470 TREMBLAY ROAD

ENVIRONMENTAL IMPACT STATEMENT & TREE CONSERVATION REPORT

PROJECT NO.: 19M-00609-00

FINAL

OCTOBER 2020

Canada Lands Company
Société immobilière du Canada

wsp

470 TREMBLAY ROAD
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ENVIRONMENTAL IMPACT STATEMENT & TREE CONSERVATION REPORT

PREPARED FOR:
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Canada Lands Company
Société immobilière du Canada

wsp

October 16, 2020

FINAL

Mary Jarvis, Canada Lands Company
100 Queen Street
Suite 1050
Ottawa, Ontario
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Subject: 470 Tremblay Road – Environmental Impact Statement & Tree Conservation Report

Dear Mary:

The following revised Environmental Impact Statement (EIS) and Tree Conservation Report (TCR) for the proposed development at 470 (530) Tremblay Road has been prepared to provide an evaluation of the natural heritage features within and around the property.

Mitigation measures, including potential habitat enhancements, have been prepared to offset the anticipated impact. It is our understanding that this project may provide opportunities to improve the ecological functions within the subject property and provide education and health benefits to future residents of the proposed development and surrounding neighbourhoods.

If you have any questions regarding the findings of the report or the proposed recommendations, please contact me by e-mail at Alex.Zeller@wsp.com or by phone at 613-690-3833.

Yours sincerely,

Alex Zeller, M.Sc
Senior Ecologist

WSP ref.: 19M-00609-00

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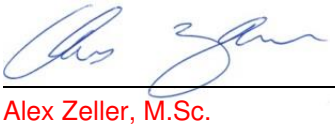

Alex Zeller, M.Sc.
Senior Ecology

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EXECUTIVE SUMMARY

WSP Canada Group Limited (WSP) was retained by Canada Lands Company Limited (CLC) to complete an Environmental Impact Statement (EIS) and Tree Conservation Report (TCR) for a proposed mixed-use development (the "Project") located on a parcel of land at 470 Tremblay Road, formerly known as 530 Tremblay Road, in the City of Ottawa. The primary objective of this EIS and TCR is to evaluate the environmental impacts associated with the proposed development.

Natural heritage field investigations for the Project were conducted in June and August 2019 and in September 2020. The site surveys consisted of a preliminary site visit, Ecological Land Classification (ELC) and vegetation inventory, tree inventory and woodland evaluation, and general wildlife habitat assessment.

Additionally, Species at Risk (SAR) surveys were completed by Stantec Consulting Ltd. and the findings and associated impacts and mitigation have been integrated within this report.

Results from the field investigations are summarized below:

1) Two Cattail Mineral Shallow Marsh communities were delineated in the southeastern corner of the property. Evaluation of these features suggests these communities are disconnected from surface water features and are likely formed due to anthropogenic alterations of the surrounding landscape.
2) The woodland communities within the property likely provide bat maternity colony Significant Wildlife Habitat.
3) The woodland and wetland communities within the property may provide amphibian breeding Significant Wildlife Habitat (SWH).
4) One Species at Risk (SAR) and one Species of Conservation Concern were recorded by Stantec during their field surveys.
5) To offset the anticipated impacts resulting from tree removals and the loss of urban canopy, it is recommended to prioritize tree retention where possible, removal of invasive species, and replanting of native trees.
6) Retention and/or enhancement of wildlife habitat and associated features have been recommended to mitigate the removal of candidate habitat features for amphibians, bats, birds, and pollinators.
7) Additional mitigation measures have been recommended to limit the development impacts on terrestrial environments and wildlife.

The compensation measures have been proposed to offset the anticipated negative impacts associated with this development, while also seeking to enhance existing features and create opportunities for naturalized features within the proposed park, open space, and stormwater pond areas. Not only will these recommendations provide ecological benefit, but they are designed to promote environmental awareness and recreational opportunities for future residents. The additional negative impacts are associated with construction activities and can be mitigated accordingly. Based on the available information, it is expected that negative impacts from the proposed development can be mitigated and compensated for and should not pose an impediment to development.

It is, therefore, our professional opinion that the proposed development at 470 Tremblay Road can proceed with the condition that the compensation and mitigation measures recommended herein be implemented.

1 INTRODUCTION

1.1 PURPOSE

WSP Canada Group Limited (WSP) was retained by Canada Lands Company Limited (CLC) to complete an Environmental Impact Statement (EIS) and Tree Conservation Report (TCR) for a proposed mixed-use development located on a parcel of land at 470 Tremblay Road, formerly known as 530 Tremblay Road, in the City of Ottawa (**Figure 1**).

This report has been prepared to describe the existing natural heritage features within the subject property and surrounding Study Area and to evaluate the potential environmental impacts associated with the proposed development based on the results of ecological surveys. Mitigation measures will be provided to offset the anticipated environmental impacts.

1.2 BACKGROUND

CLC wishes to develop a mixed-use subdivision on the 470 Tremblay Road subject property. The proposed development consisting of residential and mixed-use buildings, a park and open space, and a stormwater management pond. As part of the proposed development, Tremblay Road will be realigned. There is also an opportunity to connect the subject property to the existing St. Laurent Transit Station pedestrian tunnel entrance northwest of the site.

Within the City of Ottawa, an EIS is required when development or site alteration, as defined in Section 4.7.8 of the Official Plan (OP) (City of Ottawa, 2003 as consolidated), is proposed or adjacent to environmentally designated lands or other features of the City's Natural Heritage System (NHS).

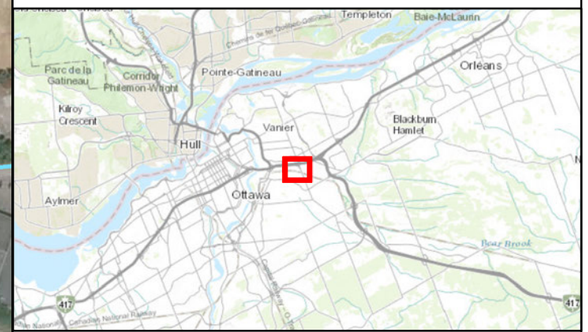
1.3 STUDY CONSTRAINTS AND UPDATES

This report is a revised version of the original EIS submitted in 2019 (*530 Tremblay Road – Environmental Impact Statement and Tree Conservation Report, November 12th, 2019*). Updates to this report include a tree inventory (completed September 2020) and re-evaluation of significant woodlands, a revised impact assessment based on an updated draft plan of subdivision details and changes to the subject property limits, and updated mitigation and offsetting measures to address the revised impacts.

Furthermore, an independent Species at Risk (SAR) study was completed by Stantec for both this property and the adjacent property (599 Tremblay Road) on behalf of Public Services and Procurement Canada (PSPC). The SAR report was completed in parallel with this EIS/TCR to document and evaluate natural heritage features under federal policies and standards, rather than under the scope and requirements of a City of Ottawa EIS (Stantec Consulting Ltd., 2019). While the Stantec study was not intended to be a public document, the results from the study have been used in this report to supplement our surveys and evaluation.

As a result, this report summarizes observations based on a desktop screening of the Study Area, three field surveys, and incorporates the results from the Stantec study where required. Anticipated impacts and mitigation have been proposed based on these observations.

- Watercourse (MNRF, 2013)
- Unevaluated wetland (MNRF, 2013)
- Greenspace Supporting Lands (City of Ottawa, 2006)
- PSPC Lands
- Subject Property
- Study Area



Client: Canada Lands Company / Société immobilière du Canada

Title:

470 Tremblay Road
Study Area and Natural Heritage Features

Prepared By: wsp

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Date: October 2020	**Figure: 1**	
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1.4 PROPERTY INFORMATION

Owner:	Canada Lands Company
Address:	470 Tremblay Road
Lot and concession:	Lot 11, Junction Gore Concession
Property Identification Number(s):	042560723
Zoning:	TD3 – Transit Oriented Development, Subzone 3 Zone, O1 – Parks and Open Space Zone
OP designation:	Mixed-Use Centre
Existing Land Uses:	Greenfield – Forested Land

1.5 STUDY APPROACH

This report has been structured to provide a clear stepwise approach to characterizing the natural environment and assessing the potential for significant species and habitats within the Study Area. This stepwise approach is intended to consider the relevant policies and legislations in an ecological impact assessment document that meets the City of Ottawa's EIS guidelines (City of Ottawa, 2015). The following provides a description of the sections in this report as it relates to this approach:

Policy Framework: This section outlines the policies and legislation that apply to the protection of natural heritage features within the Study Area as it relates to the proposed development.

Natural Heritage Screening: This section provides detailed background information collected from a variety of publicly accessible resource databases to describe the natural heritage features and significant features that may occur within the Study Area. The results from this screening are used to define the survey requirements.

Methodology: This section provides a summary of the specific protocols and methods used to evaluate potential natural heritage features and species identified within the natural heritage screening.

Survey Results: This section provides the results from the field surveys. This also includes any incidental observations or notable observations made by the field biologists.

Description of the Proposed Project: This section provides a summary of the proposed project, including the construction activities and other activities which may have an impact on the natural environment.

Impact Assessment and Mitigation: This section provides the assessment of potential environmental impacts associated with the proposed project on the natural heritage system, including the natural heritage features and species surveyed in this study.

The mitigation measures proposed in this section are aimed at reducing or eliminating potential impacts on natural heritage features. Where mitigation may not be possible, compensation may be proposed.

This section will also identify any future permitting or agency authorizations that may be required before this project may proceed.

Summary and Conclusions: This section provides a summary of the study's findings, outlines ay notable provisions, and provides WSP's general recommendation on whether this project should proceed as planned.

TREE CONSERVATION REPORT REQUIREMENTS

For the purposes of this integrated report, the Tree Conservation Report (TCR) requirements will be addressed throughout this report. To aid in the review, sections which address specific **requirements under the TCR guidelines will be marked with the "conifer tree" symbol** as illustrated to the left.

2 POLICY FRAMEWORK

This study references the regulatory agencies and legislative authorities mandated to protect different elements of the natural heritage system, features, and functions within the City of Ottawa. **Table 1** provides a list of the policies and legislation that apply to the protection of natural heritage features within the City of Ottawa. The scope of this report evaluates the natural heritage features governed by the policies outlined in this table.

Table 1 Policies, Legislation and Background Sources

Policy/Regulations	Reference Materials and Supporting Documents
Federal Government of Canada	
Migratory Birds Convention Act (1994) (S.C. 1994, c. 22)	Environment and Climate Change Canada – online resources
Species at Risk Act (2002) (S.C. 2002, c. 29)	Federal Species at Risk Public Registry • *Canada Species at Risk Act – Schedule 1: List of Wildlife Species at Risk*
Fisheries Act (1985) (R.S.C., 1985, c. F-14)	Fisheries and Oceans Canada – online resources • *Distribution of Aquatic Species at Risk mapping [Accessed: 01/05/19]*
An invasive alien species strategy for Canada	Environment and Climate Change Canada – online resources
Province of Ontario	
Provincial Policy Statement (2020), under Planning Act, R.S.O. (1990) c. P.13	Ministry of Natural Resources and Forestry (MNRF) – Kemptville District
	MNRF Natural Heritage Information Centre (NHIC) – Online [Accessed: 01/05/19] • *Species of Conservation Concern* • *Natural Heritage Features*
	Ecological Land Classification for Southern Ontario, First Approximation and its Application (Lee, et al., 1998)
	Natural Heritage Reference Manual (MNR, 2010)
	MNRF Significant Wildlife Habitat Technical Guide (MNR, 2000) • *Significant Wildlife Habitat Eco-region 6E Criterion Schedules* (MNRF, 2015)
	Ontario Reptile and Amphibian Atlas – Online [Accessed: 01/05/19]
	Ontario Butterfly Atlas – Online [Accessed: 01/05/19]
	Atlas of the Mammals of Ontario (Dobbyn)
Ontario Endangered Species Act (2007) (S.O. 2007, c. 6)	MNRF Species at Risk in Ontario (SARO) List (O.Reg. 230/08)
	Ministry of Environment, Conservation and Parks (MECP) – Ottawa District
	MNRF NHIC – Online [Accessed: 01/05/19] • *Species at Risk occurrence records*
	Ontario Breeding Bird Atlas (OBBA) – Online [Accessed: 01/05/19]
	Ontario Reptile and Amphibian Atlas – Online [Accessed: 01/05/19]
Invasive Species Act (2015) (S.O. 2015, c. 22 – Bill 37) & Ontario Regulation 354/16	MNRF – online resources
City of Ottawa	
City of Ottawa Official Plan (2003, as consolidated)	Official Plan; Schedules B (Urban Policy Plan), K (Environmental Constraints), and L1 (Natural Heritage System Overlay (East)) – Online [Accessed: 01/05/19]

Policy/Regulations	Reference Materials and Supporting Documents
	Environmental Impact Statement Guidelines (2015)
	City of Ottawa Tree Conservation Report Guidelines – Online [Accessed: 01/05/19]
	Draft Site Alteration By-Law (2018) – Online [Accessed: 01/05/19]
	Protocol for Wildlife Protection During Construction (2015)
Rideau Valley Conservation Authority (RVCA)	
Rideau Valley Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (Ontario Regulation 174/06), under Conservation Authorities Act, (R.S.O. 1990, c. C.27)	RVCA Regulations Mapping – Online [Accessed: 01/05/19]

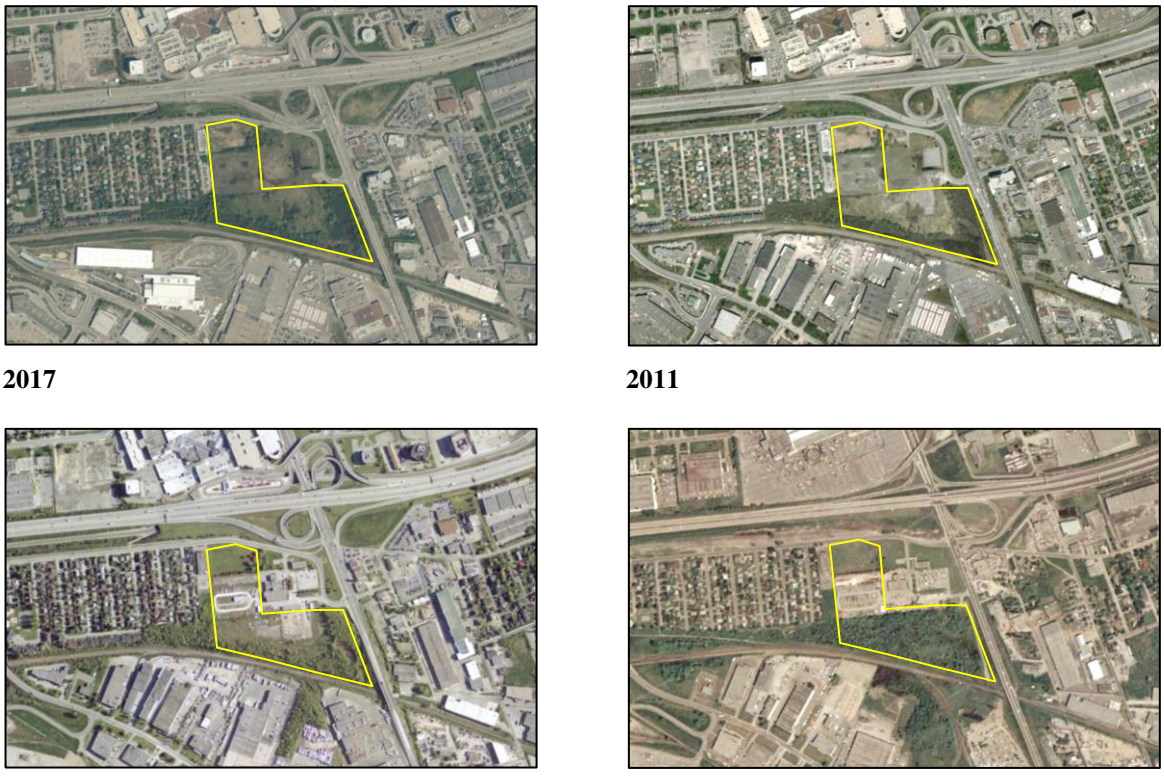
3 DESCRIPTION OF THE NATURAL ENVIRONMENT

The following sections provide a desktop screening of the existing natural environment features identified within the study area. This information provides the background information upon which the EIS and TCR will be based.

The "Study Area" for this project includes the subject property for 470 Tremblay Road, plus a buffer of 120 metres from this area (see **Figure 1**)**.** In addition, specific species and features will be considered up to two (2) kilometres from the proposed development as it may relate to specific environmental policy or legislation.

3.1 HISTORIC LAND USE

A desktop review of recent and historic aerial images (City of Ottawa, 2019) highlights the existing and historic land use within and adjacent to the Study Area (**Figure 2**). From this review, the subject property had been largely developed with commercial and office buildings until approximately 2009. There is remnant evidence of the previous inhabitation of the subject property, such as cleared and compacted soils around the footprints of former buildings. In the surrounding area, the landscape has been largely dominated by urban land use dating back to 1976 and has remained relatively unchanged. A forested area on the southern border of the property has gradually been cleared to accommodate development.



2017 **2011**

2002 **1976**

Figure 2 Land Use Change (City of Ottawa, 2019)

3.2 LANDFORM, GEOLOGY AND SOILS

Background mapping from the Ministry of Northern Development and Mines shows the subject property residing over a physiographic landform of 'till plains,' with the northern edge of the site residing over 'clay plains.' Surficial geology on the Study Area is described as "fine-textured glaciomarine deposits" consisting of silt and clay, minor sand and gravel through much of the northern half of the property. The southern half of the subject property is described as "organic deposits" consisting of peat, muck, and marl (Ministry of Northern Development and Mines, 2019).

3.3 AQUATIC ENVIRONMENT

The Study Area is split between two subwatersheds; the northern half of the property is within the Cyrville Drain catchment of the Ottawa River East subwatershed, and the southern half is within the Rideau River – Rideau Falls catchment, located in the Rideau River subwatershed. Both catchments are highly urbanized with minimal to no natural tributaries remaining (Rideau Valley Conservation Authority, 2012).

Several swales were encountered within the Study Area during the preliminary site visit and ELC survey in 2019. No water was observed in these features at the time of the visit, but it is possible they may carry water during wet periods of the year (e.g. spring melt). These features were connected to low-lying wet areas, but there was no distinct connection to watercourses or infrastructure (culverts, drains) further upstream or downstream. One feature, located on the eastern boundary of the site, appears to have been created as a result of impoundment from the St. Laurent Boulevard overpass adjacent to the subject property.

Additionally, a channelized watercourse runs parallel to the southern property edge, located just beyond the subject property boundary, adjacent to a rail line.

3.4 NATURAL HERITAGE FEATURES

Several specific natural heritage features require consideration for protection under the Ontario Provincial Policy Statement (Ministry of Municipal Affairs and Housing, 2020). The protection of these features is generally administered by the City of Ottawa, consistent with relevant provincial and federal legislation. These features are:

- Provincially Significant Wetlands (PSW);
- Significant Woodlands;
- Significant Valleylands;
- Areas of Natural and Scientific Interest (ANSI);
- Significant Wildlife Habitat (SWH);
- Species at Risk (SAR) habitat; and,
- Fish habitat.

The section below provides a review of available background materials to determine the potential presence of these natural heritage features within the Study Area.

3.4.1 WETLANDS

A review of the City of Ottawa online mapping service (City of Ottawa, 2019) and provincial natural heritage mapping accessed through the NHIC (MNRF, 2015) indicate that there are no PSWs present within the Study Area.

However, provincial and municipal mapping indicates two unevaluated wetlands located in the southeastern area of the site. Furthermore, a Wetland Assessment completed by Stantec in 2012 refined this mapping and identified two small pockets of wetland on the subject property. The assessment noted the presence of obligate wetland plants and saturated soils. One of the wetland cells appears to be connected to a ditch beyond the subject property. No other watercourse or

groundwater connections were identified in the assessment. It was also determined that both wetland areas are likely inundated with water for a short duration of the year, following the spring melt (Stantec Consulting Ltd., 2012).

3.4.2 WOODLANDS

A review of aerial photos indicates that a forested community occupies the southern and eastern boundaries of the subject property. This community is approximately 3.8 hectares, based on aerial imagery measurements. The City of Ottawa's OP, Natural Heritage System Features Overlay (Schedule L1) does not identify this community as part of the City's natural heritage system (City of Ottawa, 2003 as consolidated), and this woodland is not evaluated as provincially significant based on provincial mapping (MNRF, 2015).

Additionally, section 6.4.4.1 of the City's Significant Woodland guidelines state that new significant woodlands shall not be identified in urban areas where the natural heritage system has already been identified in a current secondary plan (City of Ottawa, 2019). The Study Area is located within the St. Laurent Transit-Oriented Development (TOD) Secondary Plan area and no significant woodlands or other natural heritage features have been identified within the Study Area (City of Ottawa, 2014).

3.4.3 VALLEYLANDS

No Significant Valleylands were identified within or adjacent to the Study Area.

3.4.4 AREAS OF NATURAL AND SCIENTIFIC INTEREST (ANSI)

No ANSIs were identified within the Study Area.

3.4.5 SIGNIFICANT WILDLIFE HABITAT (SWH)

The MNRF has identified four categories of SWH within the eastern Ontario ecoregion (6E) (MNRF, 2015). These include;

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

The potential for these SWH categories to be found within the Study Area was reviewed using available background information, specifically NHIC online mapping (MNRF, 2015) and available aerial photos. From this desktop screening, 'Specialized Habitat for Wildlife' and 'Habitat for Species of Conservation Concern' may be present within the Study Area. These candidate SWH categories are described below:

SEASONAL CONCENTRATION AREAS OF ANIMALS

Based on the criteria established for Candidate SWH (MNRF, 2015), the following seasonal concentration areas of animals may be found within the Study Area:

- Bat Maternity Colonies: The presence of mature woodland with large cavity trees may provide suitable conditions for maternity colonies of SAR and non-SAR bat species.

