Environmental Impact Statement / Tree Conservation Report

1009 Trim Road
Phase 1

Version 1.0

Prepared for:
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List of Acronyms and Definitions

ABBO - Atlas of Breeding Birds of Ontario
CC - Co-Efficient of Conservation
COSEWIC - Committee on the Status of Endangered Wildlife in Canada
DBH - Diameter at breast height
EIS – Environmental Impact Statement
ELC - Ecological Land Classification
ESA - *Endangered Species Act* (Provincial)
LIO - Land Information Ontario
MBCA - *Migratory Bird Convention Act* (Federal)
MECP - Ministry of Environment, Conservation and Parks
MNRF - Ministry of Natural Resources and Forestry
NHIC – Natural Heritage Information Centre
NHRM - Natural Heritage Reference Manual
OMNR/MNRF - Ontario Ministry of Natural Resources (old name)
-Ministry of Natural Resources and Forestry (new name)
OWES - Ontario Wetland Evaluation System
PSW - Provincially Significant Wetlands
RVCA – Rideau Valley Conservation Authority
SAR - Species at Risk (in this report they refer to species that are provincially or federally listed as endangered or threatened and receive protection under ESA or SARA)
SARA - *Species at Risk Act* (Federal)
SARO - Species at Risk in Ontario
SWHTG - Significant Wildlife Habitat Technical Guide
TCR – Tree Conservation Report

SRANK DEFINITIONS

S1 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 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 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.

? 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.

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1.0 INTRODUCTION

9378-0633 Quebec Inc., here after referred to as the proponent) is proposing to develop the 1009 Trim Road property, situated on the northeast corner of the Trim Road and Jeanne d'Arc Boulevard North intersection (Figure 1 and Figure 2). An initial Environmental Impact Statement (EIS) was completed by WSP for Grandmaître (current land owners of the site) on February 2017 and has been submitted with this file during the pre-consultation. It is noted that their study area was larger than the current site.

The entire property is 3.3 ha of which 1.7 ha is the Ottawa River and/or is designated as a Provincially Significant Wetland (PSW). This 1.7 ha portion will not be disturbed. The remainder consists of disturbed areas (fill) and a strip of trees along the road. A single headwater drainage feature is situated within the adjacent lands, to the east, along with more natural and naturalizing habitats. Recognizing the work involved in ascertaining the value of these habitats, the proximity of the site to the future Light Rail Transit station and the timelines, the proponent has elected develop the property in phases. This will allow for proper evaluation of the habitats and their functions as well as needs of the area resulting in a balanced approach to the development. It will also provide the opportunity to investigate opportunities to rehabilitate the area as there is fill within 30 m of the PSW, some of which could be removed and naturalized (Figure 2).

As per the Official Plan (OP) of the City of Ottawa, an EIS is required to determine if significant natural features have been designated in or adjacent to the subject lands followed by an assessment of the potential impacts to any identified natural environment from the proposed development. The OP follows the guidelines set out in the Provincial Policy Statement (PPS) in which there are several natural features and areas identified as needing protection. These are:

- Significant habitat of Endangered and Threatened Species;
- Significant wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat;
- Significant Areas of Natural and Scientific Interest; and
- Fish habitat.

The locations of known significant features along with other locally significant features (identified as part of the City's Natural Heritage System) are identified on OP schedules A, B, K and L. Note that the presence/absence of habitat for endangered (END) or threatened (THR)

Species as well as some significant wildlife habitats (SWH) are not depicted on the OP schedules. Their presence/absence must be determined based on the criteria in the OP or the appropriate methodology [i.e. species-specific surveys, presence of preferred habitats and the Ministry of Natural Resources and Forestry's *Natural Heritage Reference Manual* (OMNR, 2010)]. Where identified, the boundaries of any significant features are noted and the potential for the development of Phase 1 to cause negative impacts is assessed. For those features which may be negatively impacted, mitigation measures and where appropriate compensation measures are recommended. 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."*

This EIS portion follows the *City of Ottawa Environmental Impact Statement Guidelines* (City of Ottawa, 2015) and the TCR sections follow the *City of Ottawa Tree Conservation Report Guidelines* (City of Ottawa, 2019).

The intention of the TCR is to determine what woody vegetation needs to be retained and protected on site.

The field work for EIS was led by Michelle Lavictoire who has a Master of Science in Natural Resource Sciences and over 23 years of experience in completing natural environment assessments. The TCR field work was completed by Cody Fontaine, a Fish and Wildlife Technologist with 10 years of experience.

This EIS and TCR pertains to Phase 1 which includes the development of Towers 1 and 2 and their parking area, all are situated in the disturbed/fill area of the site furthest from the natural habitats. This portion of the property represents 0.5 ha. It is important to note that the application is at the Official Plan amendment and rezoning stage. The details on the location of the buildings and infrastructure is still being determined and will be provided at the site plan approval stage. As such this report focuses on the evaluation, impact assessment and recommendations for avoidance and mitigation measures of lands that could be disturbed for Phase 1. The report will be updated during the site plan stage, if needed, and the Map 2[1] of the TCR will be created at that time.

[1] Map 2 depicts the trees to be removed

The potential for future phases will determined following more detailed environmental assessments to confirm the area of the site beyond Phase 1 that might be able to be developed. Once final determinations are made regarding additional lands that may be suited for development and that could accommodate a second phase of development, the planning applications for Phase 1 will be modified to also include Phase 2.

Figure 1: Location of Property

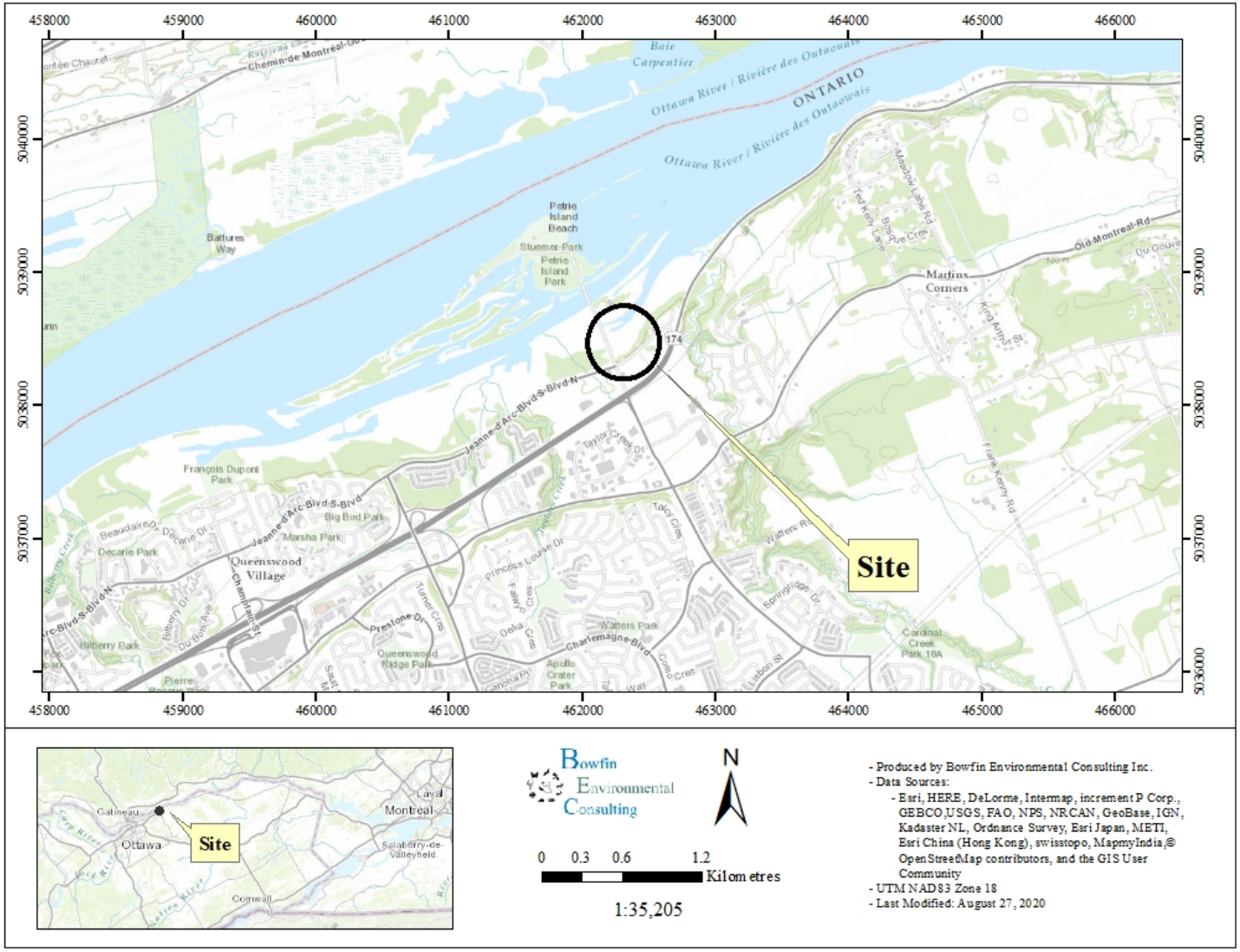
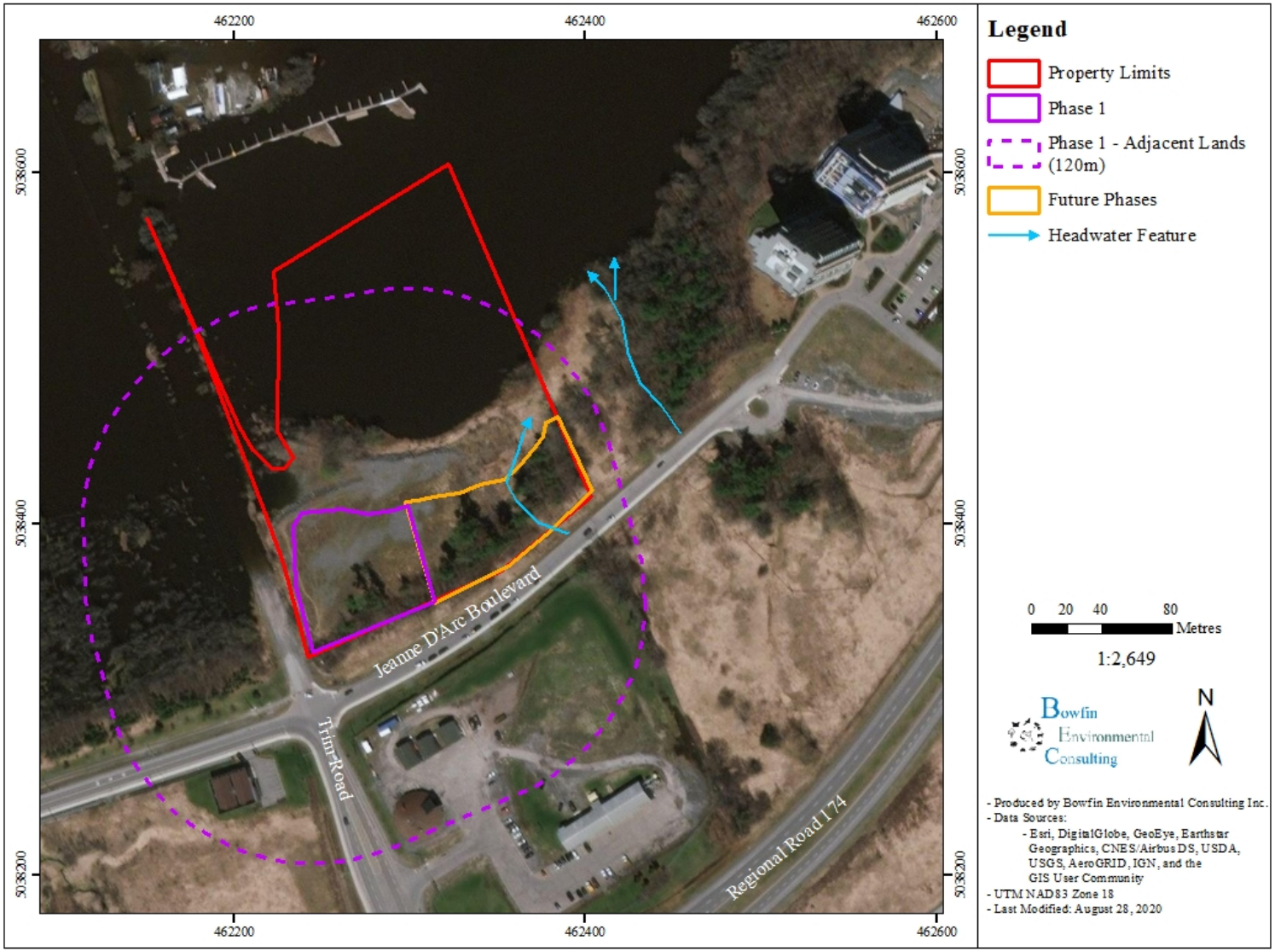


Figure 2: Location of Property, Phase 1, and Future Phases



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, within Phase 1 (Figure 2). While the adjacent lands, typically referred to the 120 m surrounding area, 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 September 2019). As well as other consultant's reports.

2.2 Field Studies

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.

Specific attention was paid to locating species at risk (SAR) or species of conservation value[2] 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. While the Ministry of Environment, Conservation and Parks (MECP) is now responsible for the *Endangered Species Act* (ESA), they have not provided any new directions. Previously, the MNRF certified Butternut Health Assessors (BHA) to complete Butternut Health Assessments as per their guidelines. This BHA was completed by a qualified Butternut Health Assessor (#723) on June 24, 2020. This inventory consisted of searching the entire site and the adjacent 50 m to the east of the site . Any individuals noted would be marked with white spray paint and flagging tape and numbered sequentially. Their UTMs, using a GPS unit set at NAD83, would be recorded and the individual would be assessed according the BHA protocol. No butternuts were found.

2.2.3 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, the MNRF's bat maternity protocol was followed and is outlined below:

[2] "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.

- Survey was completed during leaf-off period, to facilitate locating cavities.
- Information collected consisted of: tree species, dbh, presence/absence of cavity, description of cavity and snag class.

While typically, plots are established, this site was too small as such transects were walked and cavities noted throughout the area surveyed (Figure 3). The survey was completed on April 9, 2020.

Exit surveys were completed based on the *Bats and Bat Habitats: Guidelines for Wind Power Projects* (OMNR, 2011). The guidelines were followed to conduct the exit survey and are outlined below:

- Exit surveys were conducted in June (June 4 and 5, 2020).
- Cavity openings on suitable trees were monitored from 30 minutes before dusk until 60 minutes after dusk.

2.2.4 Reptile Surveys

Initially, only Blanding's turtle surveys were proposed however, given the nature of the fill, the surveys were expanded to capture the presence/absence of these and snakes. The Blanding's turtle surveys included basking, road mortality (snakes would also have been noted), and nesting surveys.

Blanding's Turtle Surveys

Discussions with NHIC and MECP indicated that there were 3 occurrences of Blanding's Turtle within 1.5 km of the site, with the most recent being from 2008. Again, MECP has not developed new protocols as such the MNRF protocols were followed.

The MNRF *Occurrence Survey Protocol for Blanding's Turtle (Emydoidea blandingii) in Ontario* (OMNR, 2013b) was followed. This protocol requires a minimum of five basking surveys in suitable habitat using Blanding's turtle general habitat description by MNRF. For this site, the surveys were supplemented with the use of a spotting scope from the edge of the fill which provided a good vantage for spotting turtles in the cattails and on the Ottawa River. The survey period begins following ice-melt and ends on June 15th. The spacing of surveys should be such that a minimum period of 3 weeks is covered. The basking surveys are to be completed between 8 am and 5 pm during sunny periods and when air temperature is at least 10°C (partially cloudy is accepted if air temperature is above 15°C and is warmer than the water temperature) (OMNR, 2013b). When possible, surveys should target days immediately following inclement weather, when turtles would be more prone to basking. Information to be collected included:

names of observers, date of survey, start and stop time, weather conditions, number and species of turtles observed, and their location would be noted using a hand-held GPS.

