

Final

1200 King Road, Burlington

Environmental Impact Assessment

Prepared for:

Alinea Land Corporation
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Burlington, ON
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Aquatic, Terrestrial and Wetland Biologists

1200 King Road, Burlington

Environmental Impact Assessment

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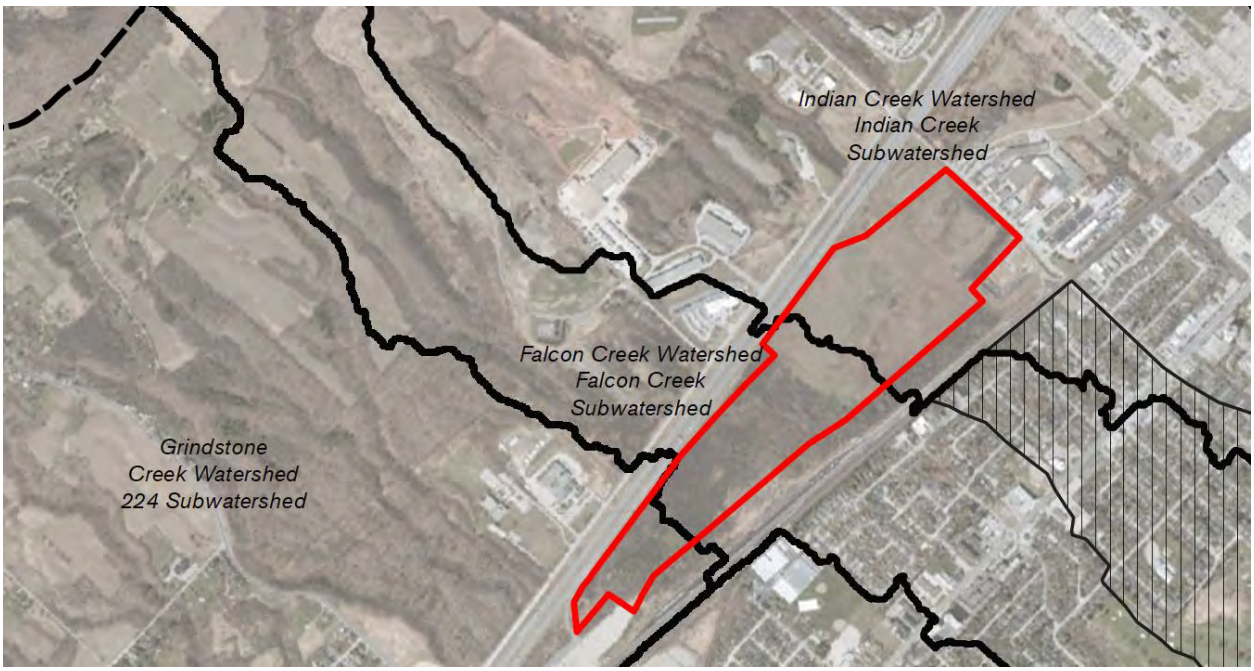
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EXECUTIVE SUMMARY

Natural Resource Solutions Inc. (NRSI) was retained by Alinea Land Corporation (Alinea) to complete an Environmental Impact Assessment (EIA) in response to the proposed development of a 49-ha parcel of lands (and adjacent lands) that they own at 1200 King Road in Burlington.



NRSI and Colucent Environmental Inc. (Colucent) are collaborating on this EIA. The senior environmental lead at Colucent also led the earlier work on the subject property between 2010 and 2013, which resulted in an EIA being issued in 2015 (by Savanta Inc.). Together, the NRSI and Colucent teams have so far completed approximately four years of detailed ecological studies on the subject property. The biophysical characteristics of these lands are well understood. Over time, through detailed environmental studies, the degree of existing impact and degradation of these lands from former agro-industrial uses have also become better understood,

The natural environment is heavily affected by agro-industrial uses. In addition to formerly and currently open, farmed lands, the National Fireproofing Company (later called Natco) operated on and adjacent to the subject property. That company was established in Aldershot around 1910, and operated until 1990, producing a range of clay products including structural clay tile, hollow building blocks, conduits, sewer pipes, drain tiles and bricks. Throughout the site, there

is evidence of historical brickworks such as waste bricks, discarded clay-based articles (pipes, etc.), berming, channelization and damming of ephemeral watercourses, as well as more current unauthorized uses with associated trails, debris, garbage, and encampments.

Despite the influences of context and historical land uses, there are some habitats that are more intact, and habitats/species of interest (e.g., Buttonbush swamp thicket, bat species at risk). The relatively older and more intact woodland along Falcon Creek includes several larger canopy trees that are on the order of 100 years to 125 years old. The remainder of vegetation on the subject property are in various earlier stages of succession.

Pockets of wetlands are associated with small depressional areas, ditches/drains and with a dug pond or reservoir (created sometime around 1972). Their small size and simple character limit the importance of many small features with some wetland characteristics. Some amphibian and reptile species (namely turtles) were noted from the human-made pond. This pond also has a small stand of Buttonbush along its north shore. Past disturbances have led to the relatively early successional nature of most of the vegetation, especially the thickets and cultural woodlands in the western portions of these lands. These successional areas appear to have been subject to landscape changes through grading, and interruptions to surface and subsoils.

The existing natural and naturalized habitats on the subject property are ecologically isolated from other habitats. Highway 403 creates a substantial separation in terms of distance, potential wildlife/vehicle collisions and lengthy culverts (i.e., unfavourable for wildlife passage). These effectively isolate the site from any habitats to the north. The major transportation corridor affects more than wildlife movement. The ongoing traffic noise can affect other life cycle functions (e.g., successful reproduction). Species of songbirds that depend on auditory signals can have their mating and reproductive behaviours negatively impacted by persistent highway noise.

On the south side of Highway 403, the site is also isolated from other natural habitats, in part by a major CN rail line, with no similar woodland or wetland habitats to the south or east. The lands to the west are also developed (Aldershot GO Station and associated extensive parking). The CN lands themselves do serve as a wildlife corridor allowing for movement across the landscape. The degree of use is affected by the frequency of rail traffic and associated road and parking related traffic. The existing surrounding developed lands are dominated by dense commercial and employment lands, with limited greenspace.