SPECIALIZED HABITAT FOR WILDLIFE

Based on the criteria for Candidate Significant Wildlife Habitat (MNRF, 2015), the following specialized habitat for wildlife may be found within the Study Area:

- Amphibian Breeding Habitat: The presence of a wet forest community associated with ephemeral surface water features may provide suitable habitat for amphibian breeding

HABITAT FOR SPECIES OF CONSERVATION CONCERN

The *Significant Wildlife Habitat Technical Guide* (MNR, 2000) defines Species of Conservation Concern as globally, nationally, provincially, regionally, or locally rare (S-Rank of S2 or S3). S-Ranks are an indicator of commonness within the province of Ontario, on a scale of 1-5. S2 represents a species that is considered imperiled within Ontario. S3 represents a species considered as vulnerable within Ontario. Species of Conservation Concern does not include SAR (listed as Endangered or Threatened under the ESA, 2007). A review of background data suggests that candidate SWH for breeding birds, reptiles, insects, and fish may occur within or adjacent to the Study Area. Those species identified have the potential to be associated with the forest, meadow, and wetland communities. **Table 2** provides a list of Species of Conservation Concern with occurrence records within and/or adjacent to the Study Area.

HABITAT FOR SPECIES OF CONSERVATION CONCERN

Table 2 Species of Conservation Concern and Provincially Rare Species with Potential to Occur within the Study Area

Scientific Name	Common Name	Critical Habitat Description[1]	Conservation Status			Source[3]
			Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank[2]	
Birds						
Contopus virens	Eastern Wood-pewee	Open, deciduous, mixed or coniferous forest; predominated by oak with little understory; forest clearings, edges; farm woodlots, parks.	SC	SC	S4B	OBBA
Coccothraustes vespertinus	Evening Grosbeak	Coniferous or mixed forests; deciduous tree stands; parks, orchards.	SC	SC	S4B	OBBA
Falco peregrinus	Peregrine Falcon	Rock cliffs, crags, especially situated near water; tall buildings in urban centres.	SC	SC	S3B	OBBA
Progne subis	Purple Martin	Open, trees areas such as farmland, parks, yards, marshes; usually near large bodies of water; colonial; nests in tree cavities, cliff ledges; most common in nest boxes; requires open space for foraging; prefers trees >15 cm DBH.	---	---	S3, S4B	OBBA
Buteo lineatus	Red-shouldered Hawk	Moist, mature hardwood forests; woody swamps or wooded margins of marshes; wet bottomlands; restricted to mature, closed (>80%) closed forests; nests reused; requires a minimum of 10 ha of continuous forest to meet territorial requirements; prefers >100 ha of forest; tends to nest in interior.	SC	NAR	S4B	OBBA
Herpetoza						
Lampropeltis triangulum	Eastern Milksnake	Habitat generalists prefer open habitats including outcrops and meadows; require suitable microhabitats for egg-laying, hibernation and thermoregulation; well known for occupying barns, sheds, and houses in rural landscapes; abundance of species appears to correlate with regions where forest cover is relatively high.	SC	--	S4	ON
Sternotherus odoratus	Eastern Musk Turtle	Aquatic, except when laying eggs; shallow slow-moving water of lakes, streams, marshes and ponds; hibernate in underwater mud, in banks or muskrat lodges; eggs are laid in debris or under stumps or fallen logs at waters edge; often share nest sites; sometimes congregate at hibernation sites; not readily observed.	SC	SC	S4	ON
Graptemys geographica	Northern Map Turtle	Large bodies of water with soft bottoms, and aquatic vegetation; basks on logs or rocks or beaches and grassy edges, will bask in groups; uses soft soil or clean dry sand for nest sites; may nest at some distance from water; home range size is larger for females (about 70 ha) than males (about 30 ha) and includes hibernation, basking, nesting and feeding areas; aquatic corridors (e.g. stream) are required for movement; not readily observed.	SC	SC	S3	ON
Chelydra serpentina	Snapping Turtle	Permanent, semi-permanent freshwater; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites; may nest at some distance from water; often hibernate together in groups in mud underwater; home range size ~28 ha.	SC	SC	S3	ON
Insects						
Danaus plexippus	Monarch	The habitat is typically a combination of field and forest and provides the butterflies with a location to rest. Caterpillars eat exclusively milkweed, and adults require the nectar of wildflowers to feed.	SC	SC	S2N, S4B	BA
Lichen						
Anzia colpodes	Black-foam Lichen	Requires mature deciduous tree habitats with high humidity and high light levels; humidity is supplied by wetlands, nearby brooks, lakes or the host's position on upland slopes above a water body; appears to require a moderately rough bark, at a stage of tree maturity where the canopy is	THR	DD	SH	NHIC

Scientific Name	Common Name	Critical Habitat Description[1]	Conservation Status			Source[3]
			Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank[2]	
		still fairly open; most common host is Red Maple but also found on Red Oak, White Ash, Sugar Maple, and Shadbush.				
Leptogium corticola	Blistered Jellyskin	Grows on the bases of hardwoods and occasionally on rocks in moist woods.	---	---	S2	NHIC
Heterodermia hypleuca	Cupped Fringe Lichen	This species is only known from remnant mature to old-growth stands of ash and maple in open deciduous swamps with particularly humid microclimates.	---	---	S2	NHIC

[1]General Habitat According to the MNRF Significant Wildlife Habitat Technical Guide (MNR, 2000) *used when Critical Habitat not defined. [2]S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common. [2]Information sources include: MNRF = Ministry of Natural Resources and Forestry Response to Information Request; NHIC = Natural Heritage Information Centre; OBBA = Ontario Breeding Bird Atlas; ON = Ontario Nature: Ontario Reptile and Amphibian Atlas; BA = Toronto Entomologists' Association: Butterfly Atlas; DFO = Fisheries and Oceans Canada --- denotes no information or not applicable. [3]Preliminary determination based on desktop review of available imagery and information.*

3.4.6 SPECIES AT RISK AND SPECIES AT RISK HABITAT

A desktop review of available information identified several SAR listed as Endangered and/or Threatened under the federal Species at Risk Act (SARA, 2002) and provincial ESA with the potential to occur within the vicinity of the Study Area. Under the ESA, all species listed as Endangered or Threatened in Ontario receive immediate 'general habitat protection'. This includes places that are used by the species as dens, nests, hibernacula or other residences. For some species (e.g. Bobolink), the MNRF has defined a general habitat description that provides science-based criteria for the habitat protected for the species.

A review of current and historic aerial photos was used to identify candidate general habitat for SAR based on the habitat requirements defined by the MNRF. **Table 3** provides a list of species identified as having the potential to occur within the vicinity of the Study Area and an assessment of habitat potential based on the MNRF's habitat descriptions (MNR, 2000). Based on the habitat requirements described in the table, the following species may be present within the Study Area: **Barn Swallow** (Hirundo rustica), **Chimney Swift** (*Chaetura pelagica*), **Common Nighthawk** (*Chordeiles minor*), **Eastern Meadowlark** (*Sturnella magna*), **Wood Thrush** (*Hylocichla mustelina*), **Eastern Small-footed Bat** (*Myotis leibii*), **Little Brown Bat** (*Myotis lucifugus*), **Northern Myotis** (*Myotis septentrionalis*), and **Tri-Colored Bat** (*Perimyotis subflavus*).

Table 3 Species at Risk and Species at Risk Habitat with Potential to Occur within Study Area

Scientific Name	Common Name	Critical Habitat Description[1]	Conservation Status			Source[2]	Potential for Habitat Within Study Area	Rationale
			Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank[1]			
Birds								
Riparia riparia	Bank Swallow	Sand, clay, or gravel river banks or steep riverbank cliffs; lakeshore bluffs of easily crumbled sand or gravel; gravel pits.	THR	THR	S4B	OBBA	No	No river banks, bluffs, or other vertical faces were observed within or adjacent to Study Area.
Hirundo rustica	Barn Swallow	Farmlands or rural areas; cliffs, caves, rock niches; buildings or other man-made structures for nesting; open country near a body of water.	THR	THR	S4B	OBBA	**Yes**	Buildings located outside of the property boundary may provide suitable nesting habitat.
Dolichonyx oryzivorus	Bobolink	Large open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 hectares (ha).	THR	THR	S4B	OBBA	No	Limited grassland meadow habitat within Study Area
Wilsonia canadensis	Canada Warbler	An interior forest species; dense, mixed coniferous, deciduous forests with a closed canopy, wet bottomlands of cedar or alder; shrubby undergrowth in cool moist mature woodlands; riparian habitat; usually requires at least 30 ha	THR	SC	N5B	OBBA	No	No interior forest within Study Area,
Chaetura pelagica	Chimney Swift	Commonly found in urban areas near buildings; nests in hollow trees, crevices of rock cliffs, chimneys; highly gregarious; feeds over open water.	THR	THR	N4B	OBBA	**Yes**	Buildings located outside of the property area may provide chimneys or other suitable structures for nesting.
Chordeiles minor	Common Nighthawk	Open ground; clearings in dense forests; ploughed fields; gravel beaches or barren areas with rocky soils; open woodlands; flat gravel roofs	THR	SC	N4B	OBBA	**Yes**	Open, gravel areas identified within Study Area, the potential for flat gravel roofs outside of the property.
Sturnella magna	Eastern Meadowlark	Open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas >10 ha in size	THR	THR	S4B	OBBA	**Yes**	Sections of weedy, grassy areas with singing perches and trees present
Antrostomus vociferus	Eastern Whip-poor-will	Dry, open, deciduous woodlands with small to medium trees; oak or beech with lots of clearings and shaded leaf-litter; wooded edges, forest clearings with little herbaceous growth; pine plantations; associated with >100 ha forests; may require 500 to 1000 ha to maintain the population.	THR	THR	N4B	OBBA	No	Forested habitat is likely too small to support this species.
Ixobrychus exilis	Least Bittern	Deep marshes, swamps, bogs; marshy borders of lakes, ponds, streams, ditches; dense emergent vegetation of cattail, bulrush, sedge; nests in cattails; intolerant of loss of habitat and human disturbance.	THR	THR	S4B	OBBA	No	No large dense cattail marshes in Study Area; area also affected by human disturbance and noise.
Hylocichla mustelina	Wood Thrush	Carolinian and Great Lakes-St. Lawrence forest zones; rocky, dry, jack pine forests; dry sandy coniferous or deciduous woods with dense young undergrowth; spruce bogs; borders of wooded swamps and damp forest; brushy pasture; appears to need at least 100 ha of forest in the south.	THR	SC	S4B	OBBA	**Yes**	Dense damp forest with heavy undergrowth may provide suitable conditions for this species.
Herpetoza								
Emydoidea blandingii	Blanding's Turtle	Shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft muddy bottoms and aquatic vegetation; basks on logs, stumps,	THR	THR	S3	ON	No	Wetland areas within the Study Area are likely too shallow and

Scientific Name	Common Name	Critical Habitat Description[1]	Conservation Status			Source[2]	Potential for Habitat Within Study Area	Rationale
			Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank[1]			
		or banks; surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats; hibernates in bogs; not readily observed.						disconnected from suitable waterbodies.
Mammals								
Myotis leibii	Eastern Small-footed Myotis	Roosts in caves, mine shafts, crevices or buildings that are in or near woodland; hibernates in cold dry caves or mines; maternity colonies in caves or buildings; hunts in forests.	END	END	S2, S3	Pers.	**Yes**	Buildings outside of property may provide roosting and maternity colony habitat for this species.
Myotis lucifugus	Little Brown Bat	Uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges.	END	END	S3	Pers.	**Yes**	Hollow trees in forested areas may provide roosting habitat; forest and meadow areas may be suitable for foraging.
Myotis septentrionalis	Northern Myotis	Hibernates during winter in mines or caves; during summer males roost alone, and females form maternity colonies of up to 60 adults; roosts in houses, man-made structures but prefers hollow trees or under loose bark; hunts within forests, below the canopy.	END	END	S3	Pers.	**Yes**	The woodlands within the Study Area may have hollow trees to provide suitable roosting. Species may also be foraging within woodlands.
Perimyotis subflavus	Tri-colored Bat	Found in a variety of forested habitats during summer, forms day roosts and maternity colonies in an older forest and occasionally in barns or other structures; forage over water and along forested streams; hibernates in a cave or underground structure and roost individually.	END	END	S3?	Pers.	**Yes**	Forest community may provide suitable conditions for roosting and maternity colonies. Buildings and structures outside property may provide adequate conditions for this species.

[1]General Habitat According to the MNRF Significant Wildlife Habitat Technical Guide (MNR, 2000) *used when Critical Habitat not defined;* *[2]S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common.* *[2]Information sources include: MNRF = Ministry of Natural Resources and Forestry Response to Information Request; NHIC = Natural Heritage Information Centre; OBBA = Ontario Breeding Bird Atlas; ON = Ontario Nature: Ontario Reptile and Amphibian Atlas; BA = Toronto Entomologists' Association: Butterfly Atlas; Pers = Personal professional knowledge from past projects; DFO = Fisheries and Oceans Canada --- denotes no information or not applicable.*

3.4.7 FISH HABITAT

Due to the absence of permanent watercourses within the Study Area, no fish habitat has been identified within the Study Area.

3.5 TREES

A tree assessment of the property was completed by IFS Associates in 2012 (**Appendix A**). The assessment recorded Buckthorn (*Rhamnus* spp.) and Ash (*Fraxinus* spp.) as the abundant woody vegetation within the property and the forest community. These trees were generally young, with an average DBH <10 cm. The overall health of trees within the property was assessed as poor, with many of the Ash trees showing severe damage from Emerald Ash Borer. The study also noted the presence of Hypoxylon canker, a fungal disease affecting Trembling Aspen (*Populus tremuloides*), as well as damage to Elm (*Ulmus* spp.) trees from Dutch elm disease (IFS Associates, 2012).

3.6 WILDLIFE HABITAT

In addition to the SAR noted above, a review of current and historic aerial photos of the Study Area was used to identify potential wildlife habitat. Several species of fauna common to the City of Ottawa rural and urban areas are known to live in the habitats present within the Study Area. These species may include, but are not limited to:

- **Mammals:** Raccoon (*Procyon lotor*), White-tailed deer (*Odocoileus virginianus*), Eastern Gray Squirrel (*Sciurus carolinensis*), Eastern Cottontail (*Sylvilagus floridanus*), among others.
- **Reptiles & Amphibians:** Eastern Garter Snake (*Thamnophis sirtalis*), Green Frog (*Rana clamitans*), Gray Tree Frog (*Hyla versicolor*), among others.
- **Birds:** American Crow (*Corvus brachyrhynchos*), Black-capped Chickadee (*Poecile atricapillus*), Blue Jay (*Cyanocitta cristata*), Downy Woodpecker (*Picoides pubescens*), among others.

3.7 ECOLOGICAL LINKAGES

The surrounding urban landscape and limited aquatic connections to natural areas provide no identifiable ecological linkages for wildlife. Additionally, this property is not identified within an ecological linkage by the City of Ottawa (City of Ottawa, 2013).

3.8 OTHER DEVELOPMENT CONSTRAINTS

No other development constraints were identified during the desktop review of natural heritage features within or near the Study Area.

4 METHODOLOGY

4.1 SCOPE OF WORK

Based on the description of the existing natural environment outlined above, the natural heritage surveys outlined below have been scoped to assess the impacts of the proposed development on the natural environment. These surveys followed industry-standard protocols and are intended to establish baseline conditions.

These surveys are used to evaluate the potential for negative impacts which may occur as a result of the proposed development project. Surveys were undertaken only within the subject property and the adjacent federal PSPC property at 599 Tremblay Road. If possible, natural features within the larger Study Area were evaluated from a distance or via air-photo interpretation.

AQUATIC ENVIRONMENT

- Headwater Drainage Feature Assessment

NATURAL HERITAGE FEATURES

- Ecological Land Classification (ELC), including:
  - Vegetation survey
  - Wetland identification
  - Woodland delineation and evaluation
- Identification of potential SWH, including:
  - Breeding Bird Surveys
  - Amphibian Breeding Surveys
  - Bat Maternity Colony Survey
  - General habitat assessment for Species of Conservation Concern
  - Incidental SWH observations

SPECIES AT RISK

Evaluation of Species at Risk and their habitat has been completed by Stantec, including the following surveys:

- Western Chorus Frog surveys
- Eastern Milksnake surveys
- Monarch survey
- Butternut and American Ginseng survey
- Mammal survey, including SAR bats

TREES

- Tree inventory and assessment

INCIDENTAL WILDLIFE

- Visual and auditory observations of wildlife during all field studies

4.2 AQUATIC ENVIRONMENT

4.2.1 HEADWATER DRAINAGE FEATURE ASSESSMENT

The Headwater Drainage Features (HDF) assessment will follow the Toronto and Region Conservation Authority and Credit Valley Conservation protocol, 'Evaluation, Classification and Management of Headwater Drainage Features Guidelines' (Toronto and Region Conservation Authority and Credit Valley Conservation, 2014). Field surveys will be carried out following the rapid assessment method, which utilizes the Unconstrained Headwater Sampling (Section 4, Module 11) methodology in the Ontario Stream Assessment Protocol (Stanfield, 2017).

4.3 NATURAL HERITAGE FEATURES

4.3.1 VEGETATION COMMUNITIES

Vegetation communities within the Study Area were characterized and mapped using the ELC system for Southern Ontario (Lee, et al., 1998). The ecological community boundaries were determined through the review of aerial photography and then further refined through on-site vegetation surveys as specified by the protocol. For areas where access was not granted, observations were conducted from either the road right-of-way or the property edge to the extent visible.

The ELC protocol recommends that a vegetation community be a minimum of 0.5 ha in size before they are defined as a discrete community. Unique communities less than 0.5 ha or disturbed/planted vegetation have been described to the community level only, or have been described as an inclusion or complex to an exiting vegetation community. In some instances, where vegetation is less than 0.5 ha but appears relatively undisturbed and clearly fits within an ELC vegetation type, the more refined classification was used.

In 2007, the MNRF refined their original vegetation type codes to more fully encompass the vast range of natural and cultural communities across Southern Ontario. Through this process, many new codes have been added, while some have changed slightly. These new ELC codes have been used for reporting purposes in this study as they are more representative of the vegetation communities within the Study Area.

VEGETATION SURVEY

Vegetation was inventoried in tandem with ELC surveys, and a corresponding vascular plant list was compiled. All other plant species identified from other survey results are also included in the list. In addition, the vascular plants observed at the time of the survey have been used to screen for any provincially rare species or SAR not previously identified within the Study Area.

Scientific nomenclature, English colloquial names, and scientific binomials of plant species generally followed Newmaster et al. (2005), with updates taken from published volumes of the Flora of North America Editorial Committee (2000 + accessed 2015) and Michigan Flora Online (2015).

4.3.2 WETLANDS

A small area of the unevaluated wetland was identified within the Study Area. This wetland is considered southern wetlands based on their location south of the northern limit of Ecoregions 5E, 6E, and 7E as shown in Figure 1 of the Provincial Policy Statement, 2020. Wetlands within the Study Area were delineated using the ELC system for Southern Ontario (Lee, et al., 1998).

4.3.3 WOODLANDS

The woodlands within the Study Area were assessed for significance following the updated guidelines outlined in the City of Ottawa OP Amendment No. 179 [Section 2.4.2 of the OP (City of Ottawa, 2003 as consolidated)]. In the urban area, significant woodlands are evaluated using criteria under the 'Established Urban Process' within the Significant Woodlands Guidelines (City of Ottawa, 2019). If the following criteria are met, the woodland is considered significant.

1. *Any treed area meeting the definition of woodlands in the Forestry Act, R.S.O 1990, c.F.26 or forest in Ecological Land Classification for Southern Ontario; and*
2. *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*
3. *In the urban area, any contiguous area 0.8 hectares in size or larger, supporting woodland 60 years of age and older at the time of evaluation.*

For the woodlands within this Study Area, criteria #1 and #3 will be used to determine significance. The ELC delineation was used to determine the size of the woodlands, and historic aerials and tree inventories were used to estimate the age.

4.3.4 SIGNIFICANT WILDLIFE HABITAT

Breeding bird, amphibian breeding, and bat maternity colony surveys were conducted by Stantec in 2019. The results of these surveys also aid in the baseline assessment of the relative abundance of birds and amphibians.

BREEDING BIRD SURVEYS

Breeding bird surveys at four locations within the Survey Area were completed by Stantec and followed a stationary point count survey protocol (Stantec Consulting Ltd., 2019).

AMPHIBIAN BREEDING SURVEYS

Amphibian monitoring will follow the *Marsh Monitoring Program Participant's Handbook for Surveying Amphibians* protocol (Bird Studies Canada, 2009 Edition). In accordance with the survey protocol, three different surveys will be conducted between April 15th and June 30th, with at least two weeks between each visit. Surveys begin at least one-half hour after sunset during evenings with a minimum night temperature of 5^{0}C, 10^{0}C, and 17^{0}C for each of the three respective surveys.

Each amphibian survey generally involves standing at a predetermined station for three minutes and listening for frog calls. The calling activity of individuals estimated to be within 100 m of the observation point is documented. All individuals beyond 100 m are recorded as outside the count circle, and calling activity was not recorded. Calling activity is then ranked using one of the three abundance code categories:

Code 1: Calls not simultaneous, number of individuals can be accurately counted;

Code 2: Some calls simultaneous, number of individuals can be reliably estimated; and,

Code 3: Calls continuous and overlapping, number of individuals cannot be estimated.

In areas where candidate amphibian habitat exists, vernal pools will be visually examined for egg masses and amphibian larvae in conjunction with other field surveys. These searches will occur between April and June when amphibians were concentrated around suitable breeding habitat.

BAT MATERNITY COLONY SURVEY

To assess for candidate bat maternity colony habitat, a snag/cavity tree count will be conducted within the forested habitats and follow the methodology outlined in the *Bat Survey Methodology – Hibernacula and Maternity Roosts* informal publication distributed by the MNRF (MNRF, 2015)

The survey is intended to count snag/cavity trees to ascertain whether the habitat is candidate SWH for maternity colony habitat for several non-SAR bats as well as SAR bats, including; Little Brown Myotis (*Myotis lucifungus*), Eastern Small-footed Myotis (*Myotis leibii*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) The four bat SAR are listed as Endangered, federally and provincially.

This survey is conducted in forested areas during the leaf-off period, using a fixed area circular plot of a 12.6 metre radius; this equates to 0.05 ha. The presence of each snag/cavity tree equal to or greater than (≥) 25 cm DBH is recorded within each circular plot. The formula πr^2 is applied to determine the number of snags/cavity trees per ha. If the snag density within the surveyed area is calculated to be ≥10 snags per ha, then the area should be considered candidate SWH for bat maternity colony habitat.

To supplement the snag density surveys, an acoustic survey for bats will be conducted using a Wildlife Acoustic's Echo Meter Touch 2 Pro ultrasonic module. The survey will involve listening for bat calls for ten minutes at determined locations within the Study Area. The survey will be conducted a half-hour after sunset when bats typically emerge from roosts to forage.

