

Environmental Impact Statement

and

Tree Conservation Report

Towers 3, 4 and 5a and 5b, 8900 Jeanne d'Arc Boulevard North

Cumberland Ward, Ottawa, Ontario

Version 1.2

Prepared for:

Brigil Homes
98, rue Lois
Gatineau, Quebec
J8Y 3R7

Prepared by:

Bowfin Environmental Consulting Inc.
168 Montreal Road
Cornwall, ON
K6H 1B3

September 2018
(updated May 2019)

- ? Inexact Numeric Rank—Denotes inexact numeric rank
- SNA** Not Applicable, A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
- S#B** Breeding
- S#N** Non-Breeding

SARA STATUS DEFINITIONS

- END** Endangered: a wildlife species facing imminent extirpation or extinction.
- THR** Threatened: a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
- SC** Special Concern, a wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

SARO STATUS DEFINITIONS

- END** Endangered: A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA.
- THR** Threatened: A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
- SC** Special concern: A species with characteristics that make it sensitive to human activities or natural events.

Coefficient of Conservatism Ranking Criteria

- 0 Obligate to ruderal areas.
- 1 Occurs more frequently in ruderal areas than natural areas.
- 2 Facultative to ruderal and natural areas.
- 3 Occurs less frequent in ruderal areas than natural areas.
- 4 Occurs much more frequently in natural areas than ruderal areas.
- 5 Obligate to natural areas (quality of area is low).
- 6 Weak affinity to high-quality natural areas.
- 7 Moderate affinity to high-quality natural areas.
- 8 High affinity to high-quality natural areas.
- 9 Very high affinity to high-quality natural areas.
- 10 Obligate to high-quality natural areas.

Table of Contents

1.0	INTRODUCTION	6
2.0	METHODOLOGY	9
2.1	Background Review	9
2.2	Field Studies	9
2.2.1	Habitat Descriptions and Flora Observations	10
2.2.2	Butternut Inventory.....	11
2.2.3	Bird Surveys	12
2.2.4	Bats	12
2.2.5	Incidental Fauna Observations	13
3.0	Results	15
3.1	Background Review	15
3.2	EIS - Existing Conditions	16
3.2.1	Geology and Hydrologic Conditions	16
3.2.2	Vegetation Cover	19
3.2.3	Bird Survey	25
3.2.4	Bats	26
3.2.5	Incidental Wildlife Observation	27
4.0	EIS – Analysis of Potential to Impact the Natural Features	30
4.1	Impact Assessment Methods	30
4.2	Evaluation of Potential Impacts	31
4.2.1	Provincially Significant Wetlands	31
4.2.2	Significant Valleylands.....	34
4.2.3	Urban Natural Feature	38
4.2.4	SAR	41
4.2.5	Accidents and malfunctions.....	52
5.0	TREE CONSERVATION AND PLANTING PLAN	52
6.0	CONCLUSIONS AND RECOMMENDATIONS	71
7.0	REFERENCES	72

Appendix A: Background Review Mapping.....	75
Appendix B: Communications from MNRF.....	85
Appendix C: List of Birds present in the General Area (Atlas of Breeding Birds in Ontario).....	95
Appendix D: List of Observed Species (2013 and 2018)	99
Appendix E: SAR Hand-Out	104

List of Figures

Figure 1 Location of the Project Area.....	8
Figure 2 Area to be Disturbed.....	14
Figure 3 Habitat Mapping	18
Figure 4: Location of Breeding Bird Survey	28
Figure 5: Location of Bat Surveys	29
Figure 6: Critical Root Zone	37
Figure 7: Location of Study Area in Relation to the Urban Natural Area.....	40
Figure 8: Category 2 and 3 Blanding's Turtle Habitat	44
Figure 9: Map 1 Location of Individual and Groupings of Trees near Towers 3 and 4	59
Figure 10: Map 1 Location of Individual and Groupings of Trees near Towers 5a and 5b	60
Figure 11: Map 2 Trees to be Removed near Towers 3 and 4.....	61
Figure 12: Map 2 Trees to be Removed near Towers 5a and 5b	62

List of Tables

Table 1 Summary of Dates, Times of Site Investigations	9
Table 2 Summary of Soil and Geology Information Available from the Characterization of Ottawa’s Watershed Maps	17
Table 3 Summary of Potential SAR (Endangered and Threatened).....	49
Table 4: Summary of Trees and Groupings	54
Table 5 Summary of Impacts, Mitigation Measures and Residual Effects	63

List of Photographs

Photo 1 Eastern portion of the cultural meadow, September 14, 2018.....	20
Photo 2 Western portion of the cultural meadow with the mixed forest in background, September 14, 2018	20
Photo 3 Dry-Fresh Oak – Red Maple Forest (June 8, 2018)	21
Photo 4 Dry-Fresh Poplar White Pine Mixed Forest and staghorn sumac (September 14, 2018)	22
Photo 5 Deciduous Tree and Tall Shrub Wetland Community (September 5, 2013).....	23
Photo 6 Narrow Emergent Dominated Wetland Community (September 5, 2013)	24
Photo 7 Robust Emergent Dominated Wetland Community (September 5, 2013)	24

1.0 INTRODUCTION

The Petrie’s Landing site owned by Brigil Homes is being developed in a phased approach. Phase 1 (Tower 1) was completed several years ago, and Phase 2 is currently under construction. An Environmental Impact Statement (EIS) and Tree Conservation Report (TCR) was completed by Muncaster Environmental Planning for all phases [*Wetland Impact Study for Lots 28 and 29 Concession 1, Cumberland Ward, City of Ottawa* (January 2005)] as well as an EIS update for Phase 5 (August 2012) and Phase 2 (2012b). An assessment of Petrie’s Landing on the adjacent forest was completed by *Urban Forestry and Forest Management Consulting* (IFS November 2005). In 2016, Bowfin provided an updated EIS as well as a Tree Conservation Report (TCR) for Phase 2 (Tower 2). Brigil Homes is now ready to continue on to Phases 3-5 (Towers 3, 4 and 5a and 5b). The following report provides an update to the original Muncaster EIS and TCR for Towers 3, 4 and 5a and 5b.

Petrie’s Landing is located at 8900 Jeanne d’Arc Boulevard North in part of Lot 29, Concession 1 of Cumberland Ward in the City of Ottawa in support of their site plan application. The subject lands are located to the north of Highway 174; approximately 6 km west of Cumberland (Figure 1). Towers 3 and 4 are situated to the east of Tower 2 and Towers 5a and 5b to the southwest (Figure 2).

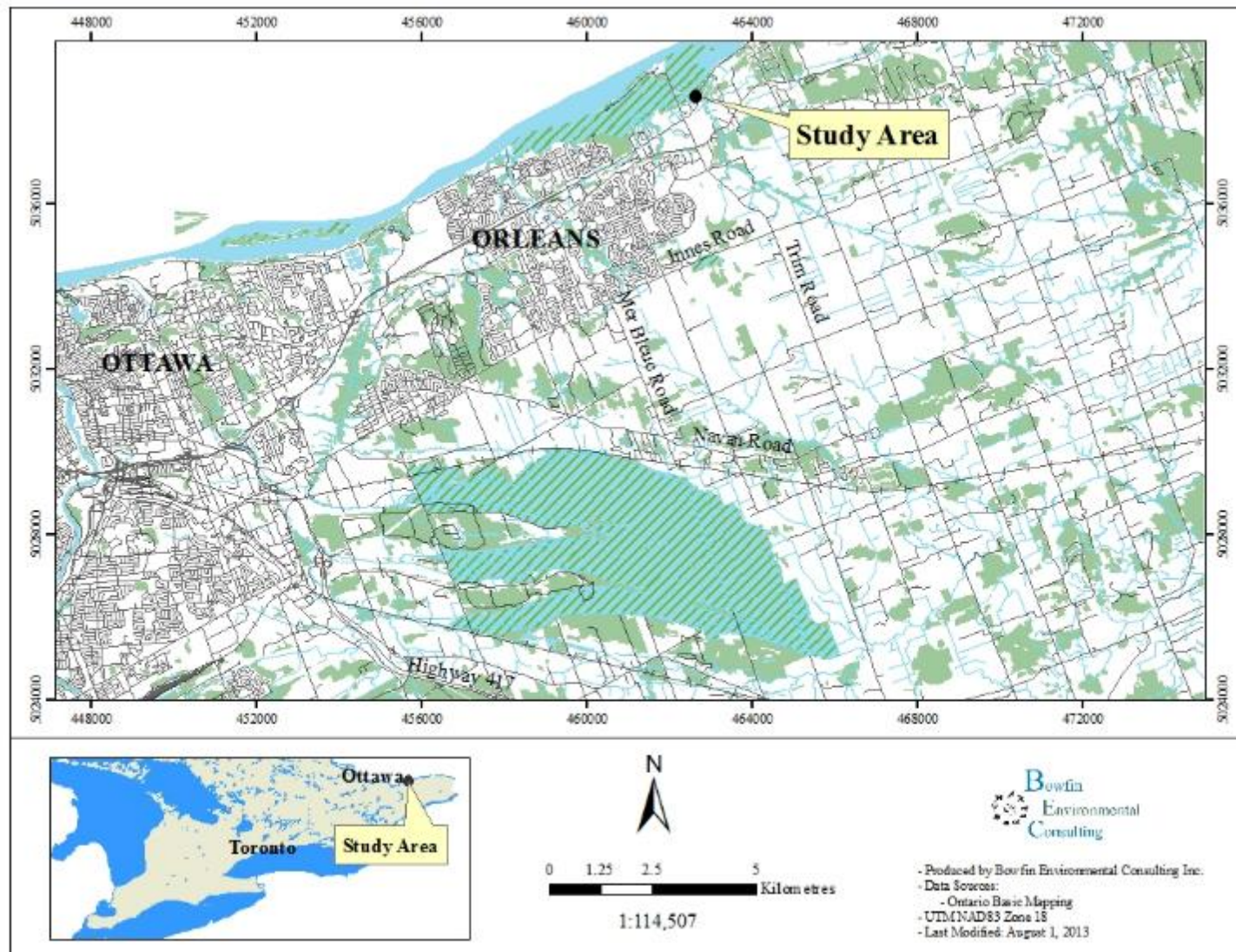
This scoped EIS/TCR looks at the areas to be disturbed (temporary and permanent disturbances) for these four towers as a whole. Details on the locations of the various components are provided by others (Drawings 247308 C101-C107 EXP Services Inc.). The EIS portion focuses on the natural features that have been identified: Provincial Significant Wetland, Significant Valleyland, and Urban Natural Feature. It also reviews the site with respect to Species at Risk (SAR).

The TCR follows the *City of Ottawa Environmental Impact Statement Guidelines* (April 2010) and the *City of Ottawa Tree Conservation Report Guidelines*. It includes an assessment of the natural environment habitats within the subject lands and discusses the potential for negative impacts. The PPS states that a negative impact signifies:

- “a) in regard to policy 2.2, degradation to the quality and quantity of water, sensitive surface water features and sensitive ground water features, and their related hydrologic functions, due to single, multiple or successive development or site alteration activities;*
- c) in regard to other natural heritage features and areas, degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities.”*

The field work for both the EIS and TCR was led by Michelle Lavictoire who has a Master of Science in Natural Resource Sciences and over 20 years of experience in completing natural environment assessments. The intention of the TCR is to determine what woody vegetation needs to be retained and protected on site.

In the paragraphs below, we have outlined the methods, followed by a review of the available background information and a description of the site’s existing conditions. This information is used to evaluate the potential impacts to the features and to make recommendations in terms of the EIS and TCR.

Figure 1 Location of the Project Area

2.0 METHODOLOGY

Work undertaken for the completion of this project included a background review of existing information and field investigations. The study area consists of the areas to be disturbed, temporarily or permanently, for all of the remaining towers (Figure 2). The adjacent lands shown on Figure 2 and the surrounding 120 m. It is noted, that the assessment of impacts sometimes included larger area as needed. The background review included a much larger terrestrial area (~5 km). The study area for each item is described in the methods below.

2.1 Background Review

The background review began with a review of the available consulting reports and a preliminary mapping of the vegetation communities as a desktop exercise. A search through available records was then made to gather information on the three identified natural heritage features of focus as well as on SAR within the project area. The following web sources were used during the background review: Natural Heritage Information Centre (NHIC), Make-A-Map - Land Information Ontario (LIO), and the City of Ottawa Official Plan, Schedules and Species at Risk in Ottawa table (dated August 1, 2018). An information request was also sent directly to MNR/Kemptville District (May 2018) for additional information not available on the website. The response to the MNR request is pending.

2.2 Field Studies

Given that the study area for the Tower 2 project included a portion of the study area for Towers 3-5, the information collected during the visits in 2013 are included herein. A summary of the dates, times, ambient conditions and purpose for the visits are provided in Summary of Dates, Times of Site Investigations Table 1.

Table 1 Summary of Dates, Times of Site Investigations

Date	Time (h)	Staff	Air Temperature (Min-Max) °C	Weather	Purpose
August 2, 2013	1030-1215	M. Lavictoire S. St. Pierre	25.0 (13.7-25.0)	50% cloud cover, light air	-Butternut inventory -Habitat Descriptions
September 5, 2013	1200-1315	M. Lavictoire S. St. Pierre	15.0 (4.8-17.0)	30% cloud cover, gentle breeze	-Habitat Descriptions
May 4, 2018	0945- 1200	C. Fontaine E. Theberge	9.0-10.0 (6.1-23.1)	Overcast, light breeze changing to	-Initial Site Visit -Raptor Nest Survey

Date	Time (h)	Staff	Air Temperature (Min-Max) °C	Weather	Purpose
				overcast/rain, light breeze	-Bat Maternity
May 9, 2018	1100-1230	C. Fontaine E. Theberge A. Yates	17.0-21.0 (6.1-27.4)	Clear skies, light air	-Bat Maternity -Turtle Survey
June 8, 2018	0645-0845	M. Lavictoire	12.0-18.0 (10.5-22.7)	Clear skies, calm	-Breeding Bird Survey
June 22, 2018	0630-0745	M. Lavictoire	11.0-14.0 (8.4-26.1)	Clear skies, light air	-Breeding Bird Survey
June 26, 2018	1215-1315	C. Fontaine A. Yates	23.0 (5.9-25.3)	Clear skies, light breeze	-Butternut Survey
August 14, 2018	1030-1300	C. Fontaine	29.0-30.0 (19.4-26.7)	Overcast, light breeze changing to overcast, gentle breeze	- Large Tree Survey
September 13, 2018	0945-1030	C. Fontaine	20.0 (11.9-26.3)	Clear skies, light air	- Culvert Check
September 14, 2018	0930-1030	M. Lavictoire	15-20	Clear skies, no wind	-Habitat Descriptions

M. Lavictoire – Michelle (Nunas) Lavictoire – B. Sc. Wildlife Resources and M.Sc. Natural Resources

S. St. Pierre – Shaun St. Pierre – B. Sc. Biology and Fisheries and Wildlife Technologist

C. Fontaine - Cody Fontaine - Fisheries and Wildlife Technologist

M. Brochu – Melissa Brochu – M. Sc. Biology and Fisheries and Wildlife Technician

E. Theberge – Elysabeth Theberge – M.Sc. Biology

A. Yates – Abby Yates – B.Sc. Env. Ecology

*Min-Max Temp Taken From: Environment Canada. National Climate Data and Information Archive. Ottawa International Airport. Available <http://climate.weatheroffice.gc.ca/> [September 10, 2018]

2.2.1 Habitat Descriptions and Flora Observations

Habitat mapping was completed through the use of satellite imaging and ground truthed during the field visits. The field studies were completed by systematically cruising the study area. Specific habitat types within the study area, identified during the preliminary mapping exercise were also targeted for community description. Habitat descriptions were based on the appropriate methodologies such as: *Ontario Wetland Evaluation System, Southern Manual* (OWES) for wetland habitats and the *Ecological Land Classification for Southern Ontario* (ELC) for terrestrial habitats.

The determination of the presence/absence of wetland habitat was based on the OWES definition of wetland habitat:

“Lands that are seasonally or permanently flooded by shallow water as well as lands where the water table is close to the surface; in either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic or water tolerant plants”.

OWES defines the wetland boundary as the location where over 50% of the plant community consists of upland species with the woody vegetation layer (trees and shrubs) taking precedence over the herbaceous layer (OMNR 2002). Furthermore, the presence of large numbers of obligate upland species requires an upland classification. Unless they contain a special feature or function wetlands smaller than 0.5 ha are not delineated.

Representative plant species were recorded within the communities and a running list of plants observed within the study area was kept (Appendix A). This list includes observations from 2013 and 2018.

Specific attention was paid to locating species at risk (SAR) or species of conservation value¹ listed as potentially occurring within the study area. If these species were observed, they would be photographed, and their coordinates recorded on a hand-held GPS using NAD83. Plants that could not be identified in the field were collected for a more detailed examination in the laboratory.

Nomenclature used in this report follows the Southern Ontario Plant List (Bradley, 2007) for both common and scientific names which are based on Newmaster *et al.* (1998). Authorities for scientific names are given in Newmaster *et al.* (1998).

2.2.2 Butternut Inventory

Butternuts are an endangered species. The MNRF have certified Butternut Health Assessors (BHA) to complete Butternut Health Assessments as per MNRF specifications. The BHA was completed by a qualified Butternut Health Assessor (BHA #117 and #281) on August 2nd, 2013. This inventory consisted of searching the study area in and within 50 m of the subject lands for Phase 2 (Tower 2). Any individuals noted would be marked with white spray paint and flagging tape and numbered sequentially. Their UTM's, using a GPS unit set at NAD83, would be recorded and the individual would be assessed according to the BHA protocol.

No butternuts were found in 2013. The inventory work was repeated on June 26, 2018 for the full area to be disturbed and the surrounding 50 m. No butternuts were found.

¹ "Species of conservation value" are those species listed as S1-S3 or as Special Concern (provincially or federally) or endangered or threatened federal species that are not listed as endangered or threatened provincially.

2.2.3 Bird Surveys

Information on bird use of the area was collected through a raptor nest survey and breeding bird surveys. The raptor nest survey consisted of looking for evidence of nesting (such as stick nests, food caches, whitewashing of branches and foliage, accumulation of feathers/fur or prey remains on the ground or in shrubs as per the *Significant Wildlife Habitat Technical Guide* (SWHTG) Appendix O) as well as the raptors themselves. The search for raptor nests took place on May 4th and 9th, 2018. The breeding bird surveys included daytime forest breeding bird surveys.

The daytime breeding bird surveys methods were as follows:

- Two visits were completed for the forest and field habitats and these two visits were a minimum of 15 days apart (June 8th and 22nd, 2018).
- Surveys began no earlier than 30 minutes after dawn and completed by midday.
- Visits were conducted on days with no rain, little to no wind and good visibility.
- The survey type was point counts.
 - Consisted of 5-min point count stations spaced 300 m apart (or as near as 100 m if needed to obtain information from all habitat types)
 - Point counts consisted of listening and observing over the specified time period and recording the number of birds heard/seen, their sex, location, behaviour and interactions with others; and
 - While walking between points, any additional observations were recorded.
- Birds were identified by sound and/or sight.

2.2.4 Bats

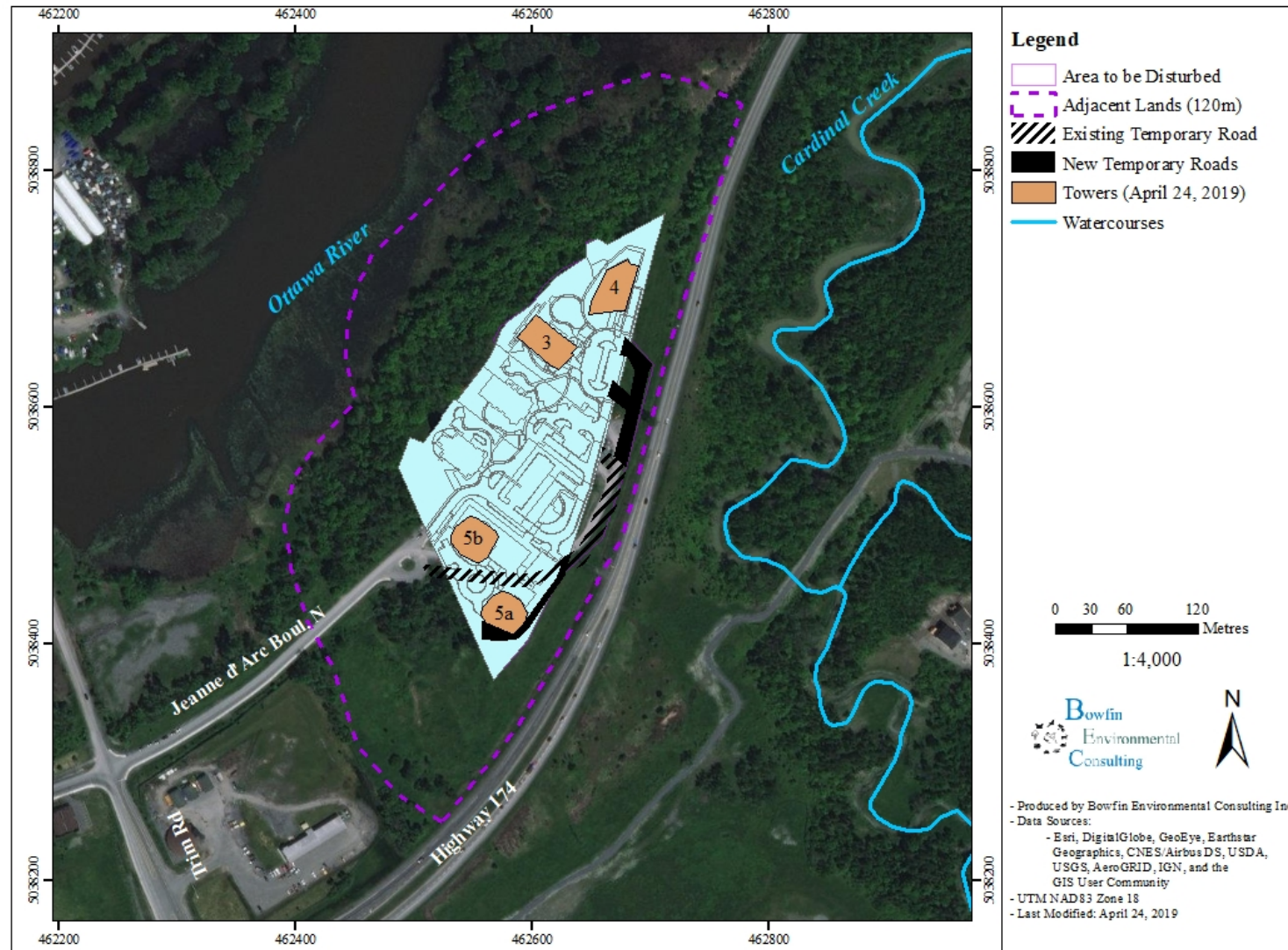
Currently, there are four bat species listed as SAR in Ontario. The potential to impact these species depends on the presence/absence of critical habitat: hibernation or maternity sites. There were no potential hibernacula sites present as such, no hibernacula surveys were completed. The need to conduct maternity site surveys was determined based on the *Significant Wildlife Habitat Criteria Schedules Draft 6E*. This guideline indicates that consideration for maternity sites should be made when the vegetation community consists of a mature deciduous or mixed forest with >10 large trees/ha [large trees are defined as having a diameter-at-breast-height (dbh) ≥ 25 cm]. The subject and adjacent lands included deciduous forest which could potentially meet this criterion. As such, forest plots were established following the MNRF’s bat maternity protocol outlined below:

- Survey was completed during leaf-off period, to facilitate locating cavities.
- A minimum of 10 plots were created within suitable habitat. An additional plot was added for each additional hectare over 10 ha, up to a maximum of 35 plots. In this instance, the minimum of 10 plots sufficed.

- Each plot had a 12.6 m radius resulting in a surveyed area of 0.05 ha per plot.
- Information collected consisted of: tree species, dbh, presence/absence of cavity, description of cavity and snag class.

2.2.5 Incidental Fauna Observations

During the site visit any wildlife observations were recorded. Incidental observations included observations of an individual, its tracks, burrows, feces and/or kill sights.

Figure 2 **Area to be Disturbed**

3.0 Results

3.1 Background Review

The subject lands, approximately 2.9 ha in size, are in Cumberland Ward of the City of Ottawa on Part of Lot 29 Concession 1. They are situated to the north of Highway 174 and east of Trim Road. The lands are bordered by Highway 174 on the south and east sides, the Ottawa River to the north, and developed lands to the west (Figure 2).

The designated land-use for the subject lands is General Urban Area on Schedule B of the City of Ottawa Official Plan (OP) and no constraints were listed within the subject lands.

This is a combined scoped EIS and TCR. The EIS deals with PSW, Significant Valleylands and Urban Natural Area (Appendix A). The first two are located within the adjacent 120 m and the latter is shown to include a portion of the subject lands on the UNA mapping. The PSW in question is the Petrie Island Provincially Significant Wetland is identified on Schedule B of the OP and in mapping and correspondence from MNRF [LIO, letter from MNRF (dated July 30, 2013²)] (Appendix B). The significant valleyland consists of a forested slope located along the northwest side of the subject lands, which forms part of the Ottawa valley. The Urban Natural Area (UNA) Petrie Island and Mainland Urban Natural Area is identified as forming part of the subject lands (Appendix A).