The Master Plan (GPA 2025) proposes mixed-use employment, mixed-use residential, high density residential, and several park areas including a centrally located park. An Education Campus/Commercial node is included in the central portion of the property within what is largely buckthorn thicket. A proposed east-west Street A (Parkway Link) connects King Road to Aldershot GO Station. The Master Plan enhances and preserves the more important natural features in the western portion of the subject property. There appears to be a series of connected trails proposed through the natural areas. GPA has advised that the location and configuration of these trails are conceptual. As trail and access design planning proceeds the following principles should be considered:

- Trails should follow existing, worn foot trails, wherever practical,
- Crossings of Falcon Creek should be limited (i.e., one) and the crossing location should follow historic crossing disturbances (i.e., old bridge remnants),
- Input and guidance should be sought from the City of Burlington and Conservation Halton to ensure the design meets any municipal and regulatory permit requirements,
- The timing of trail and access establishment should respect ecological windows and any species at risk registration processes, as amended/implemented.

The Master (GPA 2025) is analyzed in more detail for potential impacts, mitigation and enhancement in sections 4 through 6 of this EIA. At a very high level, the following summarizes key points related to impacts.

The impact analysis found that minor and temporary impacts are anticipated to occur to the areas of high-quality habitats currently found on the property (e.g., new south facing forest edge creation along the east west road). Some tree removals will be required but are to be detailed and minimized through a Tree Preservation Plan. This work will include confirmation of potential bat habitats.

Road crossings of the creeks and a small portion of wetland are required to construct the east-west Street A (Parkway Link). Wetland crossing techniques are being developed by other team members and are discussed briefly in section 6.

Areas of created habitats, especially wetlands and tree plantings, will enhance the current character of the vegetation on the property. As a result, a net improvement in the quality of the

on-site vegetation is anticipated (i.e., increased biodiversity and species richness). As well, the early implementation of a Vegetation Management Plan will enable the removal of substantial invasive plant species and infestations (e.g., Buckthorn). Wetland habitat will increase from 1.57 ha to 2.26 ha. Native woodland cover will increase from 6.08 ha to 8.37 ha. Riparian habitat along Indian Creek will increase by 1.88 ha.

The implementation of effective stormwater management and revegetation of stream corridors (especially Indian Creek) will ensure the maintenance of water balances to the creeks and retained wetlands.

The overall result of the retention, enhancement, creation, and management of the on-site features in conjunction with implementation of effective mitigation measures are anticipated to result in no residual negative impacts to the vegetation, wildlife, and aquatic resources on or adjacent to the subject property.

1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained by Alinea Land Corporation (Alinea) to complete an Environmental Impact Assessment (EIA) in response to the proposed development of a 49 ha parcel of lands (including assessing adjacent lands) that they own at 1200 King Road in Burlington.

NRSI and Colucent Environmental Inc. (Colucent) are collaborating on this EIA. The senior environmental lead at Colucent also led the earlier EIA (Savanta Inc. 2015) on the subject property, which relied on detailed field investigation between 2010 and 2013. Together, the NRSI and Colucent teams have already completed approximately four years of detailed ecological studies on the subject property. Specific surveys continued in 2024 and 2025. The ecological and hydrological characteristics of these lands are well understood.

The subject property is approximately 49.17 ha, and it is bordered by Highway 403 to the northwest, King Road to the northeast, railroad tracks to the southeast, and Aldershot Go Station (and associated extensive parking) to the southwest (Map 1).

The subject property is currently vacant and characterized by a mix of forest and thicket stands in the westerly portion, and with agricultural lands in the easterly portion. A small human-made waterbody, approximately 0.35 ha, is located in the southwestern portion of the areas of cultural woodland and cultural thicket. Portions of the lands are regulated by Conservation Halton (CH) due to the presence of wetlands, four watercourses and flooding hazards (Conservation Halton 2019). Indian Creek flows southeast through the cultural meadow and agricultural portion of the lands, while Falcon Creek and Grindstone Creek are located in the western woodland/thicket portions (Map 2). A small watercourse that feeds into the man-made pond flows south from beneath Highway 403 (Map 2).

Halton Region ROPA 48 (Regional Municipality of Halton 2021) and the City of Burlington Official Plan (City of Burlington 2025) shows that much of the existing natural features on the subject property are Natural Heritage System (NHS) (Regional Municipality of Halton 2022). WSP completed an evaluation of Grindstone-Falcon Creeks Headwaters Wetland Complex in consultation with the Ministry of Natural Resources and Forestry (MNRF) and identified that they were provincially significant under rules in place at that time (MNRF 2020). Based upon the revised Ontario Wetland Evaluation Guidelines (OWES) (MNRF 2022b), prepared in 2022, they have been re-evaluated by NRSI certified wetland evaluators as non-significant.

Due to the presence of regulated watercourses and Natural Heritage System, an EIA is required by the City of Burlington. This report contains the detailed findings of the EIA, including the characterization of existing natural features based on the results of a background review and field surveys. The detailed characterization was used to inform the identification of natural heritage feature limits, and to assess potential impacts associated with the proposed development, including the identification of appropriate mitigation and enhancement measures.

Minor and localized surveys and analyses are currently being undertaken in response to the latest and current version of the Master Plan (GPA 2025). These surveys are related to specific works (e.g., channel design, Vegetation Protection Zone determination), and they are informing this EIA

The following additional current reports have been completed for the subject property by other project team members. The results of the various studies have been incorporated into this updated EIA.

- 1200 King Road, Burlington Master Plan (GPA 2025);
- Enhanced Functional Servicing and Stormwater Management Report (Urbantech 2026);
- Pre-development Wetland Water Balance (Terra-Dynamics 2026a);
- Preliminary Hydrogeological and Hydrological Assessment (Terra-Dynamics 2026b);
- Revised Phase One Environmental Site Assessment (Cambium 2024a);
- Phase Two Environmental Site Assessment (Cambium 2024b); and
- Fluvial Geomorphology Assessment: Grindstone Creek, Falcon Creek and Indian Creek (GEO Morphix 2026).

1.1 Project Scope

1.1.1 Study Area

For the purposes of this report, the term “subject property” refers to the portion of the lands owned by the proponent where the proposed development is to occur. The term “study area” refers to the subject property plus the surrounding area for which additional information was collected and reviewed. The limits of the study area were defined based on available background information and the province’s natural heritage policies pertaining to lands adjacent to natural heritage features. All natural heritage features within 250 m of the subject property

boundary were included in the study area in order to characterize off-site features sufficiently to address Section 4.1.5 of the Provincial Planning Statement (PPS) (MMAH 2024). This states that development and site alteration are not permitted on adjacent lands to natural heritage features unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the feature or its ecological functions (MMAH 2020).

1.1.2 Site History

The subject property consists of a combination of previously disturbed lands, agricultural lands, forested areas and second growth that has established after the active land uses had ceased.