The results of the acoustic surveys were used to identify bat species present within the Survey Area.

HABITAT FOR SPECIES OF CONSERVATION CONCERN

In addition to the targeted wildlife and vegetation community surveys described above, general habitat observations will be noted as it relates to the habitat requirements for Species of Conservation Concern identified in **Table 2**.

INCIDENTAL OBSERVATIONS OF SIGNIFICANT WILDLIFE HABITAT

Any incidental observations of other candidate SWH features will be documented during all site visits. Specifically, observations associated with Seasonal Concentrations of Wildlife Habitat and Specialized Habitat for Wildlife will be made during all site visits.

4.3.5 SPECIES AT RISK AND SPECIES AT RISK HABITAT

Targeted SAR surveys for Western Chorus Frog (*Pseudacris triseriata*), Eastern Milksnake, Monarch (*Danaus plexippus*), Butternut (*Juglans cinerea*), American Ginseng (*Panax quinquefolius*), and SAR bats were completed by Stantec in 2019 (Stantec Consulting Ltd., 2019). The surveys also included general breeding bird surveys to record any potential SAR birds. The bird survey is described in Section 4.3.4.

WESTERN CHORUS FROG

Day-time targeted Western Chorus Frog surveys were completed by Stantec following the methodology outlined in the *Marsh Monitoring Program Participant's Handbook for Surveying Amphibians* protocol (Bird Studies Canada, 2009 Edition). Surveys were carried out by Stantec on three consecutive days in May 2019.

EASTERN MILKSNAKE

Four targeted visual encounter surveys for Eastern Milksnake surveys were completed by Stantec in May and June 2019 within the Survey Area.

MONARCH

Monarch detection and habitat assessment surveys were completed by Stantec throughout the Survey Area. The survey focused on areas with suitable habitat conditions (e.g. areas with abundant Milkweed (*Asclepias* sp.) and nectar-producing plants. Surveys were completed in June and July 2019.

BUTTERNUT AND AMERICAN GINSENG

Systematic searches for Butternut and American Ginseng were completed throughout the Survey Area by Stantec in July 2019.

SAR BATS

Acoustic detection surveys were completed by Stantec in July 2019, following the MNRF's recommendations in *Bats and Bat Habitats: Guidelines for Wind Power Projects* (Ontario Ministry of Natural Resources, 2011).

4.4 TREES

Following the City of Ottawa's Tree Conservation Report Guidelines (City of Ottawa, 2020), trees > 10 cm DBH were surveyed. Large stands of trees were assessed as a group based on species composition and density as per standard protocols. Distinctive trees (≥50 cm DBH) were surveyed in September 2020 by an approved professional as outlined in the City guidelines. The survey for the distinctive trees included the species, DBH, condition, height, and GPS location.

4.5 INCIDENTAL WILDLIFE

A wildlife assessment within the property was completed through incidental observations during all site visits. Any incidental observations of wildlife, as well as other wildlife evidence such as dens, tracks, and scat, were documented by means of observational notes, photographed, and UTM coordinates taken. Such observations help validate our conclusions on the ecological function of the Study Area.

5 RESULTS

The following sections outline the findings from the field surveys to characterize the existing conditions within the Study Area.

5.1 SITE INVESTIGATIONS

A total of three site visits were completed in June and August 2019 and September 2020 during suitable weather conditions, and survey timing was based on the survey protocols being implemented. The dates, times, names of surveyors and weather conditions for surveys are listed in **Table 4**. As required, the resumés of key staff involved in the project have been included in **Appendix B**. Photographs from site surveys are provided in **Appendix C**.

Table 4 Dates and Times of Field Surveys

Date	Staff	Start Time	End Time	Weather Conditions	Air Temp. (°C)	Survey
June 7, 2019	C. Pytlak	10:15 am	11:15 pm	Sunny, light breeze	19°C	Preliminary site visit
August 13, 2019	A. Orr, C. Pytlak	7:30 am	2:00 pm	Clear, calm winds	24°C	Ecological Land Classification
September 11, 2020	C. Pytlak	9:00 am	12:00 pm	Clear, gentle breeze	16°C	Tree Inventory

5.2 AQUATIC ENVIRONMENT

5.2.1 HEADWATER DRAINAGE FEATURE ASSESSMENT

During the ELC survey, biologists observed several swales connected to wetland features in the southeastern corner of the Survey Area (**Figure 2**). These wetlands and swales were dry but showed evidence of being seasonally wet. The features appeared to be isolated with no distinct evidence of being connected to surface water or groundwater features. A follow-up discussion and site visit with a biologist from the RVCA (September 16th, 2019) confirmed these observations and noted that the wetlands are functioning primarily as flood storage and amphibian and wildlife habitat, with no fish habitat present within the Survey Area.

Due to the disconnected nature of the wetlands and swales from the Natural Heritage System and the surrounding area, a Headwater Drainage Feature Assessment is not required.

5.3 NATURAL HERITAGE FEATURES

5.3.1 VEGETATION COMMUNITIES

The ELC survey identified a total of eight (8) vegetation communities within the Study Area, in addition to four (4) communities that are associated with transportation, residential, and commercial uses and located beyond the subject property.

The prominent vegetation communities within the Survey Area were meadow along with woodlands and thickets. All vegetation communities surveyed within the Survey Area are considered common within Ontario. **Table 5** below outlines the communities documented during ELC surveys and summarizes the abundant vegetation cover. The location, type, and boundaries of vegetation communities are delineated in **Figure 3**. Reference photos for the vegetation communities are included in **Appendix D**.

VEGETATION SURVEY

The vegetation survey identified 69 vegetation species within the Survey Area. 53% of the species identified were evaluated as being common within Ontario, having S-Ranks of S4 or S5. Nearly 43% of the species identified are considered non-native or invasive in Ontario. Honey-locust (*Gleditsia triacanthos*) was observed on-site and contains as S-Rank of S2? (i.e. imperilled in Ontario, although rank is uncertain). These specimens were believed to be planted as ornamental species as they were evenly distributed throughout the WOMM4 community.

No provincial or federal SAR were recorded during the inventory. Black Ash (*Fraxinus nigra*) had an occasional occurrence within the woodland communities. This species has an S-Rank of S3 and is currently listed as Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). However, it currently does not have any federal or provincial status under SARA or ESA.

Vascular plant species observed within the Study Area are listed in **Appendix D**.

Table 5 Ecological Land Classification Results

ELC Type	Total Area within Study Area	Community Description
Coniferous Forest (FOC)		
FOCM5 Naturalized Coniferous Hedge-row Ecosite	0.04 ha	This community was a hedgerow feature in amongst the meadow and contained a series of Norway spruce (*Picea abies*)*
Constructed (CV)		
CVC Commercial	-	Associated with commercial shopping plaza on the eastern boundary of the Study Area.
CVI Transportation & Industry	-	Associated with the railway and bus depot facilities on the southern boundary of the Study Area.
CVR Residential	-	Associated with adjacent single-family homes on the western edge of the Study Area.
Cultural		
CUM Cultural Meadow	-	Associated with roadside areas of mowed grass outside of the subject property.
Mixed Woodland (WOM)		
WOMM4 Fresh-Moist Mixed Woodland Ecosite *Contains SWDM3 inclusion*	0.58 ha	This mixed woodland community contained variable species diversity and abundance. The canopy layer was predominately composed of scots pine (*Pinus sylvestris*)*, trembling aspen (*Populus tremuloides*), Freeman's maple (*Acer x freemanii*)*, and lesser occurrences of honey locust. The sub-canopy was abundant with Manitoba maple (*Acer negundo*) and Norway maple (*Acer platanoides*)*. European buckthorn (*Rhamnus cathartica*)* dominated the understorey. While the ground layer was sparse and had occasional occurrences of Virginia

ELC Type	Total Area within Study Area	Community Description
		creeper (*Parthenocissus quinquefolia*) and Lady's-thumb (*Persicaria maculosa*)*. A small inclusion of a maple mineral deciduous swamp occurred in the center of the community. No water was present at the time of the survey but it was evident the area has seasonal flooding.
Deciduous Woodland (WOD)		
WODM5 Fresh-Moist Deciduous Woodland Ecosite *Complexed with THDM2-6*	5.26 ha	This community encompassed a large portion of the Study Area. The canopy and sub-canopy were abundant with trembling aspen, eastern cottonwood (*Populus deltoides*), various willow species (*Salix spp.*), and to a lesser extent Norway maple*. The understorey was dominated with European Buckthorn* and in certain areas, this was an exclusive community representing a complex feature. The ground layer was sparse due to the dense understorey but contained Dog-strangling vine (*Vincetoxicum rossicum*)*, Virginia creeper, common burdock (*Arctium minus*)*, and wild strawberry (*Fragaria virginiana*).
Deciduous Thicket (THD)		
THDM2-6 Buckthorn Deciduous Shrub Thicket Type	0.13 ha	This community was dominated with European Buckthorn* and represented a hedgerow.
THDM4 Dry-Fresh Deciduous Regeneration Thicket Ecosite	0.11 ha	This community bordered a lowland area in the center of the meadow community and was small in size. It contained regenerating trembling aspen and eastern cottonwood species, along with various willow shrub species. Standing water was absent at the time of the survey.
Meadow (ME)		
MEGM3 Dry-Fresh Graminoid Meadow Ecosite	0.79 ha	This area was dominated by grass species, which consisted of smooth brome (*Bromus inermis*)*, creeping wildrye (*Elymus repens*)*, wild carrot (*Daucus carota*)*, reed canary grass (*Phalaris arundinacea*)*, and common reed (*Phragmites australis*)* to name a few.
MEMM4 Fresh-Moist Mixed Meadow Ecosite	4.45 ha	This community encompassed a large portion of the Study Areas. Meadow species most abundant throughout included that of; grass-leaved goldenrod (*Euthamia graminifolia*), Canada goldenrod (*Solidago canadensis*), reed canary grass, wild carrot*, and purple loosestrife (*Lythrum salicaria*)* to name a few.
Shallow Marsh (MAS)		
MASM1-1 Cattail Mineral Shallow Marsh Type	0.46 ha	This community occurred in amongst the WODM5/THDM2-6 complex and was dominant with broad-leaved cattail (*Typha latifolia*), narrow-leaved cattail (*Typha angustifolia*), and occasional occurrences of purple loosestrife*.

** Denotes non-native or invasive species*

Potential Swale

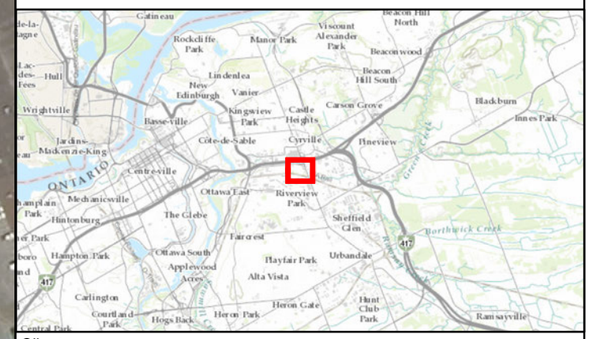
Vegetation Community

Subject Property

Study Area

Ecological Land Classification

CUM- Cultural Meadow
CVC- Business Sector
CVI- Transportationr
CVR- Residential
FOCM5- Naturalized Coniferous Hedgerow
MASM1-1- Cattail Mineral Shallow Marsh
MEGM3- Dry-Fresh Graminoid Meadow Ecosite
MEMM4- Fresh-Moist Meadow Ecosite
THDM2-6- Buckthorn Deciduous Shrub Thicket
THDM4- Dry-Fresh Deciduous Regeneration Thicket
WODM5/THDM2-6- Fresh-Moist Deciduous Woodland / Buckthorn Deciduous Shrub Thicket Complex
WOMM4- Fresh-Moist Mixed Woodland



Client: Canada Lands Company / Société immobilière du Canada

Title: **470 Tremblay Road**
Ecological Land Classification

Prepared By: WSP

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5.3.2 WETLANDS

As noted above, the ELC survey delineated two Cattail Mineral Shallow Marsh communities within the Study Area. One of these wetlands had been previously identified as a Green Ash Mineral Deciduous Swamp (Stantec Consulting Ltd., 2012) and evaluated as non-significant. Disturbance from invasive species (buckthorn) and pests (Emerald Ash Borer) has degraded this wetland feature since it was evaluated in 2012. This wetland is dominated by broad-leaved cattail and narrow-leaved cattail with occasional occurrences of purple loosestrife. There are frequent occurrences of deadfall and standing snags of ash trees.

The second cattail mineral shallow marsh wetland was also dominated by broad-leaved and narrow-leaved cattail, with occasional purple loosestrife. This community also had deadfall and standing snags, although less frequent.

At the time of the ELC survey, there was no water in these wetlands, and soil was generally dry. Standing water had been observed in these areas during the preliminary site visit in early June 2019. These wetlands appeared to be isolated from the surrounding natural landscape and appear to be influenced by overland flow rather than surface water or groundwater connections.

The previous wetland assessment noted the presence of a seasonally inundated area near the northeast corner of the Survey Area (Stantec Consulting Ltd., 2012). The ELC survey identified this area as a Dry-Fresh Deciduous Regeneration Thicket ecosite containing minor occurrences of narrow-leaved cattail and sedge species (*Carex* sp.) within a low-lying strip of land. Standing water was absent at the time of the survey. This area had no connection to surface water features and appeared to be influenced primarily by seasonal conditions.

An initial assessment of the wetlands indicated limited functionality and no connectivity to the natural heritage system. Supplemental SAR surveys completed by Stantec indicate that the wetlands provide marginal wildlife habitat for amphibians, birds, mammals, and insects.

5.3.3 WOODLANDS

The Fresh-Moist Deciduous Woodland / Buckthorn Deciduous Shrub Thicket (FODM5/THDM2-6) complex that occurs along the southern boundary of the Survey Area meets the prerequisite woodland designation as set out in the Forestry Act, R.S.O 1990, c.F.26.

In reviewing historic aerial imagery, two small contiguous areas of this woodland appear to have been continuously forested dating back to 1958 (62 years, current to 2020), and therefore, may meet the minimum age requirement to be considered significant. These two areas, Woodland A and Woodland B, are shown in **Figure 4**.

Of these two candidate woodlands, Woodland A is approximately 0.92 ha. However, 0.33 ha of this woodland consists of the MASM1-1 community and does not contain trees aside from standing dead Green Ash. When factoring in the size of the marsh communities, the forested section of Woodland A is 0.59 ha and does not meet the minimum size criteria to be considered significant. Woodland B has also been estimated to be approximately 0.74 ha in size and does not meet the minimum size criteria to be considered significant.

As an overall assessment of the entire FODM5/THDM2-6 woodland complex (Woodland A), the ELC survey found that the woodland has been heavily disturbed by pests and invasive species, with areas transitioning from woodland into a buckthorn thicket. This woodland has a dense understorey with limited canopy tree cover, except for isolated mature trees. The results from WSP's tree survey (**Section 5.4**) and the 2012 IFS tree inventory (**Appendix A**) found that there are few individual mature trees within the woodland, with the average tree size measuring approximately 7.6 cm DBH.

A review of historic aerial imagery suggests that the WOMM4 woodland (Woodland B) occurring on the northern portion of the Study Area (outside of the subject property) is not older than 60 years and is therefore not considered significant.

There are no Significant Woodlands within the Study Area.

Tree Plot Location

Distinctive Tree (>50 cm DBH)

Candidate Significant Woodland (>60 years)

Existing Cattail Shallow Marsh (not treed)

Subject Property

Study Area

Client: Canada Lands Company / Société immobilière du Canada

Title:

470 Tremblay Road
Woodland Evaluation & Tree Inventory

Prepared By: WSP

19M-00609-00	1:2,700	Review: AZ
Date: October 2020	**Figure: 4**	
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5.3.4 SIGNIFICANT WILDLIFE HABITAT

The following sections describe the results of field surveys undertaken in 2019 and with the available background information. The background information was used to evaluate the presence and condition of SWH within the Study Area.

BREEDING BIRD SURVEYS

Breeding bird surveys were completed by Stantec during the 2019 field season. A total of thirty five (35) species were recorded during the surveys, and an additional six (6) were recorded incidentally during other field surveys. Twenty-one (21) of the species recorded exhibited probably or confirmed breeding evidence. Many of the birds recorded are common within the City of Ottawa. Only one SAR bird, Chimney Swift, was recorded during the surveys. Multiple individuals were observed flying overhead of the Study Area rather than actively using the Study Area for foraging or breeding (Stantec Consulting Ltd., 2019). Additionally, the surveys indicated suitable habitat for Eastern Meadowlark (*Sturnella magna*), listed federally and provincially as a Threatened species.

Additionally, due to the project schedule, breeding bird surveys by WSP were unable to be completed during the 2019 field season. However, field biologists compiled a list of bird species observed incidentally during all field visits (**Table 6**). Birds observed on-site are common in Ottawa and have generally secure populations within Ontario. Several species, such as Alder Flycatcher (*Empidonax alnorum*) and Wilson's Snipe (*Gallinago delicata*), are unusual within urban habitats, suggesting that the property may be providing unique or valuable habitat conditions compared to the surrounding landscape. One vacant bird nest was found within the meadow habitat, suggesting that the area is providing suitable nesting conditions for at least one bird species.

Based on WSP's observations and the results from the Stantec surveys, the Study Area contains suitable habitat conditions to support breeding birds common to Ottawa and eastern Ontario. However, the results indicate that the Study Area is not considered SWH for breeding birds.

Table 6 Incidental Bird Observations

Scientific Name	Common Name	Conservation Status		
		Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank[1]
Agelaius phoeniceus	Red-winged Blackbird	---	---	S4
Bombycilla cedrorum	Cedar Waxwing	---	---	S5B
Cardinalis cardinalis	Northern Cardinal	---	---	S5
Colaptes auratus	Northern Flicker	---	---	S4B
Corvus brachyrhynchos	American Crow	---	---	S5B
Dumetella carolinensis	Gray Catbird	---	---	S4B
Empidonax alnorum	Alder Flycatcher	---	---	S5B
Gallinago delicata	Wilson's Snipe	---	---	S5B
Melospiza melodia	Song Sparrow	---	---	S5B

Scientific Name	Common Name	Conservation Status		
		Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank[1]
Quiscalus quiscula	Common Grackle	---	---	S5B
Setophaga petechia	Yellow Warbler	---	---	S5B
Setophaga ruticilla	American Redstart	---	---	S5B
Spinus tristis	American Goldfinch	---	---	S5B
Sturnus vulgaris	European Starling	---	---	SNA
Turdus migratorius	American Robin	---	---	S5B
Tyrannus tyrannus	Eastern Kingbird	---	---	S4B

[1]S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common. SNA indicates species is not native to province.

AMPHIBIAN BREEDING SURVEYS

No amphibians were observed incidentally during all field visits, although tadpoles were observed in several wet depressions during a preliminary site visit, suggesting amphibians are actively breeding within the Study Area.

Stantec SAR surveys for Western Chorus Frog confirmed American Toad (*Anaxyrus americanus*) breeding in several areas within the Study Area. No other amphibian species were detected during the daytime surveys (Stantec Consulting Ltd., 2019).

Based on the results of the Stantec SAR surveys and general field observations in 2019, it is likely that the Study Area contains suitable conditions to support wetland and woodland amphibian breeding – although unlikely to be considered significant under provincial criteria. Based on the results of field investigations and the proposed mitigation for wetland retention, no further amphibian surveys are warranted.

BAT MATERNITY COLONY SURVEY

Due to project timelines, the snag density surveys to evaluate candidate bat maternity colony SWH could not be completed during the leaf-off period. However, during the ELC survey field biologists encountered minimal amounts of candidate cavity and snag trees within the WODM5 and WOMM4 communities. Additionally, at least five (5) bat species were recorded throughout the Study Area during Stantec's targeted SAR bat acoustic surveys.

Based on the results of the acoustic surveys, it is likely that the woodland and meadow habitats provide suitable foraging habitat. However, given the limited abundance of snag/cavity trees observed during the ELC surveys and the proximity to residential areas (candidate roost habitat) and the Rideau River (foraging and roosting habitat), it is unlikely that the woodlands within the Study Area provide Bat Maternity Colony SWH. Based on these findings, no additional bat maternity colony surveys are required.

HABITAT FOR SPECIES OF CONSERVATION CONCERN

Table 7 provides a preliminary assessment to determine habitat potential for the Species of Conservation Concern identified in **Table 2**.

