LGL LIMITED
environmental research associates

Environmental Impact Statement

21 HUNTMAR DRIVE

for:

North American (Goulbourn) LP

by:

LGL Limited
environmental research associates

DECEMBER 2019

LGL FILE TA8952

21 HUNTMAR DRIVE

ENVIRONMENTAL IMPACT STATEMENT

prepared by:

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1.0 INTRODUCTION

LGL Limited was retained by North American (Goulbourn) LP, to provide natural heritage consulting for a multi-storey apartment development a 1.56 hectare parcel of land located at the western quadrant of the Hazeldean Road and Huntmar Drive intersection in Kanata, Ontario, herein referred to as the Subject Property (**Figure 1**). The subject property is currently zoned General Urban Area with adjacent Major Open Space environmental constraints associated with Poole Creek, which forms part of the Natural Heritage System Features Overlay (Schedule L3 of the Official Plan). An Environmental Impact Statement (EIS) is required by the Provincial Planning Statement (PPS 2014), and the City of Ottawa. The Mississippi Valley Conservation Authority's administration of Ontario Regulation 153/06 does not include the Subject Property as floodlines are located on adjacent lands to the west. This EIS determines the extent of anticipated impacts and guides appropriate design of the site to adhere to relevant policy, identifies constraints to development, sets buffers/protection zones to be implemented, and proposes site-specific mitigation necessary to avoid negative impacts on the adjacent natural features and their ecological functions. The objective of the EIS is to demonstrate that the proposed development/site alteration will not have impacts on the ecological features or functions for which the EIS is triggered.

1.1 STUDY AREA

Policies outlined in the PPS 2014 indicate that "development and site alteration shall not be permitted on adjacent lands to natural heritage features and areas.…unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions" (MMAH 2014). Several policies of the City of Ottawa Official Plan (2008) align with the intent of the PPS 2014 policies, to include the requirement for "an Environmental Impact Statement [where] development and site alteration are proposed within and adjacent to natural heritage features" (City of Ottawa Official Plan Section 4.7.8). Both provincial and municipal policies reference 'adjacent' lands, which are generally identified as lands within 120 meters of an identified natural heritage feature. Accordingly, the Study Area defined for this EIS includes the Subject Property and the surrounding lands extending 120 meters from the property limits of 21 Huntmar Drive. The background data assembled to characterize existing conditions focused on the Subject Property and adjacent lands, as did the field reconnaissance conducted to confirm site conditions. Where land access was not available for the site visit, features were observed from the nearest accessible point.

The study area has undergone substantial changes in land use over the past decade that are relevant to the EIS. Land use in the area has transitioned from predominantly agricultural to a mix of commercial, retail and residential space, including the construction of Huntmar Drive (see **Images 1-6**).

Images 1-6. Subject Property and Adjacent Lands.

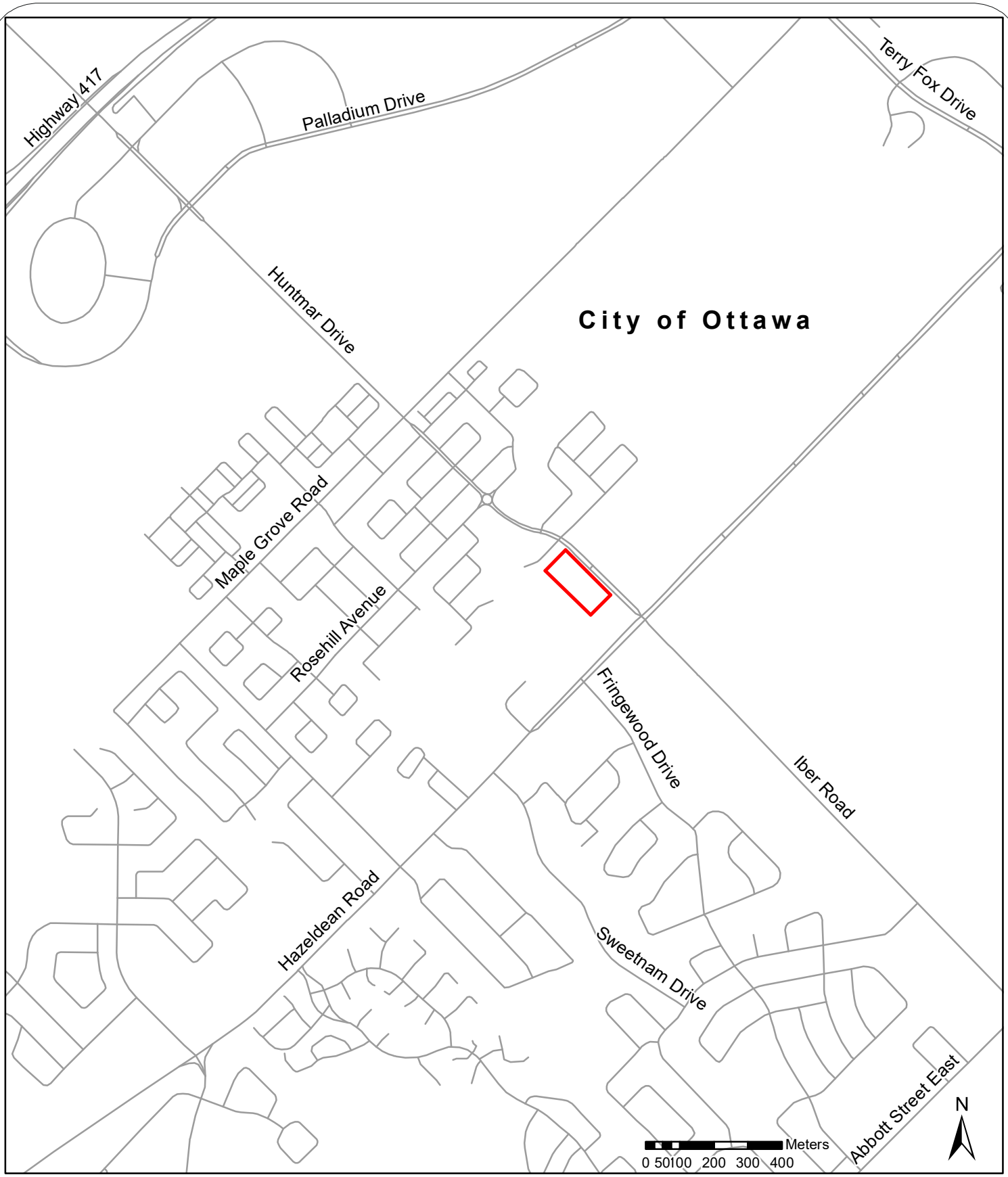
1.2 EIS TERMS OF REFERENCE

There are three general types of EIS outlined in Section 4.7.8 of the City of Ottawa Official Plan:

1. Full site impact statements to assess the effects of large-scale projects, such as plans of subdivision or quarry/pit applications;
2. Urban Natural Feature impact statements which apply only to lands adjacent to an Urban Natural Feature, and specifically address ways to manage impacts of the proposed project in the urban setting; and,
3. Scoped site impact statements to assess potential impacts of smaller projects such as single-lot severances. This type of study may also be appropriate where more detailed and recent impact studies exist.

For developments such as this, where they subject lands are located adjacent to an Urban Natural Feature (UNF), a UNF-EIS is completed to address potential impacts of the project on the adjacent designated feature, such as local changes in drainage or soil conditions, or loss of nearby open habitats not included in the designated area (City of Ottawa 2012).

A Terms of Reference for the UNF-EIS was submitted to the City of Ottawa on October 1, 2019. Correspondence from Matthew Hayley (City Environmental Planner) confirmed that the work plan presented in the Terms of Reference was appropriate to assess potential impacts to natural heritage resulting from the proposed development application. The MVCA respectfully declined the opportunity to review the Terms of Reference. This report has been prepared in conformance with the approved Terms of Reference (**Appendix A**).



21 Huntmar Drive

Key Map

Subject Property

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Date	October 2019	Prepared By	KC
Scale	1:15,000	Verified By	MJO

2.0 POLICY CONTEXT

2.1 FEDERAL FISHERIES ACT - PROJECTS NEAR WATER

The *Fisheries Act* requires that new developments avoid causing serious harm to fish unless authorized by the Minister of Fisheries and Oceans Canada. This applies to work being conducted in or near waterbodies that support fish that are part of, or support, a commercial, recreational or Aboriginal fishery.

2.2 PROVINCIAL POLICY STATEMENT

The PPS 2014 provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment. The PPS supports improved land use planning and management, which contributes to a more effective and efficient land use planning system. The natural heritage policies of Section 2.1 and others such as those pertaining to natural hazards and stormwater management as they relate to development have been considered in preparation of this UNF-EIS. The subject property is within Ecoregion 6E.

The policy states:

2.1 Natural Heritage

2.1.1 Natural features and areas shall be protected for the long term.

2.1.2 The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.

2.1.3 Natural heritage systems shall be identified in Ecoregions 6E & 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas.

2.1.4 Development and site alteration shall not be permitted in:

a) significant wetlands in Ecoregions 5E, 6E and 7E; and

b) significant coastal wetlands.

2.1.5 Development and site alteration shall not be permitted in:

a) significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;

b) significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);

c) significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);

d) significant wildlife habitat;

e) significant areas of natural and scientific interest; and

f) coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b) unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

2.1.6 Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

2.1.7 Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

2.1.8 Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and, 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.

2.1.9 Nothing in policy 2.1 is intended to limit the ability of agricultural uses to continue.

Consistent with the PPS 2014, this report uses the following terms and definitions:

- Ecological function: the natural processes, products or services that living and non-living environments provide or perform within or between species, ecosystems and landscapes. These may include biological, physical and socio-economic interactions.
- Negative impacts (fish habitat): the harmful alteration, disruption or destruction of fish habitat, except where, in conjunction with the appropriate authorities, it has been authorized under the Fisheries Act, using the guiding principle of no net loss of productive capacity; and
- Negative impacts (natural heritage features and areas): degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities.

Policy 4.7 of the PPS describes the importance of Official Plans for comprehensive, integrated and long-term implementation of the PPS. The Official Plans of municipalities identify provincial interests and set out appropriate land use designations and policies.

2.3 CITY OF OTTAWA OFFICIAL PLAN

The City of Ottawa Official Plan (OP) provides the policy framework to guide land development planning. Section 2.4.2 of the Official Plan states that "*The natural heritage system in Ottawa is identified and protected by watershed and other environmental plans, land-use designations, in Schedules A and B, the Natural Heritage System Overlay (Schedules L1, L2 and L3) and policies that govern how land is used to ensure that development does not result in negative impacts on natural features or their functions. In this regard, the diversity and connectivity of natural features and the long-term ecological function and biodiversity of the City's natural heritage systems shall be maintained, restored, or where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features*."

The following policies of OP Section 2.4.2 are relevant to the proposed development of the Subject Property:

1. The natural heritage system in Ottawa comprises the following significant features and the natural functions they perform:

a. Provincially significant wetlands as identified by the Ministry of Natural Resources

b. Significant habitat for endangered and threatened species, as approved by the Ministry of Natural Resources;

c. Significant woodlands defined as the following:

i. Any treed area meeting the definition of woodlands in the Forestry Act, R.S.O.1990. c F.26 or forest in the Ecological Land Classification for Southern Ontario; and

ii. In the Rural Area, meeting any one of the criteria in the Natural Heritage Reference Manual, as assessed in a subwatershed planning context and applied in accordance with Council- approved guidelines, where such guidelines exist; or

iii. In the urban area, any area 0.8 hectares in size or larger, supporting woodland 60 Years of age and older at the time of evaluation; [Amendment #179 LPAT, September 5, 2019]

d. Wetlands found in association with significant woodlands;

e. Significant valleylands defined as valleylands with slopes greater than 15% and a length of more than 50 m, with water present for some period of the year, excluding man-made features such as pits and quarries;

f. Significant wildlife habitat found on escarpments with slopes exceeding 75% and heights greater than 3 m; or within significant woodlands, wetlands, and valleylands; or that may be identified through subwatershed studies or site investigation;

g. Life Science Areas of Natural and Scientific Interest as identified by the Ministry of Natural Resources;

h. Earth Science Areas of Natural and Scientific Interest as identified by the Ministry of Natural Resources designated on Schedule K;

i. Urban Natural Features, consisting of remnant woodlands, wetlands and ravines within the urban area;

j. Forest remnants and natural corridors such as floodplains that are identified through planning or environmental studies such as watershed or subwatershed plans, environmental management plans, community design plans, environmental impact statements or tree conservation reports as linkages between the significant features defined above, but may not meet the criteria for significance in their own right,

k. Groundwater features, defined as water-related features in the earth's subsurface, including recharge/discharge areas, water tables, aquifers and unsaturated zones that can be defined by surface and subsurface hydrogeologic investigations;

l. Surface water features, defined as water-related features on the earth's surface, including headwaters, rivers, stream channels, drains, inland lakes, seepage areas, recharge/discharge areas, springs, and associated riparian lands that can be defined by their soil moisture, soil type, vegetation or topographic characteristics, including fish habitat.

> 3. *Regardless of whether the features are designated in this Plan, an Environmental Impact Statement is required for development proposed within or adjacent to features described in policy 1 above, with the exception of surface and groundwater features. Development and site alteration within or adjacent to these features will not be permitted unless it is demonstrated through an Environmental Impact Statement that there will be no negative impact on the feature or its ecological functions….The policies regarding Environmental Impact Statements and the definition of terms are contained in Section 4.7.8.*

Section 4 of the OP outlines the policies related to review of development applications. In summary, the OP policies require the preparation of an Environmental Impact Statement if the Subject Lands are within:

- 120 m of a significant wetland designated on Schedule A or B;
- 120 m of a Natural Environment Area designated on Schedule A or B;
- 30 m of Urban Natural Feature designated on Schedule B;
- 120 m of a feature of the natural heritage system found within Rural Natural Feature;
- 120 m of a feature of the natural heritage system found within the General Rural Area;
- 120 m of the boundary of identified significant habitat of endangered and threatened species;
- 50 m of an Earth Science Area of Natural and Scientific Interest on Schedule K; or,
- 120 m of a natural heritage system feature not designated in the Plan in the rural area; and any development proposed within 30 metres of a natural heritage system feature not designated in the Plan in the urban area.

Although surface water features, groundwater features and fish habitat are all considered part of the Natural Heritage System, they do not trigger the requirement for an EIS under the policies of the Official Plan. They are protected under the policies of Section 4.7.3 (Erosion Prevention and Protection of Surface Water) and Section 4.7.5 (Protection of Groundwater Resources) of the Official Plan, which establish the means for assessing and avoiding impacts to these features and their functions.

OP Section 4.7.2 (Protection of Vegetation Cover) sets out the policies to support the OP objective for 30 percent tree cover, specific to applications for subdivision, condominium and site plan approval. Where development proposals affect vegetative cover (including trees), a Tree Conservation Report and Landscape Plan are required as part of the EIS; the details of which are outlined in Policies 1 to 3 of Section 4.7.2.

2.4 TREE CONSERVATION – URBAN (OTTAWA BY-LAW NO. 2009-200)

The City of Ottawa has enacted a by-law to protect trees on private property in the urban area. The provisions of the by-law apply to trees on a property which is greater than one hectare in area within the urban area of the City. No person shall injure or destroy a tree or cause the injury or destruction of a tree unless a tree permit has been issued by the General Manager to permit the injury or destruction. Based on the size and location of the subject property a tree conservation permit may be required.

2.5 ONTARIO REGULATION OF DEVELOPMENT, INTERFERENCE WITH WETLANDS AND ALTERATIONS TO SHORELINES AND WATERCOURSES 153/06

Mississippi Valley Conservation Authority's *Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* objectives are 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 including wetlands, shorelines and watercourses.

Ontario Regulation 153/06 establishes regulated areas where development could be subject to flooding, erosion or dynamic beaches, or where interference with wetlands and alterations to shorelines and watercourses might have an adverse effect on those environmental features. Under Ontario Regulation 153/06, any proposed development, interference or alteration within a regulated area requires a permit from MVCA. There are no parts of the Subject Property that are regulated by the MVCA. Poole Creek, to the northwest of the subject property, is regulated but the regulatory limit is approximately 50 metres beyond the subject property boundary.

2.6 ONTARIO ENDANGERED SPECIES ACT, 2007

The Ontario *Endangered Species Act, 2007* identifies, protects and promotes recovery of species identified as at risk in the province. All threatened, endangered and extirpated species listed on the Species at Risk in Ontario (SARO) list are protected from harm or harassment and their habitats are protected from damage or destruction under the *Endangered Species Act, 2007*. The Act is administered by the Ministry of Environment, Conservation and Parks (MECP) and consultation specific to the protection of species at risk (SAR) as it relates to the proposed development will be directed to that agency.

3.0 BACKGROUND NATURAL HERITAGE INFORMATION

A review of available information for the project area and adjacent lands involved the following resources:

- Mississippi Valley Conservation Authority, GIS data layers for Ecological Land Classification (ELC), flora and fauna;
- Natural Heritage Information Centre (NHIC) Rare Species of Ontario;
- MNRF Lands Information Ontario (LIO) database;
- MECP consultation;
- Ottawa Interactive online mapping; and
- Pinchin Environmental Impact Statement – Wellings of Stittsville Inc. and Extendicare (Canada) Inc., 5731 Hazeldean Road, Stittsville, Ontario, 2016.

Background information has been summarized in **Figure 2**.

3.1 AREAS OF NATURAL AND SCIENTIFIC INTEREST

The City's interactive mapping confirms that there are no Areas of Natural and Scientific Interest (ANSI) associated within or adjacent to the Subject Property.

3.2 ENVIRONMENTALLY SIGNIFICANT AREAS

The City's interactive mapping confirms that there are no Environmentally Significant Areas on the Subject Property. However, the Subject Property is approximately 50 m from the Mississippi Valley Conservation Authority's regulatory limit for Poole Creek, and, a forest ecosite is found on the municipal property to the west.

3.3 PROVINCIALLY SIGNIFICANT WETLANDS

Provincially Significant Wetlands (PSWs) are designated through a provincial protocol developed by the MNRF; namely, the Ontario Wetland Evaluation System (OWES). The City's interactive mapping confirms that there are no PSWs associated with the subject property. The Stittsville Wetland Complex PSW is located approximately 1.3 km from the Subject Property, and two unevaluated wetlands are located approximately 470 m from the Subject Property (one of which is illustrated on Figure 2).

LEGEND

- Property Boundary
- Streams
- Regulation Limit
- Stable Slope Hazard
- Flood Plain
- Unevaluated Wetland

Data Source: Mississippi Valley Conservation Authority

21 Huntmar Drive

MVCA Background Data

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Project	TA8952	**Figure**	2
Date	October 2019	**Prepared By:**	KC
Scale	1:2,500	**Verified By:**	MJO

3.4 SURFACE WATER FEATURES

Poole Creek conveys flow along the south-eastern boundary of the Mississippi Valley watershed in the community of Stittsville (Township of Goulbourn). The headwaters are found in the Upper Poole Creek Wetland Complex. The thermal regime of the upper portion is considered cold or cool-water, while the lower portion is considered warm water, though information sources (Poole Creek Macro Stream Assessment Report 2009) do not distinguish the limits of upper and lower portions, except that lower reaches are closer to its outlet at Carp River. The Carp River confluence is approximately 1.4 kilometres from the subject property. Consultation with MVCA confirmed the thermal regime for Poole Creek in the area of the Subject Property to be coolwater (K. Stiles, MVCA Aquatic Biologist, October 15, 2019).

MVCA provided a list of fish sampled from Poole Creek from upstream of Hazeldean Road to Huntmar Drive. The data revealed the presence of cool and cold water fish species (**Table 1**). In addition, Poole Creek has been the subject of MNRF stocking efforts of Brown Trout (*Salmo trutta*) between 2001 and 2009. Although this species has been included in Table 1, it did not appear in the fisheries list obtained from the MVCA specific to the reach between Hazeldean Road and Huntmar Drive.

MVCA also assessed water quality upstream of the Hazeldean Road using the Hilsenhoff Biotic Index (HBI) in October 2009 (MVCA 2009). The HBI assessment result of 6.04 revealed that water quality conditions were *fairly poor*.

3.5 MVCA FAUNA INFORMATION

Leopard frog (*Lithobates pipiens*) and Bullfrog (*Rana catesbeiana*) have been reported by MVCA upstream of the subject property, though the exact whereabouts have not been provided.

3.6 MINISTRY OF ENVIRONMENT, CONSERVATION, AND PARKS SPECIES AT RISK INFORMATION

A request was submitted to the MECP to acquire species at risk information specific to the Subject Property. A response was received December 21, 2019 which provided a full list of species at risk observations for the Goulbourn Township. The list forms the basis of the species at risk screening as described in section 6.0 and Appendix E.

Table 1 List of Fish Species Sampled between Hazeldean Road and Huntmar Drive (MVCA).

Common Name	Scientific Name	Thermal[1] Regime	Tolerance[1]	G Rank	S Rank	SARA Status	SARO Status
Banded Killifish	*Fundulus diaphanus*	coolwater	tolerant	G5	S5	none	NAR
Blacknose Shiner	*Notropsis heterolepis*	coolwater	intolerant	G5	S5	none	none
Bluntnose Minnow	*Pimephales notatus*	warmwater	moderately tolerant of turbidity	G5	S5	none	NAR
Brassy Minnow	*Hybognathus hankinsoni*	coolwater	intermediate	G5	S5	none	none
Brook Stickleback	*Culaea inconstans*	coolwater	intermediate	G5	S5	none	none
Brown Trout	*Salmo trutta*	coldwater	intolerant of turbidity, siltation, pollution	G5	SNR	none	none
Central Mudminnow	*Umbra limi*	coolwater	tolerant	G5	S5	none	none
Common Shiner	*Luxilus cornutus*	coolwater	moderately tolerant	G5	S5	none	none
Creek Chub	*Semotilus atromaculatus*	coolwater	intermediate	G5	S5	none	none
Eastern Blacknose Dace	*Rhinichthys atratulus*	coolwater	intermediate	G5	SNR	none	none
Fathead Minnow	*Pimephales promelas*	warmwater	tolerant	G5	S5	none	none
Finescale Dace	*Chrosomus neogaeus*	coolwater	intermediate	G5	S5	none	none
Golden Shiner	*Notemigonus crysoleucas*	coolwater	moderately tolerant of turbidity	G5	S5	none	none
Iowa Darter	*Etheostoma exile*	coolwater	intermediate	G5	S5	none	none
Johnny Darter	*Etheostoma nigrum*	coolwater	moderately tolerant	G5	S5	none	none
Logperch	*Percina caprodes*	warmwater	intolerant	G5	S5	none	none
Mottled Sculpin	*Cottus baridii*	coldwater	intermediate	G5	S5	none	none
Northern Redbelly Dace	*Chrosomus eos*	coolwater	intermediate	G5	S5	none	none
Pumpkinseed	*Lepomis gibbosus*	warmwater	intermediate	G5	S5	none	none
Rock Bass	*Ambloplites rupestris*	coolwater	intolerant of siltation	G5	S5	none	none
White Sucker	*Catostomus commersonii*	coolwater	tolerant, only moderately tolerant of turbidity	G5	S5	none	none

Table Legend
[1] Thermal Regime and Tolerance as described in Ontario Freshwater Fishes Life History Database, 2018.
Coldwater: Species that is best adapted, prefers or usually occurs at water temperatures less than 19°C, during summer months.
Coolwater: Species that is best adapted, prefers or usually occurs at water temperatures between 19 and 25°C, during summer months. Preferred temperatures may also include coldwater or warmwater ranges.
Warmwater: Species that is best adapted, prefers or usually occurs at water temperatures greater than 25°C, during summer months.
Intermediate: Species that is neither particularly sensitive nor insensitive to environmental or anthropogenic stresses.
Intolerant: Species that is sensitive to environmental or anthropogenic stresses.
Thermal Regime: Preferred temperature range of a species.
Tolerance: Ability of a species to adapt to environmental perturbations or anthropogenic stresses.
Tolerant: Species that is fairly insensitive or adaptive to environmental or anthropogenic stresses.