The letter received from MNRF (July 30, 2013) identified five species protected by the *Endangered Species Act* (ESA) as potentially occurring on or near the site. These were: Blanding’s turtle, barn swallow, bobolink, eastern meadowlark and butternut. During the search of the NHIC dataset, only Lake Sturgeon was noted within 1 km of the subject lands. The NHIC search was widened to 10 km which added three species: American eel, chimney swift and Henslow’s sparrow. This list was then updated based on the changes to the SAR listings under ESA (August 1, 2018). The resulting list of SAR being considered consists of fifteen species: lake sturgeon, American eel, Blanding’s turtle, whip-poor-will, chimney swift, bank swallow, barn swallow, bobolink, eastern meadowlark, Henslow’s sparrow, little brown myotis (bat), northern myotis (bat), eastern small-footed myotis (bat), tri-colored bat and butternut. These are further discussed in Section 4.2.4. Note that this species list may need to be updated once information is received from MNRF.

² Note that MNRF was contacted in May 2018 for an updated letter and this information is still pending.

3.2 EIS - Existing Conditions

3.2.1 Geology and Hydrologic Conditions

The subject lands where the towers and access roads would be built are in a flat area and southeast of a forested slope. West of the lands near Tower 5 and the adjacent lands in that same area was hilly and contained a ravine.

The slope of the valley in the adjacent lands to the north was steep with an approximate gradient of 25 percent (IFS Associates). Wetland habitat found at the base of the slope included deciduous treed swamp and marsh wetland communities. No surface water was present within the marsh during the summer visits however this area flooded during the spring runoff (as was noted during the spring visits). The approximate edge of the area flooded during the spring is depicted in Figure 3. The nearest surface water feature was the Ottawa River (approx. 160 m to the northwest of the subject lands during summer; approx. 80 m in the spring). The forested area is very steep and does not contain vernal pools.

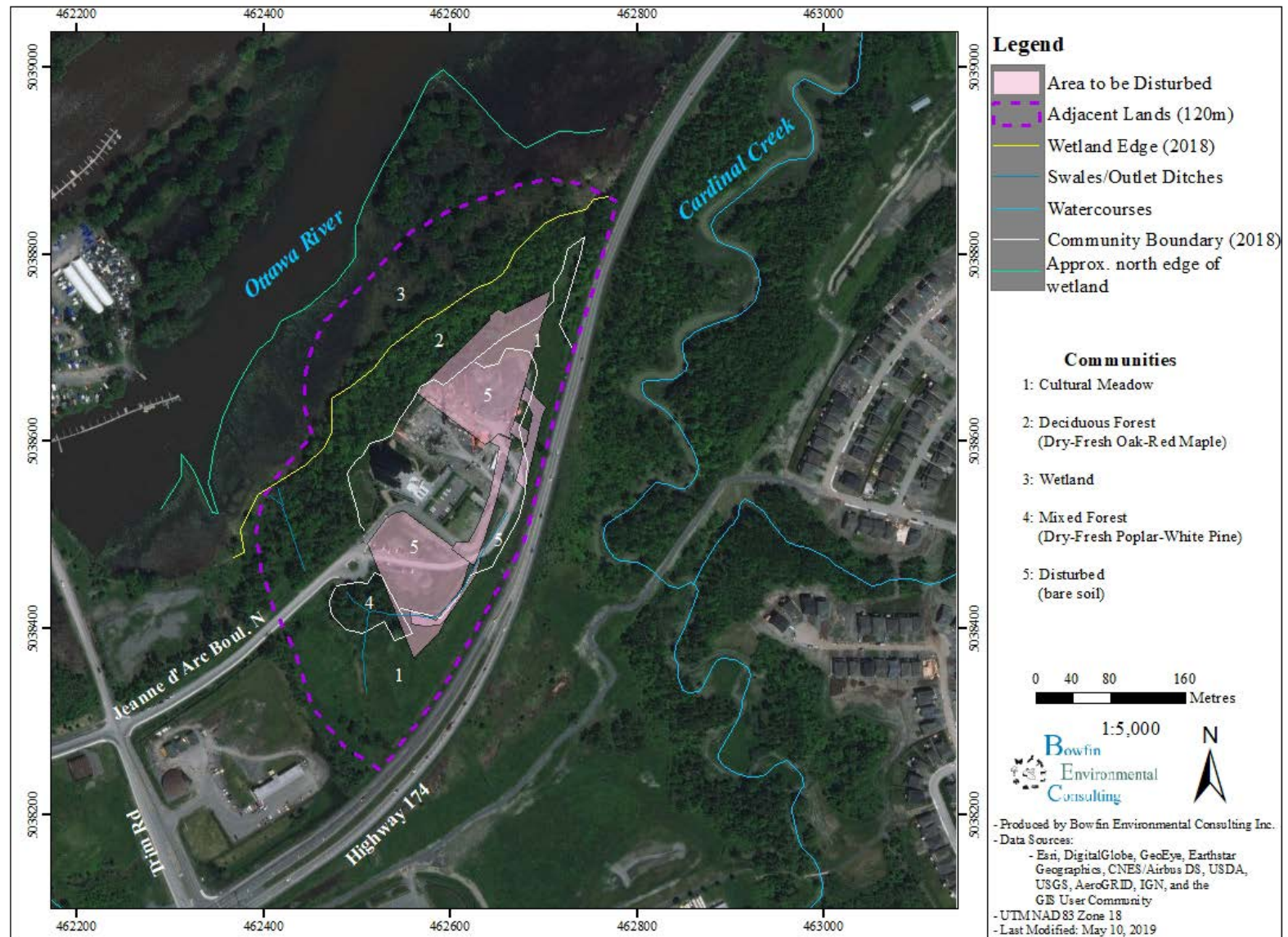
Muncaster Environmental Planning (2012b) reported that the swale in the ravine on the west side of current study area, was dry during all visits and was not directly connected to the Ottawa River (Figure 3). During 2018, it was noted that the swale now receives some flow from the construction site (outlet ditch) and, on occasion, there was surface water present (no depth). The lack of direct connection to the Ottawa River was confirmed in 2018. This ravine does not provide fish habitat.

The IFS report indicated that any water from the tablelands of the subject lands would likely be absorbed on-site and not flow downstream. The water table at the crest of the slope was found at a depth of 3.3 m. In 2002, the soils consisted of topsoil (20-23 cm thick) underlain by very stiff silty clay. Since that time, the topsoil in the subject lands has been disturbed by clearing activities during its use as a temporary staging area for Towers 1 and 2.

The area is identified as Ottawa Valley Plains in the mapping from the *Characterization of Ottawa’s Watershed: An Environment Foundation Document with Supporting Information Base* (March 2011). A summary of the information from the above-mentioned report and maps is provided in Table 2. The soils map of the area shows the subject lands as having the Rideau soil association (which tends to have gray neutral heavy clay marine material) (*Soils of Regional Municipality of Ottawa-Carleton*).

**Table 2 Summary of Soil and Geology Information Available from the
Characterization of Ottawa’s Watershed Maps**

Map	Classification
Bedrock	Limestone and dolomite, interbedded
Surficial Geology	Glaciomarine, clay silt
Physiography Unit	Clay Plains
Permeability	Low
Overburden Depth	Shallow
Hydrological Soil Group	D

Figure 3 Habitat Mapping

3.2.2 Vegetation Cover

Much of the subject lands has been disturbed over recent years during construction of Towers 1 and 2. The area labelled as “Disturbed” on the Figure 3 consisted of bare soil and/or gravel and provided parking, lay down yard and access roads for the current construction. Outside of the existing disturbed area, some of the previously disturbed areas have revegetated and now consist of cultural meadows. To the northwest the habitat consisted of deciduous forest and at the base of the slope, wetland. A small mixed forest is situated to the southwest of Towers 5a and 5b. None of the communities identified are considered rare vegetation communities [*Significant Wildlife Habitat Technical Guide* (2000)].

A description of the subject lands and natural habitats are provided below. There was little change in the communities between those described in previous reports and observed in 2018, where appropriate additional notes on species were added to the original descriptions.

Cultural Meadow

This community is a mixed meadow dominated by both grass and broadleaf plants with 90% cover. On the east side of the subject lands, location of future Towers 3 and 4, much of the habitat had been recently disturbed and consisted of an old cultural meadow with ruts and gravel/dirt piles. This area was flat. The vegetation varied by tended to be dominated by species such as tall goldenrod, late goldenrod, sow thistle, reed canary grass, daisy fleabane, cow vetch and evening primrose with some regenerating white ash.

On the west side, the meadow was situated on a step hilly terrain. The dominant vegetation included: sow thistle, tall and late goldenrods, Canada thistle, wild carrot, cow vetch and reed canary grass. The outlet ditch and the ravine were located at the base of the hills. This portion of the meadow included patches of staghorn sumac. There were also the occasional individual young trembling aspen and common buckthorn.



Photo 1 Eastern portion of the cultural meadow, September 14, 2018



Photo 2 Western portion of the cultural meadow with the mixed forest in background, September 14, 2018

Deciduous Forest

The deciduous forest community within the area surveyed for this phase was a Dry-Fresh Oak-Red Maple Forest dominated by red maple and bur oak. The edge of the forest along Jeanne d’Arc Boulevard North contained some white pines. The edge of the forest closer to the meadow contained a higher percentage of trembling aspen. Overall the canopy provided 75% cover and had a height of 8-10 m characterized by bur oak [diameter at breast height (average 9 cm)], green ash (average DBH 24 cm) and red maple (average 20 cm). The sub-canopy provided 50% cover and was 4-6 m tall. This layer was dominated by red maple, trembling aspen, American elm and common buckthorn. The understory was fairly thick and represented by common buckthorn, prickly ash, nannyberry, glossy buckthorn and hickory (cover 60%; 0.5-3m tall). The overall average diameter at breast height (dbh) was 20 cm.



Photo 3 Dry-Fresh Oak – Red Maple Forest (June 8, 2018)

Mixed Forest

The small (<0.1 ha) of mixed forest situated to the southwest of Towers 5a and 5b was described by Muncaster (2012b). The following paragraphs have been taken from the Muncaster report (with permission).

The dry-fresh mixed forest to the west of the central portion of the Phase 2 lands is dominated by trembling aspen, large-toothed aspen and white pine. Red maple, white ash, sugar maple, red ash, black cheery and white birch are also present. The largest trees are mature white pines with a maximum dbh of 58 cm. Several other white pines are in the range of 35 – 40cm dbh.

The largest deciduous trees are aspens up to 30cm dbh. Most of the trees appear to be in good condition, with fungus observed on some white birch, wild grape on other trees and a minor amount of ice-storm damage. The wooded area has an open canopy where red raspberry, reed canary grass and common burdock are established. In addition, common buckthorn is established throughout the wooded area. Areas of fill, concrete and other debris were observed.

The wooded area is approximately 60 by 40 metres and follows a historical ravine. The ravine has been isolated by the North Service Road, Ottawa Road 174 and the tablelands of the site. The wooded area is not considered significant due to its small size and corresponding lack of forest interior habitat, its overall intermediate age and disturbances associated with extensive non-native vegetation, areas of open canopy, and fill and other debris.

This description meets with what was observed on-site in 2018, though some of the pines were noted as having died. Overall, this small wooded area had a canopy cover of 75% and a height of 12-14 m. It was dominated by trembling aspen followed by white pine and red maple. The sub-canopy (8-10 m tall; 60% cover) consisted mostly of common buckthorn followed by trembling aspen and white ash. The understory (0.5 m – 2.0 m; 50% cover) contained a high amount of common buckthorn, with some young white ash, bur oak, black cherry and largetooth aspen. The ground over (0.5 m; 20%) included common buckthorn seedlings and common strawberry.



Photo 4 Dry-Fresh Poplar White Pine Mixed Forest and staghorn sumac (September 14, 2018)

Wetland

The PSW Petrie Island Wetland is situated to the northwest of the site, at the base of the slope. Along the outer edge, the wetland consisted of a narrow deciduous treed swamp (silver maple, green ash and black ash) with a tall shrub layer (speckled alder, green ash and red osier), and narrow emergent (reed canary grass and other grasses). The larger portion of the area within the 120 m adjacent lands was two marsh communities. The one closest to the slope was dominated by narrow leaved emergents (reed canary grass). This changed to one dominated by robust emergents (sweet flag and cattails). This second marsh community also had a herb layer represented by purple loosestrife, stinging nettle, Joe-pie weed and swamp milkweed. The transition to upland was abrupt and was located at the edge of the slope. No channels were observed within the marsh with the exception of the large backwater channel of the Ottawa River.



Photo 5 **Deciduous Tree and Tall Shrub Wetland Community (September 5, 2013)**



Photo 6 **Narrow Emergent Dominated Wetland Community (September 5, 2013)**



Photo 7 **Robust Emergent Dominated Wetland Community (September 5, 2013)**

Plant Species Discussion (including results from Butternut Inventory)

A list of plant species that were recorded within the study area is provided in Appendix D. This list was analysed based for the following parameters: number of species, percent native, provincial rank (SRank), species at risk (Endangered or Threatened provincially) and co-efficient of conservation (CC). This analysis provides information on the level of disturbance to the site and special features.

A total of 85 species were identified of which 44% were non-native. This is above the percent non-native cover in most natural areas in southern Ontario (which usually has between 20-30% non-native cover Oldlam et al., 1995). The higher percentage of non-native plants can be attributed to the plant species documented on the subject lands have been recently disturbed by clearing and some are or have been used as a temporary work area. This also affected the average coefficient of conservation (cc)_value of 3.5 which also indicates an area with severely degraded conditions. [The CC provides information on the species’ tolerance to disturbance; those species with a high CC (maximum of 10) are highly sensitive]. There were no species with a cc value of 8 or higher.

All plants had a provincial Srank of S4, S5 or SNA signifying that the species recorded are apparently secure, uncommon but not rare (S4), secure, widespread and abundant in the nation or province (S5) or not applicable because the species is not a suitable target for conservation activities (i.e. non-native species) (SNA).

No Endangered, Threatened or species with a SRank of S1, S2 or S3 or listed as Special Concern were found.

There were no butternuts found on site.

3.2.3 Bird Survey

During the background review the species listed within the ABBO squares 18VR53, 63, and 64 were considered as potentially occurring within the study area (Appendix C). There were 125 species listed of which 75 were confirmed breeders, 30 probable, and 20 possible. All of the bird species listed by ABBO birders were common species (provincial ranking of S4³ to S5⁴) with the exception of: black tern (S3B⁵; provincial SC⁶), chimney swift (provincial and federal THR⁷), eastern wood-pewee (provincial and federal SC), bank swallow (provincial and federal THR), barn swallow (provincial and federal THR), wood thrush (provincial SC, federal THR), Canada

³ S4: Apparently Secure, Uncommon but not rare; some cause for long-term concern due to declines or other factors

⁴ S5: Secure, Common, widespread, and abundant in the nation or state/province

⁵ S3B Vulnerable, A Breeding population that is vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

⁶ SC: Special Concern, a wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats

⁷ THR: Threatened, a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction

warbler (provincial SC, federal THR), bobolink (provincial and federal THR), and eastern meadowlark (provincial and federal THR).

The results from all the field visits found a total of 30 bird species were observed during the breeding bird survey period: (Appendix D). Most were heard calling from the forests in or the wetland the adjacent lands. The observations were typically males calling though some pairs were observed (pair of common yellowthroat and American redstart on June 8th visit). The common yellowthroat were situated in the adjacent lands to Towers 5a and 5b and the American redstart pair was in the forest near the edge of the wetland. Species that were only observed foraging were: great blue heron (in wetland) and barn swallows (flying high in sky towards Trim Road; west of survey points 1 and 2) (Figure 4). Canada geese and the goslings were observed in the Ottawa River. Birds observed outside of the breeding bird period are listed under the incidental observations.

The only SAR that were identified during the June visits were barn swallows (provincial and federal THR) and the potential impacts to barn swallows are discussed in the SAR section of this report.

A special concern (SC) species, eastern wood-pewee was also heard (provincially and federally SC). The *Endangered Species Act* (ESA) does not provide protection to SC species. The eastern wood-pewee was heard on June 8, after all of the surveys were completed, while walking back along the edge of the top of the bank (north edge of the area to be disturbed near survey points 4 and 6) (Figure 4). It was also heard, from survey point 4, during the June 22 visit. At that time, the bird was found to be in the trees that were north of the adjacent lands from point 4.

No raptor nests were present within the study area.

3.2.4 Bats

The *Significant Wildlife Habitat Criteria Schedules Draft 6E* indicates that consideration for maternity sites should be made when the vegetation community consists of a mature deciduous or mixed forest with >10/ha of large trees (>25 cm DBH). MRNF guidelines for bat maternity sites require a minimum of >10 cavity trees (with a minimum DBH of 25 cm) / ha.

A search of appropriately sized trees and those with cavities was made. Within the forested portion of the subject lands and adjacent lands a total of 10 plots were established (Figure 5). The number of cavity trees with a minimum DBH of 25 cm was 4 (out of the 10 plots). When this number is extrapolated per hectare it equates to 8 cavity trees with a dbh \geq 25 cm/ha. As such the habitat does not meet the minimum requirements for bats maternity sites.

3.2.5 Incidental Wildlife Observation

There were only a few incidental observations in 2013, these were: white-faced meadowhawk (a dragonfly), northern leopard frog, song sparrow, American goldfinch and great blue heron.

In 2018, the incidental observations included: northern leopard frog, ruffed grouse, mourning dove, and American crow. All are common species. A list of fauna observations from 2013 and 2018 is provided in Appendix D.

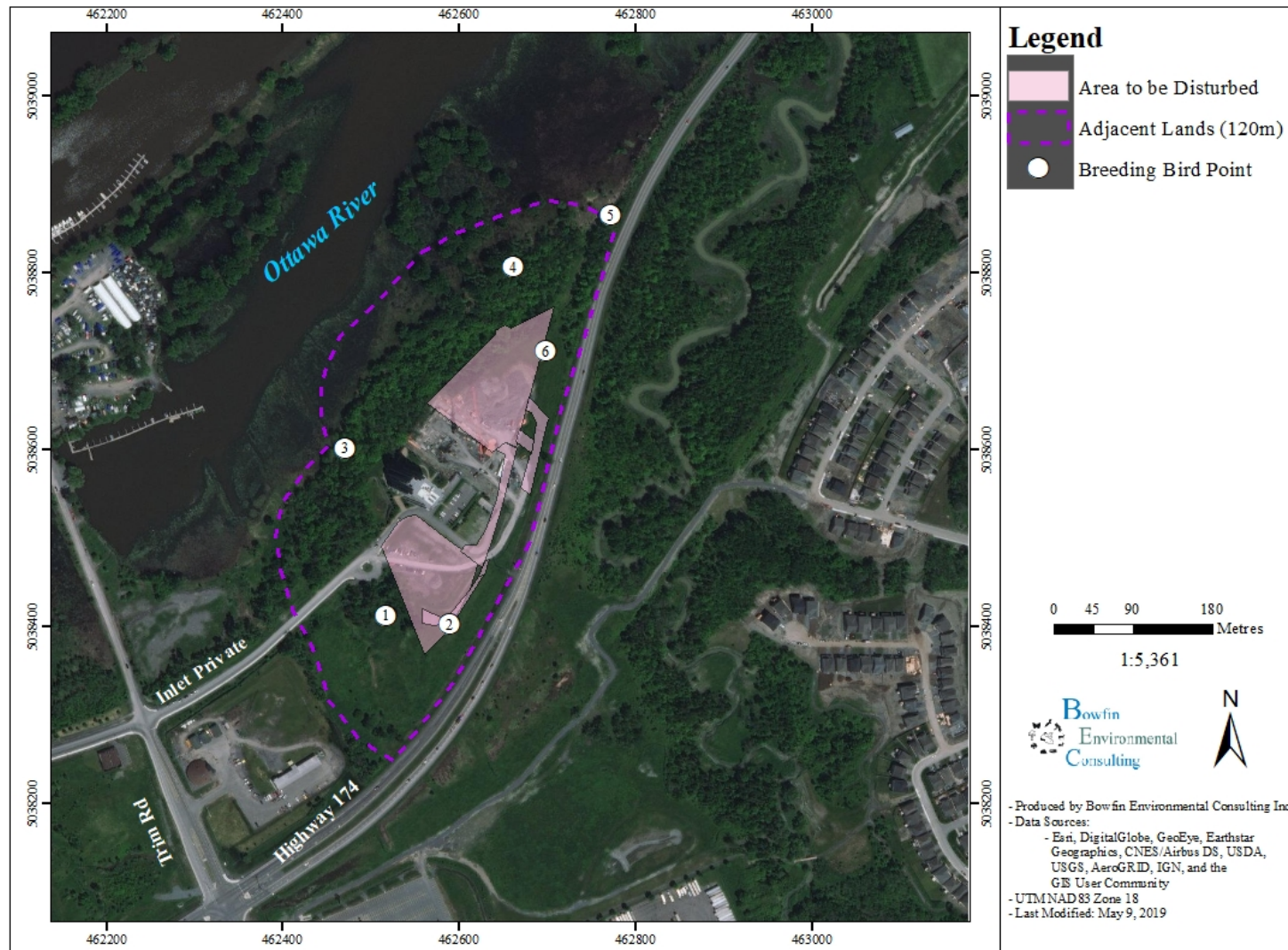
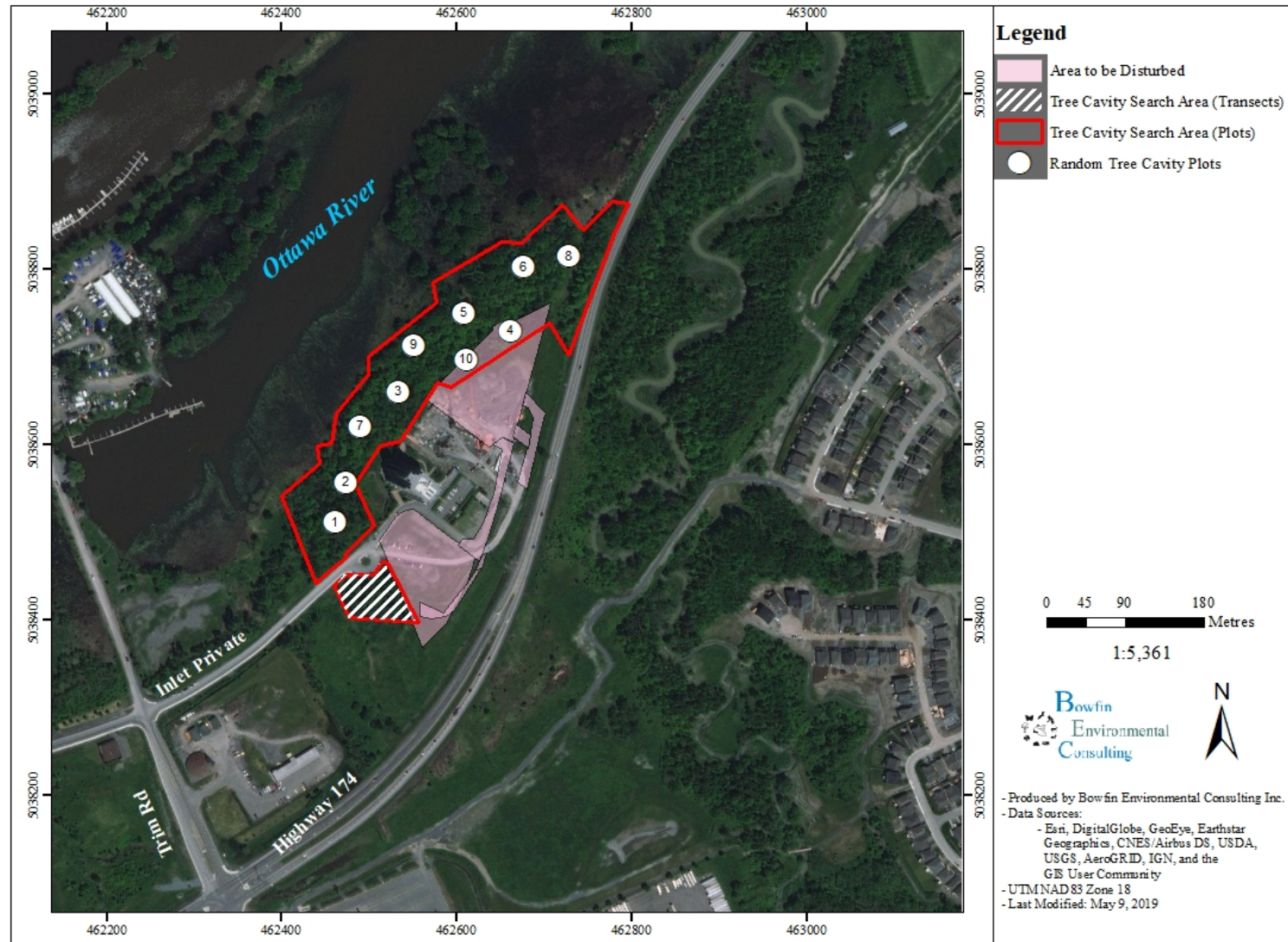
Figure 4: Location of Breeding Bird Survey

Figure 5: Location of Bat Surveys

4.0 EIS – Analysis of Potential to Impact the Natural Features

The development of Towers 3, 4 and 5a and 5b will require the removal of the vegetation in an area that is approximately 2.9 ha. This area consisted mostly of the meadow with a small (± 0.29 ha) portion of the Dry-Fresh Oak-Red Maple deciduous forest community on the north and a sliver (± 0.02 ha) of the Dry-Fresh Poplar White Pine Mixed Forest to the southwest. The impacts will be restricted to the area approximately 30 m from the edge of the wetland, at its nearest point. The new towers will utilize the stormwater management pond which was constructed as part of Phase 1 and which drains into the City’s storm sewer and continues to the Ottawa River.

The construction of Towers 3 and 4 will make use of the existing temporary road (built for Tower 2 construction) along with new sections that will be a total of 115 m long and 8 m wide. Construction access for Towers 5a and 5b will be from the existing temporary road. Once the towers are built, these temporary roads will be removed, and the area rehabilitated (seeded with a seed mixture that contains native species).

There is no anticipated change in flow volumes or patterns from the existing conditions.

