Environmental Impact Study

1009 Tweddle Road

Prepared for:

Trim Road I LP 7 de Tellier Gatineau, Québec J8T 8C2

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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

Trim Road I LP, here after referred to as the proponent, is proposing to develop the 1009 Tweddle Road property, situated on the northeast corner of the Tweddle¹ Road and Jeanne d'Arc Boulevard North intersection (Figure 1 and Figure 2). Prior to the development, the proponent is seeking a Zoning By-law Amendment. The amendment looks to redesignate the property from Development Reserve to an appropriate zoning for the four towers of mixed commercial/residential use being proposed. The proponent had also submitted an Official Plan Amendment application that has been subsumed by the City through its new Official Plan process. The new Official Plan approved by Council and that is now awaiting ministerial approval has redesignated the area of the site proposed for development from an Urban Employment Area to an evolving neighborhood that is within a Protected Major Transit Station Area (PMTSA). The development proposed for the site is in accord with the overarching directions of the new Official Plan for development of the site, including meeting the density targets set out in the new OP. The proposed development is also in alignment with directions being determined for development around the Trim LRT station through the Orleans Corridor secondary planning study that has identified the site as appropriate for high density high profile mixed use development in buildings up to 40 stories in height.

An initial Environmental Impact Statement was completed by WSP for Grandmaître (previous landowners) in February 2017 and was submitted for this proposal during the pre-consultation. The comments from the City were than an updated Environmental Impact Study (EIS) was required. The proponent retained Bowfin Environmental Consulting (Bowfin) to complete the natural heritage assessment work. Note that Bowfin has recently merged its professional services with CIMA+.

Comments from the City following the initial submission, indicated that the EIS is to address the potential impacts associated with the occupancy. The following context is highlighted:

- The policy directions set out in the new Official Plan approved by Council supports high density high profile mixed use development for the site with a minimum density requirement of 250 units per net hectare. The proposed density for the development at 285 units per net hectare is slightly above this minimum requirement.
- The proponent is proposing a pedestrian focused development consistent with the directions of the new OP and the directions being developed for the area around the Trim LRT station including a high focus on creating a quality pedestrian focused public realm with surface parking being limited. The proposed development will provide for a

¹ Note that the road name has recently changed from Trim to Tweddle

dynamic public realm area for the site and will provide for on-site parking being located within a below grade parking garage.

- The proponent will be required to submit a record of site condition through the site plan approval process that will require remediation of the existing salt contamination of the site. The WSP report indicates that the ground water contamination is likely the result of the City's salt storage facility on the south side of the road or the City's practice of salting operations of Trim Road / Inlet Private (WSP, 2016).
- The Roadway Traffic Noise Feasibility Assessment (2021) noted that the higher existing noise is on the south side, due to Highway 174. The construction of the new buildings will themselves result in attenuation of some noise transference to the wetland habitat to the north.
- Lighting will be required to focus on the site itself, as is typical for development in Ottawa. This would be addressed through the site plan review and approval process

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). The 1.7 ha portion will not be disturbed by the proposed development. The bulk of the remaining property consists of disturbed areas (fill) though there is a wooded area along the east portion of the site and trees along the roads (Figure 2).

It is noted that the work completed for this project began under the 2003 Official Plan as amended (OP). That is still the OP that is in effect, however as noted, Council in November 2021 approved a new OP to replace the 2003 OP. The new OP is only awaiting the province's approval. As such, this EIS has been updated to the November 2021 version and supporting mapping from the 2003 OP is found in the appendices.

As per the 2021 OP, an EIS is required to determine if significant natural features have been designated in or adjacent to the site followed by an assessment of the potential impacts to any identified natural environment from the proposed development. For the City, the natural heritage features (NHF) are listed in Subsection 4.8.1 Policy 3. These are summarized in Table 1 below. The City provides more significance to those features that are inside of a Natural Heritage System (NHS) than those that are outside of its boundaries. The NHS includes both Core Natural Areas (CNA) and Natural Linkage Areas (NLAs). All of these are now found on Schedule C11. Though it is noted that, as per 5.6.4.1 Policy 2, the edge of the boundary would need to be field verified on-site, as the OP only displays the boundary to a reasonable level of detail. Where identified, the boundaries of any significant features are noted and the potential for the development of the site to cause negative impacts is assessed. For those features which may be negatively impacted, mitigation measures and where appropriate compensation measures are recommended. The various features are evaluated, when needed, following the appropriate reference document for this jurisdiction (Table 1).

This EIS portion follows the *City of Ottawa Environmental Impact Statement Guidelines* (City of Ottawa, 2015). The Tree Conservation Report is provided as a stand-alone document (Bowfin 2022).

The field work for EIS was led by Michelle Lavictoire who has a Master of Science in Natural Resource Sciences and over 25 years of experience in completing natural environment assessments.

Natural Heritage Feature	References for City of Ottawa
Significant wetlands	Province's Mapping (boundary may need to be fine-
	tuned in field using the province's Ontario Wetland
	Evaluation System, Southern Manual 3.3 (2014)
Significant habitat of Endangered and	Site specific basis as per province's guidelines
Threatened Species (SAR)	Site-specific basis as per province's guidennes
Significant woodlands	OP Schedule C11; Evaluated using Significant
	Woodlands: Guidelines for Identification,
	Evaluation, and Impact Assessment (no date)
Significant Valleyland	OP Schedule C11
Significant Wildlife Habitat	Site-specific basis; Evaluated using the province's
	Significant Wildlife Habitat Criteria Schedules for
	<i>Ecoregion 6E</i> (January 2015)
Areas of Natural and Scientific	OB Schodulo C11; Province's manning
Interest	or schedule C11, riovince's mapping
Urban Natural Features	OP Schedule C11
Natural Environment Areas	OP Schedule C11
Natural Linkage Features and	OB Schodulo C11
Corridors	Or Schedule CTT
Groundwater Features	OP Schedule C11
Surface Water features / Fish Habitat	OP Schedule C11; Requires site investigations; can
	trigger Fisheries Act (Fisheries and Oceans Canada)
Landform Features	OP Schedule C11

Table 1: Summary of Natural Heritage Features Protected in the City of Ottawa

Figure 1: Location of Property



Figure 2: Location of Property



Bowfin Environmental Consulting/CIMA+ June 20, 2022

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 (Figure 2). Note that the Conceptual Development Footprint location was adjusted following studies completed in 2020 to purposedly avoid natural heritage features to the extent feasible. 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

Where the OP indicated that the features to be considered were those identified on their schedules, these took precedent. Other information collected from outside sources was used to help inform the functions of these features and to identify those not found on the schedules (i.e., Endangered and Threatened species habitat). Outside sources included: Natural Heritage Information Centre (NHIC) database, iNaturalist, Atlas of Breeding Birds of Ontario (ABBO), Make-a-Map Land Information Ontario (LIO), Fisheries and Oceans Canada (DFO) Aquatic Species at Risk mapping, and LIO databases. Information from personal knowledge has also been included as appropriate. The desktop review included a larger area (~5 km).

2.2 Field Studies

2.2.1 Habitat Descriptions and Flora Observations

Habitat mapping was completed through the use of satellite imaging and verified 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 2014). 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 value² 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

This Butternut inventory was completed under the Butternut Health Assessment guidelines by a certified Butternut Health Assessor (BHA) (#723) on June 24, 2020. The 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 to the BHA protocol. No butternuts were found. I

t is acknowledged that the shelf-life for butternut assessments is 2-years and that the Ministry of Environment, Conservation and Parks (MECP) has recently updated the protocol. It is the intent that a new survey would be completed prior to removal of the trees, to meet new guidelines.

2.2.3 Bats (Species at Risk and Significant Wildlife Habitat)

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)

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.

 \geq 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:

- 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 cavity 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. The provinces *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 the province. 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 Tweddle 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 Tweddle 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
 - \circ $\;$ While walking between points, any additional observations were recorded.
- Birds were identified by sound and/or sight.

Survey points are depicted on Figure 3

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:

- o 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: Survey Locations



3.0 Background Information

3.1 Location

The study area is situated at 1009 Tweddle Road, in part of Lot 30, Concession 1 in the Cumberland Ward of the City of Ottawa. It is bordered by Tweddle 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 known natural features identified within the Conceptual Development Footprint, or within 120 m of these, are a PSW, an ANSI, and fish habitat. The PSW and ANSI are one and the same and consist of the Petrie Island Provincially Significant Wetland. It is identified on Schedule C of the OP, and the formal LIO database layer.

Previous OP also considered Urban Natural Areas (UNAs). The UNA Petrie Island and Mainland Urban Natural Area was identified as forming part of the site. The UNA was a large area that includes the entire property. The November 2021 OP indicates that UNAs are primarily lands owned and managed publicly (City or Conservation Authorities). The new OP Schedule C-11 shows this UNA to include a portion of the property but to be outside of the conceptual development footprint.

The property is situated within the Urban Area and City staff meet on site with Bowfin and indicated that a portion of the woodland to the east of the property was to be considered an Urban Woodland but that the trees along Jeanne d'Arc Boulevard N were not.

Natural Heritage Feature	Present within Conceptual Developmen Footprint	Present within 120 m of t Conceptual Development Footprint	Additional Notes
Provincially Significant Wetlands (PSW)	No (on the property but outside of the conceptual development footprint)	Schedule C11 identify the Petrie Island Wetland 30 m of the site	None
Habitats or species	Potential for endangered	or threatened species	Blanding's
designated by ESA	needs to be determined for	ollowing assessment of	Turtle sightings

Table 2: Summary of Available Background Information on the Identified Natural Features

Natural Heritage Feature	Present within Conceptual Developmer Footprint	Present within 120 m of 1t Conceptual Development Footprint	Additional Notes
(Provincial)	the suitable habitats in section 5 of this report t	or near the site. See for more information.	within 1.5 km
Significant Woodlands	Potential based on curso images and discussion	ory review of satellite	None
Significant Valleyland	None identif	ied on OP.	None
Significant Wildlife Habitat (SWH)	No known; to be det investig	ermine during site ations	None
Areas of Natural and Scientific Interest (ANSIs)	LIO identifies the Petrie Island Wetland (Candidate Life Science) on property but outside of the conceptual development footprint	Yes	None
Urban Natural Features	None (Sche	Schedule B2 identifies Urban Natural Features on site (Appendix D)	
Natural Environment None Areas		Core Area shown surrounding Site on C11	Schedule L1 identifies Natural Heritage Features on Site (Appendix F)
Natural Linkage Features and corridors	Ottawa River Ottawa River		None
Groundwater Features		None	
Surface Water Features/ Fish Habitat	None The Ottawa River is within 20 m of the site		
Landform Features		None	

Figure 4: Official Plan Schedule C11-C





Figure 5: Background Information on Known Natural Heritage Features from LIO

3.3 Soil Conditions

The site is tiered, flat (fill) with an abrupt drop to the Ottawa River and to the east. The lands to the east, where the Urban Woodland were, was fill with garbage poking out of the earth.

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 conceptual development footprint).

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 3. The soils map of the area shows the site 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 3: Summary of Soil and Geology Information Available from the Characterization of Ottawa's Watershed Maps

Мар	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 4. The vegetation communities are described in the section below, followed by the results from the species-specific surveys.

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 -Amphibian Survey
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)	-Breeding Bird Survey -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 -Amphibian Survey
May 30, 2020	1915-2000	S. Lafrance	11.0 (6.2-20.1)	Overcast, gentle (3) to moderate breeze (4)	- Turtle Nesting -Amphibian Survey

Table 4: 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
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 Exit (visual)
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 Exit (visual)
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 Exit (visual)
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
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,	1515-1645	C. Fontaine	22.0	Overcast, moderate breeze (4)	- Butternut Survey -Snake survey
2020	1845-1930	-	(13.2-21.7)	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

Date	Time (h)	Staff	Air Temperature (Min-Max) °C	Cloud Cover (5) Beaufort Wind Scale [Descriptor (scale)]	Purpose
					-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
September 21, 2020	1230- 1300	S. Sinon	16.0 (0.1-17.8)	Partially Cloudy Wind: light air (1)	-Turtle Nest Hatching Survey
February 25, 2022	1130	M. Lavictoire	-13.0	Overcast; Snowing	-Visit of the Phase 1 Rehabilitation Works.