Table 7 Assessment of Habitat for Species of Conservation Concern with Potential to Occur in the Development Area

Scientific Name	Common Name	Critical Habitat Description[1]	Conservation Status			Source[3]	Potential for Habitat Within Study Area	Rationale	Development Impacts
			Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank[2]				
Birds									
Contopus virens	Eastern Wood-pewee	Open, deciduous, mixed or coniferous forest; predominated by oak with little understory; forest clearings, edges; farm woodlots, parks.	SC	SC	S4B	OBBA	**Yes**	Suitable woodland habitat identified during ELC surveys. However, species not recorded during breeding bird surveys (Stantec Consulting Ltd., 2012).	**No impact**
Coccothraustes vespertinus	Evening Grosbeak	Coniferous or mixed forests; deciduous tree stands; parks, orchards.	SC	SC	S4B	OBBA	**Yes**	Suitable woodland habitat identified during ELC surveys. However, species not recorded during breeding bird surveys (Stantec Consulting Ltd., 2012).	**No impact**
Falco peregrinus	Peregrine Falcon	Rock cliffs, crags, especially situated near water; tall buildings in urban centres.	SC	SC	S3B	OBBA	**Yes**	Tall buildings adjacent to the proposed development property may provide nesting and perching opportunities; species unlikely to be found within proposed development area. However, species not detected during breeding bird surveys or incidentally (Stantec Consulting Ltd., 2012).	**No impact**
Progne subis	Purple Martin	Open, trees areas such as farmland, parks, yards, marshes; usually near large bodies of water; colonial; nests in tree cavities, cliff ledges; most common in nest boxes; requires open space for foraging; prefers trees >15 cm DBH.	---	---	S3, S4B	OBBA	**Yes**	Several candidate cavity trees identified during ELC surveys. However, species not recorded during breeding bird surveys (Stantec Consulting Ltd., 2019).	**No impact**
Buteo lineatus	Red-shouldered Hawk	Moist, mature hardwood forests; woody swamps or wooded margins of marshes; wet bottomlands; restricted to mature, closed (>80%) closed forests; nests reused; requires a minimum of 10 ha of continuous forest to meet territorial requirements; prefers >100 ha of forest; tends to nest in interior.	SC	NAR	S4B	OBBA	No	Woodland habitat within Study Area is not large enough to provide adequate territorial habitat requirements for this species.	**No impact**
Herpetoza									
Lampropeltis triangulum	Eastern Milksnake	Habitat generalists, prefer open habitats including outcrops and meadows; require suitable microhabitats for egg laying, hibernation and thermoregulation; well known for occupying barns, sheds, and houses in rural landscapes; abundance of species appears to correlate with regions where forest cover is relatively high.	SC	--	S4	ON	**Yes**	Suitable meadow habitats identified during ELC and targeted survey, including open gravel areas for basking and cover objects. However, species not recorded during surveys (Stantec Consulting Ltd., 2019).	**No impact**
Sternotherus odoratus	Eastern Musk Turtle	Aquatic, except when laying eggs; shallow slow-moving water of lakes, streams, marshes and ponds; hibernate in underwater mud, in banks or in muskrat lodges; eggs are laid in debris or under stumps or fallen logs at waters edge; often share nest sites; sometimes congregate at hibernation sites; not readily observed.	SC	SC	S4	ON	No	Cattail marshes identified during ELC surveys were dry at time of survey and unlikely to provide the aquatic conditions required by this species. No permanent aquatic connections were observed within Study Area.	**No impact**

Scientific Name	Common Name	Critical Habitat Description[1]	Conservation Status			Source[3]	Potential for Habitat Within Study Area	Rationale	Development Impacts
			Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank[2]				
Graptemys geographica	Northern Map Turtle	Large bodies of water with soft bottoms, and aquatic vegetation; basks on logs or rocks or on beaches and grassy edges, will bask in groups; uses soft soil or clean dry sand for nest sites; may nest at some distance from water; home range size is larger for females (about 70 ha) than males (about 30 ha) and includes hibernation, basking, nesting and feeding areas; aquatic corridors (e.g. stream) are required for movement; not readily observed	SC	SC	S3	ON	No	No large bodies of water or watercourses identified during ELC surveys.	**No impact**
Chelydra serpentina	Snapping Turtle	Permanent, semi-permanent freshwater; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites; may nest at some distance from water; often hibernate together in groups in mud under water; home range size ~28 ha.	SC	SC	S3	ON	No	Cattail marshes identified during ELC surveys were dry at time of survey and unlikely to provide the aquatic conditions required by this species. No permanent aquatic connections were observed within Study Area.	**No impact**
Insects									
Danaus plexippus	Monarch	The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest. Caterpillars eat exclusively milkweed and adults require the nectar of wildflowers to feed.	SC	SC	S2N, S4B	BA	Yes	Monarch directly observed in the Study Area, and suitable habitat recorded throughout the Study Area (Stantec Consulting Ltd., 2019). However, since this site is not within 5 km of Lake Ontario, it cannot be considered SWH for migratory butterflies.	- **Loss of feeding and breeding habitat** - **Indirect harm, injury, or death**
Lichen									
Anzia colpodes	Black-foam Lichen	Requires mature deciduous tree habitats with high humidity and high light levels; humidity is supplied by wetlands, nearby brooks, lakes or the host's position on upland slopes above a water body; appears to require a moderately rough bark, at a stage of tree maturity where the canopy is still fairly open; most common host is Red Maple but also found on Red Oak, White Ash, Sugar Maple, and Shadbush.	THR	DD	SH	NHIC	No	Deciduous vegetation communities within Study Area are not mature; preferred species were not found during ELC survey or occur infrequently. Additionally, this is a historic record (>30 years) from the NHIC.	**No impact**
Leptogium corticola	Blistered Jellyskin	Grows on the bases of hardwoods and occasionally on rocks in moist woods.	---	---	S2	NHIC	No	Limited hardwood communities providing suitable conditions identified during ELC survey. This is a historic record (>30 years) from the NHIC.	**No impact**
Heterodermia hypleuca	Cupped Fringe Lichen	This species is only known from remnant mature to old-growth stands of ash and maple in open deciduous swamps with particularly humid microclimates.	---	---	S2	NHIC	No	No old-growth stands of ash and maple observed within Study Area. This is also a historic record (>30 years) from the NHIC.	**No impact**

[1]General Habitat According to the MNRF Significant Wildlife Habitat Technical Guide (MNR, 2000) *used when Critical Habitat not defined; [2]S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common. [2]Information sources include: MNRF = Ministry of Natural Resources and Forestry Response to Information Request; NHIC = Natural Heritage Information Centre; OBBA = Ontario Breeding Bird Atlas; ON = Ontario Nature: Ontario Reptile and Amphibian Atlas; BA = Toronto Entomologists' Association: Butterfly Atlas; Pers = Personal professional knowledge from past projects; DFO = Fisheries and Oceans Canada --- denotes no information or not applicable.*

The results of this screening refer to background reviews and preliminary observations made during two field visits. The results of this preliminary screening suggest that habitat may be present within the Study Area for the following species:

- **Eastern Wood-pewee** (*Contopus virens*) may be found in the deciduous woodlands located near the southern boundary of the Study Area. This species was not detected incidentally during initial field investigations or breeding bird surveys (Stantec Consulting Ltd., 2019).
- **Evening Grosbeak** (Coccothraustes vespertinus) may be found within deciduous and mixed woodlands within the Study Area. This species was not detected incidentally during initial field investigations or breeding bird surveys (Stantec Consulting Ltd., 2019) and generally does not breed in the Ottawa area.
- **Peregrine Falcon** (*Falco peregrinus*) may be using tall buildings adjacent to the Study Area for nesting or perching. The meadow habitats within the Study Area may provide foraging habitat for this species. This species was not detected incidentally during initial field investigations or breeding bird surveys (Stantec Consulting Ltd., 2019).
- **Purple Martin** (*Progne subis*) may be using cavity trees within woodland habitats for nesting; however, this species was not observed incidentally during initial field investigations or breeding bird surveys (Stantec Consulting Ltd., 2019).
- **Eastern Milksnake** may use the meadow habitat for basking and egg-laying. Thicket habitats may provide adequate protective cover for this species. This species was not observed incidentally during initial field investigations. However, this species was not recorded during field surveys (Stantec Consulting Ltd., 2019).
- **Monarch** was observed directly during field surveys, and several areas of suitable habitat containing Milkweed were recorded throughout the Study Area. It is likely that the Study Area contains breeding and feeding habitat for Monarch (Stantec Consulting Ltd., 2019).

Overall, there is potential habitat for six Species of Conservation Concern within the Study Area. Two of the species were encountered during initial field investigations.

INCIDENTAL OBSERVATIONS OF SIGNIFICANT WILDLIFE HABITAT

There were no incidental observations of SWH during the preliminary site visit or ELC and tree surveys.

5.3.5 SPECIES AT RISK AND SPECIES AT RISK HABITAT

The following sections describe the findings of the targeted SAR surveys conducted by Stantec.

WESTERN CHORUS FROG

No Western Chorus Frogs were detected during field surveys (Stantec Consulting Ltd., 2019).

EASTERN MILKSNAKE

No Eastern Milksnakes were observed during field surveys, although suitable basking areas and cover habitat are present within the Study Area (Stantec Consulting Ltd., 2019).

MONARCH

One Monarch was observed during the site survey, and a total of 255 Milkweed plants were recorded in 19 patches across the Study Area. It is likely that the site provides a breeding and feeding habitat for Monarch (Stantec Consulting Ltd., 2019).

BUTTERNUT AND AMERICAN GINSENG

No Butternut or American Ginseng were present at the site, and there is low habitat suitability for each species (Stantec Consulting Ltd., 2019).

SAR BATS

One SAR bat species, Little Brown Bat, was confirmed to be recorded during acoustic surveys. Tri-colored Bat was potentially recorded but unable to be confidently identified. Suitable habitat for Northern Myotis, Eastern Small-footed Myotis, and Tri-coloured Bat was present within the Study Area (Stantec Consulting Ltd., 2019).

5.4 TREES

An inventory of tree species, general health and condition, and abundance within the subject property was completed on September 11th, 2020. The inventory was used in conjunction with the results from the IFS tree survey in 2012 to evaluate any significant changes to tree species, composition, and health within the subject property.

Twenty-three (23) tree species were observed within the subject property and are listed below (trees marked with an asterisk (*) are non-native or invasive):

- American Basswood (*Tilia americana*)
- American Elm (*Ulmus americana*)
- Amur Maple (*Acer tataricum ssp. ginnala*)*
- Autumn Olive (*Elaeagnus umbellata*)*
- Black Ash (*Fraxinus nigra*)
- Black Pine (*Pinus nigra*)
- Black Walnut (*Juglans nigra*)
- Colorado Spruce (*Picea pungens*)*
- Common Buckthorn (*Rhanmnus cathartica*)*
- Common Juniper (*Juniperis communis*)
- Crack Willow (*Salix euxina*)*
- Eastern Cottonwood (*Populus deltoides*)
- Eastern White Cedar (*Thuja occidentalis*)
- Freeman's Maple (*Acer x freemanii*)*
- Green Ash (*Fraxinus pennsylvanica*)
- Honey-locust (*Gleditsia triacanthos*)
- Manitoba Maple (*Acer negundo*)
- Mugho Pine (*Pinus mugo*)*
- Norway Maple (*Acer platanoides*)*
- Red Oak (*Quercus rubra*)
- Scots Pine (*Pinus sylvestris*)*
- Trembling Aspen (*Populus tremuloides*)
- White Spruce (*Picea glauca*)

Randomly selected tree inventory plots (100 m^2) were surveyed within the WODM5 community. The survey results show that Common Buckthorn is the most abundant species within the woodland (57% occupancy), followed by Trembling Aspen (31% occupancy). Green Ash, Manitoba Maple, Eastern White Cedar, and Common Juniper were recorded equally. Trees within this community are generally young and regenerating, as the average DBH of all trees recorded is 7.6 cm. Tree health within the community was evaluated to be poor, mainly due to the high prevalence of Emerald Ash Borer damage.

Comparing the results of this survey to the 2013 survey from IFS, it is likely that Green Ash abundance within the woodland community has decreased as a result of Emerald Ash Borer, which has coincided with an increased abundance of Common Buckthorn.

A general inventory of species and health evaluation of the WOMM4 community in the northern half of the subject property suggests that tree conditions have remained relatively unchanged within the community. Fourteen (14) species were recorded in this woodland, and most trees appear to be young to mid-aged. Norway Maple, Scots Pine, Mugo Pine, and Honey-locust occur most frequently within this woodland. The average DBH range for trees is between 20-30 cm. The overall health of trees within this community is good, with no obvious symptoms of disease or pests.

Ten (10) distinctive trees were recorded during the tree survey, comprised of Trembling Aspen, Honey-locust, and Red Oak. Seven (7) of the trees (all Trembling Aspen) are within the WODM5 community, and the remaining three

(3) trees are in the WOMM4 community. The overall health of distinctive trees was evaluated as good. The species, size, condition, and location of distinctive trees are included in **Table 8** and illustrated in **Figure 3**.

Table 8 Distinctive trees

Tree ID	Common Name	Scientific Name	DBH (cm)	Condition and Notes	Easting	Northing
01	Trembling Aspen	*Populus tremuloides*	75	Good; co-dominant stems	450359	5029463
02	Trembling Aspen	*Populus tremuloides*	58	Good; trunk leaning	450259	5029413
03	Trembling Aspen	*Populus tremuloides*	55	Good	450240	5029418
04	Trembling Aspen	*Populus tremuloides*	52	Good; trunk leaning	450243	5029416
05	Trembling Aspen	*Populus tremuloides*	61	Good	450142	5029437
06	Trembling Aspen	*Populus tremuloides*	66	Good; minor amounts of branch and tip dieback	450195	5029519
07	Trembling Aspen	*Populus tremuloides*	51, 38	Fair; multi-stemmed, trunks leaning	450194	5029510
08	Honey-locust	*Gleditsia triacanthos*	65	Fair; contorted growth, pruning and topping wounds	450171	5029688
09	Honey-locust	*Gleditsia triacanthos*	52	Fair; contorted growth and form	450210	5029661
10	Red Oak	*Quercus rubra*	61	Fair; poor tree form and growth; branch wounds	450200	5029646

5.5 INCIDENTAL WILDLIFE

In addition to the incidental bird observations listed in **Section 5.3.4**, the following incidental wildlife observations were made during the preliminary site visit and ELC survey:

- Evidence of deer bedding (depressed grass and vegetation, hoof tracks)
- Evidence of beaver damage to trees on the northern limit of property
- Wasp nest observed in Fresh-Moist Mixed Woodland Ecosite.

The Stantec SAR report also noted evidence of Gray Squirrel, Eastern Cottontail, Meadow Vole (*Microtus pennsylvanicus*), Groundhog (*Marmota monax*), and North American Porcupine (*Erethizon dorsatum*) in the Study Area (Stantec Consulting Ltd., 2019).

6 DESCRIPTION OF PROPOSED PROJECT

The proposed development consists of a mixed-use subdivision consisting of residential and mixed-use buildings, a park and open space, and a stormwater management pond. As part of the proposed development, Tremblay Road will be realigned. There is also an opportunity to connect the site to the existing St. Laurent Transit Station pedestrian tunnel entrance to the southwest of Highway 417 and northwest of the site. The site could also connect to the St. Laurent Transit Station via the existing pedestrian tunnel to the St. Laurent Transit Station. Building configuration will be determined at the site plan control approval stage.

6.1 CONSTRUCTION ACTIVITIES

It is assumed the development of this property will include the following major project components:

- Surveying and staking out the development;
- Clearing, excavation, and grading property to accommodate construction;
- Installation and construction SWM infrastructure;
- Excavation to accommodate underground utilities including water, gas, hydro, and emergency services;
- Construction and paving of realigned section of Tremblay Road;
- Decommissioning a portion of the existing Tremblay Road;
- Construction of buildings and houses;
- Paving parking areas and driveways
- Landscaping and fencing; and,
- On-going usage and maintenance.

Draft Plan of Subdivision

Railroad Setback

PSPC Lands

Subject Property

Study Area

Client: Canada Lands Company / Société immobilière du Canada

Title:

470 Tremblay Road
Draft Plan of Subdivision

Prepared By: WSP

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Date: October 2020	**Figure: 5**	

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7 IMPACT ASSESSMENT AND MITIGATION

The following sections describe the anticipated environmental impacts associated with the proposed development and the general measures that should be considered to mitigate the associated impacts. The impact assessment and associated proposed mitigation considers both construction-related impacts and impacts associated with the occupation of the development. The anticipated impacts are illustrated in **Figure 6**.

7.1 AQUATIC HABITAT

Based on the assumed limited functionality of the swales observed within the Study Area, direct impacts on aquatic environments are not expected. However, the following indirect impacts associated with the proposed development and associated construction activities may occur:

- Overland transport of sediment into the wetland habitats resulting from construction activities;
- Potential impacts wetland habitats resulting from spills and other contaminants;
- Sedimentation and erosion impacts resulting from potential dewatering activates that may be required during construction;
- Transport of sediment and other pollutants into wetland habitats from the proposed development; and,
- Increased amount and rate of stormwater runoff from the impermeable surfaces of the proposed development.

Proposed Mitigation Measures – Construction Implementation

The following general mitigation measures are recommended to address impacts on the aquatic habitat adjacent to the development area:

- ✓ Light-duty silt fencing (OPSD 219.110) and / or other equivalent erosion and sediment control measures should be installed around the perimeter of the work area to clearly demarcate the development area and prevent erosion and sedimentation into adjacent habitats. Erosion and sediment control measures should be monitored regularly to ensure they are functioning properly, and if issues are identified should be dealt with promptly;
- ✓ Heavy-duty silt fencing (OPSD 219.130) and/ or other equivalent erosion and sediment control measures should be installed adjacent to wetland habitats to clearly demarcate the development area and prevent erosion and sedimentation into adjacent habitats. Erosion and sediment control measures should be monitored regularly to ensure they are functioning properly, and if issues are identified should be dealt with promptly;
- ✓ Stockpiling of excavated material should not occur outside the delineated work area. If stockpiling is to occur outside of this area, silt fencing should be used to contain any spoil piles to prevent sedimentation into adjacent areas;
- ✓ A spill response plan should be developed and implemented as required;
- ✓ Avoid the use of heavy equipment in the wetland and watercourse during the winter when fish, amphibians and reptiles may be hibernating; and,
- ✓ Stormwater retention and quality control measures should be considered for this property.

With the successful implementation of the mitigation measures outlined above, impacts from the proposed development on the aquatic environment are expected to be negligible.

7.2 NATURAL HERITAGE FEATURES

7.2.1 VEGETATION COMMUNITIES

It is expected that over half of the subject property and associated vegetation communities will be cleared and graded to accommodate the proposed development. There is potential for partial retention of vegetation communities within the Park and Open Space and Stormwater Management Pond blocks, but will be dependent on grading requirements and landscape design, as well as the possible requirement for soil remediation within the subject property.

The impacts associated with vegetation clearing will include:

- The permanent loss of terrestrial vegetation communities, including:
    - approximately 2.2 ha of Fresh-Moist Meadow (MEMM4);
    - approximately 0.72 ha of Dry-Fresh Graminoid Meadow (MEGM3);
    - approximately 0.1 ha of Buckthorn Deciduous Shrub Thicket (THDM2-6);
    - approximately 1.8 ha of Fresh-Moist Deciduous Woodland / Buckthorn Deciduous Shrub Thicket complex (WODM5/THDM2-6);
    - approximately 0.14 of Fresh-Moist Mixed Woodland (WOMM4); and,
    - approximately 0.1 ha of Cattail Mineral Shallow Marsh (MASM1-1).
- Partial but permanent loss or temporary disturbance to the following vegetation communities:
    - up to 1.8 ha of Fresh-Moist Deciduous Woodland / Buckthorn Deciduous Shrub Thicket (WODM5/THDM2-6);
    - up to 0.23 ha of Fresh-Moist Meadow (MEMM4); and,
    - up to 0.46 ha of Cattail Mineral Shallow Marsh (MASM1-1).
- Accidental damage or loss of trees and other vegetation features because of site alteration or construction activities;
- The permanent loss of habitat for wildlife dependent upon the terrestrial communities;
- Changes in natural drainage due to loss of permeable surfaces and changes to surface grading;
- Decreased biodiversity, reduced number of species, or abundance of species;
- Erosion and sedimentation into adjacent vegetation communities; and
- Permanent loss of native vegetation due to increased potential for non-native and invasive vegetation species after development.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Landscaping plans should incorporate or retain existing vegetation communities where possible. For example, a portion of the Fresh-Moist Meadow could be partially retained and enhanced as a naturalized pollinator garden in the proposed park or open space block or implemented into the retained cattail wetland community;
    - Two proposed locations are illustrated in **Figure 6**, one is situated in the existing portion of meadow that is located within the proposed Parkland/Open Space block, and the other location is adjacent to the proposed wetland enhancement area. Additionally, pollinator-friendly seed mixes could be used for the landscaping around the SWM pond;

- The overall shape and design of the garden should be natural and use existing vegetation or natural features as much as possible;
- Soil remediation and/or replacement of topsoil may be needed, pending the results of the Phase II ESA and determination of soil remediation requirements;
- A mixed meadow native seed mix for moist soils is recommended (an example is OCS 6823 "Bee Pollinator Meadow Seed Mixture"); and,
- If retention and/or enhancement of existing vegetation communities is not feasible due to landscaping and construction requirements, an alternative recommendation is to have additional planting, seeding, and landscaping elsewhere within the subject property, specifically the stormwater management block.

✓ Development and implementation of invasive species management plan for vegetation removals and landscaping, specifically to address abundant species such as Buckthorn, Reed Canary Grass, Dog-strangling Vine, and restricted species listed under the Ontario Invasive Species Act, 2015 (Ministry of Natural Resources and Forestry, 2015); and,

- Management plan should be consistent with federal standards under the federal *Invasive alien species strategy* (Environment Canada, 2004).

Proposed Mitigation Measures - Construction Implementation

The following general mitigation measures are recommended to address impacts on the terrestrial environment adjacent to the development area:

✓ Orange snow fencing or another suitable security fencing should be used to delineate the construction limits from the adjacent habitat. This will prevent the encroachment of construction activities into the adjacent natural features. This fencing should be monitored regularly to ensure it is functioning properly. Any deviancy in the fencing should be dealt with promptly;

✓ Erosion and sediment control plan should be implemented to prevent sedimentation outside of work areas;

✓ Landscaping plans should consider the use of appropriate native species to offset the loss of species and biodiversity from vegetation removals;

✓ Construction and project staff should be made aware of the guidelines established in the Clean Equipment Protocol for Industry (Ontario Invasive Species Council, 2016) for vehicle and equipment inspection and cleaning standards;

✓ Invasive species to be removed shall be done so using species-appropriate methods to prevent further contamination, and comply with invasive species legislation;

✓ Removal of toxic species may require specialized contractors or safety equipment and other safety measures.

