

# **Environmental Impact Statement**

1101A, 1105 & 1163 KINGSTON ROAD, PICKERING

Prepared for

**Tribute (Brookdale) Communities Limited**

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Prepared by



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## 1. Introduction

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GeoProcess Research Associates Inc. (GeoProcess) was retained by Tribute (Brookdale) Communities Limited to complete an Environmental Impact Study (EIS) for the proposed development of high density residential buildings at the property located at the Brookdale Centre at 1101A, 1105, and 1163 Kingston Road in Pickering, Ontario. The proposed development area includes the current footprint of five commercial buildings, their associated paved parking lots, and a portion of Walnut Lane which will be extended in the future in accordance with the City's approved Environmental Assessment. This will herein be referred to as the Subject Property. The location of the site is shown on **Map 1**.

This EIS establishes the extent and function of the natural heritage system on the Subject Property based on the policies of the City of Pickering, Durham Region, and the Province of Ontario.

### 1.1. Study Area

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The Study Area will include the Subject Property and lands within 120 m of the property limits. The Subject Property is located north of Highway 401 at the Brookdale Centre at 1101A and 1105 Kingston Road in Pickering, Ontario and is situated within the City Centre neighbourhood of Pickering. The Subject Property contains five commercial buildings with their associated parking lots and is adjacent to Walnut Lane. South of the Subject Property is Highway 401 and a freight and passenger rail corridor. South-east of Hwy 401 is Pickering GO Station. Beyond Highway 401 and south of the GO Station is the Bay Ridges Neighbourhood. Directly east of the Subject Site is Pine Creek with an associated wetland.

A linear meadow marsh community is associated with the watercourse and has been classified as a Provincially Significant Wetland (PSW) by the Ministry of Natural Resources and Forestry (MNRF). It is aligned in a north-south direction and connects to Lake Ontario to the south. The creek and riparian community east of the Subject Property connects to a box culvert that passes below Highway 401 to the south. The PSW has been staked by the MNRF and the flood-line on both sides of the watercourse have been reviewed in the field with the Toronto and Region Conservation Authority (TRCA) and determined to be the presiding constraint in place of a top of bank.

The Subject Property is proposed to be the site of a redevelopment project where the existing commercial and parking infrastructure will be replaced with residential towers. The current site plan proposes redevelopment of areas within the current development footprint. Walnut Lane will be extended in the future in accordance with the City's approved Environmental Assessment.

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## 2. Policy Review

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### 2.1. Provincial Policy Statement

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The Provincial Policy Statement (PPS) 2020 is administered under Section 3 of the *Planning Act*. It became effective May 1, 2020 and replaces the 2014 PPS. The PPS applies to planning decisions made on or after that date. It provides policy direction for land use and development within the Province of Ontario and provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment. The policies of the PPS may be complemented by provincial and municipal plans and policies.

The PPS defines eight natural heritage features and provides planning policies for each, listed below. The



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function of Natural Heritage Features and Areas is further clarified by the definition of a Natural Heritage System, which is *“a system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems.”*

- Significant wetlands;
- Coastal wetlands;
- Fish habitat;
- Significant woodlands;
- Significant valleylands;
- Habitat of endangered species and threatened species;
- Significant Wildlife Habitat; and,
- Significant Areas of Natural and Scientific Interest (ANSIs).

Section 2.0 and 3.0 of the PPS deal with development and site alteration, and where these activities shall not be permitted. Section 2.0 policies surround the conservation of biodiversity, and protection of the health of the Great Lakes, natural heritage, water, agricultural, mineral, cultural heritage, and archaeological resources for their economic, environmental, and social benefits. Section 3.0 directs development away from areas of natural or human-made hazards to mitigate risks to public health or safety, and property damage from natural hazards, including the risks that may be associated with the impacts of a changing climate.

Policies in Section 2.1 are particularly relevant as they surround development and site alteration in and adjacent to *natural heritage features*. These policies and select others are outlined below, in Table 1.

Table 1. Applicable Policies of the Provincial Policy Statement

Policy Number	Policy
(2.1 - Natural Heritage)	The diversity and connectivity of natural features in an area and the long-term <i>ecological function</i> and biodiversity of <i>natural heritage systems</i> , should be maintained, restored or where possible, improved, recognizing linkages between and among <i>natural heritage features and areas, surface water features and ground water features</i> .
2.1.2	
2.1.3	<i>Natural heritage systems</i> shall be identified in Ecoregions 6E & 7E <sup>1</sup> , recognizing that <i>natural heritage systems</i> will vary in size and form in <i>settlement areas, rural areas, and prime agricultural areas</i> .
2.1.4	<i>Development</i> and site alteration shall not be permitted in: a) <i>significant wetlands</i> in Ecoregions 5E, 6E and 7E <sup>1</sup> ; and, b) <i>significant coastal wetlands</i> .
2.1.5	<i>Development</i> and site alteration shall not be permitted in: a) <i>significant wetlands</i> in the Canadian Shield north of Ecoregions 5E, 6E and 7E; b) <i>significant woodlands</i> in Ecoregions 6E and 7E (excluding islands in Lake Huron and St. Marys River) <sup>1</sup> ; c) <i>significant valleylands</i> in Ecoregions 6E and 7E (excluding islands in Lake Huron and St. Marys River) <sup>1</sup> ; d) <i>significant wildlife habitat</i> ; e) <i>significant areas of natural and scientific interest</i> ; and f) <i>coastal wetlands</i> in Ecoregions 5E, 6E and 7E <sup>1</sup> that are not subject to policy 2.1.4(b) unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.
2.1.6	<i>Development</i> and site alteration shall not be permitted in <i>fish habitat</i> except in accordance with <i>provincial and federal requirements</i> .
2.1.7	<i>Development</i> and site alteration shall not be permitted in <i>habitat of endangered species and threatened species</i> , except in accordance with <i>provincial and federal requirements</i> .
2.1.8	<i>Development</i> and site alteration shall not be permitted on <i>adjacent lands</i> to the <i>natural heritage features and areas</i> identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the <i>ecological function</i> of the <i>adjacent lands</i> has been evaluated and it has been demonstrated that there will be no <i>negative impacts</i> on the natural features or on their <i>ecological functions</i> .
(2.2 - Water)	<i>Development</i> and site alteration shall be restricted in or near <i>sensitive surface water features and sensitive ground water features</i> such that these features and their related <i>hydrologic functions</i> will be protected, improved or restored.
2.2.2	Mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore <i>sensitive surface water features, sensitive ground water features, and their hydrologic functions</i> .
(3.1 - Natural Hazards)	Development shall generally be directed, in accordance with guidance developed by the Province (as amended from time to time), to areas outside of: a) <i>hazardous lands</i> adjacent to the shorelines of the <i>Great Lakes - St. Lawrence River System</i> and <i>large inland lakes</i> which are impacted by <i>flooding hazards, erosion hazards</i> and/or <i>dynamic beach hazards</i> ; b) <i>hazardous lands</i> adjacent to <i>river, stream and small inland lake systems</i> which are impacted by <i>flooding hazards</i> and/or <i>erosion hazards</i> ; and c) <i>hazardous sites</i> .
3.1.1	
3.1.3	Planning authorities shall prepare for the impacts of a changing climate that may increase the risk associated with natural hazards

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## 2.2. Durham Region Official Plan

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The current Durham Region Official Plan (ROP) was consolidated in May 2020 and defines the intent of Regional Council in the guidance of growth and development in The Regional Municipality of Durham. Envision Durham (2023) is an updated regional plan, adopted by the Regional Council, that will take the place of the current OP following approval by the Province. As per *Map 1. Regional Structure – Urban and Rural Systems* of the ROP, the Subject Property is designated as *Rapid Transit Corridor*. *Map 2c. Water Resources System – Key Hydrologic Features* of the ROP indicates the presence of Provincially Significant Wetland and the *Urban River Valley* designations for Pine Creek as part of the Greenbelt designation east of the property. These features are associated with Pine Creek. Development or site alteration is not permitted in key natural heritage and/or hydrologic features, including any associated vegetation protection zone, with the exceptions stated in section 2.3.15.

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## 2.3. City of Pickering Official Plan

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The ninth edition of the Pickering Official Plan (OP) was consolidated in March 2022 and guides development and land use for the City. As a foundation, it provides a vision of the City, identifies how the vision can be reached, and establishes a monitoring program for checking progress and making necessary adjustments. All development in the city must conform to the Council approved official plan. As per *Schedule I-Land Use Structure*, the Subject Property is designated primarily as *Mixed Corridor* (a subset of the *Mixed Use Areas* classification), with a north- south oriented component of Natural Area east of the Subject Property which coincides with the path of Pine Creek. Mixed Use Areas are areas and corridors of development that have the highest concentration of activity in the City and the broadest diversity of community services and facilities. Natural Areas is a subcategory of the Pickering’s Open Space System, lands designated as part of the Open Space System are intended to be used primarily for conservation, restoration, environmental education, recreation, and ancillary purposes.

As per *Schedule III A-Resource Management: The Natural Heritage System*, no elements of the Natural System are located within the Subject Property and *Schedule III B-Resource Management: Key Natural Heritage Features* indicates that the Subject Property and its immediate surroundings do not contain mapped natural heritage features.

The presence of a permanent stream and associated stream corridor or significant valleylands are indicated on *Schedule III C-Resource Management: Key Natural Heritage Features/Key Hydrologic Features*. These features coincide within the path of Pine Creek. Key natural heritage and key hydrologic features form the basis of Pickering’s Natural Heritage System and are Subject to minimum vegetation protection zones stated in Table 18 of the Official Plan.

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## 2.4. Toronto and Region Conservation Authority

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The Toronto and Region Conservation Authority (TRCA) is responsible for O. Reg 166/06 – Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, a regulation under the Conservation Authorities Act, 1990. This regulation prohibits development in or on the areas within jurisdiction of the Authority and applies to shorelines, rivers, stream valleys, hazardous lands, wetlands, or areas adjacent to a wetland. A permit may be issued to develop in the regulated areas or alter a channel with or without conditions. A small northeastern portion of the Subject Property is regulated by the TRCA and which extends from Pine Creek, its associated PSW, and an associated engineered flood hazard.

## 2.5. Endangered Species Act

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The *Endangered Species Act (ESA) (2007)* protects habitat and individuals of wildlife species designated as Endangered, Threatened or Extirpated in Ontario. These designations are defined as:

- *Endangered:* A species shall be classified as an endangered species if it lives in the wild in Ontario but is facing imminent extinction or extirpation.
- *Threatened:* A species shall be classified as a threatened species if it lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening to lead to its extinction or extirpation.
- *Extirpated:* A species shall be classified an extirpated species if it lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.

Activities that relate to Species at Risk (SAR) are regulated through the

following subsections: 9 (1) No person shall,

- (a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;

10 (1) No person shall damage or destroy the habitat of,

- (a) a species that is listed on the Species at Risk in Ontario List as an endangered or threatened species;

Or

- (b) a species that is listed on the Species at Risk in Ontario List as an extirpated species, if the species is prescribed by the regulations for the purpose of this clause. 2007, c. 6, s. 10 (1).

Provincial Species at Risk are identified and assessed by the Committee on the Status of Species at Risk in Ontario (COSSARO). The ESA protects species listed by COSSARO as Endangered, Threatened or Extirpated in Ontario and their habitats by prohibiting anyone from killing, harming, harassing, or possessing protected species, as well as prohibiting any damage or destruction to the habitat of the listed species. All listed species are provided with general habitat protection under the ESA aimed at protecting areas that species depend on to carry out their life processes, such as reproduction, rearing, hibernation, migration or feeding. In addition, specific habitat regulations for some species have been developed that specifically define the extent and character of their protected habitat beyond what is stated in the general habitat regulation.

Activities that may impact a protected species or its habitat require the prior issuance of a Permit from the Ministry of Environment, Parks and Conservation (MECP), unless the activities are exempted under Regulation. The current (June 29, 2020) Ontario Regulation 242/08 identifies activities which are exempt from the permitting requirements of the Act, these activities are subject to rigorous controls outside the permit process including registration of the activity and preparation of mitigation plans. Activities that are not exempted under O. Reg. 242/08 require a complete permit application process.

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## 3. Methodology

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### 3.1. Background Studies

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Literature and data pertaining to the Subject Property were reviewed and evaluated to obtain natural heritage data and background planning policy information. A list of documents and information sources consulted for the purpose of this study are provided below:

- Provincial Policy Statement (2020)
- Durham Region Official Plan (2023)
- City of Pickering Official Plan Edition 9 (2022)
- Endangered Species Act (2007) and Ontario Regulation 242/08
- Natural Heritage Information Center (NHIC) database information (current)
- Ontario Faunal Atlases and iNaturalist (current)
- Environmental Assessment data for Walnut Lane Extension

### 3.2. Walnut Lane Environmental Assessment

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As part to the Environmental Impact Study, we reviewed the data collected for the site for the Environmental Assessment for Walnut Lane. The results of this study add to our understanding of the site and a summary of the results are provided below. Excerpts of the EA data are provided in **Appendix A**.

The existing natural vegetation in the Study Area is surrounded by major roadways and intensive commercial development and generally disturbed as evidenced by the high proportion of non-native and invasive plant species. The upland vegetation is of low significance due to the dominance of invasive plant species in most communities. The wetland communities on the floodplain of the Pine Creek have been determined to be part of the Provincially Significant Frenchman's Bay Coastal Wetland Complex which was staked with the TRCA and MNRF. There were no significant woodlands, valleylands or confirmed Significant Wildlife Habitat (SWH) identified within the Study Area.

Breeding bird surveys recorded 21 bird species, none of which were SAR, are sensitive or regionally significant, although most are protected under the Migratory Birds Convention Act, 1994 (MBCA). The table of results is provided in Appendix A.

A total of 158 species of vascular plant species were recorded in the Study Area. Of these, 73 (46%) were non-native and the remaining 85 species (54%) were native, representing a high percentage of non-native species which attests to the disturbed condition and early successional stage of the vegetation communities. In addition, most of the dominant plant species in the Study Area were non-native including Manitoba maple, Russian olive, Scotch pine, Siberian elm, and common reed. No provincially significant or Species at Risk (SAR) plants were identified; however, one regionally rare plant, Baltic rush (*Juncus balticus*), was identified in the Mixed Mineral Meadow Marsh (MAM2).

Potential habitat for bat SAR, listed as Endangered under the Endangered Species Act (ESA), and Monarch, listed as Special Concern under the ESA, is present within the Study Area.

The wetland was comprised of MAM2 and MAMM1-12 communities and is a single MAM2 unit surrounded by four MAMM1-12 units. These wetland units formed a contiguous wetland area of approximately 1.0 ha. There was no standing water in any of the wetlands except in Pine Creek. There was also no evidence of

seasonal flooding, although brief periods of flooding may occur during spring melt or heavy precipitation events when Pine Creek overflows its banks.

The wetland units occurred on mineral soils with minimal organic layer indicating that the communities were young. The wetland consisted entirely of marsh with only minor colonization by shrubs or trees, also a further indication of their young age. A small area of trembling aspen occurred at the northeast fringe of the wetland but only comprised an area of about 0.03 ha which was too small to map.

The plant forms, as recognized by OWES, present in MAMM1-12 were robust emergents (re) and (ne). The MAMM1-12 community was dominated by the invasive common reed which appears to be expanding on-site and is likely to expand into the areas that are presently MAM2. Part of MAMM1-12 consisted exclusively of common reed while elsewhere it was mixed with reed canary grass and forbs, which is a likely indication of when it was colonized by common reed.

The plant forms, as recognized by OWES, present in MAM2 were narrow-leaved emergents (ne) and herb ground cover (gc); refer to Table 3 below. MAM2 was much more floristically diverse, provided better habitat and was a higher functioning wetland community than MAMM1-12. Overall, the wetland on-site was found to contain approximately 80 species of vascular plants (see Table 3, attached) of which one, Baltic rush, is regionally rare in the Durham Region and the Greater Toronto Area according to Varga et al. (2000).

### 3.3. Field Work Completed by GRA

GeoProcess Research Associates conducted field studies of the lands east of the Subject Property to characterize and inventory the natural heritage features and wildlife activity of the Study Area and surrounding landscape. A summary of the field work conducted to date is provided below in Table 2.