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

S. Sinon - Sarah Sinon - B. Sc. Environmental Science (double minor Biology and Physical Geography)

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 <u>http://climate.weatheroffice.gc.ca/</u> [March 11, 2022]

4.2. Vegetation Description and Butternut Survey Results

The only natural habitats were in the eastern side of the site and in the adjacent lands. All treed communities were smaller than the minimum of 0.5 ha and, as per the ELC protocol, were inclusions. None contained any special features. The ELC methods calls for the descriptions to be made away from edge habitat (defined as the first 8-10 m of a community). With these highly disturbed and narrow (roughly 25 m wide) habitats, there was no undisturbed habitat, that avoided edges. As such, the vegetation was described to the ELC community class or series.

Note that preliminary investigations on this property were completed in 2020 and information was provided to MECP, the City and RVCA. This information was used to form the decision of what should be the conceptual development footprint, and which habitats should be rehabilitated. Phase 1 of the Rehabilitation works began in February 2022 with the removal of fill from the shoreline and placement of rip rap below the outlet from Jeanne D'Arc Boulevard N.

Figure 6: Vegetation Mapping



Cultural Meadow

The property consisted of a Cultural Meadow with inclusions along Tweddle and Inlet Private of windrows, and bare fill, cultural thickets and mixed forest inclusions. As noted above, the only community type that was 0.5 ha or larger was the cultural meadow.

The larger community covered almost all of the site and was a cultural meadow dominated by broadleaf species over fill (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 (<5%). A tiny patch of regenerating woody vegetation was present on the northeast corner of the rock fill. The upper layer was 1-6 m tall (50% cover) and included eastern cottonwood, staghorn sumac, Manitoba maple and green ash. The ground layer (90% cover) contained reed canary grass, Canada goldenrod, cow vetch, wild carrot, bird's-foot trefoil, common ragweed, and grasses.

The road shoulder of Tweddle Road has been disturbed by fill activities. This part of the cultural meadow included mixed grasses and broadleaf species. The species composition was over 50% upland species represented (bird's foot trefoil, wild carrot, and cow vetch) with reed canary grass (Photo 3).

East of the rock fill line the cultural meadow changed to one that was a monoculture of reed canary grass. This species was present on the very steep slope and the plateau (Photo 4 and Photo 5), or up the steep slope along an access road (Photo 6). This community also continued up the two access road trails that lead all the way up to Inlet Private. This suggests that these areas were historically filled. No surface water or iron staining noted in this community. Note that the portion of the reed canary grass that was at a lower elevation was included in the Marsh community (described further below).

The treed windrow running along the south side of the property included bur oak, trembling aspen, white ash, white birch, American elm and white pine. And between this windrow and the Inlet Private was another cultural meadow. 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 1: Looking across towards Cultural Meadow over rock fill (July 28, 2020)



Photo 2: Patch of deciduous trees on NE corner of rock fill (July 28, 2020)



Photo 3: Cultural Meadow along road shoulder of Tweddle Road (July 28, 2020)



Photo 4: Cultural Meadow on steep slope (reed canary grass dominated) (April 29, 2020)



Photo 5: Cultural Meadow (Reed canary grass dominated) with portion of Windrow along Inlet Private in background (April 29, 2020)



Photo 6: Looking up the old access roads with the cultural meadow (reed canary grass dominated) continuing up to Inlet Private. Deciduous Forest in background (Urban Woodland) (April 29, 2020)



Photo 7: Looking at the window along the edge of Inlet Private (July 28, 2020)



Photo 8: Cultural Meadow along Jeanne d'Arc Boulevard (July 28, 2020)

Rehabilitated Wetland

A portion of the shoreline fill was removed to the same elevation as the adjacent PSW. This area is anticipated to quickly become re-established with marsh habitat.



Photo 9: Wetland habitat being created (February 25, 2022)

Deciduous Forest

This community was found on a slope that varied from very steep to steep and was heavily disturbed. It included patches of cultural thicket (sumac cultural thicket) and one mixed forest (maple and white pine). Again, these patches were less than 0.5 ha. The community was narrow and did not have any interior habitat. In addition to the access roads that cause the community to have more impacts from invasive species and edge effect, it is clearly the site of fill. This fill included garbage, including buried garbage, buried culverts, and concrete. This represents the habitat that the City identified as Urban Woodland.

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, freeman's maple, silver maple, black cherry, white birch, and balsam fir. Other shrub species (in addition to the staghorn sumac) were common buckthorn and Tartarian honeysuckle which are both invasive. The ground layer included Virginia creeper, sarsaparilla, alternative-leaved dogwood, dwarf raspberry and purple-flower raspberry.



Photo 10: Deciduous Forest/Sumac Cultural Thicket (July 28, 2020)



Photo 11: Deciduous Forest - near the north edge looking south (April 12, 2021)



Photo 12: Metal Garbage becoming exposed in the middle of the slope (April 12, 2021)



Photo 13: A few metres uphill from previous photo, large amount of garbage is seen buried (April 12, 2021)

The mixed forest inclusion was primarily on the very east side of the adjacent 120 m but there was some in the area identified by the City of Urban Woodland. The woody vegetation was dominated by eastern white cedar, white ash, green ash, along with black cherry, trembling aspen, basswood, white pine, and bur oak. The ground layer included poison ivy, wood fern and red baneberry.



Photo 14: Mixed Forest inclusion looking east from near the base of the slope (April 12, 2021)



Photo 15: Mixed Forest inclusion – looking north from the edge (April 12, 2021)
Wetland – Marsh and Deciduous Treed Swamp

The PSW Petrie Island Wetland is situated to the northwest. At the base of the fill, this community was dominated by the marsh consisting of robust emergents (cattails). In the adjacent lands further east, the wetland consisted of a narrow deciduous treed swamp (silver maple, green ash, and black ash) with a tall shrub layer (speckled alder, green ash, and red osier).



Photo 16: Looking east from edge of headwater feature on neighbour's property at the narrow swamp (to left of line) (April 29, 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, purple loosestrife, buckthorn, and Tartarian honeysuckle.

4.3 Bats

A search of appropriately sized trees and those with cavities was made. Five individuals were noted in the survey area, on the eastern side of the development footprint (Figure 7). 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 7: 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 conceptual development footprint (Figure 8).

One painted turtle was observed trying to nest and another six abandoned nesting attempts were noted in the fill north of the conceptual development footprint (Figure 8). 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. This was discussed with MECP who agreed with the assessment. No turtles were observed with the trail camera which was in place until July 13, 2020. A fall visit in 2020 was 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 lands to be developed. Snake skin was also noted in this same area (Figure 8).

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 or in the wetland. The observations were typically males calling (red-winged blackbirds, swamp sparrow, song sparrow, common yellowthroat, yellow warbler, black-capped chickadee, northern cardinal, American goldfinch, sora, 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 conceptual development footprint or their adjacent lands apart from those 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 8: Location of Turtle and Snake Observations (2020)

5.0 EIS – Analysis of Potential to Impact the Natural Features

The proposed zoning amendment is requesting a change from development reserve to one that is appropriate for the construction of four predominantly residential towers with lower floor non residential uses. The towers will be fully serviced and will have underground parking. The development is looking at a pedestrian focused development, meaning that there will be limited vehicular access to the site (garbage pick up, emergency vehicles). The rehabilitation of the shoreline has already begun through the removal of fill. This newly constructed wetland was lowered to be similar in elevation to the surrounding robust emergent cattail habitat. It is anticipated to quickly become vegetated with robust emergents. The Ministry of Northern Development, Mines, Natural Resources and Forestry (NMDNRF) will be contacted to have the existing Provincially Significant (PSW) boundary redrawn to include this newly constructed wetland added a setback of 30 m from the new edge of the PSW. This setback will be subject to a rehabilitation plan that will include plantings (native shrubs and trees) and native seed mixes. The rehabilitation plan Phase 2 will be developed during site plan phase.

The development will require the removal of the vegetation in an area that is approximately 1.0 ha. This area consisted mostly of the cultural meadow over fill with some trees along Inlet Private, and a portion of the urban woodland on the east side. The stormwater management plan consists of discharge to the river after being processed through water quality management equipment.

The November 2021 OP indicates that the area surrounding the conceptual development footprint form part of the Natural Heritage System – Core Area. This core area is shown to include:

- Provincially Significant Wetlands
- Significant Woodlands
- Urban Natural Feature
- Fish Habitat

In addition, the provincial mapping identifies the area as including an ANSI. All of these habitats are shown to be outside of the conceptual development footprint, but immediately to the north, and east and on the west side of Tweddle Road. There are no candidate significant features to the south. Below, the potential impacts to the NHS – Core Area is discussed in each of the categories (wetland, woodland, and fish habitat) and the overlapping UNF. The potential for habitat of Endangered or Threatened Species and considerations for Significant Wildlife

Habitat is discussed for the entire property. It is important to remember that the avoidance and mitigation section must be read in its entirety.

5.1 Impact Assessment Methods

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

- Clearing of terrestrial vegetation
- Excavation, Grading, and backfilling of upland habitat
- Construction of buildings and infrastructure (land use)
- Revegetation and naturalization of offset area

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.

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."

5.2 Evaluation of Potential Impacts

Again, the natural heritage features brought forward for assessment, both in and outside of the conceptual development footprint, are:

- Provincially Significant Wetland/ANSI
- Habitat of Endangered and Threatened Species
- Significant Woodlands
- Significant Wildlife Habitat
- Urban Natural Feature
- Fish Habitat

By avoiding, minimizing, and as needed, offsetting, impacts to the above, impacts to the NHS – Core Area in the adjacent lands will also be protected.

5.2.1 Wetlands/ANSI

Provincially Significant Wetland/ANSI

The Petrie Island PSW is situated to the north of the conceptual development footprint (Figure 9). This portion of the PSW was found to be a robust emergent marsh (cattail).

- This type of habitat provides 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 Tweddle Road and to the northwest of the site. The interpretative and walking trails are also found to the west of Tweddle Road and north of the North Service Road. The portion of the wetland located near the site is not used for these purposes and is on private lands.
- The PSW at this location is restricted to marsh habitat. That within the property is robust emergent marsh that is 40-100 m wide and mostly cattails with few openings. By May 21, 2020, the portion of the marsh immediately north of the areas proposed for development was dry or nearly so. Further north is the submergent marsh (125-155 m wide) but portions of this includes the marina and docks. The dense vegetation in the PSW that is to be considered for this evaluation is distinctly different from that on the west side of Tweddle Road.
- The portion of the PSW that abuts this property is hydrologically disconnected from the PSW west of the causeway. This can be seen on satellite images that show the distinct water colour differences between the two area (turbid water from Cardinal Creek backflows into this study area but not past the causeway). Causing sedimentation of this portion of the PSW.



• A small portion of the PSW on site has been infilled by others. But this was remedied with the February 2022 rehabilitation works. Further, those works created more wetland than will now form part of the PSW. The new information will be provided to NDMNRF during the site plan phase.

- 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 site.
 - 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'.
 - This concurred with the studies completed by Bowfin in 2020 at which time none of the wildlife inventories found any significant wildlife use of the site.

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 the conceptual development footprint.
- The field check by an OWES evaluator following the provincial protocol found that the PSW line was fairly accurate.
- The areas of higher significance are situated to the west of Tweddle 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 the conceptual development footprint was not present. Instead, these areas were found to be filled and to consist of cultural meadows.

Avoidance Measures

The PSW was delineated in the field and found to be fairly accurate with the provincial layer with the small aberration of the fill. In February 2022, some fill was removed from the site, and, in addition, new wetland created (roughly ± 0.13 ha). It was excavated to the depth of the adjacent cattails and is anticipated to quickly become re-vegetated with marsh species. A setback of 30 m from the original PSW boundary has been extended to include 30 m from all the new PSW boundary. Further, this setback is scheduled to be enhanced with native vegetation.