Table Legend Continued

G-Rank (Global Rank): assigned by a consensus of the network of Conservation Data Centres (CDCs), scientific experts and The Nature Conservancy to designate a rarity rank based on the range-wide status of species, subspecies or variety, according to the following:
G1- extremely rare; usually 5 or fewer occurrences in the overall range or very few remaining individuals or because of some factor (s) making it especially vulnerable
G2-very rare; usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences or because of some factor (s) making it vulnerable to extinction
G3- rare to uncommon; usually between 20 and 100 occurrences; may have fewer occurrences but with a large number of individuals in some populations or may be susceptible to large-scale disturbances
G4-common; usually more than 100 occurrences, usually not susceptible to immediate threats
G5-very common; demonstrably secure under present conditions
GH-historic; no records in the past 20 years
GU-status uncertain; often because of low search effort or cryptic nature of species, more data needed
GX-globally extinct; no records despite specific searches
?-denotes inexact numeric rank
G- global rank has not been obtained from the Nature Conservancy
G?-unranked; or if following a ranking the rank is tentatively assigned
Q-denotes taxonomic status of species, subspecies or variety as questionable
T-denotes the rank applies to a subspecies or variety
S-Rank (Provincial or Subnational ranks): used by the Natural Heritage Information Centre to set protection priorities for rare species and natural communities. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.
SX-presumed extirpated; not located despite intensive searches
SH-historical; no known extant occurrences in past 20 years
S1-critically imperiled; typically 1 to 5 extant occurrences
S2-imperiled; typically 6 to 20 extant occurrences
S3-vulnerable; typically 21 to 80 extant occurrences
S4-apparently secure; uncommon but not rare; some cause for long-term concern; usually >80 extant occurrences
S5-secure; common, widespread and abundant
SNA-status not applicable; not a suitable target for conservation (e.g. non-native species)
SU-unrankable; insufficient information to rank confidently
SNR-not ranked
SARA Species at Risk Act Schedule 1- official list of wildlife species at risk
THR-threatened; a wildlife species likely to become endangered if limiting factors are not reversed
END-endangered; a wildlife species facing imminent extirpation or extinction
EXT-extirpated; a species no longer existing in the wild in Canada but occurring elsewhere
SC-special concern; a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats
SARO Species at Risk in Ontario
END-Endangered; a species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA
EXP-Extirpated; a species that no longer exists in the wild in Ontario but exists elsewhere
THR-Threatened; a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed
SC-Special Concern; a species with characteristics that make it sensitive to human activities or natural events

4.0 BIOPHYSICAL INVESTIGATIONS

4.1 METHODOLOGY

Field work included vegetation community and floristics surveys, a tree inventory to gather information regarding the municipal FOD7 woodland edge as it relates to the Subject Property, an out-of-season Butternut Health Assessment to determine presence, health/condition, management category and proponent responsibilities relating to the *Endangered Species Act*, and incidental out of season wildlife surveys (**Table 2**).

The geographical extent, composition, structure and function of the vegetation communities were identified through air photo interpretation and a study area investigation. Air photos were interpreted to determine the limits and characteristics of the vegetation communities in the study area. Investigations of the vegetation communities within the study area were conducted on September 26 and 27, 2019 by LGL botanists/certified arborists/butternut health assessors. The investigations were intended to ground truth the boundaries of the vegetation communities and to produce a late season botanical inventory.

The vegetation communities were classified according to the *Ecological Land Classification for Southern Ontario: First Approximation and Its Application* (Lee *et al*. 1998). A plant list and a description of the general structure of vegetation communities were obtained during the field investigations. Plant species status was reviewed for Ontario (Oldham 2009), and for Eastern Ontario Ottawa-St. Lawrence Lowlands Region (Cuddy, 1991).

Given that most mammals are illusive and/or nocturnal, indirect evidence of their presence (e.g., scats, tracks, browse signs) was used to identify mammals.

Snakes are challenging to inventory and are most frequently found basking in open exposed locations, or under rocks, woody debris or garbage in suitable habitat. In the spring, snakes often remain in the vicinity of their hibernacula for a few days. Incidental observations of snakes were attempted during the September investigations, particularly on the second day of survey when conditions were sunny.

Birds are usually the most diverse wildlife group in any habitat, and they can provide information about subtle habitat differences. Bird data was collected using visual and aural techniques but did not adhere to the Breeding Bird Survey protocol, due to study timing. Thus, bird activity could not reveal signs of breeding, such as occupation of territories, pair forming, or behaviour consistent with nesting.

The subject property was searched to identify sensitivities associated with aquatic features or hazard lands.

Table 2 Details of Site Investigations.

Task	Protocol	Date Completed	Weather	LGL Staff
Ecological Land Classification	Ecological Land Classification for Southern Ontario: First Approximation and its Application	September 26, 2019 September 27, 2019	Partly cloudy, 14°C Sunny, 10°C	Martin O'Halloran Jennifer Noel
Vascular Plant Inventory	Pedestrian survey to locate and identify vascular plants to include any nationally, provincially or locally rare plant species	September 26, 2019	Partly cloudy, 14°C	Jennifer Noel
Butternut Health Assessment	Butternut Health Assessment Guidelines, 2014	September 27, 2019	Sunny, 10°C	Martin O'Halloran Jennifer Noel
Natural Feature (woodland) Staking	Staking of dripline edge (FOD) to include edge shrub species	September 26, 2019	Partly cloudy, 14°C	Martin O'Halloran Jennifer Noel
Tree Inventory	Arborist Assessment by ISA Certified Arborists OP Section 4.7.2 policies for Tree Conservation Report	September 27, 2019	Sunny, 10°C	Martin O'Halloran Jennifer Noel
Mammal Surveys	Significant Wildlife Habitat Technical Guide – habitat and incidental survey during Sept. field visits. Mammal species noted through direct sightings, vocalizations, and identification of tracks, scat, runways, and lodges/burrows.	September 26, 2019 September 27, 2019	Partly cloudy, 14°C Sunny, 10°C	Martin O'Halloran
Breeding Bird Survey	Ontario Breeding Bird Atlas 2 surveys at least 15 days apart, between mid-May and early July in early morning.	Survey not conducted due to timing. Subject Property is generally devoid of habitat since vacant land periodically cleared of vegetation for property maintenance.		n/a
Anuran (frog calling) Survey	Great Lakes Marsh Monitoring to include 3 surveys between April and July 15th (at least 15 days apart) ½ hour after sunset to target minimum temperatures of 5°C/10°C/ 17°C.	Survey not conducted as vernal pools, wetland breeding habitat not found on the Subject Property or within 50 m of the Subject Property.		n/a

Credentials:

Martin O'Halloran – Senior Fish and Wildlife Technologist, ISA Certified Arborist, Butternut Health Assessor, MTO/DFO/MNR Certified Contract Specialist and Fisheries Compliance During Contract Specialist **Jennifer Noel** – Senior Botanist, ISA Certified Arborist, Butternut Health Assessor, PNWISA Certified Tree Risk Assessor, OWES Certified, ELC Certified, EMAN Certified.

4.2 TREE INVENTORY

This report identifies tree resources and respective health characteristics for each tree found within the Subject Property. The information, interpretation and analysis contained within the Arborist Assessment are to be used solely for the purposes outlined herein. The Arborist Assessment is for the exclusive use of the proponent.

Investigations of the Subject Property were conducted by LGL ISA Certified Arborists on September 27, 2019, to comply with City of Ottawa tree data collection requirements. Trees on the Subject Property and those that shared boundaries with adjacent landowners were surveyed using the following methodology for tree inventory and impact assessment:

- Species: each tree was identified to species level using common and scientific names;
- Size: diameter at breast height (DBH) was recorded in centimetres and measured 1.4 metres above ground level, which is consistent with International Society of Arboriculture standards. All trees measuring 10cm DBH or greater within the Subject Property were assessed. Trees measuring 6cm on municipal property and within 6m of the Subject Property were also assessed;
- Health: each tree surveyed was assigned a ranking of poor, fair or good health, based on trunk integrity, crown structure, apparent vigour and visible defects;
- On-site identification: each tree was affixed with an aluminum tag showing a unique identification number. The tag number set 1938-1959 was used in this case;
- All species were screened to determine whether regulations of Ontario's *Endangered Species Act* (2007) apply; and,
- Geographical location: the location and respective tag identification number of each tree was recorded using a GPS unit with each point being plotted against the proposed draft plan to conduct an impact assessment.

Tree locations were captured using a TopCon GRS1 GPS unit and were uniquely identified. This particular GPS is generally accurate to within 1-2 metres horizontal distance, but due to the inherent difficulties with GPS/satellites please anticipate minor error in point locations (generally less than 5% of the data set). The specifics of the GPS are as follows:

Model:
TopCon GRS-1 RTK GPS
Dual-frequency, 72 channel GPS+GLONASS receiver with Microsoft Windows Mobile 6.1 Classic Operating System, 100Hz receiver
Device Specifications:
Tracked Signals: GPS, GLONASS, L1 C/A Code and Carrier, GPS L2C, WASS/EGNOS/MSAS\
Internal Antenna: Single Frequency, L1 (GPS and GLONASS)
Differential GPS Post Processing: Typically less than 0.5m (RMS)
Data Collection:
Data Collection Parameters: Precision = 2 m HRMS, 5m VRMS
Satellite System: GPS+GLONASS Multipath Reduction
Solution Type: Real Time DGPS with SBAS Corrections
SBAS Setup: Best Available
Elevation Mask: 8 degrees
Antenna: GRS/GSM Series

4.3 NATURAL HERITAGE FEATURE (WOODLAND) STAKING

LGL consulted with the City of Ottawa Environmental Planner (Mr. Matthew Hayley) on September 23, 2019, to determine if the City was required to be present during LGL's woodland boundary delineation. Mr. Hayley confirmed that City staff would not be required on site for the boundary delineation. The dripline of woody vegetation (including shrubs forming the FOD7 woodland edge) was used to stake the limit of the woodland on September 27, 2019.

5.0 EXISTING CONDITIONS

In September 2019 the site was confirmed to be bordered to the north by Huntmar Drive, to the west by a residential development and to the east by a commercial development. A residential development currently under construction was noted to the south fronting Hazeldean Road.

5.1 PHYSIOGRAPHY

The Subject Property is within the physiographic region of southern Ontario known as the Clay Plains (Chapman and Putnam, 1984). The geotechnical study completed for the Subject Property describes the site as consisting of topsoil overlying a silty clay crust followed by a silty clay deposit (Paterson 2019). Glacial till composed of cobbles, gravel and sand in a silty clay matrix was found underlying the silty clay deposit. Based on available geological mapping, Paterson 2019 identifies the bedrock in the area as part of the Gull River formation (consisting of interbedded limestone and dolomite) and expects the overburden thickness on the Subject Property to range from 5 to 15 m.

5.2 VEGETATION

A vegetation survey was conducted on September 26 and 27, 2019 to confirm the current condition, limits and extent of vegetation communities identified through aerial imagery within and surrounding the Subject Property. Natural vegetation features identified within study area were classified according to the Ecological Land Classification for Southern Ontario: First Approximation and Its Application (Lee et al. 1998). Plant species status was reviewed for Ontario (Oldham and Brinker 2009) and Eastern Ontario Ottawa (Cuddy 1991). Vascular plant nomenclature follows Newmaster and Ragupathy (2012).

Two vegetation communities were identified within the Study Area: a Dry-Moist Old Field Meadow (CUM1-1) and a White Elm Deciduous Forest (FOD7) as described in **Table 3** and illustrated in **Image 7**.

The Subject Property was observed to be periodically maintained through mowing. A few isolated saplings of Eastern Cottonwood (*Populus deltoides*), Bebb's Willow (*Salix bebbiana*) and Manitoba Maple (*Acer negundo*) were found in areas within the unmowed portions of the field.

Natural heritage features occur to the west of the Subject Property to include a lowland deciduous forested (FOD7-1) community dominated by White Elm (*Ulmus americana*) and, at one time, Red Ash (*Fraxinus pensylvanica*). Many of the mature Ash trees are dead or dying due to the Emerald Ash Borer. Ash regeneration is occurring in the understorey. The forest also contains several Butternut (*Juglans cinerea*) trees, a species regulated under the *Endangered Species Act* (2007). The FOD is very disturbed with a large portion of the vegetation along the eastern and northern boundary covered in various vines, of which Virgin's-bower (*Clematis virginiana*) is dominant as illustrated in **Image 8**. The forest contains a mixture upland and wetland ground cover. Wetland plant species were observed at the forest interface and some were observed in clusters along the northwestern boundary of the property but had been mowed within the old field/maintained area.

Table 3 Summary of Ecological Land Classification Vegetation Communities.

ELC Code	Vegetation Type	Species Association	Community Characteristics
TERRESTRIAL – NATURAL/SEMI-NATURAL			
FOD	Deciduous Forest		
FOD7	Moist White Elm Lowland Deciduous Forest	**Canopy:** dominated by White Elm (*Ulmus americana*) and Butternut (*Juglans cinerea*) with occasional Red Ash (*Fraxinus pennsylvanica*) **Understory**: young saplings of Red Ash and Manitoba Maple (*Acer negundo*) as well as Common Buckthorn (*Rhamnus cathartica*) were covered with Riverbank Grape (*Vitis riparia*) and Virgin's-bower (*Clematis virginiana*)	Tree cover > 60 % (FO). Deciduous trees > 75 % of canopy cover (D). Moist to fresh soils with well to poor drainage typically occurring in the lower slope, bottomlands such as floodplains (7). Dominated by White Elm, Ash and Butternut. Forest was once dominated by Ash but has shifted to Elm dominance due to Emerald Ash Borer.
TERRESTRIAL – CULTURAL			
CUM	Cultural Meadow		
CUM1-1	Dry-Moist Old Field Meadow	**Emergent Trees/Shrubs:** isolated saplings (<10cm diameter) of Eastern Cottonwood (*Populus deltoides*), Bebb's Willow (*Salix bebbiana*), Manitoba Maple (*Acer negundo*), Red-osier Dogwood (*Cornus sericea ssp. sericea*) **Ground cover:** dominated by Common Dandelion (*Taraxacum officinale*),,Canada Goldenrod (Solidago canadensis), Kentucky Bluegrass (*Poa pratensis ssp. pratensis*) with Wild Carrot (*Daucus carota*) and New England Aster (*Symphyotrichum novae-angliae*),	Tree cover and shrub cover < 25 % (CUM). This community can occur on a wide range of soil moisture regimes (Dry-Moist) (1-1). Grass and forb dominant. Community resulting from, or maintained by, anthropogenic-based influences. Community is maintained through periodic mowing.

Image 7. Cultural meadow within the Subject Property.

Image 8. FOD7 on adjacent municipal property west of the Subject Property.

5.2.1 Flora

A total of 48 vascular plant species were recorded within and surrounding the Subject Property as shown in **Appendix B**. Twelve of these plant species, which represents 25% of the total, are considered introduced and non-native to Ontario. This is not surprising given the disturbed nature of the two vegetation communities. Five locally significant species were observed within the study area, the details of which are provided in the section that follows.

5.2.2 Rare Species and Species at Risk

There were no plant species regulated under the Ontario *Endangered Species Act, 2007* or the federal *Species at Risk Act* (SARA) identified during LGL's botanical surveys of the Subject Property. However, the adjacent lands, to a limit of approximately 50 metres west of the Subject Property, provides habitat for 20 Butternut (*Juglans cinerea*), all of which were the subject of Butternut Health Assessments (**Appendix C**). No other element occurrence records for plant species at risk were identified within the subject property based on a review of the data available through the MNRF Natural Heritage Information Centre (MNRF 2019).

In addition to the Butternut, four species with local status (according to Cuddie, 1991) were observed within the study area (**Table 4**), three of which are considered native, and one an invasive species (Garlic Mustard). They were all located within FOD7 with one, Yellowish Enchanter's Nightshade (*Circaea lutetiana ssp. canadensis*), extending into the CUM1-1 community. Although this EIS considers locally rare status as a constraint, consideration ought to be given to the date of status listings of 1991 which may no longer be considered relevant.

Table 4 Locally Rare Species found within the Subject Property and Adjacent Lands.

Scientific Name		Common Name	G Rank	S Rank	SARO	SARA	Local Status	Vegetation Community	
								CUM1-1	FOD7
	Actaea rubra	Red Baneberry	G5	S5			2		x
*	*Alliaria petiolata*	Garlic Mustard	G5	SE5			2		x
	Geum canadense	White avens	G5	S5			2		x
	Circaea lutetiana ssp. canadensis	Yellowish Enchanter's Nightshade	G5T5	S5			2	x	x
	Juglans cinerea	Butternut	G3G4	S3?	END	END	3		x

*invasive species; Local status as per Cuddy 1991
See Table 1 Legend for remaining definitions

5.3 TREE INVENTORY

A Tree Conservation Plan has been produced under separate cover, though the recommendations of that Plan have been carried through to the site plan presented herein this UNF-EIS. A summary of the results from the inventory follows.

A total of 22 trees were identified and assessed off-site along the western boundary of the subject property, and many were in severe health decline. Inventoried species include Manitoba Maple, White Elm, Butternut, Red Ash, and Bebb's Willow and range in size from 10 to 29 cm DBH. A detailed summary of all trees surveyed is presented in **Appendix D** and the locations of each tree are also presented therein. Butternut (*Juglans cinerea*), a species regulated under the Ontario *Endangered Species Act*, 2007 was identified within the study area.

5.3.1.1 Species at Risk

Butternut is the only tree species identified as a Species at Risk in the project area. Butternut is a species classified as Endangered (END) and protected under the provincial *Endangered Species Act, 2007* and federal *Species at Risk Act* (SARA). The trees are located within the FOD7 woodland that borders the Subject Property (as shown in **Figure 2 and Appendix C**).

5.3.1.1.1 Butternut Health Assessment

A Butternut Health Assessment was completed for all 20 Butternut trees within 50 metres of the Subject Lands to determine the category of health according accepted protocols. Development activities that involve killing or harming Butternut are dependent on the eligibility under Ontario Regulation 242/08. Killing, harming, or taking of Category 1 or Category 2 (**Table 5**) is allowable under exemption in clause 9(1)(a) of the ESA provided the proponent follows the process for Butternut Health Assessment and MECP review. Category 1 trees can be taken following a 30 day MECP review period (unless discrepancy is found in classification data). Category 2 trees can be killed, harmed, or taken provided the quantity is not more than 10 trees (removal of more than 10 trees requires an ESA authorization). Additionally, a plan to plant, tend, and monitor seedlings in suitable habitat is to be enacted. There are no exemptions for Category 3 trees and an ESA authorization must be obtained from MECP for killing, harming or taking.

Table 5 Butternut Health Category Definitions.

Category 1	The butternut tree is affected by butternut canker to such an advanced degree that retaining the tree would not support the protection or recovery of butternut trees in the area in which the tree is located
Category 2	The butternut tree is not affected by butternut canker or the butternut tree 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 trees in the area in which the tree is located.
Category 3	The butternut trees may be useful in determining sources of resistance to butternut canker

Seventeen Butternut was assessed as Category 1 and 3 were assessed as Category 2 up to 50 metres beyond the Subject Property boundary. Only 1 of the Category 2 trees is within proximity to the property boundary (approximately 3 metres), the remaining Category 2 trees are beyond 25 metres of the boundary. None were found within the Subject Property, and none are proposed for killing, harming, or taking. A Butternut Health Assessment has been submitted to the MECP for the required 30-day review process (**Appendix C**.).

LEGEND

- Property Boundary
- Surveyed Tree
- Butternut (*Juglans cinerea*) - Category 1
- Butternut (*Juglans cinerea*) - Category 2
- 25m Regulation Limit from Category 2 Butternut
- Dripline of Butternut B1
- Woodland Dripline
- 10m Buffer from Woodland Dripline
- ELC Communities Boundary
- FOD7 White Elm Deciduous Forest
- CUM1-1 Dry-Moist Old Field Meadow

21 Huntmar Drive

Biophysical Inventories

LGL LIMITED
environmental research associates

Project	TA8952	**Figure**	3
Date	November 2019	**Prepared By:**	KC
Scale	1:800	**Verified By:**	MJO

5.4 WILDLIFE AND WILDLIFE HABITAT ASSESSMENT

Incidental out of season wildlife surveys were undertaken on September 26, and 27, 2019. The purpose of the investigations was to document wildlife, wildlife habitat and to characterize the general nature, extent, and significance of wildlife habitat on the site. Investigations included out of season surveys, observations of wildlife, wildlife habitat assessment and species at risk screening. Based on observations, 15 species of wildlife could be verified in the Study Area, though this would not be considered a comprehensive list of wildlife utilizing the area as the survey was conducted out of season. The majority of these records came from the identification (through calls and sightings) of bird species with a few mammal species identified. A summary of wildlife species documented in the study area during field investigations is presented in **Table 6**.

5.4.1 Birds

The incidental, out of season bird surveys were conducted to characterize the nature, extent and significance of breeding bird usage of the habitats within the site but the data cannot be used to inform breeding activities of the Study Area. Bird vocalizations along with direct observations of birds were recorded.

Eleven species are birds were observed during the site investigations. Of these, both Blue Jay (*Cyanocitta cristata*) and Common Raven (*Corvus corax*) are protected under the *Fish and Wildlife Conservation Act* (FWCA), and American Goldfinch (*Carduelis tristis*), Black-capped Chickadee (*Poecile atricapillus*), Downy Woodpecker (*Picoides pubescens*), Mallard (*Anas platyrhynchos*), Northern Cardinal (C*ardinalis cardinalis*), Ring-billed Gull (*Larus delawarensis*), and Song Sparrow (*Melospiza melodia*) are protected under the *Migratory Bird Convention Act* (MBCA).

Table 6 Summary of Wildlife Observations.

Family Name	Scientific Name	Common Name	2019-09-26 and 2019-09-27	G_Rank	S_Rank	SARA	SARO	FWCA	MBCA	SWH-TG Area Sensitive Species	Priority Species Ottawa Carleton
Corvidae	*Corvus brachyhrynchos*	American Crow	x	G5	S5B						
Fringillidae	*Carduelis tristis*	American Goldfinch	x	G5	S5B				X		level 3
Paridae	*Poecile atricapillus*	Black-capped Chickadee	x	G5	S5				X		level 4
Corvidae	*Cyanocitta cristata*	Blue Jay	x	G5	S5			P			
Corvidae	*Corvus corax*	Common Raven	x	G5	S5			P			
Picidae	*Picoides pubescens*	Downy Woodpecker	x	G5	S5				X		
Sturnidae	*Sturnus vulgaris*	European Starling	x	G5	SNA						
Anatidae	*Anas platyrhynchos*	Mallard	x	G5	S5				X		
Cardinalidae	*Cardinalis cardinalis*	Northern Cardinal	x	G5	S5				X		
Laridae	*Larus delawarensis*	Ring-billed Gull	x	G5	S5B,S4N				X		
Emberizidae	*Melospiza melodia*	Song Sparrow	x	G5	S5B				X		

5.4.2 Herpetofauna

There were no observations of reptiles or amphibians during the out of season investigations of the Subject Property and adjacent lands.