✓ Machinery will arrive on-site in a clean condition and will be free of fluid leaks, invasive species, and noxious weeds;

✓ All construction equipment leaving vegetated work areas should be inspected and cleaned as necessary. If required, a temporary contained vehicle cleaning area should be established for vehicles to be cleaned prior to exiting the work area onto adjacent paved roads; and,

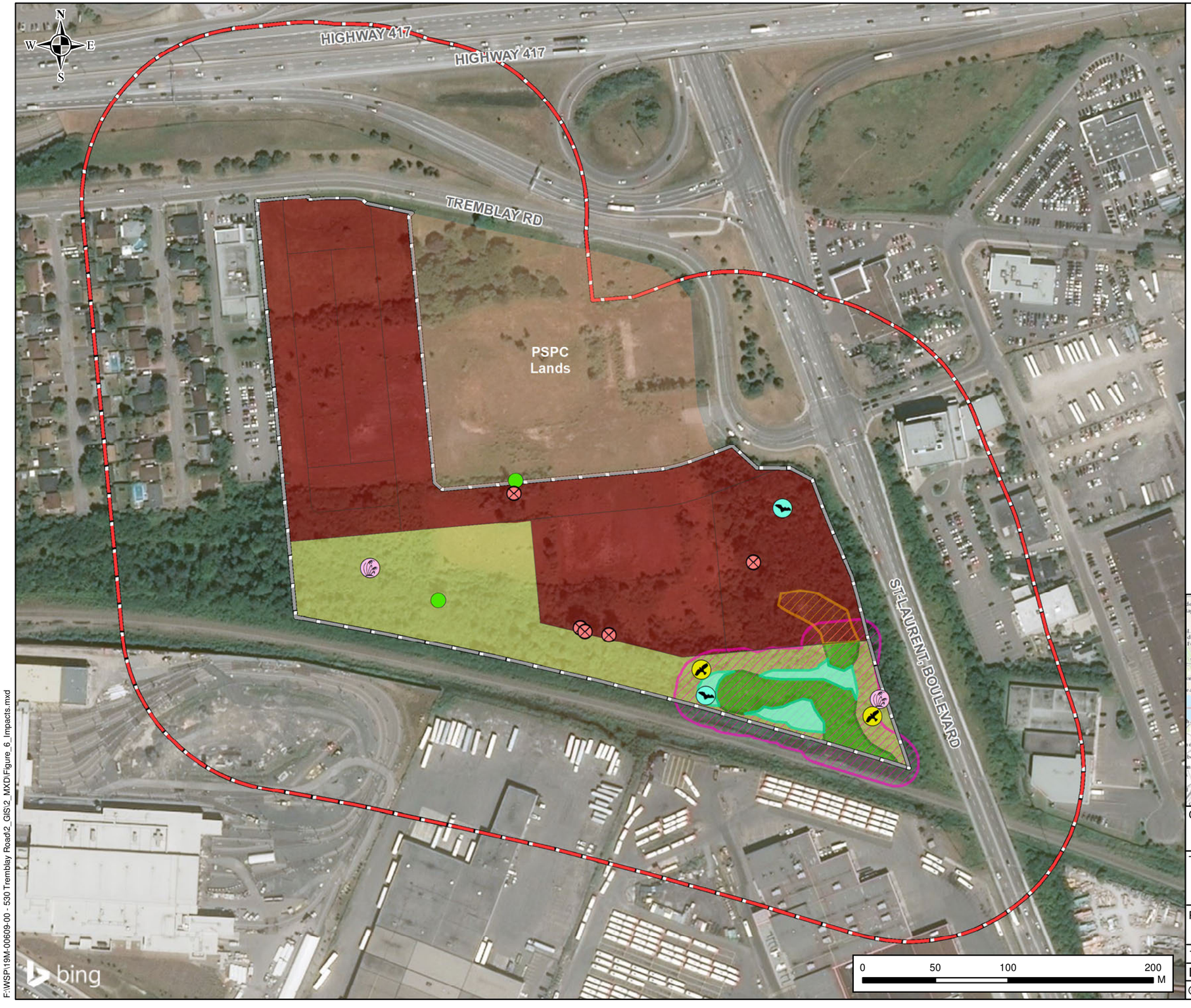
✓ All excess construction material will be removed from the site, and the area restored with seeding of native species upon project completion as required.

Proposed Mitigation Measures - Post-Construction

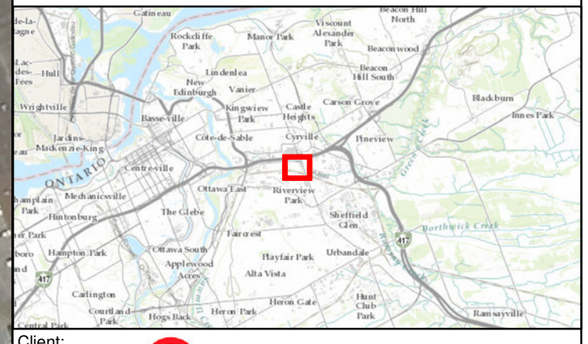
✓ Installation of garbage bins in public spaces is recommended to limit trash habitats adjacent to the development area;

- ✓ 'No Littering' signage is recommended around the property to discourage littering is also recommended; and,
- ✓ Installation of educational signage within the proposed park area highlighting native vegetation found within the park.

With the successful implementation of the mitigation measures outlined above, a moderate reduction in low-quality native terrestrial vegetation is anticipated.



- Distinctive tree (potentially retainable)
- Distinctive tree (likely to be removed)
- Potential bat box location
- Potential pollinator meadow location
- Potential bird house / nesting structure
- Removed wetland (0.1 ha)
- Wetland setback (15 m)
- Wetland habitat compensation (0.14 ha)
- Retained wetland
- Partially retainable vegetation (Parkland, Open Space)
- Vegetation clearing
- Draft Plan of Subdivision
- PSPC Lands
- Subject Property
- Study Area



Client: Canada Lands Company / Société immobilière du Canada

Title:

470 Tremblay Road
Anticipated Impacts and Mitigation

Prepared By: WSP

19M-00609-00	1:2,700	Review: AZ
Date: October 2020	**Figure: 6**	
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7.2.2 WETLANDS

Two wetland cells (MASM1-1) are located near the southeastern corner of the subject property. Of these two cells, the southern one is located entirely within the Open Space block, and the northern cell is located primarily within the Stormwater Management block, with a portion located in the Open Space block.

Based on the Draft Plan of Subdivision and the anticipated construction activities, it is likely that the northern wetland will be partially and permanently removed to accommodate SWM construction and infrastructure. The approximate area of wetland habitat being removed is 0.1 ha.

The impacts associated with this removal includes a net loss of flood storage, loss of native vegetation, and an overall loss of available wildlife habitat. Furthermore, the significance of this loss is notable due to the limited wetland habitat within the Cyrville Drain catchment.

Preliminary discussions with the RVCA identified the desire to compensate for the loss of wetland habitat. Given the constraints of the surrounding urban environment and adjacent transportation corridors, the disconnected nature of the wetland, and the degraded habitat quality (Buckthorn thicket), the RVCA has suggested that a 1:1 compensation ratio is suitable.

To meet the compensation requirement it is recommended that the remaining portion of the northern wetland cell be connected to the southern wetland cell. This would effectively expand the southern wetland cell where there is suitable space to maintain a 15m setback. A conceptual wetland area is illustrated in **Figure 6**. The total area of compensation habitat shown in **Figure 6** is approximately 0.14 ha, a net increase of 400 m^2.

Previous discussions with the RVCA identified additional requirements and details to be implemented into the design, which includes enhancing the existing wetland habitat. Specific details are listed below in the proposed mitigation measures.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Expansion and enhancement of the southern cell wetland is recommended to offset the loss of approximately 0.1 ha of the northern wetland cell and to contribute to surface flow retention and provide wildlife habitat. The expansion and enhancement to include the following details, following discussions with the RVCA:
    - Overall shape and design of compensation wetland habitat should appear natural and use existing topography and hydric soils where possible.
    - Due to isolation of the wetland and disconnection from fish habitat features, the RVCA's typical 30 metre regulation setback can be reduced to an average of 15 metres, with flexibility to accommodate for site layout and existing topography and natural features.
    - Restored wetland should be separate from the proposed SWM pond, but clean and treated water could be discharged into the wetland from the SMW pond.
    - The grading plan for the proposed adjacent park area should direct surface flows towards the wetland, but surface flows from elsewhere on site (pavement and hardened surfaces) should not be captured in the wetland.
    - Water depth should be approximately 1-2 metres, with an organic/hydric substrate depth of approximately 30centimetres. The water depth should be deep enough to contain areas of open water but also have shallow, vegetated areas.
    - Large quantities of structural features, such as basking logs and root wads, should be placed in the wetland. Dead trees surrounding the wetland can be used to create these features.
    - Mature, healthy trees surrounding the wetland should be retained where practical, to provide shading for the wetland from sunlight and adjacent roadway lighting.

- Wetland should consider groundwater levels and be designed with seasonal variations with groundwater in mind.
- Existing soils should be tested for contaminants.

✓ If restoration/enhancement of the wetland area is required, the development of the following plans will be required for RVCA approval:

- Wetland Restoration Plan, including design drawing; and,
- Detailed Design and Post Effectiveness Monitoring Plan.

✓ Landscaping plan for constructed wetland should consider the use of appropriate native species to offset the loss of species and biodiversity from vegetation removals.

Proposed Mitigation Measures - Construction Implementation

✓ Orange snow fencing or another suitable security fencing should be used to delineate the construction limits from the adjacent habitat. This will prevent the encroachment of construction activities into the adjacent natural features. This fencing should be monitored regularly to ensure it is functioning properly. Any deviancy in the fencing should be dealt with promptly;

✓ Access into the wetland during construction should use the most direct and least destructive path;

✓ Erosion and sediment control plan should be implemented to prevent sedimentation outside of work areas;

✓ Machinery will arrive on-site in a clean condition and will be free of fluid leaks, invasive species, and noxious weeds; and,

✓ All excess construction material will be removed from the site, and the area restored with seeding of native species upon project completion as required.

Proposed Mitigation Measures – Post-Construction

✓ Installation of public educational signage about wetland ecology, backyard habitat improvements (i.e. bat boxes, bee hotels, etc.), and common wetland wildlife;

✓ Installation of garbage bins in public spaces is recommended to limit waste and litter into the wetland habitats; and,

✓ 'No Littering' signage is recommended in public areas to discourage littering is also recommended.

With the successful implementation of the recommended mitigation, it is anticipated that there will be an increase in overall wetland habitat and an increase in habitat quality due to restoration and enhancement activities.

7.2.3 WOODLANDS

It is expected that most of the Fresh-Moist Deciduous Woodland/Buckthorn Deciduous Shrub Thicket complex (WODM5/THDM2-6) will be cleared to accommodate the Mixed-Use, Park and Open Space, and Stormwater Management blocks and the realigned Tremblay Road. Furthermore, a portion of the Fresh-Moist Mixed Woodland (WOMM4) will be cleared for the construction of residential blocks and roadways.

Photograph 1: Representative woodland conditions (June 7th, 2019)

The WODM5/THDM2-6 woodland has few remaining mature and healthy trees. There is widespread evidence of Emerald Ash Borer damage to mature, but now dead, Ash trees throughout the woodland. There are individual mature Trembling Aspen trees within this woodland, but they also have evidence of hypoxylon canker. It is likely that the damage and death resulting from Emerald Ash Borer and hypoxylon canker have likely attributed to the regeneration and spread of Buckthorn and Manitoba Maple within the woodland. Photograph 1 shows the representative conditions within this woodland.

Clearing of these woodlands is expected to result in an overall reduction of Buckthorn and less desirable native species (Manitoba Maple), which comprise most trees and vegetation within these woodlands.

Retention of healthy native trees should be prioritized in certain areas where possible, specifically within the Park and Open Space Block and the Stormwater Management Pond area. However, given the limited abundance of healthy native trees within the woodlands, it is likely that retention will be minimal.

To offset the loss of woodlands within the subject property it is recommended to re-plant native trees and shrubs throughout the Park and Open Space block. The development of a planting plan should be done in coordination with the City of Ottawa to identify targets for planting and appropriate species.

The anticipated impacts on woodlands include:

- The permanent loss of, or temporary disturbance to, approximately 3.82 ha of non-significant woodlands within the proposed development area, including;
    - 3.6 ha of Fresh-Moist Deciduous Woodland / Buckthorn Deciduous Shrub Thicket complex (WODM5/THDM2-6); and,
    - 0.14 ha of Fresh-Moist Mixed Woodland (WOMM4).
- Decreased biodiversity, reduced number of species, or abundance of species;
- The permanent loss of habitat for wildlife dependent upon these woodlands;
- Decrease of permeable surfaces and surface drainage;
- Reduced canopy cover;
- Fragmentation of contiguous woodlands located outside of the subject property; and,
- Erosion and sedimentation into adjacent habitats.

Proposed Mitigation Measures - Construction Stage

The following general mitigation measures are recommended to address impacts on the woodlands within the proposed development blocks:

- ✓ Development of landscaping and planting plan in consultation with the City of Ottawa to address compensation ratios, appropriate species, and other targets and objectives;
- ✓ Tree retention should be prioritized where possible, specifically within the Park and Open Space, and Stormwater Management Pond areas;
- ✓ Invasive species such as Buckthorn should be prioritized for removal to enhance the retained woodland habitats;

- ✓ Landscaping plans should consider the use of appropriate native species to offset the loss of species, biodiversity, and canopy cover from vegetation removals;
- ✓ Minimize woodland clearing to least extent possible; and,
- ✓ General mitigation for vegetation removals as described in **Section 7.2.1**.

It is anticipated that the clearing of woodlands within the subject property will result in an overall permanent loss of woodland habitat within the property, although this will include primarily invasive species and native species with limited ecological value.

7.2.4 SIGNIFICANT WILDLIFE HABITAT

BREEDING BIRDS

It is expected that the removal and disturbance to forest, thicket, meadow, and marsh habitats within the proposed development area will result in a loss of potential nesting and foraging habitat for birds. The following direct and indirect impacts on breeding birds are a possible result of the proposed development:

- The permanent loss of nesting and foraging habitat will likely result from the clearing of vegetation within the property;
- Potential physical harm to birds or birds' nests during clearing and construction activities;
- Reduced composition, distribution, and abundance of a bird species within the area;
- Predation by domestic cats during occupation; and,
- The increased potential for fatal bird collisions associated with building windows following construction.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ "Bird-friendly" building design principles should be considered in the design of the development. Potential measures may include the following:
    - General building design should incorporate the City of Ottawa's bird-friendly design guidelines where possible (City of Ottawa, 2020).
- ✓ Retention and enhancement of wetland habitat features should be considered to retain bird breeding and foraging habitat within the subject property.
- ✓ Retention of native vegetation within the proposed park and open space areas should be prioritized to maintain available nesting and foraging habitat for breeding birds.
- ✓ Installation of constructed bird nesting features (i.e. Swallow and Wren nesting boxes) should be considered in and around the retained wetland and the Open Space and Stormwater Management Pond blocks.

Proposed Mitigation Measures – Construction Implementation

The following mitigation measures are intended to address potential impacts to breeding birds resulting from the proposed development:

- ✓ Clearing of vegetation should be avoided during the breeding bird season, between April 1st and August 31st. Should any clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed 48 hours prior to clearing activities. If nests are found, an appropriate setback will be established by the qualified professional. No work will be permitted within this setback in accordance with the federal Migratory Birds Convention Act (MBCA) (Government of Canada, 1994);
- ✓ A qualified bird rehabilitation centre should be contacted if any birds are injured or found injured during construction activity. Injured birds should be transported to a qualified for care with a small donation of money to help pay for the care (a local facility is the *Ottawa Valley Wild Bird Care Centre*);

- ✓ The construction area should be pre-stressed prior to any vegetation clearing within the proposed development area; and,
- ✓ Other mitigation measures outlined in the *Protocol for Wildlife Protection during Construction* (City of Ottawa, 2015) should be considered prior to the construction of the proposed development.

With the successful implementation of the recommended mitigation, a minor overall loss of breeding and foraging habitat for birds is expected.

AMPHIBIANS

Based on the results of the Stantec Western Chorus Frog surveys, and preliminary site investigations, the proposed development is expected to have a marginal negative impact on amphibians within the Study Area. The following impacts on amphibians are a possible result from the proposed development:

- Potential physical harm to amphibians during clearing and construction activities;
- Potential harm to amphibians resulting from sediments and pollutants transported into wetland habitats;
- Negligible loss of woodland amphibian habitat.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Retention and enhancement of existing wetland features.

Proposed Mitigation Measures – Construction Implementation

- ✓ Silt fencing should be installed around the perimeter of the development area prior to site activities as part of erosion and sediment control measures to prevent amphibians and other wildlife from entering the site. Fencing should be maintained throughout the life cycle (until the land is permanently stabilized) of the project and repaired if damaged by machinery;
- ✓ Avoid the use of heavy equipment in wetlands and watercourses during the winter amphibians and reptiles may be hibernating; and,
- ✓ Other mitigation measures outlined in the 'Protocol for Wildlife Protection during Construction' should be considered prior to the construction of the proposed development (City of Ottawa, 2015).

With the successful implementation of the mitigation measures above, impacts to amphibians from the proposed development are expected to be negligible.

BAT MATERNITY COLONY SWH

Based on the Draft Development Concept Plan, areas of candidate Bat Maternity Colony SWH are anticipated to be retained along the railroad setback and within the Open Space block, which offers the opportunity to retain candidate cavity trees. Additionally, light from the proposed subdivision street lights and buildings may attract insects and provide foraging opportunities for bats. Overall, the removal forested and meadow habitat is likely to be non-limiting for bats. The following impacts on bat maternity roost habitat are possible:

- Permanent loss of candidate roost trees within forested habitat from vegetation removals;
- Permanent loss of candidate foraging area within meadow habitat from vegetation removals and construction activities; and,
- Accidental displacement, injury, or death of bats which may be using woodlands as temporary roosting habitat during the roosting period.

Proposed Mitigation Measures – Construction Implementation

- ✓ Retention of candidate cavity trees and suitable habitat in and around the wetland and forested habitats;
- ✓ Clearing of vegetation should be avoided during the general active and maternity roosting periods for bats (May 1st to October 15th); and,

- ✓ Installation of four large bat boxes (two per post) placed in appropriate open areas, associated with SWM Ponds, retained wetlands or parkland, to enhance potential roosting habitat for resident bats.

With the successful implementation of the mitigation measures outlined above, it is anticipated that the proposed development will result in a negligible impact on bats and bat habitat within the Study Area.

HABITAT FOR SPECIES OF CONSERVATION CONCERN

One Species of Conservation Concern (Monarch) was encountered on-site during field investigations (Stantec Consulting Ltd., 2019), and candidate habitat for five other Species of Conservation Concern was identified within the Study Area. The following impacts to Species of Conservation Concern are expected:

— Disturbance or removal of suitable marginal breeding and feeding habitat for Monarch;

— Disturbance or removal of candidate habitat for Eastern Wood-Pewee, Evening Grosbeak, Peregrine Falcon, Purple Martin, and, Eastern Milksnake; and,

— Accidental harm or injury to Eastern Wood-Pewee, Evening Grosbeak, Peregrine Falcon, Purple Martin, Eastern Milksnake, and Monarch during construction activities.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Pollinator garden consisting of native vegetation plantings should be implemented into the design for the open space and park areas to maintain suitable breeding and feeding habitat for Monarch; and,
- ✓ Development and implementation of invasive species management plan, specifically addressing Dog-strangling Vine, should be implemented to limit the risk of harmful plants to Monarch and Species of Conservation Concern birds.

Proposed Mitigation Measures – Construction Implementation

- ✓ Installation of sediment control fencing to prevent Eastern Milksnake from entering work areas;
- ✓ Clearing of vegetation should be avoided between April 1st and September 15th, to avoid potential physical harm to Monarch and Species of Conservation Concern birds during breeding and foraging seasons; and,
- ✓ Construction areas should be pre-stressed during clearing to allow Species of Conservation Concern to safely leave the area.

Proposed Mitigation Measures – Post-Construction

- ✓ Pesticide use should be limited, or avoided when possible, in landscape maintenance to reduce the risk of exposure to Monarch.

With the successful implementation of the mitigation measures outlined above, it is anticipated that there will be no impacts to Species of Conservation Concern.

7.2.5 SPECIES AT RISK

Based on the Draft Plan of Subdivision and the SAR surveys completed by Stantec, the following impacts to SAR are expected:

— Permanent loss of roosting and foraging habitat for Little Brown Bat;

— Permanent loss of breeding and feeding habitat for Monarch;

— Permanent loss of candidate roosting and foraging habitat for Northern Myotis, Eastern Small-footed Myotis, and Tri-colored Bat;

— Permanent loss of candidate habitat for Eastern Milksnake and Eastern Meadowlark; and,

— Accidental harm, displacement, or death to SAR during vegetation clearing and construction activities.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Pollinator garden consisting of native vegetation plantings should be implemented into the design for the open space and park areas to maintain suitable breeding and feeding habitat for Monarch; and,
- ✓ Development and implementation of an invasive species management plan, specifically addressing Dog-strangling Vine, should be implemented to limit the risk of harmful plants to Monarch.

Proposed Mitigation Measures – Construction Implementation

- ✓ Installation of sediment control fencing to prevent Eastern Milksnake from entering work areas;
- ✓ Retention of candidate cavity trees and suitable habitat for SAR bats in and around the wetland and forested habitats;
- ✓ Clearing of vegetation should be avoided during the general active and maternity roosting periods for SAR bats (May 1st to October 15th);
- ✓ Installation of six large bat boxes (two per post); placed in appropriate open areas, associated with SWM/engineered wetlands, to enhance potential roosting habitat for resident bats;
- ✓ Construction areas should be pre-stressed during clearing to allow SAR to safely leave the area; and,
- ✓ Environmental awareness training and materials should be provided to construction staff by a qualified biologist to make construction staff aware of safety protocols should SAR be encountered directly during construction activities.

While suitable habitat is present within the Survey Area for Little Brown Bat, there is no confirmed Critical Habitat (under SARA) or General Habitat (under ESA) present on site, and therefore no permitting for Little Brown Bat is expected. Additionally, Monarch (Special Concern) does not receive federal or provincial protection, and no permitting is required.

With the successful implementation of the recommended mitigation, it is expected that the proposed development will have no direct impacts on SAR and impacts to SAR habitat will be non-limiting.

7.3 TREES

It is anticipated that site construction will require tree clearing throughout the property, resulting in a permanent decrease in primarily young to mid-aged trees. As described in Section 5.4, the tree community within the subject property consists mainly of less desirable native and/or invasive species with an average DBH < 10 cm. These trees are mainly understorey and sub-canopy level trees (2-10m tall) and provide minimal canopy cover. These trees have populated the subject property as a result of widespread dieback of Ash trees (from EAB).

Retention of some of these trees may be possible if implemented into the landscape design for the Park and Open Space block, although it is likely ecologically beneficial in the long-term if they are removed and re-planted with appropriate native species.

Based on the Draft Plan of Subdivision, there may be potential for retention of up to one distinctive tree within the Park and Open Space and Stormwater Management Pond blocks, as well as one tree on the boundary of the subject property; adjacent to the proposed realignment of Tremblay Road (**Figure 6**). Retention of these trees is dependent on various factors, including detailed site and landscape design, site grading and construction activities, the potential for soil remediation, and general tree health.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ A tree planting and compensation plan should be developed in consultation with the City of Ottawa to meet the City's targets for re-planting and urban canopy growth;
- ✓ The landscape plan should include tree planting recommendations consistent with the City of Ottawa's target for increased canopy cover to the extent possible within the property;

- ✓ Landscaping plans for areas adjacent to driveway should consider the use of appropriate native species to offset the loss of species and biodiversity from vegetation removals;
- ✓ Invasive species, such as Buckthorn should be prioritized for removal and replacement with suitable native species; and,
- ✓ Prior to construction activities, overhanging limbs and any exposed tree roots of trees to be retained should be pruned in a manner that minimizes physical damage and promotes quick wound closure and regeneration. Maintenance of roots or limbs should be carried out by an ISA Certified Arborist or a tree care specialist under the supervision of an ISA Certified Arborist.