Road mortality surveys were completed from the intersection of Trim Road and Jeanne d'Arc Boulevard North along Trim Road (to the marina) and east along Jeanne d'Arc to the turn around. Any live, injured, or dead reptiles would have been photographs, and their location recorded.

Because of the presence of fill, nesting surveys were added to the scope. The procedure for nesting surveys was discussed with MECP and their advice was informed the methods. The surveys included: daytime surveys looking for predated nests, evening surveys (between 7-10pm) looking for nesting individuals and the placement of a trail camera. Surveys could take place in any weather condition. When possible, surveys targeted the period following rain events. Multiple visits were recommended. The site would be searched carefully, quietly, and slowly looking for turtles from afar. Once it was determined that no turtles were present, then the searchers surveyed the substrate carefully with flashlights for signs of nesting by any turtle species. Note that potential nesting sites were also identified along Trim Road where gravel access to the river is provided. These were also searched.

Snake Surveys

The entire fill area was searched for snakes, including during the road mortality surveys described above. Visual encounter surveys were conducted based on the *Survey Protocol for Ontario's Species at Risk Snakes* (OMNRF, 2016) to assess the presence of significant wildlife habitat for snakes. This protocol calls for a minimum of ten surveys during the active season, with at least five surveys prior to July 1st, during appropriate weather conditions (when temperatures were between 10-25 °C under sunny conditions and between 15-30 °C under overcast conditions). Each survey consisted of a minimum search effort of 1-2 hours per hectare. The habitat was searched walked slowly looking for basking or foraging snakes, or sheds by searching under suitable cover objects (e.g. logs, rocks). The location of snakes would be recorded with a hand-held GPS.

2.2.5 Bird Surveys

Information on bird use of the area was collected through a raptor nest survey and daytime breeding bird surveys. There was no suitable habitat for eastern whip-poor-will as such no nighttime surveys were completed. The potential for eastern whip-poor-will is discussed further in the SAR analysis section of this report.

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 April 9, 2020. The breeding bird surveys included daytime breeding bird surveys on May 27 and June 17, 2020. 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.
- 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.

Survey points are depicted on Figure 4.

2.2.6 Amphibian Surveys

Nighttime amphibian calling surveys were completed as per the *Environment Canada Marsh Monitoring Program* (MMP) guide (2008). The protocol is summarized below:

- The surveys were completed 3 times during the spring and early summer (once during each of the three survey periods in order to collect data on all species)
- Observations began 30 minutes after sunset and ended before midnight;
- Each station was surveyed for 3 minutes during which time the species, the calling code and the location of the heard calls were recorded. The calling codes were recorded as one of the following:
    - Code 1: Calls not simultaneous, number of individuals can be accurately counted
    - Code 2: Some calls simultaneous, number of individuals can be reliably estimated
    - Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated
- Surveys were only conducted if the wind strength was Code 0, 1, 2 or 3 on the Beaufort Wind Scale.
- Amphibian survey stations were separated by at least 500 m.

All surveys included the recording of the following information:

- Date
- Name of observer(s) conducting field work
- Time (start and end time, duration)
- Weather conditions (temperature, % cloud cover, wind)
- GPS location
- Species presence and abundance information

2.2.7 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 3: Location of Bat Surveys

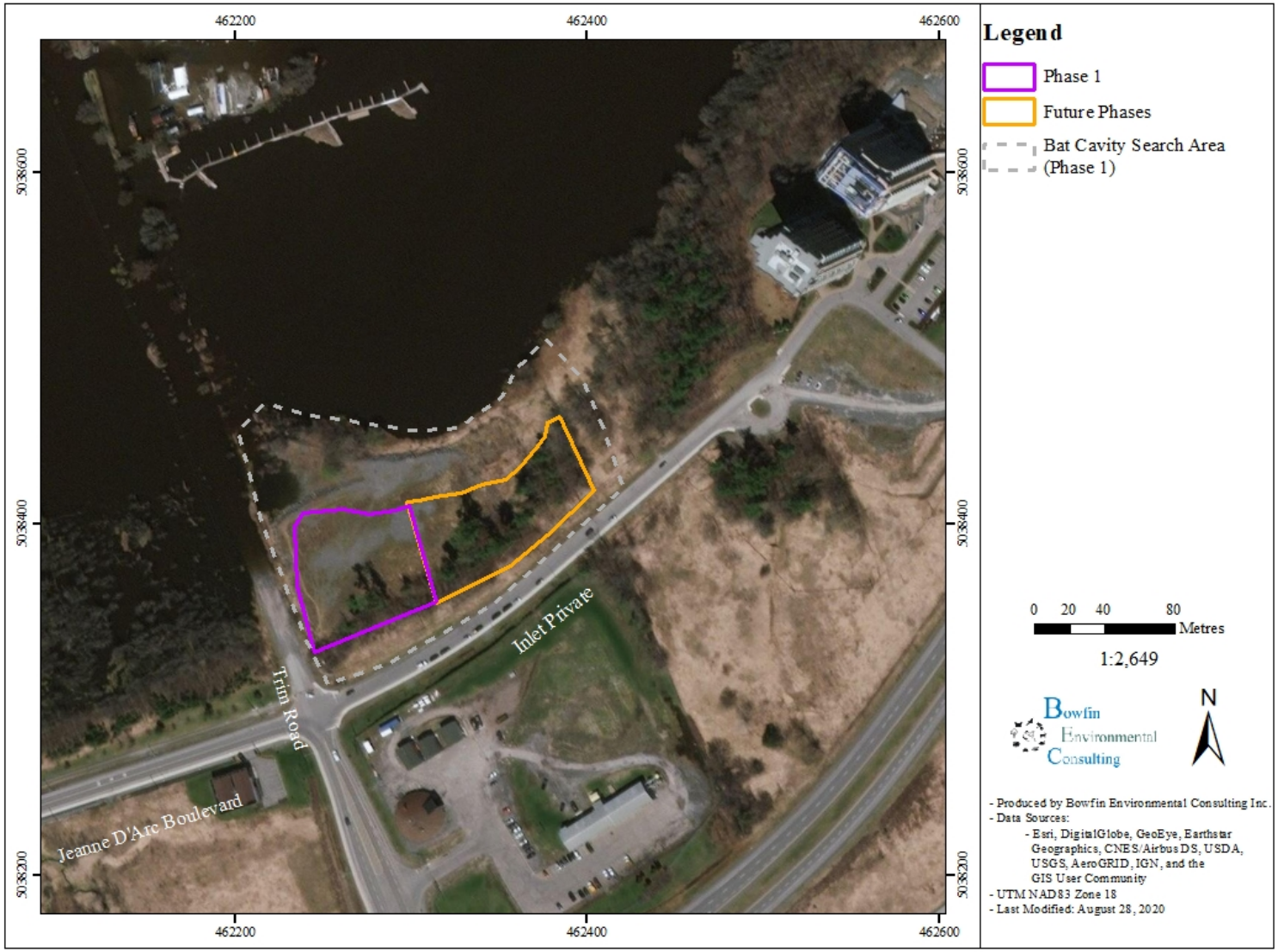


Figure 4: Location of Breeding Bird Survey

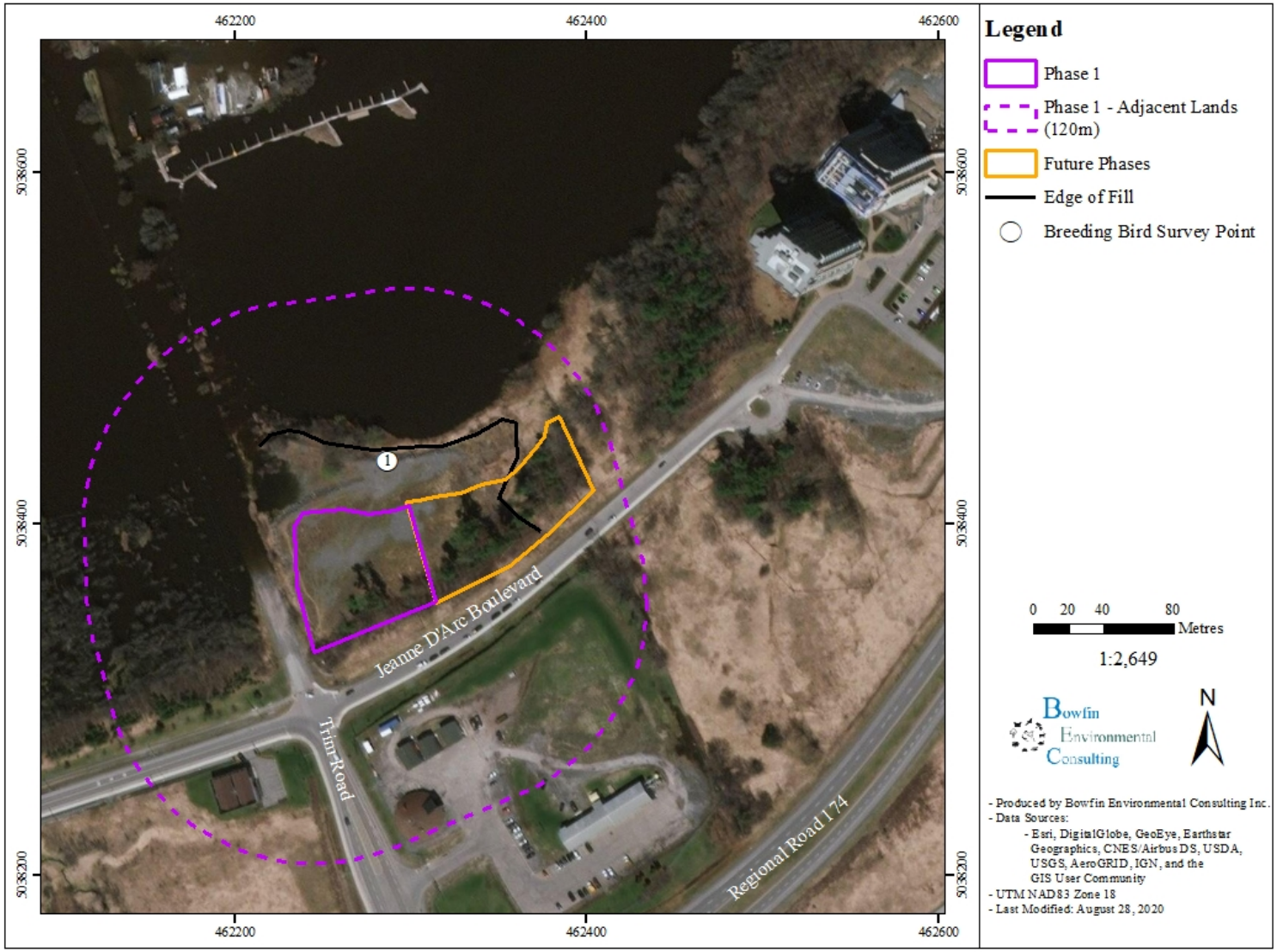


Figure 5: Turtle Survey Areas

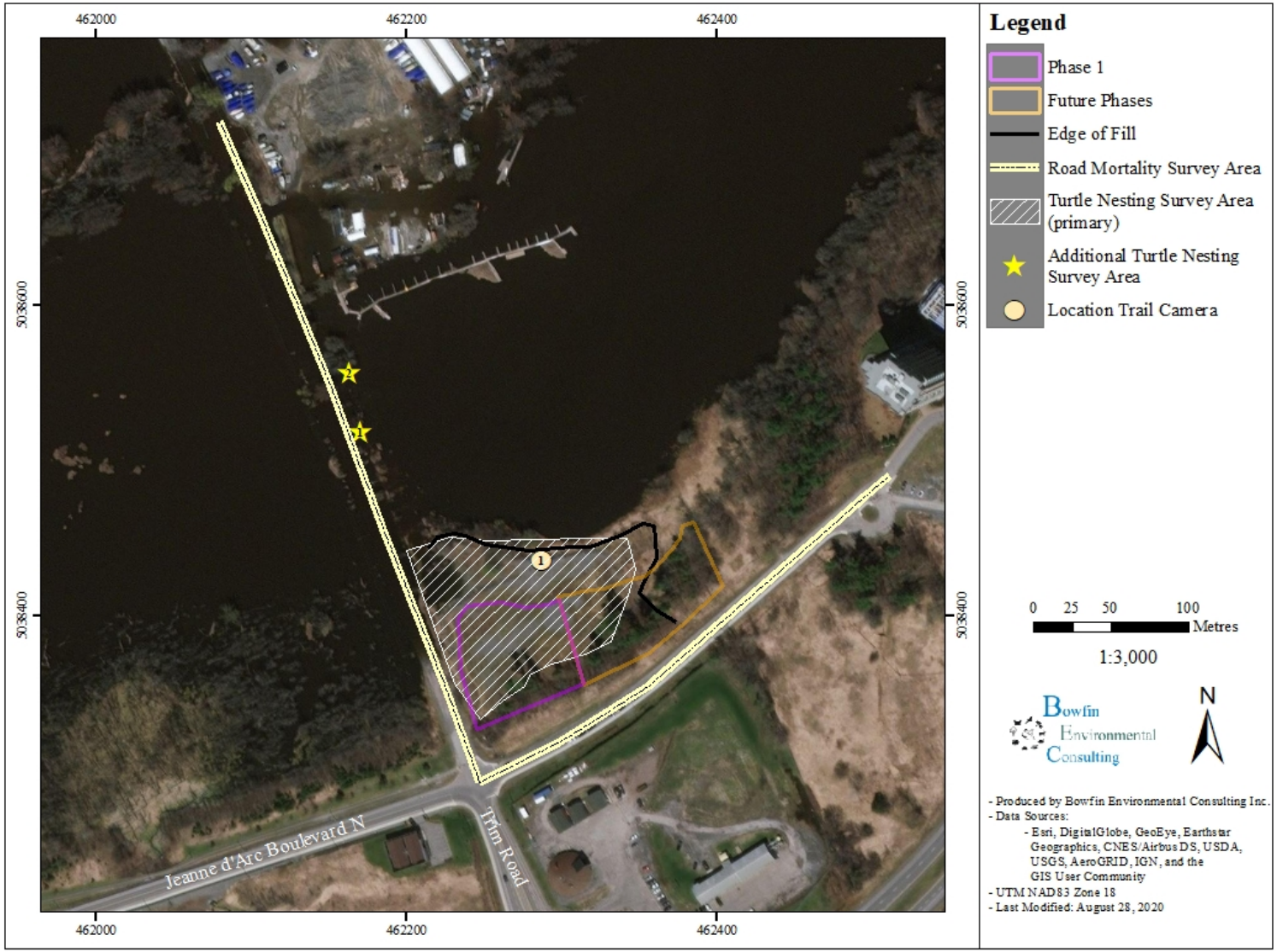
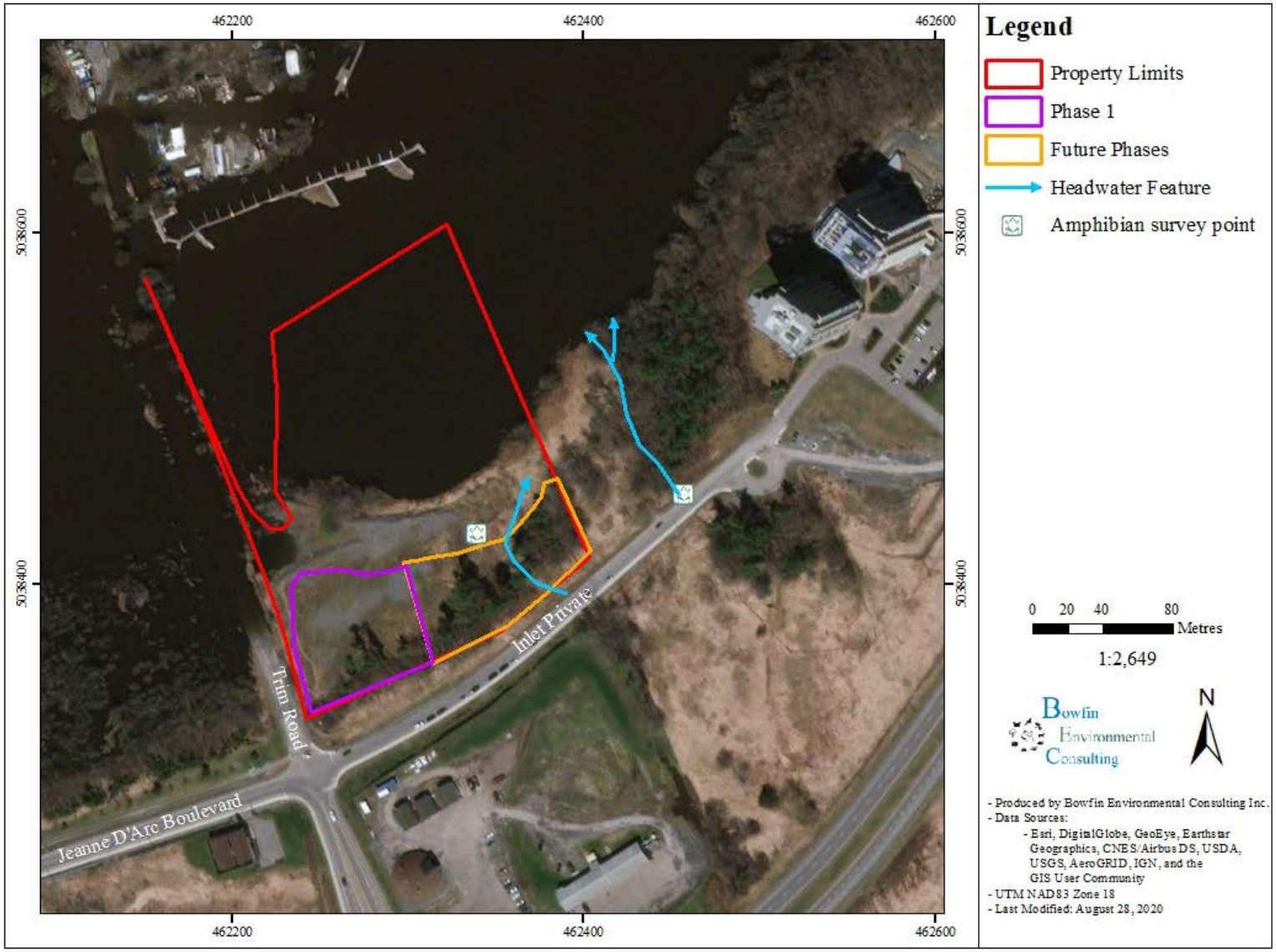