Cambium (2024a) provides a detailed discussion of the history of land use and ownership of these lands. The reader is referred to that report for more details. However, of note is the following summary provided by Cambium (2024a):

"*Review of the aerial photographs indicated that the Site was developed for industrial use prior to 1934. In the 1934 aerial photograph, a cluster of buildings and structures, inferred to be part of the operations of the National Sewer Pipe Company Limited, are present in the area east of Falcon Creek, along with a rail spur, which extends from the rail line south of the Site toward the cluster of structures. The remainder of the Site appears to be comprised of agricultural fields, vacant grassland, and forest. In 1961 aerial photograph, some of the structures are not visible and by 1972, the buildings and structures are no longer visible on the Site. The western portion of the Site becomes more densely forested from 1972 to 2004*."

Cambium (2024a) also includes a series of aerial photographs from 1934, 1961, 1972, 1986, 1992, 2014 and 2021.

Based on our review of these aerial photographs, the following additional comments are provided:

- In the 1934 aerial photograph, it is evident that essentially the entire site was either used for agriculture or industrial uses. The wooded area along Falcon Creek is evident as a fairly narrow strip, but otherwise all of the areas currently dominated by cultural woodland, cultural thicket and wetlands did not exist.

- A similar situation exists in 1961. Up to that point in time, the provincial highway had not yet been constructed. The wooded Falcon Creek corridor extends to the north. But otherwise, the lands to the north are intensive agricultural uses, with very few natural features.

- By 1972, the active use of the western portion of the lands appears to have for the most part ceased. Cultural woodland and cultural thicket began to develop in these western areas. The human-made pond in the western portion of the site first appears in the 1972 aerial photograph. The construction of the highway and North Service Road created a wide gap between the subject property and any remnant natural areas to the north. Much of the agricultural uses to the north were converted into brick works.

- The eastern edge of the successional woodland and cultural thicket are underlain by a berm created from brick works debris pushed and mounded into the natural area edges.

- The 1986 and 1992 aerial photographs show that regeneration in the western portion of the property continued. While in the east, active uses appear to have ceased, allowing for some limited regeneration of meadow and second growth stands of trees.

- By 2004, active agricultural use of the eastern portion of the site had returned, and that portion of the site, including the Indian Creek corridor, was under active tillage with no natural vegetation. Portions of the farmed lands possessed substantial debris at and near surface (e.g., bricks, clay fragments) that caused some areas to be abandoned by the farmer. The extent of farming and cultural meadow in the eastern portion of the subject property varies annually in response to farming decisions.

The subject property conditions seen in the 2004 aerial photograph continued through the photographic record provided by Cambium (2024a). Of note is the 2021 aerial photograph that highlights the extent of the relatively more mature deciduous woodland developed along Falcon Creek, in contrast to the secondary/successional growth vegetation that dominates the western portion of the property. Ongoing observations have confirmed that most successional areas are more accurately characterized as dominated by invasive buckthorn thickets.

1.1.3 Terms of Reference

A Terms of Reference (TOR) was prepared and submitted on September 9, 2022, to Conservation Halton. The TOR documented the above-noted project scope, as well as

proposed field surveys and their methodologies. At the time of preparing this report, no comments had been received on the proposed TOR (Appendix I).

1.1.4 Collection and Review of Background Information

Existing natural heritage information was collected and reviewed to identify key natural heritage features, habitats and species that are reported from, or have potential to occur within, the study area. The following background information sources were reviewed to inform the EIA and provide an accurate understanding of the physical and biological attributes within the study area:

- City of Burlington Official Plan (City of Burlington 2025);
- Land Information Ontario (LIO) (MNRF 2015a);
- Conservation Halton Planning and Permits Map Tool (Conservation Halton 2025);
- Make a Map: Natural Heritage Areas online mapping tool (MNRF 2022c);
- Government of Canada Species at Risk Act (SARA) Registry (2024);
- Species at Risk list in Ontario (SARO) (MECP 2024);
- Ontario Breeding Bird Atlas (OBBA) (BSC et al. 2008);
- Ontario Reptile and Amphibian Atlas (ORAA 2024);
- Atlas of the Mammals of Ontario (Dobbyn 1994);
- Department of Fisheries and Oceans Canada - Aquatic SAR Mapping (DFO 2025);
- Ontario Butterfly Atlas (MacNaughton et al. 2024);
- Ontario Odonata Atlas Database (OOAD 2024);
- Planning Justification Report (Metropolitan Consulting Inc. 2014b);
- 1200 King Road EIA (Savanta Inc. 2015);
- Forest Assessment/Tree Inventory Preservation Plan Report (Kuntz Forestry Consulting Inc. 2015);
- Conservation Halton Comments (2015) on 2015 Submissions;
- Peer Review Comments (North-South Environmental Inc. 2016) on 2015 Submissions;
- Halton Region Comments (2016) on 2015 Submissions;
- 1200 King Road: Natural Heritage Constraints Study for the Feasibility of the Construction of the South Service Road Burlington, Ontario - Technical Report (WSP 2018); and
- New Provincially Significant Grindstone-Falcon Creeks Headwater Wetland Complex (MNRF 2020).

Species lists were compiled to provide information on species within the study area based on data available from the wildlife atlases listed above, which provide data based on 10 x 10 m survey squares. Information was compiled from the atlas square (17NH99) that overlaps the subject property. These initial species lists were used to guide the scope and type of wildlife field surveys required.

1.1.5 Species at Risk and Species of Conservation Concern Screening

Based on the compiled species lists for the study area, a screening exercise was completed to assess the potential for reported Species at Risk (SAR) and Species of Conservation Concern (SCC) to occur in the study area. This involved cross-referencing the preferred habitat for reported SAR and SCC (MNRF 2000) against habitats known to occur in the study area. This exercise was completed to ensure that the potential presence of all SAR and SCC within the study area was adequately assessed in this study. This included ensuring that field surveys were suitable to assess the presence of these species and/or their habitats.

Species at Risk are those listed on the SAR in Ontario List (SARO) (MECP 2024) that forms Ontario Regulation 230/08 under the *Endangered Species Act*, 2007 (ESA). These include species identified by the Committee on the Status of Species at Risk in Ontario (COSSARO) as provincially Endangered, Threatened, or Special Concern. Species listed by COSSARO as Endangered or Threatened are protected by the *Endangered Species Act*, 2007 (ESA), which includes protection of their habitat, and are referred to as regulated SAR. Aquatic species and migratory birds listed as Threatened or Endangered on Schedule 1 of the *Species at Risk Act* (SARA) are also considered SAR in this EIS. Species listed as Special Concern are included in the definition of SCC, which includes the following:

- Species designated provincially as Special Concern;
- Species that have been assigned a conservation status (S-Rank) of S1 to S3 or SH by the (Natural Heritage Information Center (NHIC); and
- Species that are designated federally as Threatened or Endangered by the Committee for the Status of Endangered Wildlife in Canada (COSEWIC), but not provincially by COSSARO. Detailed SAR/SCC screening results are provided in Appendix II. This appendix includes the analysis of potential habitats within the area proposed for the development, as well as habitats within the study area surrounding the proposed

development area. Appendix II also includes a summary column that details whether the species was observed by NRSI biologists during the field surveys.