*Table 2. Field Work Summary*

Study	Date	Staff
Fall Vegetation Assessment	October 26, 2020	Ian Roul, Ben Angel
Spring Vegetation Assessment	May 17, 2021	Ian Roul
Summer Vegetation Assessment	July 28, 2021	Ian Roul
First Amphibian Survey	April 23, 2021	Devin Hock
Second Amphibian Survey	May 17, 2021	Devin Hock
Third Amphibian Survey	June 7, 2021	Devin Hock
First Breeding Bird Survey	June 8, 2021	Gillian Leava
Second Breeding Bird Survey	June 24, 2021	Gillian Leava

### **3.3.1. Vegetation Assessment**

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Vegetation communities were mapped and described according to the Ecological Land Classification (ELC) system for Southern Ontario (Lee et al. draft 2008). GRA conducted an inventory of the Subject Property during the fall of 2020 and spring 2021. Vegetation community boundaries were determined using desk top analysis and further refined in the field. The results of this assessment are shown on **Map 2**.

### **3.3.2. Species at Risk Screening and Assessment**

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An assessment and screening of potential Species at Risk was conducted for the Subject Property based on Federal and Provincial status. Following the MECP (2019) Client's Guide to Preliminary SAR Screening, this screening was based on a review of the Natural Heritage Information Centre, the regional species list, atlases (breeding bird, butterfly, and moth) citizen of science database (iNaturalist), the Ontario Breeding Bird Atlas (OBBA), and any additional lists provided by the MECP and MNRF. The preliminary screening was submitted as a memo to sar@ontario.ca for assignment to the management biologist review. The species at Risk assessment results are found in Section 5.

### **3.3.3. Significant Wildlife Habitat Screening and Assessment**

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A screening for Significant Wildlife Habitat following the Ministry of Natural Resources and Forestry Significant Wildlife Habitat Technical Guide (2000) and Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E (January 2015) was conducted for the Subject Property. Potential SWH identified was assessed during the complementary field studies. Refer to Section 6 for the results of this assessment.

### **3.3.4. Tree Inventory**

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GRA conducted field studies on August 18, 2021, to identify and assess the existing trees for the Subject Property. An assessment of individual trees included all trees 15 cm Diameter at Breast Height (DBH) or greater for the Subject Property, and trees within 6 metres from the property limit. Trees were assessed for condition utilizing the following parameters:

- **Tree #** - numbers assigned to tree that corresponds to their surveyed/mapped location.
- **Species** - common and botanical names provided in the inventory table.
- **DBH** - diameter (centimeters) at breast height, measured at 1.4 m above the ground.
- **Condition** - condition of trees were assessed as follows:
  - **Trunk integrity (TI)**: conditions on trunk that might affect likelihood of failure based on factors including co-dominant stems, cracks, decay, poor taper, lean, response growth, abnormal or missing/dead bark, etc.
  - **Crown Structure (CS)**: condition on crown structure that might affect likelihood of failure including live crown ratio, presence of defects (including bark, weak attachments, cracks, decay, cavities), crown density.
  - **Crown Vigor (CV)**: an assessment of overall tree health classified as weak/under stress (poor), average vigor for its species and site condition with some signs of stress (fair), growing well and appears to be free of significant health stress factors (good).
- **Canopy Dieback (CDB)**: extent dead branching and canopy cover loss measured as a percentage of the entire crown.



- **Comments** - additional relevant detail.

Trees were surveyed using a tablet with GPS (+/- 5 m of accuracy). Species nomenclature and ranking is based on the Ministry of Natural Resources and Forestry Natural Heritage Information Centre species list. Refer to **Map 4** for the locations of the trees inventoried.

### **3.3.5. Amphibian Surveys**

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Amphibian surveys were completed following the Marsh Monitoring Program protocol (Bird Studies Canada 2009). This required three visits between mid-April and the end of June when there was light to no wind and air temperatures at least 5°C, 10°C, 17°C respectively. The survey was completed on April 23, May 17, and June 7, 2021. Refer to **Map 2** for the respective survey location.

### **3.3.6. Snag Surveys**

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Bat maternity roost habitat (snag) surveys were conducted for little brown myotis (*Myotis lucifugus*) and northern myotis (*Myotis septentrionalis*) following the *Survey Protocol for Species at Risk Bats within Treed Habitats* (MNRF, 2017).

### **3.3.7. Breeding Bird Surveys**

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Breeding bird surveys were undertaken on 2 separate days by a breeding bird expert under appropriate weather conditions. Point count methodology was based on protocols set by the Ontario Breeding Bird Atlas (OBBA, 2001). Bird species were observed for 5 minutes at each breeding bird plot after a 5-minute period of silence upon arriving at the plot. Breeding bird plots were based on broad habitat characteristics, Subject Property size, and a 100 m radius from plot centre. Only species observed within the 100 m radius were recorded. Flyovers did not count toward the total but were noted. Additional observations were also noted. The level of breeding evidence (using Ontario Breeding Bird Atlas [OBBA] protocols) was determined after both surveys. Refer to **Map 2** for the respective survey location.

### **3.3.8. Incidental Wildlife Surveys**

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Formal surveys for mammals, reptiles, and insects were not completed, but incidental observations were completed during other survey times.

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## **4. Existing Conditions**

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### **4.1. General Site Description and Landscape Position**

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The Subject Property is located between Kingston Road to the north and Highway 401 to the south. The Subject Property lies approximately 650 m north of Frenchman's Bay and 2 km north of the shores of Lake Ontario. The immediate surroundings are dominated by commercial and transportation land uses, with shopping malls to the east and west, Kingston Road to the north and Highway 401 and a rail corridor to the south of the Subject Property. Open space associated with Pine Creek extends east of the Subject Property limits through urban ravines in residential neighbourhoods from the north to the south of the Subject Property and is culverted under Kingston Road and Highway 401. In addition to passing under Highway 401, the southern culvert crosses a railway and Bayly Street before outtelling into the Douglas Ravine.



## 4.2. Natural Heritage System

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The City of Pickering acknowledges that achieving an integrated Natural Heritage System is vital to ensuring healthy and resilient watersheds. Protection of this system is encouraged to support ecological integrity, including healthy terrestrial and aquatic ecosystems.

### 4.2.1. South Pickering and the Frenchman's Bay Watershed

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Within the southern, urban portion of the City of Pickering, the majority of lands falling within the Natural Heritage System consist of either the Lake Ontario shoreline and coastal wetlands, or watercourse and valleylands that drain into Lake Ontario. The broader built-up area of southern Pickering is flanked by two major valleys: the Rouge River to the west, bordering The City of Toronto, and Duffins Creek to the east, bordering the Town of Ajax. The largest concentration of coastal wetland is centrally located, surrounding Frenchman's Bay. A drainage area of 2,704 hectares surrounding the bay is defined as the Frenchman's Bay watershed and is considered one of the most densely urbanized areas in Canada. Four main tributaries feed Frenchman's Bay, including Pine Creek, Amberlea Creek, Dunbarton Creek, and Kronso Creek. The headwaters of these tributaries mark the northern extent of the watershed that is enclosed between the Petticoat Creek and Dufferin Creek watersheds.

### 4.2.2. Study Area

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The Subject Property is located west of the Pine Creek valley, whose features represent the main element of the Natural Heritage System located within the Subject Property. Pine Creek originates from a wetland complex along the Lake Iroquois shoreline at the northern limits of Pickering's built-up area. Pine Creek travels through an urban ravine system, passing through residential neighbourhoods consisting of single unit homes and parks. The watercourse flows beneath Kingston Road and through an area of open space within the neighbouring property to the north before reaching the Subject Property. The section of Pine Creek east of the Subject Property is flanked by a riparian meadow marsh community that extends to a box culvert where the watercourse drains south towards Frenchman's Bay and Lake Ontario. Direct hydrological connection exists between the Subject Property and both upstream and downstream sections of Pine Creek but is otherwise ecologically disconnected to the surrounding landscape due to barriers in the form of major transportation corridors and commercial development. The entire length of Pine Creek and associated wetland and valley features are regulated by the TRCA.

## 4.3. Vegetation

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Vegetation surveys were conducted to classify vegetation communities.

### 4.3.1. Ecological Land Classification

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The results of the Ecological Land Classification are presented below in Table 3 and shown on **Map 2**.

Table 3. Ecological Land Classification Summary

ELC CODE	VEGETATION CHARACTERISTICS	COMMENTS
<p><b>MEMM 3-1</b>  <b>Dry-Fresh Mixed Meadow Ecosite</b>  <b>CUT inclusion</b></p>	<p>Dominant: Kentucky bluegrass, smooth brome, Canada goldenrod                      Secondary/Common: dog strangling vine, Canada thistle                      elecampane                      New England aster, white aster</p>	<p>This community dominates the south eastern portion of the site primarily in the area of the proposed development. It is characteristic of a regenerating community on disturbed lands and fill.</p>
<p><b>WODM 4</b>  <b>Deciduous Woodland</b></p>	<p>Common: Russian olive, Siberian elm, buckthorn, sumac</p>	<p>This community dominates the land on the east side of the valley and the remnant fill piles. The high percentage of invasive species are consistent with the fill and disturbance on the site.</p>
<p><b>MAMM 1</b>  <b>Graminoid Mineral Meadow Marsh Ecosite</b></p>	<p>Locally dominant: cattails, common reed                      Secondary: reed-canary grass                      Common: panicked aster, Joe Pye weed, red osier dogwood</p>	<p>This community is located within the floodplain of the Pine Creek and is the basis for the Provincially Significant Wetland identified by the MNR.</p>
<p><b>MAMM1-12</b>  <b>Common Reed Mineral Meadow Marsh</b></p>	<p>Dominated by <i>Phragmites australis</i>.                      Heavily impacted by roadside drainage from the 401.</p>	<p>This community is located in the drainage ditch that runs along the north side of the 401.</p>

ELC CODE	VEGETATION CHARACTERISTICS	COMMENTS
<p><b>FODM 8-1</b>  <b>Fresh-Moist Poplar Mixed Forest Type</b></p>	<p>Locally dominant: trembling aspen.                      Manitoba maple</p> <p>Common: willow, Siberian elm, Russian olive, cottonwood, buckthorn, ash</p> <p>Avens, violet, garlic mustard</p>	<p>This community is located on the northern central portion of the Subject Property and is primarily contained within the 30 m buffer to the wetland.</p>
<p><b>FOMM5-2</b></p>	<p>Locally dominant: Scots pine, trembling aspen</p> <p>Secondary: Young white spruce</p> <p>Common: Canada goldenrod, Manitoba maple, Riverbank grape</p>	<p>This community is located adjacent to a parking lot on the western side of the watercourse.</p>

#### 4.3.2. Provincially Significant Wetland

As part of the EA process, AECOM with the MNRF completed a wetland evaluation to determine if the wetland should be complexed with the Frenchman’s Bay Coastal Wetland Complex. As noted in their report, *the wetland was comprised of MAM2 and MAMM1-12 communities: is a single MAM2 unit surrounded by four MAMM1-12 units. Please refer to the attached Figure 1 for the Study Area boundary, ELC community delineations, and locations of Regionally Rare Baltic rush (Juncus balticus). These wetland units formed a contiguous wetland area of approximately 1.0 ha. There was no standing water in any of the wetlands except in Pine Creek. There was also no evidence of seasonal flooding, although brief periods of flooding may occur during spring melt or heavy precipitation events when Pine Creek overflows its banks.*

*The wetland units occurred on mineral soils with minimal organic layer indicating that the communities were young. The wetland consisted entirely of marsh with only minor colonization by shrubs or trees, also a further indication of their young age. A small area of trembling aspen occurred at the northeast fringe of the wetland but only comprised an area of about 0.03 ha which was too small to map.*

Mapping of the wetland plus a 30 m buffer has been used to determine the limits of the proposed development. The small portion of MAMM 1-12 that is contained within the drainage ditch of the Highway 401 and dominated by *Phragmites australis* were shown to extend beyond the limit of the staked boundary

and was not provided a 30 m buffer based on the fact this feature is contained within the drainage of the Highway 401 right of way. No new development is proposed outside of the existing commercial and parking infrastructure on the Subject Property, and therefore buffer limits will remain intact.

#### 4.4. Amphibian Survey

The following Table 4 summarizes the details and findings of the breeding amphibian surveys conducted at the Subject Property. Refer to **Map 2** for the survey location.

Table 4. Breeding Amphibian Survey Results

Survey	Species	S Rank	Station	Code IN	Description	Code OUT	Weather
1 <sup>st</sup> visit April 23, 2021 20:15 h					No calling recorded.		15°C No cloud cover No wind No precipitation
2 <sup>nd</sup> visit May 17, 2021 21:26 h					No calling recorded.		16°C No cloud cover No cloud cover No wind No precipitation No precipitation
3 <sup>rd</sup> visit June 7, 2021 21:30 h					No calling recorded.		24°C 9/10th cloud cover No wind No precipitation

Station A was located at approximately 43° 52' 59" N 79° 3' 47" W at the northwestern edge of the wetland area at the base of a slope. From this station, facing south, the entire wetland area falls within the 100m survey radius. No calls were observed within the survey radius during any of the visits.

#### 4.5. Breeding Bird Survey

One breeding bird plot was established east of the Subject Property, refer to **Map 2** for the survey location. The survey was conducted in suitable conditions between 5-10 am. The breeding bird plot is described as follows:

**491-1:** The plot was north facing upland of Pine Creek and associated wetland and valleyland. Habitats included open mixed meadow with treed areas to the south, and riparian vegetation to the north.

Table 5. Survey Conditions

Visit Date	Visit Time	Temp. Range (°C)	Cloud Cover (%)	Wind Speed (Beaufort Scale)
06/08/21	08:03-08:13	21	100	1
06/24/21	07:40-07:50	17	20	2

Species heard and or observed within the 100m plot were recorded and the level of breeding evidence (using Ontario Breeding Bird Atlas [OBBA] protocols) was determined after completion of both surveys

Table 6. Breeding Bird Survey Results

SPECIES	Number of Birds	Breeding Level	COSSARO/ COSEWIC	S Rank	Comment
American robin	2	S/T/A	S5	S5	
song sparrow	3	S/T	S5	S5	
red-winged blackbird	4	S/T/A	S5	S5	
willow flycatcher	1	S/T	S4B	S4B	
cedar waxwing	2	S/T	S5B	S5	
yellow warbler	2	S/T	S5B	S5B	
American goldfinch	3	S/T	S5B	S5	
European starling		S/T	SNA	SNA	Non-native
northern mockingbird	1	S/T		S4	Imitating several bird species including blue jay and gray catbird

In the species columns, each species is assigned a breeding level, based on the highest level of breeding evidence observed, by plot. A species observed, showing no breeding evidence or where no suitable habitat is present, is marked 'X'. The number recorded represents the highest one-day total for that species.

**OBBA Breeding Evidence Codes**

**POSSIBLE**

**H-** species observed in breeding season in suitable nesting habitat

**S-** singing male present or breeding calls heard in breeding season in suitable habitat

**PROBABLE**

**P-** pair observed in their breeding season in suitable habitat

**T-** permanent territory presumed through registration of territorial song or presence of adult bird in breeding habitat on at least 2 days, one week or more apart at the same place.

**D-** courtship or display between a male and female, or two males including courtship feeding and copulation.

**V**-visiting probable nest site.

**A**-agitated behavior or anxiety calls of adults

**B**-brood patch on adult female or cloacal protuberance on adult male

**N**-nest building or excavation of nest hole

## **CONFIRMED**

**DD**-distraction display or injury feigning

**NU**-used nest or eggshell found [occupied/laid during atlas period]

**FY**-recently fledged young or downy young.

**AE**-adults leaving or entering nest site in circumstances indicating occupied nest

**FS**-adult carrying faecal sac

**CF**-adult carrying food for young

**NE**-nest containing eggs

**NY**-nest with young seen or heard

**CF**-adult carrying food for young

**NE**-nest containing eggs

**NY**-nest with young seen or heard

Of the 9 summer resident bird species (all with some breeding evidence), no species of conservation concern [e.g. species that are "designated" by COSEWIC and/or listed under the Species at Risk Act [SARA]; species "designated" by COSSARO, including Endangered and Threatened species listed and regulated under Ontario's ESA; and provincially rare species [NHIC S-rank of S1 to S3] were observed during field surveys.

## **4.6. Watercourse Characterization**

Fish surveys completed on Pine Creek by TRCA (2003) found blacknose dace and creek chub. These species of minnows are representative of a tolerant to moderately tolerant warmwater fish community. The watercourse is located in a heavily urbanized location, surrounded by roadway and parking infrastructure associated with commercial and highway uses nearby.