The purpose of this section of the report is to discuss the potential impacts to the Provincially Significant Wetlands, Significant Valleylands, Urban Natural Feature and Species at Risk. The potential to impacts these features, list of mitigation measures and a conclusion is provided below following the summary of the impact assessment methods.

4.1 Impact Assessment Methods

The assessment of the potential impacts is completed by analyzing the impact of various activities associated with the project. The development of Towers 3, 4 and 5a and 5b would include the following activities:

- Clearing of terrestrial vegetation
- Excavation, Grading and backfilling of upland habitat
- Installation of sheet piles
- Pouring of concrete

The significance of the potential impacts is measured using four different criteria:

1. Area affected may be:
 - a. local in extent signifying that the impacts will be localized within the project area
 - b. regional signifying that the impacts may extend beyond the immediate project area.
2. Nature of Impact:
 - a. negative or positive
 - b. direct or indirect
3. Duration of the impact may be rated as:
 - a. short term (construction phase, 1-2 years per tower)
 - b. medium term (3-4 years)
 - c. long term (>4 years).
 - d. permanent
4. Magnitude of the impact may be:
 - a. negligible signifying that the impact is not noticeable
 - b. minor signifying that the project’s impacts are perceivable and require mitigation
 - c. moderate signifying that the project’s impacts are perceivable and require mitigation as well as monitoring and/or compensation
 - d. major signifying that the project’s impacts would destroy the environmental component within the project area.

4.2 Evaluation of Potential Impacts

4.2.1 Provincially Significant Wetlands

The Petrie Island PSW is situated at the base of the forested slope at a distance of approximately 60 m from the area to be disturbed. It is not located within the subject lands. This wetland was found to contain a narrow band of deciduous treed swamp (silver maple and green ash) followed by a narrow-leaved emergent dominated marsh (reed canary grass) and then a robust emergent dominated marsh (sweet flag and cattail). The findings of the 2005 *Wetland Impact Study Lots 28 and 29, Concession 1 Cumberland Ward, City of Ottawa Petrie’s Landing* as written by Muncaster Environmental Planning (Muncaster 2005) remain applicable. A summary of the Muncaster (2005) findings are provided below.

- These types of habitat provide wildlife habitat and water supply and purification (surface water treatment and groundwater discharge and maintenance of flow regime).
- They can also provide flood control however this is likely limited at this site due to its location (small upstream catchment and position on the Ottawa River which is regulated by waterpower facilities).
- The open water, found outside of the study area, can provide habitat for waterfowl breeding, rearing and moulting.
- The Petrie Island area is well known as an important recreation, tourism and education site however these activities primarily occur on the island, west of Trim Road and to the northwest of the site. The interpretative and walking trails are also found to the west of Trim road and north of the North Service Road. The portion of the wetland located near the subject lands are not used for these purposes.
- The more ecologically significant areas [alluvial island complex, Petrie Island swamps and aquatics and the Queenswood Forest (including a Hackberry Shrub community)] are all found to the west of Trim Road and north of the North Service Road. They are not found in the vicinity of the subject lands.
 - These significant areas are described as such due to the low rate of disturbance, greater level of ecological integrity and much higher diversity as compared to the habitat found northwest of Petrie’s Landing complex.
 - They also were identified as providing habitat for species such as northern map turtle, Blanding’s turtle, Cooper’s hawk as well as many significant plant species including the swamp and mixed forest habitat with the Provincially-significant *Carex typhina* and *Polygonum arifolium* (Brunton 1999).
 - Brunton (1999) also listed the least bittern but concluded that ‘the limited quantity of suitable breeding habitat in the vicinity of the Petrie Islands complex suggests that the likelihood of breeding by this species is very low in the Petrie Island study area’.

Conclusion:

- The Petrie Island Wetland is a Provincially Significant Wetland however the portion of the wetland with the highest significance is not located within the vicinity of the subject lands. The areas of higher significance are situated to the west of Trim Road and north of the North Service Road.
- The PSW is located a minimum of 30 m from the proposed development of Petrie’s Landing Towers 3 and 4 and over 100 m from Towers 5a and 5b.
- The nearest wetland communities are a narrow band of treed swamp and larger marsh communities which have a lower sensitivity to disturbances than other types of wetland communities.

Potential Impacts and Mitigation Measures:

- No direct impacts to the wetland will occur. There is a minimum buffer of approximately 30 m between the activities and the wetland.
- The clearing of trees on the top of the slope will be minimized.
- Grading should be timed to avoid periods of high runoff volumes (such as the spring and fall periods).
- Ensure that the grades are matched at the new limit of the natural feature.
- A permit from the City will be required prior to removing trees greater than 10 cm in diameter.
- Indirect impacts could occur as a result of change in water supply or quality, sediment/erosion to the forested slope between the wetland and the site, changes to light or noise levels within the wetland and/or increased access to the wetland. These have been mitigated by:
 - Stormwater management pond designed and constructed as part of Phase 1 releases its stormwater to a City owned storm sewer and does not impact the water quality within the wetland.
 - Water quantity will not be impacted as IFS found that there is little surficial contribution from the tablelands. Furthermore, the water levels are controlled by waterpower on the Ottawa River.
 - The site plan calls for mitigation measures (sheet piling) along the slope to ensure that no slope failure occurs (slope failure could have resulted in the transportation of soil down into the wetland).
 - During construction an appropriate erosion and sediment control strategy will be developed, installed, monitored and maintained. This will include, at a minimum, the installation of sediment fence (countersunk) along the edge of the limit of development (along the edge of the forest) and on the south side of the temporary access road.
- Any stockpiles of soil or fill material would be stored at least 30 m from the slope and protected by silt fencing.
- Additional materials (*i.e.* rip rap, filter cloth and silt fencing) should be readily available in case they are needed promptly for erosion and/or sediment control.
- Erosion and sediment control measures need to be maintained and will require daily inspection to ensure that they are working as intended. Additional inspections will be required after rainfall or storm events.
- The sediment fencing would not be removed until the site is stable.
- Any outlet or drains will be constructed to ensure that no erosion of the soil occurs (to prevent slope failure and the transportation of sediments into the wetland).
- No additional access to the wetland will be created (no trails).

- No changes in light or noise impacts are anticipated. No removal of vegetation in or over the wetland will occur. The noise from Highway 174 and the marina will likely generate more noise than that from Phase 2.
- It is commended that the disturbed areas along the edge of natural features be revegetated by seeding with a seed mixture that contains native species or transplanting native vegetation. Only native species should be used due to the proximity to the natural areas.

Area	Nature	Duration	Magnitude
Local	Negative Indirect	Short to Medium Term depending on extent	Unlikely to occur (would occur as a result of an accident or malfunction)

4.2.2 Significant Valleylands

The dry-fresh oak-red maple forest on the slope to the northwest of the subject lands forms part of a valleyland. As mentioned in the Wetland Impact Study (Muncaster 2005), Highway 174 borders the entire Petrie's Landing development to the south and east thereby limiting the value of the valleyland as a linkage function. The better linkage is along Cardinal Creek to the east of the site on the opposite side of Highway 174.

Conclusion:

- The forested slope along the northwest side of the subject lands form part of the valleyland.
- The proposed development abuts the valleyland.
- The development will require the removal of a small (± 0.29 ha) portion of the forest.
- This valleyland is limited in its function as a linkage due to existing development.

Design Changes:

- The main storm sewer system servicing Towers 1-4 is situated on the north side of the study area, adjacent to trees to be retained. The location of this storm sewer cannot be moved as it connects to the existing stormwater pond that was constructed in Phase 1. To minimize the impacts to the trees to remain, the sewer will be constructed using a trench box. Even using this technique, which minimizes the ground disturbed, a small portion of the CRZ buffer from the trees to be retained may be impacted along a length of 12 m. The CRZ width has been estimated at 3.5 m resulting in an impacted area of 15.5 m². At this time, the location of the pipe has not been surveyed. As such, the site investigations looked at trees in the general area and identified the largest trees. The largest trees within 10-15 m of the edge of the forest were typically less than 35 cm with a couple of individuals that were 60-67 cm. The CRZ is defined by the City as 10 x the DBH of the

trunk of the closest trees to the work area. Using a DBH of 35 cm gives a CRZ of 3.5 m. In reality, when the locates are completed, the trees to be retained along the edge of the area to be disturbed that are nearest to this area may actually be smaller which would result in a smaller CRZ and reduce or eliminate this impact. The exact size of the CRZ could be determined once surveys and layouts have been completed.

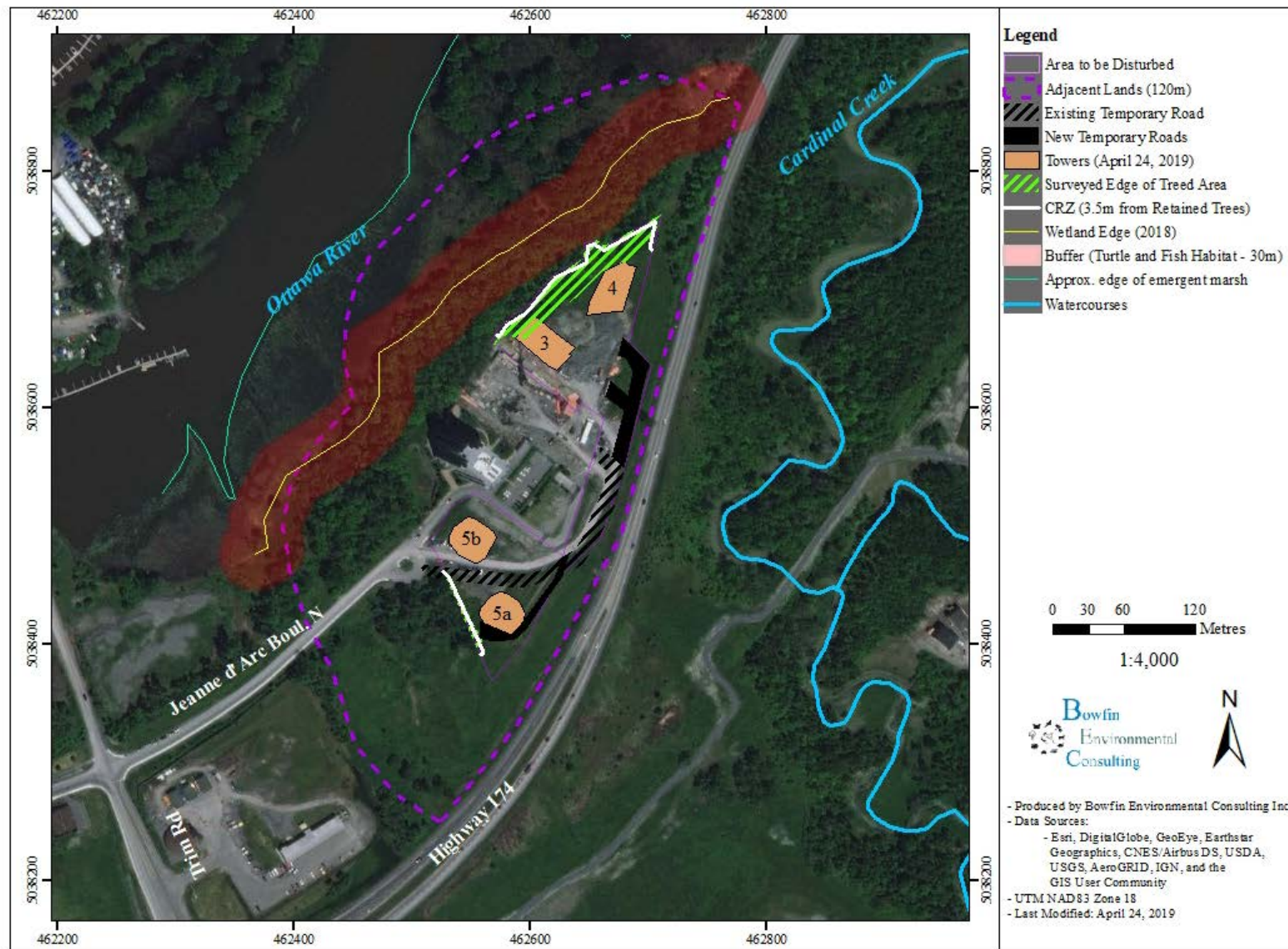
- Where vegetation clearing, and grading is within the CRZ of the trees to be retained, the clearing of vegetation will be done by hand. This will affect the forest to the north of Towers 3 and 4 along a length of 175 m and the small mixed forest on the west side of Towers 5a and 5b along a length of 68 m.
- The walkways have been designed so as not to encroach on the CRZ.

Potential Impact and Mitigation Measures:

- Grading should be timed to avoid periods of high runoff volumes (such as the spring and fall periods).
- The 30 m setback protects the valley land.
- Indirect impacts could occur if the trees along the top of the slope are harmed resulting in less stability of the slope.
 - Sheet piling will be installed along the edge of the development that will ensure that slope stability is maintained and minimize the potential for erosion following construction.
- The removal of woody vegetation will be minimized.
- A permit from the City will be required prior to removing trees greater than 10 cm in diameter.
- No signs, notices or posters should be attached to any trees;
- Any landscape plans should include only native species. Various species could be used including: red maple, white spruce, American basswood, red pine, sugar maple, hickory, red oak, bur oak, green ash, white ash, nannyberry, gray dogwood, or red osier dogwood. Where possible the woody vegetation should be planted in groupings to maximize wildlife benefit.
- When clearing the forest on the slope mitigation measures to minimize harm to the root systems of trees adjacent to the proposed works will be implemented to protect them from indirect harm:
 - Clearing of vegetation within the CRZ of trees to be retained will be completed by hand.
 - Sturdy fencing will be installed outside of the CRZ. This sturdy fence will remain in place until final grading and seeding takes place.
 - The sediment fence will be installed on the edge of the CRZ (no soil to be disturbed between the CRZ and the Development Limit/Trees to be retained.
 - No grading or activities that may cause soil compaction (such as heavy machinery and stockpiling of materials) will be allowed within the fenced area.

- Ensure that the grades are matched at the limit of the natural feature or to the edge of any buffer.
- Furthermore, no machinery maintenance or refueling or stockpiling is permitted within 5 m of the outer edge of this fencing.
- Exhaust fumes from all equipment will be directed away from the canopy of the trees to be retained.
- If roots of trees to be retained become exposed during site alterations, they will be buried immediately with soil or covered with filter cloth or woodchips and kept moist until the roots can be buried permanently.
- Any roots that must be cut will be cut cleanly to allow for healing.

Area	Nature	Duration	Magnitude
Local	Negative Indirect	Long Term to Permanent depending on extent	Negligible to Unlikely to occur (with exception of the 2.4 m ² which is a worst case scenario, this has been eliminated and impacts would occur as a result of an accident or malfunction)

Figure 6: Critical Root Zone

4.2.3 Urban Natural Feature

The Petrie Island Wetland also forms part of the Urban Natural Area #92: Petrie Islands and Mainland. This area has been described as a 288.2 ha parcel of alluvial islands, riparian deciduous swamp forests and mainland deciduous and mixed upland forests.

UNA assessment of the area assigned high ranking for the UNA’s:

- Connectivity
 - Connected to the Ottawa River and is adjacent to UNA 188 (Petrie West), UNA 93 (Taylor Creek Valley)
- Size and shape
 - Contains approximately 160 ha of interior habitat (primarily wetland habitat)
- Natural communities
 - High native flora [co-efficient of conservation (cc) 4.61 with 63 high-rate cc species]
 - Moderate to severe impacts from invasive species (including glossy buckthorn, common buckthorn and reed-canary grass all of which were found within the adjacent lands of this development proposal)
- Representative flora
 - Young to sub mature Green Ash Deciduous Swamp Forest
 - Sub mature United Maple, Silver Maple, Red Maple Deciduous Swamp Forest (dominant vegetation on alluvial islands)
 - Sub mature to mature Hackberry Deciduous Swamp Forest (small areas on all islands)
 - Deciduous Thicket Swamp
 - Reed canary grass Marsh (found in adjacent lands)
 - Cattail Marsh (found in adjacent lands)
 - Shallow water aquatic associates
 - Young to sub mature upland forest (Green Ash, White Birch and Red Maple – common in lower slopes and backshore) (Red Maple found in adjacent lands to site)
 - Mature upland Mixed Forest (Eastern Hemlock and Sugar Maple – small area of original Ottawa shore forest in Queenswood Forest)
 - Sand barren (dune-like area on West Island)
- Significant flora and fauna
 - High level of native biodiversity
 - Faunal representation of both common urban breeding birds, herptiles and mammals
- Wildlife habitat

- Large population of map turtles and Blanding’s turtles in wetlands and adjacent swamp forest, respectively
- Provincially significant least bittern and black tern, at least former breeding species, in open marsh habitat
- Breeding habitat for Regionally significant raptor Cooper’s hawk in Queenswood Forest
- The eastern wood-pewee (Special Concern) was heard on two occasions during the breeding bird surveys in 2018. During both visits, it was using forest habitat located within the swamp habitat of the Ottawa River. This area is outside of the area to be disturbed.

Conclusion:

- This UNA consists of alluvial islands, riparian deciduous swamp forests and mainland deciduous and mixed upland forests
- While the mapping for this UNA includes a portion of the cultural meadow; this disturbed area does not contribute to any of the criteria listed above. The meadow has a high percentage of non-native species and low cc value.
- A small (± 0.29 ha) portion of the forest will need to be removed. This removal of woody species will only occur within the area identified as being developable (Development Limits).

Potential Impact and Mitigation Measures:

- This UNA is situated north of Jeanne d’Arc Boulevard North and will not be impacted by the temporary access road.
- The removal of the small portion of woodland along the edge will not have any measurable impact on the UNA functions. No interior habitat will be impacted, and no raptor nests were found during 2013 or 2018.
- The mitigation measures outlined above for the wetland and valleyland will also protect the functions of this UNA.
- No additional mitigation measures for the UNA are required.

Area	Nature	Duration	Magnitude
Local	Negative Indirect	Long Term to Permanent depending on extent	Unlikely to occur (would occur as a result of an accident or malfunction)

Figure 7: Location of Study Area in Relation to the Urban Natural Area

4.2.4 SAR

Endangered and Threatened Species at Risk (SAR) are protected under provincial *Endangered Species Act*. The federal *Species at Risk Act* (SARA) applies to only fish species on private land. Together, provincially and federally protected species are referred to as SAR.

There is a potential of fifteen of SAR species to occur within the general area based on the available background information. These are: lake sturgeon, American eel, Blanding’s turtle, whip-poor-will, chimney swift, bank swallow, barn swallow, bobolink, eastern meadowlark, Henslow’s sparrow, little brown myotis (bat), northern myotis (bat), eastern small-footed myotis (bat), tri-colored bat and butternut. As is discussed in the paragraphs below, the habitat requirements for the majority of these species was not present. It is noted that communications from MNRF on April 24th, 2014 (email from Ms. Heather Zurbrigg) indicated that they had no SAR concerns for this project (Appendix B). While it is noted that this communications is dated, it is still applicable as the same habitats and species are involved in this phase and there has been no change to the land use other than the construction of a new tower.

Fish

The only fish habitat near the site is the backwaters of the Ottawa River. The year-round habitat of this area is approximately 160 m from the subject lands and the seasonal fish habitat 90 m. The seasonally flooded robust emergent and narrow leaved emergent marsh and deciduous treed swamp communities do not provide critical habitat for either species. No direct impacts will occur outside of the subject lands. Potential indirect impacts to the aquatic habitat would be the result of erosion or sediment laden runoff.

The potential to cause indirect impacts to the year-round fish habitat is extremely low due to its distance from the edge of the slope and the dense emergent communities. Those which could occur to the seasonal fish habitat found in the marsh will be mitigated through the use of common best management practices for erosion and sedimentation control during construction, compliance with a setback as agreed to with RVCA and installation of steel sheeting at the edge of the development.

While there is a potential for these species to utilize the fish habitat found within the adjacent lands or further offshore for feeding and/or rearing there is no potential for this area to be directly impacted and the indirect impact would be the result of accidents or malfunctions. Mitigation measures were summarized in the wetland section above (Section 4.2.1).

Turtles

There is a potential for Blanding’s turtle to utilize the same aquatic habitat discussed in the paragraphs above (Ottawa River and associated wetland habitat). This turtle can also often be found far from waterbodies during its seasonal migrations. As such habitat that is within 2 km of a known occurrence can be designated as Category 2 (appropriate wetland and waterbodies plus a 30 m area surrounding these habitats) or Category 3 (habitat found between 30 and 250 m from Category 2 habitat). The purpose of Category 3 habitat is to serve as a migration corridor; to be suitable habitat, it must link wetland habitats or nesting habitats. The question to be asked is whether or not there are any areas in or beyond the study area to which the turtle would have a desire/need to migrate to. In this case, the project area (Category 3 habitat) does not offer a migratory corridor to other suitable habitats.

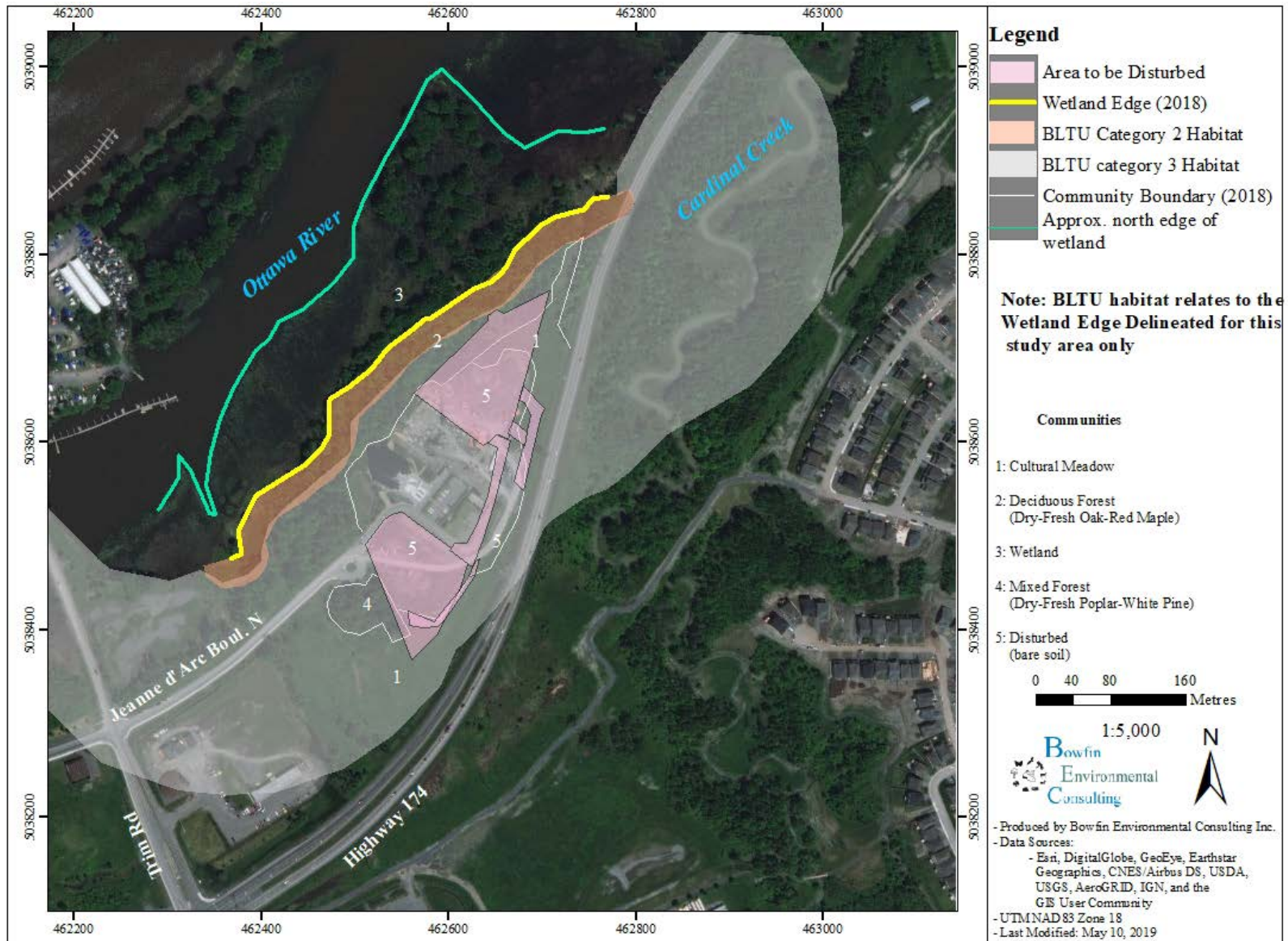
Figure 8 shows the habitats in and surrounding the study area along with the Category 2 and 3 Blanding’s turtle habitat. Note that this habitats has been measured only from the edge of the delineated wetland for this project (also depicted on the figure). Additional Category 2 and 3 habitats maybe present within the area shown on the map, and only those located within 30 m and 250 m of the wetland edge delineated for this study area should be considered accurate.

Previously discussed in Section 3.2.2 of this report there was no wetland habitat within the area of impact. As depicted on Figure 8, the natural habitat is primarily that situated along the banks of the Ottawa River and the areas of disturbances for this project have avoided the Category 2 habitat. The area to be disturbed by the project is south of the banks and falls under the Category 3 habitat, as does Highway 174. The Highway 174 and Trim Road create fragmentation of the natural habitats. Almost all of the area to be disturbed consisted of a cultural meadow and most of this area was previously impacted during construction of Towers 1 and 2. During the multiple site visits, no turtles were observed in the area to be disturbed. Three of these visits took place during the normal turtle survey period and the only turtle observed was a painted turtle next to the Ottawa River. Note that turtles are always recorded as incidental sightings even if the purpose of the survey is not focused on turtles. There is no turtle nesting habitat in the area to be disturbed and it is not desirable to encourage turtles to enter this area due to its proximity to roadways. While, the area to be disturbed and Highway 174 form part of the Category 3 habitat neither provides suitable movement corridors. The more natural movement corridor for turtles to travel south of Highway 174 would be along Cardinal creek to the north.