Potential Impacts and Mitigation Measures for wetlands (PSW/ANSI):

- No direct impacts to any wetlands will occur.
- A minimum setback of 30 m between the permanent structures (including that below grade) and all wetlands.
- The edge of wetland was delineated on-site.
- 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 result 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 (<20% bare soil).
- 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).
- The wetland marsh is used by breeding birds and turtles. No additional access to the wetland will be created (no trails into wetland).
- No changes in light or noise impacts are anticipated above the background of other existing sources. This area is heavily impacted by the existing land uses:
 - Marina on the north side of the river
 - Dense ice shacks creating a village in the winter.
 - Newly extended Trim Road

- No vegetated buffer along the heavily used Tweddle Road,
- The vegetated buffer between Inlet Private and the development is very narrow and represents less benefit that then proposed vegetated 30m setback.
- This project will not result in the removal of vegetation in the wetland.
- The impacts from any new lighting will be minimized by the new woody vegetation proposed and by including the use of lighting that is designed to concentrate the lights to the footprint of the development and not to shining light in the PSW.
- The buildings themselves would help attenuate noise form reaching the wetland habitat.
- 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. The species being considered are those recommended by the local conservation authority. The details will be developed in the rehabilitation plan during the site plan phase.

Area	Nature	Duration	Magnitude
Local	POSITIVE	Permanent	Rehabilitation Works (Phase 1) have been
	Indirect		completed and resulted in an increase of
			wetland habitat by 0.13 ha.
			Rehabilitation Phase 2 would include
			naturalization of the setback. This will
			create a buffer that can improve wildlife use
			of the wetland, and with the shrubs and

improve the already existing noise and visual impacts.

trees in portions of the buffer, it will help





Figure 10: General Rehabilitation Concept



5.2.2 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 fish³ species on private land. Together, provincially, and federally protected species are referred to as SAR, herein. There is a potential for 18 Endangered or Threatened species to occur within the general area based on the available background information. These are: hickorynut, lake sturgeon, American eel, cutlip minnow, channel darter, Blanding's turtle, least bittern, eastern whip-poor-will, chimney swift, bank swallow, barn swallow, bobolink, eastern meadowlark, little brown myotis (bat), northern myotis (bat), eastern small-footed myotis (bat), tri-colored bat and butternut. As is discussed in the table below, the habitat requirements for most of these species was not present. Those that were present, potentially present or that should be highlighted for avoidance have been discussed further in the paragraphs below.

³ In this part of Canada, Fish as defined under the *Fisheries Act* includes all parts (including eggs, larvae, spat etc.) of fish and shellfish (mussels)

Table 5: Summary of Potential Endangered and Threatened Species

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat	Reference	Guidelines/Triggers for Review	Brought Forward (Yes/No)
MOLLUSCS								
Hickorynut	Obovaria olivaria	S1?	END	END	Found in large, wide and deep (2-3 m) rivers with moderate to strong water velocities and sandy bottom. Host species in Ontario is Lake Sturgeon	COSEWIC 2011	No waterbodies in the conceptual development footprint, setbacks will prevent work from affecting the Ottawa River.	No
FISH								
Lake Sturgeon	Acipenser fulvescens		THR	No Status	Bottoms of lakes and large rivers. Adults are typically found in highly productive shoal areas of large rivers and large lakes.	COSEWIC 2017	No waterbodies in the conceptual development footprint, setbacks will prevent work from affecting the Ottawa River.	No
American Eel	Anguilla rostrata	S1?	END	No Status	Near cover over muddy bottoms in lakes, ponds, rivers and creeks at depths <15 m.	COSEWIC 2012	No waterbodies in the conceptual development footprint, setbacks will prevent work from affecting the Ottawa River.	No
Cutlip Minnow	Exoglossum maxillingua	S1S2	THR	SC	Requires areas with rocky substrate, free of silt and with clear water. Found in clear waters with gravel substrate.	COSEWIC 2013	No waterbodies in the conceptual development footprint, setbacks will prevent work from affecting the Ottawa River.	No
Channel Darter	Percina copelandi	S2	SC	SC	Pools and the edges of riffles of small to medium rivers over sand and gravel substrate. Prefers sand or gravel beach habitat within lakes and pool or riffle areas within creeks.	COSEWIC 2016	Only record from Ottawa River are 80 km downstream and the setbacks will prevent work from affecting the Ottawa River.	No

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EIS – 1009 Tweddle Road

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat	Reference	Guidelines/Triggers for Review	Brought Forward (Yes/No)
REPTILES								
Blanding's Turtle	Emydoidea blandingii	SNR	THR	THR	Shallow water, large marshes, shallow lakes or similar such water bodies.	COSEWIC 2005	Suitable habitat adjacent to site. Species- specific surveys were completed, and advice was sought from MECP during the study design and following results. While none were found, the species is being treated as present in the wetland and Ottawa River.	Yes
BIRDS								
Least Bittern	Ixobrychus exilis	S4B	THR	THR	Freshwater marshes, ditches, creeks, rivers and lakes with tall emergent vegetation.	COSEWIC 2009	There is suitable habitat adjacent to the site. But was not heard calling or observed during the field investigations.	Yes
Eastern Whip-poor-will	Antrostomus vociferus	S4B	THR	THR	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	Forest on site unlikely to be suitable for this species	No
Chimney Swift	Chaetura pelagica	S4B, S4N	THR	THR	Cities, towns, villages, rural, and wooded areas. When selecting trees, they prefer those that are >50 cm in diameter and that are within 1 km of waterbodies.	COSEWIC 2018	No man-made structures on site but large trees are present, MECP timing windows for clearing	Yes
Bank Swallow	Riparia riparia	S4B	THR	THR	This species nests within vertical banks, with a preference for sand-silt substrate. Nesting	COSEWIC 2013	No suitable banks on site or in adjacent lands and no individuals were observed.	No

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat	Reference	Guidelines/Triggers for Review	Brought Forward (Yes/No)
					sites may be near open upland habitats.		(Category 1 habitat are the nests; Category 2 habitat are 5 m around the nests; Category 3 habitat is within 500 m of a nest)	
							No suitable structures on site, present in general area. Observed foraging over Ottawa River/PSW during site visits.	
Barn Swallow	Hirundo rustica	S4B	SC	THR	Open or semi-open lands: farms, field, marshes.	Peterson 1980, COSEWIC 2011	Potential to impact Category 3 habitat but this species forages above and impacts to Category 3 habitat does not need to be reviewed by MECP (Category 1 habitat are the nests; Category 2 habitat are 5 m around the nests; Category 3 habitat is within 200 m of a nest)	Yes
Bobolink	Dolichonyx oryzivorus	S4B	THR	THR	Primarily in forage crops, and grassland habitat.	COSEWIC 2010	No grassland habitat on site or in adjacent lands. Daytime breeding bird surveys completed, and none seen or heard.	No
Eastern Meadowlark	Sturnella magna	S4B	THR	THR	Fields, meadows and prairies.	COSEWIC 2011; Peterson 1980	No grassland habitat on site or in adjacent lands. Daytime breeding bird surveys completed, and none seen or heard.	No
MAMMALS								
Little Brown Myotis	Myotis lucifugus	S4	END	END	Buildings, attics, roof crevices and loose bark on trees or under bridges. Always roost near waterbodies.	Eder 2002	Large cavity trees present on site, MECP timing windows for clearing	Yes

Common Name	Scientific Name	SRank	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status	Preferred Habitat	Reference	Guidelines/Triggers for Review	Brought Forward (Yes/No)
Northern Myotis	Myotis septentrionalis	S3	END	END	Older (late successional or primary forests) with large interior habitat.	COSEWIC, 2013; Menzel et al., 2002; Broders et al., 2006; OMNRF, 2015		
Eastern Small-footed Myotis	Myotis leibii	S2S3	END		Found within deciduous or coniferous forests in hilly areas.	Eder 2002		
Tri-colored Bat	Perimyotis subflavus	S3?	END	END	Prefers shrub habitat or open woodland near water.	Eder 2002		
VASCULAR PLANTS								
Butternut	Juglans cinerea	S2?	END	END	Variety of sites, grows best on well-drained fertile soils in shallow valleys and on gradual slopes	COSEWIC 2017	Butternut surveys conducted, none found.	No

Status Updated: March 25, 2021

SRANK DEFINITIONS

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.

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- 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.

Blanding's Turtle

Blanding's turtle is associated with a variety of shallow slow aquatic habitats with submergent and emergent plants and soft substrate (COSEWIC, 2016). Their preferred aquatic habitat is less than <2 m deep (ECCA, 2018). To err on the side of caution, depths up to 4.5 m are considered habitat for this species (ECCA, 2018). These turtles require basking sites located near the water such as exposed rocks or partially submerged logs. The nesting sites are located within areas of loose substrates varying from sand to cobblestone and may occur along roadways as far as 400 m away. Marsh habitat is important for the juveniles for protection from predators. The species overwinters within permanent water bodies (COSEWIC, 2016). This species can migrate far distances of up to 6 km (OMNR, 2013b). Migration routes can include overland movement. However, some habitats such as: active agricultural croplands, sand pits, large waterbodies, fastflowing systems, and high use highways are not considered suitable habitat (ECCA, 2018). They also note that heavily developed urban areas without aquatic or wetland habitats are considered unsuitable (ECCA, 2018).

The habitat guidelines for Blanding's turtle provide protection to the areas surrounding a nest, or perceived nest area. The level of protection varies with the distance from the nest and has been categorized by MNRF into three categories. These, along with their protection level are:

Category 1	Nest and the area within 30 m or Overwintering sites and the area within
	30 m
Category 2	The wetland complex (i.e., all suitable wetlands or waterbodies within 500 m
	of each other) that extends up to 2 km from an occurrence, and the area
	within 30 m around those suitable wetlands or waterbodies
Category 3	Area between 30 m and 250 m around suitable wetlands/waterbodies
	identified in Category 2, within 2 km of an occurrence

There is a potential for Blanding's turtle to utilize the aquatic habitat (Ottawa River and associated wetland habitat). Some of that habitat could provide overwintering habitat. The fill area was also considered as potential nesting habitat. Additional surveys (as described earlier in this report) were added and reviewed by MECP. The results were also shared with MECP. It was agreed that the fill did not provide nesting habitat and that the buffer offered by the proponent was suitable along with the mitigation measures. The greatest potential impact was from the rehabilitation works; however, these are considered as benefit. At this time, it is anticipated that the rehabilitation will have the following goals:

1. Remove some of the fill in the area not currently designated as a PSW and create new wetland habitat (creation of new Category 2 habitat).

- 2. Remove fill from within the existing PSW boundary (creation of new Category 2 habitat).
- 3. Rehabilitate the land next to Trim Road (currently heavily disturbed) to a natural meadow or other type of upland habitat and provide access to pedestrians (look out).
- 4. Create a naturalized 30 m buffer between the new edge of the wetland habitats and the development.

The result from the discussions with MECP was that the habitat protected to the north/east of the proposed location of the permanent turtle fencing would be sufficient to protect the Category 2 habitat and that there remaining lands did not provide suitable Category 3 habitat. The purpose of the Category 3 Habitat is to provide a migration corridor. To be suitable habitat, it should link wetland habitats or nesting habitats or overwintering areas. It has been established, that the conceptual development footprint do not provide overwintering or nesting habitat. The surrounding areas to the east and south of Jeanne d'Arc Boulevard North are mostly developed. The one section to the south that is not, was stripped of vegetation (exposed bare soil) by the City in spring of 2020. And the new alignment of Trim Road is now built. No overwintering, wetland or nesting areas are noted in these directions. The more natural migration route would be across Tweddle Road for turtles moving between wetlands and the gravel road shoulders or along the Ottawa River corridor to the east. The development lands would not affect the existing migration routes. The mitigation measures submitted for approval to MECP are included below under the SAR Turtle section.