Figure 6: Amphibian Survey Points



2.3. Tree Inventory

As part of the TCR, the individual trees were assessed and a description of the environmental value of the trees within the site and their ecological function recorded. Information collected on the individual trees included:

- Their location (UTM, NAD83);
- Identified to species for native specimens;
- Diameter at breast height (DBH);
- Presence/absence of Butternuts; and
- Health.

Where the density of trees with a DBH > 10 cm was high, they could be grouped and described as a whole. This information including maps of the individual trees present. The mitigation measures recommended are embedded within this EIS to facilitate review.

3.0 Background Information

3.1 Location

The study area is situated at 1009 Trim Road, in part of Lot 30, Concession 1 in the Cumberland Ward of the City of Ottawa. It is bordered by Trim Road to the west, Jeanne d'Arc Boulevard North to the south and the Ottawa River to the north.

3.2 Natural Heritage Features

The only known natural features identified on the Phase 1 lands, or within 120 m of these, are an Urban Natural Area identified, and a PSW. The PSW is the Petrie Island Provincially Significant Wetland is identified on Schedule B of the OP, the LIO layer places this PSW boundary at a minimum distance of 30 m to the north of the Phase 1 lands. The Urban Natural Area (UNA) Petrie Island and Mainland Urban Natural Area is identified as forming part of the subject lands. The UNA is a large area that includes the entire property. The Cardinal Creek Natural Area is also identified but this is over 120 m away and on the other side of Regional Road 174.

The City staff meet on site with Bowfin and indicated that a portion of the woodland to the east of the headwater drainage feature should be evaluated as significant but that the trees along Jeanne d'Arc Boulevard N were not.

Table 1: Summary of Available Background Information on the Identified Natural Features (PSW, Woodlands, Valleylands, ANSIs, ESA, SWH, and Fish Habitat)

Natural Heritage Feature	Present within Phase 1	Present within 120 m of Phase 1
Provincially Significant Wetlands (PSW)	No	Yes
Areas of Natural and Scientific Interest (ANSIs)	No	
Habitats or species designated by ESA (Provincial)	No known occurrences additional information to be gathered during assessment	Blanding's Turtle sightings within 1.5 km
Significant Woodlands	No	Yes – treed area to the east of the headwater feature (over 65m from the Phase 1 lands)
Significant Valleylands	No	
Significant Wildlife Habitat (SWH)	No known; to be determine during site investigations	
Fish Habitat	No	Ottawa River (30 m)

Sources of background information: OP (City of Ottawa), LIO, Google Satellite Imaging

3.3 Soil Conditions

The subject lands where Phase 1 would be built are tiered, flat (fill) with an abrupt drop to the Ottawa River and to the east.

Note that the City of Ottawa has not included this as a significant valley land (see section 4.2.2). Wetland habitat found at the base of the slope included robust emergent marsh wetland communities. The nearest surface water feature was the Ottawa River (minimum distance of 30 m to the north of the Phase 1 lands).

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*).

The Paterson Group report (May 14, 2020) indicates that the site is fill (silty sand mixed with clay and/or crushed stone and gravel) over very stiff to stiff clay.

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 to High
Overburden Depth	Shallow
Hydrological Soil Group	D

4.0 SITE INVESTIGATION RESULTS

4.1 Site Investigation Dates and Purpose

As mentioned above, several site visits were undertaken. A summary of the dates, times, ambient conditions, and purpose for the visits are provided in Table 3. The vegetation communities are described in the section below, followed by the results from the species-specific surveys. A separate report is being prepared for the headwater drainage feature assessment. The pertinent information is included herein, and it is noted that this feature is over 30 m from Phase 1.

Table 3: Summary of Dates and Times of Site Investigations

Date	Time (h)	Staff	Air Temperature (Min-Max) °C	Cloud Cover (5) Beaufort Wind Scale [Descriptor (scale)]	Purpose
April 9, 2020	1045-1245	C. Fontaine S. Lafrance	3 (-0.4-12.4)	Overcast with light rain, light air (1) changing to snow with light breeze (2)	- Bat Cavity
April 29, 2020	1845-2115	M. Lavictoire	14 (1.9-16.8)	Overcast, gentle breeze (3) changing to overcast, light rain, light air to light breeze (1-2)	- Wetland -Headwater Flow Assessment -Amphibian Survey

Date	Time (h)	Staff	Air Temperature (Min-Max) °C	Cloud Cover (5) Beaufort Wind Scale [Descriptor (scale)]	Purpose
May 19, 2020	1915-1930	C. Fontaine A. Yates	16 (7.9-19.5)	20% cloud cover, gentle breeze (2)	- Turtle Nesting
May 21, 2020	1330-1500	M. Lavictoire	24 (8.1-24.8)	Clear skies, gentle breeze (3)	-Turtle Basking -Turtle Nesting Predation -Snake survey
May 27, 2020	0830-1130	M. Lavictoire	26.0 (18.3-35.0)	Clear skies, light air (1)	-Turtle Basking -Turtle Nesting Predation -Snake survey
May 29, 2020	1600-1645	M. Lavictoire	30.0 (12.9-29.0)	Overcast, light to gentle breeze (2-3)	-Turtle Basking -Snake survey
May 29, 2020	1915-1945	S. Lafrance	23.0 (12.9-29.0)	Overcast with light rain, gentle (3) to moderate breeze (4) changing to no rain, light breeze (2)	- Turtle Nesting
May 30, 2020	1915-2000	S. Lafrance	11.0 (6.2-20.1)	Overcast, gentle (3) to moderate breeze (4)	- Turtle Nesting
June 3, 2020	1930-2000	S. Lafrance	18.0 (12.3-19.4)	20% cloud cover, light air (1)	- Turtle Nesting
June 4, 2020	2015-2145	M. Lavictoire	21.0 (9.5-25.4)	25% cloud cover, calm (0) to light air (1) changing to 100% cloud cover with light air (1)	-Ecological Land Classification -Bat Nesting
June 4, 2020	1930-2200	S. Lafrance	27.0 (9.5-25.4)	25% cloud cover, calm (0) to light air (1) changing to 100% cloud cover with light air (1)	- Turtle Nesting -Bat Nesting
June 5, 2020	1545-1645 1945-2145	S. Lafrance	29.0 (12.9-28.7)	10% cloud cover, light (2) to fresh breeze (3) changing to 90% cloud cover with light air (1) to light breeze (2)	- Turtle Nesting -Turtle Basking -Snake survey -Bat Nesting
June 8, 2020	1115-1200	S. Lafrance	17.0 (9.6-21.3)	5% cloud cover, light air (1) to light breeze (2)	- Turtle Basking -Snake survey
June 9, 2020	1600-1645 1900-1930	S. Lafrance	22.0 (12.8-21.3)	75% cloud cover, light air (1) changing to 90% cloud cover	- Turtle Basking -Turtle Nesting -Snake survey
June 12, 2020	1915-1945	S. Lafrance	12.0 (6.5-17.2)	Overcast, gentle breeze (3) to moderate breeze (4)	- Turtle Nesting
June 16, 2020	2015-2130	S. Lafrance A. Yates	22.0 (8.7-27.3)	Clear skies, calm (0)	- Turtle Nesting - Amphibian Survey

Date	Time (h)	Staff	Air Temperature (Min-Max) °C	Cloud Cover (5) Beaufort Wind Scale [Descriptor (scale)]	Purpose
June 17, 2020	0715-0830	M. Lavictoire	15.0 (10.5-30.0)	Clear skies, light air (1)	-Wetland Delineation -Breeding Bird Survey -Snake survey
June 21, 2020	2030-2100	S. Lafrance	30.0 (17.9-31.8)	Clear skies, light breeze (2)	- Turtle Nesting
June 24, 2020	1515-1645	C. Fontaine	22.0 (15.2-21.7)	Overcast, moderate breeze (4)	- Butternut Survey -Snake survey
	1845-1930			50% cloud cover, gentle breeze (3)	- Turtle Nesting
July 2, 2020	2015-2045	S. Lafrance	24.0 (20.6-30.4)	Overcast, light air (1)	- Turtle Nesting
July 27, 2020	0915-1315	C. Fontaine	20.0-30.0 (23.2-31.6)	20% cloud cover, light air (1) changing to 30% cloud cover, light breeze (2)	-Tree Inventory -Snake survey
July 28, 2020	0715-0900	M. Lavictoire	21.0 (18.0-30.5)	Clear skies, light breeze (2)	-Vegetation Survey -Snake survey
July 30, 2020	0730-1300	C. Fontaine	19.0-25.0 (14.9-28.0)	Clear skies, calm (0) changing to 25% cloud cover, light air (1)	-Tree Inventory -Snake survey

M. Lavictoire – Michelle (Nunas) Lavictoire – B. Sc. Wildlife Resources and M.Sc. Natural Resources
S. Lafrance – Sophie Lafrance – B.Sc. Biology and Graduate Certificate in Ecological Restoration
C. Fontaine - Cody Fontaine - Fisheries and Wildlife Technologist
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/ [August 11, 2020]

4.2. Vegetation Description and Butternut Survey Results

The current land owner retained WSP to provide an EIS for the site in 2017. During that work, the vegetation communities were described. Their habitat descriptions were similar to Bowfin's. However, Bowfin has followed the ELC protocols where there is no minimum tree height and the minimum size for community delineation is 0.5 ha. No special feature communities were encountered but due to the small size of the site, general descriptions were gathered on several smaller communities referred to as inclusions below. These communities are small and represent edge habitat and as such do not fit with the ELC codes (vegetation community descriptions should be taken from at least 8 m inside a community to avoid edge species).

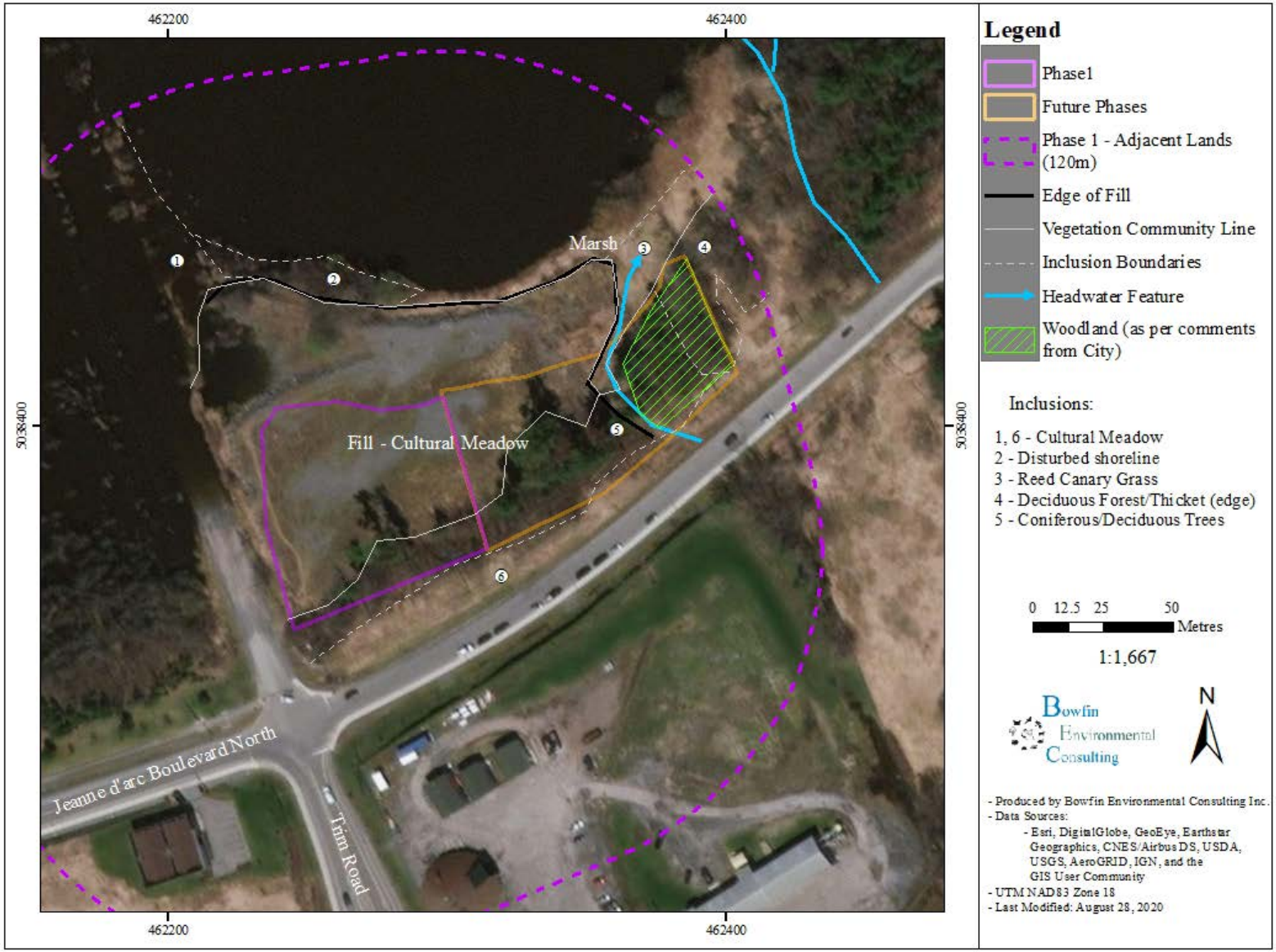
The Phase 1 lands consist of disturbed habitat that has been filled with rock. The only natural habitats were in the adjacent lands. Apart from the wetlands, described further below, all other communities within areas for potential Future Phases and adjacent lands were smaller than the minimum of 0.5 ha. These areas are summarized quickly as inclusions to the disturbed cultural meadow.