The above comments were agreed with by MNRF during their review of the adjacent tower (Tower 2) in 2014. The adjacent lands of that project included the area to be disturbed for this one. The email from MNRF on April 24, 2014 (email from Ms. Heather Zurbrigg see Appendix B) indicated that they had reviewed the file and confirmed that MNRF did not feel that the activities associated with the development of Tower 2, including the disturbed areas (location of Towers 5a and 5b) would contravene Section 10 of the *Endangered Species Act* or require

registration (Appendix B). While this email is dated, no additional information was provided by MNRF in 2018 and there has been no change to the regulations for this species or the habitat in the study area since their comments were made in 2014.

Based on the lack of other wetlands, or nesting habitat and on the presence of active roadways, the area to be disturbed is not considered to be good Category 3 habitat. Category 3 habitat is the least sensitive to development. Blanding’s turtles will continue to be able to travel safely through the area using the Ottawa River, the wetland along its edge as well as Cardinal Creek, to the north.

Figure 8: Category 2 and 3 Blanding's Turtle Habitat

Birds

Two breeding bird visits were undertaken in 2018 (June 8, and 22). During these visits, the only SARs identified was barn swallows (THR, provincially and federally). The barn swallows were observed flying overhead foraging closer to Trim Road.

Whip-poor-will

As per the MNRF guidelines, whip-poor-wills surveys are required when a minimum of 9 ha of forest is present. The forest stand within this area (inside and outside of the subject lands) is ±4.2 ha and does not meet the minimum forest requirements. This species is considered absent.

Chimney Swifts and Barn Swallows

Both chimney swifts and barn swallows require structures for nesting. No structures were present within the subject lands or any of the land which could be used as a temporary work space. The nesting habitat for both species’ habitat is considered absent.

Bank Swallow

Bank swallows are known to nest in vertical banks including those along riverbanks, and sand pits. No bank swallow nests were noted on the valley slopes during the surveys. This species’ habitat is considered absent from the study area.

Bobolink, Eastern Meadowlark and Henslow’s Sparrow

All three are grassland birds. The first two require areas of grassland of a minimum of 4.0 ha and the third needs even more habitat. In Ontario, the Henslow’s sparrow has been documented as requiring in the order of 50 to 100 ha of suitable habitat. Suitable habitat includes fields that are used are usually moist with tall herbaceous vegetation, little to no woody vegetation and a deep thatch layer (Environment Canada 2006; Herkert et al. 2002; Pruitt 1996). During the second Ontario Breeding Bird Atlas, the Henslow’s Sparrow was not found at all in eastern Ontario (Tuininga 2007) and it is now considered extirpated (SH ranking).

No eastern meadowlark or bobolinks were observed in 2018.

The subject lands are 2.9 ha in size and include meadow habitat. The total meadow habitat, both in and adjacent to the area to be disturbed, has a total size of 2.8 ha. These two species are considered unlikely to occur as this 2.8 ha is not optimum habitat for the following reasons:

- It is less than the minimum 4.0 ha.
- No bobolinks or eastern meadowlark were observed during the breeding bird visits.

- Subject lands consist of recently cleared lands with a disturbed topsoil layer and that is now revegetated with species such as reed canary grass, common sow thistle, common ragweed, lady’s thumb and white clover.
- The ‘larger’ 2.8 ha area is actually made up of three smaller parcels [0.6 ha (which includes the future area for Towers 3 and 4), 0.2 ha (narrow band 20-50 m wide situated between the parking garage of Tower 2 and Highway 174) and 2.0 ha (west of Towers 5a and 5b)]
- The entire meadow habitat is bordered by Highway 174

Again it is noted that in 2014, MNRF indicated that they had no concerns about any SAR for this project and with the construction of Tower 2, there is now less potential habitat then present in 2014. There has also been no changes to the regulation or habitat (other than decrease in size) since the April 24, 2014 email from MNRF as such, their comments in 2014 are still valid (Appendix B).

Bats

The potential SAR bats within the general area are: little brown myotis, northern myotis, eastern small-footed myotis and tri-coloured. All but the eastern small-footed myotis are protected as endangered species both provincially and federally. The eastern small-footed myotis is not listed federally but is protected as an endangered species provincially. Their habitat requirements vary for different life stages: hibernacula (winter hibernation sites), bat maternity sites and day-roosts.

These species prefer to hibernate in caves or mines or buildings. No known hibernation sites were present in the study area.

The bat maternity sites varies by species. Species-specific information is available for the northern myotis. This species prefers large portions of older forests. The maternity sites tend to be in snags in the mid stage of decay. This species tends to prefer larger expanses of older forests (late successional or primary forests) with intact interior habitat and is shown to be negatively correlated with edge habitat (Menzel et al, 2002; Broders et al., 2006; Yates et al., 2006; *SWH Ecoregion 6E Criterion Schedule*). This habitat is not present in the study area and this species is considered absent.

The *Significant Wildlife Habitat Criteria Schedules Draft 6E* indicates that consideration for maternity sites should be made when the vegetation community consists of a mature deciduous or mixed forest with >10/ha of large trees (>25 cm DBH). MNRF guidelines for bat maternity sites require a minimum of >10 cavity trees (with a minimum DBH of 25 cm) / ha. Based on the plot results, the forest habitats did not meet this minimum requirement.

The trees to be removed could provide day-roost habitat and as such, avoidance measures listed below are recommended.

Mitigation Measures:

- Educate contractors by informing them that most bats in Ontario are protected.
- When possible, remove trees after September 30th or before June 1st. If this is not possible, conduct exit survey or shake the trees prior to cutting them down. If a bat is observed leaving the tree, then stop clearing vegetation and wait until after September 30th for any additional tree clearing (there are sufficient trees nearby for bats to quickly find alternative day-roost).

Plants

A survey was completed for Butternuts by BHA #117 and #281 in 2013 and repeated in 2018 (#117). None were found. This species is considered to be absent.

Mitigation Measures:General:

- Endangered and Threatened species are protected and cannot be harmed, harassed or killed and in some cases their habitats are also protected. These individuals will only be handled by qualified person and only if the individual is in imminent threat of harm. An authorization under the ESA 2007 would be required to handle individuals that are not in imminent threat of harm.
- If a SAR enters the work area during the construction period, any work that may harm the individual is to stop immediately and the supervisor will be contacted. No work will continue until the individual has left the area.
- Should an individual be harmed or killed then work will stop and MNRF will be contacted immediately.
- Mitigation measures listed under Sections 4.2.1-4.2.3 are also applicable to this section.
- Avoid clearing of vegetation during the sensitive times of the year for local wildlife (i.e. spring to early summer) when animals are bearing and nursing their young.
- Contractor is to refer to the City of Ottawa Protocol for Wildlife Protection during Construction (August, 2015).

Turtles

- Sediment fencing along the banks will be properly countersunk and maintained to ensure that any turtles cannot get into the site. This sediment fencing is, at a minimum, to include the three sides of the project area closest to the PSW. Note that during clearing of vegetation, the sediment fence should not prevent wildlife from leaving the area but also must prevent sediment transportation downslope.

- During clearing of vegetation, contractors are to be informed that they should keep a look out for wildlife and if any are observed, they should be given the opportunity to leave the area.
- Recommend clearing from a south to north and west to east direction to allow wildlife the opportunity to leave the site into the natural areas that are to remain.
- Ensure that construction personal are aware that Blanding’s turtle is a protected species, and should any turtles be encountered on-site they cannot be harmed or harassed. Turtles should be allowed to leave the area on their own.

Birds

In order to ensure that no impacts to SAR birds or any other bird (as birds are also protected by the *Migratory Bird Convention Act*) - no clearing of vegetation (in this case it includes no clearing of any vegetation) between April 1st and August 15th unless the area to be cleared has been walked by a biologist within 5 days prior to the planned clearing and no active nests are present.

Table 3 Summary of Potential SAR (Endangered and Threatened)

Common Name	Scientific Name	Population	SRank	Provincial Status	Federal Status	SARA Schedule	Preferred Habitat	Reference
FISH								
Lake Sturgeon	<i>Acipenser fulvescens</i>	Great Lakes - Upper St. Lawrence populations	S2	THR	No Status	No Schedule	Bottoms of lakes and large rivers.	COSEWIC 2000
American Eel	<i>Anguilla rostrata</i>		S1?	END	No Status	No Schedule	Near cover over muddy, silty bottoms of lakes, rivers and creeks.	COSEWIC 2006
REPTILES								
Blanding's Turtle	<i>Emydoidea blandingii</i>	Great Lakes / St. Lawrence population	S3	THR	THR	Schedule 1	Shallow water, large marshes, shallow lakes or similar such water bodies.	COSEWIC 2005
BIRDS								
Eastern Whip-poor-will	<i>Caprimulgus vociferus</i>		S4B	THR	THR	Schedule 1	Rock or sand barrens with scattered trees, savannahs, old burns or other disturbed sites in a state of early to mid-forest succession, or open conifer plantations	COSEWIC 2009
Chimney Swift	<i>Chaetura pelagica</i>		S4B, S4N	THR	THR	Schedule 1	Cities, towns, villages, rural, and wooded areas.	COSEWIC 2007
Bank Swallow	<i>Riparia riparia</i>		S4B	THR	THR	Schedule 1	Variety of forest types, most common in wet, mixed deciduous-coniferous forest with a well-developed shrub layer. It is often found in shrub marshes, red maple stands, cedar stands, conifer swamps dominated by black spruce and larch and riparian woodlands along rivers and lakes. It is also associated with ravines and steep brushy slopes near these habitats	COSEWIC 2013

Common Name	Scientific Name	Population	SRank	Provincial Status	Federal Status	SARA Schedule	Preferred Habitat	Reference
Barn Swallow	<i>Hirundo rustica</i>		S4B	THR	THR	Schedule 1	Open or semi-open lands: farms, field, marshes.	Peterson 1980
Bobolink	<i>Dolichonyx oryzivorus</i>		S4B	THR	THR	Schedule 1	Primarily in forage crops, and grassland habitat.	COSEWIC 2010
Eastern Meadowlark	<i>Sturnella magna</i>		S4B	THR	THR	Schedule 1	Fields, meadows and prairies.	Peterson 1980
Henslow's Sparrow	<i>Ammodramus henslowii</i>		SHB	END	END	Schedule 1	Weedy fields.	Environment Canada 2010
MAMMALS								
Little Brown Myotis	<i>Myotis lucifugus</i>		S4	END	END	Schedule 1	Buildings, attics, roof crevices and loose bark on trees or under bridges. Always roost near waterbodies.	Eder 2002
Northern Myotis/Northern Long-eared Bat	<i>Myotis septentrionalis</i>		S3	END	END	Schedule 1	Older (late successional or primary forests) with large interior habitat.	Menzel et al. 2002, Broders et al. 2006, SWH 6E Ecoregion Criterion Schedule
Eastern Small-footed Myotis	<i>Myotis leibii</i>		S2S3	END	No Status	Not Applicable	Found within deciduous or coniferous forests in hilly areas.	Eder 2002
Tri-colored Bat	<i>Perimyotis subflavus</i>		S3?	END	END	Schedule 1	Prefers shrub habitat or open woodland near water.	Eder 2002
PLANTS								
Butternut	<i>Juglans cinerea</i>		S3?	END	END	Schedule 1	Variety of sites, grows best on well-drained fertile soils in shallow valleys and on gradual slopes	COSEWIC 2003

Status Updated September 2018

SRANK DEFINITIONS

SH Possibly Extirpated (Historical), Species or community occurred historically in the nation or state/province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become NH or SH without such a 20-40 year delay if the only known occurrences in a nation or state/province were destroyed or if it had been extensively and unsuccessfully looked for. The NH or SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.

S1 Critically Imperiled, Critically imperiled in the nation or state/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 state/province.

S2 Imperiled, Imperiled in the nation or state/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 nation or state/province.

S3 Vulnerable, Vulnerable in the nation or state/province 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.

S#S# Range Rank, A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

? Inexact Numeric Rank—Denotes inexact numeric rank

S#B Breeding

S#N Non-Breeding

SARO STATUS DEFINITIONS

END Endangered: A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA.

THR Threatened: A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.

SC Special Concern: A species with characteristics that make it sensitive to human activities or natural events.

SARA STATUS DEFINITIONS

END Endangered, a wildlife species facing imminent extirpation or extinction.

THR Threatened, a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.

SC Special Concern, a wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

4.2.5 Accidents and malfunctions

The potential impacts associated with this proposed development largely stem from accidents or malfunctions. Although the likelihood of accidents and malfunctions occurring would be minimized by following the mitigation measures outlined below, should accidents and/or malfunctions occur they have the possibility of presenting serious impacts and require consideration.

Maintenance on construction equipment such as refueling, oil changes or lubrication would only be permitted in designated area located at a minimum of 30 m from the slope and from the reed canary grass and trees to the west and south of the temporary access road. And in an area where sediment erosion control measures and all precautions have been made to prevent oil, grease, antifreeze or other materials from inadvertently entering the ground or the surface water flow.

Machinery should be cleaned prior to arriving on-site to prevent the potential spread of invasive species.

Emergency spill kits would be located on site. The crew would be fully trained on the use of clean-up materials in order to minimize impacts of any accidental spills. The area would be monitored for leakage and in the unlikely event of a minor spillage the project manager would halt the activity and corrective measures would be implemented. Any spills would be immediately reported to the Ministry of Environment, Conservation and Parks (MECP) Spills Action Centre (1800 268-6060).

5.0 TREE CONSERVATION AND PLANTING PLAN

This development (approximately 2.9 ha) is located to the east of Trim Road and north of Highway 174; approximately 6 km west of Cumberland. This report includes the development of the towers as well as the construction, operation and decommissioning of the temporary access road.

There were few trees within the subject lands with the exception of a portion of the Dry-Fresh Oak-Red Maple Forest located on the north edge of the property and the Dry-Fresh Poplar White Pine Mixed Forest next to Towers 5a and 5b. Both areas are less than 200 m wide and as such there is no forest interior associated with the stand (in or outside of the study area).

There were no occurrences of SAR or their protected habitats.

The trees to the north of the tower form part of the Significant Valleyland and the impacts to them and this feature is discussed above under Section 4.2.2. Other than the retention of trees for the purposes of slope stability and the features discussed under section 4.0, no additional trees are recommended for retention. Note that the slope stability issue has been addressed by geotechnical experts.

Given that there will be the removal of a portion of the woodland, it is recommended that planting of native trees and shrubs occur where feasible. Species such as red maple, bur oak, sugar maple, black cherry, green ash, white ash, nannyberry and hickory may be appropriate.

Design changes and mitigation measures outlines in Section 4.0 have been implemented to mitigate potential harm to the trees to be retained. No additional mitigation measures other than those listed under Section 4.0 are required. Summary of individual trees and groupings is provided in Table 4. Map 1 and Map 2 as per the City’s TCR requirements are provided below (Figure 9-Figure 12).

Table 4: Summary of Trees and Groupings

Individual Tree Number	Species	DBH (cm)	Height (m)	Health	Ownership	To be Removed (y or n)	Comments
1	American Elm	10	5	Good	Brigil	Y	
2	Trembling Aspen	14	8	Good	Brigil	Y	
3	Trembling Aspen	23	10	Good	Brigil	Y	
4	Basswood	30,13	13	Good	Brigil	Y	
5	White Ash	11	6	dead	Brigil	Y	
6	Red Maple	36	14	Good	Brigil	Y	
7	Red Maple	42,33,17	14	Good	Brigil	Y	
8	Large-tooth Aspen	24	9	Good	Brigil	Y	
9	Trembling Aspen	16	9	Good	Brigil	Y	
10	Trembling Aspen	24	9	Good	Brigil	Y	
11	Trembling Aspen	14	8	Good	Brigil	Y	
12	Trembling Aspen	45	14	poor	Brigil	Y	fallen over, still live
13	Basswood	20	7	Good	Brigil	Y	
14	American Elm	13	7	Good	Brigil	Y	
15	White Ash	36,33,27,22	14,27,17,11	Poor	Brigil	Y	Crown dead, live epicormics
16	Bur Oak	36	11	Good	Brigil	Y	
17	Trembling Aspen	11	7	Good	Brigil	Y	
18	Trembling Aspen	34	12	Good	Brigil	Y	
19	Trembling Aspen	11	3	dead	Brigil	Y	
20	Trembling Aspen	40	9	Good	Brigil	Y	
21	Trembling Aspen	20	10	Good	Brigil	Y	
22	Trembling Aspen	29	13	Good	Brigil	Y	
23	Trembling Aspen	19	10	Good	Brigil	Y	
24	Trembling Aspen	25	11	Good	Brigil	Y	
25	Trembling Aspen	33	13	Good	Brigil	Y	
26	Trembling Aspen	16	9	Good	Brigil	Y	

Individual Tree Number	Species	DBH (cm)	Height (m)	Health	Ownership	To be Removed (y or n)	Comments
27	Trembling Aspen	26	10	dead	Brigil	Y	
28	Trembling Aspen	11	8	Good	Brigil	Y	
29	Trembling Aspen	15	8	Good	Brigil	Y	
30	Trembling Aspen	14	7	Good	Brigil	Y	
31	Trembling Aspen	15	7	Good	Brigil	Y	
32	Trembling Aspen	29	9	Good	Brigil	Y	
33	Trembling Aspen	10	6	Good	Brigil	Y	
34	Cottonwood	15	6	Good	Brigil	Y	Tree 1-34 is clump on south side of road (5m buffer)
35	Trembling Aspen	28	13	Good	Brigil	N	Outside of Area to be disturbed
36	American Elm	14	7	Good	Brigil	N	Outside of Area to be disturbed
37	Trembling Aspen	12	7	Good	Brigil	N	Outside of Area to be disturbed
38	Trembling Aspen	15	9	Good	Brigil	N	Outside of Area to be disturbed
39	Trembling Aspen	17	8	Good	Brigil	N	Outside of Area to be disturbed
40	Red Maple	23	9	Good	Brigil	N	Outside of Area to be disturbed
41	Red Maple	26	10	Good	Brigil	N	Outside of Area to be disturbed
42	Red Maple	42	15	Poor (some dead branches)	Brigil	N	Outside of Area to be disturbed
43	White Pine	37	16	Good	Brigil	N	Outside of Area to be disturbed
44	Bur Oak	40	13	Good	Brigil	N	Outside of Area to be disturbed
45	White Ash	16	5	dead	Brigil	N	Outside of Area to be disturbed
46	Red Maple	18	9	Good	Brigil	N	Outside of Area to be disturbed
47	Red Maple	14	7	Poor (some dead branches)	Brigil	N	Outside of Area to be disturbed
48	Bur Oak	67	17	Good	Brigil	N	Outside of Area to be disturbed
49	White Ash	22	8	dead	Brigil	N	Outside of Area to be disturbed
50	Red Maple	25	10	Good	Brigil	N	Outside of Area to be disturbed

Individual Tree Number	Species	DBH (cm)	Height (m)	Health	Ownership	To be Removed (y or n)	Comments
51	Red Maple	29	11	Good	Brigil	N	Outside of Area to be disturbed
52	Red Maple	25	10	Good	Brigil	N	Outside of Area to be disturbed
53	Red Maple	40	15	Good	Brigil	N	Outside of Area to be disturbed
54	Bur Oak	42	14	Good	Brigil	N	Outside of Area to be disturbed
55	Basswood	14	6	Good	Brigil	N	Outside of Area to be disturbed
56	White Ash	11	6	dead	Brigil	N	Outside of Area to be disturbed
57	White Ash	12	7	poor	Brigil	N	Outside of Area to be disturbed
58	Trembling Aspen	17	9	Poor (fallen over but still alive)	Brigil	N	Outside of Area to be disturbed
59	White Ash	10	6	Good	Brigil	N	Outside of Area to be disturbed
60	White Ash	18	7	poor	Brigil	N	Outside of Area to be disturbed
61	White Ash	12	7	Good	Brigil	N	Outside of Area to be disturbed
62	White Ash	10	6	Good	Brigil	N	Outside of Area to be disturbed
63	Trembling Aspen	10	5	Good	Brigil	N	Outside of Area to be disturbed
64	Trembling Aspen	26	9	Good	Brigil	N	Outside of Area to be disturbed
65	Trembling Aspen	15	8	Good	Brigil	N	Outside of Area to be disturbed
66	Trembling Aspen	21	10	Good	Brigil	N	Outside of Area to be disturbed
67	Trembling Aspen	17	9	Good	Brigil	N	Outside of Area to be disturbed
69	White Ash	32	9	dead	Brigil	Y	
70	White Ash	15	6	dead	Brigil	Y	
71	White Ash	27	8	dead	Brigil	Y	
72	White Ash	18	7	dead	Brigil	Y	
73	White Ash	16	7	dead	Brigil	Y	
74	White Ash	29	11	dead	Brigil	Y	
75	Bur Oak	60,67,61	17	Good	Brigil	Y	
77	Bur Oak	42	13	Good	Brigil	N	Outside of Area to be disturbed
78	Bur Oak	28	16	Good	Brigil	N	Outside of Area to be disturbed

Individual Tree Number	Species	DBH (cm)	Height (m)	Health	Ownership	To be Removed (y or n)	Comments
79	White Ash	45	13	dead	Brigil	N	Outside of Area to be disturbed
80	Bur Oak	101	16	Good	Brigil	N	Outside of Area to be disturbed
81	White Ash	14	7	dead	Brigil	N	Outside of Area to be disturbed
82	White Ash	13	7	dead	Brigil	N	Outside of Area to be disturbed
83	White Ash	13	7	dead	Brigil	N	Outside of Area to be disturbed
84	White Ash	18	8	dead	Brigil	N	Outside of Area to be disturbed
85	White Ash	24,10	8	poor	Brigil	N	Outside of Area to be disturbed
86	White Ash	11	6	dead	Brigil	N	Outside of Area to be disturbed
87	White Ash	27	9	dead	Brigil	N	Outside of Area to be disturbed
88	Red Maple	77	12	Good	Brigil	N	Outside of Area to be disturbed
89	White Ash	10	6	dead	Brigil	N	Outside of Area to be disturbed
90	American Elm	25,19	8	Good	Brigil	N	Outside of Area to be disturbed
91	White Spruce	16	5	Good	Brigil	N	Outside of Area to be disturbed
92	Hybrid maple	12	5	Good	Brigil	N	Outside of Area to be disturbed
93	Blue Spruce	18	6	Good	Brigil	N	Outside of Area to be disturbed
94	White Spruce	16	6	Good	Brigil	N	Outside of Area to be disturbed
95	White Spruce	17	6	Good	Brigil	N	Outside of Area to be disturbed
96	White Spruce	11	5	Good	Brigil	N	Outside of Area to be disturbed
97	White Spruce	14	6	Good	Brigil	N	Outside of Area to be disturbed
98	Hybrid maple	19	6	Good	Brigil	N	Outside of Area to be disturbed
99	Hybrid maple	21	6	Good	Brigil	N	Outside of Area to be disturbed
100	Red Pine	27	6	Good	Brigil	N	Outside of Area to be disturbed
101	White Spruce	12	4	Good	Brigil	N	Outside of Area to be disturbed
102	White Spruce	14	5	Good	Brigil	N	Outside of Area to be disturbed
103	Crab apple?	15	4	Good	Brigil	N	Planted in garden
104	Hybrid maple	22	5	Good	Brigil	N	Outside of Area to be disturbed
105	White Spruce	14	5	Good	Brigil	N	Outside of Area to be disturbed

Individual Tree Number	Species	DBH (cm)	Height (m)	Health	Ownership	To be Removed (y or n)	Comments
106	White Spruce	16	5	Good	Brigil	N	Outside of Area to be disturbed
107	White Spruce	20	6	Good	Brigil	N	Outside of Area to be disturbed
108	White Spruce	15	6	Good	Brigil	N	Outside of Area to be disturbed
109	White Spruce	17	6	Good	Brigil	N	Outside of Area to be disturbed
110	White Spruce	17	6	Good	Brigil	N	Outside of Area to be disturbed
111	White Spruce	23	6	Good	Brigil	N	Outside of Area to be disturbed
112	White Spruce	15	6	Good	Brigil	N	Outside of Area to be disturbed
113	White Spruce	14	5	Good	Brigil	N	Outside of Area to be disturbed
114	White Spruce	13,10	6	Good	Brigil	N	Outside of Area to be disturbed
115	White Spruce	17	4	Good	Brigil	N	Outside of Area to be disturbed
116	White Spruce	15	5	Good	Brigil	N	Outside of Area to be disturbed
117	Red Pine	19	5	Good	Brigil	N	Outside of Area to be disturbed
118	Red Pine	22	5	Good	Brigil	N	Outside of Area to be disturbed
119	Red Pine	18	4	Good	Brigil	N	Outside of Area to be disturbed
Groupings							
Grouping A	Trembling Aspen	20	9	Good	Brigil	Some will be removed	From mk89-91, row of Trembling aspens with no other species. Range 10-31 DBH, avg 15 DBH. 150+ trees.
Grouping B	Trembling Aspen	10	6	Good	Brigil	Some will be removed	from mk99-100, row of Trembling aspens with no other species. Range 10-35 DBH, avg 15 DBH.

