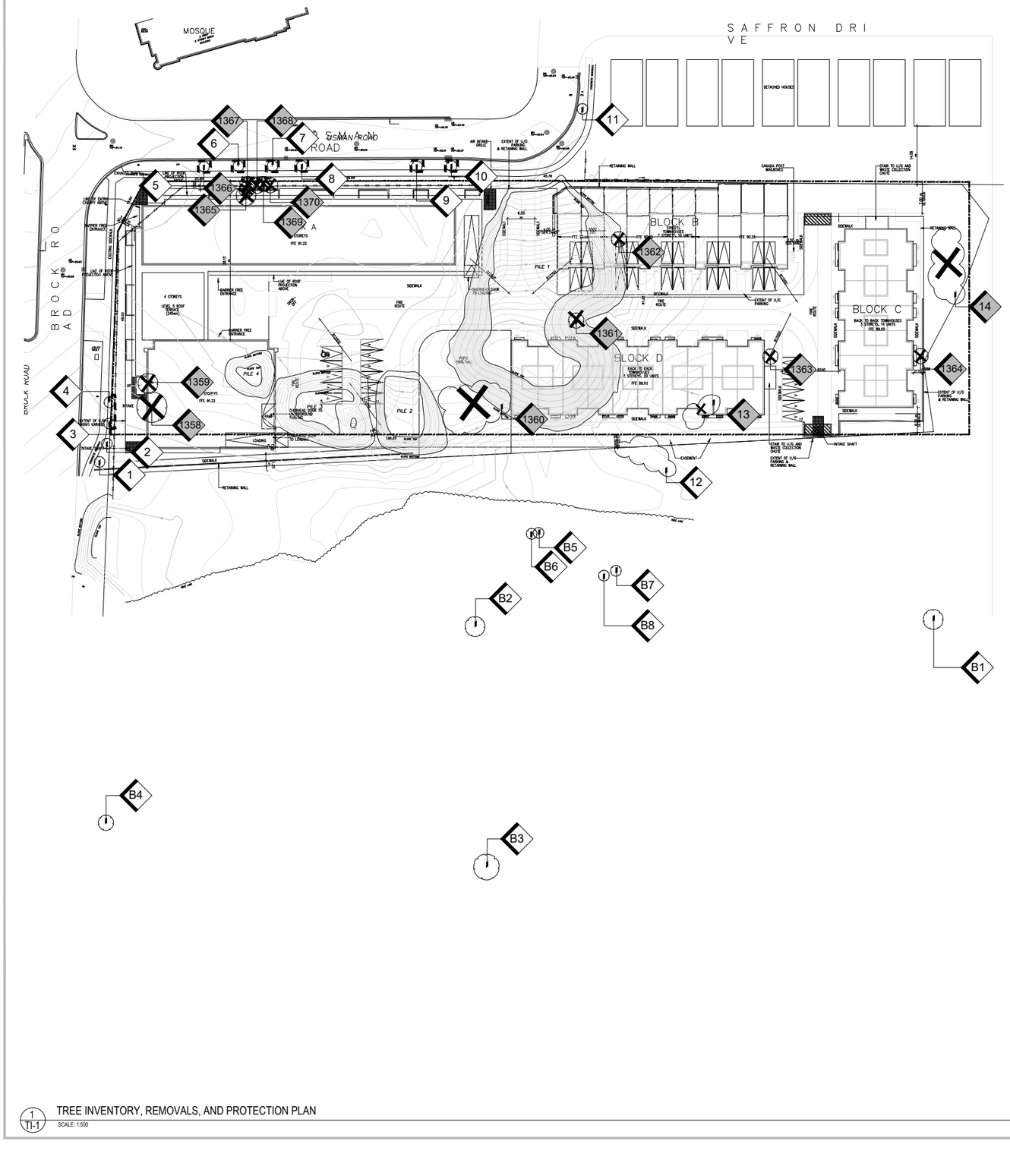
Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]	Coefficient Conservation[4]	Observed by Dillon[5]	Observed by WME[6]	Observed by Terrastory[7]	TRCA Data[8]
Ribes americanum	Wild Black Currant	---	---	S5	4	---	---	●	---
Rubus idaeus	Red Raspberry	---	---	S5	2	●	---	---	---
Rudbeckia hirta var. *hirta*	Black-eyed Susan	---	---	SU	0	---	---	---	●
Rumex crispus	Curly Dock	---	---	SNA	---	---	●	---	---
Salix sp.	Willow Species	---	---	---	---	●	---	---	---
Scirpus microcarpus	Red-tinge Bulrush	---	---	S5	4	---	---	---	●
Solidago canadensis var. *canadensis*	Canada Goldenrod	---	---	S5	1	---	●	---	---
Solidago rugosa var. rugosa	Northern Rough-leaved Goldenrod	---	---	S5	4	---	---	●	---
Solidago sp.	Goldenrod Species	---	---	---	---	●	---	---	---
Symphyotrichum lanceolatum ssp. lanceolatum	Panicled Aster	---	---	S5	3	---	---	●	---
Symphyotrichum lateriflorum	Starved Aster	---	---	S5	3	---	---	●	---
Symphyotrichum novae-angliae	New England Aster	---	---	S5	2	●	---	---	---
Symphyotrichum puniceum var. puniceum	Swamp Aster	---	---	S5	6	---	---	●	---
Thalictrum pubescens	Tall Meadow-rue	---	---	S5	5	---	---	●	---
Thuja occidentalis	Eastern White Cedar	---	---	S5	4	---	---	---	●
Tilia americana	American Basswood	---	---	S5	4	●	---	---	---
Tilia cordata	Little-leaved Linden	---	---	SNA	---	---	---	●	---
Toxicodendron radicans	Climbing Poison Ivy	---	---	S5	5	---	---	●	---
Trifolium pratense	Red Clover	---	---	SNA	---	●	---	---	---
Trillium erectum	Red Trillium	---	---	S5	6	---	---	---	●
Trillium grandiflorum	White Trillium	---	---	S5	5	---	---	---	●
Tsuga canadensis	Eastern Hemlock	---	---	S5	7	●	---	---	●
Tussilago farfara	Colt's-foot	---	---	SNA	---	---	---	●	---

Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]	Coefficient Conservation[4]	Observed by Dillon[5]	Observed by WME[6]	Observed by Terrastory[7]	TRCA Data[8]
Typha angustifolia	Narrow-leaved Cattail	---	---	SNA	3	●	---	---	---
Ulmus americana	American Elm	---	---	S5	3	●	---	---	---
Ulmus pumila	Siberian Elm	---	---	SNA	---	---	---	●	---
Urtica dioica ssp. dioica	European Stinging Nettle	---	---	SNA	---	---	---	●	---
Viburnum opulus ssp. opulus	Cranberry Viburnum	---	---	SNA	---	---	---	●	---
Vicia americana	American Purple Vetch	---	---	S5	9	●	---	---	---
Vincetoxicum rossicum	European Swallow-wort	---	---	SNA	---	●	---	---	---
Vitis riparia	Riverbank Grape	---	---	S5	0	●	---	---	---

[1]Federal Species at Risk Act, 2002. [2]Provincial Endangered Species Act, 2007. [3]SRank 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. S5 = Secure, S4 = Apparently Secure, S3 = Vulnerable, S2 = Imperiled, S1 = Critically Imperiled, SX = extirpated, SNA = unsuitable target for conservation activities, B = within the Species breeding range in Ontario. "---" denotes no information for species. [4]Coefficient of Conservatism. [5]Observed by Dillon during 2019 field reconnaissance activities. [6]Observed by WME during 2009 field investigations. [7]Observed by Terrastory during 2021 field investigations. [8]Provided in digital data sets of the TRCA and reported in the 2009 EIS.

Appendix G

Tree Inventory and Preservation Plan (MHBC)



LEGEND

- EXISTING DECIDUOUS TREE TO REMAIN
- EXISTING DECIDUOUS TREE TO BE REMOVED (REFER TO ARBORIST REPORT)
- EXISTING TREE GROUPING TO REMAIN
- EXISTING TREE GROUPING TO BE REMOVED (REFER TO ARBORIST REPORT)
- # TREE IDENTIFICATION KEY (TREES TO BE RETAINED)
- # TREE IDENTIFICATION KEY (TREES TO BE REMOVED)
- B# BUTTERNUT TREE
- PROPERTY LINE
- TREE PROTECTION FENCING PER CITY OF PICKERING STANDARDS

GENERAL NOTES

1. Do not scale the drawings. All dimensions are in millimetres unless noted otherwise.
2. This drawing is to be read in conjunction with the project site plan. landscape plan, and engineering plan.
3. The tree inventory includes assessment of trees >10cm DBH. The trees have been assessed based on species, size and condition.
4. The contractor shall check and verify all existing and proposed grading and conditions on the project and immediately report any discrepancies to the consultant before proceeding with any removals.
5. The contractor is to be aware of all existing and proposed services and utilities. The contractor is responsible for having all underground services and utility lines staked by each agency having jurisdiction prior to commencing work.
6. This drawing is to be used for development approval only.
7. Do not leave any holes open overnight.
8. Keep area outside construction zone clean and useable by others at all times. Contractor shall throughly clean areas surrounding the construction zone at the end of each work day.
9. Contractor to make good any and all damages outside of the development area that may occur as a result of tree removals at no extra cost.
10. This drawing is Copyright MHBC Planning, 2021.

REVISION NO.	DATE	ISSUED / REVISION	BY
2.	DECEMBER 21, 2021	ISSUED FOR REVIEW	CC
1.	MAY 6, 2021	ISSUED FOR REVIEW	NV

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
230-7050 WESTON ROAD WOODBRIDGE, ON. L4L 8G7 | P: 905 761 5588 F: 905 761 5589 | WWW.MHBCPLAN.COM

STAMP

ASSOCIATION OF LANDSCAPE ARCHITECTS ONTARIO NICOLA A. MITCH OALA MEMBER

ISSUED FOR SPA ONLY
NOT FOR CONSTRUCTION

DATE	MAY 6, 2021
DRAWN BY	NV
PLAN SCALE	1:500
FILE NO.	17134B
CHECKED BY	N.M.
OTHER	

PROJECT

2055 BROCK ROAD
PICKERING, ONTARIO

NORTH

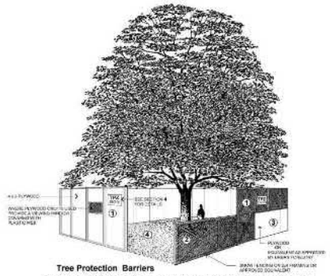
FILE NAME

TREE INVENTORY, PROTECTION, AND REMOVALS

DWG NO.