1.1.6 Significant Wildlife Habitat Screening

A screening exercise was completed to assess the presence of Significant Wildlife Habitat (SWH) within the study area. Significant Wildlife Habitat is protected under the Ontario Provincial Planning Statement (PPS) (MMAH 2024) and is described in the MNRF Significant Wildlife Habitat Technical Guide (SWHTG) (MNRF 2000) as being comprised of four major categories of habitat:

- Seasonal concentration areas;
- Rare vegetation communities and specialized wildlife habitat;
- Habitats of species of conservation concern; and
- Animal movement corridors.

Specific criteria defining wildlife habitat significance for Ecoregion 7E are described in the SWHTG Addendum (MNRF 2015b). Individual SWH types within these four broad categories were assessed as either not present, candidate, or confirmed for the study area based on a comparison of significance criteria against information obtained from relevant background documents.

Detailed results of the SWH screening are provided in Appendix III. This appendix includes the analysis of potential habitats within the area proposed for the development, as well as habitats within the study area surrounding the proposed development area. Appendix III also includes a summary column that details whether the habitat was observed by NRSI biologists during the field surveys.

2.0 Relevant Policies, Legislation and Planning Studies

Natural features identified during the background review were evaluated against relevant policies, legislation and planning studies (Table 1) to help inform suitable land-use concepts, guide the layout of development, and identify areas to be protected.

Table 1. Relevant Policies, Legislation and Planning References

Policy/Legislation/Planning Study	Description	Project Relevance
Policy Documents		

Provincial Planning Statement (MMAH 2024)	• Issued under the authority of Section 3 of the Planning Act and came into effect on October 20, 2024, replacing the 2020 PPS.
	• Section 4.1 of the PPS – Natural Heritage, establishes clear direction on the adoption of an ecosystem approach and the protection of resources that have been identified as 'significant'.
	• Section 4.1.5 of the PPS identifies that development and site alteration shall not be permitted within the area outlined in sub-sections a) – f) *"unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions."*
	• The Natural Heritage Reference Manual (MNRF 2010) and the Significant Wildlife Habitat Technical Guide (MNRF 2000) were prepared by the MNRF to provide guidance on identifying natural features and in interpreting the Natural Heritage sections of the PPS.
		• Several natural features were identified within the study area as having potential implications under the PPS:
		  • Provincially Significant Wetland (PSW);
		  • Significant Woodland,
		  • Confirmed and Candidate Significant Wildlife Habitat (SWH);
		  • Candidate Habitat of Endangered and Threatened Species; and
		  • Indirect Fish Habitat.
		• Development and site alteration shall not be permitted in SWH unless it has been demonstrated that there will be no negative impacts on natural features or their ecological functions (Section 4.1.5).
		• Development and site alteration shall not be permitted in fish habitat or habitat of endangered and threatened species except in accordance with provincial and federal requirements (Section 4.1.7).
		• Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 4.1.4 and 4.1.5 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.
		• Diversity and connectivity of natural features and the long-term ecological function and biodiversity of natural heritage systems should be maintained, restored and improved where possible, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.

Policy/Legislation/Planning Study	Description	Project Relevance
City of Burlington Official Plan (2025)	• The City of Burlington Official Plan (OP) outlines current policies for the protection, enhancement and restoration of natural heritage features, areas and systems in the City. • The Official Plan was adopted by the City of Burlington in 2018 and approved by Halton Region in 2020. However, much of the plan remains under appeal, including in relation to the subject property. The policies are, therefore, are not determinative.	• Chapter 4 of the OP outlines criteria in regard to working within and adjacent to Natural Heritage Systems (NHS) within the City of Burlington. • Schedule M identifies the Natural Heritage System on the subject property as Key Natural Features. • As per Section 4.2.2, development is not permitted within or adjacent to the City's NHS unless it has been demonstrated through an Environmental Impact Assessment (EIA) that there will be no negative impacts on the NHS. • Section 4.2.4 outlines the requirements of EIAs to follow the Region of Halton's Environmental Impact Assessment Guidelines (2020) to the satisfaction of the City, Region of Halton and Conservation Halton.
Conservation Authorities Act (1990) *Ontario Regulation 41/24*: Prohibited Activities, Exemptions and Permits	• This Minister's regulation replaced Ontario Regulation 162/06 (and all other individual conservation authority regulations) as of April 1, 2024. • The regulation prohibits certain development activities directly in the legislation. • Conservation Halton developed a policy and procedure document for administering this regulation in June 2024.	• Conservation Halton will continue to require permit applications for development, interference, and alteration activities in regulated areas, as defined under the *CA Act* and in *O.Reg. 41/24*. • The Regulation Limit is considered to be 30 m for wetlands and 15 m for watercourses.
Migratory Birds Convention Act (MBCA) (Government of Canada 1994) and Migratory Birds Regulations (MBR) (Government of Canada 2022)	• The MBCA protects migratory game birds, insectivorous birds, and several other migratory non-game birds from persecution in the form of harassment. • The schedule of on-site work must consider MBCA windows, with timing of breeding bird season typically occurring between May 1 and July 31; however, this is a guideline, since the MBCA applies anytime a migratory bird is nesting. • "Incidental take" (unintentional harming, killing, disturbance, or destruction of migratory birds, their nests, or eggs as a result of an activity that is not specifically targeting the bird or nest) is considered	• Any vegetation removal required for development of the property must have regard for this legislation in the form of timing window restrictions or other suitable mitigation measures.

Policy/Legislation/Planning Study	Description	Project Relevance
	illegal, with the exception of a permit obtained by the Canadian Wildlife Service. • Schedule 1 of the MBR 2022 provides year-round nest protection for 18 species that are known to re-use nests annually.	
Endangered Species Act (ESA) (Government of Ontario 2007)	• The original ESA, written in 1971, underwent a year-long review which resulted in a number of changes which came into force in 2007. The ESA was amended in 2025, and when repealed, will be replaced with the new Species Conservation Act. • The amended ESA prohibits killing, harming, or capturing Species at Risk (SAR) and protects their habitats from damage and destruction.	• Potential habitat for Endangered and Threatened Species within the Study Area was identified during the initial TOR screening exercise. Based on comprehensive studies the following species have been confirmed within the Subject Property: Butternut, Boblink, Eastern Small-footed Myotis and Little Brown Myotis. Three additional bat species, Hoary Bat, Eastern Red Bat, and Silver-haired Bat were listed as Endangered in January 2025, which also now warrant consideration. • The EIS must have consideration for the ESA which is administered by the MECP.