As part of the Scoped Environmental Impact Study for the nearby Walnut Lane Extension conducted by AECOM Canada Ltd. in 2020, the following observations regarding Pine Creek were recorded relative to the proposed crossing.

The upstream reach of Pine Creek is a permanent natural channel flowing from a concrete box culvert under Kingston Road to the downstream reach. Surrounding land use consisted of Kingston Road to the north, grasslands and the 1211 Kingston Road shopping centre to the west, grasslands to the south, and the 1192 Liverpool Road Loblaws shopping centre to the east. Channel morphology consisted of flats (98%), and a riffle (2%) located mid-reach. The mean wetted width of the flats was 3.82 m and for the riffle was 1.34 m. The mean wetted depth was 0.37 m in the flats and 0.08 m in the riffle. At bankfull, the mean flat width was 4.25 m and 1.34 m for the riffle. The mean bankfull depth in the flat was 0.42 m and 0.08 m in the riffle. Substrates within the flats consisted of silt (70%), clay (20%) and cobble (10%). Within the riffles, substrates consisted of gravel (80%), silt (10%), clay (5%) and cobble (5%). Banks were moderately unstable on both the left and right upstream banks throughout the upstream reach. Instream cover (35%) was provided by undercut banks (20%), instream woody debris (5%), overhanging woody debris (5%) and instream vascular

macrophytes (5%). Canopy cover was moderate (50%) and consisted primarily of overhanging deciduous trees. Potential seasonal low-flow impediments to upstream fish movement were presented by a cobble bar within the mid-reach riffle and at the upstream box culvert under Kingston Road. Juvenile Leuciscid species were observed during AECOM's site investigations. Garbage was also present throughout the upstream reach. The reach has the potential to provide general use fish habitat for feeding and rearing, which was generally non-limiting (i.e., common and present) throughout, except for potential fish spawning habitat that was limited only to the gravel substrates of the mid-reach riffle.

The downstream reach of Pine Creek was a permanent natural channel flowing from the upstream reach to a concrete box culvert under Highway 401. Surrounding land use consisted of Highway 401 to the south, grasslands to the east and west, and the 1192 Liverpool Road Loblaws shopping center to the north. Channel morphology consisted of flats (70%) and several pools (30%). The mean wetted width was 4.5 m for the flats and 5.2 m for the pools. Wetted depths were 0.24 m in the flats and 0.78 m in the pools. The mean bankfull width of the flats was 4.5 m and 5.6 m for the pools. The mean bankfull depth was 0.24 m for the flats and 0.82 m for the pools. Substrates within the flats were comprised of cobble (60%), clay (30%) and gravel (10%), and within the pools, substrates were comprised of clay (70%), silt (25%) and cobble (5%). Banks were slightly unstable throughout the reach on both the left and right upstream banks with undercut banks throughout the reach. Instream cover (22%) was provided by undercut banks (15%), overhanging vascular macrophytes (5%) and overhanging woody debris (2%). Canopy cover was low (30%) and consisted primarily of overhanging deciduous trees, shrubs and herbaceous plants. At the time of assessment, the wetted depth within the downstream box culvert under Highway 401 was 0.06 m, which presented the potential to pose a low-flow impediment to upstream fish movement during periods of seasonal low-flow. Abundant Phragmites sp., an invasive wetland plant species, was present in the downstream reach. Fish, Leuciscid species, were observed within the downstream reach during the aquatic habitat assessments. The downstream reach has the potential to provide general use fish habitat for feeding and rearing, which was generally non-limiting (i.e., common and present) throughout, except for potential fish spawning habitat that was limited only to the gravel substrates of the flats.

In summary, Pine Creek is a highly disturbed watercourse that is likely to provide low-quality fish habitat.

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## 5. Species at Risk

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The Endangered Species Act, 2007, S.O. 2007 was passed to protect the biodiversity of Ontario by using the best available scientific, community and aboriginal traditional knowledge and the precautionary principle as its doctrine. The purpose of the Act is to identify species at risk, protect species at risk and their habitats, and to promote the recovery of species at risk and stewardship activities which assist in these goals. The Committee on the Status of Species at Risk in Ontario (COSSARO) functions to maintain an up-to-date database of information pertaining to species in Ontario and their classification. COSSARO advises the Minister of Natural Resources and Forestry, who makes and files a regulation that lists all plant and animal species classified by COSSARO as extirpated, endangered, threatened, or of special concern. This regulation is the Species at Risk in Ontario List, O. Reg 230/08. Ontario Regulation 242/08 provides general policies concerning exemptions and habitat specifications for those listed species, Species at Risk (SAR).

### 5.1. Screening

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Screening for the potential presence of Species at Risk was conducted using various sources of information. The Natural Heritage Information Center (NHIC), operated by the OMNRF, collects, reviews, manages and distributes information on Ontario's biodiversity. Data on species, plant communities, wildlife concentration areas and natural areas is made accessible to the public and professionals using generalized 1-kilometer grid

units to protect sensitive information. Data distributed by the NHIC is used in conservation and natural resource management decision making and is of valued assistance to this report. Using the Make-a-Map: Natural Heritage Areas application, a screening for potential Species at Risk on or within a 1-kilometer grid of the Subject Property was completed. The list presents the species by common and scientific name, the last observed date in that unit and their status Provincially (SARO Status), Federally (COSEWIC Status) and as recognized by the associate international NatureServe network by Subnational Rank (SRank). NatureServe is a non-profit organization which functions as a network of professionals to collect and manage data on rare, endangered, and threatened species and ecosystems across the Americas since 1974.

The NHIC screening for grid square 17PJ5354 revealed 10 element occurrences of Species at Risk. Mapping for Aquatic Species by the Department of Fisheries and Oceans (DFO) was also reviewed and revealed no known range or critical habitat of aquatic Species at Risk.

## 5.2. Species at Risk Assessment

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Eleven Species at Risk were identified in desktop screening using the NHIC database. The general habitat on the Subject Property is not suitable for SAR bats due to the lack of sufficiently large trees.

### Special Concern:

- Black tern
- Snapping turtle
- Wood thrush
- Grasshopper sparrow
- Canada warbler

### Threatened:

- Least bittern
- Chimney swift
- Eastern meadowlark
- Bobolink

### Endangered:

- American Eel

The following species were assessed due to their provincial SAR status of Threatened and Endangered.

### 5.2.1. Least Bittern

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The least bittern is the smallest member of the heron family, reaching only 30 centimetres in length. It has brown and beige plumage with large chestnut patches on its wings. In Ontario, the least bittern is found in a variety of wetland habitats, but strongly prefers cattail marshes with a mix of open pools and channels. In Ontario, the least bittern is mostly found south of the Canadian Shield, especially in the central and eastern part of the province. Small numbers also breed occasionally in northwest Ontario. This species has disappeared from much of its former range, especially in southwestern Ontario, where wetland loss has been



most severe. The main threat to the least bittern is destruction of its wetland habitat. Shoreline development, wetland loss and drainage, and invasive species are all serious threats.

Marsh habitat is present east of the Subject Property but it lacks the open pools typically associated with the least bittern. In addition, the proposed development has a 30 m setback from the suitable wetland.

### **5.2.2. American Eel**

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The American eel is a type of fish with a long, snake-like body and fins that extend along its back, around the tail and along its underside. Over the course of its life, the American eel can be found in both salt and fresh water and are sometimes considered to have the broadest diversity of habitats of any fish species in the world. In Ontario, American Eels can be found as far inland as Algonquin Park. Once the eels mature (10-25 years) they return to the Sargasso Sea to spawn.

Dams and other in-water barriers can prevent access to feeding and spawning areas. Hydro-electric turbines also kill American Eels that try to pass through the turbines during their downstream spawning migration. Invasive species and chemical contaminants may also pose a threat. Fishing had an impact on the American Eel, although fishing is no longer allowed in Ontario. Climate change may also pose a threat as changes to the Gulf Stream patterns could interfere with migration.

Fish habitat within the Study Area are protected within the valley corridor in the proposed development plan.

### **5.2.3. Chimney Swift**

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The Chimney Swift was listed as Threatened on the Species at Risk in Ontario list on September 10, 2009. It is an eastern species found across all of Southern Ontario. Historically the species nested on cave walls and in tree cavities of snags in old growth forest. Upon European settlement the species adapted to use chimneys and other manmade structures for nesting; this resulted in a dramatic, albeit artificial, population increase. These small birds (12-14 cm) have brown colouring with a lighter colour along the throat, long slender wings and a cigar-shaped body. It has a distinguishing acrobatic and erratic flight pattern due to its reliance on aerial insects as a primary food source. It is a flocking aerial insectivore which uses bodies of water as indicators of feeding grounds. Threats to this species are not fully understood but likely related to declines in their food source, flying insects.

The Subject Property does not contain suitable nesting structures or habitat for chimney swift.

### **5.2.4. Eastern Meadowlark**

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The Eastern Meadowlark was designated as Threatened under the Ontario *Endangered Species Act* on January 13, 2013. This species primarily resides south of the Boreal Forest within mid-height meadows and open areas including agricultural crops (hay and alfalfa), pastures, orchards, fallow fields and other similar ecosites. The species uses shrubbery and fence posts for perching and singing. The eastern meadowlark is a migratory songbird of medium build with distinct colouring. Their throat and belly are bright yellow against a brown with black-streaked head and back. They have a black V across their breast area and white flanks. The species is threatened by a combination of factors including land use change, farming practices, pesticides and habitat fragmentation.

Suitable mixed meadow habitat occurs east of the Subject Property for this species; however, the area is highly disturbed with human activity and traffic. It is unlikely that the eastern meadowlark occurs on the

Subject Property. The eastern meadowlark was not observed during breeding bird surveys.

### 5.2.5. Bobolink

Bobolink was listed as Threatened in the Province of Ontario September 28, 2010. The preferred breeding habitat for Bobolink consists of hayfields, pastures, and meadows which are dominated by a mixture of grasses and broad-leaved forbs (e.g., red clover, dandelion, timothy). It also occurs in wet prairie, graminoid peatlands, abandoned fields, no-till cropland, small-grain fields, and reed beds. It does not *typically* occupy agricultural fields of row crops such as corn, soybean, and wheat.

Bobolink density is significantly higher in areas with relatively low amounts of total vegetative cover, low alfalfa cover, and low total legume cover but with high litter cover and high grass-to-legume ratios (e.g. hayfields 8 yrs. old). The nests tend to be sited in wet habitats, transitional between drier soils and areas providing poor drainage and are always on ground, often at base of large forbs such as meadow rue, golden alexander, clover, etc. Bobolink avoids nesting in habitats dominated by overly dense shrubs and overly deep litter layer (>2cm). Bobolink density and likelihood of occurrence increase as a function of distance from forest edges (Martin et al., 1995; COSEWIC 2010).

Suitable mixed meadow habitat occurs east of the Subject Property for this species; however, the area is highly disturbed with human activity and traffic. It is unlikely that the bobolink occurs on the Subject Property. Bobolink were not observed during breeding bird surveys.

### 5.3. Incidental Wildlife

Table 8. Incidental Wildlife Observations

Common Name	Scientific Name	# Observed	Notes
ring-billed gull	<i>Larus delawarensis</i>	1	Flying and calling overhead
herring gull	<i>Larus argentatus</i>	4	Flying and calling overhead, landed in search for food
eastern red squirrel	<i>Tamiasciurus hudsonicus</i>	2	Chasing each other, territorial
eastern gray squirrel	<i>Sciurus carolinensis</i>	2	Alarm call from tree
American robin	<i>Turdus migratorius</i>	1	Agitated call
Turkey vulture	<i>Cathartes aura</i>	1	Flying overhead
Beaver	<i>Castor canadensis</i>	1	Alarm display during amphibian surveys 1 and 2.
Eastern cottontail	<i>Sylvilagus floridanus</i>	1	Observed at night.

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## 6. Significant Wildlife Habitat

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Significant Wildlife Habitat (SWH) is considered natural heritage and is protected as per Section 2.1 of the Provincial Policy Statement, 2014. The Significant Wildlife Habitat Technical Guide (OMNRF, 2000) aids in land use planning by providing the identification, description, and prioritisation of significant wildlife habitat in Ontario. The associated Ecoregion Criteria Schedules are used to further provide detailed criteria for assessing and confirming SWH within Ontario. This section will provide a screening in the form of a summary table followed and an assessment of the potentially or confirmed occurring SWH.

### 6.1. Screening

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Significant (and/or sensitive) Wildlife Habitat features and functions as described within the OMNRF Significant Wildlife Habitat Ecoregion Criteria Schedule for Region 6E (OMNRF, 2015) were reviewed and evaluated for the Subject Property and adjacent lands. The documented groups wildlife habitat into four main categories:

- ▲ Seasonal concentration areas of animals;
- ▲ Rare vegetation communities or specialized habitats for wildlife;
- ▲ Habitat for species of conservation concern; and,
- ▲ Animal movement corridors.

The screening found in Table 9 consisted of a review of the ELC codes and habitat criteria for candidate SWH. Any SWH on the Subject Property or adjacent lands was noted in Column 4 and a rationale was provided in Column 5. In the case of potential SWH, Confirmed Defining Criteria Studies were reviewed, and applicable mitigation measures (in summary form) were also provided in Column 6.

Table 9. Significant Wildlife Habitat Screening 6E

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
<b>Seasonal Concentration Areas of Animal</b>					
Waterfowl Stopover and Staging Areas (Terrestrial)	CUM, CUT1 - plus evidence of annual spring flooding within these ecosites *Fields with seasonal flooding and waste grains in certain areas are specific to Tundra Swan	Fields with sheet water during Spring (mid-March to May) •agricultural fields with waste grain are not SWH unless they have spring sheet water available.	No	No habitat features on site or species aggregation.	<ul style="list-style-type: none"> <li>•Any mixed species aggregations of 100+ individuals</li> <li>• the flooded field plus 100-300m radius, dependant on localized site and adjacent land us</li> <li>• Annual Use of Habitat is documented from information sources or field studies</li> <li>•Specific evaluation methods required</li> </ul>
Waterfowl Stopover and Staging Areas (Aquatic)	MAS1,MAS2,MAS3,SAS1,SAM1,SAF1,SWD1,SWD2,SWD3,SWD4,SWD5,SWD6,SWD7	Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. • Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify.	No	No habitat features on site.	<ul style="list-style-type: none"> <li>•Aggregations of 100 + of species listed for 7 days, results in &gt; 700 waterfowl use days.</li> <li>•Areas with annual staging for ruddy ducks, canvasbacks and redheads.</li> <li>•The combined area of the ELC ecosites and a 100m radius area.</li> <li>•Wetland area and shorelines associated with sites identified within the SWHTG, Appendix K, are significant wildlife habitat.</li> <li>•Annual Use of Habitat is documented from information sources or field studies</li> <li>• Specific evaluation methods required</li> </ul>
Shorebird Migratory Stopover Area	BBO1,BBO2,BBS1,BBS2, BBT1,BBT2,SDO1,SDS2, SDT1,MAM1,MAM2,MA M3,MAM4,MAM5	•Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats.	No	No habitat features on site.	<ul style="list-style-type: none"> <li>•Presence of 3 or more of listed species and &gt; 1000 shorebird use days during spring or fall migration period.</li> </ul>

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		<ul style="list-style-type: none"> <li>•Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores in May to mid-June and early July to October.</li> <li>• No sewage treatment or storm water management ponds.</li> </ul>			<ul style="list-style-type: none"> <li>•Whimbrel stop briefly (&lt;24hrs) during spring migration, any site with &gt;100 Whimbrel used for 3 years or more is significant.</li> <li>•The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area.</li> <li>•Annual Use of Habitat is documented from information sources or field studies</li> <li>• Specific evaluation methods required</li> </ul>
Raptor Wintering Area	Combo of one of each Community Series from one of each: Forest (FOD,FOM,FOC) and Upland (CUM,CUT,CUS,CUW). Bald Eagle: Forest on shoreline area adjacent to large rivers and lakes.	A combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. <ul style="list-style-type: none"> <li>• Need to be &gt; 20 ha.</li> <li>•Least disturbed sites, idle/fallow or lightly grazed field/meadow (&gt;15ha) with adjacent woodlands.</li> <li>• Field area of the habitat is to be wind swept with limited snow depth or accumulation.</li> <li>• Eagle sites have open water and large trees and snags available for roosting .</li> </ul>	No	No habitat features on site.	<ul style="list-style-type: none"> <li>•One or more Short-eared Owls or;</li> <li>•One of more Bald Eagles or;</li> <li>• At least 10 individuals and two of the listed hawk/owl species.</li> <li>•To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds.</li> <li>•for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area.</li> <li>• Specific evaluation methods required</li> </ul>
Bat Hibernacula	CCR1,CCR2,CCA1,CCA2. * buildings are not to be considered SWH	May be found in caves, mine shafts, underground foundations and Karsts. <ul style="list-style-type: none"> <li>•Active mine sites are not considered SWH.</li> </ul>	No	No habitat features on site.	<ul style="list-style-type: none"> <li>•All sites with confirmed hibernating bats are SWH.</li> <li>• area includes 200m radius around the entrance of the hibernaculum for most development types and 1000m for wind farms.</li> </ul>