Proposed Mitigation Measures – Construction Implementation

- ✓ Tree retention should be prioritized where possible (i.e. Open Space and Park, Stormwater Management Pond);
- ✓ Trees to be removed should be clearly marked, and work crews should be informed of the importance of only removed marked/approved trees;
- ✓ Trees protection fencing should be installed around all trees that will be retained within and around work areas;
- ✓ Protection fencing around trees shall be installed at the critical root zone (CRZ) to ensure no impacts to this area. The CRZ is calculated as the DBH x 10 cm;
    - Groups of trees can be fenced together as long as the fencing still meets the recommended placement described above;
    - Fencing should be installed following the City of Ottawa's Tree Protection Specification (City of Ottawa, 2019);
- ✓ Tree protection fencing should be inspected as required to ensure no deviancy from the intended location and to record any deficiencies;
- ✓ Do not place any material or equipment within the CRZ of any trees to be preserved;
- ✓ Do not attach any signs, notices, or posters to any tree;
- ✓ Do not raise or lower the existing grade within the CRZ of trees without approval;
- ✓ Do not tunnel or bore when digging within the CRZ of a tree;
- ✓ Excavation activities around trees shall not damage the root system, trunk or branches of any tree to be preserved;
- ✓ Exhaust fumes from all heavy machinery, vehicles, generators, and other equipment shall not be directed towards any trees for prolonged periods of time;
- ✓ Tree removals should be avoided during the breeding bird season (April 1st to August 31st) to limit disturbance to nesting birds and their nests or young and comply with the MBCA, 1994;
    - If trees are to be removed during the breeding bird season, it should be preceded by a nest survey by a qualified avian biologist. Surveys should be undertaken a maximum of 48 hours prior to the commencement of removals. If nests are found during a survey, or during construction, an appropriate buffer must be applied and the nest must not be disturbed until the young have fledged; and,
- ✓ All Green Ash trees removed should be treated as infected by the Emerald Ash Borer beetle and appropriately disposed of so as not to infect other areas of the city.

Proposed Mitigation Measures – Post-Construction

- ✓ Post-construction tree maintenance methods should be used to repair any damage caused to trees by construction activities. These may include, but is not limited to: treating trunk and crown injuries, irrigation and drainage, mulching, and aeration of root zone; and,
- ✓ Within 12 months of completion of construction, an assessment of preserved trees should be conducted. Trees that are dead, in poor health, or hazardous should be removed or pruned, as determined by an ISA Certified Arborist. Tree removal, if necessary, should occur promptly to avoid foreseeable risk of trees falling and causing damage or harm to people and/or property.

With the successful implementation of the mitigation measures recommended above, it is anticipated that the proposed development will result in an overall decrease in young to mid-aged low quality native and invasive trees.

7.4 WILDLIFE

The proposed development is expected to have a negative impact on local wildlife due to the general loss of natural habitat and direct impacts related to construction activities. Potential impacts to wildlife resulting from the proposed development include the following:

- Displacement, injury, or death resulting from contact with heavy equipment during clearing and grading activities;
- Loss of general natural habitat suitable for the life processes of common urban and rural wildlife;
- Disturbance to wildlife resulting from noise associated with construction activities, particularly during breeding periods;
- Outdoor lighting may result in disturbance to wildlife within forest and meadow habitats; and,
- Conflict between wildlife and humans following development, including mortality from vehicles.

Proposed Mitigation Measures – Planning and Design Stage

The best practices outlined in the *Protocol for Wildlife Protection during Construction* (City of Ottawa, 2015) should be followed during all construction activities associated with the development. The following measures are consistent with the protocol:

- ✓ Pre-stress the area on a regular basis leading up to construction to encourage wildlife to leave the area before construction starts. Other recommendations for pre-stressing are outlined in the *Protocol for Wildlife Protection During Construction* (City of Ottawa, 2015);
- ✓ Orange snow fencing should be installed around the perimeter of the work area to clearly demarcate the development area and prevent wildlife from entering the construction zone. Fencing should be monitored regularly to ensure they are functioning properly, and if issues are identified should be dealt with promptly;
- ✓ Perimeter fencing should not prevent wildlife from leaving the site during clearing activities by clearing the area prior to installing the fence;
- ✓ Wildlife located within the construction area will be relocated to an area outside of the development into an area of appropriate habitat by a qualified professional, as necessary;
- ✓ Avoid vegetation clearing during sensitive times of the year for local wildlife (e.g. spring and early summer);
- ✓ Construction crews working on-site should be educated on local wildlife and take appropriate measures for avoiding wildlife;
- ✓ Landscaping plans should consider the implementation of pollinator gardens and bee hotels to promote urban biodiversity;

- ✓ Educational signage in the proposed park should be installed to inform and educate local residents about urban wildlife, backyard wildlife habitat enhancements (i.e. Bat boxes, bee hotels, pollinator gardens, etc), and wildlife habitat found within the subject property;
- ✓ Security lighting around the park and SWM pond should be designed to minimize light affecting the forest and associated wildlife (e.g. light fixtures directed downward towards building and walkways). See City of Toronto's *Best Practices for Effective Lighting* (2017) for approximate guidelines (City of Toronto, 2017); and,
- ✓ A qualified wildlife rehabilitation centre should be contacted if any animals are injured or found injured during construction. Injured animals should be transported to an appropriate wildlife rehabilitation centre for care with a small donation of money to help pay for the care (a local facility is the Rideau Valley Wildlife Sanctuary).

With the mitigation measures outlined above, it is anticipated that the proposed development will result in a negligible impact on wildlife within the Study Area.

7.5 CUMULATIVE IMPACTS

The proposed development is in urban Ottawa, and cumulative impacts must be considered in the context of the local and regional environment in which the site is situated. Much of the land surrounding the Study Area is a mix of residential, commercial, and industrial uses, with most of the impacts to the larger natural heritage system occurring during area development over 40 years ago. The subject property itself had previously been occupied by office and commercial buildings and has naturalized following demolition of buildings and related infrastructure over ten years ago. The property no longer appears to have a connection to the broader natural heritage system.

Based on field assessments and available information, the removal of the natural heritage features within the subject property will have a negligible negative impact on the natural heritage system. Potential cumulative impacts on the natural heritage system resulting from the proposed development include the following:

- General loss of biodiversity and available habitat; and,
- Increase in impervious surfaces increasing runoff potential.

Proposed Mitigation Measures – Planning and Design Stage

In addition to the mitigation measures listed above, the following mitigation should be considered to address the cumulative impacts resulting from the proposed development:

- ✓ Landscaping plans should intend to enhance existing and retained habitat features and vegetation; and,
- ✓ Promote the use of permeable landscaping materials and rain capture systems like rain barrels.

8 SUMMARY AND CONCLUSIONS

This report provides an evaluation of the anticipated impacts associated with the construction and long-term occupation of the proposed subdivision development located at 470 Tremblay Road (**Figure 1**). The environmental impacts and mitigation are based on field investigations completed in 2019 and 2020, the findings of the Species at Risk report (Stantec Consulting Ltd., 2019), and a review of available desktop and background information.

Notable observations during WSP's field investigations include the presence of two cattail marshes located within the southeastern corner of the subject property. The assessment of these communities indicates they are isolated and not connected to the outside natural heritage system. These wetlands likely provide localized habitat for amphibians, birds, and mammals, as well as localized flood storage from overland flows.

The Stantec SAR study found a confirmed presence of one SAR (Little Brown Bat) and one Species of Conservation Concern (Monarch). The Little Brown Bat was recorded in multiple areas the woodland in the southern half of the subject property, although there were limited recordings of this species during the acoustic surveys. The Monarch was observed outside of the subject property on the adjacent PSPC parcel, although suitable habitat (Milkweed) was recorded in the meadows throughout the Study Area.

Woodlands are present within the Study Area but are not considered significant based on their age and size and are also exempt from the significant woodlands policy as per section 6.4.4.1 of the guidelines. The larger woodland in the southern portion of the subject property is heavily disturbed with an abundance of invasive Buckthorn, with lesser amounts of Norway Maple. Dog-strangling vine is also very prevalent within the ground layer. Furthermore, there is widespread evidence of Emerald Ash Borer throughout the woodlands.

The ELC survey noted eight vegetation communities, plus an additional four that are associated with urban and cultural uses. All of the ELC communities identified are common within Ottawa. The vegetation survey results indicate a high abundance of invasive species within the property, as invasive and non-native species comprise approximately half of the vegetation species recorded.

Twenty-three (23) species of trees were recorded in the Study Area and are generally young to mid-aged (average DBH < 10 cm). The most abundant species are primarily Buckthorn, Norway Maple, Trembling Aspen, and Manitoba Maple. Evidence of tree pests (Emerald Ash Borer) and disease (Hypoxylon canker) is evident throughout the Study Area. Ten (10) distinctive trees were recorded during the tree survey, six (6) of which are located inside the subject property.

The field evaluation suggests that natural features within the subject property are isolated and without a connection to the broader natural heritage system. However, these features may provide local benefits to urban wildlife that may occupy the site.

Based on this evaluation, there are several opportunities for habitat protection and enhancement, particularly around the proposed park and SWM ponds. This includes the following:

- Retention of southern wetland cell and compensation for loss of wetland habitat within the SWM block. Additionally, the existing and compensation wetland habitats should be enhanced to maintain flood storage, offset habitat loss, reduce invasive species abundance and increase native species and diversity;
- Installation of appropriate bird nesting features, such as Wren or Swallow houses, to attract urban bird populations;
- Installation of bat boxes to compensate for the loss of candidate roost and maternity colony habitat and support urban bat populations;
- Creation of pollinator gardens to enhance habitat for wild bees and other pollinators species; and,
- Retention of mature trees and replanting of native trees to maintain urban tree canopy.

In addition to the expected ecological benefits from the above recommendations, it is anticipated that these features will provide social and educational value to local residents.

The mitigation and compensation measures described in this report have been developed to avoid or limit negative environmental impacts associated with the proposed development. Based on the information available, it is our opinion that this proposed development, on what is functionally an infill lot on disturbed land, makes sound use of land, which provides only marginal ecological value.

This study was completed by Alex Zeller, M.Sc. with technical and field assistance provided by; Cody Pytlak, B.A. and Andrea Orr, B.Sc. Resumes of key staff are included in **Appendix B**. The results and findings of this study have been reported without bias or prejudice. The conclusions of this study are based on our own professional opinion, substantiated by the findings of this study, and have not been influenced in any way.

9 REFERENCES

Bird Studies Canada. (2001). *Ontario Breeding Bird Atlas: Guide for Participants.* Guelph: University of Guelph. Retrieved from http://www.birdsontario.org

Bird Studies Canada. (2009 Edition). *Marsh Monitoring Program Participant's Handbook for Surveying Amphibians.* Bird Studies Canada in cooperation with Environment Canada and the U.S. Environmental Protection Agency.

Canadian Standards Association. (2019). *Bird-friendly building design (CSA A460:19).* Retrieved from https://www.scc.ca/en/standardsdb/standards/29805

City of Ottawa. (2003 as consolidated). Retrieved 2019, from Official Plan and master plans: https://ottawa.ca/en/business/planning-and-development/official-plan-and-master-plans

City of Ottawa. (2013). *Natural Landscape Linkage Analysis.*

City of Ottawa. (2014, January 29). *Transit-Oriented Development (TOD) Plans: Lees, Hurdman, Tremblay, St. Laurent, Cyrville and Blair.* Retrieved from https://documents.ottawa.ca/sites/documents/files/documents/tod2_plan_main_en.pdf

City of Ottawa. (2015). *City of Ottawa 2015-2018 Strategic Plan.* City of Ottawa. Retrieved from http://documents.ottawa.ca/sites/documents.ottawa.ca/files/documents/2015_2018_strategic_plan_en.pdf

City of Ottawa. (2015, August). *City of Ottawa Protocol for Wildlife Protection during Construction.* Retrieved July 29, 2019, from http://ottwatch.ca/meetings/file/309612/_Document_1_Protocol_for_Wildlife_Protection_During_Construction_pdf_Item_PROTOCOL_FOR_WILDLIFE_PROTECTION_DURING_CONSTRUCTION_UPDATED_Meeting_Planning_Committee_Date_2015_09_22_09_30_00

City of Ottawa. (2015, October). *Environmental Impact Statement Guidelines.* Retrieved from Guide to preparing studies and plans: http://documents.ottawa.ca/sites/documents.ottawa.ca/files/documents/eis_guidelines2015_en.pdf

City of Ottawa. (2018, June). *Tree Conservation - Urban By-law (2009-200).* Retrieved from City of Ottawa: https://documents.ottawa.ca/sites/default/files/documents/tree_bylaw_en.pdf

City of Ottawa. (2019). Retrieved 2019, from geoOttawa Webmap Portal: http://maps.ottawa.ca/geoottawa/

City of Ottawa. (2019). *Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment.* Retrieved from City of Ottawa: https://documents.ottawa.ca/sites/default/files/significant_woodlands_draft_guidelines_FINAL.pdf

City of Ottawa. (2019, May). *Tree Protection Specification.* Retrieved from https://documents.ottawa.ca/sites/documents/files/tree_protection_specification_en.pdf

City of Ottawa. (2020). *Bird-friendly Design Guidelines*. Retrieved from https://ottawa.ca/en/city-hall/public-engagement/projects/bird-friendly-design-guidelines

City of Ottawa. (2020). *Tree Conservation Report Guidelines.* Retrieved from City of Ottawa: https://ottawa.ca/en/residents/water-and-environment/trees-and-community-forests/tree-protection#tree-conservation-report-guidelines

City of Toronto. (2017). *2017 Best Practices Effective Lighting.* Retrieved 2019

Dobbyn, J. S. (n.d.). *Atlas of the Mammals of Ontario.* 1994: Federation of Ontario Naturalists. Retrieved April 2019

Environment Canada. (2004). *An invasive alien species strategy for Canada.* Ottawa: Environment Canada.

Environment Canada. (2019, April). *A to Z Species Index*. Retrieved 2019, from Species at Risk Public Registry: http://www.registrelep-sararegistry.gc.ca/sar/index/default_e.cfm

Government of Canada. (1994). *Migratory Birds Convention Act.* Retrieved 05 16, 2018, from Justice Laws Website: http://laws.justice.gc.ca/eng/acts/M-7.01/

IFS Associates. (2012). *Tree Assessment Survey & Report - 530 Tremblay Road.* Ottawa,. Retrieved May 15, 2019

Lee, H., Bakowsky, W., Riley, J., Bowles, J., Puddister, M., Uhlig, P., & McMurray, S. (1998). *Ecological Land Classification for Southern Ontario: First Approximation and its Application.* North Bay, Ontario, Canada: Ontario Ministry of Natural Resources.

Ministry of Municipal Affairs and Housing. (2020). *Provincial Policy Statement.* Toronto: Queen's Printer for Ontario. Retrieved from http://www.mah.gov.on.ca/Page10679.aspx

Ministry of Natural Resources and Forestry. (2015). *Invasive Species Act, 2015.* Queen's Printer for Ontario.

Ministry of Northern Development and Mines. (2019). *OGSEarth*. Retrieved May 15, 2019, from https://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearth

MNR. (2000). *Significant Wildlife Habitat Technical Guide.* Peterborough: Queen's printer for Ontario. Retrieved from https://www.ontario.ca/document/guide-significant-wildlife-habitat

MNR. (2010). *Natural Heritage Reference Manual for Natural Heritage Policies of the Povincial Policy Statement, 2005* (Second ed.). Toronto: Queen's Printer for Ontario.

MNRF. (2015). *Bat Survey Methodology - hibernacula and maternity roosts.*

MNRF. (2015, October 7). *Natural Heritage Information Centre*. Retrieved May 2, 2019, from https://www.ontario.ca/page/natural-heritage-information-centre

MNRF. (2015, January). *Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E.* Retrieved March 8, 2018, from https://www.ontario.ca/document/significant-wildlife-habitat-ecoregional-criteria-schedules-ecoregion-6e

Ontario Invasive Species Council. (2016). *Clean Equipment Protocol for Industry.* Peterborough.

Ontario Ministry of Natural Resources. (2011). *Bats and Bat Habitat: Guidelines for Wind Power Projects.* Queen‟s Printer for Ontario. Retrieved April 30, 2019, from https://www.ontario.ca/document/bats-and-bat-habitats-guidelines-wind-power-projects

Rideau Valley Conservation Authority. (2012). *Rideau River - Rideau Falls Catchment Report.* Manotick.

Stanfield, L. (2017). *Ontario Stream Assessment Protocol Version 10.0.* Peterborough, Ontario: Ontario Ministry of Natural Resources.

Stantec Consulting Ltd. (2012). *Wetland Assessment at 530 Tremblay Road, Ottawa, ON.* Retrieved 05 14, 2019

Stantec Consulting Ltd. (2019). *Phase II Species at Risk Site Surveys at 530 Tremblay Road, Ottawa, Ontario.* Ottawa.

Toronto and Region Conservation Authority and Credit Valley Conservation. (2014). *Evaluation, Classification and Management of Headwater Drainage Features Guideline.* Retrieved April 15, 2019

APPENDIX

A

TREE ASSESSMENT AND REPORT – 530 TREMBLAY ROAD, OTTAWA (IFS ASSOCIATES, 2012)

TREE ASSESSMENT SURVEY & REPORT – 530 TREMBLAY ROAD, OTTAWA

PREPARED FOR:

RACHELLE BESNER

PWGSC/TPSGC
NATIONAL CAPITAL AREA (OTTAWA)
380 HUNT CLUB ROAD
OTTAWA, ON
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PREPARED BY:

ANDREW BOYD, B.SC.F, R.P.F.

IFS ASSOCIATES
P.O. BOX 13593
OTTAWA, ON
K2K 1X6
613-839-0101

January 10, 2012

IFS ASSOCIATES

INTRODUCTION

The importance of protecting vegetation cover on sites subject to development is detailed in Section 4.7.2 of the City of Ottawa's Official Plan. In accordance with this the City of Ottawa's Urban Tree Conservation By-law (By-law no. 2009-200) requires a detailed Tree Assessment prior to the removal of trees on such sites. In this instance Public Works and Government Services Canada (PWGSC) will require the removal of most individual amenity trees and large portions of a remnant forest parcel prior to the construction of an office complex at 530 Tremblay Road in Ottawa. The amenity trees and forest once surrounded a previous development on the property, the buildings of which have since been demolished. This report has been prepared in advance of any tree removal.

The subject property is located south of Highway 417, north of a Canadian National Railway corridor and east of Eastway Gardens, a residential neighbourhood. In total the property covers an area of 12 hectares (please see Picture 1 on page 2).

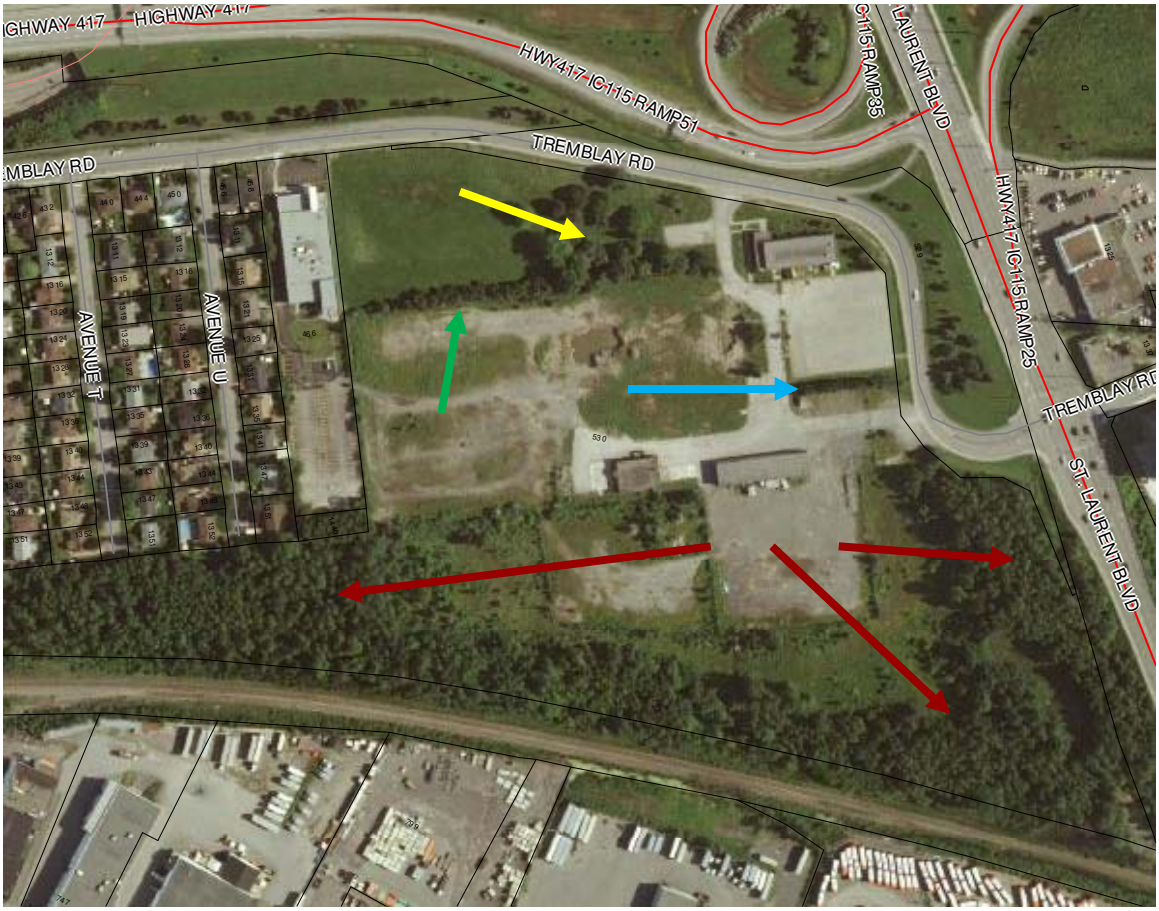
FOREST INVENTORY

1) SPECIES COMPOSITION

A forest inventory was completed by assessing the woody vegetation within randomly-located sample plots throughout the forested area on the subject property. Each sample plot was $50m^2$ in size. Within each plot, the species and diameter of each tree was recorded. Once compiled this information was used to define the composition of the forest over- and understories. Table 1 on page 2 details the size (by diameter) and distribution (by stem count) of the major tree species occupying the forested area. Areas largely devoid of woody vegetation, including areas of permanently standing water, natural openings and walking paths are also present within the forested area. It is estimated such areas cover less than ten percent of the of the total forest area.