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.

Barn Swallows

Barn swallows require structures for nesting. No structures were present within the area. The nesting habitat is considered absent.

Bats

The federal potential SAR bats within the general area are: little brown myotis, northern myotis, and tri-coloured. The eastern small-footed myotis is only protected provincially. Their habitat requirements vary for different life stages: hibernacula (winter hibernation sites), bat maternity sites and day-roots. The recovery strategy for the three federally listed species considered critical habitat to only include hibernacula.

These species prefer to hibernate in caves or mines or buildings. No known hibernation sites were present in the study area, and none were identified during the site investigations.

The northern myotis tends to prefer larger expanses of older forests (late successional or primary forests) and chose maternity sites in snags that are in the mid-stage of decay. They prefer habitat 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; OMNRF, 2015). The preferred habitat was not present and as such, this species is considered unlikely to have maternity sites here.

The Atlas of Mammals of Ontario (Dobbyn, 1994) suggests that the tri-colored bat is not present within this part of Ontario however, the NatureServe mapping in the COSSARO (2015) includes all of southeastern Ontario. The City of Ottawa summary of Species at Risk in Ottawa (May 2021) indicates that only historical records of this species are available, there are no recent sightings. Based on this information, this species is considered to have a very low potential of occurring.

This leaves only the little brown myotis as potentially using the study area for maternity sites. The location of potential maternity trees was inventoried, and bat exit surveys were conducted. The results demonstrated that these cavities were not in use.

There also remains the potential for various species to utilise the trees on-site for day-roosts. Again, neither the maternity sites, nor the day-roosts are considered critical habitat in this portion of Ontario by MECP (personal communications) or by Environment Canada (ECCC, 2018c). However, MECP only considers impacts to this species to be avoided if all of their recommended mitigation measures are followed. These measures are included below.

Plants

Butternut is listed as an endangered species federally signifying that it is at risk of becoming Extinct or Extirpated in Ontario and in Canada. Butternut is a shade intolerant species that is often found along edge habitats on rich, moist, well-drained loams or well-drained gravels (COESWIC, 2003). The butternut is threatened by a canker for which there is no known control (COESWIC, 2003).

There is suitable habitat for the butternut within the study area. As discussed in the methodology, a butternut inventory was undertaken (BHA #723 on June 14, 2020). No butternuts were identified. This species is considered absent from the study area. But is noted here as the inventories are, currently, only valid for 2-year period.

Mitigation Measures:

General:

- Endangered and threatened species are protected and cannot be harmed, harassed, or killed and in some cases their habitats are also protected. These individuals will only be handled by qualified person and only if the individual is in imminent threat of harm. An authorization under the ESA 2007 would be required to handle individuals that are not in imminent threat of harm.
- If a SAR enters the work area during the construction period, any work that may harm the individual is to stop immediately and the supervisor will be contacted. No work will continue until the individual has left the area.
- Should an individual be harmed or killed then work will stop, and the Ministry of Environment, Conservation and Parks (MECP) will be contacted immediately.
- Educate staff and contractors on the potential for SAR to be in the area and their significance.
- Mitigation measures listed elsewhere in this report are also applicable to this section.
- If a SAR is encountered, this information will be provided to the Natural Heritage Information Centre (Report rare species (animals and plants) | Ontario.ca)

Turtles

- Minimize the temporary and permanent works within Category 2 lands.
- Implement a strict speed limit of <15 km/h.
- Clearing of vegetation should take place during the turtle inactive season when they are hibernating which typically occurs between October 15-April 16 (weather dependent).

Otherwise, additional surveys (sweeps for turtles by fish and wildlife technician or biologist familiar with the species are needed). Note that the timing constraint for tree removal is more restrictive as it follows the bat window (no clearing between April 1 and September 30, inclusive).

- Sediment fencing along the banks can be used for temporary exclusion fencing. These 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. Reptile and Amphibian Exclusion Fencing: Best Practices (OMNR, 2013d) should be followed for exclusion fence design.
- Stockpiles that might provide suitable nesting substrate (i.e., gravel, soil) will be provided with additional sediment fencing to prevent turtles from nesting in the work area. Note that should Blanding's Turtle nest on-site, then all work would be stopped until the hatchlings leave in the fall and MECP would need to be contacted.
- Contractor is to perform daily sweeps during the active season (approximately April 15 to October 16, subject to weather conditions).
- If an individual is found, work that puts the individual in danger will cease (i.e., moving machinery), and the individual will be watched from far to document where and when it leaves the site for a minimum of 2 hours. If it does not leave, them it may need to be relocated. Contact a biologist experienced with this species to relocate the individual.
- 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.
- The final design of the development will include a permanent barrier to turtle access. To be designed in consultation with MECP.

Area	Nature	Duration	Magnitude
Local	Negative	Permanent	Positive
	Direct		(Creation of new wetland habitat
			providing increase in Category 2
			habitat)

<u>SAR Birds</u>: Other than the foraging Barn Swallow, no other SAR birds were identified as occurring or likely to occur.

• No impacts to federal SAR bird nests, or their eggs is permitted under the federal *Species at Risk Act.* If a federally listed bird species at risk nest is encountered, then work must stop until the young have fledged. If the nest/young have been harmed, then Environment Canada must be notified immediately for guidance.

- No impacts to provincial SAR bird nests or their eggs is permitted under the provincial *Endangered Species Act*. If a provincially listed bird species at risk is encountered, then work must stop and MECP contacted (sarontario@ontario.ca).
- Should a nest be discovered, stop all work that may disturb the birds (i.e., that cause the adults to fly off the nest) and contact a biologist or MECP or Environment Canada, as appropriate for the species.
- Note that timing windows for bird species in general are included further below as are those for bats (both of these are more restrictive).

Area	Nature	Duration	Magnitude
Local	Negative	Permanent	Unlikely to occur do to existing
	Direct	(removal of vegetation)	land practices. Timing constraint
			for general birds to be followed
			(see below and also cautioned that
			the bat timing window is more
			restrictive)

<u>Bats:</u> It is understood that most vegetation will be removed from the site. The potential to impact SAR bats would be restricted to day-roosts with the most likely species to be little brown myotis. Recent discussions with MECP on these species indicate that they do not need to be approached if the timing window below can be adhered to.

- Educate contractors by informing them that most bats in Ontario are protected.
- Remove all trees that are 10 cm in diameter at breast height or larger (in the fencerows or forest) between October 1 and March 31 (Bat active season is currently assumed to be April 1 to September 30). If this is not possible, conduct exit survey prior to cutting them down. If the exit survey identifies bats, contact MECP or biologist for additional guidance.

Area	Nature	Duration	Magnitude
Local	Negative	Permanent	Low potential (since no hibernacula are present
	Direct	(removal of	and it is anticipated that all trees > 10 cm will
		trees)	be removed during the timing window and as
			bat exit surveys did not identify bats using the
			trees to be removed)

<u>Plants:</u> No SAR (Endangered or threatened) were present in or within 50 m from the site. However, the butternut inventory is only valid until June 14, 2022. After that date, a new survey would need to be undertaken. Also, note that if a butternut was missed, then it would need to be assessed prior to working within 50 m of that individual.

Avoidance/Mitigation Measures for Butternuts:

- Should butternuts be identified then these will need to be assessed and the appropriate actions taken.
- Repeat the inventory during the green-leaf period (usually mid-May to end of August) prior to clearing of vegetation. Follow guidance on clearing of trees from bats and birds and wildlife in general sections.

5.2.3 Woodlands

This report makes use of the City of Ottawa's recently released Significant Woodlands Guidelines that notes that in the Urban Area an Urban Woodland must meet:

- 1. 0.8 ha in size (or larger)
- 2. Support woodland that is at least 60 years old at the time of evaluation. This threshold on age exceptions is depicted in Figure 2 of the Guidelines (included below).





(from Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment (City of Ottawa, 2019))

The City of Ottawa identified the Candidate Woodlands on site based on the presence of wooded area in the general area on air photography in 1945 (Figure 12). It is agreed that that image depicts vegetation in the general area. It is also agreed that the small inclusions noted on Site form part of a larger community that continues to the east resulting in the overall woodland stand being >0.8 ha (Figure 13). However, it is noted that the area may have been cleared, at some point. This is evidence by the exposure of some garbage along the slope of the bank (see Photo 12 and Photo 13). In addition, this woodland:

• Is not accessed by the public (is on private lands);

- Much is on a very steep slope and contained a high number of downed trees which limits the accessibility by public;
- The two bullets above prevent it from use for public events, gatherings etc.;
- Had a high percentage of unhealthy or dead trees (55%) (these trees are not providing any value in terms of air pollution or shading, and limited water absorption). Note that canopy cover by the live trees (any size) was not reassessed in 2021 (since it is too early to do so). Depending on what has grown in the openings (shrubs versus tree regeneration) some of the inclusions may no longer meets the 60% canopy rule;
- The slope is mostly bare and has erosion suggesting that it is not providing functions in the way of decreasing runoff during heavy rain events;
- Did not provide habitat for significant habitat for flora or fauna;
- Contained invasive woody species (Common Buckthorn, Tartarian Honeysuckle);
- WSP (2017) indicated that the average diameter of the woodland to the east (within their surveyed area) was also young with the same average diameter of 15 cm. As such, this entire woodland (estimated to be 7.2 ha (Figure 13)) may not meet the age category; and
- The woodland stand, as a whole, is small, and does not have any interior habitat, and is on a steep slope with poor access for the public.

Regardless, as requested by the City, this area is being treated as an Urban Woodland and its removal will require compensation. The compensation area will be situated between the wetland and the development. This will allow for a net gain of wooded area and an area that will be much better suited to provide urban woodland functions. A review of the City's discussion hierarchy is provided in Table 6.





Figure 13: Woodland Stand



Table 6:	Discussion	of Mitigation	Hierarchy
		0	2

Mitigation Hierarchy	Comments	Fully Mitigated?
Avoidance	The full development of the site cannot avoid the removal of this small portion of the woodland (0.11 ha).	Not feasible to avoid. Lands identified as having environmental value are focused along the north side of 1009 Tweddle property (i.e., PSW/ANSI/Fish Habitat). The New OP includes the entire south side of 1009 Trim along Jean D'Arc within the Protected Major Transit Station Area (PMTSA) around the new Trim LRT Station. The PMTSA overlay supports the compact high-density mixed-use development for the southern part of the site. Such development would also advance the key objectives of the new OP to have streets within the PMTSA animated and activated to contribute to creating strong pedestrian linkages to the LRT station especially where the new Trim realignment intersects with Jean D'Arc.
		Additional measures required see next row.
Minimization	During the detailed design phase, the architect will be asked to try to minimize the removal of healthy trees. However, for this Site, the Ottawa River and the PSW are considered of higher value than this wooded area. As such, it is more desirable to keep the development south (towards Jeanne D'Arc Boulevard North) and in the fill areas as opposed to avoiding trees in	Not feasible to minimize. Additional measures required see next row.

Mitigation Hierarchy	Comments	Fully Mitigated?
	this previously disturbed wooded	
	area.	
	Should it be determined that some	
	trees can be retained during the	Not feasible to mitigate.
	design phase, then they will be	
Mitigation	protected with physical barriers	Additional measures required see
	during construction. But there will	next row.
	still be a negative impact to the	
	wooded area.	
	The development of the entirety of	
	this Site could result in the loss of	
	up to 0.11 ha of wooded area	
	identified as significant by the City.	
	However, the property includes a	
	large area of fill some of which was	
	in the shoreline and into the	
	wetland. Portion of the fill on the	
	shoreline was removed as part of	
	Phase I of the Rehabilitation Works	
	at which time 0.13 ha of new	Fully compensated with an aim to
	wetland habitat was created. The	provide 0.22 ha of wooded area.
Compensation	next step (Phase 2) would be to	Plus, another 0.61 ha of
	renabilitate the remaining area (total	habitata (0.82 ha)
	The Cuidelines recommend on	hadnais ± 0.83 haj.
	offset of greater than 1:1 for the	
	removal of wooded areas in the	
	Urban Area The overall benefit	
	will far exceed this ratio as it will	
	include a mixture of native	
	vegetation (wetland, meadow.	
	wooded). The goal for the wooded	
	area is 0.22 ha of treed area within	
	the habitat enhancement plan.	