Disturbed Area – Cultural Meadow

The Phase 1 lands consisted of heavily compacted rocky fill vegetated with broad leaf herbaceous species such as bird's foot trefoil, common sow thistle, white sweet clover, wild carrot, cow vetch, burdock, viper's bugloss, field bindweed, smooth brome, coltsfoot, and common mullein. There were also a few scattered, young, eastern cottonwoods. These were less than 2 m tall and provided very little in terms of cover.

Photo 1: Looking across towards Trim Road (July 28, 2020)

Figure 7 Vegetation Mapping



Inclusion 1 – Cultural Meadow

This area also consisted of a cultural meadow but contained wetland species as well as upland. This area is the embankment of Trim Road and some of the area has been disturbed by the fill activities. The area is classed as upland because of the significant presence of upland species (bird's foot trefoil, wild carrot, and cow vetch) (Photo 2).

Photo 2: Cultural Meadow along Trim Road (July 28, 2020)

Inclusion 2 – Shoreline

The shoreline of the fill is much too small and disturbed to have an ELC community assigned to it, however, the plants have been described as it is shown as being part of the existing PSW boundary. The soil consisted of fill. The species here were eastern cottonwood, black willow, Freeman's maple, green ash, red maple, and Manitoba maple with staghorn sumac (both 1-2 m tall and regeneration) and the ground layer included white sweet clover, bird's foot trefoil and tall goldenrod. This area is on fill and is considered upland habitat.

Photo 3: Shoreline (May 21, 2020)

Photo 4: Shoreline (July 28, 2020)

Inclusion 3 – Reed Canary Grass

This community was almost exclusively vegetated with reed canary grass. The area does not appear to flood and consisted more of tablelands and is distinct from the PSW. The same community is found along the steep edge of the fill nearer to the property (Photo 5 and Photo 6) and also up the steep slope along an access road (Photo 7). This suggests that it is the fill creating this community and that it is not representative of true wetland habitat at this location.

Photo 5: Reed canary grass dominated slope (April 29, 2020)

Photo 6: Reed canary grass dominated slope with narrow treed area along Jeanne d'Arc Boulevard in background (April 29, 2020)

Photo 7: Reed canary grass dominated slope (April 29, 2020)

Photo 8: Reed Canary Grass on the east side of the adjacent lands (July 28, 2020)

Inclusion 4 – Deciduous Forest/Thicket

This community was edge habitat between the deciduous and coniferous trees along the roadway (inclusion 5) and the mixed forest situated further offsite to the east. This vegetation includes the area identified as woodland by the City (Figure 7). It is disturbed with an access road travelling through it down to the water along with evidence of fill (cement) and garbage. The portion within the adjacent lands included patches of staghorn sumac along with young (2-4 m tall; 50% cover) trees. The tree species included: white ash, bur oak, largetooth maple, silver maple, black cherry, white birch, and balsam fir. Other shrub species (in addition to the staghorn sumac) were common buckthorn and honeysuckle. The ground layer included Virginia creeper, sarsaparilla, alternative-leaved dogwood, dwarf raspberry and purple-flower raspberry.

Photo 9: Deciduous Forest/Thicket (July 28, 2020)

Inclusion 5 – Coniferous and Deciduous Trees

Along the roadway, there were various patches of treed areas with deciduous thickets. The far eastern side of this community, to the east of the headwater feature, includes the area identified as woodland by the City (Figure 7). It is disturbed with an access road travelling through it down to the water. The woody vegetation was dominated by eastern white cedar, white ash, green ash, along with black cherry, trembling aspen, American basswood, bur oak, and glossy buckthorn. Further to the west white pine and ironwood enter the canopy. The ground layer included poison ivy, wood fern and red baneberry.

Photo 10: Looking along the edge of Jeanne d'Arc Boulevard N at the Coniferous and Deciduous Trees (July 28, 2020)

Inclusion 6 – Cultural Meadow

This area was situated between the trees and Jeanne d'Arc Boulevard. It was dominated by meadow habitat with pockets of sumac thicket. The woody layer also included young (up to 3 m tall) green ash. The primary species encountered were: late goldenrod, grass, cow vetch, wild carrot, reed canary grass, buttercup, common sow thistle, burdock, Virginia creeper, strawberry and Canada thistle.

Photo 11: Cultural Meadow along Jeanne d'Arc Boulevard (July 28, 2020)

Wetland

The PSW Petrie Island Wetland is situated to the northwest of the site, at the base of the fill. This community was dominated by robust emergents (cattails). Along the east side of the fill, where the headwater feature is located, the wetland consisted of sections of cattails, common reed (an invasive species) and purple loosestrife (also an invasive species). This habitat along the headwater feature was much smaller than 0.5 ha (<0.01 ha).

Photo 12: Robust Emergent Dominated Wetland of the PSW (July 28, 2020)

Photo 13: Purple Loosestrife and Common Reed (*Phragmites*) dominated areas (May 21, 2020)

Plant Species Discussion (including results from Butternut Inventory)

The plants observed were analysed for: provincial rank (SRank), species at risk (Endangered or Threatened provincially). The site itself is has been heavily disturbed.

There were no endangered or threatened species, including butternuts.

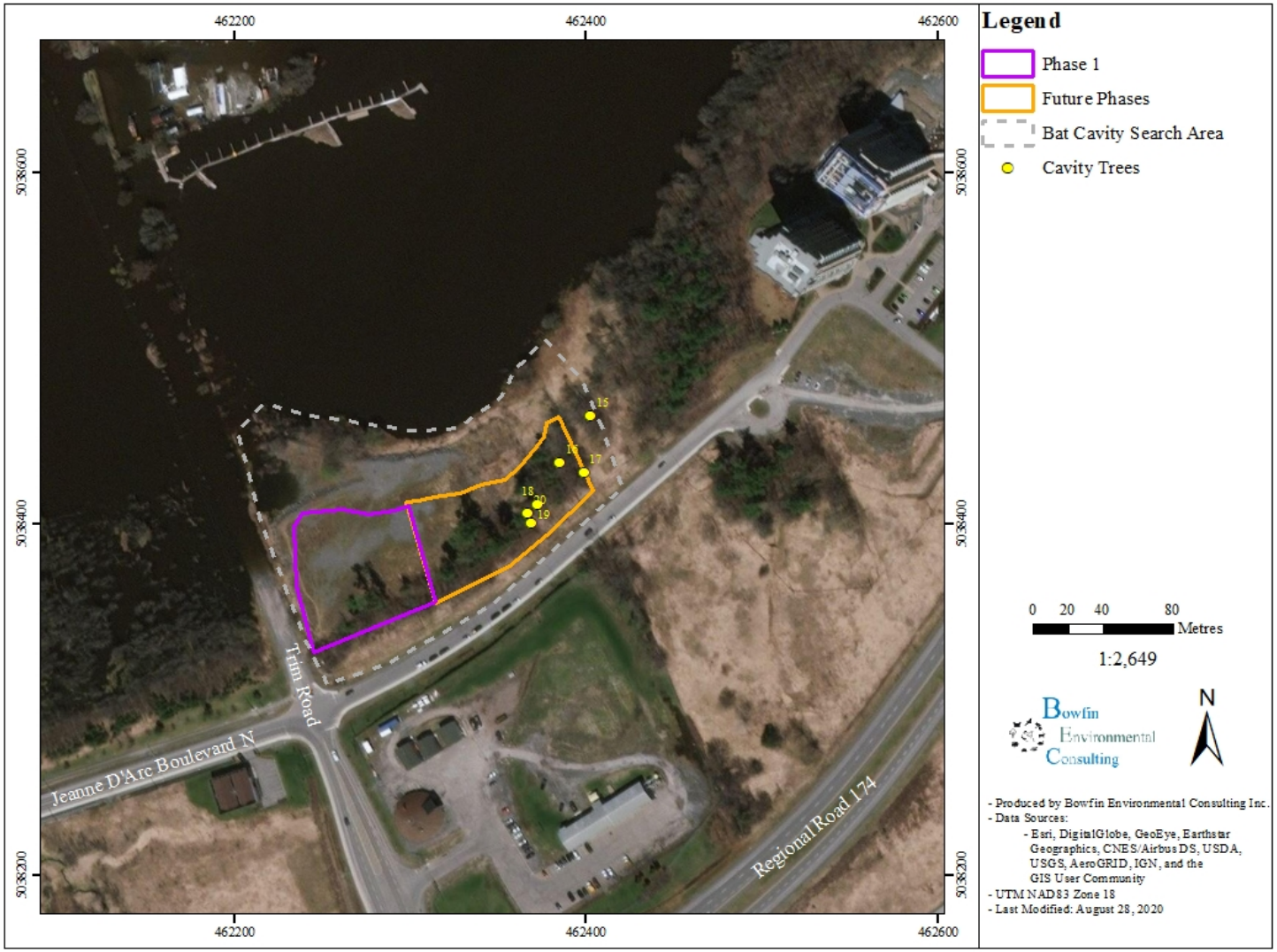
There were no species of conservation value (provincial SRank of S1-S3 or listed as special concern). All plants had a provincial Srank of S4, S5 or SNA signifying that the species recorded are apparently secure, uncommon but not rare (S4), secure, widespread and abundant in the nation or province (S5) or not applicable because the species is not a suitable target for conservation activities (i.e. non-native species) (SNA).

There were invasive species such as common reed, buckthorn, and purple loosestrife.

4.3 Bats

A search of appropriately sized trees and those with cavities was made. Five individuals were noted in the survey area, all were outside of Phase 1 lands (Figure 3). The tree species were white ash, eastern white cedar, red maple, white pine, and an unknown species (tree was dead). The dbh varied from 28-98 cm. Two evenings were spent looking for bats exiting this area. One bat was observed flying over the Ottawa River, but none exited these trees. No maternity sites were found.

Figure 8: Cavity Tree Results



4.4 Reptile Results

4.4.1 Turtles

Six basking surveys were completed on days with suitable weather conditions during the turtle basking survey period and twelve evening nesting surveys were undertaken. Road mortality surveys were undertaken on most visits.

Three painted turtles were observed during the basking survey on May 21, 2020 using the spotting scope. These were all situated in the PSW to the northeast of the Phase 1 lands (Figure 9).

One painted turtle was observed trying to nest and another six abandoned nesting attempts were noted in the fill north of Phase 1 and the future phases (Figure 9). However a review of the sites during the day found that the fill material below the depth where the turtles stopped trying to dig was more compacted indicating that the site was too difficult for the turtles to dig to a sufficient depth, this area is not suitable for nesting. No turtles were observed with the trail camera which was in place until July 13, 2020. A fall visit will be undertaken to look for successful hatching, to further confirm these results.

No Blanding's turtles were observed.

4.4.2 Snakes

Eleven surveys were undertaken on days and during conditions suitable for snake surveys. Despite the large amount of fill, few snakes were observed. The only species noted were eastern garter snakes. These were observed on two occasions and never more than 2 individuals during a visit. They tended to be noted on the edge of the fill of the future lands to be developed. Snake skin was also noted in this same area (Figure 9).

4.5 Bird Survey

The results from all the field visits found a total of 20 species were observed during the breeding bird survey period. Most were heard calling from the shoreline in or the wetland the adjacent lands. The observations were typically males calling (red-winged blackbirds, swamp sparrow, song sparrow, common yellowthroat, yellow warbler, black-capped chickadee, northern cardinal, American goldfinch, yellow rail, red-eyed vireo, and eastern wood-pewee), foraging individuals (great blue heron, tree swallow, barn swallow and spotted sandpiper), or perched birds (mourning doves). Female mallard with young were also observed during one visit. Pairs of

Canada goose and many paired red-winged blackbirds were noted. A sora was suspected as nesting within the cattail marsh. A confirmed killdeer nest was noted on the property.

The only endangered or threatened species was the barn swallow and these were foraging over the Ottawa River. No nesting habitat was present on or near the property.

Once species of conservation value was heard on the June 17 visit only. This was the eastern wood-pewee which was calling from the other side of the river. The *Endangered Species Act* (ESA) does not provide protection to SC species.

No concentrations of colonial nesters were noted during the surveys.

No raptor nests were present within the study area.

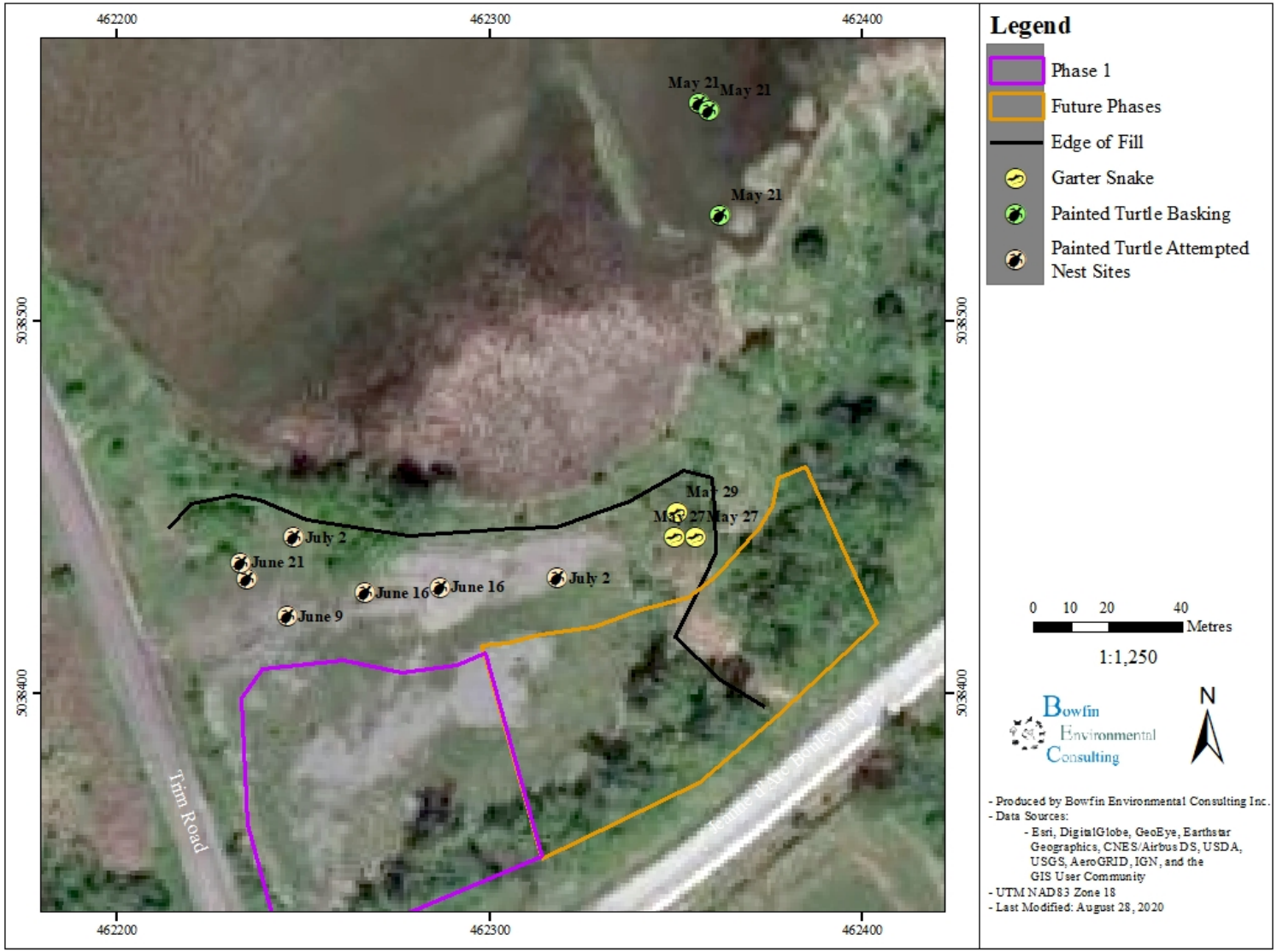
4.6 Amphibians Survey Results

Three amphibian breeding surveys were completed as per the MMP, on nights with appropriate weather conditions and covering each of the three survey periods. No frogs were heard or observed in the headwater feature in the adjacent lands. However a few species were observed/heard in the Ottawa River (northern leopard grog, spring peppers and tree frogs).