TI-1

1 / TI-1 TREE INVENTORY, REMOVALS, AND PROTECTION PLAN
SCALE: 1:500



1 TI-2 TREE PROTECTION DETAIL
TYPICAL DETAIL

Tree #	Common Name	Botanical Name	DBH (CM)	Condition	Comments	Recommendation
1	Red Maple	Acer rubrum	5	F/G		Retain
2	Red Maple	Acer rubrum	5	F/G		Retain
3	Red Maple	Acer rubrum	5	F/G		Retain
4	Red Maple	Acer rubrum	5	F/G		Retain
5	Freemanii Maple	Acer Freemanii	5	F/G		Retain
6	Freemanii Maple	Acer Freemanii	5	F/G		Retain
7	Freemanii Maple	Acer Freemanii	4	F/G		Retain
8	Freemanii Maple	Acer Freemanii	4	F/G		Retain
9	White Oak	Quercus alba	5	F		Retain
10	Little Leaf Linden	Tilia cordata	4	F		Retain
11	Kentucky Coffee Tree	Gymnocladus diocus	4	F		Retain
12	White Pine	Pinus strobus	~5 10	F/G	Grouping of White Pine and Jack Pine, 5 stems	Retain
13	White Pine	Pinus strobus	~8-10	F/G	Grouping of White Pine and Jack Pine, 6 stems	Remove
14	Manitoba Maple	Acer negundo	~10-15	F	Manitoba Maple grouping, ~12 stems	Remove
1358	Sugar Maple	Acer saccharum	53	F		Remove
1359	Sugar Maple	Acer saccharum	39	F	Small co-dominant stem at 0.6m above grade	Remove
1360	Manitoba Maple	Acer negundo	~15-18	F	Selfseeded growing among fill piles	Remove
1361	Willow sp.	Salix Sp.	17	F	4 stem, growing in fill pile	Remove
1362	Black Walnut	Juglans nigra	16	F/G	Growing on edge of fill pile	Remove
1363	Black Walnut	Juglans nigra	13	F	Growing on edge of fill ridge	Remove
1364	Black Walnut	Juglans nigra	20	F/G		Remove
1365	Siberian Elm	Ulmus pumila	32,20	F/P	2 stem at base	Remove
1366	Sugar Maple	Acer saccharum	16	F/G	Competing with adjacent trees	Remove
1367	Siberian Elm	Ulmus pumila	15	P	Leader broken off in past	Remove
1368	Siberian Elm	Ulmus pumila	18	F/P	Poor form, water	Remove
1369	Siberian Elm	Ulmus pumila	14	P	Leader broken off in past	Remove
1370	Siberian Elm	Ulmus pumila	16	P	Leader broken off in past	Remove

2 TI-2 TREE INVENTORY

Tree #	Common Name	Botanical Name	DBH (CM)	Condition	Comments	Recommendation
B1	Butternut	Juglans cinerea	33	-		Retain
B2	Butternut	Juglans cinerea	30	-		Retain
B3	Butternut	Juglans cinerea	45	-		Retain
B4	Butternut	Juglans cinerea	16	-		Retain
B5	Butternut	Juglans cinerea	7	-		Retain
B6	Butternut	Juglans cinerea	2	-		Retain
B7	Butternut	Juglans cinerea	1	-		Retain
B8	Butternut	Juglans cinerea	5	-		Retain
B9	Butternut	Juglans cinerea	36	-		Retain
B10	Butternut	Juglans cinerea	30	-		Retain
B11	Butternut	Juglans cinerea	21	-		Retain
B12	Butternut	Juglans cinerea	49	-		Retain

3 TI-2 BUTTERNUT INVENTORY
NOTE: BUTTERNUT TREES WERE INVENTORIED BY TERRASTORY ENVIRONMENTAL CONSULTING. FOR DETAILED INFORMATION OF EACH TREE, REFER TO BUTTERNUT HEALTH ASSESSORS REPORT: 268-TPX DATED MARCH 2015

LEGEND

GENERAL NOTES

1. Do not scale the drawings. All dimensions are in millimetres unless noted otherwise.
2. This drawing is to be read in conjunction with the project site plan. landscape plan, and engineering plan.
3. The tree inventory includes assessment of trees >10cm DBH. The trees have been assessed based on species, size and condition.
4. The contractor shall check and verify all existing and proposed grading and conditions on the project and immediately report any discrepancies to the consultant before proceeding with any removals.
5. The contractor is to be aware of all existing and proposed services and utilities. The contractor is responsible for having all underground services and utility lines staked by each agency having jurisdiction prior to commencing work.
6. This drawing is to be used for development approval only.
7. Do not leave any holes open overnight.
8. Keep area outside construction zone clean and useable by others at all times. Contractor shall throughly clean areas surrounding the construction zone at the end of each work day.
9. Contractor to make good any and all damages outside of the development area that may occur as a result of tree removals at no extra cost.
10. This drawing is Copyright MHBC Planning, 2021.

REVISION NO.	DATE	ISSUED / REVISION	BY
2.	DECEMBER 21, 2021	ISSUED FOR REVIEW	CC
1.	MAY 6, 2021	ISSUED FOR REVIEW	NV

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
230-7050 WESTON ROAD WOODBRIDGE, ON. L4L 8G7 | P: 905 761 5588 F: 905 761 5589 | WWW.MHBCPLAN.COM

STAMP
ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS NICOLA A. MILLS OALA MEMBER
ISSUED FOR SPA ONLY
NOT FOR CONSTRUCTION

DATE: MAY 6, 2021
DRAWN BY: NV
PLAN SCALE:
FILE NO.: 17134B
CHECKED BY: N.M.
OTHER:

PROJECT
2055 BROCK ROAD
PICKERING, ONTARIO

FILE NAME
TREE INVENTORY, PROTECTION, AND REMOVALS

DWG NO.
TI-1

Appendix H

Butternut Health Assessment (Terrastory)

Enclosures:

1. Information from the Ministry of Natural Resources and Forestry about Butternut and the *Endangered Species Act, 2007*
2. Butternut Health Assessor's Report
3. Original data forms
4. Electronic and printed copies of the Excel data spreadsheet (BHA Tree Analysis)

Ministry of Natural Resources and Forestry

Species At Risk
P.O. Box 7000, 300 Water Street
Peterborough ON K9J 8M5

Ministère des Richesses naturelles et des Forêts

Espèces en péril
C.P. 7000, 300, rue Water
Peterborough ON K9J 8M5

The enclosed Butternut Health Assessor's Report documents the results of the Butternut health assessment that was conducted by the designated Butternut Health Assessor (BHA) identified in the top section of the report. If there are other Butternut trees (of any size or age) at the site that may be affected by the activity and they are not identified in the enclosed BHA Report, they too must be assessed by a designated BHA.

Butternut is listed as an endangered species on the Species at Risk in Ontario List, and as such, it is protected under the *Endangered Species Act, 2007* (ESA) from being killed, harmed, or removed. If you are planning to undertake an activity that may affect Butternut, you may be eligible to follow the requirements set out in section 23.7 of Ontario Regulation 242/08 under the ESA, or you may need to seek an authorization under the ESA (e.g., a permit).

Please visit e-laws at the link provided below for the legal requirements of eligible activities under section 23.7 of Ontario Regulation 242/08 and conditions that must be fulfilled. Information about Butternut is also available at: http://www.ontario.ca/environment-and-energy/butternut-trees-your-property.