Mitigation Measures:

- No signs, notices or posters should be attached to any trees.
- 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	Permanent	Because of the removal of Urban Woodland,
	Direct	(removal of	the Mitigation Measures do not suffice, and
		trees)	Offset is Required.

Urban Woodland Offset (Draft)

Please note that the details of the habitat enhancement area are pending this discussion as well as discussions with other agencies during the detailed site plan stage. At this time, the following is anticipated:

- The overall area available for enhancements is calculated at ± 0.83 ha of which 0.13 ha has already been dedicated and constructed as wetland (Figure 10).
- The existing conditions in the enhancement area consists 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.
 - The area removed for the creation of the wetland habitat 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. On the east, it consisted of clay with reed canary grass (likely the invasive species).
- The intent is to create habitat that consists of a mosaic of native meadow, marsh/tall shrub swamp, shrub, and treed habitats.
- The portion of wetland habitat created was restricted to 30 m from the edge of the permanent footprint of this development.
- The option to transplant some of the woody vegetation from the proposed development lands to the enhancement area will be evaluated by the landscaper.
- The proponent will consider using potted stock for at least a portion of the wooded species. This would improve the speed at which the site becomes functional.
- The treed areas also need to allow for viewing from terraces, Tweddle Road and the walking trail. There will be a goal of reaching 0.22 ha with details determined as the information on how the site will be developed and where the public viewing could take place is gathered. For instance, the denser areas could be situated in front of parking areas while strategic plantings (groupings, tall shrubs) could be placed where viewing is desirable. It is expected that details for tree planting to ensure key views are provided for with tree planting framing and enhancing significant views would be informed through a view analysis to confirm key views to and from the development and for viewing areas.
Other important factors are:

- Timing
 - The intent is to complete the habitat enhancement works concurrently with the excavation activities if possible, in its entirety. However, it is noted that access to native vegetation may be problematic. If issues arise, then an annual cover crop would be sown, and the plantings completed as soon as possible.
- Public Access
 - \circ A public viewing area would be created along the edge of Tweddle Road.

Table 7: Discussion of Urban Criteria

Criteria	Comments			
	Existing trees are:			
	-Young (average diameter 3-12 cm) and covers over an area			
	of 0.11 ha. But because $>50\%$ are dead or dying its total			
	canopy cover is poor. Further many species are those			
	susceptible to disease (ash, elm) its total canopy at maturity			
	may never reach its full capacity.			
	-Within 250m of high-rise towers.			
	-Are not accessible to the public.			
	-High percentage of dead/dying trees which do not provide			
	any benefits in terms of air, water cycle or climate.			
	-The lack of herbaceous ground cover and presence of bar			
Air, Water Cycle and	soil on slope indicates that it is not assisting in run-off			
Climate	storage.			
	Decemental and the			
	-provide more total canopy cover (goal of reaching 0.22 ha			
	in the enhancement) and will be planted with species other			
	than ashes and elms in an effort to avoid those species that			
	are presently susceptible to disease. This will create more			
	total canopy cover at maturity, equating to more of the			
	benefits (removal of pollutants, reduction of urban heat, and			
	carbon storage. This does not consider the remainder of the			
	enhancement area that will also include individual trees and			
	shrubs and native meadows/wetlands.			

Criteria	Comments
	-Have an enhancement area that is graded to minimize
	erosion and improve run-off storage.
	-will include potted stock plantings and possibly
	transplanting from the site to reduce the lag time of the new
	area in providing the benefits.
	-will remain within 250 m of high-rise towers (already built
	by others)
	-will become readily accessible.
	Existing trees:
	-are on bare slope (little herbaceous cover) and signs of erosion.
	-do not offer high run-off capturing capabilities.
	-Much of the proposed development area and the
	enhancement area is currently rock fill or clay fill with little
	run-off capabilities.
	Proponent is considering:
	-Development is considering reflective (white) roof for the
	towers and vegetated terraces for lower roof levels for
Green Infrastructure	outdoor amenity areas .
	-plantings, strategically placed, within the development to
	reduce heat and stormwater runoff.
	-landscape architect will review opportunities for tree
	retention.
	- The enhancement area is currently rock fill with little run-
	off capture capabilities. Enhancement area (0.83 ha) will see
	a large improvement. A portion of the enhancements have
	already been completed, allowing their benefit to begin
	sooner.
	-is an opportunity to provide community access to a wooded
	While woodlands can graate an area where disease can be
	communicated this will be minimized at this location
	by/because:
Disease Regulation	-Low population of deer in the area (lower number of ticks)
	-Walking trail [1, 5-2.0 m wide (wood chins)] will be built
	-Signage to ask people to stay on the trail will be posted
	orginage to ask people to stay on the train with be posted

Criteria	Comments
	-Native meadows and vegetation will be planted to reduce
	the amount of wild parsnip and other invasive species that
	impact human health.
	-Education panels are being considered to provide walkers
	information on dangerous plants and on ticks.
Pollination	Proposal includes an increase in area of native plants
	(including trees). Vast improvement over current rock fill.
Socio-cultural	The existing:
	-has no public access (is entirely on private land),
	-has no opportunities for recreational, educational, or
	cultural interactions.
	Proposed enhancement area:
	-will allow public access on privately-owned land.
	-will provide a new viewing point of the river and PSW not
	currently available.
Recreation, heritage, tourism	-will create ± 0.83 ha of accessible greenspace.
icercation, neritage, tourism	-will provide an opportunity to create educational panels for the public
	-new area to offer relief from extreme heat events, to view
	nature and relax/spiritual contemplation.
	-the viewing platforms will offer opportunities for bird-
	watching in the PSW and the remainder of the enhancement
	area for bird-watching of more common terrestrial breeders.
	-the viewing platform will be named after the Grandmaître
	family (previous owners of the site).
	Surveys did not identify any unusual characteristics, or
	significant wildlife habitat.
	-
	New area will provide a better buffer to the PSW
Habitat	(naturalized instead of the existing rock fill). The existing
Παθιται	wooded area is over 30 m from the PSW and most of it is
	more than 50 m from the PSW. The new area will be within
	30 m-50 m of the PSW.
	New area will be vegetated with native species.

5.2.4 Fish Habitat

The only aquatic habitats were the Ottawa River and the marsh habitat adjacent to the fill. The Ottawa River is approximately 1130 km long and has a watershed of 146300 km². Its headwaters are in Québec at the Grand Lac Victoria and Reservoir Dozois and its outlets into the St. Lawrence River near Montreal (Haxton and Chubbuck 2002). It supports cool water and warmwater fisheries. The river is divided into several reaches by hydroelectric facilities and natural features. Chaudière Falls/Ring Dam represents the division between the Lac Deschênes, and Lac Dollard des Ormeaux reaches. The site falls in the Lac Dollard des Ormeaux reach. Lac Dollard des Ormeaux begins at Carillon Dam and ends at Chaudière Falls; a length of roughly 113 km (Haxton and Chubbuck 2002). The average depth in this section is 6-8 m. Information on the species was obtained from the Aquatic Resource Area (ARA) data on LIO, from Haxton and Chubbuck (2002), and from the DFO Aquatic Species at Risk Map (Appendix M). The combined list consists of a total of 78 species. This included a variety of cold, cool, and warm water species. It also included sportfish such as longnose gar, brown trout, northern pike, muskellunge, burbot, smallmouth bass, largemouth bass, yellow perch, sauger, walleye. The list also included pan fish, such as rock bass, pumpkinseed, bluegill, northern sunfish, white crappie, and black crappie.

That marsh consisted of a very dense emergent marsh (cattails). While there was some was wet, especially along the edge of the fill, during the first visit (April 29, 2020), it was never more than 10-30 cm. It was dry by the next visit which was on May 21, 2020. This part of the cattail marsh was thick with no channels through the root matt making fish use of this portion of the wetland limited. Based on a review of the available satellite imagery, it would seem that there is no culvert in the causeway linking land to Petrie Island. This is causing a backwater effect and limits the flow through the area. The images also demonstrate that, while all of the emergent marsh became inundated, the fill area did not even during the historically high waters of May 2017.

Potential to Impact Fish and Fish Habitat and Avoidance/Mitigation Measures:

Planning

- There is no work planed for below the high-water mark. Should this change, then DFO will need to be consulted.
- The only work within 30 m of the high-water mark is for rehabilitation and avoidance measures (i.e. turtle fencing).
- Site instruction will be provided to contractor to highlight that the Ottawa River provides permanent fish habitat.
- Erosion and sediment control measures will be installed prior to the clearing of vegetation within 30 m of a watercourse.
- Suspend activities that cause muddy environments during periods of heavy rains.

Erosion and Sediment Control

- An erosion and sediment control plan will be developed by contractor and implemented prior to any work within 30 m of the watercourse.
 - Provide regular maintenance to the erosion and sediment control measures during construction. Contractor shall be responsible for ensuring that the erosion and sediment control measures are maintained and will monitor the water clarity downstream of the work site throughout the day and during rain events. Water quality is to meet the *Canadian Water Quality Guidelines for the Protection of Aquatic Life*. Monitoring for visible plumes outside of the work area is to be undertaken.
 - At a minimum, the erosion and sediment control plan will include the installation of sediment fencing along the east, west and north sides. Properly keyed in to prevent turbidity from reaching wetland or river.
 - Any fence situated at the base of the fill, within the area that floods during periods of high water, must be removed before spring freshet and other suitable measures put in place (above the area that floods).
 - Additional materials (*i.e.*, rip rap, filter cloth and silt fencing) will be readily available in case they are needed promptly for erosion and/or sediment control.
- Any stockpiles of soil or fill material will be stored as far as possible from the channel and protected by silt fencing (minimum 30 m).
- The sediment fencing will not be removed until the bank is stabilized (<20% bare soil).
- All equipment working within 30 m of the water will be well maintained, clean and free of leaks.
- Where banks/riparian area (area within 30 m of channel) have been stabilized by seeding and/or planting, monitor the revegetation to ensure that the vegetation becomes fully established.

Contaminant and Spill Management

- All equipment working in or near the water should be well maintained, clean and free of leaks. 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 shoreline in an area where sediment erosion control measures and all precautions have been made to prevent oil, grease, antifreeze, or other materials from inadvertently entering the ground or the surface water flow.
- Emergency spill kits will be located on site. The crew will be fully trained on the use of clean-up materials 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.
- If a spill occurs:
 - Stop all work

- Spills are to be immediately reported to the MECP Spills Action Centre (1800 268-6060). Note that under the *Fisheries Act* deleterious substance includes sediments.
- Clean-up measures are to be appropriate and are not to result in further harm to fish/fish habitat.
- Sediment-laden water will be removed and disposed of appropriately.
- No construction debris will be allowed to enter the watercourse.
- Following the completion of construction, all construction materials will be removed from site.

5.2.5 Significant Wildlife Habitat

The potential for significant wildlife habitat was considered and many species-specific inventories were completed for this project. The *Significant Wildlife Habitat Ecoregion Criteria Schedule for 6E* was used and a table summarizing the conclusions is found in Appendix C. While no significant wildlife habitat was identified, a few items deserve to be highlighted:

- An 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.
- While the turtle surveys did not confirm the use of the area as overwintering by more than 5 individuals (despite being carried out as per the provinces protocols and using spotting scope from the plateau); nesting turtles are present but again far from the site. They are nesting on the east side of Tweddle Road.
- Almost all birds in Ontario are protected by either MBCA or FWCA.
- Most reptiles are protected by the FWCA.
- Killdeer nests were found and protected and should be expected to be present annually.