2) STAND AGE AND STRUCTURE

The age and structure of the forested area indicates that prior to development it was part of a larger mid-tolerance deciduous forest. The fragmentation of the original forest has left a single forest stand behind characterized by a lack of species diversity. Ash species, the second most plentiful tree species, dominates the overstory while the introduced, invasive buckthorn dominates the understory (see Table 1). The lack of species diversity is largely due to the consistently poor drainage throughout the forested area. Also, through the development of the surrounding lands and the construction of the railway corridor to the south, it is now cut off from other forested areas from where other tree species may have migrated. This has led to the dominance of only a few species, leaving the forest prone to decline from both biotic and environmental threats. Pictures 2 and 3 on page 3 and Picture 4 on page 4 show representative areas within the forest stand.



Picture 1. 2008 aerial photograph of the subject property at 530 Tremblay Road showing vegetated areas (taken from City of Ottawa's eMAP application).

Table 1. Forest Inventory of 530 Tremblay Road

Tree species	**Average Size (Diameter in cm)**	**Percent Distribution (Occupancy by stem count)**
Buckthorn species (*Rhamnus* spp.)	4.1	45.0
Ash species *(Fraxinus* spp.)	9.7	42.7
Serviceberry (*Amelanchier* spp.)	4.8	4.3
Red maple *(Acer rubrum*)	19.0	2.6
Bur oak *(Quercus macrocarpa)*	18.0	1.3
Hawthorn *(Crataegus* spp.)	7.7	1.3
White elm *(Ulmus americana)*	14.5	0.8
Trembling aspen *(Populus tremuloides)*	26.0	0.4
Black cherry *(Prunus serotina)*	10.0	0.4
Willow species *(Salix* spp.)	9.0	0.4
Nannyberry *(Viburnum lentago)*	4.0	0.4
Honeysuckle *(Lonicera* spp.)	2.0	0.4

Picture 2. Picture of representative area within forest stand at 530 Tremblay Road, Ottawa (note standing water).

Picture 3. Picture of representative area within forest stand at 530 Tremblay Road, Ottawa.

Picture 4. Picture of representative area within forest stand at 530 Tremblay Road, Ottawa.

TREE INVENTORY

During the construction of the previous development a number of individual amenity trees were planted. These trees were planted in two lines and one grouping. The location of each planting formation is shown in Picture 1, the green and blue arrows highlighting the location of tree lines and the yellow arrow indicating the grouping of planted trees. Table 2 below details the species and size of the trees within these three formations:

Table 2. Inventory of Amenity Trees at 530 Tremblay Road

Tree species	Average Size (Diameter in cm)	Percent Distribution (Occupancy by stem count)
Green tree line		
Mugho pine *(Pinus mugo)*	17.2	57.2
Scots pine (*Pinus sylvestris)*	34.6	37.2
Red pine *(Pinus resinosa)*	30.1	5.6
Blue tree line		
Colorado spruce *(Picea pungens)*	32.4	100.0
Yellow grouping		
Norway maple *(Acer platanoides)*	52.3	28.0
Honey-locust *(Gleditsia triacanthos)*	45.6	20.0
Crab apple species (*Malus* spp.)	18.7	16.0
Colorado spruce	36.7	12.0
Red oak *(Quercus rubra)*	42.3	8.0
Silver maple *(Acer saccharinum)*	56.9	4.0
Red maple	37.8	4.0
Manitoba maple *(Acer negundo)*	46.1	4.0
Little-leaf linden *(Tilia cordata)*	36.3	4.0

Pictures 5 and 6 on page 6 show the 'green' and 'blue' tree lines and Picture 7 on page 7 shows a representative area within the 'yellow'grouping of amenity trees at 530 Tremblay Road.

TREE HEALTH AND CONDITION

Overall, the health of the trees within the subject property is poor. Most of the ash trees on the property are showing signs of advanced attack by Emerald ash borer *(Agrilus palnipennis)*. It is anticipated that all such trees will eventually succumb to this insect. The most serious, widespread disease is Hypoxylon canker *(Hypoxylon mammatum)*. This fungal disease has caused some trembling aspens to die and break at the point of infection. Another common disease is Dutch elm disease *(Ophiostoma ulmi)*. There is consistent evidence throughout the property of elm tree mortality due to this disease.

Picture 5. Picture of representative area within ‘green’ tree line at 530 Tremblay Road, Ottawa.

Picture 6. Picture of ‘blue’ tree line at 530 Tremblay Road, Ottawa.

Picture 7. Picture of representative area within 'yellow' tree grouping at 530 Tremblay Road, Ottawa.

SIGNIFICANT & ENDANGERED SPECIES

No distinctive or endangered tree species, as defined by the Province of Ontario's Endangered Species Act (2007) and the Government of Canada's Species at Risk Act (2002) were found to be present on the property.

PRESERVATION MEASURES

As mentioned previously PWGSC is proposing to build an office complex on the subject property. During this construction it is anticipated that some of the trees now present may be preserved. To this end the following measures are recommended by the City of Ottawa to ensure these trees survive during construction:

1. Erect a fence at the critical root zone (CRZ[1]) of trees;
2. Do not place any material or equipment within the CRZ of the tree;
3. Do not attach any signs, notices or posters to any tree;
4. Do not raise or lower the existing grade within the CRZ without approval;

5. Tunnel or bore when digging within the CRZ of a tree;
6. Do not damage the root system, trunk or branches of any tree;
7. Ensure that exhaust fumes from all equipment are NOT directed towards any tree's canopy.

[1] The critical root zone (CRZ) is established as being 10 centimetres from the trunk of a tree for every centimetre of trunk Diameter at breast height (DBH). The CRZ is calculated as DBH x 10 cm.

Avoiding changes in soil grade close to remaining trees will play a significant part in their longevity following construction. If grade changes cannot be avoided the installation of retaining walls or tree wells should be considered.

Please do not hesitate to contact me if you have any questions concerning this Tree Assessment Survey and Report.

Yours,

Andrew Boyd

Andrew K. Boyd, B.Sc.F., R.P.F.
Consulting Urban Forester

APPENDIX

B RESUMES

ALEXANDER ZELLER, M.Sc.

Senior Ecologist, Environment

Areas of practice

Environmental Impact Assessments

Environmental Policy and Approvals

Environmental Assessments

SAR Surveys and Permitting

Terrestrial and Aquatic Surveys

Spatial Ecology & GIS

Public Consultation

Indigenous Knowledge Consultation

Languages

English

PROFILE

Alexander is a Project Manager and Senior Ecologist with over sixteen years of professional experience in terrestrial and aquatic ecology, open space planning, and natural heritage authorizations. Alex has led and managed many challenging natural heritage projects throughout eastern Ontario and across Canada, including; land development projects, regional planning studies, environmental monitoring programs, environmental assessments, indigenous knowledge studies, and renewable energy authorizations. His broad knowledge of ecology, environmental policy, and agency consultation has proved a successful complement to multi-disciplined and large-scale environmental planning projects.

EDUCATION

Masters of Science in Biology, Lakehead University	2007
Honours Bachelor Environmental Science, Lakehead University	2003

PROFESSIONAL DEVELOPMENT

Expert Witness Training (Gowlings, Toronto)	2015
Ecological Land Classification Certification (MNR)	2010

CAREER

Senior Ecologist, Environment, WSP (Ottawa, ON)	2018 – Present
Associate, Dillon Consulting Limited (Ottawa, ON)	2013 – 2018
Ecologist, Dillon Consulting Limited (Ottawa, ON)	2006 – 2013
Research Technician - Contract Positions, Ontario Ministry of Natural Resources and Forestry (Thunder Bay, ON)	2001 – 2006
Teaching Assistant – Geography and Biology Departments, Lakehead University (Thunder Bay, ON)	2003 – 2005

PROFESSIONAL EXPERIENCE

INFRASTRUCTURE

- Centre Block Rehabilitation Project, PSPC (2018 - now): Lead Project Ecologist responsible for; all ecological studies, development and management mitigation and compensation measures, reporting requirements, and agency consultation required to facilitate the Centre Block Rehabilitation project, on Parliament Hill in Ottawa. Natural Heritage Phase Value; *confidential*
- Confederation Line Extension light rail, City of Ottawa (2019 – now): Lead Ecologist responsible for the implementing the established management recommendations and facilitating the outstanding permitting requirements to accommodate detail design phase of the project. Natural Heritage Project Value; *confidential*

- West Transitway Extension, Phase 11 – Stillwater Creek, City of Ottawa (2018): Project manager and lead ecologist for the post-construction monitoring for the realignment of Stillwater Creek required to accommodate the West Transitway Extension. This project included; a species at risk screening, amphibian breeding surveys, breeding bird surveys, vegetation community inventories, fish community sampling, aquatic habitat assessment, water quality parameters, fluvial geomorphology studies. Project value: $60,000
- Riverview to Overbrook: transmission line upgrade, Hydro One (2016): Lead Ecologist for an Class Environmental Assessment in support of a transmission line upgrade between Overbrook and Riverview facilities in Ottawa. Alexander was responsible for coordinating and undertaking field surveys, participating in public consultation, reporting writing, impact assessment, and developing mitigation and avoidance measures.
- Innes Road Reinforcement Pipeline Project: Environmental Monitoring and Environmental Awareness Training, Enbridge Gas Distribution Inc. (2014-2016): Project manager and lead biologist for the Environmental monitoring and environmental awareness in support of the 2.8 km pipeline installation along Innes Road in Ottawa. This installation included 580m of horizontal directional drilling of NPS12 steel pipe under Highway 417. The project included the development and delivery of a bespoke environmental awareness training program and the on-going environmental monitoring during construction. Project value: $50,000
- Innes Road Reinforcement Pipeline Project: Environmental Assessment, Enbridge Gas Distribution Inc. (2014): Lead biologist for the class environmental assessment for the 2.8 km Enbridge Gas Distribution pipeline installation along Innes Road in Ottawa. Alexander was responsible for coordinating and undertaking biophysical field surveys, reporting writing, impact assessment, and developing mitigation and avoidance measures. Project value: $40,000
- Ottawa West Reinforcement Pipeline Environmental Assessment, Enbridge Gas Distribution Inc. (2011-2013): The local biologist for a multidisciplinary team of biologists, planners and engineers working on environmental and cumulative effects assessment for the installation of 20 km of 24-inch natural gas pipeline in Western Ottawa. Took over project management role for the construction phase of the project. This phase included the more detailed biophysical surveys to support environmental authorizations, pre- and post-construction water well monitoring, and development of a detailed mitigation strategy. These mitigation measures included; physical mitigation measures, environmental awareness training, daily on-site environmental monitoring, environmental compensation; and an assessment of agricultural crop loss and associated compensation. Project value: $150,000
- GTA Reinforcement Pipeline Environmental Assessment, Enbridge Gas Distribution Inc. (2011): Acting as both an ecologist and spatial analyst for a multidisciplinary team of biologists, planners, and engineers working on an environmental and cumulative effects assessment for the pipeline reinforcement in the Greater Toronto Area. Responsibilities include managing a majority of the GIS mapping pertaining to the three large study areas, conducting terrestrial biology surveys, and liaising with the client when required. Project value: $200,000
- Infrastructure Master Plan, Town of Perth (2009-2010): Completed the ecological assessment and natural heritage inventory for an infrastructure master plan in the Town of Perth. This study involved a full vegetation survey of the study area, identification of soils, observations of wildlife and detailed mapping of the existing ecosystems within the study area. Additional responsibilities included maintaining

the GIS library, consulting with stakeholders and producing GIS figures for report. Project value: $100,000

- Truck Inspection Station Assessment, Ministry of Transportation, Ontario (2008): Completed the ecological assessment and resource inventories for nine different truck inspection stations throughout northern Ontario. This study involved a full vegetation survey of the study areas, identification of soils, observations of wildlife, detailed mapping of the existing ecosystems within the study areas and publishing all mapping for reports. Additional responsibilities included maintaining the GIS library, consulting with stakeholders and producing GIS figures for report. Project value: $250,000

LAND DEVELOPMENT

- 760 River Road, Claridge Homes Group of Companies (2019 to now); Project manager and lead ecologist for the environmental impact statement and an Environmental Impact Statement and Tree Conservation Study for a development in south Ottawa. This study was completed in support of plan of subdivision for a residential development. Project value: $15,000
- 323 Jockvaile Road, Minto Communities (2018 to now); Project manager and lead ecologist for the environmental impact statement and tree conservation report for a proposed residential development in the Barhaven Community. These reports were completed following the City of Ottawa guidelines. Project Value: $6,000
- Riverview Lane, Urbandale Construction (2018): Project manager and lead ecologist for natural heritage approvals associated with a residential subdivision in Kemptville, Ontario. Scope of work included SAR authorizations, Fisheries authorizations, watercourse and fish habitat design consultation, and general agency consultation. Project value: $12,000
- SAR Permit Implementation and Monitoring, KNL Developments (2017 to now): Project manager and lead biologist for the management and implementation of one of the most complex Species at Risk (SAR) permits issued in Ontario. Responsible for; establishing habitat creation plans, negotiating revisions to permit, coordination of environmental monitoring and species surveys, fisheries authorizations, design of habitat compensation features, consultation with relevant agencies and stakeholders, and all associated reporting and documentation. Project value: $60,000 annually.
- 800 Eagleson Road EIS and TCR, Ironclad Developments (2018): Project manager and lead ecologist responsible for completing an Environmental Impact Statement and Tree Conservation Study for a development in west Ottawa. The proposed project will consist of a six-story rental apartment building with approximately 150 units with access from Eagleson Road. Project value: $16,000
- Barrhaven South Community Design Plan, Minto (2015-2017): Project manager and lead biologist on the multi-disciplined consulting team undertaking the Barrhaven South Community Design Plan. Responsible for managing the natural heritage related studies, reports, and public consultation contributions. Also responsible for consulting with stakeholders to ensure the community design plan meets their expectations and requirements. Project value: $80,000
- Phase 12, 14, 15, and 16; Environmental Impact Statement, Riverside South Development Corporation (2014-2017): Project manager and lead biologist for a series of Environmental Impact Statements and Tree Conservation Studies for a several primarily residential developments in southern Ottawa. Terrestrial and aquatic environments were evaluated and impacts assessed for each development.

Mitigation measures and management recommendations were developed to address the identified environmental impacts associated with the proposed development. Project Value: $150,000

- McArthur Island Developments, Carleton Place, ON (2015-now): Project manager and lead biologist for the natural heritage compliance requirements supporting a multi-phase residential/retirement complex located on McArthur Island within the Mississippi River. This project will include the redevelopment of an historic woollen mill and the construction of several other multi-story buildings. The scope of environmental services provided included Environmental Impact Studies and associated field surveys, arborist reports, specific wildlife surveys, and environmental compensation design. Project value $50,000
- Clark Lands Development, Environmental Impact Statement, Minto (2013-2017): Project manager and lead biologist for an Environmental Impact Statement and Tree Conservation Study for a development in west Ottawa. This study was completed in support of plan of subdivision for a residential development. Project value: $40,000
- Potter's Key Development, Environmental Impact Statement, Minto (2013 to now): Project manager and lead biologist for an Environmental Impact Statement, Tree Conservation Report, Species at Risk Permitting, Fisheries approvals, and on-going environmental monitoring for a development in Stittsville, Ontario (City of Ottawa). The study was completed as part of an application for residential development. Project value $120,000
- Fernbank Lands Development Environmental Impact Statement, Richcraft (2013 - 2017): Project manager and lead biologist for an Environmental Impact Statement, Tree conservation Report, and Species at Risk Permitting for a development in Stittsville, Ontario (City of Ottawa). The study was completed as part of an application for residential development. Project value $30,000
- Environmental Screening Study, Walton Developments (2012-2014): Project manager and terrestrial ecologist for a natural heritage screening study for Walton Developments. The project is aimed at identifying any natural heritage constraints that may affect the ability to develop a number of properties in southwest Ottawa. Responsibilities include project management, reporting, terrestrial field surveys, avian surveys and GIS mapping. Project value: $80,000
- Scoped Environmental Impact Statement, City of Ottawa (2011): Project manager for a scoped environmental impact statement. The project was scoped to specifically address the concern for the impact of a rural residential development in south Ottawa on Species at Risk. Responsibilities include managing budget, invoicing, field survey, report writing and communicating with the client. Project value: $20,000
- Chapman Mills Environmental Impact Statement Addendum, Minto (2011): Project manager for an addendum to an environmental impact statement assessing the impact of a residential development on trees and local hydrology within a small woodlot south of Ottawa. Responsibilities included managing budget, invoicing, field survey, report writing and communicating with the client. Project value: $4,000

NATURAL RESOURCES STUDIES

- Kizell Wetland Trail - SAR Authorizations, City of Ottawa (2019): Project manager and lead ecologist for the Species at Risk authorizations required for the construction of a Pedestrian trail network within the conservation forest around the Kizell wetland in Kanata, ON. Project value: $8,000

- Goulbourn Wetland Re-delineation, City of Ottawa (2015-2016): Project manager for the re-delineation of the Goulbourn Provincially Significant Wetland, located in west Ottawa. The objective of this project was to undertake a boundary re-delineation of the provincially significant wetland (PSW) known as the Goulbourn Wetland Complex. Alexander was responsible for ensuring the quality of the re-delineation and associated report, consulting with land owners, and reviewing the approach and findings with the city and the Ontario Ministry of Natural resources. Project value: $50,000
- Feedmill Creek Species at Risk Screening, City of Ottawa (2017): Project manager and lead ecologist for a species at risk screening of Feedmill Creek in support of the proposed restoration efforts. Specific surveys included; bat habitat surveys, Blanding's turtle basking surveys, butternut Screening, and other incidental observations. Project value: $25,000
- Ecological Land Classification, National Capital Commission (NCC) (2015): Project manager and lead Biologist for project to map all the ecotypes within the NCC's urban and greenbelt lands. Ecological mapping was done using Ontario Ecological Land Classification and covers an area of approximately 62 km2. The mapping will be used to for various future ecological landscape management projects. Project value: $60,000
- Species at Risk Survey, Defence Construction Canada (DCC) – CFB Shilo Range Training Area (2014): GIS analyst and Biologist responsible for the species at risk habitat suitability modelling used in the Environmental Assessment Report. This modelling was used to establish the potential threats to SAR across the base and in turn recommend best management practices for training in SAR habitat. Project value: $50,000
- 2014 Species at Risk Screening, City of Ottawa (2014): Project manager and lead biologist for a Species at Risk screening study for the City of Ottawa's Infrastructure Branch. The objective of this study was to identify the potential threat various planned infrastructure projects had to Species at Risk. In total 489 projects were evaluated over the course of the project. A new risk assessment approach and a series of management tools were developed to aid City project managers. Many of these tools continue to be used by the city for subsequent SAR Screenings. These tools included; standardized risk categories, a suite of standardized mitigation recommendations, a GIS database of the screening results, a document summarizing and illustrating the Species at Risk that may be found within the city, and a SAR screening process flowchart to assist City project managers. Project value: $100,000
- Natural Heritage Study, County of Frontenac (2011-2012): Lead landscape ecologist for the County of Frontenac's Natural Heritage Study. This study will form the major piece of the county's Official Plan (OP) and will provide policy and zoning recommendations for future OP schedules. Marxan and corridor design modelling was done to assist in the development of ecologically sound natural heritage zoning. Responsibilities include public consultation, managing the GIS and spatial analysis, assisting with policy development, and managing GIS modelling. Project value: $60,000
- Rideau Canal Landscape Strategy, Parks Canada (2012): Lead ecologist for the Rideau Canal Landscape Strategy study being conducted to characterize the landscape and develop policy recommendations along the Rideau Canal in support on the UNESCO World Heritage Status. Personal responsibilities include public consultation, ecological characterization and recommendations, GIS mapping, field survey, report writing and communicating with the client. Project value: $60,000

- Birds Creek Secondary Plan, Municipality of Hastings Highlands (2011-2012): Working with the Municipality of Hastings Highlands to produce/develop a secondary plan for the community of Birds Creek, north of Bancroft. The plan will promote a healthy living philosophy and promote sustainable development practices. Responsibilities include consultation with public and client, assessing the existing natural resources, assisting in incorporating natural heritage features into the plan and developing GIS mapping for study area. Project value: $50,000
- Solar Farm Site Assessment, SkyPower (2010): Assisting with the environmental impact evaluation of proposed solar farms as part of an environmental assessment for renewable energies. Duties included conducting and writing records review report, amphibian survey, Ecological Land Classification and general ecological field surveys. Project value: $20,000
- Regional Ecology Planning Framework, Regional Municipality of Wood Buffalo (RMWB) (2008): Working with RMWB to develop an ecological planning framework that will aid the municipality in balancing development pressures with municipal-specific environmental conservation goals. Responsible for developing the GIS-based ecological planning model and decision support tools created specifically for the municipality. Project value: $20,000
- Terry Fox Drive Environmental Construction Monitoring, City of Ottawa (2010-2012): Assisted with the on-going environmental monitoring of the Terry Fox Drive road construction project, to ensure compliance of environmental mitigation. Duties included water quality monitoring, sediment and erosion control recommendations, wildlife observations, species at risk monitoring and environmental awareness training. Project value: $200,000
- Terry Fox Drive Environmental Assessment, City of Ottawa (2007 – 2010): Completed the assessment of natural features along the future Terry Fox Drive corridor in west Ottawa. This included the electrofishing of aquatic habitat, salamander survey and general ecological observations. In addition to the field assessments, also coordinated the GIS analysis and map production for various environmental assessment reports. Project value: $150,000
- Yellowknife Smart Growth Plan: Ecological Preservation Study, City of Yellowknife (2007-2010): Working with a team of planners to advance Yellowknife's existing Ecological Resource Inventory which will allow for greater public engagement on the quality of life impacts of 40 natural sites. Personal duties include GPS data collection, GIS mapping, Remote Sensing Landcover Classification, and consultation with public and other stakeholders. Project value: $60,000
- Satellite Image Classification, Tsuu T'ina First Nation (2007): Conducted a satellite image classification to update outdated vegetation mapping. Landsat-7 TM data was classified using IDRISI Andes software. Training areas were delineated to represent the various vegetation communities in the image, and a maximum likelihood classification method was used to classify the image. The results of the image classification proved to be excellent and corresponded to ground-truth landcover classes very well. Project value: $4,000
- Tlicho Land Use Plan, Tlicho Government (2006-2009): Lead Ecologist for the Tlicho Land Use Plan in the Northwest Territories. Personal responsibilities include the development of the GIS database and spatial model within the GIS to aid in the production of the final land use plan. This model incorporates traditional indigenous knowledge and ecological features with economic and social influences to identify suitable land use zones. The emphasis of the Tlicho Land Use Plan is on mitigating

the cumulative effects of development on the natural and social environment while still promoting sustainable economic development. Project value: $200,000.