5.4.3 Mammals

Evidence of use of the adjacent FOD7 woodland was documented for four species of mammals during the field investigations. The species observed represent a typical assemblage that often uses anthropogenic landscapes to include: White-tailed Deer (*Odocoileus virginianus*); Coyote (*Canis latrans*); Eastern Gray Squirrel (*Sciurus carolinensis*); and, Eastern Cottontail (*Sylvilagus floridanus*).

5.4.4 Wildlife Habitat

Wildlife habitat on the Subject Property is of low quality and provided by the periodically maintained cultural meadow. The FOD7 deciduous forest habitat on adjacent lands is associated with Poole Creek and provides contiguous wildlife habitat important to wildlife passage between natural spaces upstream and downstream of the Subject Property.

The diversity, quality and extent of wildlife habitat is severely limited within the Subject Property itself. The old field is dominated by goldenrod and aster species which provide simple habitat features and functions for common, urban tolerant wildlife species. This habitat is not considered suitable for grasslands species such as Bobolink or Eastern Meadowlark due to the small size of the habitat feature and the lack of grassland and/or pasture habitat preferred by both species.

5.5 AQUATIC HABITAT

There are no aquatics features within the Subject Property. The nearest aquatic habitat is Poole Creek to the west, as described in Section 3.4.

6.0 HABITAT FOR SPECIES AT RISK

Endangered and threatened species are identified using procedures established by the Committee on the Status of Species at Risk in Ontario (COSSARO). Species and their habitats are protected under the *Endangered Species Act, 2007* which is administered by the MECP. Information collected through background review and species lists compiled as part of LGL's field investigations were screened for species at risk (SAR) to determine a list of SAR with the potential to occur in proximity to the proposed development. The following resources were used to assemble SAR data relevant to the Study Area:

- Natural Heritage Information Centre (NHIC)
- Wellings of Stittsville Inc. and Extendicare (Canada) Inc. Environmental Impact Study for 5731 Hazeldean Road
- Wellings of Stittsville Inc. and Extendicare (Canada) Inc. Natural Environment Assessment for 5731 Hazeldean Road
- Fisheries and Oceans Canada (DFO) mapping for Aquatic SAR
- Consultation with MECP through a data request submitted September 23, 2019, though, a response had not been acquired by submission of this EIS. Alternatively, this EIS references recent Pinchin background information.

A search of the Natural Heritage Information Centre (NHIC) did not return any SAR occurrence records for the subject property.

Additional information relating to species at risk was available through studies required for development of the adjacent property to the southwest. A review of the Wellings of Stittsville Inc. and Extendicare (Canada) Inc. Environmental Impact Study and Natural Environment Assessment for 5731 Hazeldean Road (Pinchin 2016a, 2016b) was conducted. Butternut were recorded in the Study Area though locations and assessment results were not. In addition, Pinchin obtained background information (2016) for the adjacent property to the west suggesting the following species "found on site or in proximity to it":

- Little Brown Bat;
- Blanding's Turtle;
- Butternut;
- Snapping Turtle; and,
- Milksnake.

Pinchin did not observe Little Brown Bat during site reconnaissance, though it is uncertain if proper survey protocol was followed. As bats tend to feed and roost in buildings, woodlands and riparian habitats, this EIS assumes that Little Brown Bats and other ESA-listed bat species may occur in the study area. Section 13 provides mitigation strategies to avoid harm to these species. Treed vegetation communities with large diameter trees showing signs of decay, sloughing bark and/or leaf clusters represent candidate habitat for SAR bats. As no intrusion into treed vegetation communities is proposed with this EIS submission, further study was not necessary to determine presence/absence of SAR bats.

Blanding's Turtles live in shallow water, usually in large wetlands and shallow lakes with abundant aquatic vegetation (Ontario.ca). This habitat is not found within the Subject Lands nor within reasonable proximity which might affected by development activities. More likely, this species was observed within the large PSW found much farther (2-3 kilometres) upstream. Nonetheless, mitigation for this species has been prescribed in Section 13 of this EIS.

Butternut have been confirmed by LGL in proximity to the Subject Property. A Butternut Health Assessment is being submitted to MECP to ensure development activities are performed in compliance with the ESA.

Snapping Turtles spend most of their lives in water and prefer shallow waters and nest in gravelly or sandy areas along streams. Poole Creek presumably fulfills the habitat requirements for Snapping Turtle. Although there is a low potential for Snapping Turtle to be found on Subject Lands, Section 13 provides mitigation to avoid impacts to Snapping Turtle.

Milksnake has been delisted and as such, the ESA is no longer relevant to this species. Nonetheless, Section 13 provides mitigation to avoid impacts to Milksnake.

Consultation with MECP was completed to identify SAR with potential to occur in the Study Area. Information regarding recorded SAR in Gouldbourn was provided December 21, 2019 to compare species habitat preferences along with Subject Property investigation results to identify SAR with potential to be impacted by the proposed development (**Appendix E**). The assessment did not confirm habitat for any endangered or threatened species other than the Butternut observed on the adjacent lands to the west, as shown in **Figure 2**, though, several species could not be ruled out given their general common habitat preferences. In these instances, precautionary mitigation is recommended during site alteration and is described in Appendix E.

At a federal policy scale there are no aquatic features on the subject property and according to available DFO information, Poole Creek is not mapped as habitat of aquatic species at risk.

7.0 FISHERIES AND OCEANS PROJECTS NEAR WATER

The *Fisheries Act* administered by the Fisheries and Oceans Canada (DFO) requires that projects avoid causing serious harm to fish. DFO supports a self-review process to determine if a project requires review by DFO. There is no aquatic habitat nor aquatic impact associated with the subject property, and thus, it has been assumed that DFO will not require consultation during this application.

8.0 SIGNIFICANT WILDLIFE HABITAT, ECOREGION 6E

Significant wildlife habitat is one of the more complex natural heritage features to evaluate. Resources were used to evaluate the data collected through background review and flora/fauna inventories against a series of guidelines and criteria to determine significance including the following:

- The Significant Wildlife Habitat Technical Guide (MNRF 2000);
- The Significant Wildlife Habitat Mitigation Support Tool (MNRF 2014); and,
- The Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNRF 2015).

The Subject Property is in Eco-district 6E-11. Data for ELC and wildlife as presented in Section 5.0 was compiled and assessed according to the criteria outlined in MNRF's Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (**Appendix F**).

The following types of significant wildlife habitat (SWH) are identified by MNRF in the Ecoregion Criteria Schedules:

- Seasonal concentration areas;
- Rare vegetation communities or specialized habitats for wildlife;
- Habitats of species of conservation concern, excluding the habitats of endangered and threatened species; and,
- Animal movement corridors.

The MNRF Ecoregion Criteria Schedules use ELC as the basis to screen a site for SWH. ELC communities on the Subject Property are limited to CUM1-1 and FOD7 is found on adjacent lands (**Figure 2**).

8.1 SEASONAL CONCENTRATION AREAS

The open field (CUM1-1) provides little opportunity for seasonal concentration areas due to habitat simplicity, function and lack of cover habitat. However, two types of Candidate SWH related to seasonal concentration areas for wildlife are identified in the FOD7 woodland on adjacent lands: Bat Maternity Candidate SWH and Reptile Hibernacula Candidate SWH (**Appendix E**). Note that these habitats have not been confirmed but a conservative approach has been taken to *assume the possibility* of these habitats to occur on adjacent property since the SWH criteria is quite general and common (i.e. *for all snakes, habitat may be found in any ecosite other than very wet ones*). MNRF's Significant Wildlife Habitat Mitigation Support Tool (MiST) has been used to guide development of the Subject Property, specifically to avoid development in the FOD7 habitat and to create a vegetation protection zone between the FOD and developable area (MiST Item #12 - Bat Maternity Colonies). MiST Item #13 - Reptile Hibernacula for Five-lined Skink indicates that development on adjacent land is not expected to directly affect skink populations, unless it affects moisture regimes in the preferred habitat. The recommendations of MiST #13 have been implemented to guide the development proposal; specifically, to avoid development in FOD7 habitat, to create a vegetation protection zone between the FOD7 and developable area, and to ensure that there are no significant changes in the water table of the FOD7 habitat as a result of the proposed development.

8.2 RARE VEGETATION COMMUNITIES OR SPECIALIZED HABITATS FOR WILDLIFE

Based on the botanical survey results there are no rare vegetation communities associated with the Subject Property, specifically Old Growth Forest or provincially rare vegetation communities (tall-grass prairie, savannah, rare-forest type).

Specialized habitat for wildlife in Ecoregion 6E includes bald eagle and osprey nesting, foraging and perching habitat, woodland raptor nesting habitat, seeps and springs, amphibian breeding habitat, woodland-area sensitive bird breeding habitat, open country bird breeding habitat, and special concern and rare wildlife species (ranked S1-S3). None of these are present within the subject property or adjacent FOD7 habitat.

8.3 ANIMAL MOVEMENT CORRIDORS

Animal movement corridors are elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another, and can include a wide variety of landscape features including riparian zones and shorelines, wetland buffers, stream valleys, FOD7 woodlands, etc. . Since amphibian breeding habitat or deer wintering yard was not found within the Subject Property, nor in the FOD forest the criteria for Animal Movement Corridor has not been met. Regardless, a local scale landscape approach of natural heritage management dictates that the important features and functions of the FOD7 woodland shall be maintained and protected for the long term. Appropriate land use management including avoidance, mitigation and buffers have been considered during site design.

A summary of SWH screening results is presented in **Appendix E.**

9.0 NATURAL HERITAGE SYSTEM BUFFERS

The natural heritage system described in this report has been developed by layering the natural components such as the Poole Creek regulatory limit, FOD7 woodland boundary, Butternut and associated buffers or each. Buffers have been designed to conform to municipal and provincial policy, maintain or enhance ecological integrity, minimize negative impacts from adjacent development. The limit of the natural heritage system has been determined by the outer limits of the combined natural features.

9.1 VEGETATION PROTECTION ZONE

Buffers are recommended for the FOD7 woodland interface to protect the structural integrity of vegetation along the edge, including Butternut, as well as to minimize impacts on FOD7 woodland functions. Some of the services that buffers may provide include:

- Protection of root zone of edge trees;
- Reduction in the effects of hydrological changes from site alterations;
- Area where trees and limbs can fall without causing damage (tree fall zones);
- Filtering of contaminants such as nutrients from fertilizers;
- Extension of edge, thus limiting light intrusion and increasing potential for FOD7 woodland interior conditions to develop; and,
- Protection for wildlife use.

The development limit has been determined by applying the municipal standard 10 metre buffer/vegetation protection zone (VPZ) from FOD7 woodland dripline (**Figure 4**). This buffer also protects the Category 2 Butternut from harm. Consultation with MECP is ongoing to confirm compliance with the ESA.

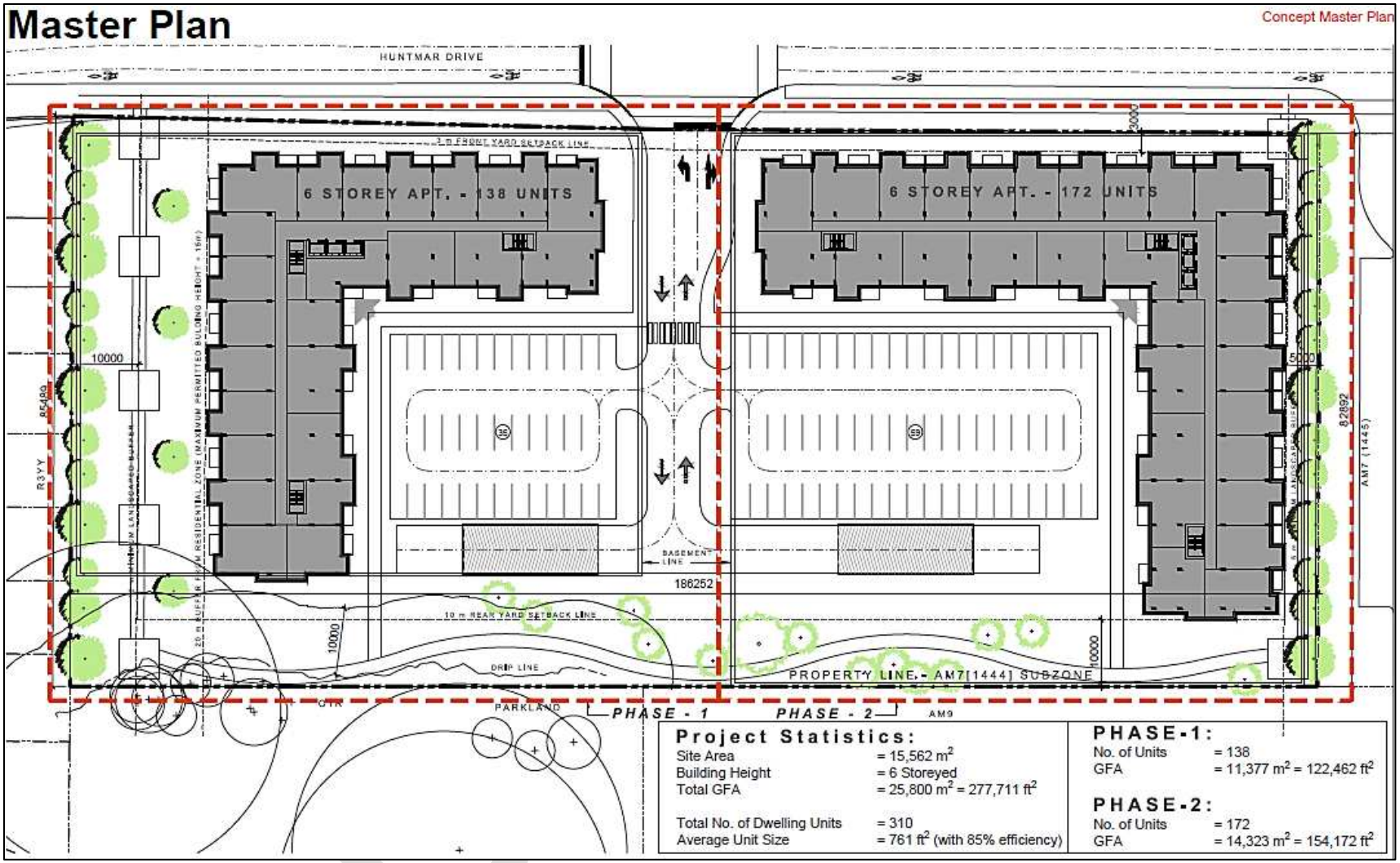

Figure 4 Proposed Concept Master Plan.

10.0 GEOTECHNICAL INVESTIGATIONS

A geotechnical investigation was prepared by Paterson Group for 21 Huntmar Drive to determine the subsurface soil and groundwater conditions and to provide preliminary geotechnical recommendations for the foundation design of the propose buildings. The following discussion summarizes key findings of the geotechnical investigation, but it not intended to provide detailed information or recommendations in geotechnical regard. Detailed information and recommendations regarding geotechnical considerations is found in Paterson Group's *Geotechnical Investigation – Proposed Multi-Storey Residential Buildings – 21 Huntmar Drive*, 2019.

Groundwater level readings were recorded July 29, 2019, and based on observations, the long-term groundwater level is expected to be between 3 to 4 metres depth and subject to seasonal fluctuations. Groundwater infiltration into proposed building excavations should be low and controllable using open sumps and sufficient to control the groundwater influx. Therefore, dewatering activities may have the potential to affect local aquatic habitats unless proper mitigation is in place. Section 13 of this EIS considers potential impacts of dewatering and describes mitigation techniques to avoid impacts to aquatic habitats.

10.1 LONG-TERM STABLE TOP OF SLOPE

A geotechnical study is beyond the purview of LGL's scope but there appear to be no top-of-slope issues associated with the subject property.

11.0 DEVELOPMENT PROPOSAL

11.1 SITE LAYOUT

The proposed draft plan includes multi-storey buildings, underground parking, local laneway, at-grade parking, amenity landscaping, and vegetation protection zone to buffer the adjacent FOD7 woodland to the west. The site will be serviced by future municipal services.

Figure 5 Proposed Development Concept (viewing northwest towards the Subject Property). Concept Master Plan (December 2019), FOD7 in background.

11.2 STORMWATER MANAGEMENT

Detail needed.

12.0 IMPACT ASSESSMENT

Factors that have been considered in this impact assessment include the spatial extent, magnitude, frequency and duration of impacts. While avoidance of natural heritage features has been the focus of site design and impact mitigation, the potential remains for direct and indirect impacts as a result of development. The following sections provide:

- An evaluation of the possible extent or area of natural features that the development will affect, directly or indirectly;
- An evaluation of the possible future and cumulative impacts of development that may occur as a result of demand created by the present development (i.e., whether the proposal will lead to multiple or successive development or site alteration activities); and,
- Recommendations of actions that may be necessary to prevent, mitigate or remedy the effects of the development, as well as alternative methods to carry out the development and alternatives to the form of the proposed development.

12.1 DIRECT IMPACTS

Grading, servicing and building construction may result in the following potential direct impacts.

- Loss or alteration of vegetation and wildlife habitat;
- Impediment to animal movement;
- Increased erosion, sedimentation and turbidity;
- Increase in impervious surfaces and increased surface runoff; and,
- Wildlife mortality including collisions with traffic, collisions with building/windows during nighttime migration.

The proposed development has the potential to result in impacts to vegetation and vegetation communities. Effects on vegetation could include displacement of/disturbance to vegetation and vegetation communities and displacement of rare, threatened or endangered flora or significant vegetation communities. The proposed development will result only in the removal of the cultural meadow community. Overall, impacts resulting in the loss of vegetation within this cultural community is minor. Cultural meadow communities typically persist in areas that are regularly disturbed, and as a result, generally contain a high proportion of invasive and non-native plant species that are tolerant of these conditions. No impacts to the FOD7 deciduous forest community are anticipated.

As noted in **Section 5**, no plant species that are regulated under the Ontario *Endangered Species Act* or the Canada *Species at Risk Act* were encountered during LGL's botanical investigation of the Subject Property, but 20 Butternut were assessed on the adjacent municipal property within the FOD7 woodland. Four locally uncommon species were identified within the study area but only one is found within the Subject Property; Yellowish Enchanter's Nightshade. Yellowish Enchanter's Nightshade also occurs within the FOD7 and the population is expected to persist in a post-development setting with long-term protection of the woodland.

Due to the existing development on surrounding lands, and lack of notable vegetative cover within the cultural meadow, impediment to animal movement or disturbance to wildlife is not anticipated to result from the removal of the cultural meadow community.

An increase in impervious surfaces has the potential to limit/reduce groundwater recharge and increase micro-climate temperatures. Mitigation to minimize these impacts is presented in Section 13.

An increase in surface runoff has the potential to result in erosion and sedimentation of adjacent habitats and degradation of aquatic environs. Mitigation to minimize these impacts is presented in Section 13.

One of the more prevalent potential impacts associated with this development proposal is the potential for bird/window collision based on the landscape setting and proposed mid-rise development adjacent to a contiguous natural heritage feature (Poole Creek, FOD7 woodland). Migratory birds travel at night to avoid predation and use natural light markers such as the moon and stars to navigate. Light pollution (i.e. from buildings) can obscure, confuse, and attract birds to urban areas. As a result, mitigation has been recommended (Section 13) to minimize the potential for collisions between birds and windows.

12.2 INDIRECT IMPACTS

Indirect impacts may include:

- Increased access to Poole Creek and associated FOD7 woodland due to intensification and use of existing municipal trails within these habitats;
- Invasion by non-native species;
- Shading effects on plant species which require abundant sunlight (i.e. Butternut);
- Disturbance of wildlife species;
- Potential impacts related to de-watering activities to facilitate excavation/construction;
- Effects of noise on wildlife; and,
- Effects of light pollution on wildlife.

Increased access to Poole Creek and the FOD7 woodland could affect wildlife activity (through avoidance, noise which may disrupt calls/communication), result in the spread of non-native species through seed dispersal by hikers/path pedestrians. However, due to the prevalence of existing pathways and informal trails within the valley and FOD7 woodland, impacts in this regard are expected to be minor.

A potential exists that dewatering may be necessary to facilitate excavation of the proposed building footings and underground parking. Mitigation has been considered and is presented in section 13.

Light pollution may result in disruption of normal wildlife behaviour such as migration/travel, breeding or foraging activities. Mitigation to minimize this potential is presented in Section 13.

Shading impacts, as a result of the height of buildings, may affect Butternut health and vigour given the species penchant for abundant sunlight.

12.3 CUMULATIVE IMPACTS

Much/most of the surrounding landscape has been urbanized with roads, residential and commercial development, and the remaining treed and valley habitats adjacent to the Subject Property have been protected with appropriate setbacks. The cultural meadow represents a simple, disturbed habitat type and its removal is not reasonably expected to result in cumulative impacts to the Poole Creek subwatershed. Avoidance of sensitive habitats, setbacks and buffers, and mitigation has been prescribed to minimize potential natural heritage impacts to present a development proposal consistent with the existing land use and natural heritage protection policies across the broader landscape. Thus, cumulative impacts are considered minor.

13.0 MITIGATION

The recommendations provided in this section are intended to avoid potential impacts to the natural heritage system resulting from the proposed development.

13.1 IMPERVIOUS SURFACES AND INCREASED RUNOFF

Maintenance of pre-development hydrologic cycle is recommended. The following objectives will mitigate impacts to the hydrologic cycle:

- Peak flow control should be achieved to control flood events up to and including the Regional Storm event;
- Stormwater quality treatment of runoff from the proposed development area is required to mitigate surface water quality impacts and shall comply with Ministry of Environment, Conservation, and Parks guidelines to the Enhanced standard; and,
- Low Impact Development (LID) Best Management Practices are encouraged to treat stormwater on site and enhance vegetative characteristics of the development. The greenscape areas between the development and VPZ should be explored for the potential to host LIDs.

13.2 DEWATERING

Paterson Group has suggested that dewatering requirements are probable during construction. LGL defers to the recommendations of Paterson Group for dewatering activities.

In addition to the Paterson Group recommendations, to mitigate potential effects of dewatering on adjacent habitats LGL staff would suggest:

- Should dewatering effluent be directed to municipal stormsewer given the flat topography of adjacent natural areas;
- Should dewatering effluent be directed to Poole Creek, erosion mitigation using a pump and hose of length to reach the Poole Creek valley bottom, and dissipater should be implemented to outlet dewatering effluent;
- Monitoring of the dewatering effluent water temperatures should occur during the dewatering period and although mitigation options to adjust the temperature of the groundwater are limited, measures should be taken to ensure that the dewatered groundwater temperature is adjusted to the temperature of the receiving Poole Creek to avoid temperature shock or displacement of fish; and accordingly,
- An environmental monitor should be retained to provide periodic inspections to ensure that impacts to the local fishery will not result from the discharge of groundwater into Poole Creek. Water temperature monitoring should include the groundwater at source, and upstream in the Poole Creek and downstream of the mixing zone. Where large temperature changes are observed upstream and downstream of the mixing zone, work should temporarily cease until measures are implemented to mitigate the temperature impacts.