4.7 Incidental Wildlife Observation

In addition to the species noted during species-specific surveys, the following were observed while conducting other work outside of the protocol period: skunk, red squirrel, ground hog, coyote, nuthatch, green heron, wild turkey, and eastern cottontail.

Figure 9: Location of Turtle and Snake Observations (2020)



5.0 EIS – Analysis of Potential to Impact the Natural Features

The development of Phase 1 will require the removal of the vegetation in an area that is approximately 0.5 ha. This area consisted mostly of the cultural meadow over fill with some trees along Jeanne d'Arc Boulevard North. The stormwater management plan for the Phase 1 lands consists of discharge to the river after being processed through water quality management equipment.

The background review and field work identified the potential for PSW, unevaluated wetland, UNA, woodlands, and SAR. These are discussed in the sections below.

5.1 Impact Assessment Methods

The assessment of the potential impacts is completed by analyzing the impact of various activities associated with the development of Phase 1 which would include the following activities:

- Clearing of terrestrial vegetation
- Excavation, Grading and backfilling of upland habitat
- Construction of buildings and infrastructure

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.

5.2 Evaluation of Potential Impacts

5.2.1 Wetlands

Provincially Significant Wetland

The Petrie Island PSW is situated to the north of the Phase 1 lands (Figure 10). This portion of the PSW was found to be a robust emergent marsh (cattail).

- 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 in the area to be disturbed for Phase 1.
- The areas of higher significance are situated to the west of Trim Road and north of the North Service Road.
- The nearest wetland community is marsh communities which has a lower sensitivity to disturbances than other types of wetland communities.

Unevaluated Wetland

The unevaluated wetland within Phase 1 lands is not present. Instead these areas were found to be filled and to consist of cultural meadows. The delineation of any wetlands outside of Phase 1, to the east is being completed to confirm the potential for future phases. The Phase 1 lands are more than 30 m from these areas.

Avoidance Measures

While the shoreline is currently delineated as a PSW, it does is heavily disturbed and situated on fill with a mixture of upland species. Discussions with the team found that the area that needs to be disturbed for Phase 1 can be kept at least 30 m from the currently delineated PSW boundary. No changes are needed. The field investigations also identified the opportunity to rehabilitate this area. This opportunity is currently being investigated to confirm the potential for future phases.

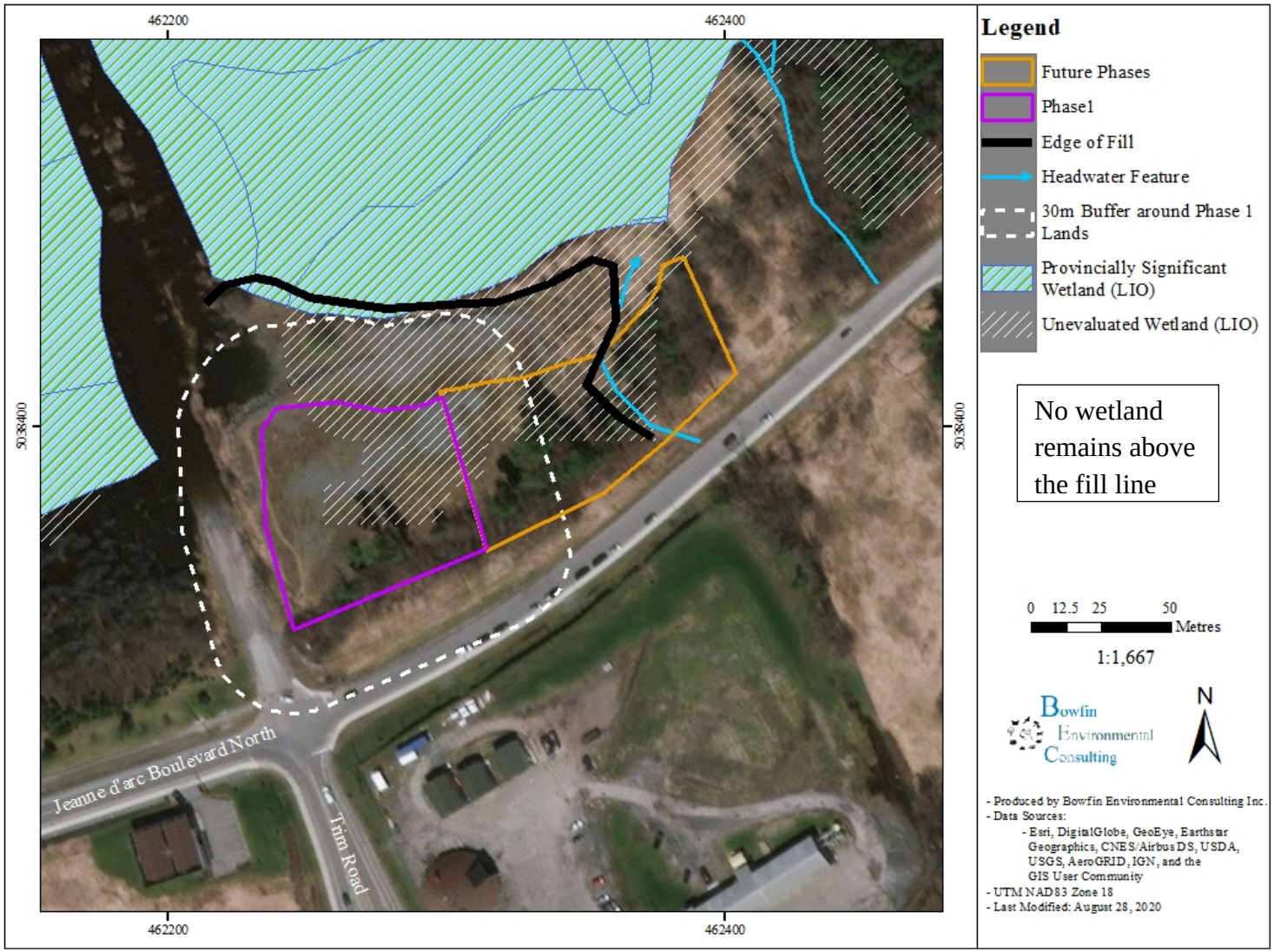
Potential Impacts and Mitigation Measures for wetlands (PSW and unevaluated):

- No direct impacts to any unevaluated wetlands will occur.
- There is a minimum buffer of approximately 30 m between the Phase 1 lands and all wetlands (PSW and remaining unevaluated wetlands).
- Grading should be timed to avoid periods of high runoff volumes (such as the spring and fall periods).
- 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 of the wetland.

  - The stormwater management facilities will outlet to the river, following treatment. They will be designed and constructed to not impact the water quality within the wetland. They will also be designed to prevent erosion.
  - Water quantity will not be impacted as the water levels are controlled by waterpower on the Ottawa River.
  - Appropriate measures will be implemented along the slopes 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 disturbance.
- 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 Regional Road 174 and the marina will likely generate more noise than that from this development.
- As mentioned above, the habitat adjacent to the wetlands is being considered for rehabilitation. Any plantings within that area would be with a seed mixture that contains native species that are locally appropriate or transplanting native vegetation. This will represent an improvement over the existing conditions.

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)

Figure 10: Provincially Significant Wetland and Unevaluated Wetland.



5.2.3 Urban Natural Feature/Significant Wildlife Habitat (Eastern Wood-pewee - Special Concern)

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. This feature also includes the habitat where the Eastern Wood-pewee was heard calling from.

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 – not near the site)
    - Deciduous Thicket Swamp (not near the site)
    - 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) (not near the site)
    - Mature upland Mixed Forest (Eastern Hemlock and Sugar Maple – small area of original Ottawa shore forest in Queenswood Forest) (not near the site)
    - 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
- Significant Wildlife Habitat

- Large population of map turtles and Blanding's turtles in wetlands and adjacent swamp forest, respectively (all Blanding's turtle occurrences are >1.5 km from the site).
- Provincially significant least bittern and black tern, at least former breeding species, in open marsh habitat (not near the site)
- Breeding habitat for Regionally significant raptor Cooper's hawk in Queenswood Forest (not near the site)
- The eastern wood-pewee (Special Concern) was heard on a single occasion during the breeding bird surveys in 2020. It was noted as being on the island. This area is far 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 the property, the Phase 1 lands should not be included in the UNA since they consist of fill with cultural meadows. They are highly disturbed area do not contribute to any of the criteria listed above. The meadow has a high percentage of non-native species and low coefficient of conservation value. The woody area along Jeanne d'Arc Boulevard North is not considered a significant woodland (too narrow) and also includes invasive species (glossy buckthorn).
- The development plans will protect the PSW and are reviewing opportunities to rehabilitate previously impacted areas as part of possible future phases.

Potential Impact and Mitigation Measures:

- While the current mapping includes Phase 1, these lands are not natural habitat and should be excluded from this UNA. Following the review of the future lands, additional changes to the UNA boundary may be recommended. These changes would need to include the rehabilitation works and as such cannot be determined at this time.

Design Changes:

- The proponent has reviewed various options for the two proposed towers that form part of Phase 1. While the final configuration has not been selected, they are confident that they can remain 30 m from the PSW.

Potential Impact and Mitigation Measures:

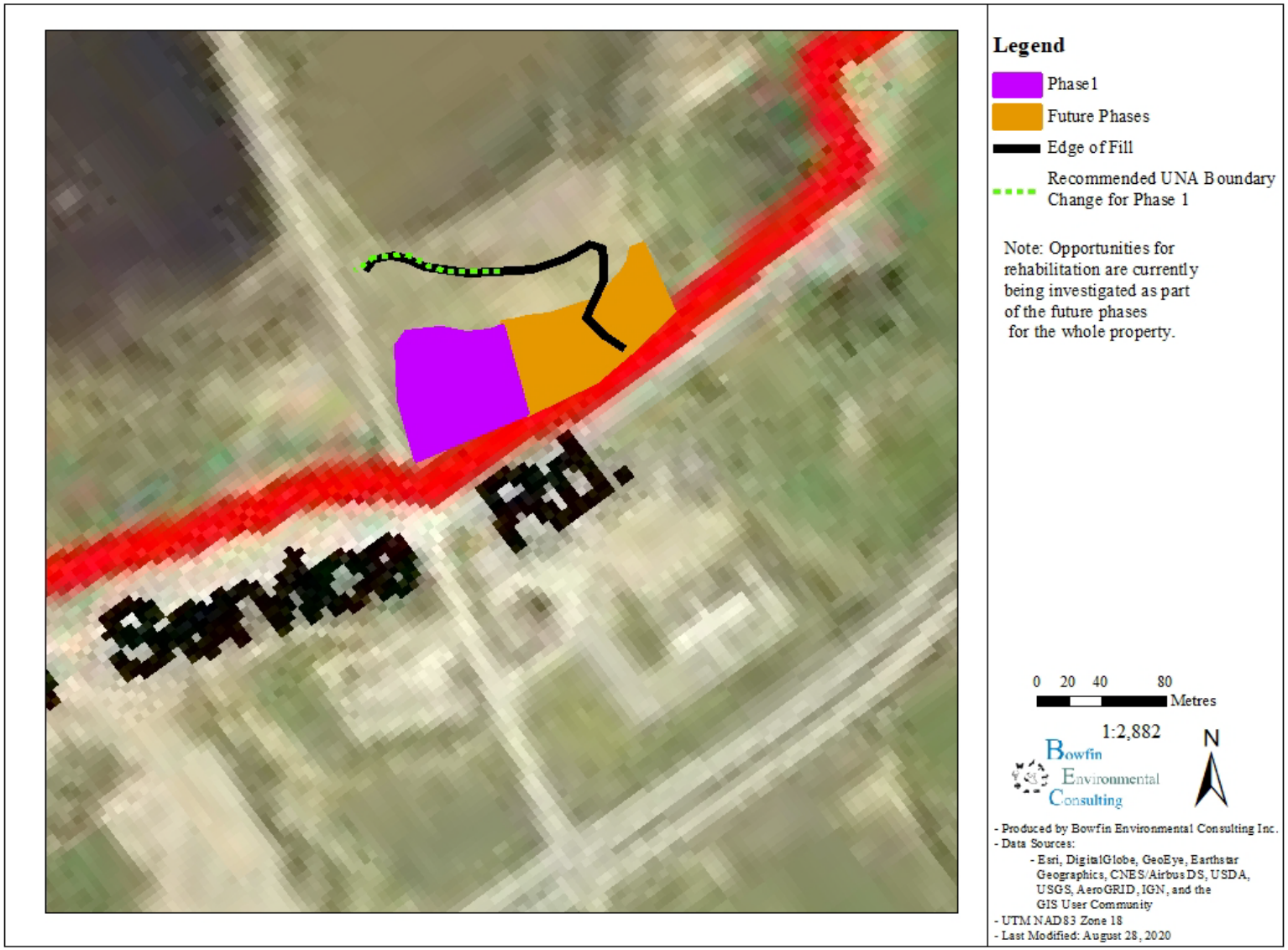
- Grading should be timed to avoid periods of high runoff volumes (such as the spring and fall periods).
- The 30 m setback protects the function of this area.
- There will be no removal of vegetation within the 30 m buffer for this phase.
- No signs, notices or posters should be attached to any trees;

- Any landscape plans should include only native species that are locally appropriate. Various species could be used including: red maple, white spruce, American basswood, white pine, sugar maple, hickory, 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.
- At this time, the extent of clearing of vegetation is unknown.
    - The removal of trees greater than 10 cm in diameter would require a permit from the City.
    - Any trees to be retained will be protected through the installation of study snow fencing outside of their critical root zone (10x their diameter at breast height) to minimize harm to the root systems of trees adjacent to the proposed works will be implemented to protect them from indirect harm. These include:
        - Sturdy fencing (i.e. snow fencing) will be installed on the edge of the area to be protected and the CRZ will be delineated with stakes. This sturdy fence will remain in place until final grading and seeding takes place.
        - Monitoring of the fencing listed above will be completed by the proponent or their consultants during construction.
        - Monitoring of the clearing of any vegetation within the CRZ will be monitored by the proponent or their consultants.
        - Only clear trees where it is needed.
        - No grading or activities that may cause soil compaction (such as heavy machinery and stockpiling of materials) will be allowed in the CRZ.
        - 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	Unlikely to occur (would occur as a result of an accident or malfunction)