- Mathews Lake Habitat Restoration, Public Works Government Services Canada (2008): Assisted with the 2008 post-construction monitoring of the fish habitat enhancement in the Mathews Lake watershead in the Northwest Territories. This rehabilitation work was done to improve the fish habitat in the immediate vicinity of Salmita Mine and Tundra Mine. Duties included seine netting and fish identification, construction of new fish habitat structures, benthos and water quality assessments. Project value; $40,000
- Aquatic Habitat Assessment, Canadian Pacific Rail (2007): Assisting in aquatic habitat assessment for a water crossing along the CPR tracks in Peterborough, Ontario. The objective of the study is to improve habitat for native brook trout and other resident fish by providing in-stream habitat in the vicinity of the crossing. Project value: $20,000
- Westside Creek and Marsh Reconfiguration, St Mary's Cement (2006): Developed a GIS database to incorporate the annual environmental monitoring data for the reconfiguration of Westside Creek and Marsh. Produced a landcover classification from satellite imagery to assess the vegetation change within the marsh and the surrounding area. Project value: $150,000

OTHER RELEVANT EXPERIENCE

- Masters of Biology thesis examined understory forest regeneration after wildfire in the boreal forest of northwestern Ontario. The thesis utilized GIS and remote sensing to model landscape characteristics related to species regeneration in the boreal forest.
- Undergraduate thesis utilized GIS to examine the impact of intensive harvesting on littoral deposition rates. A soil erosion model of an intensively harvested watershed was produced in GIS. The results from this model were correlated to measure deposition around the small inland lakes within the watershed.

PUBLICATIONS

- Gleeson, J., A.Zeller and J.W. McLaughlin. 2006. Peat as a Fuel Source in Ontario: A Preliminary Literature Review, Ontario Forest Research Institute, Forest Research Information Paper 161, Sault Ste. Marie, Ontario.
- Zeller, A.J. 2005. Using landscape indices to model environmental gradients within the Mixedwood Boreal Forests of northwestern Ontario, Canada. Poster Presentation at Ontario Ecology and Ethology Colloquium, 2005. Ottawa, Ontario

CODY PYTLAK, B.A., PG(ER)

Junior Ecologist, Environment

Areas of practice

Environmental Impact Assessments

Avian Surveys and Monitoring

Species at Risk Surveys

Terrestrial and Aquatic Surveys

Environmental Restoration

Spatial Analysis

Web Mapping

Research and Communications

Languages

English

PROFILE

Cody Pytlak, B.A., is a junior ecologist with four years of experience conducting a range of wildlife and biodiversity surveys. Within the National Capital Region, Cody has performed point count surveys and inventories for breeding birds and Species-at-Risk such as the Least Bittern and Bobolink, basking surveys for Species-at-Risk turtles, coverboard surveys for Species-at-Risk snakes, amphibian calling surveys, tree inventories, and aquatic sampling for fish and benthic invertebrate communities. He holds graduate certificates from Niagara College in Ecosystem Restoration and Geographic Information Systems: Geospatial Management, and a Bachelor of Arts degree in Journalism from Wilfrid Laurier University. In addition to his experience with WSP, Cody has helped lead and participate in several provincial monitoring projects across Canada. This includes assessing wetland bird populations in Atlantic Canada and conducting biodiversity surveys in Alberta. He has used his GIS knowledge to perform suitability analysis for vegetation restoration opportunities and to develop interactive web applications for both data collection and presentation. He has also assisted in researching and delivering recommendations for environmental, agricultural, and land-use policies for the Ontario Greenbelt.

EDUCATION

Geographic Information Systems: Geospatial Management Graduate Certificate, Niagara College	2018
Ecosystem Restoration Graduate Certificate, Niagara College	2014
Bachelor of Arts - Journalism, Wilfrid Laurier University	2011

CAREER

Junior Ecologist, Environment, WSP	2018 – Present
Marsh Monitoring Technician, Bird Studies Canada	2016, 2017
Communications Assistant, The Friends of the Greenbelt Foundation	2015
Field Technologist, Alberta Biodiversity Monitoring Institute	2014

PROFESSIONAL EXPERIENCE

LAND DEVELOPMENT

- Orleans Health Spa, Jardin Royal Garden (2019 to now): Ecologist for an Environmental Impact Statement and Tree Conservation Report for a development located in Cumberland. Organized and carried out surveys for breeding birds and Species at Risk birds, amphibian surveys, and acoustic bat monitoring and habitat assessments. Identified and evaluated natural heritage impacts and proposed mitigation. Reports were produced following the City of Ottawa guidelines.
- Riverside South Phase 12, Riverside South Development Corporation (2019): Lead field ecologist for an Environmental Impact Statement addendum for a residential development property in southern Ottawa. Surveys for Species at Risk (Bobolink, Blanding's Turtle) were completed and impacts were evaluated. Mitigation measures and management recommendations were developed to address the identified environmental impacts with the proposed development.

- Minto Harmony Mion Parcel, Minto Communities (2019): Ecologist for the Environmental Impact Statement and Tree Conservation Report for a proposed residential development in Barrhaven. Completed terrestrial and aquatic field surveys and assessed impacts based on anticipated project design. Proposed recommendations and mitigation to limit adverse impacts. Prepared technical report and figures for submission to client. Reports were completed following the City of Ottawa guidelines.
- 1054 Hunt Club Road Retirement Residence, Claridge Homes (2019): Project lead for carrying out bird nesting surveys to ensure project construction compliance with Migratory Birds Convention Act (1994) and providing mitigation recommendations to limit disturbance to nearby wildlife.
- SAR Permit Implementation and Monitoring, KNL Developments (2018 to Present): Junior ecologist responsible for the environmental monitoring required under a Species at Risk Overall Benefits Permit for Blanding's Turtle, Least Bittern, and Butternut. Daily responsibilities include monitoring of mitigation measures, habitat enhancement monitoring, species surveys, environmental awareness training, species relocations, and associated reporting.
- SAR Permit Implementation and Monitoring, Potter's Key Development, Minto Communities (2018 to Present): Junior ecologist for environmental monitoring required under a Species at Risk Overall Benefits Permit for Blanding's Turtle. Daily responsibilities include monitoring of mitigation measures, habitat enhancement monitoring, species surveys, environmental awareness training, species relocations, and associated reporting.
- Environmental Impact Statement, 800 Eagleson Road Development, Ironclad Developments (2018): Junior ecologist for an Environmental Impact Statement for a proposed development in Kanata, Ontario (City of Ottawa). Responsible for conducting avian and amphibian field surveys, GIS mapping, and contributing to reporting.
- EIS Addendum, McArthur Island Developments, Carleton Place, ON (2018): Junior ecologist assisting primarily with development of field data mapping and producing required reporting for the natural heritage compliance requirements supporting a multi-phase residential/retirement complex located on McArthur Island within the Mississippi River.
- SAR Habitat Assessment, Kingston Provincial Campus, Kingston, ON (2018): Junior ecologist for a SAR habitat assessment for SAR Bats and Barn Swallow for Kingston Provincial Campus buildings. Responsibilities include field survey coordination, conducting habitat assessments and surveys for SAR, field data mapping, and report writing.
- Avalon Isgar Development, Minto (2018): Completed a tree assessment to develop a Tree Conservation Report addendum for the Avalon Isgar development in Orleans, Ontario (City of Ottawa).

INFRASTRUCTURE

- Highway 17 Culvert Replacements, Ontario Ministry of Transportation (2019 to Present): Lead field biologist for terrestrial and aquatic habitat assessments surrounding 45 non-structural culverts along Highway 17 in Renfew, Ontario. Assessments included documenting vegetation communities, identifying candidate Species-at-Risk habitat, and evaluating aquatic and fish habitat conditions.

- Sir John A. Macdonald Parkway Ramp-E Replacement, National Capital Commission (2019 to Present): Junior ecologist for ecological assessment and environmental approvals required for the replacement of a bridge on the Sir John A. Macdonald Parkway. Responsible for coordinating field surveys, conducting field surveys for SAR (Butternut, Barn Swallow, Snapping Turtle, and Eastern Milksnake) and natural heritage features, organizing digital field data collection tools and methods, GIS mapping, and report writing.
- Centre Block Rehabilitation, PSPC (2018 to 2019): Performed ecological surveys for wildlife and vegetation, and Species-at-Risk habitat assessments at Centre Block and surrounding area. Assisted with field survey coordination, report writing, environmental awareness training, construction monitoring, and mitigation implementation.
- West Transitway Extension – Phase I & II, City of Ottawa (2018 to Present): Junior ecologist for post-construction monitoring of the Stillwater Creek realignment required for the West Transitway extension project in the City of Ottawa. Responsible for conducting avian and amphibian surveys, ELC and vegetation transect surveys, aquatic habitat monitoring, field scheduling, producing annual monitoring reports, and associated mapping.

NATURAL RESOURCES STUDIES

- Kizell Wetland Trail - SAR Authorizations, City of Ottawa (2019): Junior ecologist for the Species at Risk authorizations required for the construction of a Pedestrian trail network within the conservation forest around the Kizell wetland in Kanata, ON.
- Guelph Christmas Bird Count: Interactive Web Map, Canadian Wildlife Service (2017-2018): Project manager for a professional development project with Niagara College and Environment Canada. The project was aimed at developing an interactive web application to allow users to access and view historical Christmas Bird Count data from the Guelph region. Responsibilities included proposal development, budget and schedule management, client meetings, data collection and management, the development of the web application, and report writing.
- Maritimes Marsh Monitoring Program, Bird Studies Canada (2016, 2017): Served as a field technician for the Maritimes Marsh Monitoring Program with Bird Studies Canada's Atlantic office in New Brunswick. This program is used to track and monitor the status and health of wetland birds and wetland habitat in Atlantic Canada. Led avian field surveys in freshwater and saltwater wetlands, deployed automatic recording units, conducted habitat assessments, and reported data and findings to the program manager.
- Alberta Biodiversity Monitoring Program, Alberta Biodiversity Monitoring Institute (2014): Served as a field technologist for completing biodiversity surveys in boreal and prairie ecosystems in northern and central Alberta.

COMMUNICATIONS

- The Friends of the Greenbelt: Greenbelt Plan Review Consultations (2015): Supported the communications and research departments during the provincial review of the Ontario Greenbelt through organizing and participating in stakeholder and public consultations, hosting stakeholder workshops, and producing communications materials for public audiences.

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COMMUNICATIONS

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APPENDIX

C SITE PHOTOGRAPHS

Photo 1 August 13, 2019 **Notes:** Fresh-Moist Meadow	
Photo 2 August 13, 2019 **Notes:** Fresh-Moist Meadow	

Photo 3 August 13, 2019 **Notes:** Dry-Fresh Deciduous Regeneration Thicket	
Photo 4 August 13, 2019 **Notes:** Naturalized Coniferous Hedge-row	

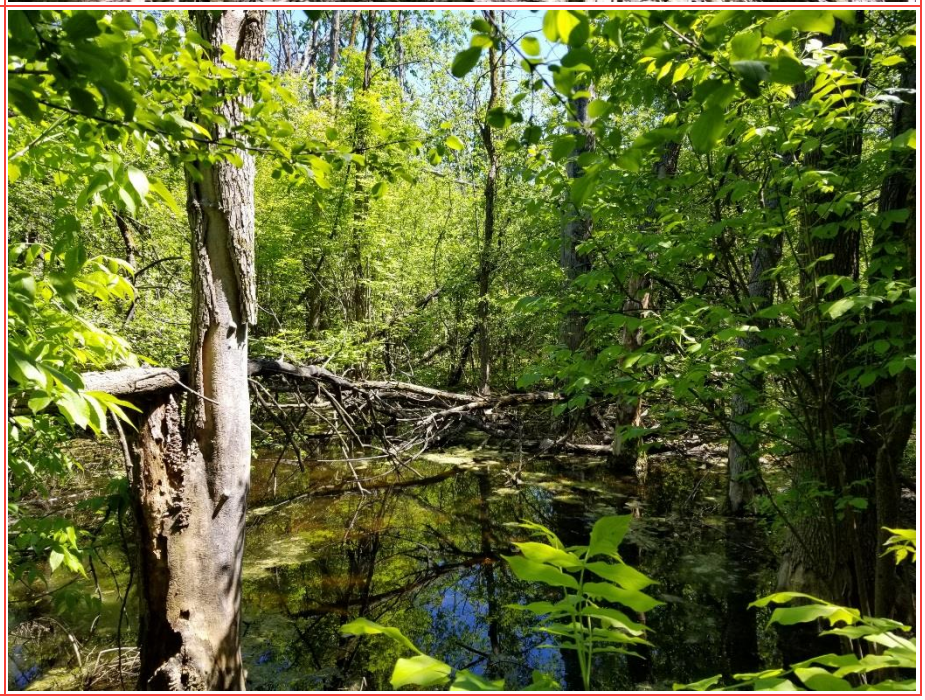
Photo 5 June 7, 2019 **Notes:** Fresh-Moist Deciduous Woodland / Buckthorn Deciduous Shrub Thicket	
Photo 6 June 7, 2019 **Notes:** Fresh-Moist Deciduous Woodland / Buckthorn Deciduous Shrub Thicket	

Photo 7 August 13, 2019 Notes: Cattail Mineral Shallow Marsh	
Photo 8 August 13, 2019 **Notes:** Cattail Mineral Shallow Marsh	

Photo 9 August 13, 2019 **Notes:** Vacant bird nest in Fresh-Moist Meadow	
Photo 10 June 7, 2019 **Notes:** Standing water in Fresh-Moist Meadow, adjacent to Dry-Fresh Deciduous Regeneration Thicket.	

Photo 11 August 13, 2019 **Notes:** Potential swale/watercourse in Fresh-Moist Deciduous Woodland / Buckthorn Deciduous Shrub Thicket	
Photo 12 August 13, 2019 **Notes:** Potential swale/watercourse on eastern edge of property, parallel to St. Laurent Boulevard.	

APPENDIX

D VEGETATION INVENTORY

Scientific Name	Common Name	Conservation Status			Coefficient of Conservatism[2]	Coefficient of Wetness[3]
		Federal (SARA)	Provincial (ESA)	S-Rank[1]		
Equisetum arvense	Field Horsetail	---	---	S5	0	0
Oenothera biennis	Common Evening-primrose	---	---	S5	0	3
Onoclea sensibilis	Sensitive Fern	---	---	S5	4	-3
Picea abies	Norway Spruce	---	---	SNA	---	5
Picea glauca	White Spruce	---	---	S5	6	3
Pinus nigra	Black Pine	---	---	SNA	---	5
Pinus sylvestris	Scots Pine	---	---	SNA	---	3
Typha angustifolia	Narrow-leaved Cattail	---	---	SNA	---	-5
Typha latifolia	Broad-leaved Cattail	---	---	S5	1	-5
Bromus inermis	Smooth Brome	---	---	SNA	---	5
Elymus repens	Creeping Wildrye	---	---	SNA	---	3
Leersia oryzoides	Rice Cutgrass	---	---	S5	3	-5
Phragmites australis	Common Reed	---	---	S4?	0	-3
Carex lupulina	Hop Sedge	---	---	S5	6	-5
Carex cristatella	Crested Sedge	---	---	S5	3	-3
Carex lacustris	Lake Sedge	---	---	S5	5	-5
Scirpus atrovirens	Dark-green Bulrush	---	---	S5	3	-5

Scientific Name	Common Name	Conservation Status			Coefficient of Conservatism[2]	Coefficient of Wetness[3]
		Federal (SARA)	Provincial (ESA)	S-Rank[1]		
Schoenoplectus tabernaemontani	Soft-stemmed Bulrush	---	---	S5	5	-5
Juncus tenuis	Path Rush	---	---	S5	0	0
Juncus torreyi	Torrey's Rush	---	---	S5	3	-3
Populus deltoides	Eastern Cottonwood	---	---	S5	4	0
Populus tremuloides	Trembling Aspen	---	---	S5	2	0
Salix eriocephala	Heart-leaved Willow	---	---	S5	4	-3
Salix petiolaris	Meadow Willow	---	---	S5	3	-3
Juglans nigra	Black Walnut	---	---	S4?	5	3
Quercus rubra	Northern Red Oak	---	---	S5	6	3
Ulmus americana	American Elm	---	---	S5	3	-3
Persicaria maculosa	Spotted Lady's-thumb	---	---	SNA	---	-3
Rumex crispus	Curly Dock	---	---	SNA	---	0
Fragaria virginiana	Wild Strawberry	---	---	S5	2	3
Gleditsia triacanthos	Honey-locust	---	---	S2?	8	0
Lotus corniculatus	Garden Bird's-foot Trefoil	---	---	SNA	---	3
Melilotus albus	White Sweet-clover	---	---	SNA	---	3
Vicia cracca	Tufted Vetch	---	---	SNA	---	5

Scientific Name	Common Name	Conservation Status			Coefficient of Conservatism[2]	Coefficient of Wetness[3]
		Federal (SARA)	Provincial (ESA)	S-Rank[1]		
Rhus typhina	Staghorn Sumac	---	---	S5	1	3
Acer tataricum ssp. ginnala	Amur Maple	---	---	SNA	---	5
Acer negundo	Manitoba Maple	---	---	S5	0	0
Acer platanoides	Norway Maple	---	---	SNA	---	5
Acer x freemanii	(Acer rubrum X Acer saccharinum)	---	---	SNA	6	-5
Rhamnus cathartica	Common Buckthorn	---	---	SNA	---	0
Frangula alnus	Glossy Buckthorn	---	---	SNA	---	0
Parthenocissus quinquefolia	Virginia Creeper	---	---	S4?	6	3
Vitis riparia	Riverbank Grape	---	---	S5	0	0
Tilia americana	American Basswood	---	---	S5	4	3
Elaeagnus umbellata	Autumn Olive	---	---	SNA	---	3
Cornus sericea	Red-osier Dogwood	---	---	S5	2	-3
Hypericum perforatum	Common St. John's-wort	---	---	SNA	---	5
Lythrum salicaria	Purple Loosestrife	---	---	SNA	---	-5
Daucus carota	Wild Carrot	---	---	SNA	---	5
Fraxinus nigra	Black Ash	---	---	S3	7	-3
Fraxinus pennsylvanica	Green Ash	---	---	S4	3	-3

Scientific Name	Common Name	Conservation Status			Coefficient of Conservatism[2]	Coefficient of Wetness[3]
		Federal (SARA)	Provincial (ESA)	S-Rank[1]		
Cirsium vulgare	Bull Thistle	---	---	SNA	---	3
Asclepias syriaca	Common Milkweed	---	---	S5	0	5
Vincetoxicum rossicum	European Swallow-wort	---	---	SNA	---	5
Echium vulgare	Common Viper's Bugloss	---	---	SNA	---	5
Solanum dulcamara	Bittersweet Nightshade	---	---	SNA	---	0
Galium aparine	Cleavers	---	---	S5	4	3
Lonicera tatarica	Tatarian Honeysuckle	---	---	SNA	---	3
Ambrosia artemisiifolia	Common Ragweed	---	---	S5	0	3
Arctium minus	Common Burdock	---	---	SNA	---	3
Cirsium arvense	Creeping Thistle	---	---	SNA	---	3
Erigeron annuus	Annual Fleabane	---	---	S5	0	3
Euthamia graminifolia	Grass-leaved Goldenrod	---	---	S5	2	0
Leucanthemum vulgare	Oxeye Daisy	---	---	SNA	---	5
Solidago canadensis	Canada Goldenrod	---	---	S5	1	3
Tanacetum vulgare	Common Tansy	---	---	SNA	---	5
Verbascum thapsus ssp. thapsus	Common Mullein	---	---	SNA	---	5
Salix interior	Sandbar Willow	---	---	S5	1	-3

Scientific Name	Common Name	Conservation Status			Coefficient of Conservatism[2]	Coefficient of Wetness[3]
		Federal (SARA)	Provincial (ESA)	S-Rank[1]		
Salix euxina	Crack Willow	---	---	SNA	---	0
Phalaris arundinacea var. arundinacea	Reed Canary Grass	---	---	S5	0	-3

[1]See S-Rank legend index; [2]See Coefficient of Conservatism legend index; [3]See Coefficient of Wetness legend index; --- denotes information not available and/or not applicable

[1]S-Rank (Provincial Status (NHIC))	
	S1: Critically Imperiled – Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
	S2: Imperiled – Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
	S3: Vulnerable – Vulnerable in the nation or sprovince due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
	S4: Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
	S5: Secure – Common, widespread, and abundant in the province.
	SU: Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
	SNA: Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

[2]Coefficient of Conservatism *Oldham, M. J., W. D. Bakowsky and D. A. Sutherland. 1995. Floristic Quality Assessment System for Southern Ontario. Natural Heritage Information Centre, Ministry of Natural Resources. Peterborough, Ontario.*	Coefficient of Conservatism. Rank of 0 to 10 based on plants degree of fidelity to a range of synecological parameters: (0-3) Taxa found in a variety of plant communities; (4-6) Taxa typically associated with a specific plant community but tolerate moderate disturbance; (7-8) Taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance; (9-10) Taxa with a high fidelity to a narrow range of synecological parameters.	
[3]Coefficient of Wetness *Oldham, M. J., W. D. Bakowsky and D. A. Sutherland. 1995. Floristic Quality Assessment System for Southern Ontario. Natural Heritage Information Centre, Ministry of Natural Resources. Peterborough, Ontario.*	-5	Obligate Wetland - Occurs almost always in wetlands under natural conditions (99% probability)
	-4	Facultative Wetland - Usually occurs in wetlands, but occasionally found in non-wetlands (67-99%)
	-3	
	-2	
	-1	Facultative - Equally likely to occur in wetlands or non-wetlands (34-66%)
	0	
	1	
	2	Facultative Upland - Occasionally occurs in wetlands, but usually occurs in non-wetlands (1-33%)
	3	
	4	
	5	Upland - Occurs almost never in wetlands under natural conditions (<1%)

470 TREMBLAY ROAD
OCTOBER 2020

ENVIRONMENTAL IMPACT STATEMENT & TREE CONSERVATION REPORT

Canada Lands Company
Société immobilière du Canada

wsp