13.3 LOW IMPACT DEVELOPMENT BEST MANAGEMENT PRACTICES

Although outside of the geographic jurisdiction of the authoring agencies, Low Impact Development (LID) Best Management Practices (BMP), as described in the Credit Valley Conservation/Toronto and Region Conservation Authority publication *Low Impact Development Stormwater Management Planning and Design Guide* (2010) would provide a benefit to the proposed development and adjacent natural heritage features. Implementation of the following features are encouraged where feasible:

- Green roofs;
- Rainwater harvesting;
- Permeable pavement;
- Soakaway pits;
- Infiltration trenches; and,
- Biofilters.

13.4 ARCHITECTURAL MITIGATION MEASURES – SITE LAYOUT AND SHADING

This potential for shading impacts was identified early in the site design process and the Master Plan strategically positioned the layout of the site to minimize impacts to Butternut (and other species) from shading. A Sun and Shadow Study (**Figure 6**), prepared by RLA Architecture, demonstrates that shading will occur within the FOD7 where Butternut B1 (Category 2) is located. Specifically, shading will occur briefly during the growing season, around 8:00am or thereabouts, and will subside by 10:00am, or thereabouts. Considering shading will occur only during the morning when sun intensity is low comparative to mid-day, the impact of shading is not expected to significantly impact Butternut B1or other vegetation within the FOD7 community.

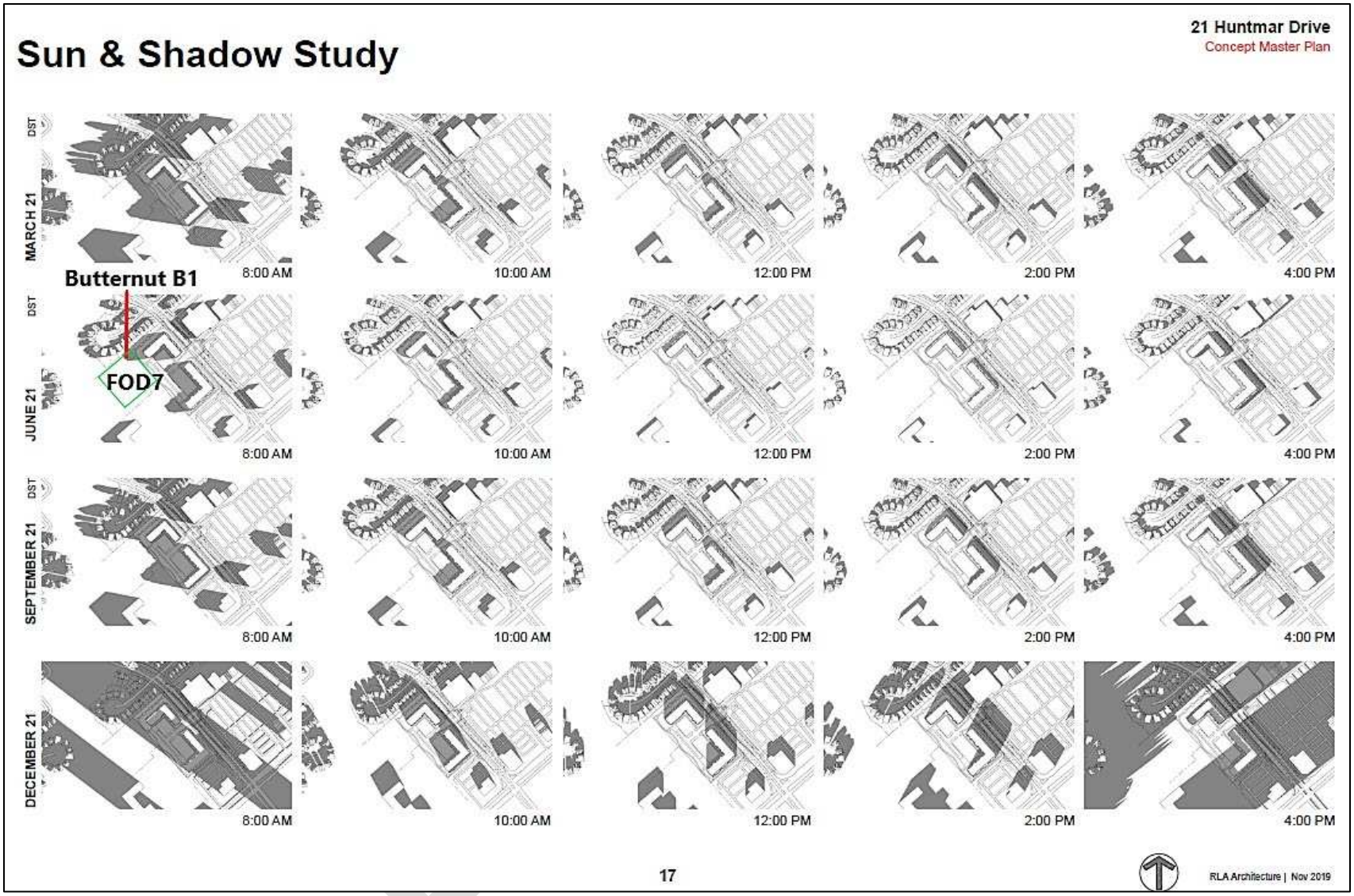

Figure 6 Sun and Shadow Study – RLA Architecture, December 2019.

13.5 BIRD COLLISIONS AND LIGHT POLLUTION

Bird Collision Deterrence design is encouraged for the design of the proposed mid-rise buildings. Recommendations are provided in **Table 7** Building Design Considerations to Mitigate Impacts to Birds and are consistent with the Toronto Green Standard, as it is a progressive building design standard to mitigate impacts to migrating birds.

Light Pollution (glare, light trespass, over lighting, sky glow) can have a negative effect on migratory birds and other fauna but can be mitigated. The following measures are intended to mitigate impacts resulting from light pollution:

- Adhere, where able, to the Toronto Green Standard - 2017 *Best Practices Effective Lighting-Bird Friendly Development Guidelines, City of Toronto*;
- Where external lighting of the building is necessary use downlight to highlight architectural features and turn off between the hours of 11 pm and 6 am;
- Shield lighting in vicinity of the FOD7 to limit light penetration into the woodland;
- Exterior fixtures are encouraged to be Dark Sky compliant (Dark Sky Fixture Seal of Approval).

Table 7 Encouraged Building Design Considerations to Mitigate Impacts to Birds.

Development Feature	Encouraged Mitigation	Encourage Specifications, Definitions and Resources	Potential Strategies
Bird Collision Deterrence Design buildings to reduce bird collisions and mortality	**Bird friendly glazing** Use a combination of the following strategies to treat a minimum of 85 per cent of all exterior glazing within the greater of first 12m of the building above grade or the height of the mature tree canopy (including balcony railings, clear glass corners, parallel glass and glazing surrounding interior courtyards and other glass surfaces): • Low reflectance, opaque materials • Visual markers applied to glass with a maximum spacing of 100 mm x 100 mm • Building-integrated structures to mute reflections on glass surfaces. Balcony railings: Treat all glass balcony railings within the first 12 m of the building above grade with visual markers provided with a spacing of no greater than 100 mm x 100 mm. Fly-through conditions: Treat glazing at all heights resulting in a fly-through condition with visual markers at a spacing of no greater than 100 mm x 100 mm. Fly-through conditions that require treatment include: • Glass corners • Parallel glass • Building-integrated or free-standing vertical glass • At-grade glass guardrails • Glass parapets	• Bird-friendly design aims to reduce bird collisions and mortalities caused by reflective glazing by making glazed areas visually distinct to birds and by reducing images of trees or sky reflected in glass through shading/muting reflections. The most critical zone for bird collisions is a minimum of the first 12m above grade or to the height of the surrounding mature tree canopy. If the site is adjacent to a natural area feature, including where separated from the natural area by a road, or has mature trees on or adjacent to the site, glass must be treated to the first 12m of the building or to the height of the top of the surrounding tree canopy at maturity, whichever is greater. • Low reflectance, opaque materials may include spandrel glass with one of the following: (i) Solid back-painted frit or silicone backing opaque coatings or; (ii) Reflective or low-e coatings that have an outside reflectance of 15 per cent or less. Spandrel glass with reflective or low-e coatings that have an outside reflectance of greater than 15 per cent should be used in combination with other strategies. • Visual markers consist of opaque points or patterns on the exterior or interior surfaces of glass. Visual markers must have a minimum width 5mm and a maximum spacing of 100 mm x 100 mm. Ceramic frit patterns must have a strong contrast (e.g. white). Grey frit does not provide a strong contrast and is not permitted. Patterns on the first (exterior) surface are the most effective and in combination with low reflectance glass are the most visible and effective. • When the site is adjacent to a natural area feature including where separated by a road, visual markers must be provided at a maximum spacing of 50mm x 50mm. • Building integrated structures include opaque awnings, sunshades, exterior screens, shutters, grilles and overhangs or balconies that provide shading below a projection (assume 1:1 ratio of treatment below a projection) to mute reflections. Shade cast by the building or adjacent buildings cannot be included as a bird collision deterrence strategy. • Fly-through conditions are created when architectural elements provide a clear line of sight to birds to sky or vegetation on the other side or where clear glass corners meet. Glass corners must be treated for 5m extending on each side away from the corner. Parallel glass is glass installed at any height that is parallel at a distance of 5m or less such as a clear glass corridor or bridge.	Visual markers: Etched glass Fritted glass Films Decals Mullions Exterior screens, shutters, grilles and louvres to shield glass surfaces Shadows from opaque overhangs, awnings, exterior sunshades

13.6 SITE ALTERATION MITIGATION MEASURES

Measures intended to mitigate impacts resulting from site alteration are presented in **Table 8**.

Table 8 Site Alteration Mitigation Measures - Adapted from *Natural Heritage Reference Manual.*

Development Activity	Potential Physical Impacts	Potential Impacts of Features and Functions	Recommended Mitigation Measures
Vegetation Removal	Loss of vegetation and wildlife habitat; loss of successional habitat	Direct loss of 1.56 hectares of cultural meadow habitat	VPZ/buffers have been specified to protect the limits and integrity of the woodlot.
		Greater exposure of wildlife to predation and parasitism	Development to be restricted to old field/disturbed areas.
		Increased vulnerability of the Subject Property to invasion by non-native species	Revegetate VPZ with native species. Revegetate exposed soils within 45 days.
		Decreased biodiversity	Avoid fragmenting forests and severing linkages; restoration and plantings to restore high edge-to-interior ratio. Fragmentation will not occur as a result of the proposed Subject Lands plan.
	Loss of natural linkages and corridors for animal movement	Isolation of species; loss of biodiversity	Create a buffer around habitats of significant species; preserve important animal movement corridors; avoid eliminating corridors. The existing NHS will remain intact, area will increase with the creation of the VPZ
	Disturbance of wildlife species	Disturbance of wildlife during sensitive periods (i.e. nesting)	Time activities to avoid wildlife disturbance; create a buffer area around sensitive species. Avoid vegetation removals during the breeding bird window, bat roost window. **Vegetation removals are preferred to occur between October and March.**
Grading	Increased erosion, sedimentation and turbidity; increased inputs of nutrients and contaminants to waterbodies and wetlands; increased soil compaction	Decreased photosynthesis, loss of productivity, loss of fish habitat, loss of food organisms, and avoidance of areas by fish; lethal or sublethal toxic effects on aquatic life; changes in fish species composition and abundance; changes in wetland plant communities	Maintain or restore vegetative buffers; develop and implement an erosion and sediment control plan; control access and movement of equipment; designate areas for equipment storage; minimize the area and duration of soil exposure and schedule grading to avoid times of high runoff volumes (spring and fall)

Development Activity	Potential Physical Impacts	Potential Impacts of Features and Functions	Recommended Mitigation Measures
	Changes in natural drainage, including elimination of streams, and increased or decreased surface runoff; increased or decreased stream flows	Loss of fish habitat (e.g., water, spawning areas) and food organisms; changes in fish species composition and abundance; changes in wetland plant communities; channel erosion and changes in geomorphology	Minimize changes in land contours and natural drainage; maintain streams (Poole Creek will be unaffected), timing and quantity of flows and ensure grades are matched at the limit of the natural feature or the limit of any buffer area and meet a water balance of pre-post development.
	Disturbance of wildlife, particularly sensitive species	Disturbance of wildlife	Identify sensitive species before beginning the work; design grading to avoid disturbing sensitive species; conduct work at a time that is least disturbing to sensitive species. Initiate construction during the late fall/winter if possible.
Installation of Services and Utilities	Increased erosion, sedimentation and turbidity; increased inputs of nutrients and contaminants to waterbodies	Decreased photosynthesis, loss of productivity, loss of fish habitat, loss of food organisms, and avoidance of areas by fish; changes in fish species composition and abundance	Maintain vegetative buffers; develop and implement an erosion and sediment control plan; time activities to avoid sensitive periods of habitat use; re-establish vegetation as soon as possible
	Disposal of large amounts of water required by dewatering activities	Increased erosion, sedimentation and flooding of waterbodies or intolerant vegetation, changes in thermal regime.	Install a temporary storage basin to allow water to infiltrate during construction, construct permanent storm management facilities
	Hydrological changes (e.g., changes in water levels as a result of rerouted water flow)	Changes in vegetative communities and fish and wildlife assemblages; reduction in groundwater recharge - removal or loss of stream baseflow	Maintain the existing hydrological regime; design underground facilities (e.g., seepage collars, trenches) to minimize impacts on groundwater flows and baseflows
Building Construction	Increased erosion, sedimentation and turbidity; increased inputs of nutrients to waterbodies and wetlands	Decreased photosynthesis, changes in productivity, loss of fish habitat, loss of food organisms, and avoidance of areas by fish; changes in fish species composition and abundance; loss of stream channel stability; changes in plant communities	Maintain or restore vegetative buffers; control erosion, sedimentation and nutrient inputs through use of best management practices
	Water contamination by oils, gasoline, grease and other materials	Lethal or sublethal toxic effects on aquatic life and vegetation	Control contamination through good housekeeping practices.

Development Activity	Potential Physical Impacts	Potential Impacts of Features and Functions	Recommended Mitigation Measures
	Increase in impervious surfaces; increased surface runoff and reduced infiltration and groundwater discharge; reduced stream baseflows and upwelling; loss of vegetation resulting in increased water temperatures	Loss of fish habitat; changes in fish species composition and abundance; changes in wetland vegetation communities; drying of wetlands	Maintain or provide vegetative buffers; control quantity and quality of stormwater discharge using best management practices; implement infiltration techniques to the maximum extent possible and if soils permit.
	Loss of vegetation, especially at forested edges, barriers to animal and plant movement	Loss or fragmentation of wildlife habitat; loss of biodiversity - introduction of non-native species of plants and wildlife; increased predation and parasitism on native wildlife - interruption of functional connections	Maintain a sufficient buffer between buildings and significant features such that trees do not present a hazard to buildings; The proposed plan has been designed to avoid buffer the FOD7 and avoid habitat fragmentation;
	Loss of wildlife (e.g., mortality due to collisions with buildings/vehicles)	Avoidance of the area by wildlife species and gradual attrition of certain wildlife populations	Identify species sensitive to disturbance and schedule construction to avoid sensitive periods, design buildings appropriately to prevent/ minimize mortality.

13.7 MEASURES TO AVOID CAUSING HARM TO FISH AND FISH HABITAT

To protect receiving environments such as Poole Creek and the FOD7 woodland, an Erosion and Sediment Control (ESC) Plan shall be developed and implemented to minimize the risk of sedimentation during all phases of the project. Erosion and sediment control measures should be maintained, monitored, and repaired until all disturbed ground has been permanently stabilized. The ESC plan should include:

- Installation of effective erosion and sediment control measures prior to site alteration to prevent sediment from entering the water body;
- Measures for managing water flowing onto the site, as well as water being pumped/diverted from the site such that sediment is filtered out prior to the water entering a waterbody;
- Regular inspection and maintenance of erosion and sediment control measures and structures during construction;
- Repairs to erosion and sediment control measures and structures if damage occurs; and,
- Removal of non-biodegradable erosion and sediment control materials once site is stabilized.

14.0 POLICY CONFORMANCE

This development application has been designed to protect and restore lands within the natural heritage system. The development plan incorporates storm water management and encourages principles of low impact development where feasible and provides appropriate buffers between the development and natural heritage features to prevent interference with the ecological functions. There are no anticipated adverse hydraulic or fluvial impacts on Poole Creek associated with this design.

The design includes measures to mitigate direct and indirect impacts of excessive noise and light, shading, and sedimentation and erosion during construction. Best management practices including site, landscape, infrastructure and/or facility design, and construction controls shall be employed.

Buildings should be designed to include glass treated to the greater of the first 12m of the building height; or, the equivalent building height to the top of the surrounding tree canopy at maturity.

An Erosion and Sedimentation Control Plan will prevent degradation of habitats outside of the proposed development area.

A 10-metre buffer/vegetation protection zone to the FOD7 ecosite has been provisioned.

A Butternut Health Assessment has been submitted to the MECP to ensure compliance with the ESA.

14.1 COMPENSATION

Given that the site plan avoids natural heritage features, implements the municipal standard for protective buffer for the FOD7 woodland, and provides storm water treatment, habitat compensation is not an expected requirement for this application.

15.0 CONCLUSIONS

Through background information review and Subject Property investigations, important natural heritage features and species were identified on and adjacent to the site to include:

- FOD7 woodland adjacent to the Subject Property, and Poole Creek approximately 100 metres west of the subject property; and,
- Butternut.

Species at Risk (provincial) and local (municipal) rarity that have been documented on or adjacent to the Subject Property include:

- Butternut;
- Red Baneberry;
- Garlic Mustard;
- White Avens; and,
- Yellowish Enchanter's Nightshade.

The aforementioned species are found within the FOD7 woodland habitat west of the proposed development, with the exception of Yellowish Enchanter's Nightshade which is creeping into the subject property. As this species is abundant within the FOD7 there are no adverse impacts anticipated for this species due to site clearing and grubbing. The strategic objectives of the site design were to avoid the FOD7 woodland habitat, provide a 10m buffer to the FOD7, avoid Significant Wildlife Habitat – Special Concern and Rare Wildlife Species (limited to Butternut) including mitigation of shading effects.

The VPZ/buffer details will be refined during the site alteration application stage to minimize the potential for impacts on the natural heritage features by planting native species of trees and shrubs to recreate a natural forest edge.

Development is proposed outside of MVCA hazard land boundaries.

Connectivity along the natural heritage system has been maintained and enhanced with a vegetation protection zone. Removal of natural features is limited to 1.56 hectares of cultural meadow within the Subject Property.

Mitigation prescribed in Section 13 includes setbacks from natural heritage features, timing of clearing/grubbing activities to avoid sensitive periods for wildlife, appropriate design and implementation of storm water management, and delineation of the developable area with erosion and sedimentation controls and tree protection fencing. Given all of the above, a residual impact to natural heritage features and functions is not anticipated as a result of this development proposal.

16.0 REFERENCES

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Appendix A Terms of Reference

Martin O'Halloran

From: Hayley, Matthew <Matthew.Hayley@ottawa.ca>
Sent: October-24-19 12:01 PM
To: Martin O'Halloran
Subject: RE: 21 Huntmar Drive
Attachments: TA8952 Huntmar Drive ToR.pdf

Hi Martin,

As discussed, I have no significant concerns with the terms of reference you provided (attached). As I pointed out today, I don't believe that the evaluation against the nine evaluation criteria in step seven of the work plan will be particularly useful for this site since your property is adjacent to the feature and can be omitted.

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

Sincerely,

Matthew Hayley
Environmental Planner, Development Review,
Planning, Infrastructure and Economic Development Department
Planificateur environnemental, Services d'examen demandes d'aménagements,
Service de planification, de l'infrastruture et du développement économique
City of Ottawa | Ville d'Ottawa
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ottawa.ca/planning | ottawa.ca/urbanisme

From: Martin O'Halloran <mohalloran@lgl.com>
Sent: October 01, 2019 2:47 PM
To: Hayley, Matthew <Matthew.Hayley@ottawa.ca>
Subject: 21 Huntmar Drive

Hi again Matthew,

Regarding the EIS requirement for 21 Huntmar Drive and our discussion early last week, please find the attached proposed Terms of Reference for your review. We trust that the terms are to a level of detail appropriate for the site but please don't hesitate to suggest revision if necessary. Please call or write should you have any questions or concerns.

Regards,

Martin O'Halloran
Senior Fish and Wildlife Technologist,
ISA Certified Arborist #1088-A, Butternut Health Assessor #708

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October 1, 2019

Mr. Matthew Hayley
City of Ottawa
110 Laurier Avenue West
Ottawa, ON K1P 1J1

RE: 21 Huntmar Drive
Environment Impact Statement
Terms of Reference

Introduction

LGL Limited (LGL) was retained by North American Development Group (NADG) to prepare an Environmental Impact Statement (EIS) for a parcel of land located at 21 Huntmar Drive at the northeast quadrant of the Hazeldean Road and Huntmar Drive intersection in Kanata, Ontario, herein referred to as the Subject Property (**Figure 1**).

The subject property is currently zoned General Urban Area/Arterial Mainstreet. Adjacent lands include Major Open Space with environmental constraints associated with Poole Creek, which forms part of the Natural Heritage System Features Overlay (Schedule L3 of the Official Plan). An EIS is required by the Provincial Planning Statement (2014), the City of Ottawa (City), and the Mississippi Valley Conservation Authority's (MVCA) administration of Ontario Regulation 153/06, due to the presence of natural heritage features, in this case, an *Urban Natural Feature*, on or adjacent to the Subject Property. The EIS will determine the extent of anticipated impacts and will guide appropriate design of the site to adhere to relevant policy, identify constraints to development, set buffers/protection zones to be implemented and will propose other mitigation necessary to avoid negative impacts on the adjacent features and their ecological functions.

As part of the EIS, LGL has prepared this Terms of Reference to confirm the type of EIS required by the City, and to identify preliminary ecological constraints and other issues requiring assessment. Through this exercise LGL consulted with the City of Ottawa Environmental Planner (Mr. Matthew Hayley) on September 23, 2019, to determine if the City was required to be present during LGL's woodland boundary delineation, and to inquire whether in-season breeding bird and botanical surveys would be a requirement of the EIS. Mr. Hayley confirmed that City staff would not be required on site for the boundary delineation and that in-season surveys were not required due to the disturbed/urban nature of the habitat conditions on the

subject property. LGL Limited technical staff investigated the subject property and surveyed the woodland boundary on September 26 and 27, 2019. In addition, 20 Butternut (*Juglans cinerea*), a species listed as Endangered under the *Endangered Species Act*, 2007, were surveyed within 50 metres of the property boundary on the adjacent municipally owned parcel. Butternut were assessed as Category 1, 2, or 3, according to the Butternut Health Assessment methodology.

Figure 1. Subject Property Boundary (annotated with red line).