If you are eligible to kill, harm or take Butternut under section 23.7 of the regulation, your first step is to submit the BHA Report and the original data forms enclosed in this package to the local Ministry of Natural Resources and Forestry (MNRF) District Manager. Note that MNRF cannot accept photocopies or scanned electronic copies of the data forms.

Note regarding changes:

If the enclosed BHA Report does not identify which Butternut tree(s) are proposed to be killed, harmed, or taken in Table 1 (i.e., if "unknown" is indicated in the second last column of Table 1), or, if the information in the last two columns of Table 1 has changed since the date this BHA Report was produced, **do not make any edits to the BHA Report**. Instead, please attach a cover letter that identifies which Butternut tree(s) are proposed to be killed, harmed, or taken (by referencing the tree identification numbers) when you submit the enclosed BHA Report to the local MNRF District Manager.

The BHA Report must be submitted at least 30 days prior to registering an eligible activity to kill, harm, or remove a Butternut tree. During this 30 day period, no Butternut trees (of any category) may be killed, harmed, or removed, and MNRF may contact you for an opportunity to examine the trees. If MNRF chooses to examine the trees, a representative of MNRF will contact you using the information you supplied when you submitted the BHA Report.

If you are eligible to follow the rules in regulation under section 23.7, you may register your activity using the "Notice of Butternut Impact" form on the MNRF Registry **after the 30 day period has elapsed**.

If you are **not** eligible to follow the rules in regulation under section 23.7, please contact the local MNRF district office to determine whether you will need to seek an authorization (e.g., a permit). A link to the directory of MNRF offices is provided below.

Note that municipal by-laws and legislation other than the ESA may also be applicable to the removal or harming of trees.

Please retain this information and a copy of the BHA Report (including copies of all data forms) for your records, along with any other documentation you may receive from MNRF should an examination of the trees occur. If you have any questions, please contact your local MNRF district office.

Links:

Endangered Species Act, 2007:
http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_07e06_e.htm

Ontario Regulation 242/08 (refer to section 23.7):
http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080242_e.htm

MNRF Office Locations:
https://www.ontario.ca/government/ministry-natural-resources-and-forestry-regional-and-district-offices

Butternut Health Assessor's Report Number: 268-TPX

Ash Baron, BHA Identification #269
218 Evert Street
Guelph-Eramosa, Ontario
N0B 2K0
519-722-1073
ash@terrastoryenviro.com

Altus Expert Services, Altus Group
c/o Jason Kraft
33 Yonge Street Suite 500
Toronto, Ontario
M5E 1G4
416-797-8554
Jason.kraft@altusgroup.com

Site location: 2050 Brock Road, Pickering

Date(s) of Butternut health assessment: August 12 and September 14, 2021
Date BHA Report prepared: 16 November 2021

Map datum used: ☒ NAD83 ☐ WGS84

Total number of trees assessed in this BHA Report: 12

The assessed trees were numbered on site using numbered orange flagging tape. The numbers at the site correspond to the tree numbers referenced in this report.

This BHA Report includes the following tables:

- Table 1: Butternut Trees Assessed
- Table 2: Trees Determined by BHA to be Butternut Hybrids
- Table 3: Summary of Assessment Results

Table 1: Butternut Trees Assessed

Tree #	UTM coordinates	Category[1] (1, 2, or 3[2])	dbh[3] (cm)	Cultivated? (Y/N)	Proposed to be: (enter one: unknown[4], killed, harmed or taken)	If tree is proposed to be killed, harmed, or taken, indicate reason tree is proposed to be killed, harmed or taken:
D1	654844, 4857369	1	30 N		unknown	

[1] The extent to which the tree is affected by Butternut Canker is presented in the Excel document titled, "BHA Tree Analysis" that accompanies this BHA Report.
[2] Category 3 trees are not eligible to be killed, harmed or taken under section 23.7 of Ontario Regulation 242/08.
[3] dbh: diameter at breast height, rounded to nearest cm (if tree is shorter than breast height, enter zero)
[4] In this column, "unknown" indicates that at the time of assessment, there are no proposals to kill, harm or take this tree that are known to the BHA.

Tree #	UTM coordinates	Category[1] (1, 2, or 3[2])	dbh[3] (cm)	Cultivated? (Y/N)	Proposed to be: (enter one: unknown[4], killed, harmed or taken)	If tree is proposed to be killed, harmed, or taken, indicate reason tree is proposed to be killed, harmed or taken:
D2	654852, 4857413	1	21 N		unknown	
D3	654885, 4857387	1	49 N		unknown	
1	654807, 4857323	1	33 N		unknown	
2	654711, 4857284	1	30 N		unknown	
3	654734, 4857234	1	45 N		unknown	
4	654651, 4857211	1	16 N		unknown	
5	654716, 4857307	2	7	N	unknown	
6	654715, 4857307	2	2	N	unknown	
7	654736, 4857306	2	1	N	unknown	
8	654734, 4857304	1	5	N	unknown	
9	654872, 4857371	1	36 N		unknown	

Table 2: Trees Determined by BHA to be Butternut Hybrids

Tree #	UTM coordinates	Method used (genetic testing or field identification):
	n/a	

Table 3: Summary of Assessment Results

Result:	**Total #:**	**Important information for persons planning activities that may affect Butternut:**
Category 1	9	• A Category 1 tree is one that is affected by butternut canker to such an advanced degree that retaining the tree would not support the protection or recovery of butternut in the area in which the tree is located; and is considered "non-retainable". • During the 30 day period that follows your submission of this BHA Report to the MNRF District Manager, no Butternut trees (of Category 1, 2, or 3) may be killed, harmed, or taken, and MNRF may contact you for an opportunity to examine the trees. • Category 1 trees may be killed, harmed or taken **after** the 30 day period that follows submission of this BHA Report to the MNRF District Manager, unless the results of an MNRF examination indicate that the assessment has not been conducted in accordance with the document entitled "Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the *Endangered Species Act, 2007*".