Figure 11: Location of Study Area in Relation to the Urban Natural Area

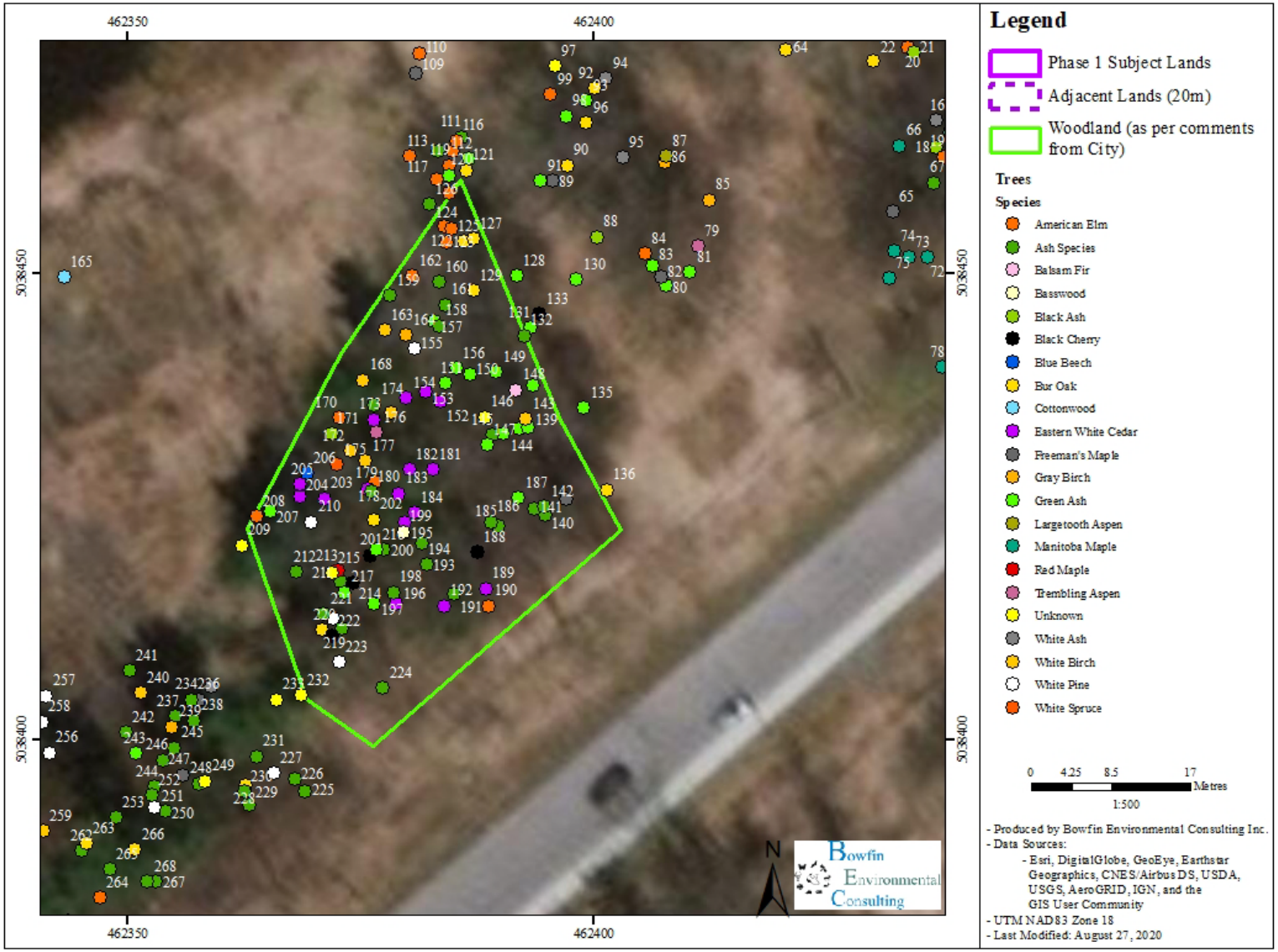
Figure 12: Recommended UNA Boundary Change around Phase 1 Lands



5.2.3 Woodlands

The *Draft Significant Woodland: Guidelines for Identification, Evaluation and Impact Assessment* (not dated) indicates that all forests that are a minimum of 0.8 ha and at least 60 years old in the urban area are to be considered significant. The City has identified the potential for significant woodland to be present over 65 m from the site, on the opposite bank of the headwater feature but has agreed that the trees along the edge of Jeanne d'Arc Boulevard and Phase 1 Lands are not. There is no potential for this first phase to impact the potentially significant woodland. Its significance will be evaluated during the further investigations to be undertaken related to possible future phases. Some of the preliminary findings (from the tree inventory) are provided on Figure 13 below.

Figure 13: Woodland



5.2.4 Endangered and Threatened Species

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, herein.

There is a potential of fifteen of Endangered or Threatened 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. The ESA is now under the jurisdiction of MECP. Bowfin is in contact with MECP.

Fish

The only fish habitat near the site is the backwaters of the Ottawa River. The fish habitat is at a minimum 30 m from the Phase 1 lands. The seasonally flooded robust emergent do not provide critical habitat for either species. No direct impacts will occur outside of the Phase 1 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 the 30 m buffer that has been put in place and the dense emergent community. Those which could occur will be mitigated through the use of common best management practices for erosion and sedimentation control during construction, compliance with a setback. 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, Phase 1 lands represent Category 3 habitat which do not offer a migratory corridor to other suitable habitats. The presence of Trim Road to the west, and

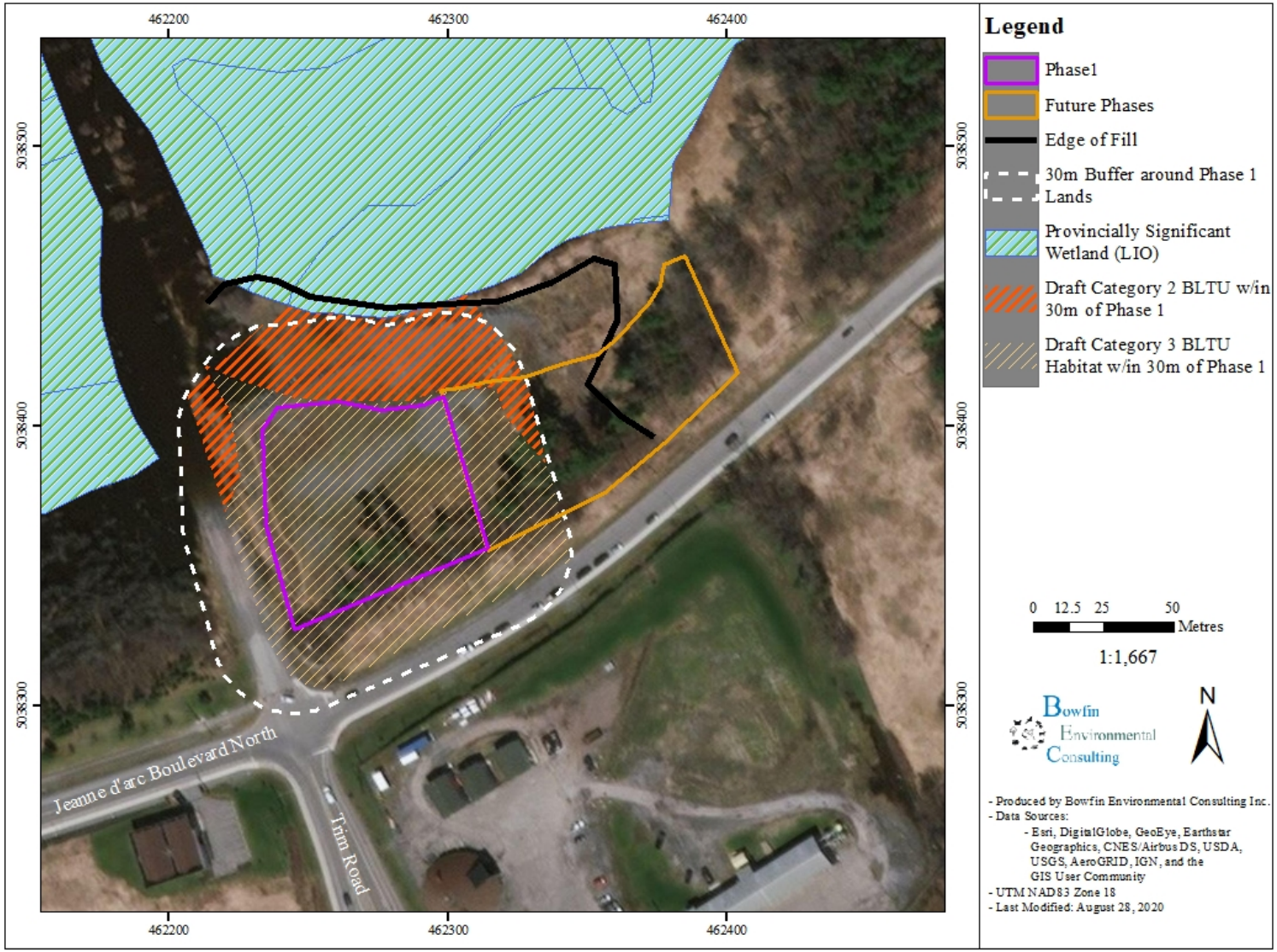
Jeanne d'Arc Boulevard North to the south poses a potential threat to this species and it is more desirable to prevent the species from accessing the roads. Further, it is understood that the new alignment of Trim Road will be situated near the upstream end of the headwater feature to the east of the site. This will bring in more traffic to the area.

Previously discussed there was no wetland habitat within Phase 1. As depicted on Figure 14, 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 falls under the Category 3 habitat, as does Regional Road 174. The Regional Road 174 and Trim Road create fragmentation of the natural habitats. Almost all of the area to be disturbed consisted of a fill with cultural meadow. During the multiple site visits, no turtles were observed in the area to be disturbed. Bowfin has been in discussion with MECP with respect to the potential for turtle nesting habitat and preliminary discussion indicate that this area will not be consisted nesting area. While the area to be disturbed and the roadways form part of the Category 3 habitat none provide suitable movement corridors. The more natural movement corridor for turtles to travel south of the Regional Road 174 would be along Cardinal creek to the east.

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 east.

Because there is a desire to rehabilitate the surrounding areas as part of the future development, the mapping of the Category 2 and 3 Blanding's Turtle habitats has been restricted to that found in or within 30 m of Phase 1 lands. Again, it is noted that the location of the Phase 1 lands was specifically chosen to be a minimum of 30 m from the current delineation of the PSW and any other possible Blanding's turtle habitat. Additional Category 2 and 3 habitats maybe present within the future phases, and these are currently being reviewed and discussed with agencies as part of that future application.

Figure 14: Category 2 and 3 Blanding's Turtle Habitat



Birds

Two breeding bird visits were undertaken. During these visits, the only Endangered or Threatened species identified was barn swallows (THR, provincially and federally). The barn swallows were observed flying overhead foraging.

Eastern Whip-poor-will

As per the MNRF guidelines, whip-poor-wills surveys are required when a minimum of 9 ha of forest is present. There is no forest habitat within 500 m that meets this minimum requirement. 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 area. 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 slopes of the fill. 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 grassland habitat are present within the site and no continuous grassland habitat within 300 m. These species and their habitats are considered absent.

Bats

The potential Endangered or Threatened 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 trees were reviewed and exit surveys completed, and no cavity trees were present within Phase 1 lands. The exit surveys conducted for the adjacent lands found no bat use.

Mitigation Measures:

- Educate contractors by informing them that most bats in Ontario are protected.
- When possible, remove trees after September 30th or before April 1st. If this is not possible, conduct exit survey prior to cutting them down. If a bat is observed leaving the tree, then stop clearing vegetation and wait until after the active season 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 #723 in 2020. 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. These sightings will be reported to MECP and NHIC.

- Should an individual be harmed or killed then work will stop and MECP will be contacted immediately.
- 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. This will meet MECP's recommendation that the fencing includes of all sides of 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 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.
- The design of the site will include a permanent barrier to turtle access. To be designed in consultation with MECP.

Birds

In order to ensure that no impacts to Endangered or Threatened 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 4 Summary of Potential Endangered and Threatened

Common Name	Scientific Name	Population	SRank	Provincial Status	Federal Status	SARA Schedule	Preferred Habitat	Reference
FISH								
Lake Sturgeon	*Acipenser fulvescens*	Great Lakes - Upper St. Lawrence populations	S2	THR	No Status	No Schedule	Bottoms of lakes and large rivers.	COSEWIC 2000
American Eel	*Anguilla rostrata*		S1?	END	No Status	No Schedule	Near cover over muddy, silty bottoms of lakes, rivers and creeks.	COSEWIC 2006
REPTILES								
Blanding's Turtle	*Emydoidea blandingii*	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	*Caprimulgus vociferus*		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	*Chaetura pelagica*		S4B, S4N	THR	THR	Schedule 1	Cities, towns, villages, rural, and wooded areas.	COSEWIC 2007
Bank Swallow	*Riparia riparia*		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	*Hirundo rustica*		S4B	THR	THR	Schedule 1	Open or semi-open lands: farms, field, marshes.	Peterson 1980
Bobolink	*Dolichonyx oryzivorus*		S4B	THR	THR	Schedule 1	Primarily in forage crops, and grassland habitat.	COSEWIC 2010
Eastern Meadowlark	*Sturnella magna*		S4B	THR	THR	Schedule 1	Fields, meadows and prairies.	Peterson 1980
Henslow's Sparrow	*Ammodramus henslowii*		SHB	END	END	Schedule 1	Weedy fields.	Environment Canada 2010
MAMMALS								
Little Brown Myotis	*Myotis lucifugus*		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	*Myotis septentrionalis*		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	*Myotis leibii*		S2S3	END	No Status	Not Applicable	Found within deciduous or coniferous forests in hilly areas.	Eder 2002
Tri-colored Bat	*Perimyotis subflavus*		S3?	END	END	Schedule 1	Prefers shrub habitat or open woodland near water.	Eder 2002
PLANTS								
Butternut	*Juglans cinerea*		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 2019

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.

5.2.5 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 PSW. And in an area where erosion and sediment 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).

Figure 15: Constraints

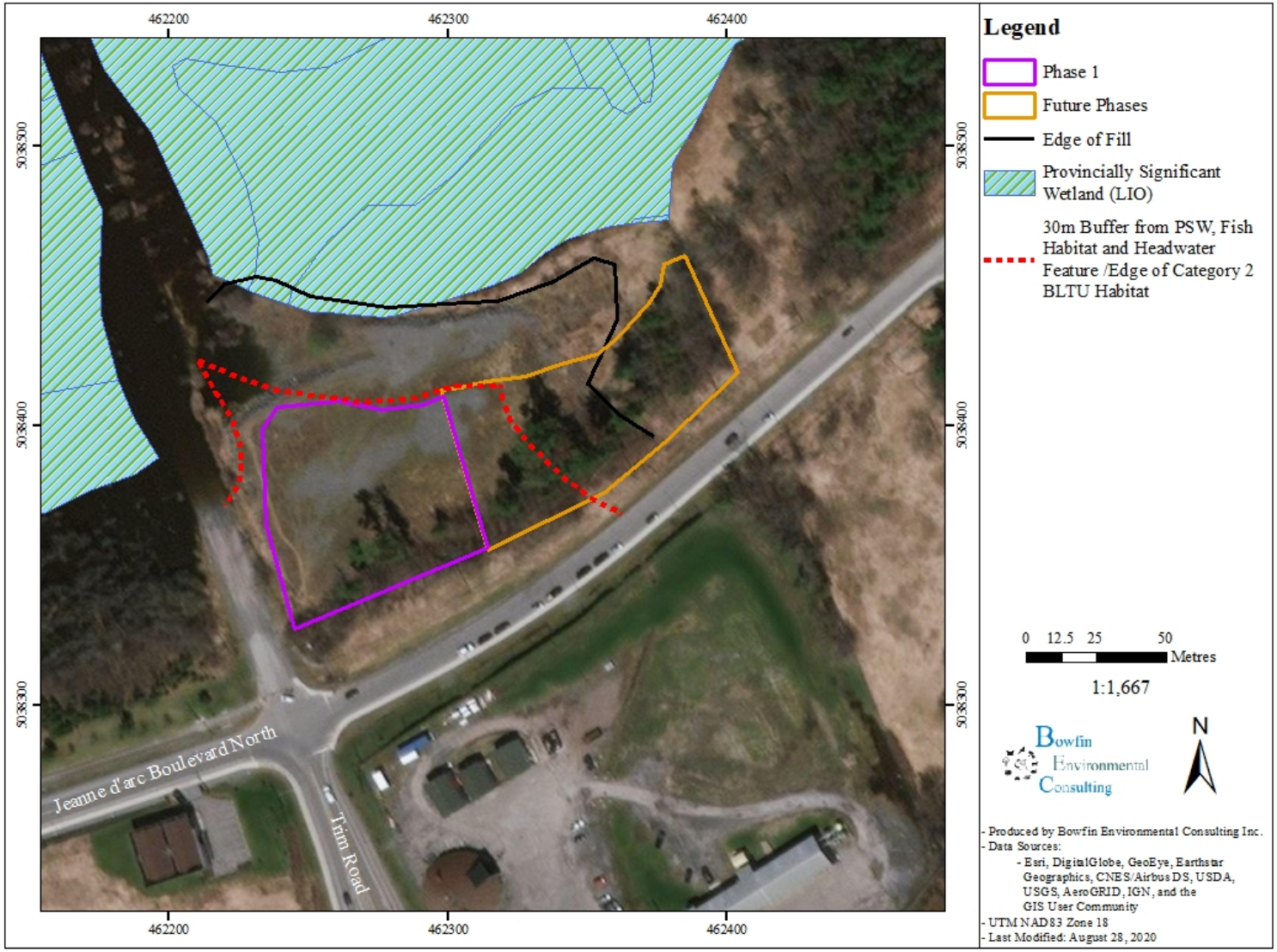


Table 5 Summary of Impacts, Mitigation Measures and Residual Effects

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
Construction				
Vegetation Clearing in preparation development	Category 3 Habitat for Blanding's Turtle Bird nests protected by MBCA Urban Natural Area	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). Removal of vegetation would destroy (temporarily or permanently) breeding habitat.	It is recommended that the UNA boundary not include the Phase 1 lands due to their disturbed nature. Any trees to be retained in the adjacent habitats will be protected with sturdy fencing erected outside of the CRZ. A permit from the City will be required prior to removing trees greater than 10 cm DBH. No signs, notices or posters should be attached to any trees; Any landscape plans should include native species as much as	None

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			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. All vegetation clearing should occur outside of breeding bird season and the day-roost period for bats (no clearing between April 1 and September 30). 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	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			precautions for bats between April 1 and September 30. Precaution for bats can include bat exit survey prior to cutting them down. The bat timing window applies to trees that are 10 cm or larger. Sediment fencing shall be installed on all sides of the work area. The work area is to be a minimum of 30 m from the PSW and the headwater drainage feature (three sides of the work area) to prevent turtles from entering the site. The proponent or its representatives will provide monitoring during the installation of the snow fence (to	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			protect trees to be retained), the staking/sediment fence of the CRZ and during clearing of vegetation between these two areas. Contractors will be encouraged to minimize clearing of vegetation in this area. Workers will be educated on the potential for SAR. 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. These sightings	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			will be reported to MECP and NHIC. Should an individual be harmed or killed then work will stop and MECP will be contacted immediately. 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).	
Construction of infrastructure, buildings and Grading	Indirect impacts to wetland, and UNA should erosion or	Negative impacts to: quality of wetland habitat or its functions	Install sediment erosion protection measures prior to the removal of	None provided that mitigation measures are

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
	sediment control measures fail.	(wildlife and fish habitat), could cause slope failure of the banks of the Ottawa River 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 in the UNA and/or wetland. Permanent structure could cause slope instability.	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 and west) of the project area. (Note refer to measures above for protection of wetlands and turtles). Maintain sediment fencing as needed. Daily inspections, especially following rain or storm events, of	properly implemented and maintained.