Background

The following planning documents and information sources were reviewed for natural heritage information relevant to the subject property;

- The City Ottawa Official Plan, 2003;
- The City of Ottawa Guide to Preparing Studies and Plans (accessed through Ottawa.ca)
- The City of Ottawa Environmental Impact Statement Guidelines, 2015;
- Fisheries and Oceans (DFO) Aquatic Species at Risk mapping (federal species list and legislation);
- Ministry of Natural Resources and Forestry (MNRF) natural heritage mapping (provincial species list, features, and functions); and,
- Mississippi Valley Conservation Authority Ontario Regulation 153/06 mapping.

Municipal Information

The subject property is part of Ward 6 in Stittsville and is zoned Urban Area (AM7) and is within the boundary of the Kanata West Secondary Plan.

The adjacent parcel to the west has been identified in the OP as Identified Natural Heritage System Features Overlay due to the presence of Poole Creek and floodplain (Figure 2). The purpose of Urban Natural Features designation is to preserve natural features that are currently managed for conservation or passive leisure uses.

Figure 2. Parcel Boundaries and Zoning. Subject parcel annotated with black arrow. City of Ottawa publicly accessible mapping data.

Species at Risk

A search of the Natural Heritage Information Centre (NHIC) was unproductive as data is not available for the subject property.

Additional information relating to species at risk was available through studies required for development of the adjacent property to the west. A review of the *Wellings of Stittsville Inc. and Extendicare (Canada) Inc. Environmental Impact Study for 5731 Hazeldean Road,* prepared by Pinchin was conducted to reveal pertinent information prior to LGL's site investigation. Butternut were recorded in the study area though locations and assessment results were not.

There are no aquatic features on the subject property, and none which provide habitat for federally ranked species at risk, according to available DFO information. Poole Creek is not

mapped as habitat of species at risk.

Wetlands and Watercourses

The Mississippi Valley Conservation Authority regulates development, interference with wetlands and alterations to shorelines and watercourses. Mississippi Valley Conservation Authority flood risk mapping of Poole Creek (Map No. 2) confirms that the subject property is outside of the regulatory limit but email correspondence from Mr. Niall Oddie (October 1, 2019) confirms that the MVCA would require review of the EIS to verify that there are no wetlands or watercourses within the subject property. In addition, MVCA confirmed that they would not require review/acceptance of the Terms of Reference and that the City of Ottawa would manage this detail.

Proposed Work Plan for the EIS

A work plan to satisfy the requirements of the City's EIS Guidelines and to assess potential impacts to natural heritage features is based on available background information, and preliminary reconnaissance on September 26 and 27, 2019. The work plan includes the following:

1. Establishment of the limits of the woodland (dripline extent of woody tree and shrub branches) using GPS accurate to 1m horizontal distance (September 2019);
2. A tree inventory was conducted (September 2019) for trees greater than 10cm diameter at breast height (DBH) for tree on or near the west property boundary. Tree conservation planning will be prepared as part of the EIS, though revisions may be required at the site plan stage as additional detail becomes available;
3. Botanical inventory and vegetation community mapping according to the *Ecological Land Classification for Southern Ontario: First Approximation and Its Application* protocols and a comparison against provincial and municipal status rankings. The inventory will be limited to data collected September 26 and 27, 2019 and may draw from background sources such as the Pinchin EIS for the adjacent property;
4. A description of incidental faunal observations made during the September 2019 investigation, a description of relevance to natural heritage policy and protections;
5. Preliminary SAR screening through Ministry of the Environment, Conservation and Parks (MECP) consultation and comparison of ELC habitat conditions against SAR requirements. MECP now administers the ESA;
6. Butternut survey (September 2019) including location, assessment/categorization, and recommendations to avoid impacts and/or coordination through the *Endangered Species Act* approvals process. Consultation with MECP is a required component with this item-all correspondence with MECP will be appended with the EIS;
7. An assessment of nine evaluation criteria as part of the Urban Natural Areas Environmental Evaluation Study, to include connectivity, absence of disturbance, habitat maturity, natural communities, regeneration, representative flora, significant flora and fauna, size and shape, and wildlife habitat;

8. Opportunities and constraints framework mapping which outlines where development is feasible (with or without mitigation), natural heritage features and functions that should be avoided (areas of preservation), and the proposal of a suitable minimum vegetation protection zone based on an assessment of habitat sensitivities;
9. An evaluation of the potential impacts of the proposed development on the natural environment features and function; and,
10. Recommendations for environmental management and mitigation measures to protect significant features/functions and enhance habitat, where feasible.

EIS Table of Contents

The report will be prepared according to the City's EIS Guidelines. We respectfully suggest that an *Urban Natural Feature Environmental Impact Statement* (UNF-EIS) is suitable due to habitat conditions on the subject property. A sample of the key content is provided as a general outline of the anticipated information in the EIS, though, slight alterations may occur as necessary:

1. Introduction
2. Policy Context
3. Background Natural Heritage Information
4. Natural Heritage Investigation Methods and Results (includes adjacent lands)
5. Description of Development Proposal
6. Impact Assessment
7. Mitigation
8. Conclusions

An approved Terms of Reference will be appended to the EIS to inform the reviewer that studies were conducted to an appropriate level of detail.

Kindly provide confirmation that this Terms of Reference is suitable to prepare an Urban Natural Feature Environmental Impact Statement, or alternatively, please provide advice as to the framework that the EIS should be prepared.

Respectfully submitted,

LGL LIMITED
environmental research associates

Martin O'Halloran
Senior Fish and Wildlife Technologist
ISA Certified Arborist (ON-1088A)
Certified Butternut Health Assessor #708

Appendix B List of Vascular Plants

Appendix B Plant List

Scientific Name	Common Name	GRank	SRank	MNR	COSEWIC	Local Status	Communities	
							Old Field	FOD7-1
EQUISETACEAE	**HORSETAIL FAMILY**							
Equisetum arvense	field horsetail	G5	S5			3		x
DRYOPTERIDACEAE	**WOOD FERN FAMILY**							
Dryopteris carthusiana	spinulose wood fern	G5	S5			3		x
Onoclea sensibilis	sensitive fern	G5	S5			3		x
RANUNCULACEAE	**BUTTERCUP FAMILY**							
Actaea rubra	red baneberry	G5	S5			2		x
Clematis virginiana	virgin's-bower	G5	S5			3		x
ULMACEAE	**ELM FAMILY**							
Ulmus americana	white elm	G5?	S5			3		x
JUGLANDACEAE	**WALNUT FAMILY**							
Juglans cinerea	butternut	G3G4	S3?	END	END	3		x
FAGACEAE	**BEECH FAMILY**							
Quercus muhlenbergii	chinquapin oak	G5	S4			-		x
CARYOPHYLLACEAE	**PINK FAMILY**							
* *Silene vulgaris*	catchfly	G?	SE5			3	x	
SALICACEAE	**WILLOW FAMILY**							
Populus deltoides	cottonwood	G5T?	S5				x	
SALICACEAE	**WILLOW FAMILY**							
Salix bebbiana	long-beaked willow	G5	S5			3	x	x
BRASSICACEAE	**MUSTARD FAMILY**							
* *Alliaria petiolata*	garlic mustard	G5	SE5			2		x
ROSACEAE	**ROSE FAMILY**							
Geum canadense	white avens	G5	S5			2		x
Prunus virginiana var. virginiana	choke cherry	G5T?	S5			3		x
* *Rubus idaeus ssp. idaeus*	red raspberry	G5T5	SE1					x
Rubus occidentalis	thimble-berry	G5	S5			3		x
FABACEAE	**PEA FAMILY**							
* *Vicia cracca*	tufted vetch	G?	SE5			3	x	x
LYTHRACEAE	**LOOSESTRIFE FAMILY**							
* *Lythrum salicaria*	purple loosestrife	G5	SE5			3	x	x
ONAGRACEAE	**EVENING-PRIMROSE FAMILY**							
Circaea lutetiana ssp. canadensis	yellowish enchanter's nightshade	G5T5	S5			2	x	x
CORNACEAE	**DOGWOOD FAMILY**							
Cornus sericea ssp. sericea	red-osier dogwood	G5	S5			3	x	x
RHAMNACEAE	**BUCKTHORN FAMILY**							
* *Frangula alnus*	glossy buckthorn	G?	SE5			3		x
* *Rhamnus cathartica*	common buckthorn	G?	SE5			3		x
VITACEAE	**GRAPE FAMILY**							
Parthenocissus vitacea	inserted Virginia-creeper	G5	S5			3		x
Vitis riparia	riverbank grape	G5	S5			3	x	x

Scientific Name	Common Name	GRank	SRank	MNR	COSEWIC	Local Status	Communities	
							Old Field	FOD7-1
ACERACEAE	**MAPLE FAMILY**							
Acer negundo	Manitoba maple	G5	S5			3	x	x
OXALIDACEAE	**WOOD SORREL FAMILY**							
Oxalis stricta	upright yellow wood-sorrel	G5	S5			3		x
APIACEAE	**PARSLEY FAMILY**							
* *Daucus carota*	wild carrot	G?	SE5			3	x	
ASCLEPIADACEAE	**MILKWEED FAMILY**							
Asclepias syriaca	common milkweed	G5	S5			3	x	
OLEACEAE	**OLIVE FAMILY**							
Fraxinus americana	white ash	G5	S5			3		x
Fraxinus pennsylvanica	red ash	G5	S5			3		x
RUBIACEAE	**MADDER FAMILY**							
Galium asprellum	rough bedstraw	G5	S5			3		x
CAPRIFOLIACEAE	**HONEYSUCKLE FAMILY**							
* *Lonicera tatarica*	tartarian honeysuckle	G?	SE5			3		x
Viburnum lentago	nannyberry	G5	S5			3		x
ASTERACEAE	**ASTER FAMILY**							
* *Arctium minus*	common burdock	G?T?	SE5			3	x	
Ageratina altissima va. Altissima	white snakeroot	G5	S5			3		x
Aster lanceolatus ssp. lanceolatus	tall white aster	G5T?	S5			3	x	x
Aster lateriflorus var. lateriflorus	calico aster	G5T5	S5			3		x
Aster puniceus var. puniceus	purple-stemmed aster	G5T?	S5			3		x
Eupatorium maculatum var. maculatum	spotted joe-pye-weed	G5T5	S5			3		x
Euthamia graminifolia	flat-topped bushy goldenrod	G5	S5			3	x	x
* *Inula helenium*	elecampane	G?	SE5			3		x
Solidago canadensis	canada goldenrod	G5	S5			3	x	x
Solidago rugosa ssp. rugosa	rough goldenrod	G5T?	S5			3		x
Symphyotrichum novae-angliae	New England aster	G5	S5			3	x	x
* *Taraxacum officinale*	common dandelion	G5	SE5			3	x	
JUNCACEAE	**RUSH FAMILY**							
Juncus effusus ssp. solutus	soft rush	G5T?	S5			3		x
POACEAE	**GRASS FAMILY**							
Phalaris arundinacea	reed canary grass	G5	S5			3	x	x
Poa pratensis ssp. pratensis	Kentucky bluegrass	G5T	S5			3	x	

Legend: Local Status (Cuddy, 1991)

1= Rare

2=Uncommon

3=common

- =not recorded within Region

Reference

Cuddy, D.G. 1991. *Vascular Plants of Eastern Ontario.* Ontario Ministry of Natural Resources. Kemptville, Ontario. 80p.

Appendix C Butternut Health Assessments

LGL LIMITED
environmental research associates

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: cambridge@lgl.com : www.lgl.com

Head Office 22 Fisher St., P.O. Box 280, King City, ON CANADA L7B 1A6 905-833-1244 905-833-1255 kingcity@lgl.com www.lgl.com

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2851 John Street, Suite One
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sbishop@nadg.com

October 10 2019

RE: Subject Property 21 Huntmar Drive, Kanata/Ottawa, K2S0P6, Butternut on Adjacent Property
BHA Report Number: 708-001
Date(s) of Butternut health assessment: September 26, 27, 2019

Dear Mr. Steven Bishop,

This letter is in regard to my assessment of the Butternut trees on your property. Please read this letter carefully as it contains important information about the Endangered Species Act, 2007 (ESA).

Butternut is listed as an endangered species on the Species at Risk in Ontario List, and as such, it is protected under the 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.

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

Summary of changes related to Butternut:
http://www.ontario.ca/environment-and-energy/butternut-trees-your-property

Information Requests:
ESA-SARinquiries@ontario.ca

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 Environment, Conservation and Parks (MECP) District Manager. Note that the MECP will not accept photocopies. The BHA Report must be submitted at least 30 days prior to registering 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 MECP may contact you for an opportunity to examine the trees.

If MECP chooses to examine the trees, a representative of the MECP will contact you using the information you supplied when you submitted the BHA Report. After the examination has been completed, MECP will notify you if the examination results change whether you are eligible for the regulation.

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 MECP 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 MECP office to determine whether you will need to seek a permit.

As a designated Butternut Health Assessor (BHA), I am providing the following Butternut Health Assessor's Report for the trees located at the above noted property, for which I completed an assessment during the site visit on the above noted date. It should be noted that MECP's window for Butternut Health Assessment and audit is May 15 to August 15 and the assessment was conducted outside of that window. I'm confident that my conclusions are accurate based on robust and conclusive visible evidence of canker, however, it is possible that MECP could request the assessment to be repeated during the BHA window. If there are other Butternut trees at the site that may be affected by the activity and they are not identified in this report, they too must be assessed by a BHA.

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

A total of 20 Butternut trees were surveyed beyond the subject property limits to a distance of 50 metres (Butternut regulation zone). Seventeen (17) of the Butternut have been assessed as Category 1, three (3) were assessed as Category 2, and none (0) were assessed as Category 3. Two of the Category 2 trees are situated at a distance of 25 metres from the subject property such that there is no reasonable expectation that they would be killed, harmed, or taken by activities within the subject property. However, one of the Category 2 trees is approximately 3 metres from the subject property boundary. Although this tree will be protected from harm with implementation of a 10m buffer from the tree's dripline, consultation with MECP is required to

confirm whether an *Endangered Species Act* permit is required. Note that even with the implementation of a 10 metre buffer, proposed works will fall within the 50 metre regulation zone. Please note that additional consultation with MECP may be required should the 10 metre protection buffer be revised.

Please retain this letter and a copy of the BHA Report for your records, along with any other documentation you may receive from the MECP should an examination of the trees occur. If you have any questions, please do not hesitate to contact the undersigned, or, your local MECP district office.

Sincerely,
Martin O'Halloran, BHA #708

Enclosures:

1. Butternut Health Assessor's Report
2. Original data forms
3. Electronic and printed copies of the Excel data spreadsheet (BHA Tree Analysis)
4. Figure Illustrating Butternut Locations

Attachment 1: Butternut Health Assessor's Report

Martin O'Halloran BHA#708
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North American (Goulbourn) LP
2851 John Street, Suite One
Markham, Ontario
L3R 5R7
416 895 1061
sbishop@nadg.com

Property description: 21 Huntmar Drive, Kanata/Ottawa, K2S0P6
BHA Report Number: 001
Date(s) of Butternut health assessment: September 26, 27, 2019
Date BHA Report prepared: October 10, 2019

Map datum used: ☒ NAD83 ☐ WGS84

Total number of trees assessed in this BHA Report: 20

The assessed trees were numbered on site using white paint and/or a white pen marker. The numbers at the site correspond to the tree numbers used in this report.

This BHA Report includes the following items:

- Table 1: Butternut trees proposed to be killed, harmed, or taken
- Table 2: Summary of Assessment Results
- Table 3: Butternut Health Assessment Tree Analysis
- Figure showing tree locations

Table 1: Butternut trees proposed to be killed, harmed, or taken

Tree #	UTM coordinates	Category[1] *(1, 2, or 3[2])*	dbh[3] (cm)	Cultivated? *(Y/N)*	Proposed to be: *(enter one: killed, harmed or taken)*	Reason tree is proposed to be killed, harmed or taken:
1	16 428210.641344, 5014968.39592	2	17	n	Retained	Canopy extent and critical root zone will be avoided. Implementation of 10m buffer from dripline will avoid impacts. Site alteration is proposed beyond

[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] The rules in regulation under section 23.7 of O. Reg. 242/08 are not applicable to Category 3 trees.
[3] dbh: diameter at breast height, rounded to nearest cm (if tree is shorter than breast height, enter zero)

Tree #	UTM coordinates	Category[1] *(1, 2, or 3[2])*	dbh[3] (cm)	Cultivated? *(Y/N)*	Proposed to be: *(enter one: killed, harmed or taken)*	Reason tree is proposed to be killed, harmed or taken:
						10m of tree. No harm expected to occur but site alteration is proposed within the 25m regulated area; currently a vacant field.
2	16 428201.559434, 5014964.81188	1	4	N	Retained	
3	16 428204.925017, 5014970.76142	1	6	N	Retained	
4	16 428203.675704, 5014963.67286	1	9	N	Retained	
5	16 428214.263934, 5014941.86526	1	5	N	Retained	
6	16 428210.295293, 5014931.05671	1	25	N	Retained	
7	16 428209.754298, 5014929.30104	1	14	N	Retained	
8	16 428199.729156, 5014934.24072	1	31	N	Retained	
9	16 428199.25848, 5014923.46964	1	35	N	Retained	
10	16 428199.285361, 5014912.86421	1	38	N	Retained	
11	16 428178.170024, 5014947.69331	1	21	N	Retained	
12	16 428179.738237, 5014942.05086	1	29	N	Retained	
13	16 428169.913631, 5014940.80724	1	15	N	Retained	
14	16 428162.322458, 5014930.47148	1	26	N	Retained	
15	16 428186.531509, 5014893.61386	1	21	N	Retained	
16	16 428221.547679, 5014886.40446	1	7	N	Retained	
17	16 428235.202427, 5014911.91935	1	12	N	Retained	
18	16 428228.995416, 5014915.66237	2	7	N	Retained	
19	16 428222.117497, 5014912.61609	2	10	N	Retained	
20	16 428172.718654, 5014937.60236	1	13	N	Retained	

Table 2: Summary of Assessment Results

Result:	Total #:	Important information for persons planning activities that may affect Butternut:
Category 1	17	• 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 MECP District Manager, no Butternut trees (of Category 1, 2, or 3) may be killed, harmed, or taken, and MECP 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 MECP District Manager, unless the results of an MECP 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"*.
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 MECP District Manager, no Butternut trees (of Category 1, 2, or 3) may be killed, harmed, or taken, and MECP 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
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. • Visit the MECP website using the link below for information on how to seek an ESA authorization, or consider an alternative that will avoid killing, harming or taking any Category 3 trees: http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MECP_SAR_HOW_DO_GET_PER_EN.html
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 MECP district office: http://www.mnr.gov.on.ca/en/ContactUs/2ColumnSubPage/STEL02_179002.html • 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.

NOTE: This concludes the summary of the BHA Report. A complete BHA Report must include the original (hard copy) data forms (i.e., all completed sets of Form 1 and Form 2), an electronic copy of the Excel data analysis spreadsheet, and one printed copy of the Excel data analysis spreadsheet.

Attachment 2: Original Data Forms

0cm 3cm 15cm

Butternut Data Collection Form 1 - 2010 Edition

Surveyor ID or BHA #: 0708

(PLEASE USE BLOCK LETTERS)

Date (dd/mm/yyyy): 26 - 09 - 2019

Shaded fields are mandatory for Butternut Health Assessments

Surveyor Contact

First: MARTIN Last: OHALLORAN

Email: mohalloran@1911.com

Telephone: (519) 622-3300 Telephone Other: ( ) - x 28

Property Owner (check if same as surveyor) ☐

First: Last:

or Company: NORTH AMERICAN (GOULBOURN) LP

Email: sbishop@nadg.com

Telephone: (416) 895-1061 Telephone Other: ( ) - x

Property Owner's Mailing address

Address: 2851 JOHN STREET SUITE 1

City: MARKHAM

Postal Code: L3R5R7 Prov.: ON

Tree Location (if different from mailing address)

Address/(911#): 21 HUNTMAR DRIVE

Township: KANATA Lot: Con:

City: OTTAWA

Directions

21 HUNTMAR DRIVE + HAZELDEAN BOULEVARD - NORTHWEST QUADRANT OF INTERSECTION. BUTTERNUT ARE FOUND ON ADJACENT MUNICIPAL PROPERTY

☒ 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	00	10	05	03
Poor Vigor: <50% Live Crown or >50% Live Crown + heavily cankered stem	00	01	01	00
Dead	00	00	00	00

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

Estimated area containing butternut for properties > 1 acre (0.4 hectares): 0.9 ☐ Acres ☒ Hectares

TREES ON MUNICIPAL PROPERTY
CURRENTLY PRODUCE SEED

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

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: 708001

(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

TA8952

Adjacent to 21 HUNTMAR DRIVE

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.

(1)

001 Site Code(A,B,...Z, AA...) | Surveyor ID or BHA # 0708

Surveyor Last Name OHALLORAN

Date (dd/mm/yyyy) 26-09-2019

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

Tree # B1 | **Zone** 16 | **Easting** 428211 | **Northing** 5014968

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

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

#Stems: 2 | DBH(cm): 017

Butternut Origin: ☐ Natural ☐ Planted ☒ Unknown

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

Assess below live crown:

	#Open	#Sooty
01 #Epic-Live		
00 #Epic-Dead		
S Bark Type		
01 # Callused Wounds		
Root	00	07
=<2m	00	03
>2m	00	00

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

Competing Species: ACENEGU, FRAPENN, ULMAMER

CATEGORY 2 second stem 13cm

Tree # B2 | **Zone** 16 | **Easting** 428202 | **Northing** 5014965

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

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

#Stems: 1 | DBH(cm): 004

Butternut Origin: ☐ Natural ☐ Planted ☒ Unknown

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

Assess below live crown:

	#Open	#Sooty
00 #Epic-Live		
00 #Epic-Dead		
S Bark Type		
01 # Callused Wounds		
Root	00	00
=<2m	02	06
>2m	00	00

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

Competing Species: ACENEGU, FRAPENN, ULMAMER

CATEGORY 1.

Tree # B3 | **Zone** 16 | **Easting** 428205 | **Northing** 5014971

Crown Class: 3 | Live Crown %: 005 | Main Stem Length(m) Below crown: 02

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

#Stems: 1 | DBH(cm): 006

Butternut Origin: ☐ Natural ☐ Planted ☒ Unknown

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

Assess below live crown:

	#Open	#Sooty
00 #Epic-Live		
00 #Epic-Dead		
S Bark Type		
00 # Callused Wounds		
Root	02	00
=<2m	04	00
>2m	00	00

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

Competing Species: ACENEGU, FRAPENN, ULMAMER

CATEGORY 1, BUCKTHORN AND HONEYSUCKLE ABUNDANT

Tree # B4 | **Zone** 16 | **Easting** 428204 | **Northing** 5014971

Crown Class: 2 | Live Crown %: 100 | Main Stem Length(m) Below crown: 02

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

#Stems: 1 | DBH(cm): 009

Butternut Origin: ☐ Natural ☐ Planted ☒ Unknown

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

Assess below live crown:

	#Open	#Sooty
00 #Epic-Live		
00 #Epic-Dead		
S Bark Type		
00 # Callused Wounds		
Root	03	00
=<2m	08	01
>2m	06	00

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

Competing Species: ACENEGU, FRAPENN, ULMAMER

CATEGORY 1

Tree # B5 | **Zone** 16 | **Easting** 428214 | **Northing** 5014964

Crown Class: 3 | Live Crown %: 100 | Main Stem Length(m) Below crown: 02

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

#Stems: 1 | DBH(cm): 005

Butternut Origin: ☐ Natural ☐ Planted ☒ Unknown

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

Assess below live crown:

	#Open	#Sooty
00 #Epic-Live		
00 #Epic-Dead		
S Bark Type		
01 # Callused Wounds		
Root	01	00
=<2m	04	00
>2m	00	00

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

Competing Species: ULMAMER, FRAPENN, ACENEGU

CATEGORY 1

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Butternut Data Collection FORM 2 (2010 Edition)

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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.