Result:	Total #:	Important information for persons planning activities that may affect Butternut:
Category 2	3	• A Category 2 tree is one that is not affected by Butternut Canker, or is affected by Butternut Canker but the degree to which it is affected is not too advanced and retaining the tree could support the protection or recovery of butternut in the area in which the tree is located, and is considered "retainable". • During the 30 day period that follows your submission of this BHA Report to the MNRF District Manager, no Butternut trees (of Category 1, 2, or 3) may be killed, harmed, or taken, and MNRF may contact you for an opportunity to examine the trees. • Activities that may kill, harm or take up to a **maximum of ten (10)** Category 2 trees may be eligible to follow the rules in section 23.7 of Ontario Regulation 242/08, in accordance with the conditions and requirements set out in the regulation. • Refer to e-Laws for the legal requirements of eligible activities under section 23.7 of Ontario Regulation 242/08 and conditions that must be fulfilled: http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080242_e.htm • Activities that may kill, harm or take more than ten (10) Category 2 trees are not eligible to follow the rules in section 23.7 of Ontario Regulation 242/08. Contact the local MNRF district office for information on how to seek an ESA authorization (e.g., a permit) or consider an alternative that would be eligible for the regulation.
Category 3	0	• A Category 3 tree is one that may be useful in determining sources of resistance to Butternut Canker, and is considered "archivable". • Category 3 trees are not eligible to be killed, harmed or taken under section 23.7 of Ontario Regulation 242/08. • Contact the local MNRF district office for information on how to seek an ESA authorization, or consider an alternative that will avoid killing, harming or taking any Category 3 trees.
Cultivated	0	• An activity that involves killing, harming, or taking a cultivated Butternut tree that was not required to be planted to fulfill a condition of an ESA permit or a condition of a regulation, may be eligible for the exemption provided by subsection 23.7 (11) of O. Reg. 242/08. • Prior to undertaking the activity, the owner or occupier of the land on which the Butternut is located (or person acting on their behalf) will need to determine whether the exemption for cultivated trees is applicable by determining whether or not the tree was cultivated as a result of the requirements for an exemption under O. Reg. 242/08 or a condition of a permit issued under the ESA. This information can be accessed by contacting the local MNRF district office. • The owner or occupier of the land on which the Butternut is located (or person acting on their behalf) is encouraged to append the details regarding whether the tree was planted to satisfy a requirement (e.g., the permit number or registration number) to this BHA Report for their records.
Hybrid	0	• Hybrid Butternut trees are not protected under the ESA, but their removal may be subject to municipal by-laws and other legislation.

Butternut Health Assessor's Comments:

Three trees previously identified by Dillon Consulting (hereinafter, "Dillon") were assessed by Rob Aitken (BHA #552) of Terrastory Environmental Consulting Ltd. (hereinafter, "Terrastory") on August 12, 2021, with trees indicated by a "D" prior to the numerical identifier (e.g., D1, D2, etc.). Nine additional trees identified by Terrastory were assessed by Ash Baron (BHA #269) of Terrastory on September 14, 2021. None of the trees assessed were tested for hybridity.

All trees are located within a woodland or swamp. The effects of the proposed residential development on the ecological form and function of the adjacent natural heritage system within which the trees are located is being assessed by Dillon.

This concludes the summary of the BHA Report. A complete BHA Report must also include:

1. All original (hard copy) data forms (i.e., all completed sets of Form 1 and Form 2), and
2. Electronic and printed copies of the Excel data analysis spreadsheet.

Butternut Data Collection Form 1 - 2010 Edition

(PLEASE USE BLOCK LETTERS)

Surveyor ID or BHA #: 0269

Date (dd/mm/yyyy): 14 - 09 - 2021

Shaded fields are mandatory for Butternut Health Assessments

Surveyor Contact

First: ASH | Last: BARON

Email: ASH@TERRASTORYENVIRO.COM

Telephone: (519) 722-1073 | Telephone Other: ( ) - x

Property Owner (check if same as surveyor) ☐

First: | Last:

or Company: ALTUS GROUP

Email: JASON.KRAFT@ALTUSGROUP.COM

Telephone: (416) 797-8554 | Telephone Other: ( ) - x

Property Owner's Mailing address

Address: 33 YOUNG ST SUITE 500 | Postal Code: M5E 1G4 | Prov.: ON

City: TORONTO

Tree Location (if different from mailing address)

Address/(911#): 2050 BROCK RD | Lot: | Con:

Township: DURHAM REGION

City: PICKERING

Directions

☒ Yes ☐ No Can Share Location Information with other Butternut Recovery Organizations?

☐ Yes ☐ No Site visits OK? (prior arrangments will always be made for a site vist)

> (Greater than)
< (Less than)

Butternut Trees Tally by Diameter Class

(Do a dot tally in blank space; write total# in box for each)

Tree Condition	< 3 cm	3-15 cm	16-30cm	>30 cm
Vigorous: > 50% Live Crown Minor or no cankers	01	03	01	00
Poor Vigor: <50% Live Crown or >50% Live Crown + heavily cankered stem	00	00	01	03
Dead	00	00	02	01

Historically, do some trees produce seeds? ☒ Y ☐ N ☐ Unkown

Estimated area containing butternut for properties > 1 acre (0.4 hectares): ☐ Acres ☐ Hectares

Overall Property Description (area(s) containing Butternut)

☐ Rolling Upland ☒ Bottomland
☒ Valley Slope ☐ Variable
☐ Tableland ☐ Unknown

Vegetation Community/ies

☐ Open ☐ Fencerow
☐ Shrubland ☐ Roadside
☒ DeciduousForest ☐ Quary
☐ ConiferForest ☐ UrbanYard
☐ MixedForest ☐ UrbanPark

Other: SWAMP

Soil Drainage

☐ Well Drained
☐ Moderately Drained
☐ Poorly Drained
☒ Unknown

Soil Texture

☐ Clay ☐ Sand
☐ Clay Loam ☐ Variable
☐ Loam ☒ Unknown
☐ Loamy Sand

Soil Depth

☐ > 1metre
☐ 30 - 99cm
☐ < 30cm
☐ Variable
☒ Unknown

Please enter matching numerical page link code on forms 1 and 2

Page Link: TPX001

(Contact Information follows all applicable privacy policies and guidelines)