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			the sediment control measures will be required. Leave erosion control measures in place until slope is fully stabilized. Monitor erosion and sediment control measures to ensure that they are sufficient during and following rain events. No work outside of limit of development. No storage of stockpiles within 30m of top of slope of the Ottawa River. Work during the daytime hours to prevent light disturbances.	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			Ensure that all equipment have the appropriate mufflers to reduce noise disturbances. Any slope stability measures provided by geotechnical experts will be adhered to. Construction staff will be informed of the SAR in the area (Appendix C).	
Accidents or Malfunctions	Indirect impacts to wetland, 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 banks of the Ottawa River or impact the habitat of the UNA (wetland).	All equipment should be well maintained, clean and free of leaks. Maintenance of construction equipment should occur at a minimum of 30m from the PSW and headwater feature and where possible from the edge	Unlikely

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

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			Centre (1.800.268.6060).	

6.0 CONCLUSIONS AND RECOMMENDATIONS

The lands to be developed are bordered by Trim Road and Jeanne d'Arc Boulevard North. They consisted of fill with cultural meadows and are small (±0.5 ha).

The north side consists of a wetland which form part of the identified natural features (PSW, and UNA). The entire site is located with the UNA boundary, but as this area to be disturbed consists of fill, it is recommended that the UNA boundary be adjusted.

The PSW will not be directly impacted and Phase 1 has been altered to adhere to a 30 m setback from the current PSW boundary.

No Endangered or Threatened habitat or species were documented in the study area. But the Ottawa River is known to contain Blanding's turtles. As such, Phase 1 has also been altered to be outside of any possible Category 2 habitat for this species.

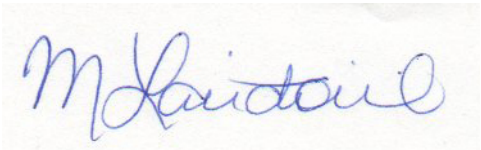
Details on the TCR are pending site plan stage. But no trees requiring retention were identified in or within 30 m of Phase 1.

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 Phase 1. 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: 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	*Podilymbus podiceps*	confirmed	S4B, S4N		
Great Blue Heron	*Ardea herodias*	confirmed	S4		
Green Heron	*Butorides virescens*	probable	S4B		
American Bittern	*Botaurus lentiginosus*	probable	S4B		
Canada Goose	*Branta canadensis*	confirmed	S5		
Lesser Scaup	*Aythya affinis*	probable	S4		
Mallard	*Anas platyrhynchos*	confirmed	S5		
American Black Duck	*Anas rubripes*	confirmed	S4		
Northern Pintail	*Anas acuta*	possible	S5		
Green-winged Teal	*Anas crecca*	probable	S4		
Blue-winged Teal	*Anas discors*	probable	S4		
Northern Shoveler	*Anas clypeata*	probable	S4		
Wood Duck	*Aix sponsa*	confirmed	S5		
Ring-necked Duck	*Aythya collaris*	possible	S5		
Common Merganser	*Mergus merganser*	probable	S5B, S5N		
Turkey Vulture	*Cathartes aura*	possible	S5B		
Sharp-shinned Hawk	*Accipiter striatus*	confirmed	S5		
Cooper's Hawk	*Accipiter cooperii*	confirmed	S4		
Red-tailed Hawk	*Buteo jamaicensis*	probable	S5		
Broad-winged Hawk	*Buteo platypterus*	possible	S5B		
Northern Harrier	*Circus cyaneus*	confirmed	S4B		
Osprey	*Pandion haliaetus*	confirmed	S5B		
Merlin	*Falco columbarius*	confirmed	S5B		
American Kestrel	*Falco sparverius*	probable	S4		
Ruffed Grouse	*Bonasa umbellus*	confirmed	S4		
Gray Partridge	*Perdix perdix*	possible	SNA		
Wild Turkey	*Meleagris gallopava*	probable	S5		
Virginia Rail	*Rallus limicola*	probable	S5B		
Sora	*Porzana carolina*	confirmed	S4B		
American Coot	*Fulica americana*	possible	S4B		
Killdeer	*Charadrius vociferus*	confirmed	S5B, S5N		
Upland Sandpiper	*Bartramia longicauda*	possible	S4B		
Spotted Sandpiper	*Actitis macularia*	confirmed	S5		
American Woodcock	*Scolopax minor*	probable	S4B		
Common Snipe	*Gallinago delicata*	probable	S5B		
Black Tern	*Chlidonias niger*	confirmed	S3B	SC	
Rock Pigeon	*Columba livia*	confirmed	SNA		
Mourning Dove	*Zenaida macroura*	confirmed	S5		

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

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

Common Name	Scientific Name	ABBO Category	SRank	Provincial Status	Federal Status
Vesper Sparrow	*Pooecetes gramineus*	possible	S4B		
Dark-eyed Junco	*Junco hyemalis*	possible	S5B		
Chipping Sparrow	*Spizella passerina*	confirmed	S5B		
Clay-colored Sparrow	*Spizella pallida*	probable	S4B		
Field Sparrow	*Spizella pusilla*	possible	S4B		
White-throated Sparrow	*Zonotrichia albicollis*	confirmed	S5B		
Swamp Sparrow	*Melospiza georgiana*	confirmed	S5B		
Song Sparrow	*Melospiza melodia*	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 B: 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
 http://birdweb.org/Birdweb	**Barn Swallow** • 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. THREATENED	• 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.

<table>
<tr>
<td> 

Photo: Royal Ontario Museum website
http://www.rom.on.ca/en/ontario/fieldguide</td>
<td> 
Photo: vt.audubon.org</td>
<td>Bobolink
• 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

THREATENED</td>
<td rowspan="2">• 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.</td>
</tr>
<tr>
<td colspan="2"> 

Photo: Royal Ontario Museum website
http://www.rom.on.ca/en/ontario/fieldguide</td>
<td>Eastern Meadowlark
• 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

THREATENED</td>
</tr>
</table>

Photograph	Description	Action to be Taken
 Photo: audubon.org	**Chimney Swift** • Described as a cigar shaped bird with long wings and a short tail. THREATENED	• 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
 Photo: Royal Ontario Museum website http://www.rom.on.ca/ontario/risk.php	**Blanding's Turtle** • Medium sized turtle (12.5-28 cm) • Bright yellow on chin and throat • Shall is dark light-coloured sports or lines THREATENED	• 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

Appendix C: Tree Conservation Report Details and Map 1

The tree inventory was undertaken on July 30, 2020 by Cody Fontaine. The weather conditions on July 30th consisted of clear skies with no wind changing to 30% cloud cover with light air. No trees that were 10 cm or larger were present within this disturbed area. The treed sections were along the southern, western and northern edges. A total of 206 individual trees were found to have a diameter of 10 cm or greater (Map 1). The most common species were: green and white ash and bur oak. Many of the ash trees were in poor condition or dead. Those assessed as poor contained no live crown, only live shoots at the base of the tree. Most of the other tree species were healthy.

The following were not present on the Phase 1 lands:

- Surface water features (i.e. wetlands or watercourses)
- Steep slopes (i.e. valleys or escarpments)
- Valued woodlots
- Greenspace linkages
- High quality, specimen trees
- Rare communities or unique ecological features
- Species at Risk or their habitat

Summary of individual trees and groupings is provided in the table and on Map 1 below. Map 2 as per the City's TCR requirements will be provided once the application reaches the site plan phase.

Table A: Summary of Trees and Groupings

Species	Count	Size Range (DBH cm)	Height Range (m)	No. Live	No. Unhealthy	No. Dead	No. to be Removed
American Elm	7	10-26	7-13	7	0	0	2
Ash Species	38	10-22	3-13	0	0	38	29
Balsam Fir	1	13	7	1	0	0	0
Basswood	1	23	11	1	0	0	1
Black Ash	1	11	6	0	1	0	1
Black Cherry	1	18	8	1	0	0	1
Black Willow	2	75-100+	8-9	2	0	0	0
Blue Beech	1	16	8	1	0	0	1
Bur Oak	38	10-47	5-13	38	0	0	33
Cottonwood	3	32-95	8-15	3	0	0	1
Eastern White Cedar	1	31	12	1	0	0	1

Species	Count	Size Range (DBH cm)	Height Range (m)	No. Live	No. Unhealthy	No. Dead	No. to be Removed
Freeman's Maple	7	12-32	7-10	7	0	0	1
Gray Birch	3	17-43	7-13	2	1	0	2
Green Ash	65	10-34	6-13	19	46	0	34
Ironwood	9	10-22	6-7	9	0	0	9
Manitoba Maple	3	26-28	5-9	2	1	0	0
Red Maple	4	16-32	6-11	4	0	0	1
Trembling Aspen	4	11-21	6-11	4	0	0	4
Unknown	3	17-49	6-8	0	0	3	2
White Ash	3	26-28	12-13	0	2	1	3
White Birch	4	13-31	4-10	3	0	1	2
White Pine	3	53-67	2-22	2	0	1	2
White Spruce	4	27-47	3-20	2	0	2	3
Total	**206**	**10-95**	**2-22**	**109**	**51**	**46**	**133**

Map 1: Location of Individual and Groupings of Trees near Phase 1

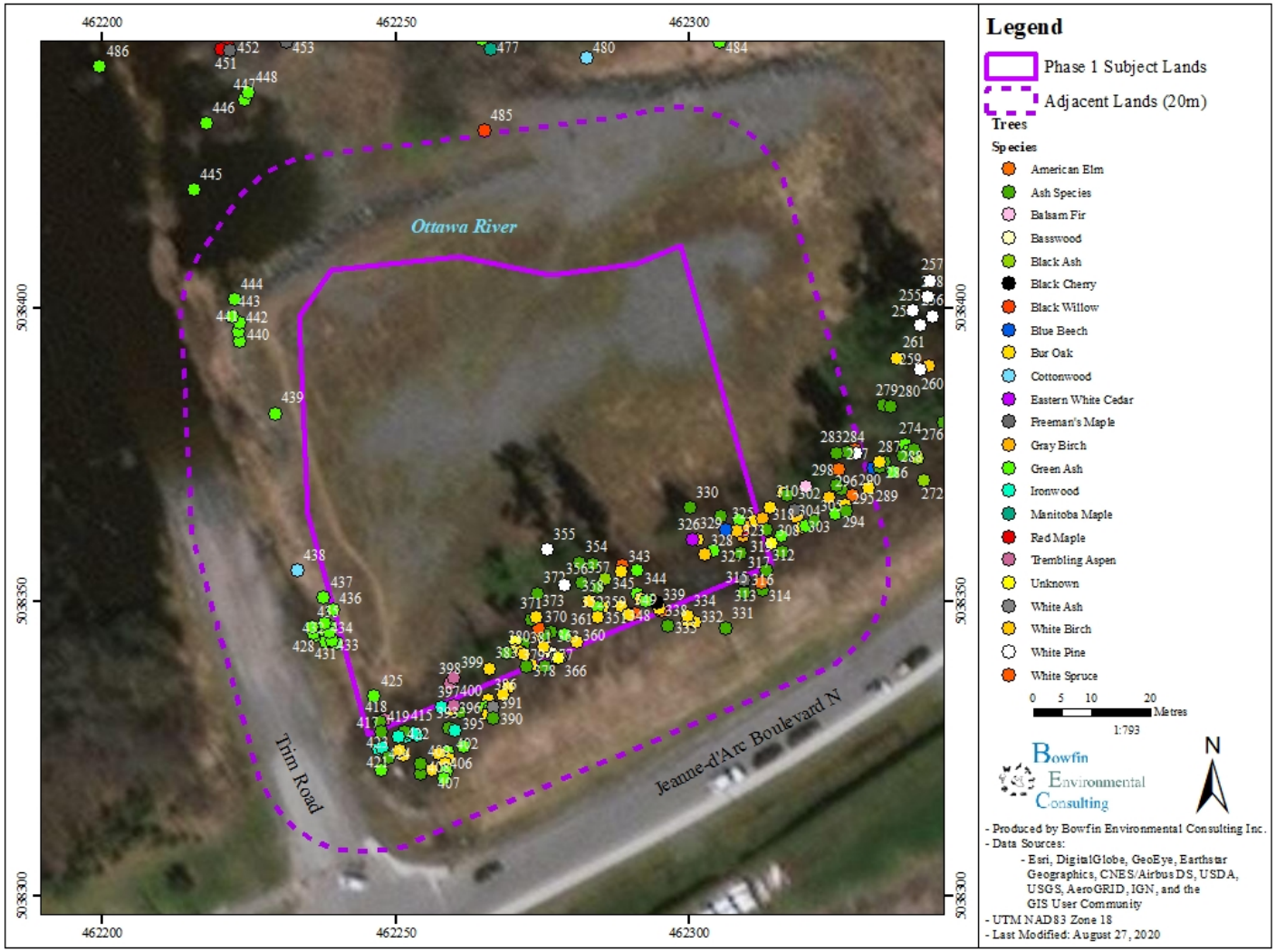


Table B: Tree Details

Tree ID	Species	DBH (cm)	Height (m)	Health	Comments	Ownership	To Be Removed
Individual Trees							
281	White Spruce	27	12	Good		9378-0633 Quebec Inc	To be determined during site plan phase
282	White Pine	67	2	Good		9378-0633 Quebec Inc	
283	Ash Species	20	12	Dead		9378-0633 Quebec Inc	
284	Ash Species	15	7	Dead	Tree leaning	9378-0633 Quebec Inc	
289	Bur Oak	16	11	Good		9378-0633 Quebec Inc	
290	American Elm	26	13	Good	Stems: 24,10	9378-0633 Quebec Inc	
291	Ash Species	17	11	Dead		9378-0633 Quebec Inc	
292	Ash Species	15	9	Dead		9378-0633 Quebec Inc	
293	Bur Oak	20	9	Good		9378-0633 Quebec Inc	
294	Green Ash	15	8	Poor		9378-0633 Quebec Inc	
295	Ash Species	14	9	Dead		9378-0633 Quebec Inc	
296	White Birch	13	7	Good		9378-0633 Quebec Inc	
297	American Elm	17	11	Good		9378-0633 Quebec Inc	
298	Balsam Fir	13	7	Good		9378-0633 Quebec Inc	
299	Bur Oak	17	8	Good		9378-0633 Quebec Inc	
300	Ash Species	11	8	Dead		9378-0633 Quebec Inc	
301	White Birch	13	7	Good		9378-0633 Quebec Inc	
302	Freeman's Maple	12	9	Good		9378-0633 Quebec Inc	
303	Bur Oak	21	12	Good		9378-0633 Quebec Inc	
304	Green Ash	20	9	Poor		9378-0633 Quebec Inc	
305	Ash Species	17	10	Dead		9378-0633 Quebec Inc	
306	Green Ash	13	7	Poor		9378-0633 Quebec Inc	
307	Ash Species	14	8	Dead		9378-0633 Quebec Inc	
308	Unknown	49	6	Dead	Stems: 39,29	9378-0633 Quebec Inc	To be determined during site plan phase
309	Bur Oak	11	7	Good	Some crown dieback	9378-0633 Quebec Inc	
310	Bur Oak	15	9	Good		9378-0633 Quebec Inc	