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					<ul style="list-style-type: none"> <li>•Studies are to be conducted during the peak swarming period (Aug. – Sept.).</li> <li>• Specific survey methods required</li> </ul>
Bat Maternity Colonies	All Ecosites in: FOD,FOM,SWD,SWM.	Maternity colonies can be found in tree cavities, vegetation and often in building. *Building are not considered SWH. <ul style="list-style-type: none"> <li>• Not found in caves or mines in ON.</li> <li>•Located in Mature Deciduous or mixed forest stands with &gt;10/ha large diameter (&gt;25cm dbh) wildlife trees.</li> <li>•Prefer snags in early stages of decay (class 1-3 or class 1 or class 2).</li> <li>•Silver-haired Bats prefer older mixed or deciduous forests with at least 21 snags/ha.</li> </ul>	No	No habitat features on site.	<ul style="list-style-type: none"> <li>•Confirmed use by: &gt;10 Big Brown Bats &gt;5 Adult female Silver Haired Bats.</li> <li>•The area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies.</li> <li>• Specific evaluation methods required</li> </ul>
Turtle Wintering Areas	Snapping and Midland Painted: SW,MA,OA,SA and FEO/BOO Series. Northern Map: Open water areas such as deeper rivers or streams and lakes.	Wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. <ul style="list-style-type: none"> <li>•Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen.</li> <li>*Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH.</li> </ul>	No	No habitat features on site.	<ul style="list-style-type: none"> <li>•Presence of 5 over-wintering Midland Painted Turtles is significant</li> <li>•One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant</li> <li>• The mapped ELC ecosite area with the over wintering turtles is the SWH.</li> <li>• If the hibernation site is within a stream or river, the deep water pool where the turtles are over wintering is the SWH.</li> <li>• Search for congregations in Basking Areas in spring and fall.</li> </ul>

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
Reptile Hibernaculum	<p>Any ecosite other that very wet.</p> <ul style="list-style-type: none"> <li>•Talus, Rock Barren, Crevice, Cave, Alvar may be directly related.</li> <li>•Observations of congregations in spring or fall is good indicator.</li> </ul>	<p>Sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH.</p> <ul style="list-style-type: none"> <li>• Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line.</li> <li>•Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover.</li> <li>•Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures</li> </ul>	No	<p>No habitat features on site.</p>	<ul style="list-style-type: none"> <li>•Presence of snake hibernacula used by                             <ul style="list-style-type: none"> <li>- a minimum of five individuals of a snake sp. or;</li> <li>- individuals of two or more snake spp..</li> </ul> </li> <li>•Congregations of                             <ul style="list-style-type: none"> <li>-a minimum of five individuals of a snake sp. or;</li> <li>-individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct).</li> </ul> </li> <li>• If there are Special Concern Species present, then site is SWH.</li> <li>•The feature in which the hibernacula is located plus a 30 m radius area is the SWH.</li> <li>• Hibernacula are used annually, often by the same individuals (strong site fidelity) and other life processes often take place near by</li> </ul>
Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)	<p>Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles                      Cliff faces, bridge abutments, silos, barns.                      CUM1,CUS1,BLS1,CLO1, CLT1,CUT1,BLO1,BLT1,CLS1.</p>	<p>Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area *does not include man-made structures, recently (2 years) disturbed soil areas or licensed Mineral Aggregate Operation.</p>	No	<p>No habitat features on site.</p>	<ul style="list-style-type: none"> <li>•Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season.</li> <li>• A colony identified as SWH will include a 50m radius habitat area from the peripheral nests.</li> </ul>

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					<ul style="list-style-type: none"> <li>•Field surveys to observe and count swallow nests are to be completed during the breeding season.</li> <li>• Specific evaluation methods required</li> </ul>
Colonially-Nesting Bird Breeding Habitat (Tree/Shrub)	SWM2,SWM3,SWM5,SWM6,SWD1,SWD2,SWD3,SWD4,SWD5,SWD6,SWD7,FET1	Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. <ul style="list-style-type: none"> <li>•Most nests in trees are 11 to 15 m from ground, near the top of the tree.</li> </ul>	No	No habitat features on site.	<ul style="list-style-type: none"> <li>•Presence of 5 or more active nests of Great Blue Heron or other listed species.</li> <li>•The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island &lt;15.0ha with a colony is the SWH.</li> <li>•Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells.</li> </ul>
Colonially-Nesting Bird Breeding Habitat (Ground)	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1:50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM,CUT,CUS	Nesting colonies on islands or peninsulas associated with open water or in marshy areas. <ul style="list-style-type: none"> <li>• Brewer's Blackbird colonies found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands.</li> </ul>	No	No habitat features on site.	<ul style="list-style-type: none"> <li>•Presence of                             <ul style="list-style-type: none"> <li>&gt; 25 active nests for Herring Gulls or Ring-billed Gulls,</li> <li>&gt;5 active nests for Common Tern or</li> <li>&gt;2 active nests for Caspian Tern.</li> </ul> </li> <li>•Presence of 5 or more pairs for Brewer's Blackbird.</li> <li>•Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant.</li> <li>•The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites</li> </ul>



Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
					containing the colony or any island <3.0ha with a colony is the SWH. •Studies would be done during May/June when actively nesting. • Specific evaluation methods required
Migratory Butterfly Stopover Areas	Combo of one of each Field (CUM, CUT, CUS) and Forest (FOC, FOD,FOM,CUP).	Minimum 10 ha in size with combo of field and forest located within 5km of Lake Erie or Lake Ontario. •Should not be disturbed. • Field/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. •Should provide protection from the elements, often spits of land or areas with the shortest distance to cross the Great Lakes.	No	No habitat features on site.	•Presence of Monarch Use Days (MUD) during Fall migration (Aug/Oct) •Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. •MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.
Landbird Migratory Stopover Areas	All Ecosites within: FOC,FOM,FOD,SWC,SWM,SWD	Woodlots >10ha in size and within 5km of Lake Erie and Lake Ontario. • If woodlands are rare in area, smaller size can be considered. • If multiple woodlands located along shore line, those <2km from shoreline are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes. •The largest sites are more significant. •Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore	No	No habitat features on site.	•Use of the habitat by >200 birds/day and with >35 spp. with at least 10 bird spp. recorded on at least 5 different survey dates. •Studies should be completed during spring (Mar to May) and fall (Aug to Oct) migration using standardized assessment techniques. • Specific evaluation methods required

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		and located within 5km of Lake Erie and Lake Ontario are Candidate SWH.			
Deer Yarding Areas	Note: OMNRF to determine this habitat. ELC Community Series providing a thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. <ul style="list-style-type: none"> <li>The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%.</li> </ul>	No	No habitat features on site.	No Studies Required: <ul style="list-style-type: none"> <li>Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths &gt; 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH.</li> <li>Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO).</li> <li>Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations.</li> <li>If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule.</li> </ul>

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale	Confirmed Defining Criteria= Studies to confirm...
	ELC Ecosite Codes	ELC Ecosite Codes			
		<ul style="list-style-type: none"> <li>• OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual.</li> <li>• Woodlots with high densities of deer due to artificial feeding are not significant</li> </ul>			<ul style="list-style-type: none"> <li>•</li> </ul>
Deer Winter Congregation Areas	All forested ecosites within: FOC,FOM,FOD,SWC,SWM,SWD + conifer plantations much smaller than 50 ha may be used.	<p>Woodlots will typically be &gt;100 ha in size. Woodlots &lt;100ha may be considered as significant based on MNRF studies or assessment.</p> <ul style="list-style-type: none"> <li>• Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands</li> <li>• Large woodlots &gt; 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha.</li> </ul> <p>*Woodlots with high densities of deer due to artificial feeding are not significant.</p>	No	No habitat features on site.	<ul style="list-style-type: none"> <li>• Will be mapped by MNRF.</li> <li>• All woodlots exceeding the criteria are significant unless determined to be not by the MNRF.</li> <li>• Studies to be completed during winter when &gt;20 cm of snow is on the ground, using aerial survey or pellet count.</li> </ul>

<b>Rare Vegetation Communities</b>					
Cliffs and Talus Slopes	Any Ecosite within: TAO CLO TAS CLS TAT CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris. Most cliff and talus slopes occur along the Niagara Escarpment.	No	No habitat features on site.	•Confirm any ELC Vegetation Type for Cliffs or Talus Slopes
Sand Barren	SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicketlike (SBS1), or more closed and treed (SBT1). Tree cover always < or equal to 60%	A sand barren area >0.5ha in size. • Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. • Vegetation can vary from patchy and barren to tree covered, but less than 60%.	No	No habitat features on site.	•Confirm any ELC Vegetation Type for Sand Barrens. •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.
Alvar	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2,  Five Alvar Indicator Species: 1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum	An Alvar site > 0.5 ha in size, only known sites are found in the western islands of Lake Erie. • An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. • Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse,	No	No habitat features on site.	•Studies that identify four of the five Alvar Indicator Species at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). •The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses.

		<p>supporting many uncommon or are relict plant and animals species.</p> <ul style="list-style-type: none"> <li>• Vegetation cover varies from patchy to barren with a less than 60% tree cover.</li> </ul>			
Old Growth Forest	FOD FOC FOM SWD SWC SWM	<p>Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest.</p> <ul style="list-style-type: none"> <li>• Characterized by heavy mortality or turnover of overstorey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.</li> </ul>	No	No habitat features on site.	<ul style="list-style-type: none"> <li>• If dominant trees species of the area are &gt;140 years old, then the area containing these trees is Significant Wildlife Habitat.</li> <li>• The forested area containing the old growth characteristics will have experienced no recognizable forestry activities</li> <li>• The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH.</li> <li>• Determine ELC vegetation types for the forest area containing the old growth characteristics</li> </ul>
Savannah	TPS1 TPS2 TPW1 TPW2 CUS2	<p>A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.</p> <ul style="list-style-type: none"> <li>• No minimum size to site.</li> <li>• Site must be restored or a natural site.</li> </ul> <p>*Remnant sites such as railway right of ways are not considered to be SWH.</p>	No	No habitat features on site.	<ul style="list-style-type: none"> <li>• Field studies confirm one or more of the Savannah indicator species found in Appendix N, Ecoregion 6E of the SWHTG, OMNR (2000).</li> <li>• Entire area of the ELC Ecosite is SWH.</li> <li>• Site must not be dominated by exotic or introduced species (&lt;50% vegetative cover are exotic species).</li> </ul>
Tallgrass Prairie	TPO1 TPO2	<p>A Tallgrass Prairie has ground cover dominated by prairie grasses.</p> <ul style="list-style-type: none"> <li>• An open Tallgrass Prairie habitat has &lt; 25% tree cover.</li> <li>• No minimum size to site.</li> </ul>	No	No habitat features on site.	<ul style="list-style-type: none"> <li>• Field studies confirm one or more of the Prairie indicator species in Appendix N, Ecoregion 6E of The SWHTG, OMNR (2000).</li> <li>• Area of the ELC Ecosite is the SWH.</li> <li>• Site must not be dominated by exotic</li> </ul>

		<ul style="list-style-type: none"> <li>•Site must be restored or a natural site.</li> <li>*Remnant sites such as railway right of ways are not considered to be SWH.</li> </ul>			or introduced species (<50% vegetative cover are exotic sp.)
Other Rare Vegetation Communities	See the Significant Wildlife Habitat Technical Guide (OMNR, 200), Appendix M for Provincially Rare S1,S2 and S3 ELC Vegetation Types.	<p>ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M.</p> <ul style="list-style-type: none"> <li>•May include beaches, fens, forest, marsh, barrens, dunes and swamps. See OMNRF/NHIC for up to date list of rare vegetation communities.</li> </ul>	No	No habitat features on site.	<ul style="list-style-type: none"> <li>•Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG, OMNR (2000).</li> <li>•Area of the ELC Vegetation Type polygon is the SWH.</li> </ul>
<b>Specialized Habitat for Wildlife</b>					
Waterfowl Nesting Area	<p>All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4. *</p> <p>Note: includes adjacency to Provincially Significant Wetlands</p>	<p>A waterfowl nesting area extends 120 m from a wetland (&gt; 0.5 ha) or a wetland (&gt;0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (&lt;0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur.</p> <ul style="list-style-type: none"> <li>•Wood Ducks and Hooded Mergansers utilize large diameter trees (&gt;40cm dbh) in woodlands for cavity nest sites.</li> <li>• Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests.</li> </ul>	No	No habitat features on site.	<ul style="list-style-type: none"> <li>•Presence of 3 or more nesting pairs for listed species excluding Mallards OR</li> <li>•Presence of 10 or more nesting pairs for listed species including Mallards.</li> <li>•Any active nesting site of an American Black Duck is considered significant.</li> <li>•Nesting studies should be completed during the spring breeding season (April - June).</li> <li>•Specific evaluation methods required</li> <li>•A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest.</li> </ul>

<p>Bald Eagle and Osprey Nesting, Foraging and Perching Habitat</p>	<p>ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands</p>	<p>Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water.                  *Nests located on man-made objects are not to be included as SWH.                  •Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree’s canopy.</p>	<p>No</p>	<p>No habitat features on site.</p>	<p>One or more active Osprey or Bald Eagle nests in an area.                  •Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH.                  •For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH. *with additional requirements                  •For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. * with additional requirements                  •To be significant a site must be used annually.                  •When found inactive, the site must be known to be inactive for &gt; 3 years or suspected of not being used for &gt;5 years before being considered not significant.                  •Observational studies to determine nest site use, perching sites and foraging areas need to be done from early March to mid August.                  • Specific evaluation methods required</p>
<p>Woodland Raptor Nesting Habitat</p>	<p>May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3.</p>	<p>All natural or conifer plantation woodland/forest stands &gt;30ha with &gt;10ha of interior habitat.                  • Interior habitat determined with a 200m buffer.                  •Stick nests found in a variety of intermediate-aged to mature conifer,</p>	<p>No</p>	<p>No habitat features on site.</p>	<p>Presence of 1 or more active nests from species list is considered significant.                  •Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha area of habitat is the SWH. (the 28 ha habitat area would be</p>

		<p>deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands.</p> <ul style="list-style-type: none"> <li>• In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.</li> </ul>			<p>applied where optimal habitat is irregularly shaped around the nest)</p> <ul style="list-style-type: none"> <li>•Barred Owl – A 200m radius around the nest is the SWH.</li> <li>•Broad-winged Hawk and Coopers Hawk,– A 100m radius around the nest is the SWH.</li> <li>•Sharp-Shinned Hawk – A 50m radius around the nest is the SWH.</li> <li>• Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area.</li> </ul>
<p>Turtle Nesting Areas</p>	<p>Exposed mineral soil (sand or gravel) areas adjacent (&lt;100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1</p>	<p>Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals.</p> <ul style="list-style-type: none"> <li>•For an area to function as a turtle nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas.</li> <li>*Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH.</li> <li>• Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.</li> </ul>	<p>No</p>	<p>No habitat features on site.</p>	<p>Presence of:</p> <ul style="list-style-type: none"> <li>- 5 or more nesting Midland Painted Turtles OR</li> <li>- One or more Northern Map Turtle or Snapping Turtle nesting is a SWH.</li> <li>•The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH.</li> <li>• Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat.</li> <li>•Field investigations should be conducted in prime nesting season typically late spring to early summer.</li> </ul>