Protect Ontario by Unleashing our Economy Act (Government of Ontario 2025a)	• Bill 5, the Protect Ontario by Unleashing our Economy Act, 2025, received Royal Assent on June 5, 2025.
	• Interim changes to the ESA will be in effect from Royal Assent of Bill 5 until the SCA is officially in force. Key changes include:
	  • With the passing of Bill 5 on June 5, 2025, habitat is defined as physical dwellings (e.g., dens, nests, hibernacula) and the immediate surrounding area necessary for breeding, rearing, or hibernation.
	  • Going forward, proponents will no longer have the option to pay a conservation charge instead of undertaking on-the-ground mitigation. The associated fund will also be dissolved, and the species conservation charge regime will be discontinued.
		• The EIS must have consideration for compliance with the relevant updates to the ESA including habitat definitions and mitigation planning for species at risk.

Species Conservation Act (SCA) and associated regulations- not in force	• Schedule 10 of Bill 5 introduced a new legislation called the *Species Conservation Act, 2025* (SCA).	• The SCA is anticipated to come into force in early 2026, repealing the ESA and its regulations.

Policy/Legislation/Planning Study	Description	Project Relevance
	• The SCA will come into effect when a commencement order is made and will repeal the ESA. • Proponents proposing to engage in activities that will adversely impact species or habitat protected under the SCA will either be required to register the activity or obtain a permit.	• Project activities must have consideration for the legislation in force at the time activities are completed.
Species at Risk Act (SARA) (Government of Canada 2002)	• The federal Species at Risk Act (SARA), 2002, was enacted to prevent wildlife species from being extirpated or becoming extinct, and to provide for the recovery of wildlife species listed as END or THR under SARA, 2002. • Endangered or Threatened species are considered SAR under Schedule 1 of SARA, which are protected under the provisions of SARA, including protection for the species and their residence (e.g., nest, den). While SARA applies to species on federal land, such as Canadian oceans and waterways, national parks, national wildlife areas, some migratory bird sanctuaries and First Nations reserve lands, it also applies to SAR migratory birds protected under the Migratory Birds Convention Act (MBCA) and aquatic species (fish and mussels) anywhere they occur.	• There are no federal lands located within the study area. Therefore, SARA applies only to SAR migratory birds and SAR fish. • The Red-headed Woodpecker and Barn Swallow are the only Schedule 1 listed SAR that were observed within the study area (Appendix VI). However, breeding habitat was not observed. • The protection for migratory birds protected under SARA on non-federal lands extends to the 'residence' (nest) but not the broader habitat.
Canadian Fisheries Act (Government of Canada 1985, amended August 2019)	• Proposed amendments to the *Fisheries Act* were introduced in 2018 to restore lost protections and incorporate modern safeguards. On August 28, 2019, the new, "modernized" *Fisheries Act* came into force and includes new protections for fish and fish habitat in the form of standards, codes of practice, and guidelines for projects near water. • The modernized Act provides protection for all fish and fish habitat and prohibits the harmful alteration, disruption or destruction of fish habitat • The Department of Fisheries and Oceans Canada's (DFO) Fish and Fish Habitat Protection Program ensures compliance with relevant provisions under	• Fish habitat is present in the watercourse within the subject property. • Any in-water works that have the potential to result in the harmful alteration, disruption or destruction of fish habitat within these watercourses will need to undergo review by DFO. This will require the submission of a Request for Review application form.

Policy/Legislation/Planning Study	Description	Project Relevance
	both the Fisheries Act and the Species at Risk Act. The program reviews proposed works, undertaking and activities that may impact fish and fish habitat. • Fisheries and Oceans Canada (DFO) require any development that may alter fish habitat to undergo a formal Request for Review process based on the type of water body, the work is occurring in and the nature of the proposed activity. • Works that are proposed in and around certain types of waterbodies may not require DFO review. Likewise, if proponents can follow all specified measures to protect fish and fish habitat outlined by DFO, review may not be necessary.	
Fish and Wildlife Conservation Act (FWCA) (Government of Ontario 2019)	• The FWCA provides protection for certain bird species not protected under the MBCA (i.e., raptors), as well as most furbearing mammals and their dens or habitual dwellings.	• Construction activities must have consideration for bird nesting and den sites of furbearing mammals.
Bill 23, More Homes Built Faster Act (Government of Ontario 2022)	• Limits proposed on what Conservation Authorities (CA's) are permitted to comment on as part of the planning approvals process. CA's will only provide comment on Category 1 mandatory programs and services (i.e., hazard / wetland related, regulatory). (effective January 1, 2023)	• Technical review services for planning and development applications previously provided by Conservation Halton (CH) under Memorandums of Understanding with municipalities (e.g., technical reviews related to natural heritage and select aspects of stormwater management) will no longer be provided.
Background Environmental Studies and Reports		
1200 King Road Environmental Impact Assessment (Savanta 2015)	• Savanta Inc. was engaged by the landowner to identify and to characterize environmental features, functions and linkages associated with their Burlington lands at 1200 King Road prior to 2015.	• The previous EIA completed for the subject property was used to inform various aspects of the current EIA.
1200 King Road: Natural Heritage Constraints Study for the Feasibility of the Construction of the South Service Road Burlington, Ontario - Technical Report (WSP) 2018)	• WSP Canada Limited was retained in 2016 by the City of Burlington to undertake a comprehensive Natural Heritage Constraints Study at 1200 King Road, Burlington ON.	• The previous study completed for the subject property was used to inform various aspects of the current EIA, although it is understood that the results of the more current studies supersede the aforementioned report completed by WSP.