Potential Impact and Mitigation Measures:

• Almost all breeding birds are protected under the MBCA and/or FWCA. The only species not protected are: American crow, brown-headed cowbird, common grackle, house sparrow, red-winged blackbird, and starling. It is prohibited to destroy or disturb an active nest of other birds, or to take or handle nests, eggs, or nestlings. In this part of Ontario, the current standard nesting period is between **April 5 to August 28**. Outside of this timing window, it is considered unlikely that birds would be nesting. Note, there are some birds (birds of prey, herons etc.) that do begin nesting earlier in the year. It should also be noted, that if an active nest is present before or after the above dates that it is still protected.

- There is a high potential for ground nesting birds (i.e., killdeer) to be present. These prefer to nest on bare soil or gravel areas. Perform regular walks of the cleared areas looking for ground nesters. If any are present, the contact a biologist for guidance.
- Work during the daytime hours to prevent light disturbances.
- Ensure that all equipment have the appropriate mufflers to reduce noise disturbances.
- If a turtle nest is suspected, then flag a 10 m buffer to protect the nest. Contact MECP (for SAR) and MNRF (all other species).
- Do not flag bird nests as it attracts predators.

5.2.6 Urban Natural Feature

Note that the new Schedule C-11 does not include the conceptual development footprint within the Natural Heritage System Core Area. This has been interpreted to mean that the Urban Natural Area #92's boundary has been amended. This would better match what was observed on site. As such, there is no potential for direct impacts to the UNA. The need for indirect impacts depends on the function of the UNA.

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)
- o 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.

Potential Impact and Mitigation Measures:

As mentioned above, there are no direct impacts to this UNA. Early in the design, the location of the conceptual development footprint was adjusted to minimize impacts to the natural heritage features. Indirect impacts have been avoided through the measures outlined above for wetlands, woodlands and fish habitat. No additional measures are required.

5.2.7 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. Invasive species on site (i.e., Common Reed, buckthorn, honeysuckle) should be removed as appropriate for the species. See National Capital Commission website (https://ncc-ccn.gc.ca/projects/management-of-invasive-alien-plants).

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 14: Constraints



Bowfin Environmental Consulting/CIMA+ June 20, 2022

Activity	Natural Heritage	Potential Effect	Proposed Mitigation	Residual Effect
	Feature/Function			
Construction				
Vegetation Clearing in preparation development	Breeding bird and urban wildlife habitat Urban Woodlot on private land. Working near PSW (marsh habitat, and fish habitat)	Removal of vegetation would destroy (temporarily or permanently) breeding habitat. Indirect impacts to vegetation not scheduled to be removed. Introduction of non-native vegetation. Potential to injure or kill wildlife during construction as a result of collisions.	 Machinery should be cleaned prior to arriving on-site to prevent the potential spread of invasive species. Invasive species on site (i.e., Common Reed, buckthorn, honeysuckle) should be removed as appropriate for the species. See National Capital Commission website (https://ncc-ccn.gc.ca/projects/management-of-invasive-alien-plants). Conceptual development footprint was altered to minimize impacts and provide ±30m setback from natural features except for the Urban Woodland. Any landscape plans should include native species as much as possible. Various species could be used including red maple, sugar maple, hickory, bur oak 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 2 days prior to clearing 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. If an individual is found, work that puts the individual in danger will cease (i.e., moving machinery), and the individual will be watched from far to document where and when it leaves the site 	Positive following offset Loss of small portion of Urban Woodlot (0.11 ha) to be offset with roughly 0.22 ha of new woodland along the shoreline. The total enhancement area included 0.83ha of which 0.13 ha has already been constructed as wetland.

Table 8Summary of Impacts, Mitigation Measures and Residual Effects

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			 to be relocated. Contact a biologist experienced with this species to relocate the individual. 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. Contractor is to perform daily sweeps during the active season (approximately April 15 to October 16, subject to weather conditions). Sediment fencing shall be installed on three sides of the work area (north, east and west), and this will include the enhancement area during its rehabilitation. The fence will be designed to serve for erosion and sediment control and for temporary turtle exclusion. This fence should be installed prior to May 1 (to minimize potential for nesting turtles). The conceptual development footprint is a minimum of 30 m from the new PSW boundary (boundary information to be provided to NDMNRF). 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 will be reported to MECP and NHIC. 	
			• Should an individual be harmed or killed then work will stop and MECP will be contacted immediately.	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			 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. If a SAR is encountered, this information will be provided to the Natural Heritage Information Centre (Report rare species (animals and plants) Ontario.ca) 	
			 Contractor is to refer to the City of Ottawa Protocol for Wildlife Protection during Construction (August 2015). No signs, notices or posters should be attached to any trees. 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 reneing instea 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. 	

 Linking that the grades are matched at the limit of the natural feature on 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 eanopy 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 Mose provided in the retained (breeding bind and urban wildlife habitat, shoreling stabilization) Noise from machinery may also cause a disturbance to wetland. Site instruction will be provided to contract or to highlight that the Ottawa River provides permanent fish habitat. Site instruction will be provided permanent shult the trait of the clause slope instability. Site instruction will be provided permanent shult and so dance measures (i.e., turtle fencing). Site instruction will be provided permanent shult the deal of any will be developed by contractor and sediment control measures will be installed prior to the clearing of vegetation within 30 m of the watercourse. Ontawa River provides permanent shubitat. An erosion and sediment control plan will be developed by contractor and implemented prior to any work within 30 m of the watercourse. Provide regular maintenance to the erosion and sediment. 	ed that easures are lemented and

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
		Introduction of non-native vegetation. Potential to injure or kill wildlife during construction as a result of collisions.	 responsible for ensuring that the erosion and sediment control measures are maintained and will monitor the water clarity downstream of the work site throughout the day and during rain events. Water quality is to meet the <i>Canadian Water Quality Guidelines for the Protection of Aquatic Life</i>. Monitoring for visible plumes outside of the work area is to be undertaken. At a minimum, the erosion and sediment control plan will include the installation of sediment fencing along the east, west and north sides. Properly keyed in to prevent turbidity from reaching wetland or river. Any fence situated at the base of the fill, within the area that floods during periods of high water, must be removed before spring freshet and other suitable measures put in place (above the area that floods). Additional materials (<i>i.e.</i>, rip rap, filter cloth and silt fencing) will be readily available in case they are needed promptly for erosion and/or sediment control. Any stockpiles of soil or fill material will be stored as far as possible from the channel and protected by silt fencing (minimum 30 m). The sediment fencing will not be removed until the bank is stabilized (<20% bare soil). Where banks/riparian area (area within 30 m of channel) have been stabilized by seeding and/or planting, monitor the revegetation to ensure that the vegetation becomes fully established. Only work outside of limit of conceptual development footprint is for the rehabilitation. 	

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			 Work during the daytime hours to prevent light disturbances. 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). There is a high potential for ground nesting birds (i.e., killdeer) to be present. These prefer to nest on bare soil or gravel areas. Perform regular walks of the cleared areas looking for ground nesters. If any are present, the contact a biologist for guidance. Work during the daytime hours to prevent light disturbances. Ensure that all equipment have the appropriate mufflers to reduce noise disturbances. If a turtle nest is suspected, then flag a 10 m buffer to protect the nest. Contact MECP (for SAR) and MNRF (all other species). Do not flag bird nests as it attracts predators. 	
Accidents or Malfunctions	UNA, PSW (marsh and fish habitat).	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 working in or near the water should be well maintained, clean and free of leaks. 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 shoreline in an area where sediment erosion control measures and all precautions have been made to prevent oil, grease, antifreeze, or other materials from inadvertently entering the ground or the surface water flow. Emergency spill kits will be located on site. The crew will be fully trained on the use of clean-up materials 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 	Unlikely

Activity	Natural Heritage Feature/Function	Potential Effect	Proposed Mitigation	Residual Effect
			 would halt the activity and corrective measures would be implemented. If a spill occurs: Stop all work Spills are to be immediately reported to the MECP Spills Action Centre (1800 268-6060). Note that under the <i>Fisheries Act</i> deleterious substance includes sediments. Clean-up measures are to be appropriate and are not to result in further harm to fish/fish habitat. Sediment-laden water will be removed and disposed of appropriately. No construction debris will be allowed to enter the watercourse. Following the completion of construction, all construction materials will be removed from site. 	
Operations	Wetland and Urban Woodland (breeding bird, urban wildlife, fish habitat)	Potential for noise and lighting impacts to natural heritage affecting fauna use. Potential for impacts to water quality.	 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 result in the transportation of soil down into the wetland). Lighting will be required to focus on the site itself, as is typical for development in Ottawa. This would be addressed through the site plan review and approval process 	None provided properly designed and installed.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The lands to be developed are bordered by Tweddle Road and Jeanne d'Arc Boulevard North. They consisted of fill with cultural meadows and a small urban woodland. The total area is small (±1 ha).

The north side consists of a wetland which form part of the identified NHS (PSW, ANSI, and UNA). The new NHS mapping (Schedule C-11) does not include the conceptual development footprint.

The PSW will not be directly impacted, and the site has been altered to adhere to a 30 m setback from the current PSW boundary. The removal of the Urban Woodlot will be compensated for in the lands between the river and the development. Further, rehabilitation of the wetland has already begun with Phase 1 Rehabilitation Works in 2022. The wetland was expanded by 0.13 ha.

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, the site has also been altered to be outside of any possible Category 2 habitat for this species. MECP has supported the conceptual development footprint shown in this report provided that temporary and permanent turtle exclusion fencing be constructed and that the mitigation measures outlined here in are followed. Once this project moves sufficiently through the planning process, the final design of the fencing will be provided to MECP.

A Tree Conservation Report has been prepared as a separate report.

Most impacts can be avoided and mitigated through the use of common mitigation measures without residual negative impact. The only exception is the loss of the urban woodland for which offset has been provided. With this offset, there will be a net gain to the natural environment. It is noted that a portion of the gain has already been constructed (0.13 ha of wetland).

The timing windows are summarized here. Any deviation requires additional measures listed in this report.

Clearing of Trees that are 10 cm in diameter at breast height (dbh) or larger

- <u>**Preferred**</u> timing October 1 to March 31 (no additional surveys).
 - Turtle exclusion fence required when clearing between October 1-16

- Erosion and sediment control when clearing within 30 m of fish habitat (any time of year).
- New Butternut inventory needs to be completed during the green-leaf period in advance (Mid-May to end of August)
- City of Ottawa Tree Cutting Permit required.