					<ul style="list-style-type: none"> <li>•Observational studies observing the turtles nesting is a recommended method.</li> </ul>
Seeps and Springs	<p>Where ground water comes to the surface. Often they are found within headwater areas within forested habitats. •Any forested Ecosite within the headwater areas of a stream could have seeps/springs.</p>	<p>Any forested area (with &lt;25% meadow/field/pasture) within the headwaters of a stream or river system.</p>	No	No habitat features on site.	<p>Presence of a site with 2 or more seeps/springs should be considered SWH.</p> <ul style="list-style-type: none"> <li>•The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH.</li> <li>•The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat.</li> </ul>
Amphibian Beeding Habitat (Woodland)	<p>All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD</p> <ul style="list-style-type: none"> <li>•Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.</li> </ul>	<p>Presence of a wetland, pond or woodland pool (including vernal pools) &gt;500m<sup>2</sup> (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size).</p> <ul style="list-style-type: none"> <li>• Some small wetlands may not be mapped and may be important breeding pools for amphibians.</li> <li>•Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.</li> </ul>	No	No habitat features on site.	<p>Presence of breeding population of:</p> <ul style="list-style-type: none"> <li>- or more of the listed n1ewt/salamander species or</li> <li>- 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or</li> <li>- 2 or more of the listed frog species with Call Level Codes of 3.</li> <li>•A combo fo observational and call count surveys required during the spring (March-June) .</li> <li>•The habitat is the wetland area plus a 230m radius of woodland area.</li> <li>• If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat.</li> </ul>

<p>Amphibian                  Beeding                  Habitat                  (Wetlands)</p>	<p>ELC Community Classes                  SW, MA, FE, BO, OA                  and SA.                  •Typically these                  wetland ecosites will be                  isolated (&gt;120m) from                  woodland ecosites,                  however larger                  wetlands containing                  predominantly aquatic                  species (e.g. Bull Frog)                  may be adjacent to                  woodlands.</p>	<p>Wetlands &gt;500m<sup>2</sup> (about 25m                  diameter), supporting high species                  diversity are significant;                  •some small or ephemeral habitats may                  not be identified on MNRF mapping and                  could be important amphibian breeding                  habitats.                  •Presence of shrubs and logs increase                  significance of pond for some amphibian                  species because of available structure for                  calling, foraging, escape and                  concealment from predators.                  • Bullfrogs require permanent water                  bodies with abundant emergent                  vegetation.</p>	<p>Yes</p>	<p>Large Meadow                  Marsh present in                  the Pine Creek                  Valley but no                  amphibian                  breeding or                  other activity                  was recorded.</p>	<p>Presence of breeding population of:                  -1 or more of the listed                  newt/salamander species or                  -2 or more of the listed frog/toad                  species with at least 20 individuals                  (adults or eggs masses) or                  -2 or more of the listed frog/toad                  species with Call Level Codes of 3. or; -                  Wetland with confirmed breeding                  Bullfrogs are significant.                  •The ELC ecosite wetland area and the                  shoreline are the SWH.                  •A combo of observational and call                  count surveys will be required during                  the spring (March-June).                  •If a SWH is determined for Amphibian                  Breeding Habitat (Wetlands) then                  Movement Corridors are to be                  considered.</p>
<p>Woodland                  Area-Sensitive                  Bird Breeding                  Habitat</p>	<p>All Ecosites withing:                  FOC FOM FOD SWC                  SWM SWD</p>	<p>Habitats where interior forest breeding                  birds are breeding, typically large mature                  (&gt;60 yrs old) forest stands or woodlots                  &gt;30 ha.                  •Interior forest habitat is at least 200 m                  from forest edge habitat.</p>	<p>No</p>	<p>No habitat                  features on site.</p>	<p>Presence of nesting or breeding pairs                  of 3 or more of the listed wildlife                  species.                  *any site with breeding Cerulean                  Warblers or Canada Warblers is to be                  considered SWH.                  • Conduct field investigations in spring                  and early summer.                  • Specific evaluation methods required</p>
<p><b>Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)</b></p>					
<p>Marsh Bird                  Breeding                  Habitat</p>	<p>MAM1 MAM2 MAM3                  MAM4 MAM5 MAM6                  SAS1 SAM1 SAF1 FEO1                  BOO1</p>	<p>Nesting occurs in wetlands. All wetland                  habitat is to be considered as long as                  there is shallow water with emergent                  aquatic vegetation present.</p>	<p>No</p>	<p>No habitat                  features on site.</p>	<p>Presence of:                  - 5 or more nesting pairs of Sedge                  Wren or Marsh Wren or 1 pair of                  Sandhill Cranes or;</p>

	For Green Heron: All SW, MA and CUM1 sites	<ul style="list-style-type: none"> <li>•For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water..</li> </ul>			<ul style="list-style-type: none"> <li>-breeding by any combination of 5 or more of the listed species.</li> <li>•any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH.</li> <li>•Area of the ELC ecosite is the SWH.</li> <li>•Breeding surveys should be done in May/June.</li> <li>• Specific evaluation methods required</li> </ul>
Open Country Bird Breeding Habitat	CUM1 CUM2	<p>Large grassland areas (includes natural and cultural fields and meadows) &gt;30 ha.</p> <ul style="list-style-type: none"> <li>•Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years).</li> <li>•Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older.</li> <li>•The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.</li> </ul>	No	No habitat features on site.	<p>Presence of nesting or breeding of:</p> <ul style="list-style-type: none"> <li>-2 or more of the listed species.</li> <li>• A field with 1 or more breeding Short-eared Owls is to be considered SWH.</li> <li>•The area of SWH is the contiguous ELC ecosite field areas.</li> <li>•Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories.</li> <li>• Specific evaluation methods required.</li> </ul>
Shrub/Early Successional Bird Breeding Habitat	<p>CUT1 CUT2 CUS1 CUS2                      CUW1 CUW2</p> <ul style="list-style-type: none"> <li>•Patches of shrub ecosites can be complexed into a larger habitat for some bird species.</li> </ul>	<p>Large field areas succeeding to shrub and thicket habitats &gt;10ha in size.</p> <ul style="list-style-type: none"> <li>•Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no rowcropping, haying or livestock pasturing in the last 5 years).</li> <li>•Shrub thicket habitats (&gt; 10 ha) are most likely to support and sustain a diversity of these species.</li> </ul>	No	No habitat features on site.	<p>Presence of nesting or breeding of</p> <ul style="list-style-type: none"> <li>- 1 of the indicator species and at least 2 of the common species.</li> <li>•A habitat with breeding Yellowbreasted Chat or Golden-winged Warbler is to be considered as SWH.</li> <li>•The area of the SWH is the contiguous ELC ecosite field/thicket area.</li> </ul>

		<ul style="list-style-type: none"> <li>•Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.</li> </ul>			<ul style="list-style-type: none"> <li>•Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories.</li> <li>• Specific evaluation methods required</li> </ul>
Terrestrial Crayfish	<p>MAM1 MAM2 MAM3                  MAM4 MAM5 MAM6                  MAS1 MAS2 MAS3                  SWD SWT SWM CUM1-                  with inclusions of                  above meadow marsh                  ecosites can be used by                  terrestrial crayfish.</p>	<p>Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish.</p> <ul style="list-style-type: none"> <li>•Usually the soil is not too moist so that the tunnel is well formed.</li> <li>•Can often be found far from water.</li> </ul>	Yes	<p>Suitable wet meadow and meadow marsh habitat is present on the Subject Property. No terrestrial crayfish were observed on the property during field surveys.</p>	<p>Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites.</p> <ul style="list-style-type: none"> <li>• Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH.</li> <li>•Surveys should be done April to August in temporary or permanent water.</li> <li>• Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult.</li> </ul>
Special Concern and Rare Wildlife Species	<p>All plant and animal element occurrences (EO) within a 1 or 10km grid. All Special Concern and Provincially Rare plant and animal species.</p>	<p>identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites</p>	N/A	<p>See SAR Screening Section</p>	<p>Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable.</p> <ul style="list-style-type: none"> <li>•The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat.</li> </ul>

<b>Animal Movement Corridors</b>					
Amphibian Movement Corridors	Corridors may be found in all ecosites associated with water.	Corridors will be determined based on identifying the significant breeding habitat for these species. Movement corridors between breeding habitat and summer habitat. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from this Schedule.	No	No habitat features on site.	Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant. Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps <20m. Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat.
Deer Movement Corridors	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH. A deer wintering habitat identified by the OMNRF as SWH will have corridors that the deer use during fall migration and spring dispersion •Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges).	No	No habitat features on site.	<ul style="list-style-type: none"> <li>• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas .</li> <li>• Corridors that lead to a deer wintering habitat should be unbroken by roads and residential areas.</li> <li>• Corridors should be at least 200m wide with gaps &lt;20m and if following riparian area with at least 15m of vegetation on both sides of waterway</li> <li>•Shorter corridors are more significant than longer corridors.</li> </ul>

<b>Exceptions for EcoRegion 6E</b>					
<p>Mast Producing Areas (Black Bear)                      •EcoDistrict 6E-14</p>	<p>All Forested habitat represented by ELC Community Series:                      FOM FOD</p>	<p>Black bears require forested habitat that provides cover, winter hibernation sites, and mast producing tree species.</p> <ul style="list-style-type: none"> <li>• Forested habitats need to be large enough to provide cover and protection for black bears</li> </ul> <p>Criteria</p> <ul style="list-style-type: none"> <li>•Woodland ecosites &gt;30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech)</li> </ul>	<p>No</p>	<p>Site not located within EcoDistrict 6E-14</p>	<ul style="list-style-type: none"> <li>•All woodlands &gt;30 ha with a 50% composition of these ELC Vegetation Types are considered significant:                      FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5</li> </ul>
<p>Lek (Sharp-tailed grouse)                      •EcoDistrict 6E-17</p>	<p>CUM CUS CUT</p>	<p>The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography.</p> <ul style="list-style-type: none"> <li>• Leks are typically a grassy field/meadow &gt;15ha with adjacent shrublands and &gt;30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated.</li> </ul> <p>Criteria</p> <ul style="list-style-type: none"> <li>•Grasslands (field/meadow) are to be &gt;15ha when adjacent to shrubland and &gt;30ha when adjacent to deciduous woodland</li> <li>• Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying)</li> <li>• Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting</li> </ul>	<p>No</p>	<p>Site not located within EcoDistrict 6E-17</p>	<p>Studies confirming lek habitat are to be completed from late March to June.</p> <ul style="list-style-type: none"> <li>• Any site confirmed with sharp-tailed grouse courtship activities is considered significant</li> <li>• The field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitat.</li> </ul>

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## 6.2. Significant Wildlife Habitat Findings

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Based on a review of background information and accompanying field studies, the only potential Significant Wildlife Habitat present is Amphibian Breeding Habitat (Wetland) and Terrestrial Crayfish habitat in the meadow marsh.

### 6.2.1. Amphibian Breeding Habitat (Wetland)

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Amphibian Breeding Habitat has been identified as a potential category of Significant Wildlife Habitat in the Study Area. Results of the amphibian surveys have not identified amphibian calling activity within the wetland.

### 6.2.2. Terrestrial Crayfish

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Terrestrial Crayfish habitat has been identified as a potential category of Significant Wildlife Habitat in the Study Area. No observations were made identifying terrestrial crayfish during field surveys and the meadow marsh is not expected to be impacted by the proposed development.

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## 7. Proposed Development

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The Subject Property currently consists of commercial buildings with associated parking infrastructure. Natural areas are limited to a portion 0.2 ha portion of trees and meadow area in the southeast corner. The proposed development includes multiple residential towers with three to four levels of underground parking. The limits of the development are proposed to encompass current commercial structures and their associated parking lots, with no extension into the neighboring natural areas to the east of Subject Property.

As part of the Walnut Lane extension project, which is part of a separate development application, restoration of the natural area adjacent to the eastern limit of the Subject Property will be undertaken. Trees, shrubs, and habitat features will be planted as part of the restoration to enhance the existing meadow and treed areas.

A portion of the Subject Property extends into the valley area at the southeast limit of the property. This area will be planted with native plantings and managed as a privately owned public space (POPS). The POPS will be approximately 0.2 ha in size. No vegetation removals in this area are proposed.

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## 8. Environmental Impact Statement

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Impacts of the proposed development are assessed below based on direct impacts, indirect impacts and cumulative impacts. The assessment is completed based on the zoning application and additional assessment of mitigation will be completed with the site plan application. A monitoring plan is also proposed.

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## 8.1. Direct Impact Assessment

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Direct impacts associated with the proposed development include the construction of towers with underground parking that are taller than the current structures and parking uses on the Subject Property. The taller buildings and subsequent increase in window surface area may lead to an increase in bird strikes. While no encroachments into the existing natural areas associated with Pine Creek are proposed, the construction of 3 to 4 levels of underground parking will influence the flow of groundwater toward Pine Creek. The hydrogeological surveys conducted by EXP Services Inc. has concluded that caisson walls will likely be required as part of the underground parking structure and will impact the flow of groundwater toward Pine Creek and its associated wetland. The quantity of the mitigation of the impact to groundwater will be determined at the detailed design stage.

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## 8.2. Indirect Impact Assessment

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The primary indirect impacts from development include increased population near Pine Creek valley, potential encroachment, invasive species, informal trails, and increase pet/wildlife interactions. The Subject Property is currently occupied by commercial buildings and parking lots that are frequented by vehicle and foot traffic.

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## 8.3. Cumulative Impacts

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Cumulative impacts are changes to the environment due to past, present, and the reasonably foreseeable future. The Subject Property and surrounding landscape have experienced on-going disturbance from historical and current land use. It has also been impacted by the adjacent Hwy 401 and bordering commercial and residential development.

The progression of development within the vicinity of the Subject Property over history has resulted in the isolation and loss of large-scale natural vegetation communities. There has been a transformation in landscape to accommodate on-going urban development, and corresponding road and highway infrastructure.

Since the Subject Property and adjacent natural heritage features have been part of an anthropogenic- dominated matrix for some time, large cumulative impacts are not anticipated as a result of the proposed development.

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## 8.4. Impact Summary Table

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Impacts to the natural heritage features associated with and adjacent to the Subject Property were considered in the impact analysis. Table 10 presents the natural heritage components that were considered in this assessment, the proposed activity associated with that component, potential short term and long- term impacts and recommended mitigation measures and if any residual effects are anticipated. Potential impacts were assessed using field collected data and secondary source information, including an overlay of the proposed site plan.



## **8.5 Monitoring Plan**

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A two-part monitoring plan should be implemented to assess significant effects of development on the key features and functions of the environment. The detailed monitoring plan is included in Appendix D of this report.

Table 10. Impact Assessment Table

Category	Feature and Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
<b>Short-term Impacts</b>					
<b>Construction Activity</b>	Surrounding habitats	Grading, servicing, & development	Release of dust as a result of construction activities.	Implement dust suppression measures during site grading when conditions are dry or strong winds are anticipated.	Impacts from dust to the surrounding landscape should be minimal. No residual effects expected.
<b>Construction Activity</b>	Local and migrating wildlife	Grading, servicing & development	Limited potential impact based on the level of ambient noise from the highway already present.	Hours of work measures to reduce noise impact at night.	Based on the level of ambient noise from the highway, this impact is expected to be limited on wildlife using the area.  No residual effects expected.
<b>Construction Activity</b>	Wildlife habitat	Site clearing/tree and vegetation removal	Impacts to nests and nesting birds.	Undertake any vegetation clearing between August 31 and March 31 per the Migratory Bird Convention Act.  If clearing is to occur during the nesting season, a nest survey and bat roosting survey should be completed by a qualified biologist to identify any nest that are not to be disturbed until the young have fledged. An appropriate buffer to disturbance will be implemented if a nest is found.	Implementation of applicable mitigation measures is expected to reduce or eliminate impacts to migratory and breeding birds during the construction period.  Planting native trees as landscape plantings along streets or in greenspace areas may provide future habitat for nesting birds.  No residual effected expected.