Please return forms to:
Forest Gene Conservation Association
Suite 233, 266 Charlotte St.
Peterborough, ON, K9J 2V4
www.fgca.net

49731

Butternut Data Collection FORM 2 (2010 Edition)

(PLEASE USE BLOCK LETTERS)

Shaded fields are mandatory for Butternut Health Assessments

Fill when Form 1 indicates canker is well established. The information on Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Site Code(A,B,...Z, AA...): TPX

Surveyor ID or BHA #: 0269

Surveyor Last Name: BARON

Date (dd/mm/yyyy): 04 - 09 - 2021

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree 001

Tree #: 001 | Zone: 17 | Easting: 654807 | Northing: 4857387

Crown Class: 2 | Live Crown %: 025 | Main Stem Length(m) Below crown: 07

Seed Signs: Male Flowers ☐ | Female Flowers ☐ | Seed Set ☒ | None ☐

Twig Dieback ☒ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☒

#Stems: 1 | DBH(cm): 033

Butternut Origin: Natural ☒ | Planted ☐ | Unknown ☐

Assess below live crown:

	#Open	#Sooty
#Epic-Live: 02		
#Epic-Dead: 03		
Bark Type: S		
# Callused Wounds: 12		
Root	01	02
=<2m	04	13
>2m	08	30

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species: ACERRUB, THUOCCI

Tree 002

Tree #: 002 | Zone: 17 | Easting: 654711 | Northing: 4857284

Crown Class: 2 | Live Crown %: 095 | Main Stem Length(m) Below crown: 07

Seed Signs: Male Flowers ☐ | Female Flowers ☐ | Seed Set ☐ | None ☒

Twig Dieback ☒ | Branch Dieback ☒ | Defoliation ☐ | Discolouration ☐

#Stems: 1 | DBH(cm): 630

Butternut Origin: Natural ☒ | Planted ☐ | Unknown ☐

Assess below live crown:

	#Open	#Sooty
#Epic-Live: 02		
#Epic-Dead: 01		
Bark Type: S		
# Callused Wounds: 10		
Root	01	05
=<2m	03	23
>2m	13	32

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species: ACERRUB, TSUCANA

Tree 003

Tree #: 003 | Zone: 17 | Easting: 654734 | Northing: 4857234

Crown Class: 1 | Live Crown %: 095 | Main Stem Length(m) Below crown: 10

Seed Signs: Male Flowers ☐ | Female Flowers ☐ | Seed Set ☒ | None ☐

Twig Dieback ☒ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐

#Stems: 1 | DBH(cm): 045

Butternut Origin: Natural ☒ | Planted ☐ | Unknown ☐

Assess below live crown:

	#Open	#Sooty
#Epic-Live: 00		
#Epic-Dead: 06		
Bark Type: S		
# Callused Wounds: 07		
Root	03	04
=<2m	05	13
>2m	04	30

Metres from badly cankered tree: ☒ < 40 ☐ > 40 ☐ None Found

Competing Species: THUOCCI, VITRIPA

Tree 004

Tree #: 004 | Zone: 17 | Easting: 654751 | Northing: 4857211

Crown Class: 3 | Live Crown %: 000 | Main Stem Length(m) Below crown: 06

Seed Signs: Male Flowers ☐ | Female Flowers ☐ | Seed Set ☐ | None ☒

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐

#Stems: 1 | DBH(cm): 016

Butternut Origin: Natural ☒ | Planted ☐ | Unknown ☐

Assess below live crown:

	#Open	#Sooty
#Epic-Live: 00		
#Epic-Dead: 00		
Bark Type: S		
# Callused Wounds: 13		
Root		
=<2m		
>2m		

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species: ACENEGU, ACERUBR

tree is dead

Tree 005

Tree #: 005 | Zone: 17 | Easting: 654716 | Northing: 4857367

Crown Class: 4 | Live Crown %: 000 | Main Stem Length(m) Below crown: 04

Seed Signs: Male Flowers ☐ | Female Flowers ☐ | Seed Set ☐ | None ☒

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐

#Stems: 1 | DBH(cm): 007

Butternut Origin: Natural ☒ | Planted ☐ | Unknown ☐

Assess below live crown:

	#Open	#Sooty
#Epic-Live: 00		
#Epic-Dead: 00		
Bark Type: S		
# Callused Wounds: 07		
Root	00	00
=<2m	00	00
>2m	01	00

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species: JUGNIGR, ACERUBR

Please enter matching page link code on forms 1 and 2

Page Link: TPX001

(Contact Information follows all applicable privacy policies and guidelines)

Please return forms to:
Forest Gene Conservation Association
Suite 233, 266 Charlotte St.
Peterborough, ON, K9J 2V4
www.fgca.net

49731

Butternut Data Collection FORM 2 (2010 Edition)

(PLEASE USE BLOCK LETTERS)

Shaded fields are mandatory for Butternut Health Assessments

Fill when Form 1 indicates canker is well established. The information on Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Site Code(A,B,...Z, AA...): TPX

Surveyor ID or BHA #: 0269

Surveyor Last Name: BARON

Date (dd/mm/yyyy): 04 - 09 - 2021

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree # 1

Tree #: 001 | Zone: 17 | Easting: 654715 | Northing: 4857307

Crown Class: 4 | Live Crown %: 085 | Main Stem Length(m) Below crown: 01

Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☐ None

Twig Dieback ☒ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐

#Stems: | DBH(cm): 002

Butternut Origin: ☒ Natural ☐ Planted ☐ Unknown

Assess below live crown: #Epic-Live: 00 | #Epic-Dead: 00 | Bark Type: S | # Callused Wounds: 02

	#Open	#Sooty
Root	00	00
=<2m	00	00
>2m	00	00

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species: JUGNIGR, JUGCINE, ACENEGU

Tree # 2

Tree #: 007 | Zone: 17 | Easting: 654736 | Northing: 4857396

Crown Class: 4 | Live Crown %: 050 | Main Stem Length(m) Below crown: 01

Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☒ None

Twig Dieback ☐ | Branch Dieback ☒ | Defoliation ☐ | Discolouration ☐

#Stems: 2 | DBH(cm): 001

Butternut Origin: ☒ Natural ☐ Planted ☐ Unknown

Assess below live crown: #Epic-Live: 00 | #Epic-Dead: 00 | Bark Type: S | # Callused Wounds: 00

	#Open	#Sooty
Root	00	00
=<2m	00	00
>2m	00	00

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species: JUGNIGR, RHACATH, VITRIPA

One stem is dead. Tree is approx 1.2m high.