(2)

Site Code(A,B,...Z, AA...): 001

Surveyor ID or BHA #: 0708

Surveyor Last Name: OHALLORAN

Date (dd/mm/yyyy): 26 - 09 - 2019

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

Tree # B6

Zone 16 | Easting 428210 | Northing 5014931

Crown Class: 2 | Live Crown %: 100 | Main Stem Length(m) Below crown: 03

Twig Dieback | Branch Dieback | Defoliation | Discolouration | #Stems: 1 | DBH(cm): 025

Butternut Origin: Natural | Planted | Unknown ☒

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

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

	#Open	#Sooty
Root	02	01
=<2m	07	10
>2m	01	07

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

Competing Species: WESTERN MAPLE | RED ASH | WHITE PINE

CATEGORY 1

Tree # B7

Zone 16 | Easting 428210 | Northing 5014929

Crown Class: 2 | Live Crown %: 040 | Main Stem Length(m) Below crown: 03

Twig Dieback | Branch Dieback | Defoliation | Discolouration | #Stems: 1 | DBH(cm): 014

Butternut Origin: Natural | Planted | Unknown ☒

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

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

	#Open	#Sooty
Root	03	01
=<2m	08	05
>2m	02	03

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

Competing Species: ULMAMER | FRAPENN | VITRIPA

CATEGORY 1

Tree # B8

Zone 16 | Easting 428200 | Northing 5014934

Crown Class: 1 | Live Crown %: 075 | Main Stem Length(m) Below crown: 03

Twig Dieback | Branch Dieback | Defoliation | Discolouration | #Stems: 1 | DBH(cm): 031

Butternut Origin: Natural | Planted | Unknown ☒

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

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

	#Open	#Sooty
Root	05	04
=<2m	09	10
>2m	02	07

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

Competing Species: ULMAMER | ACENEGU | FRAPENN

CATEGORY 1 SEPTEMBER 27

Tree # B9

Zone 16 | Easting 428199 | Northing 5014923

Crown Class: 2 | Live Crown %: 100 | Main Stem Length(m) Below crown: 05

Twig Dieback | Branch Dieback | Defoliation | Discolouration | #Stems: 1 | DBH(cm): 035

Butternut Origin: Natural | Planted | Unknown ☒

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

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

	#Open	#Sooty
Root	05	01
=<2m	08	01
>2m	05	01

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

Competing Species: ULMAMOR | ACENEGU | FRAPENN

Tree # B10

Zone 16 | Easting 428199 | Northing 5014913

Crown Class: 2 | Live Crown %: 100 | Main Stem Length(m) Below crown: 07

Twig Dieback | Branch Dieback | Defoliation | Discolouration | #Stems: 1 | DBH(cm): 038

Butternut Origin: Natural | Planted | Unknown ☒

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

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

	#Open	#Sooty
Root	06	04
=<2m	14	06
>2m	03	01

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

Competing Species: ULMAMER | ACENEGU | FRAPENN

#67 FROM PREVIOUS STUDY - ANDREW BOYD BHA LIKELY (CAT 1)

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TA8952

Butternut Data Collection FORM 2 (2010 Edition)

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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.

3

Site Code(A,B,...Z, AA...): 001

Surveyor ID or BHA #: 0708

Surveyor Last Name: OHALLORAN

Date (dd/mm/yyyy): 27 - 09 - 2019

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

Tree B11

Tree # B11 | Zone 16 | Easting 428178 | Northing 5014948

Crown Class: 2 | Live Crown %: 095 | Main Stem Length(m) Below crown: 06

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 021

Butternut Origin: ☐ Natural ☐ Planted ☒ Unknown

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

Assess below live crown:

	#Open	#Sooty
#Epic-Live: 00		
#Epic-Dead: 00		
Bark Type: S	Root	05	00
	=<2m	10	01
# Callused Wounds: 00	>2m	10	03

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

Competing Species: RHACATH / ACENEGU / JUGCINE

CAT 1

Tree B12

Tree # B12 | Zone 16 | Easting 428180 | Northing 5014942

Crown Class: 2 | Live Crown %: 100 | Main Stem Length(m) Below crown: 03

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 029

Butternut Origin: ☐ Natural ☐ Planted ☒ Unknown

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

Assess below live crown:

	#Open	#Sooty
#Epic-Live: 00		
#Epic-Dead: 00		
Bark Type: S	Root	06	00
	=<2m	12	05
# Callused Wounds: 01	>2m	05	04

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

Competing Species: RHACATH / ACENEGU / JUGCINS

CAT 1

Tree B13

Tree # B13 | Zone 16 | Easting 428170 | Northing 5014941

Crown Class: 3 | Live Crown %: 100 | Main Stem Length(m) Below crown: 05

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 015

Butternut Origin: ☐ Natural ☐ Planted ☒ Unknown

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

Assess below live crown:

	#Open	#Sooty
#Epic-Live: 00		
#Epic-Dead: 00		
Bark Type: S	Root	04	01
	=<2m	04	04
# Callused Wounds: 00	>2m	00	04

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

Competing Species: CLEVIRG / ACENEGU / VITRIPA

CAT 1

Tree B20

B20

Tree # B20 | Zone 16 | Easting 428173 | Northing 5014938

Crown Class: 3 | Live Crown %: 100 | Main Stem Length(m) Below crown: 03

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 013

Butternut Origin: ☐ Natural ☐ Planted ☒ Unknown

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

Assess below live crown:

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

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

Competing Species: VITRIPA / PARINSE / JUGCINS

CAT1

Tree B14

Tree # B14 | Zone 16 | Easting 428162 | Northing 5014930

Crown Class: 2 | Live Crown %: 100 | Main Stem Length(m) Below crown: 04

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 026

Butternut Origin: ☐ Natural ☐ Planted ☒ Unknown

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

Assess below live crown:

	#Open	#Sooty
#Epic-Live: 00		
#Epic-Dead: 00		
Bark Type: S	Root	05	00
	=<2m	04	04
# Callused Wounds: 00	>2m	02	01

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

Competing Species: ACENOOU / VITRIPA

CAT 1

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21 H. MA

Butternut Data Collection FORM 2 (2010 Edition)

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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.

4.

Site Code(A,B,...Z, AA...): 001

Surveyor ID or BHA #: 0708

Surveyor Last Name: OHALLORAN

Date (dd/mm/yyyy): 27 - 09 - 2019

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

Tree B15

Tree # B15 | Zone 16 | Easting 428222 | Northing 5014886

Crown Class: 3 | Live Crown %: 100 | Main Stem Length(m) Below crown: 5

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 21

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
	00	00	S	00

	#Open	#Sooty
Root	03	02
=<2m	13	02
>2m	06	00

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

Competing Species: ACENEGU / ULMAMER / VITRIPA

CAT 1

Tree B16

Tree # B16 | Zone 16 | Easting 428222 | Northing 5014886

Crown Class: 3 | Live Crown %: 100 | Main Stem Length(m) Below crown: 03

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 007

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
	00	00	S	00

	#Open	#Sooty
Root	01	01
=<2m	05	00
>2m	02	00

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

Competing Species: FRAPENN / RHACATH / ULMAMER

CAT 1

Tree B17

Tree # B17 | Zone 16 | Easting 428235 | Northing 5014912

Crown Class: 3 | Live Crown %: 100 | Main Stem Length(m) Below crown: 03

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 012

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
	00	00	S	01

	#Open	#Sooty
Root	00	02
=<2m	03	02
>2m	00	00

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

Competing Species: RHACATH / ACENEGU / VITRIPA

CAT 1

Tree B18

Tree # B18 | Zone 16 | Easting 428229 | Northing 5014916

Crown Class: 3 | Live Crown %: 100 | Main Stem Length(m) Below crown: 02

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 007

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
	00	00	S	01

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

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

Competing Species: RHACATH / FRAPENN / ULMAMBR

LARGE WOUND CALLUSED CAT 2

Tree B19

Tree # B19 | Zone 16 | Easting 428222 | Northing 5014913

Crown Class: 3 | Live Crown %: 100 | Main Stem Length(m) Below crown: 03

Twig Dieback ☐ | Branch Dieback ☐ | Defoliation ☐ | Discolouration ☐ | #Stems: 1 | DBH(cm): 010

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
	00	00	S	00

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

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

Competing Species: ACENCGU / ULMAMBR / PRINSE

CAT 2

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Attachment 3: Electronic and printed copies of the Excel data spreadsheet (BHA Tree Analysis)

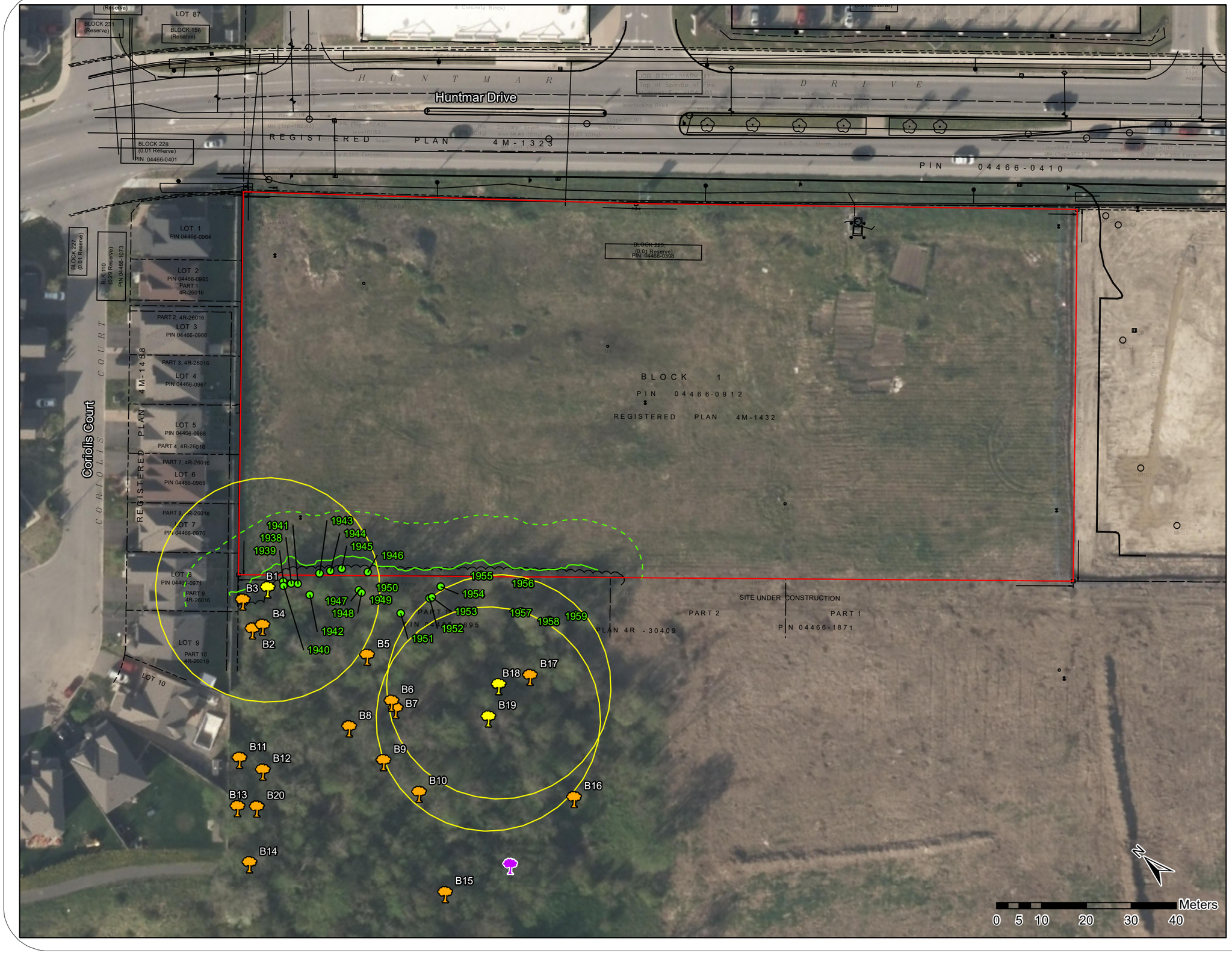
BHA Tree Analysis (version: December 2013)

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

BHA Report #	1	Assessment Date(s)	September 26, 27, 2019	Total # Butternut Trees in BHA Report	20
BHA ID #	708	BHA Name	Martin O'Halloran		
Landowner / Client Name			North American (Goulbourn) LP		
Property Location			Adjacent (west) to 21 Huntmar Drive (on municipal property)		

input field data										automatic calculations from field data						Categories: 1: non-retainable, 2: retainable, 3: archivable				
			# bole cankers				# root flare (RF) cankers													
Tree #	Live Crown %	Tree dbh (cm)	sooty (S) (will be assigned 2.5 cm per canker)		open (O) (will be assigned 5 cm per canker)				<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
			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	100	17	3	0	0	0	0	0	y	53.38	7.5	0.0	**14.1**	**0.0**	**7.0**	1	2	2	**2**	**2**
2	100	4	0	0	2	0	0	0	y	12.56	10.0	0.0	**79.6**	**0.0**	**39.8**	1	1	1	**1**	**1**
3	5	6	0	0	4	0	0	2	y	18.84	20.0	10.0	**106.2**	**53.1**	**79.6**	1	1	1	**1**	**1**
4	100	9	1	0	8	6	0	3	y	28.26	72.5	15.0	**256.5**	**53.1**	**154.8**	1	1	1	**1**	**1**
5	100	5	0	0	4	0	0	1	y	15.7	20.0	5.0	**127.4**	**31.8**	**79.6**	1	1	1	**1**	**1**
6	100	25	10	7	7	1	1	2	y	78.5	82.5	12.5	**105.1**	**15.9**	**60.5**	1	1	1	**1**	**1**
7	40	14	5	3	8	2	1	3	y	43.96	70.0	17.5	**159.2**	**39.8**	**99.5**	1	1	1	**1**	**1**
8	75	31	10	7	9	2	4	5	y	97.34	97.5	35.0	**100.2**	**36.0**	**68.1**	1	1	1	**1**	**1**
9	100	35	1	1	8	5	1	5	y	109.9	70.0	27.5	**63.7**	**25.0**	**44.4**	1	1	1	**1**	**1**
10	100	38	6	1	14	3	4	6	y	119.3	102.5	40.0	**85.9**	**33.5**	**59.7**	1	1	1	**1**	**1**
11	95	21	1	3	10	10	0	5	y	65.94	110.0	25.0	**166.8**	**37.9**	**102.4**	1	1	1	**1**	**1**
12	100	29	9	4	5	12	0	6	y	91.06	117.5	30.0	**129.0**	**32.9**	**81.0**	1	1	1	**1**	**1**
13	100	15	4	4	4	0	1	4	y	47.1	40.0	22.5	**84.9**	**47.8**	**66.3**	1	1	1	**1**	**1**
14	100	26	4	1	4	2	0	5	y	81.64	42.5	25.0	**52.1**	**30.6**	**41.3**	1	1	1	**1**	**1**
15	100	21	2	0	13	6	2	3	y	65.94	100.0	20.0	**151.7**	**30.3**	**91.0**	1	1	1	**1**	**1**
16	100	7	0	0	5	2	1	1	y	21.98	35.0	7.5	**159.2**	**34.1**	**96.7**	1	1	1	**1**	**1**
17	100	12	2	0	3	0	2	0	y	37.68	20.0	5.0	**53.1**	**13.3**	**33.2**	1	1	1	**1**	**1**
18	100	7	1	0	0	0	0	0	y	21.98	2.5	0.0	**11.4**	**0.0**	**5.7**	1	2	2	**2**	**2**
19	100	10	2	0	1	0	0	0	y	31.4	10.0	0.0	**31.8**	**0.0**	**15.9**	1	2	1	**2**	**2**
20	100	13	5	0	5	0	0	3	y	40.82	37.5	15.0	**91.9**	**36.7**	**64.3**	1	1	1	**1**	**1**

Attachment 4: Figure Illustrating Butternut Locations



LEGEND

- Property Boundary
- Surveyed Tree
- Butternut (*Juglans cinerea*) - Category 1
- Butternut (*Juglans cinerea*) - Category 2
- 25m Regulation Limit from Category 2 Butternut
- Chinquapin Oak (*Quercus muehllenbergii*)
- Woodland Dripline
- 10m Buffer from Woodland Dripline

Huntmar Drive

LGL LIMITED
environmental research associates

Project	TA8952	**Figure**	
Date	October 2019	**Prepared By:**	KC
Scale	1:800	**Verified By:**	MJO

Appendix D Arborist Assessment/Tree Conservation Plan

LGL LIMITED
environmental research associates

Tree Conservation Report

21 HUNTMAR DRIVE

for:

NORTH AMERICAN (GOULBOURN) LP

by:

LGL Limited
environmental research associates

NOVEMBER 2019

LGL FILE TA8952

21 HUNTMAR DRIVE

TREE CONSERVATION REPORT

prepared by:

Digital signature

Martin O'Halloran
SENIOR FISH AND WILDLIFE TECHNOLOGIST, ISA CERTIFIED ARBORIST

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URL: www.lgl.com

Version History:
Date: November 22, 2019 Version: 1, Draft

LGL PROJECT TA8952

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LIST OF FIGURES

LIST OF APPENDICES

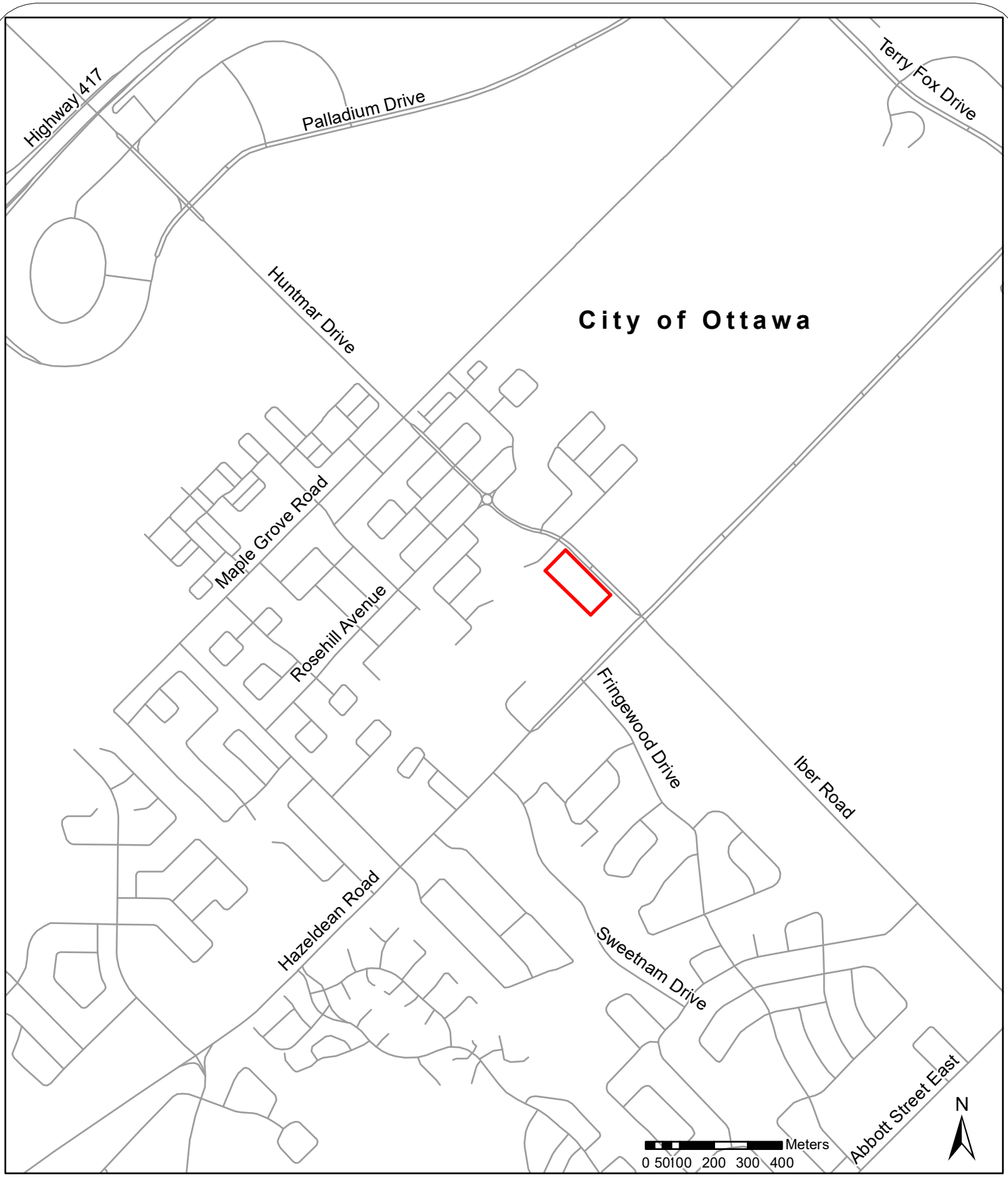
1.0 INTRODUCTION

LGL Limited was retained by North American (Goulbourn) LP to prepare Tree Conservation Report for 21 Huntmar Drive, in the suburban community of Stittsville, City of Ottawa, herein referred to as the Subject Property (**Figure 1**). The current land use is zoned for General Urban Area and a vacant field is present. A development application is being submitted for two proposed multi-storey apartment buildings covering most of the Subject Property. The City of Ottawa requires a Tree Conservation Report is required for all Plans of Subdivision, Site Plan Control Applications, Common Elements Condominium Applications, and Vacant Land Condominium Applications where there is a tree of 10 centimetres diameter or greater on the site. While there are no trees on the Subject Property, the adjacent property to the west has several trees that may be affected by the proposed development application should appropriate mitigation not be planned. Therefore, the objectives of this report are to:

- Describe tree resources in relation to the proposed draft plan through a detailed survey and map using sub-metre accuracy GPS;
- Identify whether trees are located on private or municipal property;
- Identify whether trees are part of shared ownership;
- Identify trees that may pose a constraint to development;
- Identify trees that require removal to facilitate development;
- Assess the potential for impacts to trees;
- Minimize impacts to trees and wildlife, to the extent possible;
- Specify the type and locations of tree protection zones; and,
- Comply with City of Ottawa requirements for Tree Conservation Reports.

2.0 BACKGROUND

The City of Ottawa requires submission of a Tree Conservation Report with or prior to a development application and must be approved before any trees can be removed for the Subject Property. A copy of the approved plan must be available on-site during tree removal grading, construction and any other alteration activities. Relevant conditions outlined in the approved report shall be incorporated into conditions of draft plan approval. This Tree Conservation Report is intended to be reviewed in conjunction with the Environmental Impact Statement prepared for 21 Huntmar Drive by LGL Limited. The information, interpretation and analysis contained within this report are to be used solely for the purposes outlined within this report. This Tree Conservation Report is for the exclusive use of North American (Goulbourn) LP.