Category	Feature and Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
<b>Long-term Impacts</b>					
<b>Artificial Light</b>	Local and migrating wildlife	Development	Light pollution	The area is currently highly disturbed with vehicle light and noise from Hwy 401, as well as the commercial and residential communities that already exist surrounding the Subject Property. It is unlikely that light pollution post development will impact wildlife that occur on the Subject Property.	Minimal residual effects expected.
<b>Natural Heritage System</b>	Pine Creek valley and riparian wetland	Grading, Servicing, and development	No physical intrusions into the Pine Creek valley is proposed in the development plan.	Plant disturbed soils along the edge of the development with native seed, shrubs, and/or trees.	The Pine Creek wetland and watercourse are separated from the proposed development by a small woodland and open meadows that are subject to a restoration plan for the neighbouring Walnut Lane development.  Opportunities for native plantings will serve to improve the ecological features and functions associated with the Subject Property
<b>Natural Heritage System</b>	Pince Creek valley and riparian wetland	Human population/density increase.	Foot traffic and general disturbance of the valley lands by residents of the proposed development.	Implement a trail or path that will guide residents to avoid encroaching into the valley and riparian area.	Minimal residual effects expected. Potential increase in refuse/litter in the valley, domestic dogs and cats may impact wildlife.

Category	Feature and Function	Proposed Activity	Potential Impacts	Recommended Mitigation	Residual Effects
<b>Wildlife</b>	Amphibians	Grading, servicing, and development	Suitable amphibian habitat occurs in Pine Creek valley, however none were heard or observed during breeding amphibian surveys.	Protection of wetlands on the Subject Property	The wetland will be maintained with a vegetative buffer area between the Subject Property and the wetland/watercourse as part of the neighbouring Walnut Lane project.
<b>Wildlife</b>	Birds	Construction of tall structures	Increase in window surfaces with the construction of tall residential towers may increase instances of bird strikes.	Architectural best practices for reducing bird strikes to windows.	Minimal impact expected.

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## 9. Mitigation Measures

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The following mitigation measures are recommended to avoid and minimize impacts. The measures have two distinct intended outcomes: mitigation to reduce the impact of the natural heritage system and mitigation to reduce the impact of active construction.

### 9.1. Natural Heritage System Measures

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- Minimize outdoor lighting and direct it down and away from natural area. A particular effort should be made to avoid the installation of outdoor lights adjacent or in proximity to Pine Creek Valley and its associated wetland and riparian vegetation.
- All buffers should be delineated using tree protection fencing prior to the arrival of heavy machinery.
- Incorporate bird-friendly architectural design best practices to minimize bird strikes for the structures built on site.
- Use native species for landscape plantings.
- Incorporate a trail or viewing area for the Pine Creek natural area to minimize encroachments via informal trails into the Pine Creek valley. This will require coordination with the neighboring property owner/site plan.
- Follow the recommendations of the hydrogeological report for mitigation of ground water effects.

### 9.2. Construction Measures

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The following mitigation measures are to be implemented prior to, during, and following the construction phases:

- The limits of construction are to be delineated and tree protection fencing installed alongside prior to the arrival of heavy machinery on site;
- Inspection by a qualified person(s) to conduct regular monitoring of all sediment and erosion measures implemented to ensure they are in working order. Any deficiencies observed are to be recorded and immediately reported to the site contractor.
- No heavy machinery is to be used or parked beyond the limits of construction within the tree protection zones;
- Clearing of vegetation identified for removal should be conducted in fall or winter months (September 30 - March 31) as to not coincide with breeding bird and bat roosting season. If clearing should occur during the nesting or roosting season, a nest and roost survey should be conducted prior to any works by a qualified biologist.
- All trees should be felled into the work zone
- Top-soil removed during stripping is recommended to be stockpiled for reapplication post-construction;
- A construction work plan should designate specific locations for stockpiling of soils and other material;
- Implementation of dust control measures is recommended to reduce dust impacts on the adjacent lands;
- Municipal guidelines for noise and light during construction activities shall be adhered to. Lights shall not run past construction hours and should be pointed down and toward the development, to eliminate any negative impacts on wildlife inhabiting the adjacent natural features.
- A Sediment and Erosion Control Plan is to be prepared and implemented prior to construction and the arrival of heavy machinery to reduce the risk of sediment transport into the wetland and adjacent

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features.

- Conduct regular environmental construction monitoring to ensure all tree protection and mitigation measures are implemented as intended; and,
- Conduct regular monitoring of all sediment and erosion control measures implemented to ensure they are in working order. Any deficiencies observed are to be recorded and immediately reported to the site contractor.

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## 10. Conclusion

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The current structures and parking infrastructure on the Subject Property extend to the limits of the property boundaries. The proposed development proposal does not include encroachments beyond the current footprint of the existing structures and parking lots. No loss of natural heritage features is anticipated; however, the construction of underground parking is likely to influence the flow of groundwater toward Pine Creek and its associated Provincially Significant Wetland. Mitigation measures for the groundwater effects will be developed during the detailed design process to address impacts on Pine Creek.

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# Environmental Impact Statement

1101A, 1105 AND 1163 KINGSTON ROAD, PICKERING

Prepared for Tribute (Brookdale) Communities Limited

October 31, 2023

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## Disclaimer

We certify that the services performed by GeoProcess Research Associates were conducted in a manner consistent with the level of care, skill and diligence to be reasonably exercised by members of the engineering and science professions.

Information obtained during the site investigations or received from third parties does not exhaustively cover all possible environmental conditions or circumstances that may exist in the study area. If a service is not expressly indicated, it should not be assumed that it was provided. Any discussion of the environmental conditions is based upon information provided and available at the time the conclusions were formulated.

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## Maps







**Legend**

Subject Property 



0 250 500 750 1,000 m

NAD83 / UTM zone 17N (EPSG:26917)

Notes:  
 [1] Aerial imagery from Google Earth.  
 [2] Property boundaries are approximate.

Map 1.

Key Map

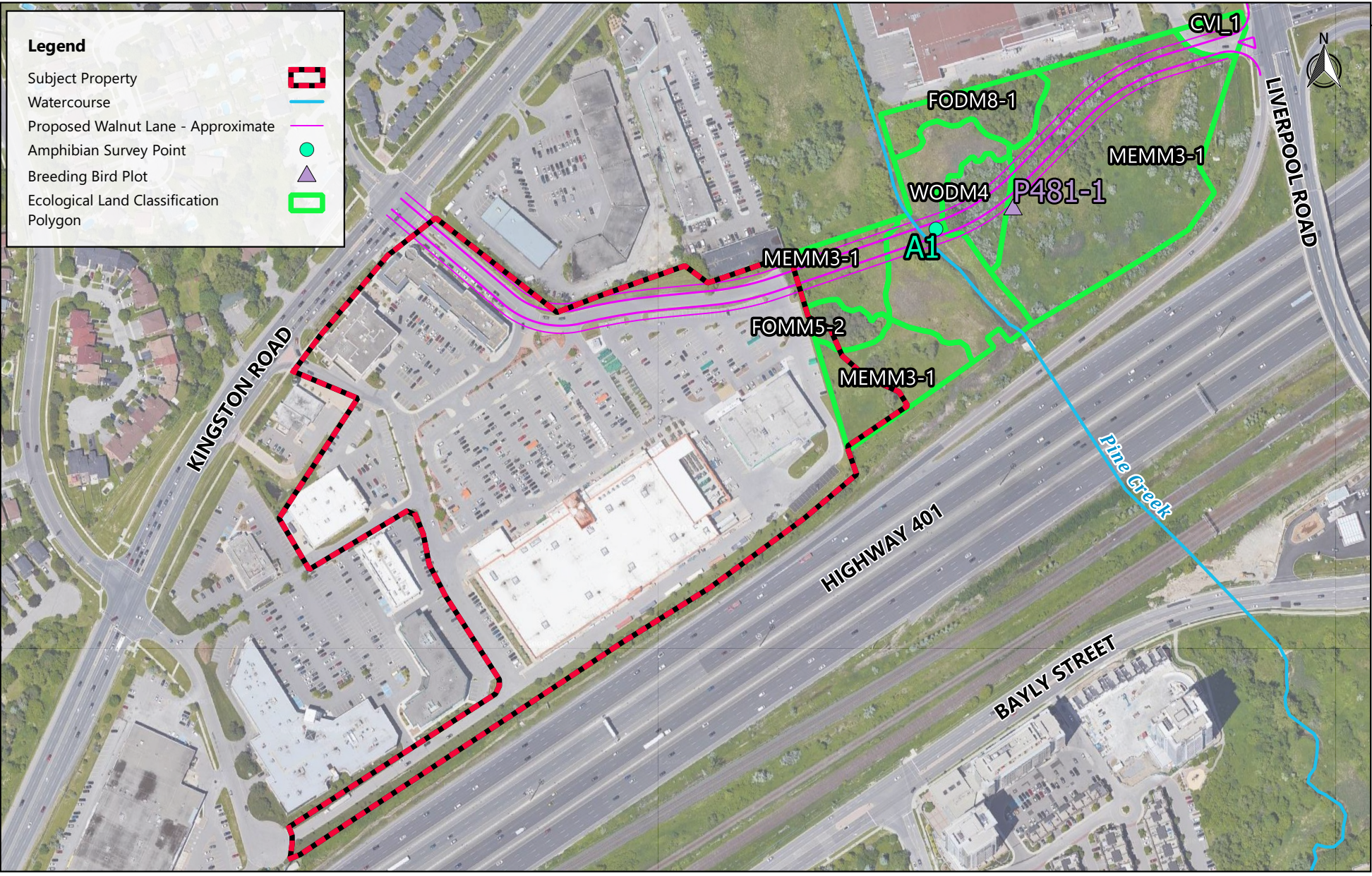
CREATED BY: DH PROJECT NO.:  
 CHECKED BY: IR DATE: Oct 31, 2023

**1101A & 1105 Kingston Road, Pickering**  
 Tribute (Brookdale)Communities









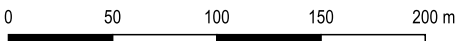
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**Legend**

- Subject Property 
- Watercourse 
- Proposed Walnut Lane - Approximate 
- Amphibian Survey Point 
- Breeding Bird Plot 
- Ecological Land Classification Polygon 



NAD83 / UTM zone 17N (EPSG:26917)

Notes:  
 [1] Aerial imagery from Google Earth.  
 [2] Property boundaries are approximate.

**Map 2.** Survey Locations & Ecological Land Classification

CREATED BY: DH PROJECT NO.:  
 CHECKED BY: IR DATE: Oct 31, 2023

**1101A & 1105 Kingston Road, Pickering**  
 Tribute (Brookdale) Communities





## Appendix A

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### Species at Risk Screening Resources

*Table A 1. SAR screening resources*

Screening Resource	Description
Natural Heritage Information Center (NHIC)	The Natural Heritage Information Center (NHIC), operated by the Ontario Ministry of Natural Resources and Forestry, collects, reviews, manages and distributes information on Ontario's biodiversity. Data distributed by the NHIC is used in conservation and natural resource management decision making and was a primary resource for this report. Through the NHIC Make-a-Map tool, data on species, plant communities, wildlife concentration areas and natural areas is made accessible to the public and professionals using generalized 1-kilometer grid units to protect sensitive information. The mapping interface provides current and historical occurrences of SAR within the specified grid unit. The database also identifies environmental designations which provide insight into habitat potential including wetland, areas of natural and scientific interests and woodlands.
Breeding Bird Atlas	The atlas divides the province into 10×10 km squares and then birders find as many breeding species as possible in each square. Atlassers who know birds well by song complete 5-minute "Point Counts", 25 of which are required to provide an index of the abundance of each species in a square. Data from every square are mapped to show the distribution of each species. Point count data from each square show how the relative abundance of each species varies across the province.
eBird	eBird data document bird distribution, abundance, habitat use, and trends through checklist data collected within a simple, scientific framework. Birders enter when, where, and how they went birding, and then fill out a checklist of all the birds seen and heard during the outing. eBird's free mobile app allows offline data collection anywhere in the world, and the website provides many ways to explore and summarize your data and other observations from the global eBird community. eBird hotspots that are within 1 km of the Study Area are selected for species review.
Ontario Moth Atlas	The Ontario Moth Atlas is a project of the Toronto Entomologists' Association. The atlas currently covers about 250 species from 7 of the best-known families. The atlas presently includes 62,000 records. The last update of the atlas was in April 2020. The atlas is updated at least every 3 months. Most atlas data come from iNaturalist records. However, there is some data from Chris Schmidt of Agriculture Canada, the BOLD (Barcode of Life Datasystems) project of the University of Guelph, and from other records submitted directly to the TEA. The atlas uses the same 10×10 km squares at the Breeding Bird Atlas.
Ontario Butterfly Atlas	The Ontario Butterfly Atlas is a project of the Toronto Entomologists' Association (TEA). The TEA has been accumulating records and publishing annual seasonal summaries (Ontario Lepidoptera) for 50 years, with the first edition appearing in 1969. Atlas data comes from eButterfly records, iNaturalist records, BAMONA records, and records submitted directly to the TEA. The atlas uses the same 10×10 km squares at the Breeding Bird Atlas.
i-Naturalist	i-Naturalist is a nature app that helps public identify plants and animals. Using algorithms as well as scientists and taxonomic experts' multiple observations can be identified at a research scale. This data generated by the iNat community can be used in science and conservation. The program actively distributes the data in venues where scientists and land managers can find it. I-Naturalist has a project group for (NHIC) Rare species of Ontario. GeoProcess only records observations with-in 1 km of the Study Area.
Fisheries and Ocean Aquatic Species at Risk Maps	The DFO has compiled critical habitat and distribution data for aquatic species listed under the Species at Risk Act (SARA). The interactive map is intended to provide an overview of the distribution of aquatic species at risk and the presence of their critical habitat within Canadian waters. The official source of information is the Species at Risk Public Registry. Using this map, a 1 km radius circle is outlined around aquatic features located within the Study Area.

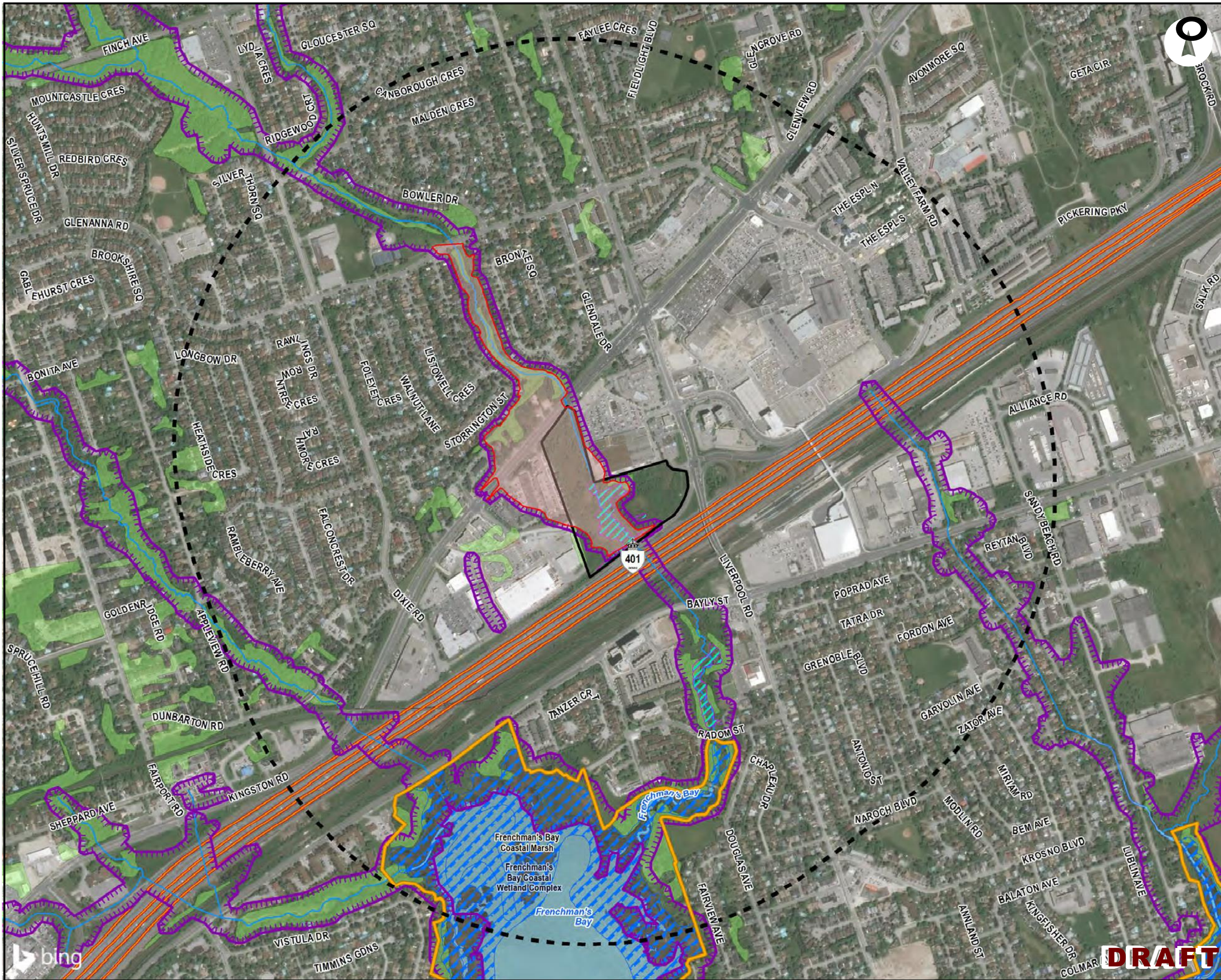
## **Appendix B**

### Proposed Site Plan

## **Appendix C**

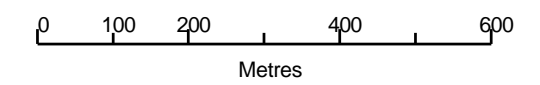
### Environmental Assessment Excerpts





**Legend**

- Freeway
- Watercourse
- Waterbody
- Provincially Significant Wetland
- Unevaluated Wetland
- Candidate ANSI, Life Science
- Wooded Area
- TRCA Regulated Area
- Regulatory Flood Line (Approximated)
- Study Area
- Background Information Review Buffer (1km)