Tree # 3

Tree #: 008 | Zone: 17 | Easting: 654734 | Northing: 4857304

Crown Class: 2 | Live Crown %: 100 | Main Stem Length(m) Below crown: 01

Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☒ None

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐

#Stems: 1 | DBH(cm): 005

Butternut Origin: ☒ Natural ☐ Planted ☐ Unknown

Assess below live crown: #Epic-Live: 00 | #Epic-Dead: 00 | Bark Type: S | # Callused Wounds: 01

	#Open	#Sooty
Root	00	00
=<2m	02	00
>2m	01	00

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species: TSUCANA, ACENEGU

Tree # 4

Tree #: 009 | Zone: 17 | Easting: 654872 | Northing: 4857371

Crown Class: | Live Crown %: 000 | Main Stem Length(m) Below crown:

Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☒ None

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐

#Stems: 1 | DBH(cm): 36

Butternut Origin: ☒ Natural ☐ Planted ☐ Unknown

Assess below live crown: #Epic-Live: 0 | #Epic-Dead: 6 | Bark Type: S | # Callused Wounds:

	#Open	#Sooty
Root		
=<2m		
>2m		

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species:

fallen over and dead

Tree # 5

Tree #: 1 | Zone: | Easting: | Northing:

Crown Class: | Live Crown %: | Main Stem Length(m) Below crown:

Seed Signs: ☐ Male Flowers ☐ Female Flowers ☐ Seed Set ☐ None

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐

#Stems: | DBH(cm):

Butternut Origin: ☐ Natural ☐ Planted ☐ Unknown

Assess below live crown: #Epic-Live: | #Epic-Dead: | Bark Type: | # Callused Wounds:

	#Open	#Sooty
Root		
=<2m		
>2m		

Metres from badly cankered tree: ☐ < 40 ☐ > 40 ☐ None Found

Competing Species:

Please enter matching page link code on forms 1 and 2

Page Link: TPX001

(Contact Information follows all applicable privacy policies and guidelines)

Please return forms to:
Forest Gene Conservation Association
Suite 233, 266 Charlotte St.
Peterborough, ON, K9J 2V4
www.fgca.net

49731

Butternut Data Collection FORM 2 (2010 Edition)

(PLEASE USE BLOCK LETTERS)

Shaded fields are mandatory for Butternut Health Assessments

Fill when Form 1 indicates canker is well established. The information opn Form 2 must be filled out for all trees when doing a Butternut Health Assessment.

Site Code(A,B,...Z, AA...): TPX

Surveyor ID or BHA #: 552

Surveyor Last Name: AITKEN

Date (dd/mm/yyyy): 12 - 08 - 2021

Tree ID Numbering: 1,2,3,...Starting from 1 for each site

Tree #: 01 **Zone:** 17 **Easting:** 654844 **Northing:** 4857369

Crown Class: 4 | Live Crown %: | Main Stem Length(m) Below crown: | Seed Signs:

- [ ] Twig Dieback
- [ ] Branch Dieback
- [ ] Defoliation
- [ ] Discolouration

#Stems: | DBH(cm):

Butternut Origin: [ ] Natural [ ] Planted [ ] Unknown

Seed Signs: [ ] Male Flowers [ ] Female Flowers [ ] Seed Set [ ] None

Assess below live crown: #Epic-Live | #Epic-Dead | Bark Type | # Callused Wounds

	#Open	#Sooty
Root		
=<2m		
>2m		

Metres from badly cankered tree: [ ] < 40 [ ] > 40 [ ] None Found

Competing Species:

Dead and Faller

Tree #: 02 **Zone:** 17 **Easting:** 654852 **Northing:** 4857413

Crown Class: 2 6 | Live Crown %: 60 | Main Stem Length(m) Below crown: 3 | Seed Signs:

- [x] Twig Dieback
- [x] Branch Dieback
- [x] Defoliation
- [x] Discolouration

#Stems: 1 | DBH(cm): 21

Butternut Origin: [x] Natural [ ] Planted [ ] Unknown

Seed Signs: [ ] Male Flowers [ ] Female Flowers [ ] Seed Set [x] None

Assess below live crown: #Epic-Live: 0 | #Epic-Dead: 0 | Bark Type: 5 | # Callused Wounds: 3

	#Open	#Sooty
Root	3	1
=<2m	5	3
>2m	20	VR

Metres from badly cankered tree: [x] < 40 [ ] > 40 [ ] None Found

Competing Species: JUGNIGR | ULMAMER | ACENEGU

Tree #: 03 **Zone:** 17 **Easting:** 654885 **Northing:** 4857387

Crown Class: 1 R | Live Crown %: 25 | Main Stem Length(m) Below crown: 7 | Seed Signs:

- [x] Twig Dieback
- [x] Branch Dieback
- [ ] Defoliation
- [x] Discolouration

#Stems: 1 | DBH(cm): 49

Butternut Origin: [x] Natural [ ] Planted [ ] Unknown

Seed Signs: [ ] Male Flowers [ ] Female Flowers [ ] Seed Set [x] None

Assess below live crown: #Epic-Live: 4 | #Epic-Dead: 3 | Bark Type: 5 | # Callused Wounds: 2

	#Open	#Sooty
Root	3	1
=<2m	0	9
>2m	0	2

Metres from badly cankered tree: [x] < 40 [ ] > 40 [ ] None Found

Competing Species: POPDEL T | QUERUBR | THUOCC

Tree #: | **Zone:** 1 | **Easting:** | **Northing:**

Crown Class: | Live Crown %: | Main Stem Length(m) Below crown: | Seed Signs:

- [ ] Twig Dieback
- [ ] Branch Dieback
- [ ] Defoliation
- [ ] Discolouration

#Stems: | DBH(cm):

Butternut Origin: [ ] Natural [ ] Planted [ ] Unknown

Seed Signs: [ ] Male Flowers [ ] Female Flowers [ ] Seed Set [ ] None

Assess below live crown: #Epic-Live | #Epic-Dead | Bark Type | # Callused Wounds

	#Open	#Sooty
Root		
=<2m		
>2m		

Metres from badly cankered tree: [ ] < 40 [ ] > 40 [ ] None Found

Competing Species:

Tree #: | **Zone:** 1 | **Easting:** | **Northing:**

Crown Class: | Live Crown %: | Main Stem Length(m) Below crown: | Seed Signs:

- [ ] Twig Dieback
- [ ] Branch Dieback
- [ ] Defoliation
- [ ] Discolouration

#Stems: | DBH(cm):

Butternut Origin: [ ] Natural [ ] Planted [ ] Unknown

Seed Signs: [ ] Male Flowers [ ] Female Flowers [ ] Seed Set [ ] None

Assess below live crown: #Epic-Live | #Epic-Dead | Bark Type | # Callused Wounds

	#Open	#Sooty
Root		
=<2m		
>2m		

Metres from badly cankered tree: [ ] < 40 [ ] > 40 [ ] None Found

Competing Species:

Please enter matching page link code on forms 1 and 2

Page Link: TPX001

(Contact information follows all applicable privacy policies and guidelines)

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www.fgca.net

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BHA Tree Analysis (version: December 2013)

This table is to be completed by a designated Butternut Health Assessor (BHA).

BHA Report #	TPX	Assessment Date(s)	September 14, 2021	Total # Butternut Trees in BHA Report	9
BHA ID #	269	BHA Name	Ash Baron		
Landowner / Client Name			Altus Group		
Property Location			2050 Brock Road, Pickering		

input field data										automatic calculations from field data						Categories: 1: non-retainable, 2: retainable, 3: archivable				
Tree #	Live Crown %	Tree dbh (cm)	# bole cankers				# root flare (RF) cankers		<40 m from cankered tree? (Y or N)	Circ. (cm) = Pi x dbh	total bole canker width (sooty x 2.5 + open x 5)	total RF canker width (sooty x 2.5 + open x 5)	bole canker % of circ.	RF canker % of circ.	total bole & root canker % of 2xCirc	LC% >/= 50 & BC% = 0	LC% >70 & BRC % <20	LC% >70 & BC % <20	Preliminary tree call	FINAL TREE CALL a Cat 2, dbh>20cm <40m from a Cat 1
			sooty (S) (will be assigned 2.5 cm per canker)		open (O) (will be assigned 5 cm per canker)															
			S <2 m	S >2 m	O <2 m	O >2 m	RF S	RF O		Circ (cm)	BC (cm)	RC (cm)	BC%	RC%	BRC%					
1	25	33	13	30	4	8	2	1		103.6	167.5	10.0	161.6	9.7	85.6	1	1	1	1	1
2	95	30	23	32	3	13	5	1		94.2	217.5	17.5	230.9	18.6	124.7	1	1	1	1	1
3	95	45	13	30	5	4	4	3	y	141.3	152.5	25.0	107.9	17.7	62.8	1	1	1	1	1
4	0	16								50.24	0.0	0.0	0.0	0.0	0.0	1	1	1	1	1
5	100	7	0	0	0	1	0	0		21.98	5.0	0.0	22.7	0.0	11.4	1	2	1	2	2
6	85	2	0	0	0	0	0	0		6.28	0.0	0.0	0.0	0.0	0.0	2	2	2	2	2
7	50	1	0	0	0	0	0	0		3.14	0.0	0.0	0.0	0.0	0.0	2	1	1	2	2
8	100	5	0	0	2	1	0	0		15.7	15.0	0.0	95.5	0.0	47.8	1	1	1	1	1
9	0	36								113	0.0	0.0	0.0	0.0	0.0	1	1	1	1	1
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BHA Tree Analysis (version: December 2013)

This table is to be completed by a designated Butternut Health Assessor (BHA).

BHA Report #	TPX	Assessment Date(s)	August 12, 2021	Total # Butternut Trees in BHA Report	3
BHA ID #	551	BHA Name	Rob Aitken		
Landowner / Client Name			Altus Group		
Property Location			2050 Brock Road, Pickering		

input field data										automatic calculations from field data						Categories: 1: non-retainable, 2: retainable, 3: archivable				
Tree #	Live Crown %	Tree dbh (cm)	# bole cankers				# root flare (RF) cankers		<40 m from cankered tree? (Y or N)	Circ. (cm) = Pi x dbh	total bole canker width (sooty x 2.5 + open x 5)	total RF canker width (sooty x 2.5 + open x 5)	bole canker % of circ.	RF canker % of circ.	total bole & root canker % of 2xCirc	LC% >/= 50 & BC% = 0	LC% >70 & BRC % <20	LC% >70 & BC % <20	Preliminary tree call	FINAL TREE CALL a Cat 2, dbh>20cm <40m from a Cat 1
			sooty (S) (will be assigned 2.5 cm per canker)		open (O) (will be assigned 5 cm per canker)															
			S <2 m	S >2 m	O <2 m	O >2 m	RF S	RF O		Circ (cm)	BC (cm)	RC (cm)	BC%	RC%	BRC%					
D1	0	30								94.2	0.0	0.0	0.0	0.0	0.0	1	1	1	1	1
D2	60	21	3	1	5	2	1	2	y	65.94	45.0	12.5	68.2	19.0	43.6	1	1	1	1	1
D3	25	49	9	2	0	0	1	3	y	153.9	27.5	17.5	17.9	11.4	14.6	1	1	1	1	1
4										0	0.0	0.0	#####	#####	#####	####	###	###	##	#DIV/0!
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