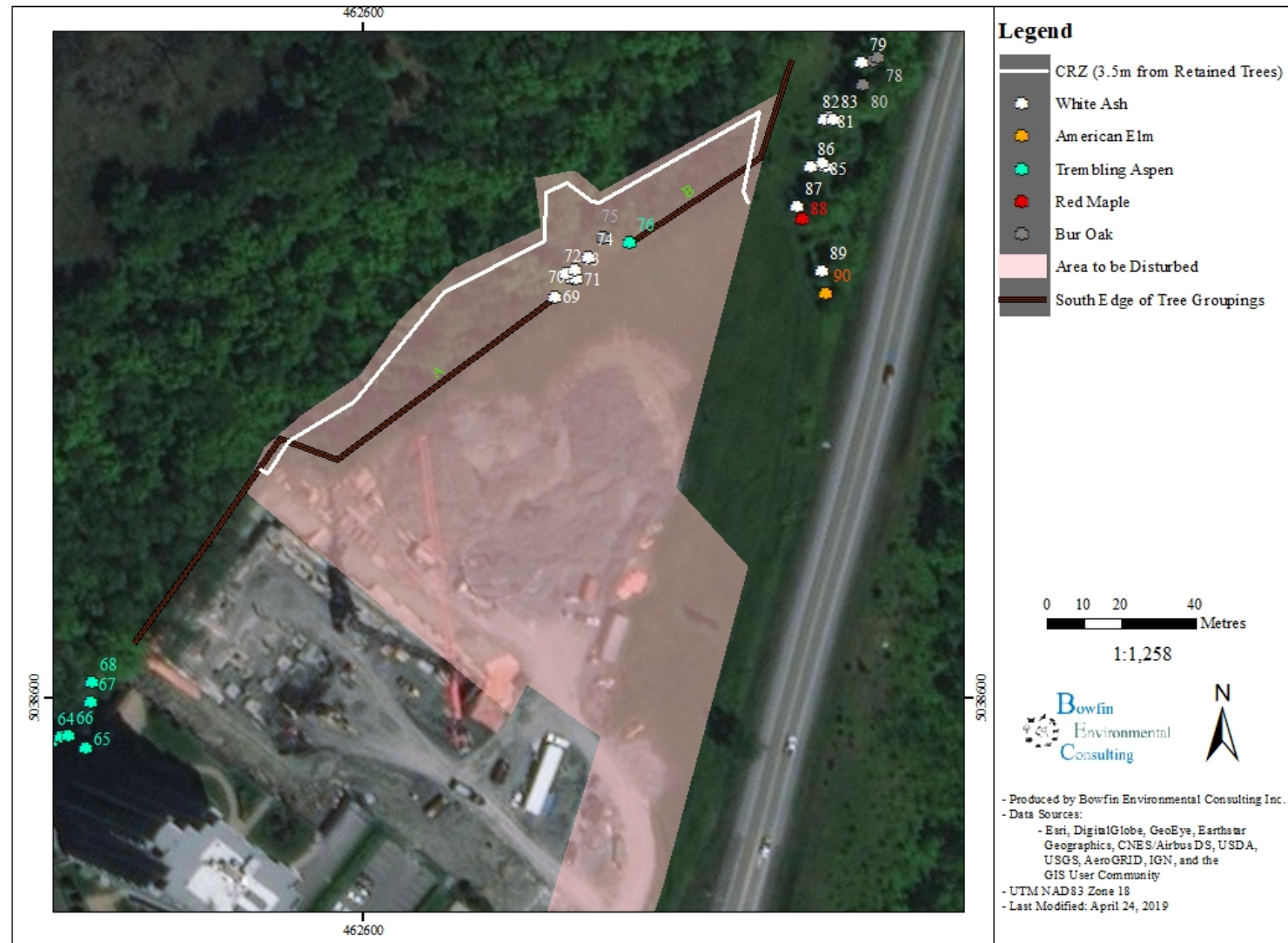
Figure 9: Map 1 Location of Individual and Groupings of Trees near Towers 3 and 4

Figure 10: Map 1 Location of Individual and Groupings of Trees near Towers 5a and 5b

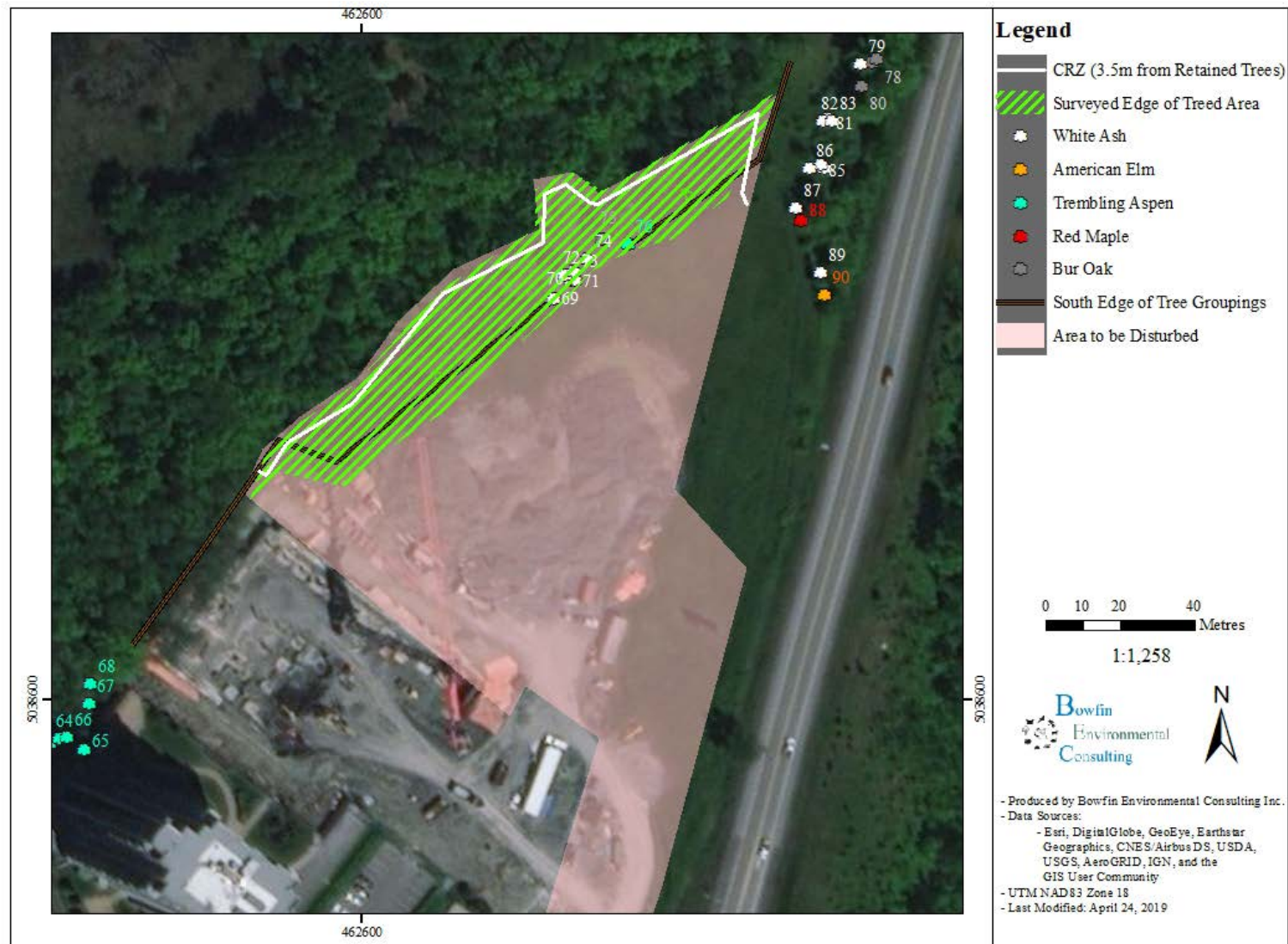
Figure 11: Map 2 Trees to be Removed near Towers 3 and 4

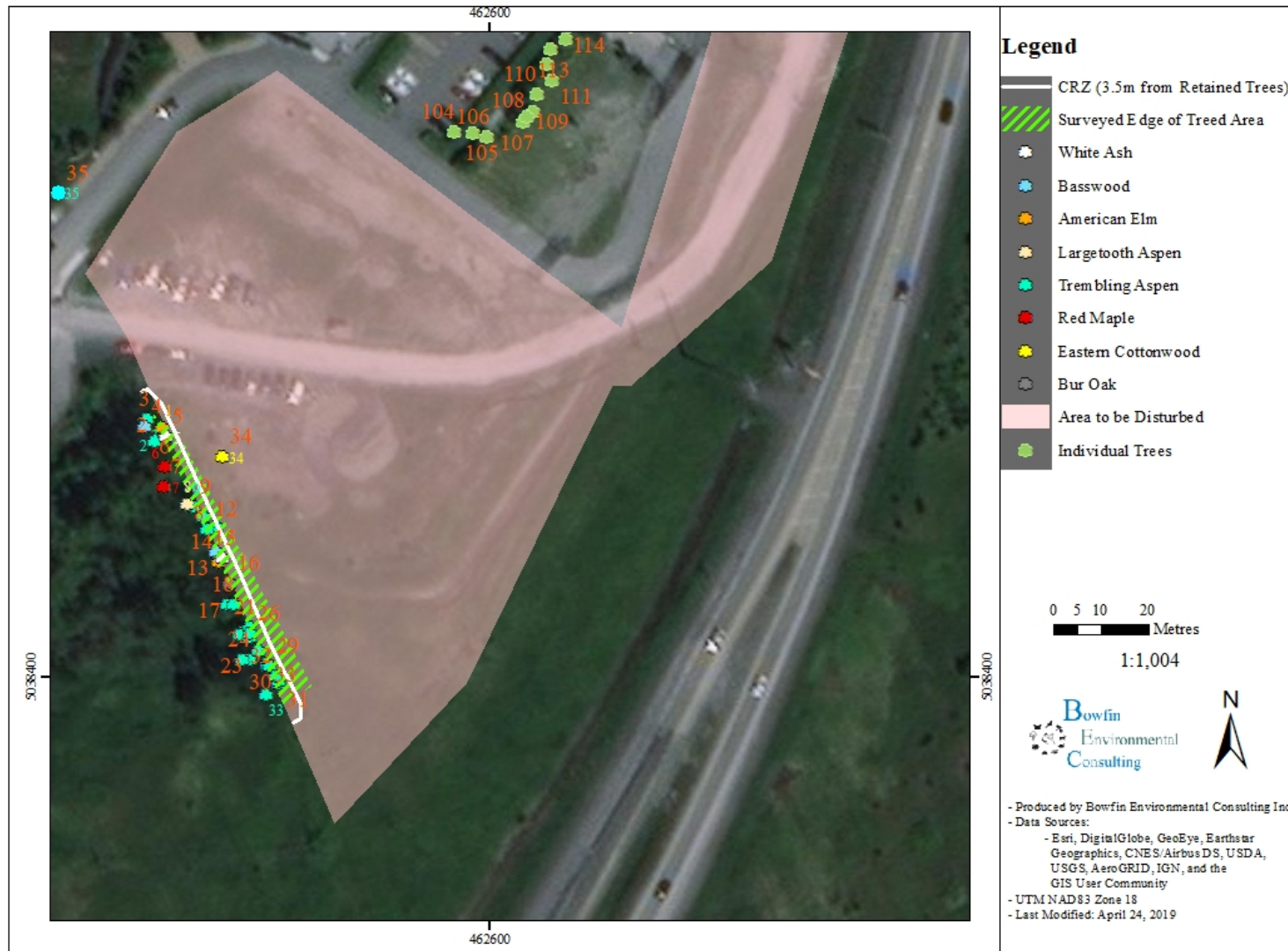
Figure 12: Map 2 Trees to be Removed near Towers 5a and 5b

Table 5 Summary of Impacts, Mitigation Measures and Residual Effects

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
Construction				
Vegetation Clearing in preparation development	<p>Grassland breeding bird habitat – Bobolink (Threatened Species)</p> <p>Category 3 Habitat for Blanding's Turtle</p> <p>Bird nests protected by MBCA</p>	<p>The habitat present is considered unsuitable for SAR grassland birds. With respect to Category 3 habitat for Blanding's Turtle, the upland area does not link the Ottawa River/wetland with any other habitat (i.e. nesting, overwintering) and is near active roadways (potential for turtle mortalities). See Section 4.2.4 for more details and the email from MNRF in Appendix B indicating that the development of these areas was unlikely to trigger ESA (Appendix B).</p>	<p>Minimize tree removal from the valleyland to the north of Towers 3 and 4. It is estimated that ± 0.29 ha of the trees along the north side of the project (near Towers 3 and 4) and ± 0.02 ha of those on the west side (near Towers 5a and 5b) will be removed. These trees are all inside the Development Limit. In addition to this impact, those trees whose CRZ are near the edge of the Development Limit on the north side could be impacted indirectly. The total area for this would be ± 425.5 m².</p>	None

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
		Removal of herbaceous vegetation would destroy (temporarily or permanently) breeding habitat. It may also impact, indirectly, adjacent grassland habitats.	<p>A permit from the City will be required prior to removing trees greater than 10 cm DBH.</p> <p>No signs, notices or posters should be attached to any trees;</p> <p>Any landscape plans should include native species as much as possible. Various species could be used including: red maple, sugar maple, hickory, bur oak, green ash, white ash or nannyberry. Where possible the woody vegetation should be planted in groupings to maximize wildlife benefit.</p> <p>Use small machinery within 20 m of</p>	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			<p>valleyland to the north of Towers 3 and 4.</p> <p>Any clearing of vegetation within the CRZ (DBH x 10 cm) of trees to be retained (from both the trees to the west and those to the north) will be done by hand.</p> <p>All vegetation clearing should occur outside of breeding bird season and the day-roost period for bats (no clearing between April 15th and September 30th). If this is not possible, then have a biologist complete a bird nest surveys a maximum of 5 days prior to clearing between April 15th and August 15th. Take precautions for bats</p>	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			between June 1 st and September 30 th . Precaution for bats can include bat exit survey or shaking trees prior to cutting them down. The bat timing window applies to trees that are 10 cm or larger.	
Construction of infrastructure, buildings and Grading	Indirect impacts to wetland, valleyland and UNA should erosion or sediment control measures fail.	Negative impacts to: quality of wetland habitat or its functions (wildlife and fish habitat), could cause slope failure of the valleylands or impact the habitat of the UNA (wetland) as a result of erosion or sedimentation of wetlands or aquatic habitats. Noise from machinery may also cause a disturbance to wildlife	Install sediment erosion protection measures prior to the removal of vegetation. Sediment erosion protection measures will include at a minimum properly keyed in sediment fencing (the heavy duty geotextile fabric needs to be buried to prevent water from traveling under the fence) along the edge of the CRZ and to the south of the temporary access road. Fencing will also extend along the two sides (east	None provided that mitigation measures are properly implemented and maintained.

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
		<p>in the valleyland and/or wetland.</p> <p>Permanent structure could cause slope instability.</p>	<p>and west) of the project area.</p> <p>Maintain sediment fencing as needed.</p> <p>Daily inspections, especially following rain or storm events, of the sediment control measures will be required.</p> <p>Leave erosion control measures in place until slope is fully stabilized.</p> <p>Monitor erosion and sediment control measures to ensure that they are sufficient during and following rain events.</p> <p>No work outside of limit of development.</p>	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			<p>No storage of stockpiles within 30m of top of valleyland (slope).</p> <p>Grading, on the north side of Towers 3 and 4 will tie into the existing grades at the CRZ of trees.</p> <p>Work during the daytime hours to prevent light disturbances.</p> <p>Ensure that all equipment have the appropriate mufflers to reduce noise disturbances.</p> <p>Slope stability has been confirmed by an engineer. Sheet piles have been included in the design to ensure</p>	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			<p>slope stability in the future.</p> <p>There is no walkway located within the development limit or the CRZ of the trees to be retained.</p> <p>Construction staff will be informed of the SAR in the area (Appendix C).</p>	
Accidents or Malfunctions	Indirect impacts to wetland, valleyland and UNA should erosion or sediment control measures fail.	Spills or accidents during construction could impact the quality of wetland habitat or its functions (wildlife and fish habitat), could cause slope failure of the valleylands or impact the habitat of the UNA (wetland).	<p>All equipment should be well maintained, clean and free of leaks.</p> <p>Maintenance of construction equipment should occur at a minimum of 30m from the top of the slope/valleyland and from the reed canary grass and trees west and south of the temporary work area. It is to be in</p>	Unlikely

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			<p>an area where all precautions have been made to prevent oil, grease, antifreeze or other materials from inadvertently entering the ground or surface water.</p> <p>Any machine coming from offsite should be cleaned and free of mud (to prevent the transfer of non-native vegetation).</p> <p>Emergency spill kits should be located on site and the crew trained on their use.</p> <p>Any spills will be reported immediately to MECP Spills Action Centre (1.800.268.6060).</p>	

6.0 CONCLUSIONS AND RECOMMENDATIONS

The lands to be developed are bordered by Highway 174 on the east and south sides and by Phase 1 of the Petrie Landing development on the southwest. They consisted of cultural meadows and a small (± 0.29 ha) portion of the deciduous forest on the slope and within the mixed forest (± 0.02 ha). Much of the area to be disturbed is already in a disturbed state (bare soil and used for laydown yard, access roads). Other parts of the cultural meadows have recently re-established after having served as a temporary work area during the construction of Phase 1 (2008-2010). The temporary access road for Phase 2 remains in place and additional access roads, totaling 115 m long, will be added to access Towers 3 and 4 during construction. Towers 5a and 5b will be accessed from the already existing access road.

The northwest side consists of the forested slope and wetlands which form part of the identified natural features (PSW, valleylands and UNA). No SAR habitat or species were documented in the study area. The PSW is situated to the northwest of the proposed development and its access road. The PSW will not be directly impacted. While the UNA mapping includes a portion of the subject lands, most of these lands consist of the cultural meadow and do not provide any function identified in the UNA report. The small portions of the forest that will be removed are on the edge and do not include interior habitat. No raptor nests were found within this area. The small mixed forest is not part of the UNA. No measurable impact to the functions of the UNA will occur.

The estimated CRZ along the north edge of the Development Limit is 3.5 m. The only work that is proposed in this CRZ is a portion of the storm sewer and the retaining walls. The total area that may be impacted has been calculated at 425.5 m². This small impact would only occur if the trees along the edge are 35 cm. This level of impact is considered negligible due to the small footprint (which may actually be smaller) and as geotechnical experts have concluded that no impacts to the slope will occur.

No trees requiring retention were identified within the area to be cleared.

All of the impacts can be mitigated through the use of common mitigation measures and no residual negative impacts to the natural environment are anticipated as a result of the development of Towers 3, 4 and 5a and 5b or the temporary access roads. This proposed development can be accepted as planned.

I trust that this report will meet your requirements. Should you have any questions or comments, please contact the undersigned.

Sincerely,

Bowfin Environmental Consulting Inc.

Michelle Lavictoire,
Biologist / Principal

7.0 REFERENCES

- Bradley, David. 2007. Southern Ontario Vascular Plant Species List. Prepared by Southern Science and Information Section, Ontario Ministry of Natural Resources, Peterborough, Ontario. 57pp.
- Brunton, D.F. 1999. Natural environment inventory and interpretative concepts: Petrie Island study area, Cumberland, Ontario. 105 pp.
- City of Ottawa (2015). City of Ottawa Protocol for Wildlife Protection during Construction. 17pp.
- COSEWIC. (2000). COSEWC assessment and update status report on the Lake Sturgeon *Acipenser fulvescens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa xi +107pp.
- COSEWIC. (2003). COSEWIC assessment and status report on the Butternut *Juglans cinerea* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp.
- COSEWIC. (2005). COSEWIC assessment and update status report on the Blanding's Turtle *Emydoidea blandingii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii + 40 pp.

- COSEWIC. (2006). COSEWIC assessment and status report on the American Eel *Anguilla rostrata* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 71 pp.
- COSEWIC. (2007). COSEWIC assessment and update status report on the Chimney Swift *Chaetura pelagica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 49 pp.
- COSEWIC. (2009). COSEWIC assessment and status report on the Whip-poor-will *Caprimulgus vociferus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 28 pp.
- COSEWIC. (2010). COSEWIC assessment and status report on the Bobolink *Dolichonyx oryzivorus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 42 pp.
- COSEWIC. (2013). COSEWIC assessment and status report on the Bank Swallow *Riparia riparia* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 48 pp.
- Environment Canada. (2010). Amended Recovery Strategy for the Henslow’s Sparrow (*Ammodramus henslowii*) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. vi + 23 pp.
- Fischer, L. (2002). COSEWIC status report on the Milksnake *Lampropeltis triangulum* in Canada in COSEWIC assessment and status report on the Milksnake *Lampropeltis triangulum* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. 1-29 pp.
- IFS (2005) *Petrie’s Landing (North Service Road, Cumberland) – Impact on the adjacent forest*. Letter prepared by *Urban Forestry and Forest Management Consulting* (IFS November 2005).
- Menzel, M, S. Owen, W. Edwards, P. Wood, B. Chapman & Miller, K. (2002). Roost tree selection by northern long-eared bat (*Myotis septentrionalis*) maternity colonies in an industrial forest of the central Appalachian Mountains. *Forest Ecology and Management* 155:107-114.
- Muncaster (2005). *Wetland Impact Study for Lots 28 and 29 Concession 1, Cumberland Ward, City of Ottawa*. Prepared by Muncaster Environmental Consulting Inc.

Muncaster (2012) *Petrie’s Landing Tower ‘E’ (Phase 5) – Cumberland Ward, Ottawa, ON. Tree Conservation Report*. Prepared by Muncaster Environmental Planning Inc.

Muncaster (20112b) *Petrie’s Landing Phase 2 Tree Conservation Report and Environmental Impact Statement Update*. Prepared by Muncaster Environmental Planning Inc. for Brigil. 14pp.

OMNR (2010). Natural Heritage Reference Manual for policy 2.3 of the Provincial Policy Statement.

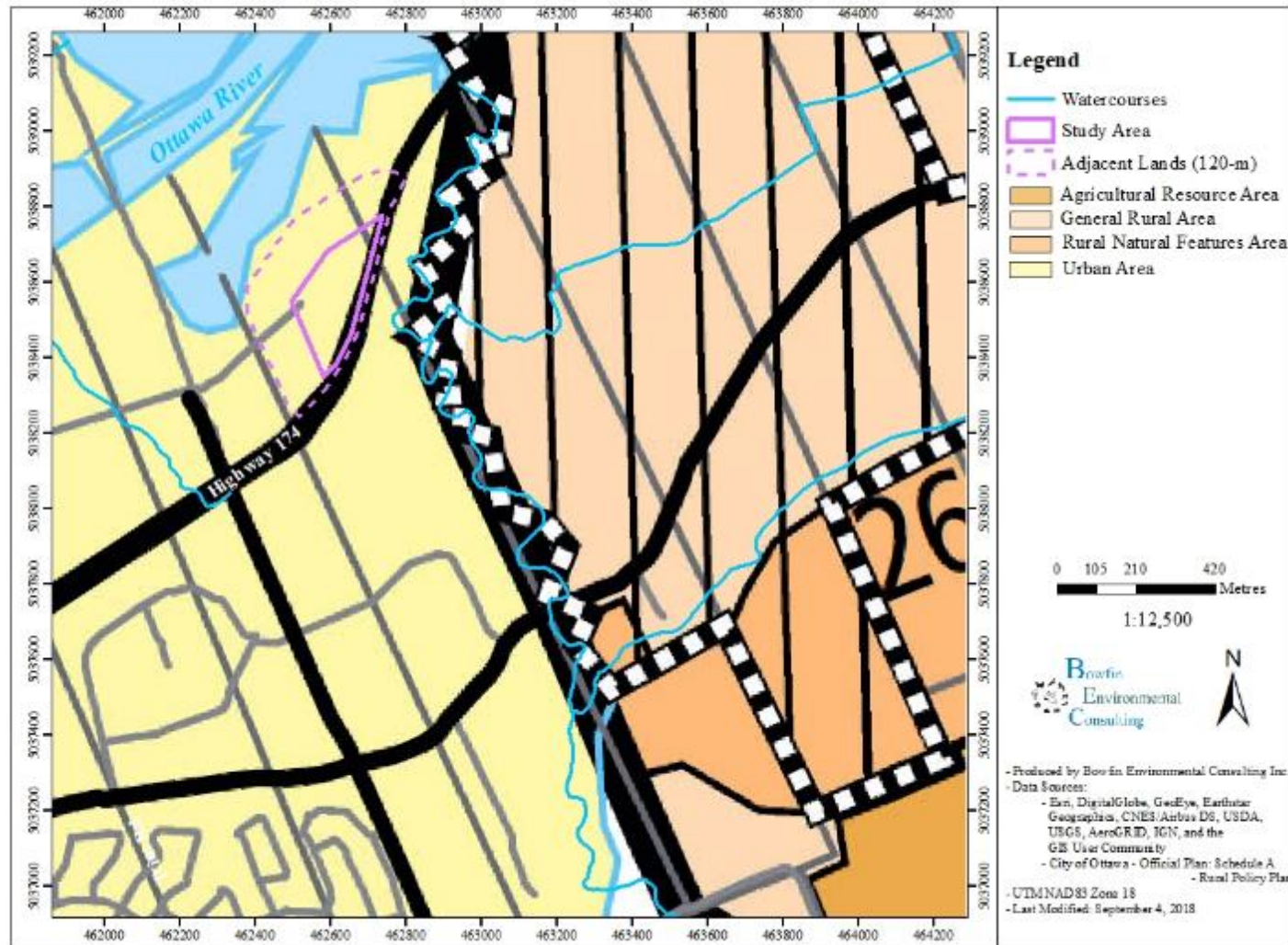
OMNR (2001). Ecological land Classification for Southern Ontario: Training Manual SCSS TM 01, March 2001.