Scoped Environmental Impact Study - Walnut Lane Road Extension

Field Investigation Results

Aug 13, 2020	1:10,000	Datum: NAD 1983 UTM Zone 17N Source: MNR, Bing, TRCA Key Map: ESRI Base Map: City of Pickering (2016)
P#: 60547978	V#: 00	

**AECOM** **Figure 1**

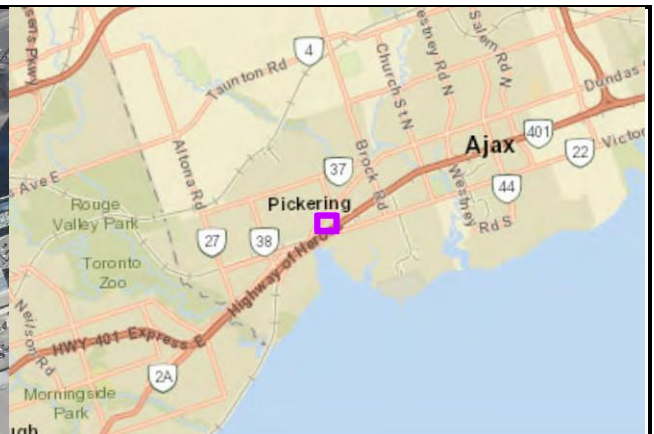
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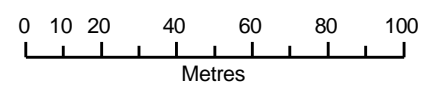


- Legend**
- Wetland Survey (2019.10.11)
  - Breeding Bird Point Count Location
  - Regionally Rare Plant Location : Baltic Rush (Juncus balticus)
  - Wetland Boundary (TRCA 2015)
  - Watercourse
  - Study

- Road Extension**
- Alternative 1
  - Alternative 2
  - Alternative 3

- Vegetation Community**
- CUM
  - CUP
  - CUT
  - CUW
  - FOD
  - MAM

ELC Code	Vegetation Community
FOD8-1	Fresh-moist Poplar Deciduous Forest
MAM2	Mixed Mineral Meadow Marsh
MAMM1-12	Common Reed Mineral Meadow Marsh
CUW1	Cultural Woodland
CUM1	Cultural Meadow
CUP3-3	Scotch Pine Cultural Plantation
CUT1	Cultural Thicket



Scoped Environmental Impact Study - Walnut Lane Road Extension

Field Investigation Results

Feb 21, 2020	1:2,000	Datum: NAD 1983 UTM Zone 17N Source: MNR, Kingset, Bing Key Map: ESRI Base Map: City of Pickering (2016)
P#: 60547978	V#: 00	



Figure 2

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BOTANICAL NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	OMNR STATUS	COSEWIC STATUS	LOCAL STATUS DURHAM	LOCAL STATUS GTA	CUW1	CUT1/ CUM1-1	MAM2
<b>PTERIDOPHYTES</b>	<b>FERNS &amp; ALLIES</b>											
<b>Equisetaceae</b>	<b>Horsetail Family</b>											
<i>Equisetum arvense</i>	Field Horsetail	0	0		S5			X	X	X		X
<b>GYMNOSPERMS</b>	<b>CONIFERS</b>											
<b>Cupressaceae</b>	<b>Cedar Family</b>											
<i>Juniperus virginiana</i>	Eastern Red Cedar	4	3		S5			X	X		X	
<b>Pinaceae</b>	<b>Pine Family</b>											
<i>Pinus sylvestris</i>	Scots Pine		5	-3	SNA			X	X	X	X	
<b>DICOTYLEDONS</b>	<b>DICOTS</b>											
<b>Aceraceae</b>	<b>Maple Family</b>											
<i>Acer negundo</i>	Manitoba Maple		-2	-2	S5			X	X	X	X	
<i>Acer platanoides</i>	Norway Maple		5	-3	SNA			X	X	X		
<i>Acer saccharinum</i>	Silver Maple	5	-3		S5			X+	X	X		
<i>Acer X freemanii</i>	Freeman's Maple	2	0		SNA			X	X			X
<b>Anacardiaceae</b>	<b>Cashew Family</b>											
<i>Toxicodendron radicans ssp. negundo</i>	Eastern Poison-ivy	5	-1		S5			U	X	X	X	
<i>Rhus typhina</i>	Staghorn Sumac	1	5		S5			X	X	X	X	
<b>Apiaceae</b>	<b>Parsley Family</b>											
<i>Cicuta maculata</i>	Spotted Water-hemlock	6	-5		S5			U	X			X
<i>Daucus carota</i>	Wild Carrot		5	-2	SNA			X	X	X	X	X
<b>Apocynaceae</b>	<b>Dogbane Family</b>											
<i>Apocynum cannabinum</i>	Indian Hemp	3	1		S5			X	X		X	
<b>Asclepiadaceae</b>	<b>Milkweed Family</b>											
<i>Asclepias incarnata</i>	Swamp Milkweed	6	-5		S5			X	X			X
<i>Asclepias syriaca</i>	Common Milkweed	0	5		S5			X	X		X	
<i>Cynanchum rossicum</i>	European Swallow-wort		5	-2	SNA			X	X	X	X	
<b>Asteraceae</b>	<b>Aster Family</b>											
<i>Achillea millefolium</i>	Common Yarrow		3	-1	SNA			X	X		X	
<i>Ambrosia artemisiifolia</i>	Common Ragweed	0	3		S5						X	
<i>Ambrosia trifida</i>	Giant Ragweed	0	-1		S5			U	U		X	
<i>Arctium minus</i>	Common Burdock		5	-2	SNA			X	X	X	X	
<i>Symphyotrichum cordifolium</i>	Common Blue Wood Aster	5	5		S5			X	X	X		
<i>Symphyotrichum ericoides</i>	Heath Aster	4	4		S5			X	X	X	X	X
<i>Symphyotrichum lanceolatum</i>	White Panicked Aster	3	-3		S5			X	X		X	X
<i>Symphyotrichum lateriflorum</i>	Calico Aster	3	-2		S5			X	X		X	
<i>Symphyotrichum novae-angliae</i>	New England Aster	2	-3		S5			X	X		X	X
<i>Symphyotrichum puniceum</i>	Purple-stemmed Aster	6	-5		S5			X	X		X	
<i>Bidens frondosa</i>	Devil's Beggar-ticks	3	-3		S5			X	X			X
<i>Centaurea jacea</i>	Brown Knapweed		5	-1	SNA			X	X	X	X	
<i>Centaurea biebersteinii</i>	Spotted Knapweed		5	-3	SNA			X	X		X	
<i>Leucanthemum vulgare</i>	Ox-eye Daisy		5	-1	SNA			X	X		X	
<i>Cichorium intybus</i>	Chicory		5	-1	SNA			X	X	X	X	
<i>Cirsium arvense</i>	Canada Thistle		0	-1	SNA			X	X	X	X	X
<i>Cirsium vulgare</i>	Bull Thistle		4	-1	SNA			X	X	X		
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	1	-3		S5			X	X	X		X
<i>Eutrochium maculatum</i>	Spotted Joe-pye-weed	3	-5		S5			X	X			X
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	2	-2		S5			X	X			X

Appendix F - Walnut Lane Extension EIS Plant List



BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	OMNR STATUS	COSEWIC STATUS	LOCAL STATUS DURHAM	LOCAL STATUS GTA	CUW1	CUT1/ CUM1-1	MAM2
<i>Helianthus</i>	<i>tuberosus</i>	Jerusalem Artichoke		0	-1	SU			X	X	X		X
<i>Inula</i>	<i>helenium</i>	Elecampane		-2	-2	SNA			X	X		X	X
<i>Silphium</i>	<i>perfoliatum</i>	Cup-plant		-2	-1	S2			X+	X+			X
<i>Solidago</i>	<i>altissima</i>	Tall Goldenrod	1	3		S5			X	X	X	X	
<i>Solidago</i>	<i>canadensis</i>	Canada Goldenrod	1	3		S5			U	X	X	X	
<i>Solidago</i>	<i>gigantea</i>	Giant Goldenrod	4	-3		S5			X	X	X	X	
<i>Solidago</i>	<i>juncea</i>	Early Goldenrod	3	5		S5			U	U	X	X	
<i>Sonchus</i>	<i>arvensis ssp. arvensis</i>	Field Sow-thistle		1	-1	SNA			X	X		X	
<i>Sonchus</i>	<i>asper ssp. asper</i>	Spiny-leaved Sow-thistle		0	-1	SNA			X	X		X	
<i>Tanacetum</i>	<i>vulgare</i>	Common Tansy		5	-1	SNA			X	X	X	X	
<i>Taraxacum</i>	<i>officinale</i>	Common Dandelion		3	-2	SNA			X	X		X	
<i>Tussilago</i>	<i>farfara</i>	Coltsfoot		3	-2	SNA			X	X	X		X
<b>Balsaminaceae</b>		<b>Touch-me-not Family</b>											
<i>Impatiens</i>	<i>capensis</i>	Jewelweed	4	-3		S5			X	X	X		X
<i>Impatiens</i>	<i>glandulifera</i>	Himalayan Balsam		-3	-2	SNA			X	X	X		
<b>Betulaceae</b>		<b>Birch Family</b>											
<i>Betula</i>	<i>papyrifera</i>	Paper Birch	2	2		S5					X		
<i>Betula</i>	<i>pendula</i>	European Weeping Birch		-4	-3	SNA					X		
<b>Boraginaceae</b>		<b>Borage Family</b>											
<i>Echium</i>	<i>vulgare</i>	Viper's Bugloss		5	-2	SNA				X		X	
<i>Lithospermum</i>	<i>officinale</i>	European Stickseed		5	-1	SNA			X	X		X	
<i>Myosotis</i>	<i>scorpioides</i>	True Forget-me-not		-5	-1	SNA			X+	X			X
<b>Brassicaceae</b>		<b>Mustard Family</b>								X			
<i>Alliaria</i>	<i>petiolata</i>	Garlic Mustard		0	-3	SNA				X	X		
<i>Barbarea</i>	<i>vulgaris</i>	Bitter Winter-cress		0	-1	SNA						X	
<i>Cardamine</i>	<i>pensylvanica</i>	Pensylvania Bitter-cress	6	-4		S5			U	U			X
<i>Hesperis</i>	<i>matronalis</i>	Dame's Rocket		5	-3	SNA			X	X		X	
<i>Nasturtium</i>	<i>officinale</i>	Water-cress		-5	-1	SNA				X	X		
<b>Caprifoliaceae</b>		<b>Honeysuckle Family</b>											
<i>Lonicera</i>	<i>tatarica</i>	Tartarian Honeysuckle		3	-3	SNA			X	X	X	X	
<i>Sambucus</i>	<i>nigra ssp. canadensis</i>	American Black Elderberry	5	-2		S5			X	X	X		
<i>Viburnum</i>	<i>lentago</i>	Nannyberry	4	-1		S5			X	X	X		
<i>Viburnum</i>	<i>opulus</i>	Gelder Rose		0		SNA			X	X	X		
<b>Convolvulaceae</b>		<b>Morning-glory Family</b>											
<i>Calystegia</i>	<i>sepium ssp. americanum</i>	Hedge Bindweed	2	0		S5			U	U			X
<i>Convolvulus</i>	<i>arvensis</i>	Field Bindweed		5	-1	SNA			X	X		X	
<b>Cornaceae</b>		<b>Dogwood Family</b>											
<i>Cornus</i>	<i>sericea</i>	Red-osier Dogwood	2	-3		S5			X	X	X	X	
<b>Cucurbitaceae</b>		<b>Gourd Family</b>											
<i>Echinocystis</i>	<i>lobata</i>	Wild Cucumber	3	-2		S5			X	X	X		X
<b>Dipsacaceae</b>		<b>Teasel Family</b>											
<i>Dipsacus</i>	<i>fullonum</i>	Fuller's Teasel		5	-1	SNA			X	X		X	
<b>Elaeagnaceae</b>		<b>Oleaster Family</b>											
<i>Elaeagnus</i>	<i>angustifolia</i>	Russian Olive		4	-1	SNA			X	X	X	X	
<i>Elaeagnus</i>	<i>umbellata</i>	Autumn Olive		3	-3	SNA			X	X		X	
<b>Euphorbiaceae</b>		<b>Spurge Family</b>											
<i>Euphorbia</i>	<i>cyparissias</i>	Cypress Spurge		5	-2	SNA			X	X		X	
<b>Fabaceae</b>		<b>Pea Family</b>											

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<i>Coronilla</i>	<i>varia</i>	Crown-vetch		5	-2	SE5			X	X	X	X	
<i>Lotus</i>	<i>corniculatus</i>	Bird's-foot Trefoil		1	-2	SNA			X	X		X	
<i>Medicago</i>	<i>lupulina</i>	Black Medick		1	-1	SNA			X	X	X	X	
<i>Mellilotus</i>	<i>alba</i>	White Sweet-clover		3	-3	SNA			X	X		X	
<i>Mellilotus</i>	<i>officinalis</i>	Yellow Sweet-clover		3	-1	SNA			X	X		X	
<i>Vicia</i>	<i>cracca</i>	Cow Vetch		5	-1	SNA			X	X	X	X	
<b>Guttiferae</b>		<b>St. John's-wort Family</b>											
<i>Hypericum</i>	<i>perforatum</i>	Common St. John's-wort		5	-3	SNA			X	X	X		
<b>Juglandaceae</b>		<b>Walnut Family</b>											
<i>Juglans</i>	<i>nigra</i>	Black Walnut	5	3		S4			U	X	X		
<b>Lamiaceae</b>		<b>Mint Family</b>											
<i>Lycopus</i>	<i>americanus</i>	American Water-horehound	4	-5		S5			X	X	X		X
<i>Lycopus</i>	<i>europaeus</i>	European Water-horehound				SNA			X	X			X
<i>Mentha</i>	<i>arvensis</i>	American Wild Mint	3	-3		S5			X	X			X
<b>Lythraceae</b>		<b>Loosestrife Family</b>											
<i>Lythrum</i>	<i>salicaria</i>	Purple Loosestrife				SNA			X	X	X	X	X
<b>Moraceae</b>		<b>Mulberry Family</b>											
<i>Morus</i>	<i>alba</i>	White Mulberry		0	-3	SNA			X	X		X	
<b>Oleaceae</b>		<b>Olive Family</b>											
<i>Fraxinus</i>	<i>americana</i>	White Ash	4	3		S4			X	X	X	X	X
<i>Fraxinus</i>	<i>pennsylvanica</i>	Green Ash	3	-3		S4			X	X	X	X	X
<i>Ligustrum</i>	<i>vulgare</i>	European Privet		1	-2	SNA			X	X		X	
<b>Onagraceae</b>		<b>Evening-primrose Family</b>											
<i>Epilobium</i>	<i>hirsutum</i>	Great Hairy Willow-herb		-4	-2	SNA			X	X			X
<i>Epilobium</i>	<i>parviflorum</i>	Small-flowered Willow-herb		3	-1	SNA			X	X			X
<i>Oenothera</i>	<i>biennis</i>	Common Evening-primrose	0	3		S5			X	U		X	
<b>Oxalidaceae</b>		<b>Wood Sorrel Family</b>											
<i>Oxalis</i>	<i>stricta</i>	Common Yellow Wood-sorrel	0	3		S5			X	X	X		
<b>Plantaginaceae</b>		<b>Plantain Family</b>											
<i>Plantago</i>	<i>major</i>	Common Plantain				S5			X	X		X	
<b>Polygonaceae</b>		<b>Smartweed Family</b>											
<i>Polygonum</i>	<i>amphibium</i>	Water Knotweed	5	-5		S5			X	X			X
<i>Polygonum</i>	<i>persicaria</i>	Lady's-thumb				SE5			X	X		X	
<i>Rumex</i>	<i>crispus</i>	Curly-leaf Dock				SNA			X	X		X	
<b>Primulaceae</b>		<b>Primrose Family</b>											
<i>Lysimachia</i>	<i>ciliata</i>	Fringed Loosestrife	4	-3		S5			X	X	X		
<b>Ranunculaceae</b>		<b>Buttercup Family</b>											
<i>Anemone</i>	<i>canadensis</i>	Canada Anemone	3	-3		S5			X	X	X		X
<i>Ranunculus</i>	<i>acris</i>	Tall Buttercup				SNA			X	X		X	X
<b>Rhamnaceae</b>		<b>Buckthorn Family</b>											
<i>Rhamnus</i>	<i>cathartica</i>	Common Buckthorn		3	-3	SNA			X	X	X	X	
<b>Rosaceae</b>		<b>Rose Family</b>											
<i>Crataegus</i>	<i>sp.</i>	Hawthorn sp.	4	5								X	
<i>Geum</i>	<i>aleppicum</i>	Yellow Avens	2	-1		S5			X	X			X
<i>Geum</i>	<i>urbanum</i>	Wood Avens				SNA				X	X		
<i>Malus</i>	<i>pumila</i>	Common Apple		5	-1	SNA			X	X	X	X	
<i>Potentilla</i>	<i>anserina</i>	Silverweed	5	-4		S5			U	U		X	X
<i>Prunus</i>	<i>pensylvanica</i>	Pin Cherry	3	4		S5			X	X	X	X	