Policy/Legislation/Planning Study	Description	Project Relevance
Provincially Significant Grindstone – Falcon Creek Headwater Wetland Complex Evaluation (MNRF 2020)	• The evaluation of the Grindstone – Falcon Creek PSW Complex was submitted in December 2019 and was approved in December 2020.	• A former PSW complex is present within and adjacent to the subject property, although these wetlands have been re-evaluated as non-significant based on the revised OWES guidelines related to complexing (MNRF 2022b).
Guidance Documents		
The following guidance documents have been reviewed and used in the preparation of this report and have been cited where appropriate. • Halton Region Environmental Impact Assessment Guideline (Halton Region 2020); • Conservation Halton's Guideline for Ecological Studies (Conservation Halton 2017); • Natural Heritage Reference Manual (MNR 2010); • Significant Wildlife Habitat Technical Guide (OMNR 2000); • Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (MNRF 2015b); and • Evaluation, Classification and Management of Headwater Drainage Features Guidelines (TRCA and CVC 2014) • Ontario Wetland Evaluation System (MNRF 2022b)		

3.0 Field Methods

A comprehensive four-season field program was undertaken by NRSI in 2022 with subsequent site visits and surveys occurring in 2023 and 2024. Appendix IV outlines the field visits that were carried out to characterize the natural features within the subject property. Monitoring stations as part of the 2023-2024 field program are shown on Map 3. All field surveys conducted met or exceeded accepted technical and methodological standards.

During the field program, all observations of birds, reptiles, amphibians, mammals, butterflies, dragonflies, and damselflies were documented on all field visits. This included actual direct observations of individuals, as well as signs of wildlife presence (i.e., tracks, scat, dens, nests, etc.). All field survey methodologies are available in the TOR (Appendix I). Additional clarifications to the TOR methods have been provided below.

3.1 Additional Bat Survey Methods

3.1.1 Detailed Bat Habitat Assessments

Treed bat habitat assessments were conducted by NRSI biologists in leaf-off conditions on March 21 and 22, 2024 to document potential treed bat roosting habitat in accordance with the guidance documents *Maternity Roost Surveys (Forests/Woodlands)* (MECP 2022a), *Species at Risk Bats Survey Note - 2022* (MECP 2022b), and *Bats and Bat Habitats: Guidelines for Wind Power Projects* (OMNR 2011).

Plots with a fixed radius of 12.6 m (equal to a 0.05 ha area) were randomly selected within each contiguous forested vegetation community. Ten plots were assessed in each community, all of which were under 10 ha in size (MECP 2022a). For small vegetation communities where the use of sub-sampling plots would be impractical, a full inventory of potential roost trees was conducted. The number of standing live or dead trees with cracks, crevices, hollows, cavities, and/or loose or naturally exfoliating bark that could provide suitable roosting habitat for Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Silver-haired Bat (*Lasionycteris noctivagans*) was documented within each plot. The presence of leaf clusters with suitable roosting habitat for Tri-colored Bat (*Perimyotis subflavus*) was also documented. All trees within plots, regardless of size, were assessed for bat habitat. Information on candidate roost trees was documented and included the location, tree species, diameter at breast height (DBH), decay class (Watt and Caceres 1999), and the number, height, and type (e.g., cavity, crevice, sloughing bark, leaf cluster) of suitable roost sites. In addition, any open,

sunny rock features that may be suitable for roosting by Eastern Small-footed Myotis (*Myotis leibii*) were documented, if encountered.

Roost tree densities were determined for all assessed vegetation communities to further characterize habitat availability within the study area. Forested communities containing 10 or more potential SAR bat roost trees (any feature type) per hectare are considered "high quality" potential SAR bat maternity roosting habitat (MECP 2022a). NRSI has considered FO (forest) and treed swamp (SWD/SWM/SWC) communities, as well as cultural woodland (CUW), to be eligible for consideration as high-quality potential roosting habitat.

Deciduous, mixed forest or treed swamp vegetation communities containing >10 potential roost trees of 25 cm DBH or larger per hectare are considered candidate SWH for Bat Maternity Colonies, specific to Big Brown Bat (*Eptesicus fuscus*) (OMNR 2011, MNRF 2015b).

3.1.2 Visual Exit Surveys for Candidate Significant Bat Maternity Colony Habitats

To survey for the presence of Bat Maternity Colony SWH for Big Brown Bats, visual exit surveys were completed at 10 trees identified as containing potential bat roosting habitat within communities which may require the tree removal for the proposed development which also meet the criteria for candidate Bat Maternity Colony SWH in accordance with *Bats and Bat Habitats: Guidelines for Wind Power Projects* (OMNR 2011) as required by the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF 2015a).

Visual exit surveys with paired acoustic monitoring were completed by qualified biologists on the evening on June 10, 2024, when weather conditions were suitable for bat activity (air temperature >15°C, no precipitation, wind speed ≤12 km/hr). Surveys began at sunset (20:59) and continued for a minimum of one and a half hours, which closely corresponds to a survey window of 30 minutes before dusk to 60 minutes after dusk.

Video cameras equipped with night-vision capability, assisted by external infrared spotlights, were positioned to survey potential bat roosting features. The locations of survey stations are shown on Map 5.

Wildlife Acoustics Mini Bat acoustic recorders (Wildlife Acoustics Inc., Massachusetts, USA) were paired with camera stations to allow for the identification of any bats emerging from or entering the surveyed trees to species level, where possible. Passive Acoustic Monitoring

Passive acoustic monitoring for bats was conducted in 2022, following provincial guidelines (MECP 2022a, 2022b). A total of 33 acoustic monitoring stations were placed within identified potential habitats to assess the presence of SAR bats within the subject property (Map 5).

Bat activity was monitored with the use of a Song Meter SM4BAT FS full-spectrum ultrasound acoustic recorder (Wildlife Acoustics Inc., Massachusetts, USA). Table 2 summarizes the unit settings used for this project. Microphones were deployed on a pole at a height of approximately 5.2 m and oriented towards the potential habitat being surveyed.

Acoustic detectors were set to record bat call sequences for a total of five hours each night during the monitoring period, commencing at sunset. Passive acoustic monitoring was conducted between June 1 and June 27, 2022.

Table 2. Acoustic Recorder Settings Used for Passive Acoustic Monitoring

Parameter	Setting Used
Detector Type	Wildlife Acoustics Song Meter SM4BAT-FS [full-spectrum]
Microphone Type	Wildlife Acoustics SMM-U1 [omnidirectional]
Gain	12 dB
16 kHz High Pass Filter	On
Sample Rate	384 kHz
Minimum Trigger Frequency	16 kHz
Trigger Level	12 dB
Trigger Window	3 sec
Maximum Length	00:15 min

Bat echolocation calls recorded during passive acoustic surveys were reviewed with the software program SonoBat 4.2.2 for the North northeastern US, Southern Ontario Region and initially identified to species or species grouping with the SonoBat Auto-classifier (Table 3). Settings for the auto-classification of the acoustic data included the following: autofilter: 5 kHz; acceptable call quality: 0.70; decision threshold: 0.90; and maximum number of calls to consider per file: 16.

Table 3. Call classifications for Ontario bat species; Species at Risk are highlighted.