21 Huntmar Drive

Key Map

Subject Property

LGL LIMITED
environmental research associates

Project	TA8952	Figure	1
Date	October 2019	Prepared By	KC
Scale	1:15,000	Verified By	MJO

3.0 METHODOLOGY

Investigations of the Subject Property were conducted by LGL's ISA Certified Arborists on September 26 and 27, 2019, and trees were surveyed using the following methodology for tree inventory and impact assessment:

- Species: each tree was identified to species level using common and scientific names;
- Size: diameter at breast height (DBH) was recorded in centimetres and measured 1.4 metres above ground level, which is consistent with International Society of Arboriculture standards. All trees measuring 10cm DBH or greater within the subject property were assessed;
- Health: each tree surveyed was assigned a ranking of poor, fair or good health, based on trunk integrity, crown structure, apparent vigour and visible defects;
- On-site identification: each tree was affixed with an aluminum tag showing a unique identification number. In this case, the tag set 1938-1959 was used;
- All species were screened to determine whether regulations of Ontario's *Endangered Species Act* (2007) apply; and,
- Geographical location: the location and respective tag identification number of each tree was recorded using a GPS unit with each point being plotted against the proposed Master Plan to conduct an impact assessment.

Tree locations were captured using a TopCon GRS1 GPS unit and were uniquely numerically identified. This particular GPS is generally accurate to within 1-2 metres horizontal distance, but due to the inherent difficulties with GPS/satellites please anticipate minor error in point locations (generally less than 5% of the data set). The specifics of the GPS are as follows:

Model:

TopCon GRS-1 RTK GPS

Dual-frequency, 72 channel GPS+GLONASS receiver with Microsoft Windows Mobile 6.1 Classic Operating System, 100Hz receiver

Device Specifications:

Tracked Signals: GPS, GLONASS, L1 C/A Code and Carrier, GPS L2C, WASS/EGNOS/MSAS\

Internal Antenna: Single Frequency, L1 (GPS and GLONASS)

Differential GPS Post Processing: Typically less than 0.5m (RMS)

Data Collection:

Data Collection Parameters: Precision = 2 m HRMS, 5m VRMS

Satellite System: GPS+GLONASS Multipath Reduction

Solution Type: Real Time DGPS with SBAS Corrections

SBAS Setup: Best Available

Elevation Mask: 8 degrees

Antenna: GRS/GSM Series

4.0 RESULTS

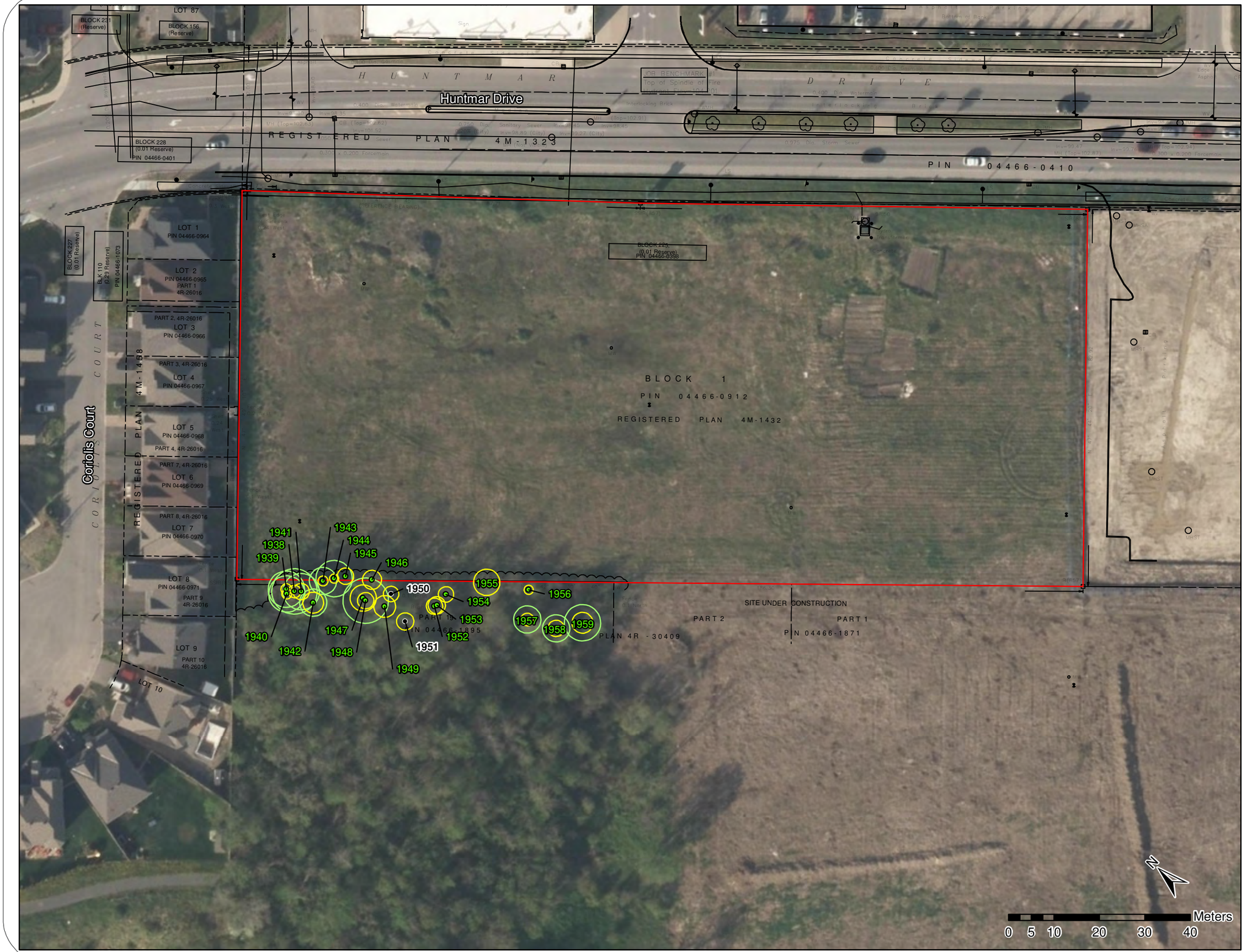
There are no trees meeting the City's criteria for assessment within the Subject Property. Natural heritage features occur to the west of the Subject Property to include a lowland deciduous forested (FOD7-1) community dominated by White Elm (*Ulmus americana*) and, at one time, Red Ash (*Fraxinus pensylvanica*). Many of the mature Ash trees are dead or dying due to the Emerald Ash Borer but regeneration is occurring in the understorey. The FOD is very disturbed with a large portion of the vegetation along the eastern and northern boundary covered in various vines, of which Virgin's-bower (*Clematis virginiana*) is dominant. Within the woodland a total of 23 trees comprised of 5 species were inventoried within proximity to the Subject Property (i.e., within dripline distance or thereabouts), with DBH ranging from 10 to 29 centimetres. Manitoba Maple (*Acer negundo*) and Red Ash (*Fraxinus pennsylvanica*) were prevalent, with fewer instances of White Elm (*Ulmus americana*), Butternut (*Juglans cinerea*) and one Bebb's Willow (*Salix bebbiana*). Red Ash have been impacted by Emerald Ash Borer (*Agrilus planipennis*) to an extent which tree mortality has already occurred or is almost certain. Detailed information for each individual tree is found in **Appendix D1 - Tree Inventory**. Identification numbers found in Appendix D1 correspond with **Figure 2 – Tree Management Plan**.

4.1 MUNICIPAL TREES

All of the surveyed trees are municipally owned.

4.2 SPECIES AT RISK

Butternut, an endangered species regulated by the Ontario *Endangered Species Act* (2007) was observed on the municipal lands west of the Subject lands. The presence of Butternut within 50 metres of proposed site alteration requires submission of a Butternut Health Assessment to the Ministry of Environment, Conservation, and Parks for confirmation of compliance with the *Endangered Species Act.*



LEGEND

- Property Boundary
- 1942 Tree Identified for Protection
- 1950 Dead Tree
- Dripline
- Tree Protection Zone

21 Huntmar Drive

Tree Management Plan

LGL LIMITED
environmental research associates

Project	TA8952	**Figure**	2
Date	November 2019	**Prepared By:**	KC
Scale	1:800	**Verified By:**	MJO

5.0 PROPOSED DRAFT PLAN

The proposed Master Plan (November 2019) includes multi-storey buildings, underground parking, local laneway, at-grade parking, amenity landscaping, and vegetation protection zone to buffer the adjacent FOD7 woodland to the west (**Figure 3**). The site will be serviced by future municipal services.

Figure 3 Proposed Development Concept
(viewing northwest towards the Subject Property). Concept Master Plan (November 2019), FOD7 in background.

6.0 IMPACT ASSESSMENT

An impact analysis has been prepared by overlaying the proposed draft plan onto the GIS tree data. Tree removal is typically specified where an impact of 25-30% (or more) of the critical root zone will result from site alteration such that a large portion of canopy branches or structural roots would be damaged. Tree protection is specified where trees are in proximity to site alteration and are at risk of physical damage, or compaction of soil, alteration of drainage patterns, etc.

Tree removal has not been recommended with this submission. Tree protection fence will be implemented trees on municipal property within the FOD7 woodland.

6.1 PROPOSED TREE REMOVALS

There are no tree removals specified with this submission.

6.2 TREE PROTECTION

Tree protection has been specified to include at a minimum, the City's criteria for critical root zone (10 x diameter). Tree protection fencing shall be installed prior to site alteration and will remain in place until such time that the vegetation protection zone (10m buffer from FOD7) is restored/enhanced with native tree and shrub species and edge creation. The City of Ottawa Tree Protection Specification is appended with this report (**Appendix D2**).

7.0 MITIGATION

Mitigation measures shall be implemented to minimize impacts to trees adjacent to the construction zone. The following recommendations conform to City protection specifications and good arboricultural practices and are designed to ensure impacts to trees surrounding the work zone and those identified for preservation are avoided or minimized.

Trees outside of the Subject Property shall be protected from the impacts of grading, manoeuvring of machinery, material laydown, and other construction related activities. The following recommendations are intended to isolate trees from the impacts of construction:

- Delineation of the disturbance limits within work areas should be clearly defined on construction drawings and on site prior to construction;
- No trees shall be pruned or removed or impacted without prior approval from the City;
- It is the responsibility of the project team to become directly acquainted with the site, to carefully examine the location of the proposed work, and to notify the City of any discrepancies in the site conditions;
- The Site Supervisor shall be familiar with these recommendations and be cognizant of the purpose and function of Tree Protection Zones (TPZ);
- Trees on neighbouring non-participating properties or on the property boundary shall be left in place until such time that the ownership is confirmed or upon written authorization for removal;
- Tree protection hoarding/barrier shall be installed to City specification, or a suitable alternative as approved by the City (i.e. Erosion and Sediment Control fence);
- Tree protection hoarding/barrier must be erect prior to commencement of work;
- Any area inside a TPZ must be left undisturbed (including overhead);
- Heavy machinery is not to be operated within the TPZ (including overhead swinging of machine arms);
- Construction materials or equipment are not to be stored within the TPZ or dripline of the trees;
- No signs or objects should be displayed or affixed to any retained trees;
- Disposal of any liquids shall not occur within the TPZ;

- For project planning and scheduling purposes, removal of vegetation should occur:
    - outside of the bird nesting season to comply with the *Migratory Birds Convention Act* (MBCA), and the *Fish and Wildlife Conservation* Act (FWCA). Together, these Acts protect birds, nests, and eggs of regulated species (game birds, raptors, owls, migratory song birds). The nesting season is generally considered to be late March to late August (https://www.ec.gc.ca); and,
    - outside of the bat summer roosting period considered April 1-September 30 to avoid impacts to bats protected by the FWCA and the *Endangered Species Act*;
- Vegetation removals are preferred during October to March to minimize impacts on wildlife;
- Should any additional, incidental or accidental tree injuries occur during construction, a qualified professional should be consulted to determine if additional mitigation measures should be employed; and,
- Ash tree removals are subject to CFIA Regulation D-03-08, which details the phytosanitary requirements to prevent the entry into, and spread of the Emerald Ash Borer (EAB), *Agrilus planipennis Fairmaire*. The tree removal contractor shall comply with the conditions set by D-03-08 when conducting Ash tree removal.

8.0 WILDLIFE CONSIDERATIONS

Tree removals may be subject to the requirements and provisions of other legislation, regulations or bylaws, such as the *Migratory Birds Convention Act* (MBCA), *Conservation Authorities Act, Endangered Species Act*, or the *Fisheries Act*. With respect to the MBCA, it is strongly recommended that vegetation removals be avoided during the breeding bird season (late-March to late August) and the bat roosting season (April 1 to September 30). Other approvals or due diligence with respect to tree removals are outside of the scope of this assessment.

9.0 CONCLUSION

North American (Goulbourn) LP has proposed a Master Plan for two multi-storey buildings in the community of Stittsville. LGL Limited has prepared a Tree Conservation Plan and Butternut Health Assessment (under separate cover and submission to MECP) as a result of the proposed Master Plan. Trees were surveyed trees on the Subject Property and adjacent municipal lands on September 26, 27, 2019. There are no trees regulation under the City By-law identified for removal with this submission. Mitigation includes strategically timing the removals to avoid sensitive periods of wildlife activity and isolating construction zone activities from trees outside of the subject lands. A landscape plan under separate cover (by others) will be submitted as part of the Master Plan application.

10.0 DISCLAIMER

10.1 LIMITATIONS OF THIS ASSESSMENT

This Assessment is based on the circumstances and observations as they existed at the time of the site inspection of the Client's Property and the trees situate thereon and upon information provided by the Client to LGL Limited. The opinions in this Assessment are given based on observations made and using generally accepted professional judgment, however, because trees and plants are living organisms and subject to change, damage and disease, the results, observations, recommendations, and analysis as set out in this Assessment are valid only as at the date any such testing, observations and analysis took place and no guarantee, warranty, representation or opinion is offered or made as to the length of the validity of the results, observations, recommendations and analysis contained within this Assessment. As a result the Client shall not rely upon this Assessment, save and except for representing the circumstances and observations, analysis and recommendations that were made as at the date of such inspections. It is recommended that the trees discussed in this Assessment should be re-assessed periodically.

10.2 RESTRICTION OF ASSESSMENT

The Assessment carried out was restricted to the Property. No assessment of any other trees or plants has been undertaken by LGL. LGL is not legally liable for any other trees or plants on the Property except those expressly discussed herein. The conclusions of this Assessment do not apply to any areas, trees, plants or any other property not covered or referenced in this Assessment.

10.3 PROFESSIONAL RESPONSIBILITY

In carrying out this Assessment, LGL Limited and any Assessor appointed for and on behalf of LGL Limited to perform and carry out the Assessment has exercised a reasonable standard of care, skill and diligence as would be customarily and normally provided in carrying out this Assessment. The Assessment has been made using accepted arboricultural techniques. These include a visual examination of each tree for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of insect attack, discolored foliage, the condition of any visible root structures, the degree and direction of lean (if any), the general condition of the tree(s) and the surrounding site, and the current or planned proximity of property and people. Except where specifically noted in the Assessment, none of the trees examined on the property were dissected, cored, probed, or climbed and detailed root crown examinations involving excavation were not undertaken.

While reasonable efforts have been made to ensure that the trees recommended for retention are healthy, no guarantees are offered, or implied, that these trees, or all parts of them will remain standing. It is professionally impossible to predict with absolute certainty the behaviour of any single tree or group of trees, or all their component parts, in all given circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential to fall, lean, or otherwise pose a danger to property and persons in the event of adverse weather conditions, and this risk can only be eliminated if the tree is removed.

Without limiting the foregoing, no liability is assumed by LGL or its directors, officers, employers, contractors, agents or Assessors for:

a) any legal description provided with respect to the Property;

b) issues of title and or ownership respect to the Property;

c) the accuracy of the Property line locations or boundaries with respect to the Property;

d) the accuracy of any other information provided to LGL by the Client or third parties;

e) any consequential loss, injury or damages suffered by the Client or any third parties, including but not limited to replacement costs, loss of use, earnings and business interruption; and,

f) the unauthorized distribution of the Assessment.

10.4 GENERAL

Any plans and/or illustrations in this Assessment are included only to help the Client visualize the issues in this Assessment and shall not be relied upon for any other purpose.

Appendix D1
Tree Inventory

Appendix D T1 Tree Inventory

Project: TA8952 21 Huntmar Drive
Client: North American (Goulbourn) LP
Collectors: M. O'Halloran, J. Noel

Date: Sept 26, 27, 2019
Area: Stittsville, City of Ottawa

				CONDITION																		Management						
TAG#	*Scientific Name*	Common Name	DBH (cm)	Trunk Integrity	Crown Structure	Crown Vigour	Radial Dripline (m)	CDB (%)	Co-dominant stem	Included Bark	Lean, Dir.	Fungus	Insects	Cavity	Rot	Wound	Frost Crack	Epicormic	EAB	Canker	Suppressed	PRUNE	REMOVE	Impacts	PROTECT	TPZ(cm) (CRZ=10xDBH)	ESA/SARA	COMMENTS
1,938	*Acer negundo*	Manitoba Maple	14.0	f	f	f	5				e														x	1.40		vine covered
1,939	*Acer negundo*	Manitoba Maple	12.0	f	f	f	4				e														x	1.20		vine covered
1,940	*Acer negundo*	Manitoba Maple	11.0	f	f	f	4				e														x	1.10		vine covered
1,941	*Acer negundo*	Manitoba Maple	18.0	f	f	f	4				e														x	1.80		vine covered
1,942	*Ulmus americana*	White Elm	23.0	g	g	g	3																		x	2.30		
1,943	*Acer negundo*	Manitoba Maple	11.0	f	f	f	3				e														x	1.10		vine covered
1,944	*Ulmus americana*	White Elm	10.0	g	f	f	4				e										x				x	1.00		vine covered
1,945	*Ulmus americana*	White Elm	18.0	g	g	g	0																		x	1.80		
1,946	*Fraxinus pennsylvanica*	Red Ash	21.0	p	g	p	0	95											x						x	2.10		
1,947	*Fraxinus pennsylvanica*	Red Ash	29.0	p	g	p	0	95										x	x						x	2.90		
1,948	*Fraxinus pennsylvanica*	Red Ash	18.0	p	g	p	5	95											x						x	1.80		
1,949	*Ulmus americana*	White Elm	24.0	g	g	g	0																		x	2.40		
1,950	*Fraxinus pennsylvanica*	Red Ash	17.0	d	d	d	0												x						x	1.70		
1,951	*Fraxinus pennsylvanica*	Red Ash	19.0	d	d	d	0												x						x	1.90		
1,952	*Fraxinus pennsylvanica*	Red Ash	18.0	p	g	p	0	95											x						x	1.80		
1,953	*Fraxinus pennsylvanica*	Red Ash	19.0	p	g	p	0	95											x						x	1.90		
1,954	*Fraxinus pennsylvanica*	Red Ash	17.0	p	g	p	0	95											x						x	1.70		
1,955	*Fraxinus pennsylvanica*	Red Ash	29.0	p	g	p	0	95											x						x	2.90		
1,956	*Fraxinus pennsylvanica*	Red Ash	10.0	p	g	p	0	95											x						x	1.00		vine covered
1,957	*Salix bebbiana*	Bebb's Willow	14.0	g	g	g	3																		x	1.40		additional stems of 10, 11, 11 cm DBH,
1,958	*Fraxinus pennsylvanica*	Red Ash	18.0	f	g	g	3												x						x	1.80		vine covered
1,959	*Ulmus americana*	White Elm	23.0	g	g	g	4																		x	2.30		vine covered

Legend

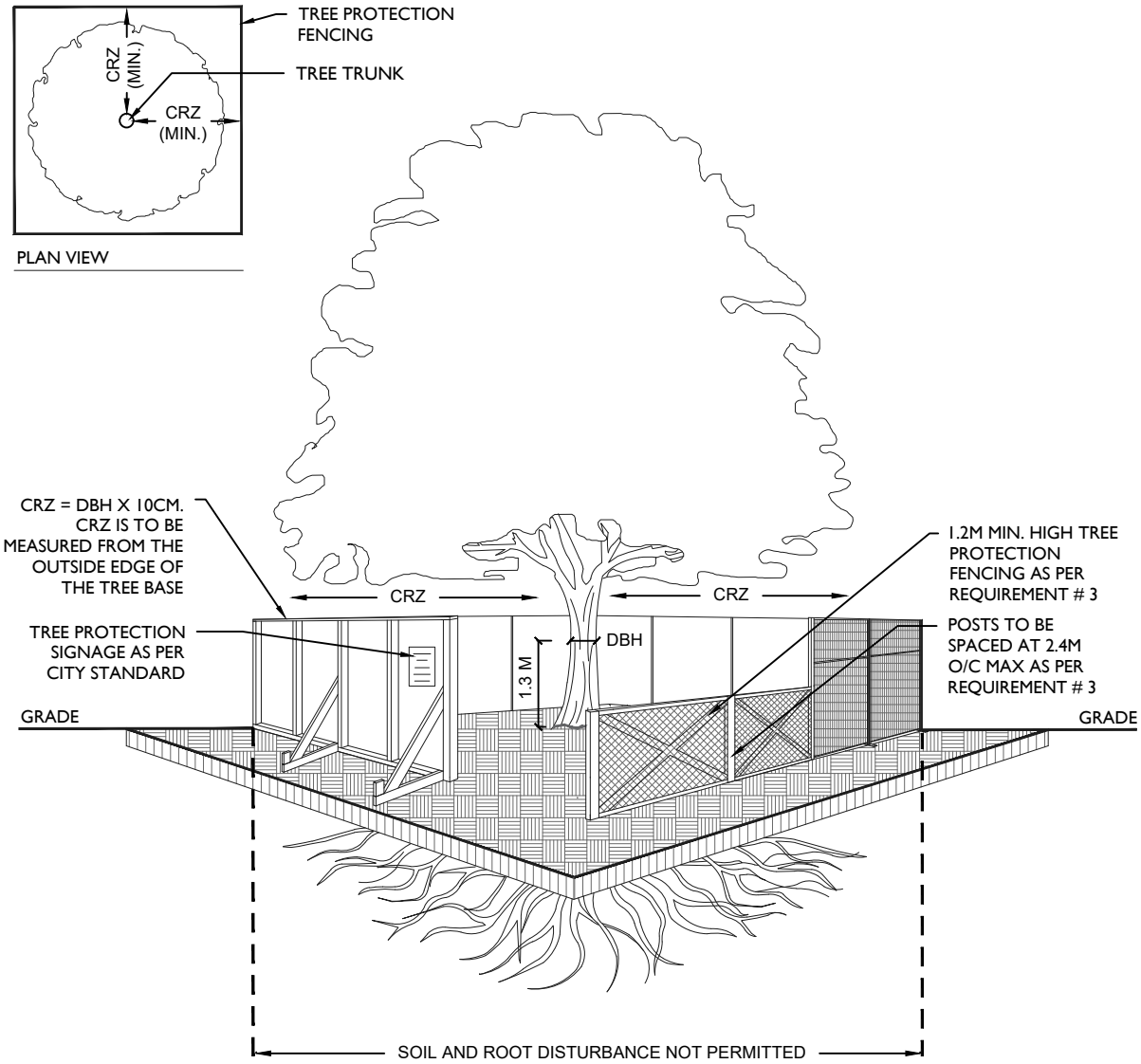
DBH (cm)	Diameter at breast height
TI	Trunk Integrity
CS	Crown Structure
CV	Crown Vigour
DL (m)	Drip Line
CDB	Crown Dieback
EAB	Emerald Ash Borer
ESA/SARA	Species at Risk
TPZ	Tree Protection Zone
Lean Dir.	Lean Direction

Condition

G	Good
F	Fair
P	Poor
D	Dead
L	Light
M	Moderate
H	Heavy
E	East
W	West
N	North
S	South

Note: Butternut assessed under separate document - 21 Huntmar Drive Butternut Health Assessment and submitted to Ministry of Environment, Conservation and Parks for Endangered Species Act compliance.