Tree ID	Species	DBH (cm)	Height (m)	Health	Comments	Ownership	To Be Removed
311	Gray Birch	33	13	Good	Stems: 27,13,14	9378-0633 Quebec Inc	
312	Ash Species	19	12	Dead		City of Ottawa	
313	Ash Species	18	12	Dead		City of Ottawa	
314	American Elm	10	7	Good		City of Ottawa	
315	Ash Species	17	10	Dead		City of Ottawa	
316	Freeman's Maple	16	10	Good		City of Ottawa	
317	Ash Species	22	13	Dead		9378-0633 Quebec Inc	
318	Ash Species	21	13	Dead		9378-0633 Quebec Inc	
319	Gray Birch	17	7	Poor	Branch dieback	9378-0633 Quebec Inc	
320	Red Maple	32	11	Good	3 stems	9378-0633 Quebec Inc	
321	Gray Birch	43	13	Good	2 stems	9378-0633 Quebec Inc	
322	Green Ash	10	8	Poor		9378-0633 Quebec Inc	
323	White Birch	31	10	Good	Some crown dieback	9378-0633 Quebec Inc	
324	Ash Species	12	8	Dead		9378-0633 Quebec Inc	
325	Blue Beech	16	8	Good		9378-0633 Quebec Inc	
326	Bur Oak	11	7	Good		9378-0633 Quebec Inc	
327	Green Ash	15	9	Poor		9378-0633 Quebec Inc	
328	White Birch	17	4	Dead	Tree broken at top	9378-0633 Quebec Inc	
329	Eastern White Cedar	31	12	Good		9378-0633 Quebec Inc	
330	Ash Species	11	8	Dead		9378-0633 Quebec Inc	
331	Ash Species	21	9	Dead		City of Ottawa	
332	Bur Oak	10	5	Good		City of Ottawa	
333	Bur Oak	14	8	Good		City of Ottawa	To be determined during site plan phase
334	Bur Oak	24	11	Good		City of Ottawa	
335	Ash Species	18	7	Dead		City of Ottawa	
336	American Elm	19	9	Good		9378-0633 Quebec Inc	
337	Green Ash	15	10	Poor		9378-0633 Quebec Inc	
338	Bur Oak	17	10	Good		9378-0633 Quebec Inc	
339	Black Cherry	18	8	Good		9378-0633 Quebec Inc	

Tree ID	Species	DBH (cm)	Height (m)	Health	Comments	Ownership	To Be Removed
340	Green Ash	15	10	Poor		9378-0633 Quebec Inc	
341	White Spruce	48	3	Dead	Tree broken	9378-0633 Quebec Inc	
342	Black Ash	11	6	Poor		9378-0633 Quebec Inc	
343	Bur Oak	10	8	Good		9378-0633 Quebec Inc	
344	Green Ash	20	12	Poor		9378-0633 Quebec Inc	
345	Bur Oak	19	12	Good		9378-0633 Quebec Inc	
346	Green Ash	18	12	Poor		9378-0633 Quebec Inc	
347	White Spruce	42	9	Dead		9378-0633 Quebec Inc	
348	Bur Oak	22	11	Good		9378-0633 Quebec Inc	
349	Bur Oak	23	10	Good		9378-0633 Quebec Inc	
350	Bur Oak	14	7	Good		9378-0633 Quebec Inc	
351	Green Ash	14	9	Poor		9378-0633 Quebec Inc	
352	Ash Species	11	7	Dead		9378-0633 Quebec Inc	
353	Ash Species	12	6	Dead		9378-0633 Quebec Inc	
354	Ash Species	12	9	Dead		9378-0633 Quebec Inc	
355	White Pine	56	22	Good		9378-0633 Quebec Inc	
356	White Pine	53	7	Dead		9378-0633 Quebec Inc	
357	Ash Species	11	9	Dead		9378-0633 Quebec Inc	
358	Bur Oak	12	9	Good		9378-0633 Quebec Inc	
359	Bur Oak	21	11	Good		9378-0633 Quebec Inc	
360	Bur Oak	20	11	Good		9378-0633 Quebec Inc	To be determined during site plan phase
361	Green Ash	25	13	Poor		9378-0633 Quebec Inc	
362	Ash Species	17	11	Dead		9378-0633 Quebec Inc	
363	Basswood	23	11	Good		9378-0633 Quebec Inc	
364	White Ash	26	12	Poor	Stems: 24,11	9378-0633 Quebec Inc	
365	White Ash	26	12	Dead		9378-0633 Quebec Inc	
366	Unknown	17	8	Dead		9378-0633 Quebec Inc	
367	Bur Oak	19	11	Good		9378-0633 Quebec Inc	
368	Bur Oak	16	7	Good		9378-0633 Quebec Inc	
369	Ash Species	15	8	Dead		9378-0633 Quebec Inc	

Tree ID	Species	DBH (cm)	Height (m)	Health	Comments	Ownership	To Be Removed
370	White Spruce	47	20	Good		9378-0633 Quebec Inc	
371	Ash Species	12	7	Dead		9378-0633 Quebec Inc	
372	Ash Species	11	7	Dead		9378-0633 Quebec Inc	
373	Bur Oak	10	6	Good		9378-0633 Quebec Inc	
374	Ash Species	11	6	Dead		9378-0633 Quebec Inc	
375	Unknown	22	7	Dead	Leaning on adjacent trees	9378-0633 Quebec Inc	
376	Bur Oak	11	6	Good		9378-0633 Quebec Inc	
377	Ash Species	18	8	Dead	2 stems	9378-0633 Quebec Inc	
378	Ash Species	18	3	Dead	Tree broken	9378-0633 Quebec Inc	
379	Bur Oak	11	6	Good		9378-0633 Quebec Inc	
380	Bur Oak	11	7	Good		9378-0633 Quebec Inc	
381	Bur Oak	10	7	Good		9378-0633 Quebec Inc	
382	Ash Species	10	8	Dead		9378-0633 Quebec Inc	
383	Bur Oak	36	13	Good		9378-0633 Quebec Inc	
384	Bur Oak	14	7	Good		9378-0633 Quebec Inc	
385	Bur Oak	25	10	Good	Stems: 18,17	City of Ottawa	
386	Bur Oak	47	13	Good		City of Ottawa	To be determined during site plan phase
387	Green Ash	16	11	Poor		City of Ottawa	
388	Green Ash	21	7	Poor		City of Ottawa	
389	Bur Oak	23	12	Good		City of Ottawa	
390	White Ash	28	13	Poor	Stems: 26,11	City of Ottawa	
391	Ash Species	12	8	Dead		City of Ottawa	
392	Ash Species	21	6	Dead	Tree broken	City of Ottawa	
393	Ash Species	11	7	Dead		City of Ottawa	
394	Green Ash	31	9	Poor	Stems: 19,10,13,14,11	City of Ottawa	
395	Ironwood	13	7	Good		City of Ottawa	
396	Bur Oak	16	7	Good		City of Ottawa	
397	Ironwood	22	7	Good	Stems: 15,8	9378-0633 Quebec Inc	
398	Trembling Aspen	13	7	Good		9378-0633 Quebec Inc	

Tree ID	Species	DBH (cm)	Height (m)	Health	Comments	Ownership	To Be Removed
399	Trembling Aspen	10	6	Good		9378-0633 Quebec Inc	
400	Trembling Aspen	11	6	Good		9378-0633 Quebec Inc	
401	Green Ash	23	12	Poor	Stems: 21,9	9378-0633 Quebec Inc	
402	Bur Oak	23	12	Good		9378-0633 Quebec Inc	
403	Bur Oak	21	7	Good		City of Ottawa	
404	Bur Oak	14	7	Good		City of Ottawa	
405	Green Ash	25	8	Poor	Stems: 18,17	City of Ottawa	
406	Green Ash	21	10	Poor		City of Ottawa	
407	Bur Oak	26	12	Good		City of Ottawa	
408	Ash Species	22	11	Dead		City of Ottawa	
409	Ash Species	10	7	Dead		City of Ottawa	
410	Bur Oak	31	10	Good		City of Ottawa	
411	Ironwood	10	6	Good		City of Ottawa	
412	Ironwood	11	6	Good		City of Ottawa	To be determined during site plan phase
413	Ironwood	12	7	Good		City of Ottawa	
414	Ironwood	10	6	Good		City of Ottawa	
415	Ash Species	12	8	Dead		City of Ottawa	
416	Ironwood	14	7	Good		City of Ottawa	
417	Trembling Aspen	21	11	Good		9378-0633 Quebec Inc	
418	Ash Species	11	9	Dead		9378-0633 Quebec Inc	
419	Ash Species	10	7	Dead		9378-0633 Quebec Inc	
420	Ironwood	15	6	Good		City of Ottawa	
421	Ironwood	12	6	Good		City of Ottawa	
422	Bur Oak	29	10	Good	Stems: 19,15,10,12	City of Ottawa	
423	Ash Species	11	6	Dead		City of Ottawa	
424	Green Ash	20	7	Poor		City of Ottawa	
425	Green Ash	15	7	Good		9378-0633 Quebec Inc	
426	Green Ash	11	7	Poor		9378-0633 Quebec Inc	
427	Green Ash	16	7	Poor		9378-0633 Quebec Inc	
428	Green Ash	17	7	Poor		9378-0633 Quebec Inc	

Tree ID	Species	DBH (cm)	Height (m)	Health	Comments	Ownership	To Be Removed
429	Green Ash	12	6	Poor		9378-0633 Quebec Inc	
430	Green Ash	16	7	Poor		9378-0633 Quebec Inc	
431	Green Ash	10	6	Poor		9378-0633 Quebec Inc	
432	Green Ash	15	7	Poor		9378-0633 Quebec Inc	
433	Green Ash	13	7	Poor		9378-0633 Quebec Inc	
434	Green Ash	12	6	Poor		9378-0633 Quebec Inc	
435	Green Ash	20	6	Poor	Stems: 10,13,11	9378-0633 Quebec Inc	
436	Green Ash	16	7	Poor	Stems: 12,10	9378-0633 Quebec Inc	
437	Green Ash	14	7	Poor		9378-0633 Quebec Inc	
438	Cottonwood	32	8	Good		9378-0633 Quebec Inc	
439	Green Ash	34	7	Poor	Stems: 20,17,18,11	9378-0633 Quebec Inc	To be determined during site plan phase
440	Green Ash	11	6	Good		9378-0633 Quebec Inc	
441	Green Ash	11	6	Good		9378-0633 Quebec Inc	
442	Green Ash	12	7	Good		9378-0633 Quebec Inc	
443	Green Ash	17	7	Good		9378-0633 Quebec Inc	
444	Green Ash	10	6	Good		9378-0633 Quebec Inc	
445	Green Ash	12	7	Poor		9378-0633 Quebec Inc	
446	Green Ash	22	6	Poor	Stems: 13,10,11,9	9378-0633 Quebec Inc	
447	Green Ash	23	6	Poor	Stems: 13,10,10,11,6	9378-0633 Quebec Inc	
448	Green Ash	24	7	Poor	Stems: 15,16,10	9378-0633 Quebec Inc	
449	Red Maple	16	6	Good		9378-0633 Quebec Inc	
450	Red Maple	20	7	Good		9378-0633 Quebec Inc	
451	Red Maple	18	7	Good		9378-0633 Quebec Inc	
452	Freeman's Maple	27	9	Good	Stems: 22,13,10	9378-0633 Quebec Inc	
453	Freeman's Maple	32	7	Good	Leaning	9378-0633 Quebec Inc	
454	Freeman's Maple	26	8	Good	Stems: 20,14,10,6,11,12	9378-0633 Quebec Inc	
455	Freeman's Maple	23	7	Good	Stems: 15,11,9,6,9	9378-0633 Quebec Inc	
456	Freeman's Maple	15	7	Good	Stems: 10,9,6	9378-0633 Quebec Inc	
457	Green Ash	26	7	Good	3 stems	9378-0633 Quebec Inc	

Tree ID	Species	DBH (cm)	Height (m)	Health	Comments	Ownership	To Be Removed
458	Green Ash	10	7	Good		9378-0633 Quebec Inc	
459	Green Ash	29	8	Poor	3 stems	9378-0633 Quebec Inc	
460	Green Ash	22	8	Poor		9378-0633 Quebec Inc	
461	Green Ash	12	7	Poor		9378-0633 Quebec Inc	
462	Green Ash	17	7	Poor		9378-0633 Quebec Inc	
463	Green Ash	14	7	Poor		9378-0633 Quebec Inc	
464	Cottonwood	65	15	Good	3 stems	9378-0633 Quebec Inc	To be determined during site plan phase
465	Green Ash	12	8	Poor		9378-0633 Quebec Inc	
466	Green Ash	33	8	Good	3 stems	9378-0633 Quebec Inc	
467	Green Ash	24	8	Good		9378-0633 Quebec Inc	
468	Green Ash	10	10	Good		9378-0633 Quebec Inc	
469	Green Ash	10	10	Good		9378-0633 Quebec Inc	
470	Green Ash	11	10	Good		9378-0633 Quebec Inc	
471	Green Ash	12	10	Good		9378-0633 Quebec Inc	
472	Manitoba Maple	26	7	Good		9378-0633 Quebec Inc	
473	Green Ash	16	9	Poor		9378-0633 Quebec Inc	
474	Green Ash	16	10	Poor		9378-0633 Quebec Inc	
475	Green Ash	17	10	Poor		9378-0633 Quebec Inc	
476	Green Ash	21	11	Poor		9378-0633 Quebec Inc	
477	Manitoba Maple	28	9	Good		9378-0633 Quebec Inc	
478	Green Ash	17	10	Good		9378-0633 Quebec Inc	
479	Green Ash	17	10	Good		9378-0633 Quebec Inc	
480	Cottonwood	95	10	Good	2 stems	9378-0633 Quebec Inc	
481	Green Ash	13	8	Good		9378-0633 Quebec Inc	
482	Black Willow	75	8	Good		9378-0633 Quebec Inc	
483	Manitoba Maple	26	5	Poor	Running parallel to ground	9378-0633 Quebec Inc	
484	Green Ash	11	7	Good		9378-0633 Quebec Inc	
485	Black Willow	100+	9	Good	Approximately 20 stems	9378-0633 Quebec Inc	
486	Green Ash	14	6	Poor		9378-0633 Quebec Inc	

Tree ID	Species	DBH (cm)	Height (m)	Health	Comments	Ownership	To Be Removed
487	Green Ash	14	7	Good		9378-0633 Quebec Inc	
488	American Elm	25	9	Good		9378-0633 Quebec Inc	
489	American Elm	15	8	Good		9378-0633 Quebec Inc	To be determined during site plan phase
490	American Elm	17	8	Good		9378-0633 Quebec Inc	