Species	Characteristic Frequency	NRSI Call Sequence Classification			
Hoary Bat (*Lasiurus cinereus*)	20 kHz (~to 30kHz)	Low Frequency	-	-	Hoary Bat
Big Brown Bat (*Eptesicus fuscus*)	~30 kHz		30 kHz		Big Brown Bat
Silver-haired Bat (*Lasionycteris noctivagans)*					Silver-haired Bat
Eastern Red Bat (*Lasiurus borealis*)	~40 kHz	High Frequency	40 kHz		Eastern Red Bat
Tri-colored Bat (*Perimyotis subflavus*)					Tri-colored Bat
Little Brown Myotis (*Myotis lucifugus*)				*Myotis* spp.	Little Brown Myotis
Northern Myotis (*Myotis septentrionalis*)					Northern Myotis
Eastern Small-footed Myotis (*Myotis leibii*)					Eastern Small-footed Myotis

Given the large number of monitoring stations, manual vetting was scoped to assess the presence of rare SAR bats including *Myotis* species and Tri-colored Bat. Eastern Red Bat, Silver-haired Bat, and Hoary Bat were not targeted by manual vetting as they remain relatively common on the landscape (and anticipated at virtually all sites in southern Ontario) and are relatively easily distinguished by auto-classification software.

Further scoping was conducted for *Myotis* species recorded in greater abundance at the site, including Little Brown Myotis and Eastern Small-footed Myotis, the two species more commonly encountered in southern Ontario. Ultimately, the following call sequences were manually reviewed:

- All sequences auto-classified as Northern Myotis or Tri-coloured Bat,
- A subset of sequences auto-classified as Little Brown Myotis (57%) and Eastern Small-footed Myotis (27%),
- All sequences auto-classified as High Frequency, but not confidently identified to species level,
- All sequences where any *Myotis* species or Tri-colored Bat were listed in the classification analysis as any of the second, third, or fourth suggested species identifications, and

All sequences identified as No ID, i.e., call sequences not assigned a classification.

3.2 Additional Tree Survey Methods

3.2.1 Tree Assessment Methodology

In addition to the field surveys described in the TOR, a tree density and condition assessment within the subject property was completed by NRSI Certified Arborists on May 5 and May 11, 2023. The focus of the assessments was to identify tree species, summarize overall condition and determine an approximate number of trees anticipated to be impacted as a result of the proposed development areas overlapping treed features (Parkway Link, Campus/Residential node and Residential). Tree density was assessed through the use of circular 9.77 m radius fixed-area plots (0.03 ha/plot) that were randomly established throughout the four proposed development blocks, in which trees ≥10 cm Diameter at Breast Height (DBH) were tallied and assessed for their overall health condition. The overall health of each tree was assessed based on the criteria outlined in Table 4 (Dunster 2009). In total 28 plots were surveyed within the three development areas:

A. Parkway Link (15 plots);
B. Campus/Residential node (7 plots);
C. Residential (6 plots)

Table 4. Tree Health Assessment Criteria

Assessment Criteria	Definition[1]
Excellent	Represents a tree in near perfect form, health, and vigour. This tree would exhibit no deadwood, no decline, and no visible defects.
Good	Represents a tree ranging from a generally healthy tree to a near perfect tree in terms of health, vigour and structure. This tree exhibits a complete, balanced crown structure with little to no deadwood and minimal defects as well as a properly formed root flare.
Fair	Represents a tree with minor health, balance or structural issues with minimal to moderate deadwood. Branching structure shows signs of included bark or minor rot within the branch connections or trunk wood. The root flare shows minimal signs of mechanical injury, decay, poor callusing, or girdling roots. Trees in the category require minor remedial actions to improve the vigour and structure of the tree.
Poor	Represents a tree that exhibits a poor vigour, reduced crown size (<30% of crown typical of species caused by overcrowding or decline), extreme crown imbalance, or extensive rot in the branching and trunk wood. Fungus could be seen from these rotting areas, suggesting further decay. These trees have extensive crown die back with a large amount of deadwood, and possibly dead sections. These weakened areas can lead to a potential failure of tree sections. Rooting zones show signs of extensive root decay or damage (fruiting bodies or mechanical damage) or girdling roots. Trees in this category require more extensive actions to prevent failure. A tree identified as poor would be a candidate for removal in the near future.
Very Poor	Represents a tree that exhibits major health and structural defects. Quite often the defects or diseases affecting this tree will be fatal. Large quantities of fungus, large dead sections with possible cavities and bark falling off all are signs that a tree is in a major state of decline and would be identified as very poor. These trees have a probable or imminent potential for structural failure. These trees should be identified for removal.
Dead	Represents a tree that exhibits no sign of new growth, including buds, foliage, or shoot growth. These trees have a probable or imminent potential for structural failure. These trees should be identified for removal.

[1] (Dunster 2009)

3.2.2 Tree Inventory

The inventory methods to be used by NRSI Certified Arborists and or Registered Foresters were confirmed with the City of Burlington forestry staff on May 27, 2024, through email correspondence. The comprehensive tree inventory will be completed at the detailed design stage. The following additional inventory methods were refined through the aforementioned correspondence.

- Trees within approximately 6 m of the development footprint and potential grading will be inventoried, including public or private trees that are located beyond the subject property.
- Complete a plot-base tally of Ash species (*Fraxinus* spp.) that are located within the cultural thicket communities of the development footprint (+6 m). Any non-Ash trees were inventoried as usual.
- Capture photos of representative groups of inventoried trees for the photo appendix. Select individual trees that are proposed for retention, but subject to tree protection zone encroachment and/or injury will also be included.
- Calculate compensation for public trees per the city public tree permit compensation requirement and private trees using the aggregate caliper formula. Compensation requirements will be referenced in the Arborist Report and calculations will be confirmed by city staff.

4.0 Existing Conditions

4.1 Soil, Terrain and Drainage

The subject property is located in a narrow band of tablelands situated in the Iroquois Plain physiographic region that extends from the Niagara Peninsula to the Trent River Valley (Chapman and Putnam 1984). This lowland area bordering Lake Ontario is the shoreline from glacial Lake Iroquois and consists of silty clay and clayey glacial till, known as Halton Till (Chapman and Putnam 1984; Savanta 2015). The rocks beneath the subject property are composed of red shale from the Queenston Formation from the Upper Ordovician Era (Savanta 2015). In general, the terrain slopes gently down from west to east across the subject property (Archaeological Assessments Ltd. 2014).