Appendix D2
Tree Protection Hoarding – City Specification



TREE PROTECTION REQUIREMENTS:

1. PRIOR TO ANY WORK ACTIVITY WITHIN THE CRITICAL ROOT ZONE (CRZ = 10 X DIAMETER) OF A TREE, TREE PROTECTION FENCING MUST BE INSTALLED SURROUNDING THE CRITICAL ROOT ZONE, AND REMAIN IN PLACE UNTIL THE WORK IS COMPLETE.
2. UNLESS PLANS ARE APPROVED BY CITY FORESTRY STAFF, FOR WORK WITHIN THE CRZ:
   - DO NOT PLACE ANY MATERIAL OR EQUIPMENT - INCLUDING OUTHOUSES;
   - DO NOT ATTACH ANY SIGNS, NOTICES OR POSTERS TO ANY TREE;
   - DO NOT RAISE OR LOWER THE EXISTING GRADE;
   - TUNNEL OR BORE WHEN DIGGING;
   - DO NOT DAMAGE THE ROOT SYSTEM, TRUNK, OR BRANCHES OR ANY TREE;
   - ENSURE THAT EXHAUST FUMES FROM ALL EQUIPMENT ARE NOT DIRECTED TOWARD ANY TREE CANOPY.
   - DO NOT EXTEND HARD SURFACE OR SIGNIFICANTLY CHANGE LANDSCAPING
3. TREE PROTECTION FENCING MUST BE AT LEAST 1.2M IN HEIGHT, AND CONSTRUCTED OF RIGID OR FRAMED MATERIALS (E.G. MODULOC - STEEL, PLYWOOD HOARDING, OR SNOW FENCE ON A 2"X4" WOOD FRAME) WITH POSTS 2.4M APART, SUCH THAT THE FENCE LOCATION CANNOT BE ALTERED. ALL SUPPORTS AND BRACING MUST BE PLACED OUTSIDE OF THE CRZ, AND INSTALLATION MUST MINIMISE DAMAGE TO EXISTING ROOTS. (SEE DETAIL)
4. THE LOCATION OF THE TREE PROTECTION FENCING MUST BE DETERMINED BY AN ARBORIST AND DETAILED ON ANY ASSOCIATED PLANS FOR THE SITE (E.G. TREE CONSERVATION REPORT, TREE DISCLOSURE REPORT, ETC). THE PLAN AND CONSTRUCTED FENCING MUST BE APPROVED BY CITY FORESTRY STAFF PRIOR TO THE COMMENCEMENT OF WORK.
5. IF THE FENCED TREE PROTECTION AREA MUST BE REDUCED TO FACILITATE CONSTRUCTION, MITIGATION MEASURES MUST BE PRESCRIBED BY AN ARBORIST AND APPROVED BY CITY FORESTRY STAFF. THESE MAY INCLUDE THE PLACEMENT OF PLYWOOD, WOOD CHIPS, OR STEEL PLATING OVER THE ROOTS FOR PROTECTION OR THE PROPER PRUNING AND CARE OF ROOTS WHERE ENCOUNTERED.

BY-LAWS

ALL CITY-OWNED TREES ARE PROTECTED UNDER THE MUNICIPAL TREES AND NATURAL AREAS PROTECTION BY-LAW (2006-279). WITHIN THE URBAN AREA, PRIVATELY-OWNED TREES GREATER THAN 50CM DIAMETER ON LOTS 1HA IN SIZE OR LESS, AND TREES GREATER THAN 10CM DIAMETER ON LOTS >1HA, ARE PROTECTED UNDER THE URBAN TREE CONSERVATION BY-LAW (2009-200).

ACCESSIBLE FORMATS AND COMMUNICATION SUPPORTS ARE AVAILABLE, UPON REQUEST

Ottawa

TREE PROTECTION SPECIFICATION

TO BE IMPLEMENTED FOR RETAINED TREES, BOTH ON SITE AND ON ADJACENT SITES, PRIOR TO ANY TREE REMOVAL OR SITE WORKS AND MAINTAINED FOR THE DURATION OF WORK ACTIVITIES ON SITE.

SCALE:	NTS
DATE:	MAY 2019
DRAWING NO.:	1 of 1

Appendix E Species at Risk Screening

Appendix E SAR Screening

District	Township	Species ID	*Scientific Name*	Common Name	S Rank	SARO Status	Year of most Recent Observation	Total Observations	Protection	Habitat Information	Survey Protocol	Survey and Results	Recommendations for Mitigation
Kemptville	GOULBOURN	180516	*Anguilla rostrata*	American Eel	S1?	END	0	1	Species Protection and Habitat Regulation	All fresh water, estuaries and coastal marine waters that are accessible to the Atlantic Ocean; 12-mile Creek watershed and Lake Ontario.	habitat suitability assessment	habitat not suitable	N/A
Kemptville	GOULBOURN	180123	*Haliaeetus leucocephalus*	Bald Eagle	S2N,S4B	SC	2013	1	N/A	Prefers deciduous and mixed-deciduous forest; and habitat close to water bodies such as lakes and rivers. They roost in super canopy trees such as Pine.	habitat suitability assessment	habitat not suitable for nesting/rearing	N/A
Kemptville	GOULBOURN	180320	*Riparia riparia*	Bank Swallow	S4B	THR	2017	125	Species Protection and Habitat Regulation	It nests in a wide variety of naturally and anthropogenically created vertical banks, which often erode and change over time including aggregate pits and the shores of large lakes and rivers.	habitat suitability assessment	habitat not suitable for nesting/rearing	N/A
Kemptville	GOULBOURN	180323	*Hirundo rustica*	Barn Swallow	S4B	THR	2018	672	Species Protection and Habitat Regulation	Prefers farmland; lake/river shorelines; wooded clearings; urban populated areas; rocky cliffs; and wetlands. They nest inside or outside buildings; under bridges and in road culverts; on rock faces and in caves etc.	habitat suitability assessment	habitat not suitable for nesting/rearing	N/A
Kemptville	GOULBOURN	180239	*Chlidonias niger*	Black Tern	S3B	SC	1990	1	N/A	Generally prefer freshwater marshes and wetlands; nest either on floating material in a marsh or on the ground very close to water.	habitat suitability assessment	habitat not suitable for nesting/rearing	N/A
Kemptville	GOULBOURN	180752	*Emydoidea blandingii*	Blanding's Turtle	S3	THR	2018	95	Species Protection and Habitat Regulation	lives in shallow water, usually in large wetlands and shallow lakes with lots of water plants	habitat suitability assessment	habitat not suitable for nesting/rearing	N/A
Kemptville	GOULBOURN	180471	*Dolichonyx oryzivorus*	Bobolink	S4B	THR	2017	362	Species Protection and Habitat Regulation	Generally prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands.	habitat suitability assessment	habitat not suitable for nesting/rearing	Cautionary mitigation - employ timing windows for vegetation removals
Kemptville	GOULBOURN	181045	*Hemileuca sp. 1*	Bogbean Buckmoth	S1	END	2011	16	Species Protection and Habitat Regulation	restricted to open, chalky, low shrub fens containing large amounts of bogbean	habitat suitability assessment	habitat not suitable	N/A
Kemptville	GOULBOURN	44012	*Juglans cinerea*	Butternut	S2?	END	2016	1400	Species Protection and Habitat Regulation	Generally grows in rich, moist, and well-drained soils often found along streams. It may also be found on well-drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows.	targeted search	20 trees inventoried	Avoid critical root zone of Category 2 trees. Consultation with MECP to confirm appropriateness of mitigation
Kemptville	GOULBOURN	180427	*Cardellina canadensis*	Canada Warbler	S4B	SC	2017	24	N/A	Generally prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest.	habitat suitability assessment	FOD7 may provide suitable habitat for nesting	Cautionary mitigation -Avoid disturbance to FOD7
Kemptville	GOULBOURN	180275	*Chaetura pelagica*	Chimney Swift	S4B,S4N	THR	2010	2	Species Protection and Habitat Regulation	Before European settlement Chimney Swifts mainly nested on cave walls and in hollow trees or tree cavities in old growth forests. Today, they are more likely to be found in and around urban settlements where they nest and roost (rest or sleep) in chimneys and other manmade structures. They also tend to stay close to water as this is where the flying insects they eat congregate.	habitat suitability assessment	habitat not suitable for nesting/rearing	N/A
Kemptville	GOULBOURN	180271	*Chordeiles minor*	Common Nighthawk	S4B	SC	2013	4	N/A	Generally prefer open, vegetation- free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops).	habitat suitability assessment	FOD7 and CUM1 may provide suitable habitat for nesting	Cautionary mitigation - employ timing windows for vegetation removals, avoid disturbance to FOD7
Kemptville	GOULBOURN	180473	*Sturnella magna*	Eastern Meadowlark	S4B	THR	2017	339	Species Protection and Habitat Regulation	Generally prefers grassy pastures, meadows and hay fields. Nests are always on the ground and usually hidden in or under grass clumps.	habitat suitability assessment	habitat not suitable	Cautionary mitigation - employ timing windows for vegetation removals

District	Township	Species ID	*Scientific Name*	Common Name	S Rank	SARO Status	Year of most Recent Observation	Total Observations	Protection	Habitat Information	Survey Protocol	Survey and Results	Recommendations for Mitigation
Kemptville	GOULBOURN	39106	*Platanthera leucophaea*	Eastern Prairie Fringed Orchid	S2	END	1996	4	Species Protection and Habitat Regulation	grows in wetlands, fens, swamps and tallgrass prairie.	habitat suitability assessment	habitat not suitable	N/A
Kemptville	GOULBOURN	182542	*Thamnophis sauritus*	Eastern Ribbonsnake	S4	SC	1990	1	N/A	Generally occur along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover. Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting.	habitat suitability assessment	FOD7 and CUM1 may provide suitable habitat for nesting	Cautionary mitigation - employ timing windows for vegetation removals
Kemptville	GOULBOURN	180274	*Antrostomus vociferus*	Eastern Whip-poor-will	S4B	THR	2015	45	Species Protection and Habitat Regulation	Generally prefer semi-open deciduous forests or patchy forests with clearings; areas with little ground cover are also preferred; in winter they occupy primarily mixed woods near open areas.	habitat suitability assessment	FOD7 and CUM1 may provide suitable habitat for nesting	Cautionary mitigation - employ timing windows for vegetation removals
Kemptville	GOULBOURN	180294	*Contopus virens*	Eastern Wood-pewee	S4B	SC	2015	72	N/A	Associated with deciduous and mixed forests. Within mature and intermediate age stands it prefers areas with little understory vegetation as well as forest clearings and edges.	habitat suitability assessment	habitat not suitable	Cautionary mitigation -Avoid disturbance to FOD7
Kemptville	GOULBOURN	1256776	*Bombus bohemicus*	Gypsy Cuckoo Bumble Bee	S1S2	END	1972	6	Species Protection and Habitat Regulation	occurs in a variety of habitats, including open meadows, agricultural and urban areas, boreal forest and woodlands	habitat suitability assessment	FOD7 and CUM1 may provide suitable habitat for nesting	Cautionary mitigation - employ timing windows for vegetation removals
Kemptville	GOULBOURN	180045	*Podiceps auritus*	Horned Grebe	S1B,S4N	SC	2012	1	N/A	The Horned Grebe usually nests in small ponds, marshes and shallow bays that contain areas of open water and emergent vegetation. Nests are usually located within a few metres of open water. This vegetation provides adults with nest materials, concealment, and protection for their young.	habitat suitability assessment	habitat not suitable	N/A
Kemptville	GOULBOURN	180063	*Ixobrychus exilis*	Least Bittern	S4B	THR	2004	3	Species Protection and Habitat Regulation	Generally located near pools of open water in relatively large marshes and swamps that are dominated by cattail and other robust emergent plants.	habitat suitability assessment	habitat not suitable	N/A
Kemptville	GOULBOURN	180374	*Lanius ludovicianus*	Loggerhead Shrike	S2B	END	2001	30	Species Protection and Habitat Regulation	prefers pasture or other grasslands with scattered low trees and shrubs	habitat suitability assessment	habitat unlikely to support species	Cautionary mitigation - employ timing windows for vegetation removals
Kemptville	GOULBOURN	181033	*Danaus plexippus*	Monarch	S2N,S4B	SC	2018	3	N/A	Exist primarily wherever milkweed and wildflowers exist; abandoned farmland, along roadsides, and other open spaces.	habitat suitability assessment	CUM1 likely provides suitable habitat for egg-laying, rearing, feeding	Precautionary mitigation - enhance FOD7 buffer with nectar and host plants preferred by Monarch
Kemptville	GOULBOURN	193996	*Falco peregrinus*	Peregrine Falcon	S3B	SC	2017	26	N/A	Generally nest on tall, steep cliff ledges adjacent to large waterbodies; some birds adapt to urban environments and nest on ledges of tall buildings, even in densely populated downtown areas.	habitat suitability assessment	habitat not suitable for nesting/rearing	N/A
Kemptville	GOULBOURN	180283	*Melanerpes erythrocephalus*	Red-headed Woodpecker	S4B	SC	2002	2	N/A	Generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks.	habitat suitability assessment	habitat not suitable	N/A
Kemptville	GOULBOURN	180206	*Phalaropus lobatus*	Red-necked Phalarope	S3S4B	SC	1981	3	N/A	lives in coastal and inland marshes where it feeds in shallow ponds and nests on grassy edges.	habitat suitability assessment	habitat not suitable	N/A
Kemptville	GOULBOURN	180267	*Asio flammeus*	Short-eared Owl	S2N,S4B	SC	2012	1	N/A	The Short-eared Owl lives in open areas such as grasslands, marshes and tundra where it nests on the ground and hunts for small mammals, especially voles.	habitat suitability assessment	habitat not suitable	N/A
Kemptville	GOULBOURN	180745	*Chelydra serpentina*	Snapping Turtle	S3	SC	2018	40	N/A	Generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.	habitat suitability assessment	habitat not suitable	N/A

District	Township	Species ID	*Scientific Name*	Common Name	S Rank	SARO Status	Year of most Recent Observation	Total Observations	Protection	Habitat Information	Survey Protocol	Survey and Results	Recommendations for Mitigation
Kemptville	GOULBOURN	180359	*Hylocichla mustelina*	Wood Thrush	S4B	SC	2017	394	N/A	Nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. Prefers large forest mosaics, but may also nest in small forest fragments.	habitat suitability assessment	habitat not suitable	Cautionary mitigation -Avoid disturbance to FOD7
Kemptville	GOULBOURN	180149	*Coturnicops noveboracensis*	Yellow Rail	S4B	SC	2003	14	N/A	secretive birds that live deep in reeds, sedges and marshes of shallow wetlands	habitat suitability assessment	habitat not suitable	N/A

Appendix F Significant Wildlife Habitat Screening

Appendix F Summary of Significant Wildlife Habitat Analysis

Type	Habitat	Candidate ELC	Wildlife Species	Summary of Criteria	Description of Candidate SWH on Subject Property
Seasonal Concentration Area	Waterfowl Stopover and Staging Areas (Terrestrial)	CUM1, CUT1 plus, evidence of annual spring flooding from melt water or run-off within these Ecosites.	American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan	Sheet water from mid-March to May with aggregations of > 100 individuals of listed species. Not agricultural fields except for Tundra Swan.	Subject Property is not expected to support flooded fields during the spring due to flat topography, lack of wetland indicator flora.
Seasonal Concentration Area	Raptor Wintering Area	**Forest**: FOD FOM FOC **Upland**: CUM CUT CUS CUW	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **Special Concern**: Short-eared Owl **Special Concern**: Bald Eagle	The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. - Raptor wintering sites (hawk/owl) need to be > 20 ha with a combination of forest and upland. - Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. - Field area of the habitat is to be wind swept with limited snow depth or accumulation. - Eagle sites have open water, large trees and snags available for roosting.	CUM1-1 does not meet the minimum size criteria. No Candidate SWH of this type identified.
Seasonal Concentration Area	Bat Maternity Colonies	FOD FOM SWD SWM	Big Brown Bat Silver-haired Bat	Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). Maternity colonies considered SWH are found in mature deciduous or mixed forest stands with >10/ha large diameter (>25cm DBH) trees.	FOD7 community represents Candidate SWH of this type. SWH Mitigation Support Tool (MiST) #12 has been implemented to guide the development proposal, specifically, to avoid development in FOD habitat and to create a vegetation protection zone between the FOD and developable area.
Seasonal Concentration Area	Reptile Hibernaculum	See Summary of Criteria	Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Milksnake **Special Concern**: Eastern Ribbonsnake, Five-lined Skink (Southern Shield population)	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator. For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3. Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures.	FOD7 community represents Candidate SWH of this type. SWH Mitigation Support Tool (MiST) #13 indicates that development on adjacent land is not expected to directly affect skink populations in their preferred habitat, unless it affects moisture regimes in preferred habitat. The recommendations of MiST #13 have been implemented to guide the development proposal, specifically, to avoid development in FOD habitat, to create a vegetation protection zone between the FOD and developable area, and to ensure that there are no significant changes in the water table of the FOD habitat.
Seasonal Concentration Area	Colonial Nesting Bird Breeding Habitat (Bank and Cliff)	CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	Cliff Swallow Northern Roughwinged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, pits, steep slopes, rock faces, etc. with 8 or more Cliff Swallow pairs or Northern Rough-winged Swallow pairs. Does not include man-made structures or active aggregate pits or stockpiles.	No suitable habitat found on the Subject Property.
Seasonal Concentration Area	Colonial-Nesting Bird Breeding Habitat (Ground)	MAM1 – 6 MAS1 – 3 CUM CUT CUS	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river. Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird). Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern. Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. Presence of 5 or more pairs for Brewer's Blackbird.	No suitable habitat found on the Subject Property.
Seasonal Concentration Area	Migratory Butterfly Stopover Areas	CUM CUT CUS FOD FOC COM CUP	Painted Lady Red Admiral **Special Concern**: Monarch	A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario.	Site not located within 5 km of Lake Ontario. No Candidate SWH of this type identified.

Type	Habitat	Candidate ELC	Wildlife Species	Summary of Criteria	Description of Candidate SWH on Subject Property
Seasonal Concentration Area	Landbird Migratory Stopover Areas	FOC SWC FOM SWM FOD SWD	All migratory songbirds All migrant raptors	Woodlots need to be >5ha and within 5km of Lake Ontario.	Site not located within 5 km of lower Great Lakes. No Candidate SWH of this type identified.
Seasonal Concentration Area	Deer Yarding Areas Deer Congregation Areas	FOC SWC FOM SWM FOD SWD	White-tailed Deer	Deer management is an MNRF responsibility, deer yarding and congregation areas considered significant are mapped by MNRF.	No SWH of this type identified by MNRF in the area of the Subject Property.
Rare Vegetation Communities	Old Growth Forest	FOD SWD FOC SWC FOM SWM		Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.	FOD7 does not meet the minimum size criteria for interior forest. No Candidate SWH of this type identified.
	Other Rare Vegetation Communities	Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.		Provincially rare S1, S2 and S3 vegetation as identified in MNRF SWHTG (2000). Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	No rare vegetation types found on Subject Property.
Specialized Habitat for Wildlife	Bald Eagle and Osprey Nesting, Foraging and Perching habitat	FOD FOM FOC SWD SWM SWC	Osprey **Special Concern**: Bald Eagle	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH.	No large stick nests observed on or adjacent to the Subject Property. No Candidate SWH of this type identified.
	Woodland Raptor Nesting Habitat	All forested ELC Ecosites SWM SWD SWC CUP3	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	All natural or conifer plantation woodland/forest stands >30ha with >4ha of interior habitat. Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees.	No large stick nests observed on or adjacent to the Subject Property. FOD7 does not meet the minimum size criteria for interior forest. No Candidate SWH of this type identified.
	Seeps and Springs	Any forested Ecosite within the headwater areas of a stream	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Predominantly forested areas with < 25% meadow/field/pasture within the headwaters of a stream or river system. Presence of > 2 seeps/springs present even during dry summers	Subject Lands not located within headwater area. Seeps and springs were not observed within the FOD7 habitat. Soils are not particularly permeable and consist of silt and clays.
	Amphibian Breeding Habitat (woodland)	FOC FOM FOD SWC SWM SWD	Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Eastern Newt Blue-spotted Salamander Wood Frog	Presence of a wetland, pond or woodland pool (including vernal pools) >500m2 (about 25m diameter) within or adjacent (within 120m) to a woodland. One or more listed species with at least 20 individuals.	Amphibian woodland breeding habitats were not observed within the Subject Lands, nor within the FOD7 immediately adjacent to the Subject Lands. Amphibian breeding habitat likely occurs with Poole Creek riparian and associated wetlands which are unaffected by the development proposal.
	Woodland Area-Sensitive Bird Breeding Habitat	FOC FOM FOD SWC SWM SWD	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Pileated Woodpecker **Special Concern**: Cerulean Warbler, Canada Warbler	Habitats where interior forest birds are breeding, typically large mature (>60 years old) forest stands or woodlots > 30 ha. With at least of 10ha of interior forest 100m from edge.	FOD7 does not meet the minimum size criteria for interior forest. No Candidate SWH of this type identified.

Type	Habitat	Candidate ELC	Wildlife Species	Summary of Criteria	Description of Candidate SWH on Subject Property
Habitat for Species of Conservation Concern	Open Country Bird Breeding Habitat	CUM1 CUM2	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern**: Short-eared Ow	Large grassland areas > 30 ha, but not Class 1 or 2 agricultural lands and not being actively used for farming. Presence of 2 or more indicator or special concern species and at least one common species.	CUM1-1 does not meet the minimum size criteria. No Candidate SWH of this type identified.
Habitat for Species of Conservation Concern	Special Concern and Rare Wildlife Species		All Special Concern and rare (S1 to S3, SH) plant or animal species or communities. Shumard Oak and Swamp Rose-mallow identified as potential by MNRF	All plant and animal element occurrences (EO) within a 1 or 10km grid.	Special Concern and Rare Wildlife Species were not observed within the Subject Lands. Butternut (S3) were observed within the FOD7 habitat, immediately adjacent to the Subject Lands, though the *Provincial Policy Statement* excludes Butternut from Significant Wildlife Habitat as it is protected by the *Endangered Species Act* instead.
Animal Movement Corridors	Animal Movement Corridors	All ecosites associated with water	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Movement corridors must be determined when Amphibian Breeding (wetland) SWH or Deer Wintering SWH is confirmed.	Although in-season inventories were not conducted, the simple habitat (CUM1) of the Subject Property suggests that SWH types are not present. Amphibian breeding pools were not observed in the FOD7 to the west of the Subject Property.