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<i>Prunus</i>	<i>virginiana</i>	Choke Cherry	2	1		S5			X	X	X		
<i>Rubus</i>	<i>idaeus ssp. melanolasius</i>	Wild Red Raspberry	0	-2		S5			X	X	X	X	
<b>Rubiaceae</b>		<b>Madder Family</b>											
<i>Galium</i>	<i>mollugo</i>	Smooth Bedstraw		5	-2	SNA			X	X		X	
<i>Galium</i>	<i>palustre</i>	Marsh Bedstraw	5	-5		S5			X	X			X
<b>Salicaceae</b>		<b>Willow Family</b>											
<i>Populus</i>	<i>alba</i>	White Poplar		5	-3	SNA			X	X		X	
<i>Populus</i>	<i>balsamifera</i>	Balsam Poplar	4	-3		S5			X	X	X		
<i>Populus</i>	<i>deltoides ssp. deltoides</i>	Eastern Cottonwood	4	-1		S5			U	X		X	
<i>Populus</i>	<i>tremuloides</i>	Trembling Aspen	2	0		S5			X	X	X		
<i>Salix</i>	<i>amygdaloides</i>	Peach-leaved Willow	6	-3		S5			X	X	X		
<i>Salix</i>	<i>discolor</i>	Pussy Willow	3	-3		S5			X	X			X
<i>Salix</i>	<i>eriocephala</i>	Missouri River Willow	4	-3		S5			X	X			X
<i>Salix</i>	<i>exigua</i>	Narrow-leaf Willow	3	-5		SNA			X	X	X	X	
<i>Salix</i>	<i>petiolaris</i>	Meadow Willow	3	-4		S5			X	X			X
<i>Salix X</i>	<i>rubens</i>	Reddish Willow		-4	-3	SE4			X	X	X		
<b>Scrophulariaceae</b>		<b>Figwort Family</b>											
<i>Linaria</i>	<i>vulgaris</i>	Butter-and-eggs		5	-1	SNA			X	X	X	X	
<b>Solanaceae</b>		<b>Nightshade Family</b>											
<i>Solanum</i>	<i>dulcamara</i>	Bittersweet Nightshade		0	-2	SNA			X	X	X		X
<b>Tiliaceae</b>		<b>Linden Family</b>											
<i>Tilia</i>	<i>americana</i>	American Basswood	4	3		S5			X	X	X		
<b>Ulmaceae</b>		<b>Elm Family</b>											
<i>Ulmus</i>	<i>americana</i>	American Elm	3	-2		S5			X	X	X		
<i>Ulmus</i>	<i>pumila</i>	Siberian Elm		5	-1	SNA			X	X	X	X	
<b>Vitaceae</b>		<b>Grape Family</b>											
<i>Parthenocissus</i>	<i>inserta</i>	Thicket-creeper	3	3		S5			X	X	X	X	
<i>Vitis</i>	<i>riparia</i>	Riverbank Grape	0	-2		S5			X	X	X	X	
<b>MONOCOTYLEDONS</b>		<b>MONOCOTS</b>											
<b>Alismataceae</b>		<b>Water-plantain Family</b>											
<i>Alisma</i>	<i>plantago-aquatica</i>	Common Water-plantain	3	-5		S5			X	X			X
<b>Cyperaceae</b>		<b>Sedge Family</b>											
<i>Carex</i>	<i>bebbii</i>	Bebb's Sedge	3	-5		S5			X	X			X
<i>Carex</i>	<i>granularis</i>	Limestone Meadow Sedge	3	-4		S5			X	X			X
<i>Carex</i>	<i>hystericina</i>	Porcupine Sedge	5	-5		S5			X	X			X
<i>Carex</i>	<i>pensylvanica</i>	Pennsylvania Sedge	5	5		S5			X	X	X		
<i>Carex</i>	<i>stipata</i>	Awl-fruited Sedge	3	-5		S5			X	X			X
<i>Carex</i>	<i>stricta</i>	Tussock Sedge	4	-5		S5			X	X			X
<i>Carex</i>	<i>vulpinoidea</i>	Fox Sedge	3	-5		S5			X	X			X
<i>Scirpus</i>	<i>atrovirens</i>	Black Bulrush	3	-5		S5			X	X			X
<i>Scirpus</i>	<i>microcarpus</i>	Red-tinged Bulrush	4	-5		S5			U	U			X
<i>Scirpus</i>	<i>pendulus</i>	Hanging Bulrush	3	-5		S5			U	U			X
<b>Juncaceae</b>		<b>Rush Family</b>											
<i>Juncus</i>	<i>articulatus</i>	Articulated Rush	3	-5		S5			X	X			X
<i>Juncus</i>	<i>balticus</i>	Baltic Rush	5	-5		S5			R8	R			X
<i>Juncus</i>	<i>effusus</i>	Soft Rush	4	-5		S5			X	X			X
<i>Juncus</i>	<i>tenuis</i>	Path Rush	0	0		S5			X	X	X	X	X
<i>Juncus</i>	<i>torreyi</i>	Torrey's Rush	3	-3		S5			X	X			X

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	OMNR STATUS	COSEWIC STATUS	LOCAL STATUS DURHAM	LOCAL STATUS GTA	CUW1	CUT1/ CUM1-1	MAM2
<b>Liliaceae</b>		<b>Lily Family</b>											
<i>Asparagus</i>	<i>officinalis</i>	Garden Asparagus		3	-1	SNA			X	X		X	
<b>Poaceae</b>		<b>Grass Family</b>											
<i>Agrostis</i>	<i>stolonifera</i>	Creeping Bent Grass	0	-3		SNA			X	X			X
<i>Bromus</i>	<i>inermis ssp. inermis</i>	Smooth Brome		5	-3	SNA			X	X	X	X	
<i>Dactylis</i>	<i>glomerata</i>	Orchard Grass		3	-1	SNA			X	X		X	
<i>Elymus</i>	<i>repens</i>	Quack Grass		3	-3	SNA			X	X	X	X	
<i>Lolium</i>	<i>arundinaceum</i>	Tall Fescue		2	-1	SE5				X		X	
<i>Hordeum</i>	<i>jubatum ssp. jubatum</i>	Foxtail Grass		-1	-1	S5			X	X		X	
<i>Leersia</i>	<i>oryzoides</i>	Rice Cut Grass	3	-5		S5			X	X			X
<i>Phalaris</i>	<i>arundinacea</i>	Reed Canary Grass		-4	-2	S5			X	X		X	X
<i>Phragmites</i>	<i>australis</i>	Common Reed		-4	-3	SNA			X	X			X
<i>Poa</i>	<i>compressa</i>	Canada Blue Grass		2	-2	SNA			X	X		X	
<i>Poa</i>	<i>pratensis ssp. pratensis</i>	Kentucky Blue Grass		1	-2	S5			X	X	X	X	
<b>Potamogetonaceae</b>		<b>Pondweed Family</b>											
<i>Stuckenia</i>	<i>pectinata</i>	Sago Pondweed	4	-5		S5			X	U			X
<b>Typhaceae</b>		<b>Cattail Family</b>											
<i>Typha</i>	<i>angustifolia</i>	Narrow-leaved Cattail		-5	-2	SNA			X	X	X		X
<i>Typha</i>	<i>latifolia</i>	Broad-leaved Cattail	3	-5		S5			X	X	X	X	X
<i>Typha X</i>	<i>glauca</i>	Glaucous Cattail	3	-5		SNA			X	X			X

**FLORISTIC SUMMARY & ASSESSMENT**

**Species Diversity**

Total Species:	<b>157</b>	
Native Species:	<b>84</b>	53.50%
Exotic Species	<b>73</b>	46.50%
Total Taxa in Region (List Region, Source)	10000	
% Regional Taxa Recorded	1.57%	
Regionally Significant Species	1	
S1-S3 Species	1	

**Appendix I - Birds Recorded in Walnut Lane Study Area**

Common Name	Scientific Name	Area Search		Br Status	Point Counts						S-Rank	COSEWIC status	ESA status	TRCA L-Rank
		Jun-25	Jul-04		#1	#2	#3	#4	#5	#6				
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	0	1	X	0	0	0	0	0	0	S3B,S3N			L3
Rock Pigeon	<i>Columba livia</i>	0	1	X	0	1	0	0	0	0	SNA			L+
Mourning Dove	<i>Zenaida macroura</i>	1	0	H	0	0	0	0	0	0	S5			L5
Belted Kingfisher	<i>Megaceryle alcyon</i>	0	1	X	0	0	0	0	0	0	S4B			L4
Willow Flycatcher	<i>Empidonax traillii</i>	0	2	S	0	0	0	1	0	0	S5B			L4
Blue Jay	<i>Cyanocitta cristata</i>	1	0	H	0	0	0	0	0	0	S5			L5
Black-capped Chickadee	<i>Poecile atricapillus</i>	0	1	H	0	0	0	0	0	0	S5			L5
American Robin	<i>Turdus migratorius</i>	1	0	H	0	0	0	0	0	0	S5B			L5
Gray Catbird	<i>Dumetella carolinensis</i>	2	3	T	1	1	0	0	0	1	S4B			L4
Cedar Waxwing	<i>Bombycilla cedrorum</i>	2	0	H	0	0	0	0	0	0	S5B			L5
European Starling	<i>Sturnus vulgaris</i>	1	1	T	0	0	0	0	0	0	SNA			L+
Warbling Vireo	<i>Vireo gilvus</i>	2	1	T	0	0	0	0	0	0	S5B			L5
Red-eyed Vireo	<i>Vireo olivaceus</i>	1	0	S	0	0	0	0	0	0	S5B			L4
Yellow Warbler	<i>Setophaga petechia</i>	6	2	T	1	1	0	0	1	1	S5B			L5
Northern Cardinal	<i>Cardinalis cardinalis</i>	3	2	T	0	1	0	0	0	1	S5			L5
Song Sparrow	<i>Melospiza melodia</i>	9	10	T	2	3	3	1	1	2	S5B			L5
Red-winged Black Bird	<i>Agelaius phoeniceus</i>	14	14	DD	1	2	5	4	4	3	S4			L5
Common Grackle	<i>Quiscalus quiscula</i>	3	4	A	1	0	0	1	0	0	S5B			L5
House Finch	<i>Haemorhous mexicanus</i>	1	0	X	0	0	0	0	0	0	SNA			L+
American Goldfinch	<i>Spinus tristis</i>	3	5	T	1	1	1	0	2	1	S5B			L5
House Sparrow	<i>Passer domesticus</i>	2	2	T	1	1	0	0	0	0	SNA			L+



# Appendix D

Monitoring Plan



# MEMO

October 31, 2023

**Re: 1101A, 1105 & Kingston Road, Pickering  
Monitoring Program**

This monitoring plan has been prepared for the ecological features associated with the site. In particular, it focuses on the neighbouring natural heritage features to the east of the site which will be maintained as part of the proposed development project. These features include a 0.2 ha treed area in the southeast corner of the property as well as Pine Creek and its associated wetland beyond the eastern property limit. The goals and objectives of the monitoring program are to guide and measure the long-term effectiveness of the implemented natural heritage mitigation measures, to form both a basis for adaptive management, and to understand how the neighbouring habitats change overtime, as it relates to the surrounding landscape and proposed development. A report on the success of the channel design will be provided to the TRCA and other appropriate agencies following the completion of the monitoring program.

The monitoring program will be conducted in two phases:

1. **Implementation Monitoring:** assessing whether the proposed restoration initiatives were implemented properly and whether design parameters were achieved.
2. **Effectiveness Monitoring:** assessing whether the restoration initiatives are having the desired habitat response.

## Implementation Monitoring

Implementation monitoring will take place at two times during the project construction: mid project installation and post installation. The detailed monitoring at each time is described below.

### Mid-Project Monitoring

Mid-project monitoring will assess the implementation of natural planting treatments according to project requirements. An evaluation of the proposed restoration measures for the 0.2 ha natural area and any other non-landscape plantings associated with the property will focus on feedback to the project and construction team to confirm compliance with the pre-determined goals of the planting plan.

Mid-project monitoring should include a bi-weekly assessment during the planting phase to assess restoration measures, design measures and confirm that targets are being met such as correct installation of features, proper species, quality and placement of planting stock.

### Post-Construction Monitoring

Post-construction monitoring should include an overall assessment of the plantings associated with the property to determine if proposed treatments were implemented according to project requirements.

## Effectiveness Monitoring

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The effectiveness monitoring will determine landscape evolution overtime from the implementation of the original mitigation and planting prescription and whether the features of the landscape are functioning as proposed. The primary focus of this monitoring will be the neighbouring Pine Creek and its wetland. Assessments will include ground truthing to provide critical data to delineate, describe and predict changes in the landscape.

The following methods are proposed to assess the effectiveness of restoration measures within the re-aligned channel.

1. Vegetation planting and survivability assessments will be completed immediately post-planting and during subsequent monitoring visits. The post-planting assessment will determine if plants were installed appropriately and according to the restoration plan specifications. Post-construction assessments in year 1 and 3 will assess survivorship to determine if replacement plants are needed and to ensure that rodent guards are removed if necessary.
2. A baseline assessment of vegetation communities will be conducted following the Ecological Land Classification protocols for Southern Ontario (Lee et al., 2008) to provide a dataset for tracking vegetation growth rates and the relative success of mitigation measures and restoration treatments over time. The assessment will be conducted during year 1 and will include a three-season inventory conducted during the appropriate survey windows (Spring-May to early June, Summer-July to August and Fall-September to October). This will be completed in conjunction with the survivability assessments.
3. An assessment of invasive species colonization followed by the development and implementation of applicable invasive species control plans as needed will be completed in conjunction with the survivability assessments and vegetation community tracking.
4. Assessment and monitoring of groundwater impacts will be conducted in accordance to the mitigation measures provided during the detailed site design.

## Reporting

A preliminary report (year 1) will be provided to the appropriate agency providing baseline data for the natural heritage features on the property and for Pine Creek and its wetland. Annual monitoring reports will be provided documenting vegetation monitoring results for year 2 and 3.

## Additional Monitoring

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Groundwater monitoring will be completed based on the program prepared by EXP for the long-term dewatering program. Details of this program will be prepared based on the detailed groundwater mitigation plan.