Clearing of Meadows, Shrubs and Small Trees (<10 cm in dbh)

- <u>**Preferred**</u> timing September 1 to April 4 (no additional surveys).
 - Turtle exclusion fence required when clearing between October 1-16
 - Erosion and sediment control when clearing within 30 m of fish habitat (any time of year)

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./CIMA+

hidoil)

Michelle Lavictoire, Senior Biologist

7.0 **REFERENCES**

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Appendix A: Atlas of the Breeding Birds of Ontario

Squares: 18VR63, 18VR64, 18VR53

Common Name	Scientific Name	ABBO Category	SRANK	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status
		Confirmed	55	no status	no status
	Aix sponsa	Confirmed	<u>55</u>	no status	no status
American Black Duck	Anas rubripes	Confirmed	54	no status	no status
Manard Nextherm Cherceler	Anas platyrnynchos	Duchable	<u>55</u>	no status	no status
Northern Snoveler	Anas ciypeata	Probable	54	no status	no status
Northern Pintail	Anas acuta	Possible	<u>55</u>	no status	no status
Green-winged Teal	Anas crecca	Probable	<u>S4</u>	no status	no status
Blue-winged Teal	Anas alscors	Probable	<u>54</u>	no status	no status
Ring-necked Duck	Aythya collaris	Possible	<u>S5</u>	no status	no status
Lesser Scaup	Aythya affinis	Probable	<u>S4</u>	no status	no status
Common Merganser	Mergus merganser	Probable	\$5B,85N	no status	no status
Gray Partridge	Perdix perdix	Possible	SNA	no status	no status
Ruffed Grouse	Bonasa umbellus	Confirmed	<u>S4</u>	no status	no status
Wild Turkey	Meleagris gallopava	Probable	<u>\$5</u>	no status	no status
Pied-billed Grebe	Podilymbus podiceps	Confirmed	S4B, S4N	no status	no status
American Bittern	Botaurus lentiginosus	Probable	S4B	no status	no status
Great Blue Heron	Ardea herodias	Confirmed	S4	no status	no status
Green Heron	Butorides virescens	Probable	S4B	no status	no status
Turkey Vulture	Cathartes aura	Possible	S5B	no status	no status
Osprey	Pandion haliaetus	Confirmed	S5B	no status	no status
Northern Harrier	Circus cyaneus	Confirmed	S4B	no status	no status
Cooper's Hawk	Accipiter cooperii	Confirmed	S4	no status	no status
Broad-winged Hawk	Buteo platypterus	Possible	S5B	no status	no status
Red-tailed Hawk	Buteo jamaicensis	Probable	S5	no status	no status
American Kestrel	Falco sparverius	Probable	S4	no status	no status
Merlin	Falco columbarius	Confirmed	S5B	no status	no status
Virginia Rail	Rallus limicola	Probable	S5B	no status	no status
Sora	Porzana carolina	Confirmed	S4B	no status	no status
American Coot	Fulica americana	Possible	S4B	no status	no status
Killdeer	Charadrius vociferus	Confirmed	S5B, S5N	no status	no status
Spotted Sandpiper	Actitis macularia	Confirmed	S5	no status	no status
Upland Sandpiper	Bartramia longicauda	Possible	S4B	no status	no status
Common Snipe	Gallinago delicata	Probable	S5B	no status	no status
American Woodcock	Scolopax minor	Probable	S4B	no status	no status
Black Tern	Chlidonias niger	Confirmed	S3B	SC	no status
Rock Pigeon	Columba livia	Confirmed	SNA	no status	no status
Mourning Dove	Zenaida macroura	Confirmed	S5	no status	no status
Black-billed Cuckoo	Coccyzus erythropthalmus	Confirmed	S5B	no status	no status

				ESA	SARA
				Reg.	Schedule
		ABBO		230/08	1 List of
Common Name	Scientific Name	Category	SKANK	SARO	Wildlife
				List	SAR
				Status	Status
Eastern Screech-Owl	Megascops asio	Possible	S4	no status	no status
Great Horned Owl	Bubo virginianus	Confirmed	S4	no status	no status
Short-eared Owl	Asio flammeus	Confirmed	S2N, S4B	SC	SC
Chimney Swift	Chaetura pelagica	Probable	S4B, S4N	THR	THR
Ruby-throated Hummingbird	Archilochus colubris	Probable	S5B	no status	no status
Belted Kingfisher	Ceryle alcyon	Confirmed	S4B	no status	no status
Yellow-bellied Sapsucker	Sphyrapicus varius	Confirmed	S5B	no status	no status
Downy Woodpecker	Picoides pubescens	Confirmed	S5	no status	no status
Hairy Woodpecker	Picoides villosus	Confirmed	S5	no status	no status
Northern Flicker	Colaptes auratus	Confirmed	S4B	no status	no status
Pileated Woodpecker	Dryocopus pileatus	Confirmed	S5	no status	no status
Eastern Wood-Pewee	Contopus virens	Confirmed	S4B	SC	SC
Alder Flycatcher	Empidonax alnorum	Probable	S5B	no status	no status
Willow Flycatcher	Empidonax traillii	Probable	S5B	no status	no status
Least Flycatcher	Empidonax minimus	Confirmed	S4B	no status	no status
Eastern Phoebe	Sayornis phoebe	Confirmed	S5B	no status	no status
Great Crested Flycatcher	Myiarchus crinitus	Confirmed	S4B	no status	no status
Eastern Kingbird	Tyrannus tyrannus	Confirmed	S4B	no status	no status
Blue-headed Vireo	Vireo solitarius	Possible	S5B	no status	no status
Blue-gray Gnatcatcher	Polioptila caerulea	Confirmed	S4B	no status	no status
Warbling Vireo	Vireo gilvus	Confirmed	S5B	no status	no status
Red-eyed Vireo	Vireo olivaceus	Confirmed	S5B	no status	no status
Blue Jay	Cyanocitta cristata	Confirmed	S5	no status	no status
American Crow	Corvus brachyrhynchos	Confirmed	S5B	no status	no status
Common Raven	Corvus corax	Confirmed	S5	no status	no status
Horned Lark	Eremophila alpestris	Probable	S5B	no status	no status
Purple Martin	Progne subis	Confirmed	S3S4B	no status	no status
Tree Swallow	Tachycineta bicolor	Confirmed	S4B	no status	no status
Northern Rough-winged	Stalaidantar a comin	Dorail-1-	S4D	no stat	no stat
Swallow	Stelgtaopteryx serripennis	Possible	54B	no status	no status
Bank Swallow	Riparia riparia	Confirmed	S4B	THR	THR
Cliff Swallow	Petrochelidon pyrrhonota	Confirmed	S4B	no status	no status
Barn Swallow	Hirundo rustica	Confirmed	S4B	THR	THR
Black-capped Chickadee	Poecile atricapilla	Confirmed	S5	no status	no status
Red-breasted Nuthatch	Sitta canadensis	Probable	S5	no status	no status
White-breasted Nuthatch	Sitta carolinensis	Confirmed	S5	no status	no status
Brown Creeper	Certhia familiaris	Probable	S5B	no status	no status
Carolina Wren	Thryothorus ludovicianus	Possible	S4	no status	no status
House Wren	Troglodytes aedon	Confirmed	S5B	no status	no status
Winter Wren	Troglodytes troglodytes	Probable	S5B	no status	no status
Marsh Wren	Cistothorus palustris	Confirmed	S4B	no status	no status

Common Name	Scientific Name	ABBO Category	SRANK	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status
Golden-crowned Kinglet	Regulus satrapa	Possible	S5B	no status	no status
Eastern Bluebird	Sialia sialis	Confirmed	S5B	no status	no status
Veery	Catharus fuscescens	Probable	S4B	no status	no status
Hermit Thrush	Catharus guttatus	Possible	S5B	no status	no status
Wood Thrush	Hylocichla mustelina	Probable	S4B	SC	THR
American Robin	Turdus migratorius	Confirmed	S5B	no status	no status
Gray Catbird	Dumetella carolinensis	Confirmed	S4B	no status	no status
Brown Thrasher	Toxostoma rufum	Confirmed	S4B	no status	no status
European Starling	Sturnus vulgaris	Confirmed	SNA	no status	no status
Cedar Waxwing	Bombycilla cedrorum	Confirmed	S5B	no status	no status
Nashville Warbler	Vermivora ruficapilla	Confirmed	S5B	no status	no status
Yellow Warbler	Dendroica petechia	Confirmed	S5B	no status	no status
Chestnut-sided Warbler	Dendroica pensylvanica	Confirmed	S5B	no status	no status
Magnolia Warbler	Dendroica magnolia	Possible	S5B	no status	no status
Yellow-rumped Warbler	Dendroica coronata	Probable	S5B	no status	no status
Black-throated Green Warbler	Dendroica virens	Probable	S5B	no status	no status
Pine Warbler	Dendroica pinus	Probable	S5B	no status	no status
Black-and-white Warbler	Mniotilta varia	Probable	S5B	no status	no status
American Redstart	Setophaga ruticilla	Confirmed	S5B	no status	no status
Ovenbird	Seiurus aurocapillus	Probable	S4B	no status	no status
Northern Waterthrush	Seiurus noveboracensis	Possible	S5B	no status	no status
Mourning Warbler	Oporornis philadelphia	Confirmed	S4B	no status	no status
Common Yellowthroat	Geothlypis trichas	Confirmed	S5B	no status	no status
Canada Warbler	Wilsonia canadensis	Possible	S4B	SC	THR
Chipping Sparrow	Spizella passerina	Confirmed	S5B	no status	no status
Clay-colored Sparrow	Spizella pallida	Probable	S4B	no status	no status
Field Sparrow	Spizella pusilla	Possible	S4B	no status	no status
Vesper Sparrow	Pooecetes gramineus	Possible	S4B	no status	no status
Savannah Sparrow	Passerculus sandwichensis	Confirmed	S4B	no status	no status
Song Sparrow	Melospiza melodia	Confirmed	S5B	no status	no status
Swamp Sparrow	Melospiza georgiana	Confirmed	S5B	no status	no status
White-throated Sparrow	Zonotrichia albicollis	Confirmed	S5B	no status	no status
Dark-eyed Junco	Junco hyemalis	Possible	S5B	no status	no status
Scarlet Tanager	Piranga olivacea	Confirmed	S4B	no status	no status
Northern Cardinal	Cardinalis cardinalis	Confirmed	S5	no status	no status
Rose-breasted Grosbeak	Pheucticus ludovicianus	Confirmed	S4B	no status	no status
Indigo Bunting	Passerina cyanea	Probable	S4B	no status	no status
Bobolink	Dolichonyx oryzivorus	Confirmed	S4B	THR	THR
Red-winged Blackbird	Agelaius phoeniceus	Confirmed	S4	no status	no status
Eastern Meadowlark	Sturnella magna	Confirmed	S4B	THR	THR
Common Grackle	Quiscalus quiscula	Confirmed	S5B	no status	no status

Common Name	Scientific Name	ABBO Category	SRANK	ESA Reg. 230/08 SARO List Status	SARA Schedule 1 List of Wildlife SAR Status
Brown-headed Cowbird	Molothrus ater	Confirmed	S4B	no status	no status
Baltimore Oriole	Icterus galbula	Confirmed	S4B	no status	no status
Purple Finch	Carpodacus purpureus	Probable	S4B	no status	no status
House Finch	Carpodacus mexicanus	Confirmed	SNA	no status	no status
Pine Siskin	Carduelis pinus	Possible	S4B	no status	no status
American Goldfinch	Carduelis tristis	Confirmed	S5B	no status	no status
House Sparrow	Passer domesticus	Confirmed	SNA	no status	no status

Status Updated March 25, 2021

SRANK DEFINITIONS

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

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

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).

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. 	 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.
	THREATENED	

			~ · · · ·
Photo: Royal Ontario Museum website http://www.rom.on.ca/en/ontario/fieldguide	Photo: vt.audubon.org	 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 	 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.
		THREATENED	
		Eastern Meadowlark	
		Medium-sized	
		songbird	
		Bright yellow	
		belly and throat	
		• Black "V" on its	
		breast and white	
S AL Gas	States and a second second	flanks with black	
		streaks	
		• Their backs are	
		mainly brown with	
Photo: Royal Ont	ario Museum website	DIACK SUPERKS	
<u>nup://www.rom.on.</u>	ca/en/ontario/neioguide	THREATENED	

Bowfin Environmental Consulting/CIMA+

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: Significant Wildlife Habitat Table

Significant Wildlife	Can	didate SWH	Confirmed SWM	Commonts
Habitat	ELC Codes	Additional Criteria Summary	In Site In Adjacent Lands	Comments
		Seasonal Concentration Ar	eas of Animals	
Waterfowl stopover and staging areas (terrestrial)	Certain cultural meadow or thicket <u>Plus,</u> evidence of annual spring flooding	Fields flooded from mid-March to May	No fields present	Not discussed further
Waterfowl stopover and staging areas (aquatic)	Specific aquatic habitat types (marsh, swamps)	Ponds, marshes, lakes, bays, coastal inlets, and watercourses used for migration. Stormwater and sewage management facilities are not included.	 There is a potential however, however it has not been designated as such and is over 28 km from any of the Important Bird Areas of Canada on the Ottawa River. Early spring visits took place and one September visit, and no large congregations were observed. 	Not Present; Not discussed further
Shorebird migratory stopover area	Beach/Bar Sand Dunes Meadow marsh	Shorelines used in May to mid-June and early July to October. Stormwater and sewage management facilities are not included.	No shorelines, beaches, bars, dunes, or meadow marshes	Not Present; Not discussed further
Raptor wintering area	Requires combination of forest (deciduous, mixed, or coniferous) and upland (cultural meadow, cultural thickets, cultural savannahs or cultural woodlands)	Combination of habitats must >20 ha and the field portion must be wind swept with little accumulation of snow. Where site is for eagles, open water and large trees and snags must be available.	The overall woodland stand is only 7 ha. Suitable habitat is not present	Not discussed further
Bat hibernacula	Crevices and caves	Active mines are not to be included. Buildings are not included.	No crevices or caves present	Not Present; Not discussed further