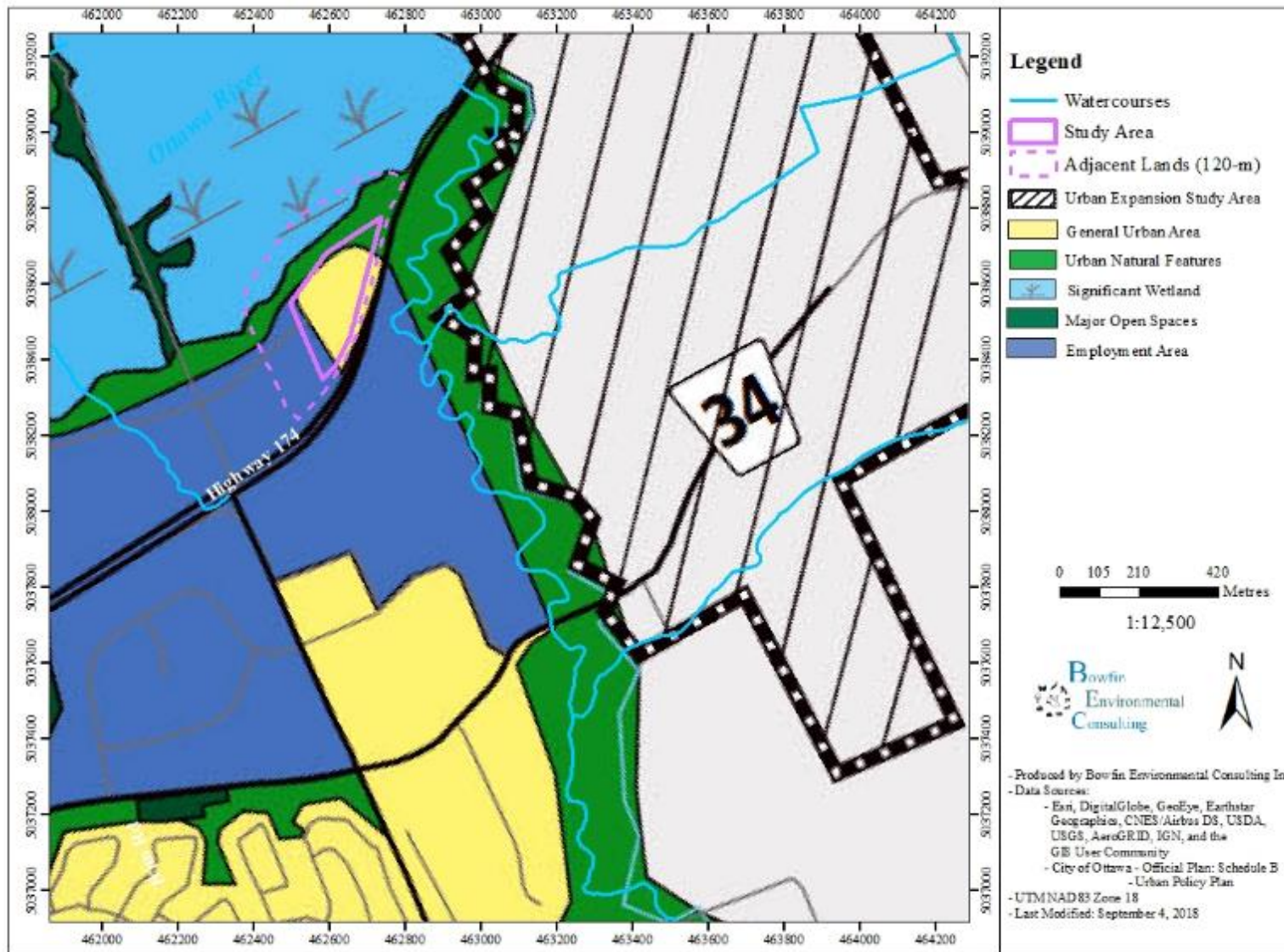
Ontario Provincial Policy Statement. (2005).

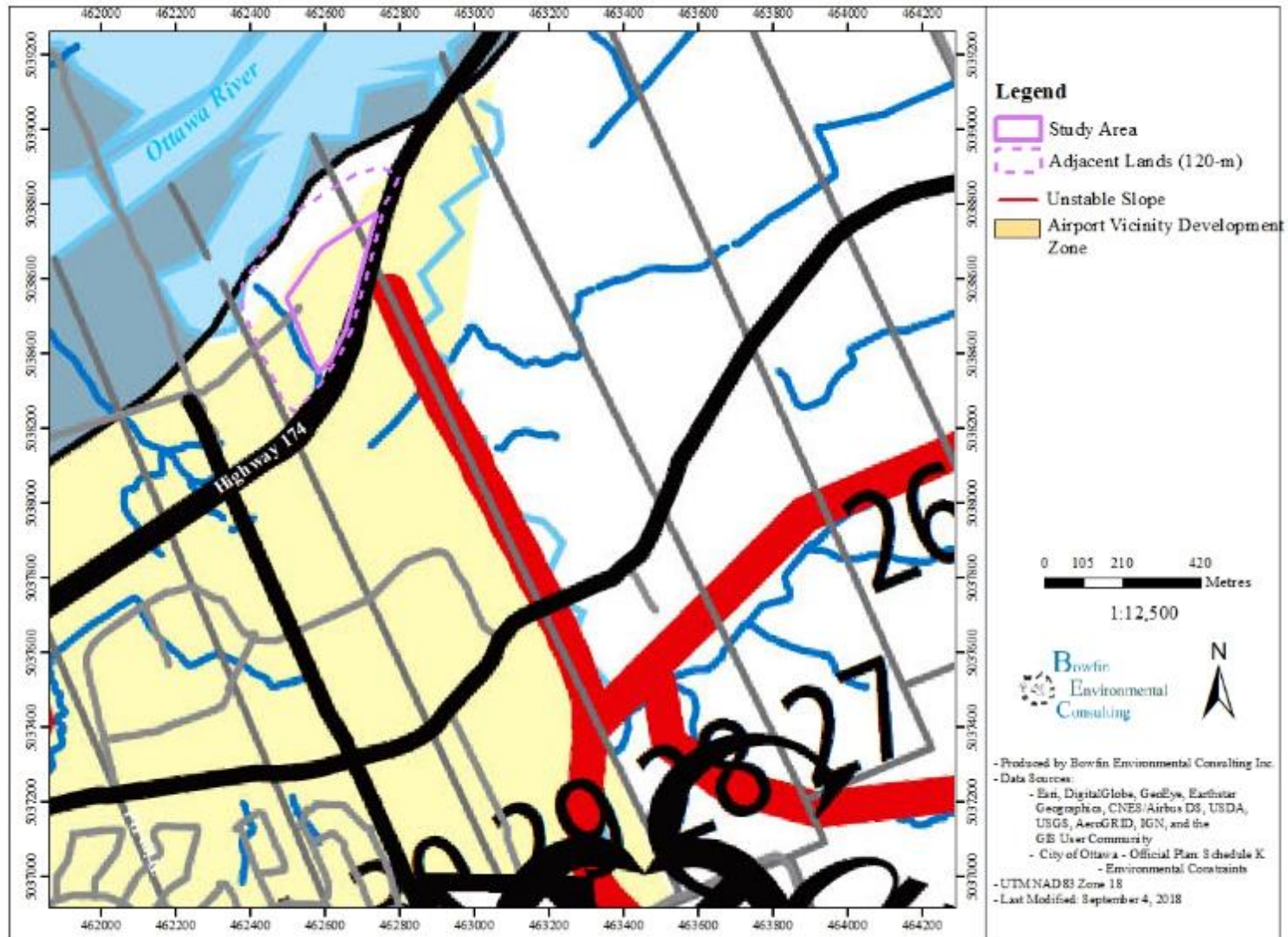
OWES (1993). Ontario Wetland Evaluation System. Southern Manual NEST Technical Manual TM-002 March 1993.

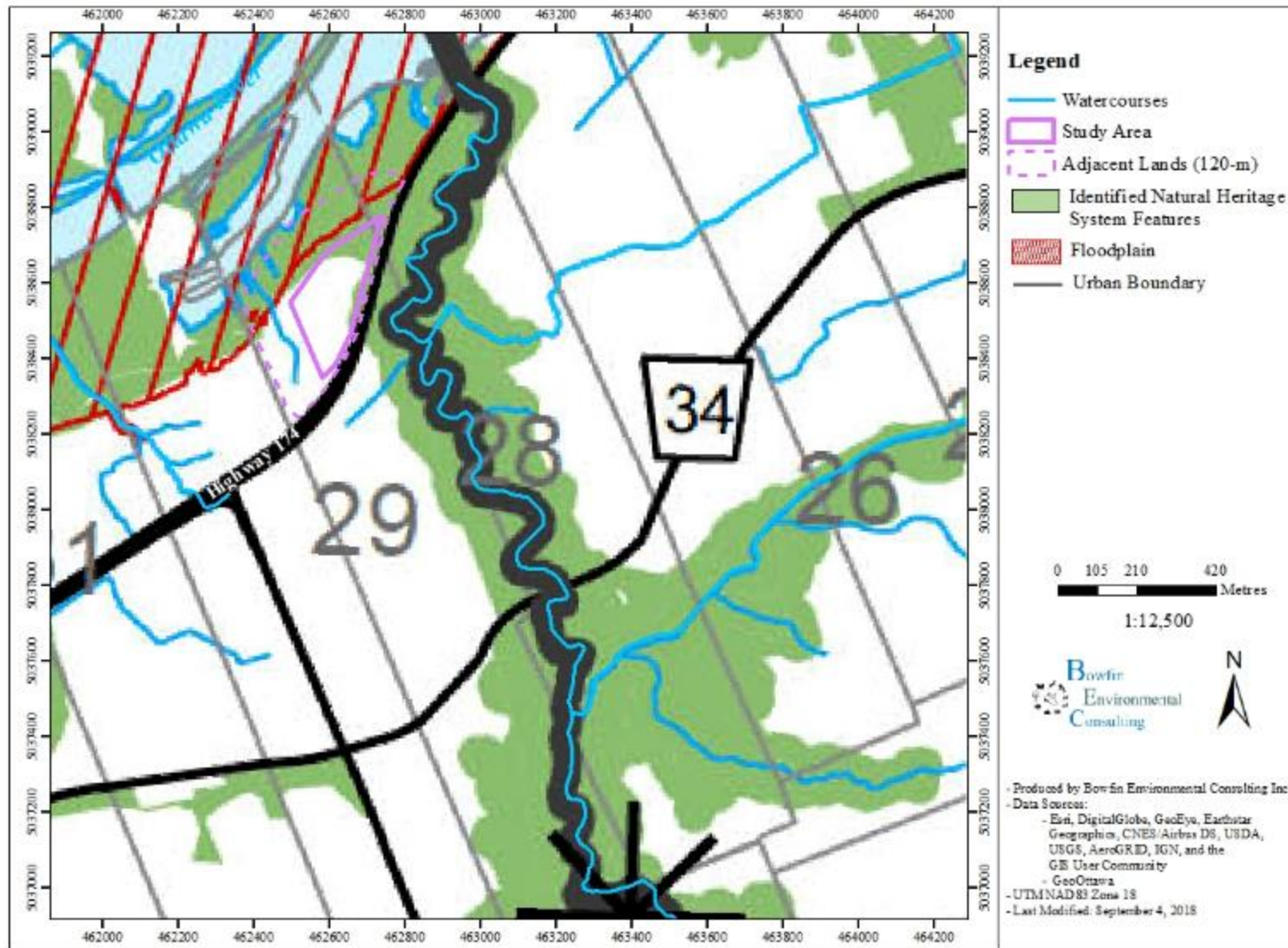
Peterson, R.T. (1980). *A field guide to the birds: A completely new guide to all the birds of eastern and central North America*. Houghton Mifflin Company, Boston.

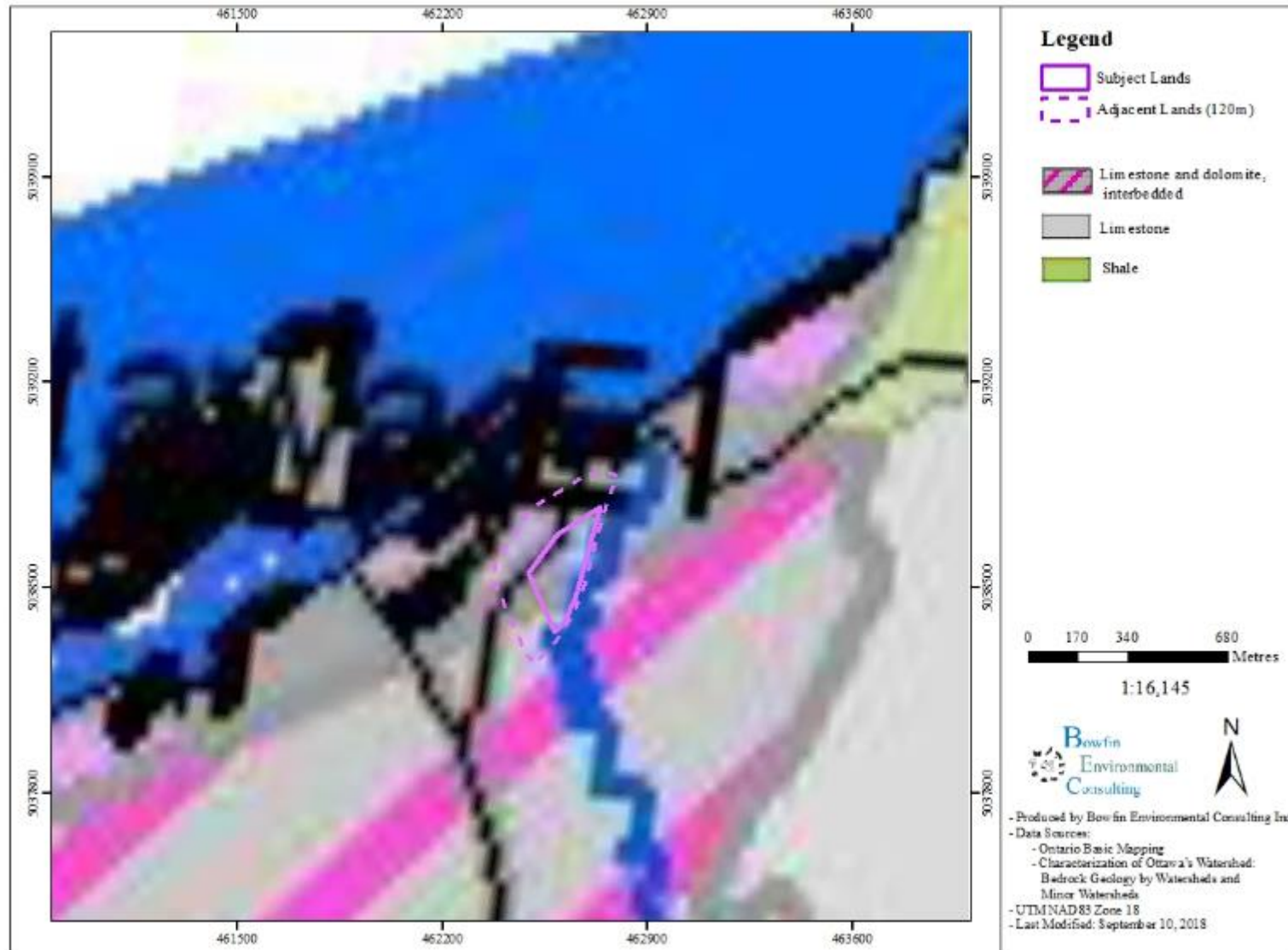
Appendix A: Background Review Mapping

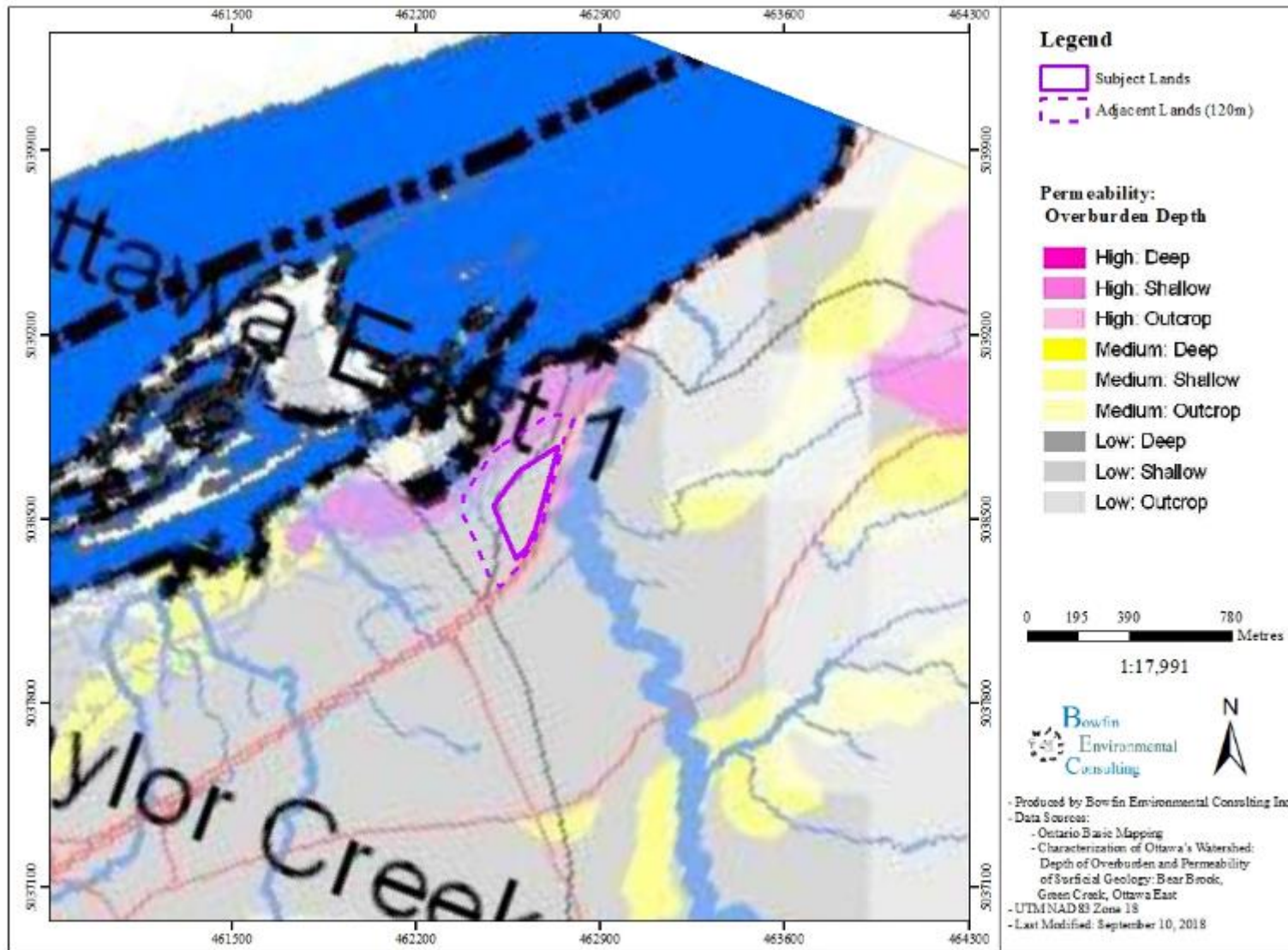


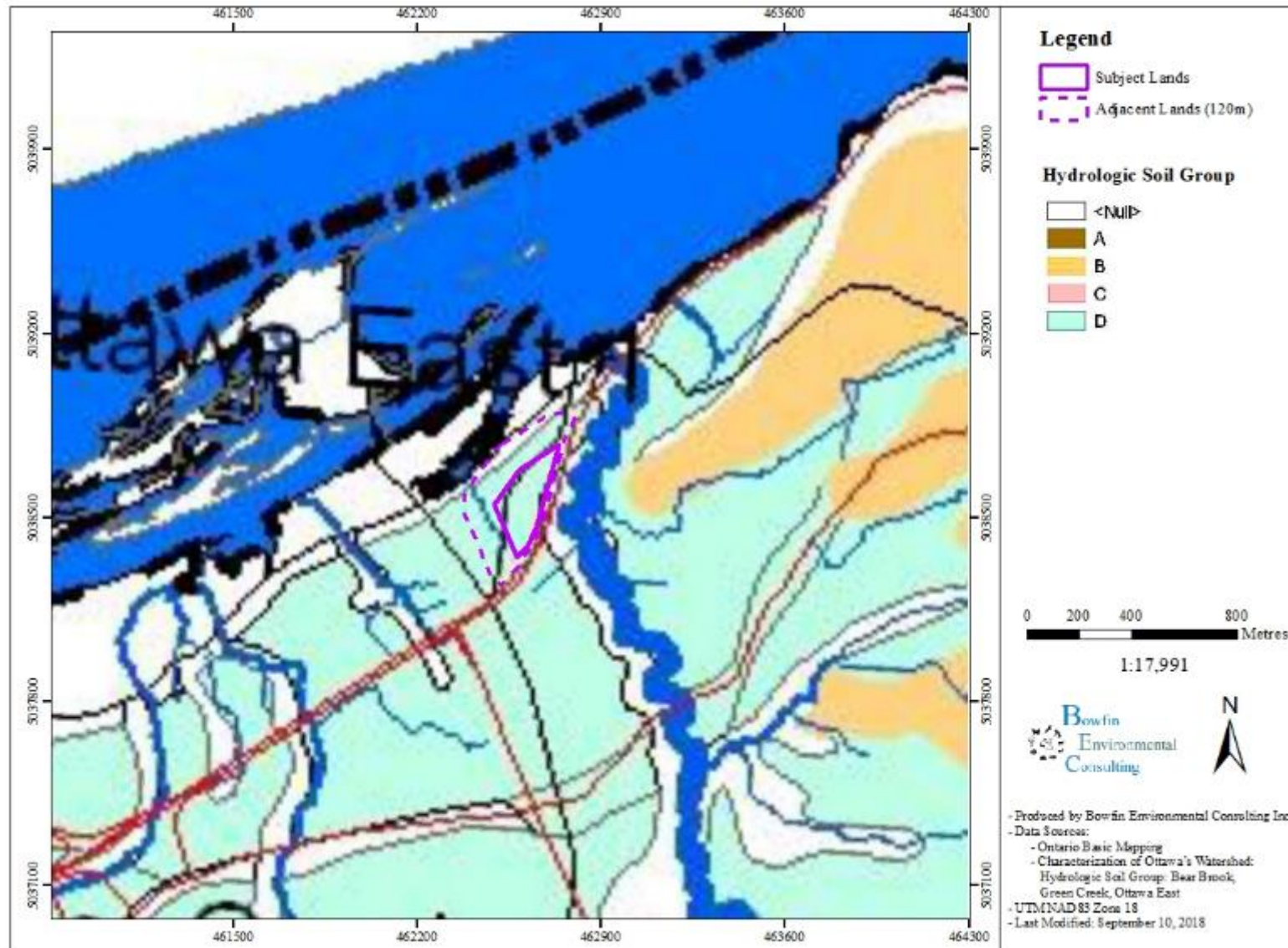


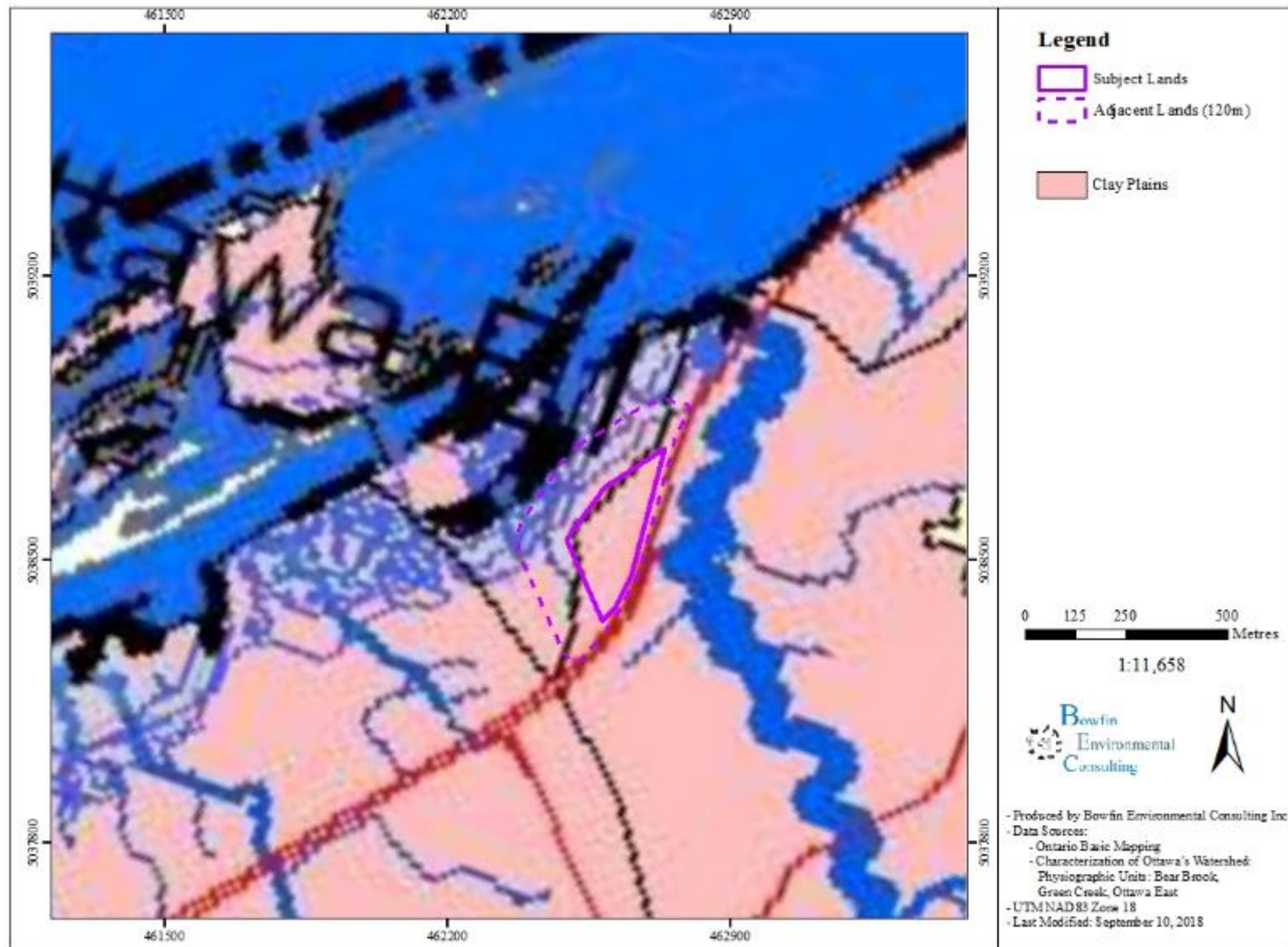


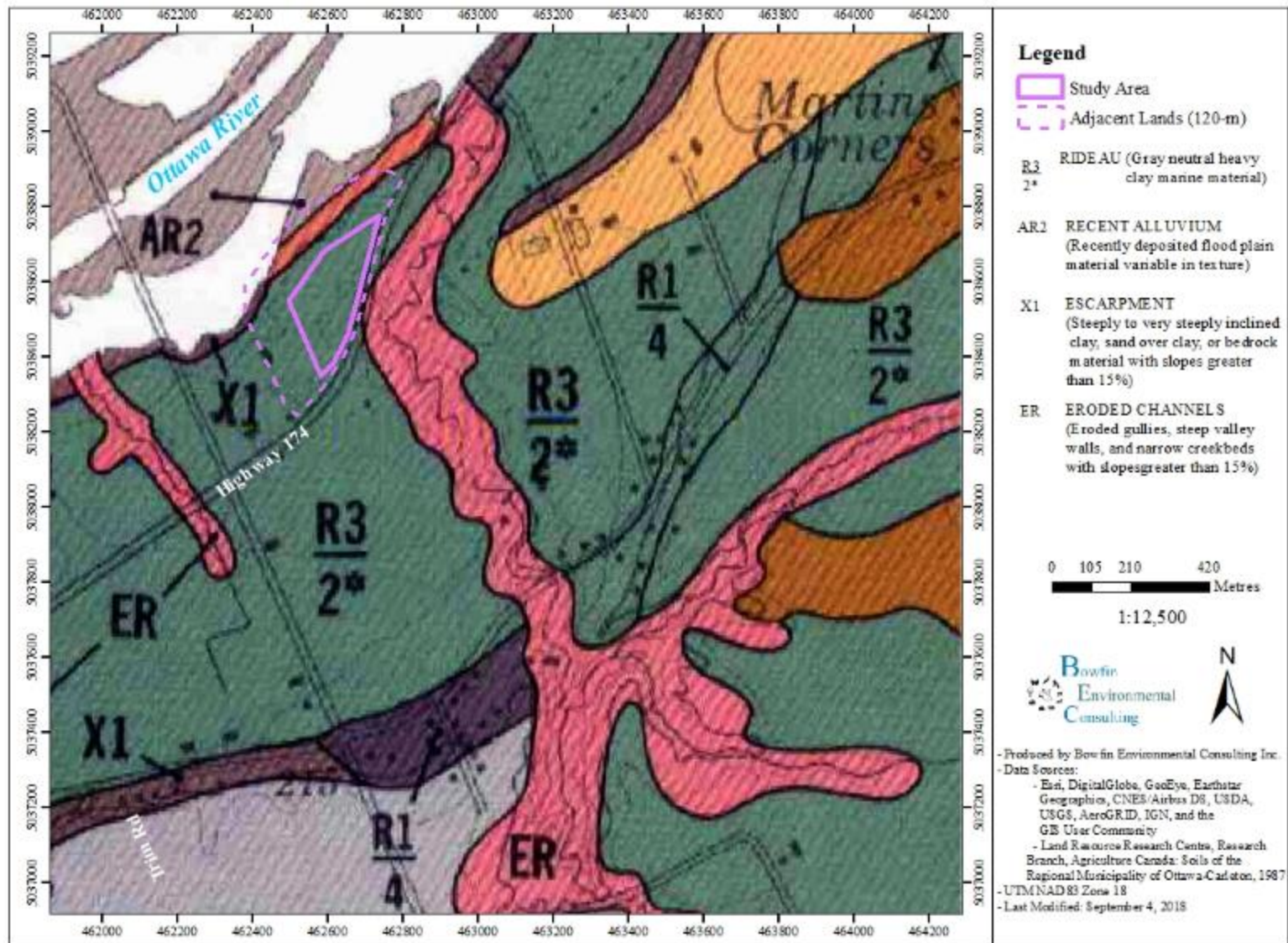


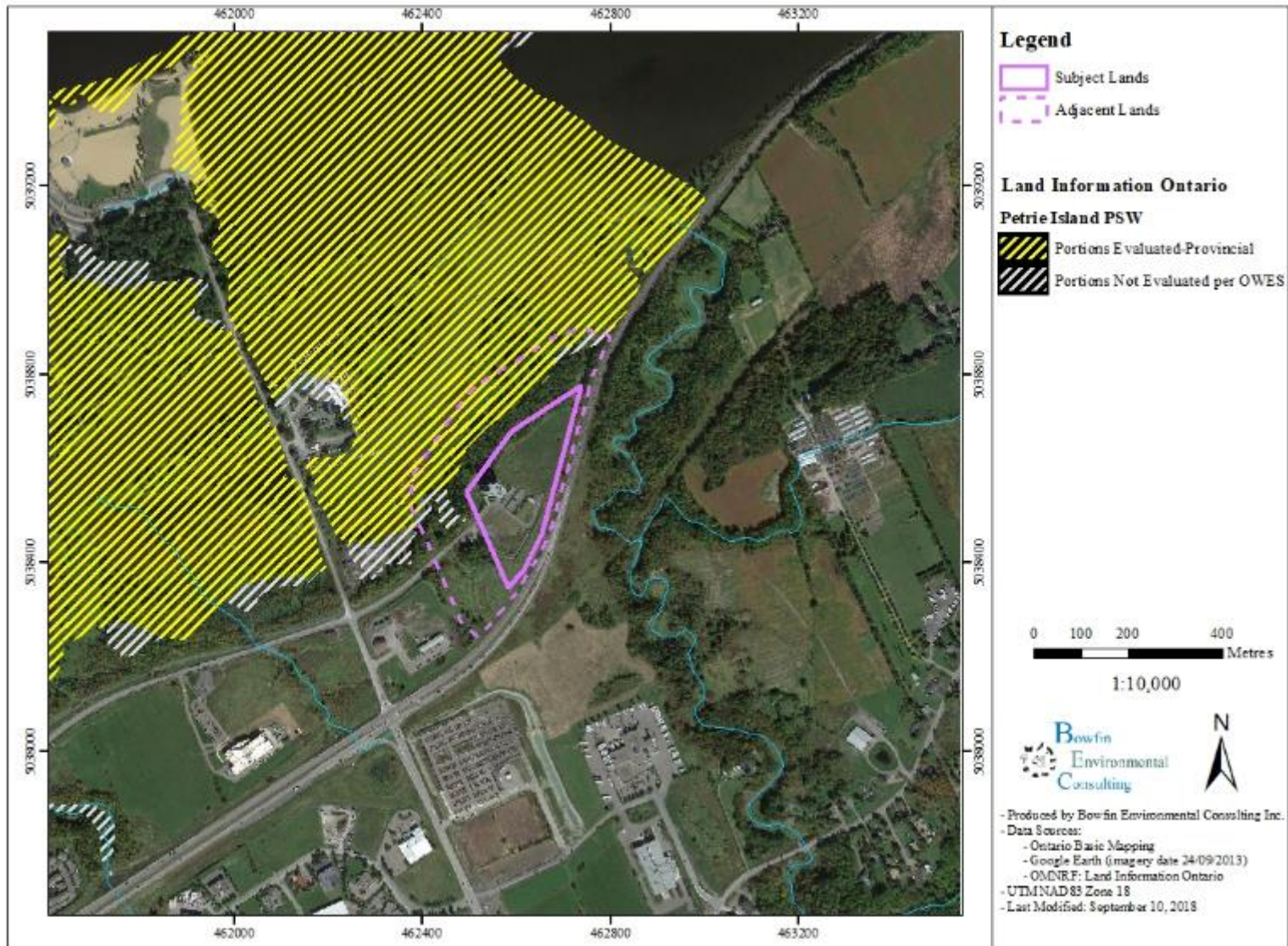












Appendix B: Communications from MNRF

Note that the following is from 2014. The letter from MNRF in response to the May 2018 query was never received and in 2019, MNRF stopped providing project specific letters. Further, by April 1, 2019, the responsibility for ESA was moved to the Ministry of Environment, Conservation and Parks and the only contact with this group is via a single email address for all of Ontario and no project species responses have been received.

From: Zurbrigg, Heather (MNR) [mailto:Heather.Zurbrigg@ontario.ca]
Sent: April 24, 2014 10:43 AM
To: Rehman, Sami (Sami.Rehman@ottawa.ca)
Cc: Thompson, Shaun (MNR); Michelle Lavictoire (m.lavictoire@bowfinenvironmental.ca);
Melvin, Laura
(MNR)
Subject: FW: EIS for Site Plan Control at 8911 North Service Road

Hi Sami,

MNR would like to provide the following comments with respect to the Endangered Species Act, 2007 (ESA) for your consideration on the 8911 North Service road site plan control application:

Blanding’s Turtle:

The adjacent PSW and 30m from this feature are considered to be category 2 Blanding’s Turtle habitat. The area from 30m to 250m around category 2 habitat would be considered category 3 habitat for Blanding’s, and the proposed activities fall within this area. This category (category 3) of habitat has the highest tolerance to alteration, and we don’t feel the activities proposed will compromise the function of the category 3 habitat since the function of this particular area as a corridor for movement of Blanding’s Turtle is limited. Therefore we do not feel that the activities proposed will contravene Section 10 (habitat protection) of the ESA or require registration. We suggest mitigation and avoidance during the construction stages of the proposed activities including silt fence on the 3 sides nearest the PSW and avoidance of the species itself if turtles are seen, as well as education and training of the workers about the species to avoid contravention of Section 9 (species protection) of the ESA.

We have no concerns about any other Species at Risk that have protection under the ESA at this time for this project, given the details provided to us in the EIS.

If you would like further details or need clarification on any of this don’t hesitate to contact me.

I have cc’d one of our planners, Laura Melvin, here in case she has any additional comments with respect to this project and have cc’d Michelle LaVictoire to let her know our comments with respect to the ESA as well.

Thank you,

Heather

Heather Zurbrigg
A /Management Biologist
Resources Management Team
Kemptville District
Ontario Ministry of Natural Resources
613-258-8417

**Ministry of Natural
Resources and Forestry**

Kemptville District

10 Campus Drive
Postal Box 2002
Kemptville ON K0G 1J0
Tel.: 613 258-8204
Fax: 613 258-3920**Ministère des Richesses
naturelles et des Forêts**

District de Kemptville

10, promenade Campus
Case postale, 2002
Kemptville ON K0G 1J0
Tél.: 613 258-8204
Télé.: 613 258-3920

Fri. Oct 26, 2018

Elysabeth Theberge
Bowfin Environmental Consulting Inc.
168 Montreal Road
Cornwall, Ontario
K6H 1B3
(613) 935-6139
e.theberge@bowfinenvironmental.ca

Attention: Elysabeth Theberge

Subject: Information Request - Developments**Project Name: EIS_TCP_PetrieIII_Vab****Our File No. 2018_CUM-5043****Natural Heritage Values**

The Ministry of Natural Resources and Forestry (MNRF) Kemptville District has carried out a preliminary review of the above mentioned area in order to identify any potential natural resource and natural heritage values.

The following Natural Heritage values were identified for the general subject area:

- Candidate ANSI, Life Science, PETRIE ISLAND WETLAND (Provincial)
- Evaluated Wetland, Petrie Island (Evaluated-Provincial)
- Lake, Lac Dollard-des-Ormeaux

Municipal Official Plans contain information related to natural heritage features. Please see the local municipal Official Plan for more information, such as specific policies and direction pertaining to activities which may impact natural heritage features. For planning advice or Official Plan interpretation, please contact the local municipality. Many municipalities require environmental impact studies and other supporting studies be carried out as part of the development application process to allow the municipality to make planning decisions which are consistent with the Provincial Policy Statement (PPS, 2014).

The MNRF strongly encourages all proponents to contact partner agencies and appropriate municipalities early on in the planning process. This provides the proponent with early knowledge regarding agency requirements, authorizations and approval timelines; Ministry of the Environment and Climate Change (MOECC) and the local Conservation Authority may require approvals and permitting where natural values and natural hazards (e.g., floodplains) exist.

As per the Natural Heritage Reference Manual (NHRM, 2010) the MNRF strongly recommends that an ecological site assessment be carried out to determine the presence of natural heritage

features and species at risk and their habitat on site. The MNRF can provide survey methodology for particular species at risk and their habitats.

The NHRM also recommends that cumulative effects of development projects on the integrity of natural heritage features and areas be given due consideration. This includes the evaluation of the past, present and possible future impacts of development in the surrounding area that may occur as a result of demand created by the presently proposed project.

Wildland Fire

MNRF woodland data shows that the site contains woodlands. The lands should be assessed for the risk of wildland fire as per PPS 2014, Section 3.1.8 "*Development shall generally be directed to areas outside of lands that are unsafe for development due to the presence of hazardous forest types for wildland fire. Development may however be permitted in lands with hazardous forest types for wildland fire where the risk is mitigated in accordance with wildland fire assessment and mitigation standards*". Further discussion with the local municipality should be carried out to address how the risks associated with wildland fire will be covered for such a development proposal. Please see the Wildland Fire Risk Assessment and Mitigation Guidebook (2016) for more information.

Significant Woodlands

Section 2.1.5 b) of the PPS states: *Development and site alteration shall not be permitted in significant woodlands unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions*. The 2014 PPS directs that significant woodlands must be identified following criteria established by the Ontario Ministry of Natural Resources and Forestry, i.e. the Natural Heritage Reference Manual (NHRM), 2010. Where the local or County Official Plan has not yet updated significant woodland mapping to reflect the 2014 PPS, all wooded areas should be reviewed on a site specific basis for significance. The MNRF Kemptville District modelled locations of significant woodlands in 2011 based on NHRM criteria. The presence of significant woodland on site or within 120 metres should trigger an assessment of the impacts to the feature and its function from the proposed development.

Significant Wildlife Habitat

Section 2.1.5 d) of the PPS states: *Development and site alteration shall not be permitted in significant wildlife habitat unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions*. It is the responsibility of the approval authority to identify significant wildlife habitat or require its identification. The MNRF has several guiding documents which may be useful in identification of significant wildlife habitat and characterization of impacts and mitigation options:

- Significant Wildlife Habitat Technical Guide, 2000
- The Natural Heritage Reference Manual, 2010
- Significant Wildlife Habitat Mitigation Support Tool, 2014
- Significant Wildlife Habitat Criteria Schedule for Ecoregion 5E and 6E, 2015

The habitat of special concern species (as identified by the Species at Risk in Ontario list) and Natural Heritage Information Centre tracked species with a conservation status rank of S1, S2 and S3 may be significant wildlife habitat and should be assessed accordingly.

Water

The Ministry of Natural Resources and Forestry (MNR) has established timing window guidelines to restrict in-water work related to an activity during certain periods. These restricted periods are identified in order to protect fish from impacts of works or undertakings in and around water during spawning and other critical life stages. A suite of appropriate measures should be taken for projects involving in-water works to minimize and mitigate impacts to fish, water quality and fish habitat, and include:

- avoiding in-water works during the timing guidelines;
- installation of sediment/erosion control measures;
- avoiding the removal, alteration, or covering of substrates used for fish spawning, feeding, over-wintering or nursery areas; and
- debris control measures to manage falling debris (e.g. spalling).

Waterbody Name and location	Ottawa River – Lac Dollard des Ormeaux (45.4993, -75.4862)
Watercourse classification (i.e. warmwater, coldwater)	Warm water
Habitat information/ locations (fish passage barriers, known spawning habitats etc.)	Unknown
Historical data on fish species present, including whether the subject waterbody is considered to support any vulnerable, threatened or endangered aquatic species	Alewife, American Brook Lamprey, American Eel, American Shad, Banded Killifish, Black Crappie, Blackchin Shiner, Blacknose Dace, Bluegill, Bluntnose Minnow, Brassy Minnow, Brook Silverside, Brook Stickleback, Brown Bullhead, Brown Trout, Burbot, Carps and Minnows, Catostomus sp., Central Mudminnow, Channel Catfish, Cisco, Common Carp, Common Shiner, Creek Chub, Cutlip Minnow, Eastern Silvery Minnow, Emerald Shiner, Etheostoma sp., Fallfish, Fantail Darter, Fathead Minnow, Finescale Dace, Freshwater Drum, Golden Shiner, Greater Redhorse, Iowa Darter, Johnny Darter, Lake Sturgeon, Largemouth Bass, Logperch, Longnose Dace, Longnose Gar, Longnose Sucker, Margined Madtom, Micropterus sp., Mimic Shiner, Mooneye, Mottled Sculpin, Moxostoma sp., Muskellunge, Ninespine Stickleback, Northern Brook Lamprey, Northern Pearl Dace, Northern Pike, Northern Redbelly Dace, Northern Sunfish, Pumpkinseed, Quillback, Rainbow Smelt, River Redhorse, Rock Bass, Rosyface Shiner, Sand Shiner, Sauger, Shorthead Redhorse, Silver Lamprey, Silver Redhorse, Slimy Sculpin, Smallmouth Bass, Spottin Shiner, Spottail Shiner, Stonecat, Tadpole Madtom, Tessellated Darter, Trout-Perch, Walleye, White Crappie, White Sucker, Yellow Bullhead, Yellow Perch

MNRF fisheries management objectives, if applicable	Protect and maintain fishery
MNRF interpretation of fish and fish habitat sensitivity (scale of high, moderate, low or unknown as per DFO's Risk Management Framework)	Low sensitivity
In-water timing windows for construction	No in-water work can occur between January 1 to July 15

Timing guidelines are based on species* presence and are therefore subject to change if new information becomes available. Timing guidelines in Kemptville District are:

Waterbody (and applicable geography or Fisheries Management Zone)	Timing Guidelines (no in-water works)
○ St. Lawrence River (FMZ 20)	March 15 – July 15 (Spring spawning species)
○ Ottawa River – Lac Des Chats (FMZ 12)	October 1 to July 15 (Spring and fall spawning species, including Lake Trout and Lake Whitefish)
○ Ottawa River – Lac Deschenes (FMZ 12)	October 15 to July 15 (Spring and fall spawning species, including Cisco)
○ Ottawa River – Lac Dollard des Ormeaux (FMZ 12)	January 1 to July 15 (Winter and spring spawning species, including Burbot)
○ Big Rideau Lake (South Burgess, North Burgess, Bastard and South Elmsley Twps) ○ Charleston Lake (Lansdowne and Escott Twps) ○ Crow Lake (South Crosby Twp)	October 1 to June 30 (Spring and fall spawning species, including Lake Trout)
○ Bass Lake (South Elmsley Twp) ○ Lower Rideau Lake (South Elmsley Twp) ○ Bob's Lake (South Sherbrooke Twp) ○ Christie Lake (South Sherbrooke Twp) ○ Dalhousie Lake (Dalhousie Twp) ○ Davern Lake (South Sherbrooke Twp) ○ Farren Lake (South Sherbrooke Twp) ○ Grippen Lake (Leeds Twp) ○ Indian Lake (South Crosby Twp) ○ Little Long Lake (Lansdowne Twp) ○ Millpond Lake (South Burgess) ○ Otter Lake (South Elmsley, South Burgess and Bastard Twps) ○ Oty Lake (North Burgess and North Elmsley Twps) ○ Pike Lake (North Burgess Twp) ○ Silver Lake (South Sherbrooke Twp) ○ Redhorse Lake (Lansdowne Twp) ○ Tay River (South Sherbrooke, Bathurst, Drummond and North Elmsley Twps) ○ Wolfe Lake (North Crosby Twp)	October 15 to June 30 (Spring and Fall spawning species, including Lake Whitefish and Cisco)
○ Bennett Lake (Bathurst Twp) ○ Crosby Lake (North Crosby Twp) ○ Gananoque River (Leeds Twp)	January 1 – June 30 (Winter and spring spawning species, including Burbot)

<ul style="list-style-type: none"> ○ Lac Georges (Plantagenet and Alfred Twps) ○ Gillies Lake (Lanark Twp) ○ Little Crosby Lake (North Crosby Twp) ○ McLaren Lake (North Burgess Twp) ○ Mississippi Lake (Drummond, Beckwith and Ramsay Twps) ○ Mississippi River (Beckwith, Ramsay, Pakenham and Fitzroy Twps) ○ Raisin River below Martintown dam (Charlottenburgh Twp) ○ Rideau River (Wolford, Oxford, Montague, Marlborough, South Gower, North Gower, Osgood, Nepean and Gloucester Twps) ○ South Lake (Leeds Twp) ○ South Nation River below Plantagenet weir (Plantagenet Twp) ○ Upper Rideau Lake (North Crosby Twp) ○ Westport Sand Lake (North Crosby Twp) 	
<ul style="list-style-type: none"> ○ Small rivers and streams (denoted on 1:50,000 National Topographic System maps as being one lined) ○ All other waterbodies in FMZ 18 	March 15 to June 30 (Spring spawning species)

**Please note: Additional timing restrictions may apply as they relate to endangered and threatened species for works in both water and wetland areas. Timing restrictions are subject to change, depending on species found in a given waterbody.*

In addition to adhering to the above timing guidelines, a work permit from the MNRF may be required depending on the nature and scope of work. No encroachment on the bed or banks of a waterbody/watercourse (e.g. abutments, embankments, etc.) is permitted without MNRF approval. Additional information regarding work permits may be found online at <https://www.ontario.ca/page/crown-land-work-permits#section-2>.

The MNRF does not have any water quality or quantity data available. We recommend that the Ministry of the Environment and Climate Change be contacted for such data along with the local Conservation Authority. For further information regarding fish habitat and protocols, please refer to the following interagency document, *Fish Habitat Referral Protocol for Ontario* at: http://www.web2.mnr.gov.on.ca/mnr/efr/fish_hab_referral/protocol_en.pdf.

Additional approvals and permits may be required under the Fisheries Act and the Species at Risk Act; please contact Fisheries and Oceans Canada to determine requirements and next steps. There may also be approvals required by the local Conservation Authority or Transport Canada, and these agencies should be contacted directly to determine requirements. As the MNRF is responsible for the management of provincial fish populations, we request ongoing involvement in such discussions in order to ensure population conservation.

Species at Risk

A review of the Natural Heritage Information Centre (NHIC) and internal records indicate that there is a potential for the following threatened (THR) and/or endangered (END) species on the site or in proximity to it:

- American Eel (END)
- Butternut (END)
- Eastern Small-footed Myotis (END)
- Henslow's Sparrow (END)
- Little Brown Myotis (END)

- Northern Myotis (END)
- Spotted turtle (END)
- Tri-colored Bat (END)
- Bank Swallow (THR)
- Barn Swallow (THR)
- Blanding’s Turtle (THR)
- Bobolink (THR)
- Channel Darter (THR)
- Chimney Swift (THR)
- Eastern Meadowlark (THR)
- Eastern Whip-poor-will (THR)
- Lake Sturgeon (THR)

All endangered and threatened species receive individual protection under section 9 of the ESA and receive general habitat protection under Section 10 of the ESA, 2007. Thus any potential works should consider disturbance to the individuals as well as their habitat (e.g. nesting sites). General habitat protection applies to all threatened and endangered species. Note some species in Kemptville District receive regulated habitat protection. The habitat of these listed species is protected from damage and destruction and certain activities may require authorization(s) under the ESA. For more on how species at risk and their habitat is protected, please see: <https://www.ontario.ca/page/how-species-risk-are-protected>

If the proposed activity is known to have an impact on any endangered or threatened species at risk (SAR), or their habitat, an authorization under the ESA may be required. It is recommended that MNRF Kemptville be contacted prior to any activities being carried out to discuss potential survey protocols to follow during the early planning stages of a project, as well as mitigation measures to avoid contravention of the ESA. Where there is potential for species at risk or their habitat on the property, an Information Gathering Form should be submitted to Kemptville MNRF at sar.kemptonville@ontario.ca.

The Information Gathering Form may be found here:

<http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/FormDetail?OpenForm&ACT=RDR&TAB=PROFILE&ENV=WWE&NO=018-0180E>

For more information on the ESA authorization process, please see:

<https://www.ontario.ca/page/how-get-endangered-species-act-permit-or-authorization>

One or more special concern species has been documented to occur either on the site or nearby. Species listed as special concern are not protected under the ESA, 2007. However, please note that some of these species may be protected under the Fish and Wildlife Conservation Act and/or Migratory Birds Convention Act. Again, the habitat of special concern species may be significant wildlife habitat and should be assessed accordingly. Species of special concern for consideration:

- Bald Eagle (SC)
- Black Tern (SC)
- Common Nighthawk (SC)
- Eastern Wood-pewee (SC)

- Horned Grebe (SC)
- Monarch (SC)
- Northern Brook Lamprey (SC)
- Northern Map Turtle (SC)
- Peregrine Falcon (SC)
- Short-eared Owl (SC)
- Silver Lamprey (SC)
- Snapping Turtle (SC)
- Wood Thrush (SC)
- Yellow-banded Bumble Bee (SC)

If any of these or any other species at risk are discovered throughout the course of the work, and/or should any species at risk or their habitat be potentially impacted by on site activities, MNRF should be contacted and operations be modified to avoid any negative impacts to species at risk or their habitat until further direction is provided by MNRF.