Significant Wildlife	Can	didate SWH	Confirmed SWM		Commonto
Habitat	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	Comments
Bat maternity colonies	Deciduous, or mixed forests Deciduous or mixed Swamps (>5m tall)	 >10/ha large diameter (>25 cm diameter at breast height) Snag trees in the decay classes 1-3 are preferred. 	A bat cavity tree inventory bat exit surveys. No use Timing windows for SAR ba	was completed followed by of the cavities was found. bats will protect for general tts.	Not Present; Not discussed further
Turtle wintering areas	Swamps, marshes, open water, shallow water, open fen, or open bog	Water that is deep enough not to freeze solid with soft bottoms. Must be permanent waterbody (or wetlands with adequate dissolved oxygen)	The Ottawa River can pro habitat. Five basking turtle per the province's protoc Turtles were observed, t numbers. However, in the was observed clo	ovide turtle overwintering surveys were completed as cols. While some Painted hese were insufficient in fall, a Snapping Turtle nest ose to the Marina.	Not confirmed; overwintering habitat will not be impacted.
Reptile hibernaculum	Any habitat except very wetlands Talus, rock barren, cave and alvar	For snakes – needs to be below frost lines.	The provinces snake surv and the site did not meet the	ey protocol was followed, he minimum requirements.	Not Present; Not discussed further
Colonially – Nesting bird breeding habitat (Bank and Cliff Swallow)	Exposed sandy slopes of banks or piles. Cliff faces or structures (bridges, silos etc)	Does not include licensed aggregate areas. Does not include man-made structures or recently (within 2 years) disturbed soil	No exposed bank	s or cliffs present.	Not Present; Not discussed further
Colonially – Nesting bird breeding habitat (Trees/Shrubs)	Swamps – deciduous or mixed (trees >5m) Treed fen	Typically requires tall trees as nests are usually 11-15m from ground but shrubs and emergent vegetation could be used.	Breeding bird surveys were nesting species	completed, and no colonial were observed.	Not Present; Not discussed further

Significant Wildlife	Cand	idate SWH	Confirmed SWM		Commonte
Habitat	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	Comments
Colonially – Nesting bird breeding habitat (Ground)	Any rocky island or per For Brewer's Blackbird – near	ninsula on lake or large river. watercourses in open fields, pastures	No rocky islands, or peninsulas were present. Breeding bird surveys were completed, and no colonial nesting species were observed.		Not Present; Not discussed further
Migratory butterfly stopover area Landbird migratory stopover area		Not applicable to Ottawa Are	a – must be within 5 km of	Lake Ontario	
Deer yarding areas	Mixed or coniferous forests or swamps (>5m tall trees) Can include plantations, cultural thickets, or dry-fresh poplar-white birch deciduous forest	These are mapped by OMNRF	None mapped by	OMNRF for this area	Not Present; Not discussed further
Deer winter congregation area	All forest and wetland habitats and small conifer plantations	These are mapped by OMNRF (typically, >100ha in size)			Not Present; Not discussed further
	R	are Vegetation Communities or Spec	ialized Habitat for Wildli	ře –	
Cliffs and talus slopes	Near vertical face that is >3m in height (cliff or talus)	Typically, in Niagara Escarpment	Cliffs and talus slop	e habitat were not present	Not Present; Not discussed further
Sand barren	Sand barrens various types but tree cover is always $\leq 60\%$	Must be >0.5ha	Sand barr	ens not present	Not Present; Not discussed further

Significant Wildlife	Can	didate SWH	Confirmed SW	Μ	Commonta
Habitat	ELC Codes	Additional Criteria Summary	In Site In	Adjacent Lands	Comments
Alvar	Alvar, Coniferous forest, cultural meadow, cultural savannah, cultural thickets, and cultural woodlands	Must have at least 4 indicator species with substantial cover (must not have large amounts of exotic or introduced species) Must be >0.5ha	Alvar habitat is typically flat and calcareous bedrock. No	mostly unfractured ot present	Not Present; Not discussed further
Old growth forest	Any forest or treed (>5 m) swamp	Must be at least 30 ha with at least 10 ha of interior habitat (edge considered 100 m) Have specific characteristics (snags, mosaic of gaps, multi-layered canopy)	Urban Woodland did not meet the growth.	requirements for old	Not Present; Not discussed further
Savannah	Tallgrass prairie savannah and cultural savannah	Must have indicator species	No savannah present		Not Present; Not discussed further
Tallgrass prairie	Tallgrass prairie (open prairie - <25% tree cover)	No minimum size	No tallgrass prairie was present.		Not Present; Not discussed further
Other rare vegetation	Provincially rare S1-S3 comm	nunities as described in Appendix M of	None of the communities listed	d for the Ottawa-	Not Present; Not
communities	th	e SWHTG	Carleton Area in Appendix N	A were present.	discussed further
		Specialised Habitat for	·Wildlife		
Waterfowl nesting area	Shallow marsh, meadow marsh, thicket swamp or deciduous (treed >5 m tall) swamps	Wetland must be 0.5 ha or consist of up to 3 smaller wetlands within 120 m of each other if known nesting is occurring.	Between the dedicated breeding b incidental observations, the site minimum requirements of 3 or m species (American Black Duck, Northern Shoveler, Gadwall, B	oird surveys and the e did not meet the fore nesting pairs of , Northern Pintail, Blue-winged Teal,	Not Present; Further wetland is being protected.

Significant Wildlife	Car	ndidate SWH	Confirmed SWM	Commonta
Habitat	ELC Codes	Additional Criteria Summary	In Site In Adjacent Lands	Comments
			Green-winged Teal, Wood Duck, Hooded Merganser) or 10 or more pairs of Mallards.	
Bald Eagle and Osprey nesting, foraging, and perching habitat	Any forest or swamp (trees >5m) type of habitat that is immediately next to rivers, lakes, ponds, or wetlands	Nests on man-made structures are not included.	None present	Not Present; Not discussed further
Woodland raptor nesting habitat	Any forest habitat or treed swamp (>5m tall) or coniferous plantation	Stand must be > 30 ha with >10 ha of interior habitat (edge is 200 m)	Minimum habitat requirements not present; no nesting raptors noted during surveys.	Not Present; Not discussed further
Turtle nesting areas	Shallow marsh, shallow water, open bog	Close to water but away from roads. It must provide sand and gravel that turtles can dig through and be in open sunny areas. Areas on the sides of municipal or provincial roads are not included.	Not present in the conceptual development footprint or in the fill. Surveys conducted and while Painted Turtles tried to nest, they abandoned their efforts due to heavily compacted fill. Snapping Turtles nested further north on Tweddle Road.	Not Present; Not discussed further
Seeps and springs	Any forested community could have a seep/spring	Forest area with <25% meadow/pasture in the headwaters of a stream.	Candidate habitat not present	Not Present; Not discussed further
Amphibian breeding habitat (woodland)	Any forest or treed swamp (>5m tall trees)	Wetland, pond, or vernal pool must be > 500 m ² Those with water until mid-July (during most years) are better candidates	Woodland breeding habitat not present; MMP Amphibian Breeding surveys conducted, and none heard in conceptual development footprint	Not Present; Not discussed further

Significant Wildlife	Can	didate SWH	Confirmed SWM		Commonto
Habitat	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	Comments
Amphibian breeding habitat (wetlands)	Swamps, marsh, fen, bog, open water, or shallow water	Unless it is a larger wetland, must be >120 m from woodlands Must be > 500 m ²	Only amphibian breeding found was in the Ottawa River away from the conceptual development footprint.		Not Present; Not discussed further
Woodland area- sensitive bird breeding habitat	Any forest or treed swamp (>5 m tall)	Interior habitat (200m edge used) in mature (>60 years) large (>30 ha) stand	Candidate h	abitat not present.	Not Present; Not discussed further
	Habitat for Spe	cies of Conservation Concern (not inclue	ding Endangered or Th	reatened Species)	
Marsh bird breeding habitat	Meadow marsh, sha	allow water, fen, or open bog	A single nesting Sora was identified in the wetland. Does not meet the minimum requirements.		Not Present; Not discussed further
Open country bird breeding habitat	Cultural meadows	Must be large grasslands (>30 ha) Agricultural class 1 and 2 are not included Agricultural lands planted in row crop or intensive hay, or pastures (within past 5 years) not included.	Candidate habitat not present.		Not Present; Not discussed further
Shrub/early successional bird breeding habitat	Cultural thickets or woodlands	Must be > 10 ha Agricultural class 1 and 2 are not included Agricultural lands planted in row crop or intensive hay, or pastures (within past 5 years) not included	Candidate h	abitat not present.	Not Present; Not discussed further

Significant Wildlife	Candidate SWH		Confirmed SWM		Commonts
Habitat	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	Comments
Terrestrial crayfish	Not present in Ottawa Area				
Special concern and rare wildlife species	All special concern or species ranked as S1-S3, SH (plants or animals)	Habitat depends on the species. Of those listed in SWHCS there is a potential for Snapping Turtle.	No S1-S3 or SH species found. But evidence of Snapping Turtles nesting far from the site was confirmed.		Discussed under SWH section.
Animal Movement Corridors					
Amphibian	Any habitat but amphibian breeding wetland habitat must be identified		n/a		Not Present; Not
movement corridor	Any natival out ampinoian tree	ang wenang naonat must be identified	ii/ a		discussed further
Deer movement	All forests but project must be in Stratum II Deer Wintering Area and		Not applicable – no Deer Wintering Areas or Habitat		Not Present; Not
corridor	Deer Wintering Habitat must be confirmed.		identified by OMNRF for area.		discussed further




Appendix E: City of Ottawa Schedule K



Appendix F: City of Ottawa Schedule L1





Appendix G: Site in Relation to the Old UNA Boundary (Boundary was adjusted on Schedule C11-C)

Appendix H: Bedrock Elevation



Appendix I: Depth of Overburden



Appendix J: Hydrological Soil Group



Appendix K: Physiographic Unit



Appendix L: Soils



Appendix M: DFO NASAR Mapping



If you encounter an aquatic species at risk in an area that is not currently mapped, please notify your regional Fisheries Protection Program office to ensure that you are compliant with the Species at Risk Act. The official source of information for species at risk is the Species at Risk Public Registry <u>www.sararegistry.gc.ca</u>

To protect fish and fish habitat, including aquatic species at risk, their residences, and their critical habitat, efforts should be made to avoid, mitigate and/or offset harm. Following the measures to avoid harm will help you comply with the Fisheries Act and the Species at Risk Act.

Critical habitat for these species is found within the outlined area

Critical habitat is identified in recovery strategies or action plans for species listed under Schedule 1 of the Species at Risk Act as extirpated, endangered or threatened.

Name	Where Found	Species Status
	No critical habitat	

Species found (or potentially found) within the outlined area

Name	Where Found	Species Status
Channel Darter - St. Lawrence	Ottawa River/Rivière des Outaouais	Special Concern
Hickorynut	Ottawa River/Rivière des Outaouais	Endangered
Hickorynut	Rivière des Outaouais/Ottawa River	Endangered
Northern Brook Lamprey - Great Lakes - Upper St. Lawrence	Ottawa River/Rivière des Outaouais	Special Concern
River Redhorse	Ottawa River/Rivière des Outaouais	Special Concern
Silver Lamprey - Great Lakes - Upper St. Lawrence	Ottawa River/Rivière des Outaouais	Special Concern

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