Please note that information regarding species at risk is based largely on documented occurrences and does not necessarily include an interpretation of potential habitat within or in proximity to the site in question. Although this data represents the MNRF's best current available information, it is important to note that a lack of information for a site does not mean that additional features and values are not present. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the activities carried out on the site.

The MNRF continues to strongly encourage ecological site assessments to determine the potential for SAR habitat and occurrences. When a SAR or potential habitat for a SAR does occur on a site, it is recommended that the proponent contact the MNRF for technical advice and to discuss what activities can occur without contravention of the Act. For specific questions regarding the Endangered Species Act (2007) or SAR, please contact MNRF Kemptville District at sar.kemptville@ontario.ca.

The approvals processes for a number of activities that have the potential to impact SAR or their habitat have recently changed. For information regarding regulatory exemptions and associated online registration of certain activities, please refer to the following website: <https://www.ontario.ca/page/how-get-endangered-species-act-permit-or-authorization>.

Please note: The advice in this letter may become invalid if:

- The Committee on the Status of Species at Risk in Ontario (COSSARO) re-assesses the status of the above-named species OR adds a species to the SARO List such that the section 9 and/or 10 protection provisions apply to those species; or
- Additional occurrences of species are discovered on or in proximity to the site.

This letter is valid until: Sat. Oct 26, 2019

The MNRF would like to request that we continue to be circulated on information with regards to this project. If you have any questions or require clarification please do not hesitate to contact me.

Sincerely,

Dom Ferland
Management Biologist
dom.ferland@ontario.ca

Encl.\
-ESA Infosheet
-NHIC/LIO Infosheet

Appendix C: List of Birds present in the General Area (Atlas of Breeding Birds in Ontario)

Square 18VR53, 18VR63, and 18VR64

Common Name	Scientific Name	ABBO Category	SRank	Provincial Status	Federal Status
Pied-billed Grebe	<i>Podilymbus podiceps</i>	confirmed	S4B, S4N		
Great Blue Heron	<i>Ardea herodias</i>	confirmed	S4		
Green Heron	<i>Butorides virescens</i>	probable	S4B		
American Bittern	<i>Botaurus lentiginosus</i>	probable	S4B		
Canada Goose	<i>Branta canadensis</i>	confirmed	S5		
Lesser Scaup	<i>Aythya affinis</i>	probable	S4		
Mallard	<i>Anas platyrhynchos</i>	confirmed	S5		
American Black Duck	<i>Anas rubripes</i>	confirmed	S4		
Northern Pintail	<i>Anas acuta</i>	possible	S5		
Green-winged Teal	<i>Anas crecca</i>	probable	S4		
Blue-winged Teal	<i>Anas discors</i>	probable	S4		
Northern Shoveler	<i>Anas clypeata</i>	probable	S4		
Wood Duck	<i>Aix sponsa</i>	confirmed	S5		
Ring-necked Duck	<i>Aythya collaris</i>	possible	S5		
Common Merganser	<i>Mergus merganser</i>	probable	S5B, S5N		
Turkey Vulture	<i>Cathartes aura</i>	possible	S5B		
Sharp-shinned Hawk	<i>Accipiter striatus</i>	confirmed	S5		
Cooper's Hawk	<i>Accipiter cooperii</i>	confirmed	S4		
Red-tailed Hawk	<i>Buteo jamaicensis</i>	probable	S5		
Broad-winged Hawk	<i>Buteo platypterus</i>	possible	S5B		
Northern Harrier	<i>Circus cyaneus</i>	confirmed	S4B		
Osprey	<i>Pandion haliaetus</i>	confirmed	S5B		
Merlin	<i>Falco columbarius</i>	confirmed	S5B		
American Kestrel	<i>Falco sparverius</i>	probable	S4		
Ruffed Grouse	<i>Bonasa umbellus</i>	confirmed	S4		
Gray Partridge	<i>Perdix perdix</i>	possible	SNA		
Wild Turkey	<i>Meleagris gallopava</i>	probable	S5		
Virginia Rail	<i>Rallus limicola</i>	probable	S5B		
Sora	<i>Porzana carolina</i>	confirmed	S4B		
American Coot	<i>Fulica americana</i>	possible	S4B		
Killdeer	<i>Charadrius vociferus</i>	confirmed	S5B, S5N		
Upland Sandpiper	<i>Bartramia longicauda</i>	possible	S4B		
Spotted Sandpiper	<i>Actitis macularia</i>	confirmed	S5		
American Woodcock	<i>Scolopax minor</i>	probable	S4B		
Common Snipe	<i>Gallinago delicata</i>	probable	S5B		
Black Tern	<i>Chlidonias niger</i>	confirmed	S3B	SC	
Rock Pigeon	<i>Columba livia</i>	confirmed	SNA		
Mourning Dove	<i>Zenaida macroura</i>	confirmed	S5		

Common Name	Scientific Name	ABBO Category	SRank	Provincial Status	Federal Status
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	confirmed	S5B		
Great Horned Owl	<i>Bubo virginianus</i>	confirmed	S4		
Chimney Swift	<i>Chaetura pelagica</i>	probable	S4B, S4N	THR	THR
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	possible	S5B		
Belted Kingfisher	<i>Ceryle alcyon</i>	confirmed	S4B		
Northern Flicker	<i>Colaptes auratus</i>	confirmed	S4B		
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	confirmed	S5B		
Hairy Woodpecker	<i>Picoides villosus</i>	confirmed	S5		
Downy Woodpecker	<i>Picoides pubescens</i>	confirmed	S5		
Pileated Woodpecker	<i>Dryocopus pileatus</i>	confirmed	S5		
Eastern Kingbird	<i>Tyrannus tyrannus</i>	confirmed	S4B		
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	confirmed	S4B		
Eastern Phoebe	<i>Sayornis phoebe</i>	confirmed	S5B		
Willow Flycatcher	<i>Empidonax traillii</i>	probable	S5B		
Alder Flycatcher	<i>Empidonax alnorum</i>	probable	S5B		
Least Flycatcher	<i>Empidonax minimus</i>	confirmed	S4B		
Eastern Wood-Pewee	<i>Contopus virens</i>	confirmed	S4B	SC	SC
Horned Lark	<i>Eremophila alpestris</i>	probable	S5B		
Tree Swallow	<i>Tachycineta bicolor</i>	confirmed	S4B		
Bank Swallow	<i>Riparia</i>	confirmed	S4B	THR	THR
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	possible	S4B		
Barn Swallow	<i>Hirundo rustica</i>	confirmed	S4B	THR	THR
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	confirmed	S4B		
Purple Martin	<i>Progne subis</i>	confirmed	S4B		
Blue Jay	<i>Cyanocitta cristata</i>	confirmed	S5		
Common Raven	<i>Corvus corax</i>	confirmed	S5		
American Crow	<i>Corvus brachyrhynchos</i>	confirmed	S5B		
Black-capped Chickadee	<i>Poecile atricapilla</i>	confirmed	S5		
White-breasted Nuthatch	<i>Sitta carolinensis</i>	confirmed	S5		
Red-breasted Nuthatch	<i>Sitta canadensis</i>	probable	S5		
Brown Creeper	<i>Certhia familiaris</i>	probable	S5B		
House Wren	<i>Troglodytes aedon</i>	confirmed	S5B		
Winter Wren	<i>Troglodytes troglodytes</i>	probable	S5B		
Carolina Wren	<i>Thryothorus ludovicianus</i>	possible	S4		
Marsh Wren	<i>Cistothorus palustris</i>	confirmed	S4B		
Gray Catbird	<i>Dumetella carolinensis</i>	confirmed	S4B		
Brown Thrasher	<i>Toxostoma rufum</i>	confirmed	S4B		
American Robin	<i>Turdus migratorius</i>	confirmed	S5B		
Wood Thrush	<i>Hylocichla mustelina</i>	probable	S4B	SC	THR

Common Name	Scientific Name	ABBO Category	SRank	Provincial Status	Federal Status
Hermit Thrush	<i>Catharus guttatus</i>	possible	S5B		
Veery	<i>Catharus fuscescens</i>	probable	S4B		
Eastern Bluebird	<i>Sialia sialis</i>	confirmed	S5B		
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>	confirmed	S4B		
Golden-crowned Kinglet	<i>Regulus satrapa</i>	possible	S5B		
Cedar Waxwing	<i>Bombycilla cedrorum</i>	confirmed	S5B		
European Starling	<i>Sturnus vulgaris</i>	confirmed	SNA		
Blue-headed Vireo	<i>Vireo solitarius</i>	possible	S5B		
Red-eyed Vireo	<i>Vireo olivaceus</i>	confirmed	S5B		
Warbling Vireo	<i>Vireo gilvus</i>	confirmed	S5B		
Black-and-white Warbler	<i>Mniotilta varia</i>	probable	S5B		
Nashville Warbler	<i>Vermivora ruficapilla</i>	confirmed	S5B		
Yellow Warbler	<i>Dendroica petechia</i>	confirmed	S5B		
Magnolia Warbler	<i>Dendroica magnolia</i>	possible	S5B		
Yellow-rumped Warbler	<i>Dendroica coronata</i>	probable	S5B		
Black-throated Green Warbler	<i>Dendroica virens</i>	probable	S5B		
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	confirmed	S5B		
Pine Warbler	<i>Dendroica pinus</i>	probable	S5B		
Ovenbird	<i>Seiurus aurocapillus</i>	probable	S4B		
Northern Waterthrush	<i>Seiurus noveboracensis</i>	possible	S5B		
Mourning Warbler	<i>Oporornis philadelphia</i>	confirmed	S4B		
Common Yellowthroat	<i>Geothlypis trichas</i>	confirmed	S5B		
Canada Warbler	<i>Wilsonia canadensis</i>	possible	S4B	SC	THR
American Redstart	<i>Setophaga ruticilla</i>	confirmed	S5B		
House Sparrow	<i>Passer domesticus</i>	confirmed	SNA		
Bobolink	<i>Dolichonyx oryzivorus</i>	confirmed	S4B	THR	THR
Eastern Meadowlark	<i>Sturnella magna</i>	confirmed	S4B	THR	THR
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	confirmed	S4		
Baltimore Oriole	<i>Icterus galbula</i>	confirmed	S4B		
Common Grackle	<i>Quiscalus quiscula</i>	confirmed	S5B		
Brown-headed Cowbird	<i>Molothrus ater</i>	confirmed	S4B		
Scarlet Tanager	<i>Piranga olivacea</i>	confirmed	S4B		
Northern Cardinal	<i>Cardinalis cardinalis</i>	confirmed	S5		
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	confirmed	S4B		
Indigo Bunting	<i>Passerina cyanea</i>	probable	S4B		
Purple Finch	<i>Carpodacus purpureus</i>	probable	S4B		
House Finch	<i>Carpodacus mexicanus</i>	confirmed	SNA		
Pine Siskin	<i>Carduelis pinus</i>	possible	S4B		
American Goldfinch	<i>Carduelis tristis</i>	confirmed	S5B		
Savannah Sparrow	<i>Passerculus sandwichensis</i>	confirmed	S4B		

Common Name	Scientific Name	ABBO Category	SRank	Provincial Status	Federal Status
Vesper Sparrow	<i>Pooecetes gramineus</i>	possible	S4B		
Dark-eyed Junco	<i>Junco hyemalis</i>	possible	S5B		
Chipping Sparrow	<i>Spizella passerina</i>	confirmed	S5B		
Clay-colored Sparrow	<i>Spizella pallida</i>	probable	S4B		
Field Sparrow	<i>Spizella pusilla</i>	possible	S4B		
White-throated Sparrow	<i>Zonotrichia albicollis</i>	confirmed	S5B		
Swamp Sparrow	<i>Melospiza georgiana</i>	confirmed	S5B		
Song Sparrow	<i>Melospiza melodia</i>	confirmed	S5B		

Status Updated: September 2018

SRANK DEFINITIONS

S3 Vulnerable, Vulnerable in the nation or state/province 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 nation or state/province.

SNR Unranked, Nation or state/province conservation status not yet assessed.

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.

S#S# Range Rank, A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

? Inexact Numeric Rank—Denotes inexact numeric rank

S#B Breeding

S#N Non-Breeding

SARO STATUS DEFINITIONS

THR Threatened: A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.

SC Special Concern: A species with characteristics that make it sensitive to human activities or natural events.

SARA STATUS DEFINITIONS

THR Threatened, a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.

SC Special Concern, a wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

Appendix D:List of Observed Species (2013 and 2018)

Common Name	Scientific Name	SRank	Provincial Status (SARO)	Federal Status (SARA)
AMPHIBIANS				
American Toad	<i>Bufo americanus</i>	S5		
Northern Leopard Frog	<i>Rana pipiens</i>	S5		
REPTILES				
Midland Painted Turtle	<i>Chrysemys picta marginata</i>	S5		
Eastern Garter Snake	<i>Thamnophis sirtalis</i>	S5		
BIRDS				
Canada Goose	<i>Branta canadensis</i>	S5		
Ruffed Grouse	<i>Bonasa umbellus</i>	S4		
Great Blue Heron	<i>Ardea herodias</i>	S4		
Killdeer	<i>Charadrius vociferus</i>	S5B, S5N		
Mourning Dove	<i>Zenaida macroura</i>	S5		
Barn Swallow	<i>Hirundo rustica</i>	S4B	THR	THR
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	S5B		
Hairy Woodpecker	<i>Picoides villosus</i>	S5		
Pileated Woodpecker	<i>Dryocopus pileatus</i>	S5		
Eastern Wood-Pewee	<i>Contopus virens</i>	S4B	SC	SC
Least Flycatcher	<i>Empidonax minimus</i>	S4B		
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	S4B		
Eastern Kingbird	<i>Tyrannus tyrannus</i>	S4B		
Warbling Vireo	<i>Vireo gilvus</i>	S5B		
Red-eyed Vireo	<i>Vireo olivaceus</i>	S5B		
Blue Jay	<i>Cyanocitta cristata</i>	S5		
American Crow	<i>Corvus brachyrhynchos</i>	S5B		
Black-capped Chickadee	<i>Poecile atricapilla</i>	S5		
House Wren	<i>Troglodytes aedon</i>	S5B		
American Robin	<i>Turdus migratorius</i>	S5B		
Cedar Waxwing	<i>Bombycilla cedrorum</i>	S5B		
Yellow Warbler	<i>Dendroica petechia</i>	S5B		
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	S5B		
American Redstart	<i>Setophaga ruticilla</i>	S5B		
Common Yellowthroat	<i>Geothlypis trichas</i>	S5B		
Song Sparrow	<i>Melospiza melodia</i>	S5B		
Swamp Sparrow	<i>Melospiza georgiana</i>	S5B		
White-throated Sparrow	<i>Zonotrichia albicollis</i>	S5B		

Common Name	Scientific Name	SRank	Provincial Status (SARO)	Federal Status (SARA)
Northern Cardinal	<i>Cardinalis</i>	S5		
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	S4		
Common Grackle	<i>Quiscalus quiscula</i>	S5B		
Baltimore Oriole	<i>Icterus galbula</i>	S4B		
American Goldfinch	<i>Carduelis tristis</i>	S5B		

Common Name	Scientific Name	SRank	Provincial Status (SARO)	Federal Status (SARA)	Coefficient of Conservatism
PLANTS					
Eastern Bracken Fern	<i>Pteridium aquilinum</i> var. <i>latiusculum</i>	S5			2
Sensitive Fern	<i>Onoclea sensibilis</i>	S5			4
Eastern White Cedar	<i>Thuja occidentalis</i>	S5			4
Balsam Fir	<i>Abies balsamea</i>	S5			5
White Pine	<i>Pinus strobus</i>	S5			4
Eastern Hemlock	<i>Tsuga canadensis</i>	S5			7
Red Maple	<i>Acer rubrum</i>	S5			4
Silver Maple	<i>Acer saccharinum</i>	S5			5
Western Poison-ivy	<i>Rhus radicans</i> ssp. <i>rydbergii</i>	S5			0
Staghorn Sumac	<i>Rhus typhina</i>	S5			1
Wild Carrot	<i>Daucus carota</i>	SNA			
Swamp Milkweed	<i>Asclepias incarnata</i> ssp. <i>incarnata</i>	S5			6
Common Milkweed	<i>Asclepias syriaca</i>	S5			0
Common Yarrow	<i>Achillea millefolium</i> ssp. <i>millefolium</i>	SNA			0
Common Ragweed	<i>Ambrosia artemisiifolia</i>	S5			0
Burdock sp.	<i>Arctium</i> sp.				
Aster sp.	<i>Aster</i> sp.				
Ox-eye Daisy	<i>Chrysanthemum leucanthemum</i>	SNA			
Chicory	<i>Cichorium intybus</i>	SNA			
Philadelphia Fleabane	<i>Erigeron philadelphicus</i> ssp. <i>philadelphicus</i>	S5			1
Spotted Joe-pye-weed	<i>Eupatorium maculatum</i> ssp. <i>maculatum</i>	S5			3
Canada Goldenrod	<i>Solidago canadensis</i>	S5			1
Late Goldenrod	<i>Solidago gigantea</i>	S5			4
Common Sow-thistle	<i>Sonchus oleraceus</i>	SNA			
Common Tansy	<i>Tanacetum vulgare</i>	SNA			
Coltsfoot	<i>Tussilago farfara</i>	SNA			
Canada Thistle	<i>Cirsium arvense</i>	SNA			

Common Name	Scientific Name	SRank	Provincial Status (SARO)	Federal Status (SARA)	Coefficient of Conservatism
PLANTS					
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	S5			2
Common Dandelion	<i>Taraxacum officinale</i>	SNA			
Spotted Jewel-weed	<i>Impatiens capensis</i>	S5			4
Speckled Alder	<i>Alnus incana</i> spp. <i>rugosa</i>	S5			6
White Birch	<i>Betula papyrifera</i>	S5			
Beaked Hazel	<i>Corylus cornuta</i> ssp. <i>cornuta</i>	S5			5
Ironwood	<i>Ostrya virginiana</i>	S5			4
Mustard sp.	<i>Brassica</i> sp.				
Maple-leaved Viburnum	<i>Viburnum acerifolium</i>	S5			6
Nannyberry	<i>Viburnum lentago</i>	S5			4
Downy Arrow-wood	<i>Viburnum rafinesquianum</i>	S5			7
Bladder Campion	<i>Silene latifolia</i>	SNA			
Field Bindweed	<i>Convolvulus arvensis</i>	SNA			
Red-osier Dogwood	<i>Cornus stolonifera</i>	S5			2
Black Medick	<i>Medicago lupulina</i>	SNA			
White Sweet-clover	<i>Melilotus alba</i>	SNA			
Red Clover	<i>Trifolium pratense</i>	SNA			
White Clover	<i>Trifolium repens</i>	SNA			
Cow Vetch	<i>Vicia cracca</i>	SNA			
Bird's-foot Trefoil	<i>Lotus corniculatus</i>	SNA			
American Beech	<i>Fagus grandifolia</i>	S4			6
Bur Oak	<i>Quercus macrocarpa</i>	S5			5
Hickory sp.	<i>Carya</i> sp.				
Selfheal	<i>Prunella vulgaris</i> ssp. <i>vulgaris</i>	S5			
Purple Loosestrife	<i>Lythrum salicaria</i>	SNA			
White Ash	<i>Fraxinus americana</i>	S4			4
Black Ash	<i>Fraxinus nigra</i>	S4			7
Green Ash	<i>Fraxinus pennsylvanica</i>	S4			3
Common Evening-primrose	<i>Oenothera biennis</i>	S5			0
Upright Yellow Wood-sorrel	<i>Oxalis stricta</i>	S5			0
Common Plantain	<i>Plantago major</i>	SNA			
Lady's-thumb	<i>Polygonum persicaria</i>	SNA			
Red Baneberry	<i>Actaea rubra</i>	S5			5
Tall Buttercup	<i>Ranunculus acris</i>	SNA			
Common Buckthorn	<i>Rhamnus cathartica</i>	SNA			
Glossy Buckthorn	<i>Rhamnus frangula</i>	SNA			
Hawthorn sp.	<i>Crataegus</i> sp.				

Common Name	Scientific Name	SRank	Provincial Status (SARO)	Federal Status (SARA)	Coefficient of Conservatism
PLANTS					
Common Strawberry	<i>Fragaria virginiana ssp. virginiana</i>	S5			2
White Avens	<i>Geum canadense</i>	S5			3
Common Blackberry	<i>Rubus allegheniensis</i>	S5			2
Purple Flowering Raspberry	<i>Rubus odoratus</i>	S5			3
Dwarf Raspberry	<i>Rubus pubescens</i>	S5			4
Partridge Berry	<i>Mitchella repens</i>	S5			6
Prickly-ash	<i>Zanthoxylum americanum</i>	S5			3
Balsam Poplar	<i>Populus balsamifera</i>	S5			4
Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	SU			4
Large-tooth Aspen	<i>Populus grandidentata</i>	S5			5
Trembling Aspen	<i>Populus tremuloides</i>	S5			
Butter-and-eggs	<i>Linaria vulgaris</i>	SNA			
Common Speedwell	<i>Veronica officinalis</i>	SNA			
American Basswood	<i>Tilia americana</i>	S5			4
American Elm	<i>Ulmus americana</i>	S5			3
European Stinging Nettle	<i>Urtica dioica ssp. dioica</i>	SNA			
Riverbank Grape	<i>Vitis riparia</i>	S5			0
Virginia Creeper	<i>Parthenocissus inserta</i>	S5			3
Sweetflag	<i>Acorus calamus</i>	S4			6
Jack-in-the-pulpit	<i>Arisaema triphyllum ssp. triphyllum</i>	S5			5
Flowering-rush	<i>Butomus umbellatus</i>	SNA			
Wool-grass	<i>Scirpus cyperinus</i>	S5			4
Red Trillium	<i>Trillium erectum</i>	S5			6
White Trillium	<i>Trillium grandiflorum</i>	S5			5
Grass Family	<i>Poaceae</i>				
Brome sp.	<i>Bromus sp.</i>				
Reed Canary Grass	<i>Phalaris arundinacea</i>	S5			0
Timothy	<i>Phleum pratense</i>	SNA			
Fowl Glyceria	<i>Glyceria striata</i>	S4S5			3
Narrow-leaved Cattail	<i>Typha angustifolia</i>	SNA			3
Broad-leaved Cattail	<i>Typha latifolia</i>	S5			3

Updated September 12, 2018

SRANK DEFINITIONS

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 nation or state/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.

S#B Breeding


S#N Non-Breeding




Appendix E: SAR Hand-Out


The following table provides photographs and general descriptions of potential species at risk that may occur within the project area and information on what actions to take should any of these species be observed.


Endangered and Threatened species are protected and cannot be harmed, harassed or killed and in some cases their habitats are also protected. These individuals will only be handled by qualified person and only if the individual is in imminent threat of harm. An authorization under the ESA 2007 would be required to handle individuals that are not in imminent threat of harm.

For all Endangered or Threatened species found on-site any activity which may cause harm to the individual will be stopped and the site supervisor will be contact immediately for further instructions.

Photograph	Description	Action to be Taken
 <p>http://birdweb.org/Birdweb</p>	<p>Barn Swallow</p> <ul style="list-style-type: none">• Swallow with a long tail which is deeply forked in adult males• An orange front (no white on the forehead)• Narrow pointed wings• Juveniles have a white band across the top of the tail. <p>THREATENED</p>	<ul style="list-style-type: none">• Stop any activity that may cause harm to this specie and contact project Supervisor.• Individuals should only be encouraged to move if it is in immediate harm’s way. These animals can only be handled by a qualified biologist when it is in imminent threat of harm, otherwise an ESA 2007 authorization will be required.

 <p>© ROM</p> <p>Photo: Royal Ontario Museum website http://www.rom.on.ca/en/ontario/fieldguide</p>	 <p>Photo: vt.audubon.org</p>	<p>Bobolink</p> <ul style="list-style-type: none">• Medium-sized songbird• Female is tan with black stripes and resembles a sparrow• Male is black with a white patch on the back and yellow patch on the side of his head <p>THREATENED</p>	<ul style="list-style-type: none">• Stop any activity that may cause harm to this specie and contact project Supervisor.• Individuals should only be encouraged to move if it is in immediate harm's way. These animals can only be handled by a qualified biologist when it is in imminent threat of harm, otherwise an ESA 2007 authorization will be required.
 <p>© ROM</p> <p>Photo: Royal Ontario Museum website http://www.rom.on.ca/en/ontario/fieldguide</p>	<p>Eastern Meadowlark</p> <ul style="list-style-type: none">• Medium-sized songbird• Bright yellow belly and throat• Black "V" on its breast and white flanks with black streaks• Their backs are mainly brown with black streaks <p>THREATENED</p>		

Photograph	Description	Action to be Taken
 <p>Photo: audubon.org</p>	<p>Chimney Swift</p> <ul style="list-style-type: none"> Described as a cigar shaped bird with long wings and a short tail. <p>THREATENED</p>	<ul style="list-style-type: none"> Stop any activity that may cause harm to this specie and contact project Supervisor. Individuals should only be encouraged to move if it is in immediate harm's way. These animals can only be handled by a qualified biologist when it is in imminent threat of harm, otherwise an ESA 2007 authorization will be required.

Photograph	Description	Action to be Taken
 <p>Photo: Royal Ontario Museum website http://www.rom.on.ca/ontario/risk.php</p>	<p>Blanding's Turtle</p> <ul style="list-style-type: none"> Medium sized turtle (12.5-28 cm) Bright yellow on chin and throat Shall is dark light-coloured spots or lines <p>THREATENED</p>	<ul style="list-style-type: none"> Take a photograph and record the date observed, name of person who observed it If turtle is located within the construction site, then construction activities that may impact it must STOP until the turtle is clear of the site. Contact supervisor