Terra-Dynamics field investigations (2026b) note that silty clay and silty clay with stones (Halton Till) overlie Queenston Shale across the eastern portion of the property. This low permeability silty clay to clayey till is 7 to 11 m thick in the eastern upland areas of the subject property, with areas of 1 to 2 m thick sand to sandy silt. The central and western portions of the subject property are also underlain by low permeability silty clay to clayey till; however, borehole geotechnical records indicate a surficial layer of sand to silty/clayey sand, typically observed as having a thickness of 1 to 2 m (Terra-Dynamics 2026b).

NRSI conducted soil sampling during spring ELC using a handheld soil auger. The effective texture within the Cultural Woodland and Cultural Thicket communities was loam. The effective texture within the Dry-Fresh Oak Hickory Deciduous Forest, Dry Fresh Oak Hardwood Deciduous Forest and Deciduous Swamp was silty loam. The effective texture within the Cultural Meadow was sandy loam. A layer of organic accumulation was observed within the Green Ash Deciduous Swamp.

The subject property is located within three sub-watersheds: Indian Creek, Falcon Creek and Grindstone Creek (Map 1). Indian Creek originates north of the subject property as two tributaries, which cross beneath Highway 403 and converge into a single channel at the north section of the subject property that flows north to south. Indian Creek was reconstructed at the southern property boundary and turns eastward towards King Road where it crosses the Canadian National Railway (CN) tracks via an aqueduct constructed by the City. Indian Creek eventually discharges into Burlington Bay through a series of pipes (Metropolitan 2014a; Savanta 2015).

Falcon Creek flows in a north to south direction through the central portion of the subject property. It flows through a well-defined ravine valley from Highway 403 to the CN tracks. Falcon Creek continues south of the tracks through submerged culverts through urbanized areas and eventually discharges into Burlington Bay (Metropolitan 2014a).

Three tributaries of Grindstone Creek cross beneath Highway 403 on the west side of subject property. These tributaries converge downstream of Highway 403 and flow west toward the main branch of Grindstone Creek west of Waterdown Road. Grindstone Creek has been reconstructed north of the Aldershot GO Station using a natural channel design (Savanta 2015). The most easterly branch of the creek deviates and flows south into the created pond on the subject property. Metropolitan (2014a) mapped the flow path as discharging from the south end of the pond into a shallow ditch along the CN tracks.

Terra Dynamics (2023, 2024) describe that much of the property is dominated by less permeable silt clay and silty clay till materials. They note that the watercourses and the wetlands occur on these less permeable soils. Terra Dynamics noted that although the three creeks have eroded down through the silty clay and glacial till layers, they are still underlain by low permeability clayey materials. These soils form an aquitard that results in flashy surface water runoff/flow conditions. The creeks have little to no influence from groundwater sources.

4.2 Vegetation

4.2.1 Vegetation Communities

The majority of the subject property consists of meadows with active agricultural fields in the east, and cultural woodlands and cultural thickets in the west. Several wetlands are found on the subject property, mainly in the most westerly section. A summary of ELC and wetland communities identified within the study area is provided in Table 5 and are shown in Map 4. These wetland areas were reviewed in the field with CH on September 9, 2025.

Table 5. Vegetation and Wetland Communities Within the Subject Property

ELC Ecosite Type (Total Area)	ELC Description	Environmental Characteristics
Cultural		
CUM1 (26.04 ha)	Mineral Cultural Meadow	The dominant species in these areas include Tall Goldenrod (*Solidago altissima*), New England Aster (*Symphyotrichum novae-angliae*), Heath Aster (*S. ericoides*), Wild Carrot (*Daucus carota*), Creeping Thistle (*Cirsium arvense*), Orchard Grass (*Dactylis glomerata*), and Green Foxtail (*Setaria viridis*). Two areas of meadow are present in the western portion of the property to the north of the rail line corridor. These areas are dominated by a dense cover of non-native, cool season grasses with sparse New England Aster, Frost Aster (*Symphyotrichum pilosum*), Gray-stemmed Goldenrod (*Solidago nemoralis*), and Wild Bergamot (*Monarda fistulosa*). These openings were assessed for the presence of tallgrass prairie and were found to lack any indicator species. The meadow areas adjacent to the rail corridor have well-drained sandy loam soil. The large meadow in the east has established on loam to silt loam soils with lower porosity and increased moisture retention.
CUT1 (15.05 ha)	Mineral Cultural Thicket	Thicket communities are present within the western, central and eastern portions of the property. White Ash (*Fraxinus americana*) and Manitoba Maple (*Acer negundo*) occur as scattered mid-age trees with European Buckthorn (*Rhamnus cathartica*) comprising a dense stand in the shrub layer with small amounts of Gray Dogwood (*Cornus racemosa*), Red Cedar (*Juniperus virginiana*), and Hawthorn (*Crataegus* sp.). The groundcover is limited to sparse forbs including White Avens (*Geum canadense*), Calico Aster (*Symphyotrichum lateriflorum*), Frost Aster, Garlic Mustard (*Alliaria petiolata*), and Dame's Rocket (*Hesperis matronalis*). Grasses include Redtop (*Agrostis gigantea*), Orchard Grass, and Canada Bluegrass (*Poa compressa*). The thicket communities in the western and central portion of the site contain few trees with no snags or downed stems, suggesting these areas are the result of succession from old field to thicket and having never exhibited substantial tree cover. Low linear ridges within this community are a remnant of the past land use in this area. Mineral licks that are frequented by White-tailed Deer (*Odocoileus virginianus*) are present at a few small clearings within the thicket. The areas of thicket to the south and east of the large field contain standing and downed snags of Ash and American Elm and likely existed as woodland or forest in the recent past. The large central CUT1 has been extensively managed for Buckthorn (Map 4). Trees (i.e. Hawthorn, White Ash, Manitoba Maple) within this area were retained. A small 25 m x 25 m patch of Big Bluestem (*Andropogon gerardii*), a species often associated with tallgrass prairie, is present within the cultural thicket community to the west of the large field.

ELC Ecosite Type (Total Area)	ELC Description	Environmental Characteristics
		Despite the close proximity of the site to the Aldershot Prairie along the rail corridor, no other species indicative of prairie habitat were observed over the course of the three-season botanical survey.
CUT1-4 (0.23 ha)	Gray Dogwood Cultural Thicket	An area of Gray Dogwood thicket is present to the south of the reservoir. The partial cover of dogwood is interspersed with mid-age Black Walnut (*Juglans nigra*), swaths of Red Raspberry (*Rubus idaeus*) and Riverbank Grape (*Vitis riparia*) with a small amount of European Buckthorn and Bell's Honeysuckle (*Lonicera* x *bella*). Openings in the thicket contain Canada Goldenrod (*Solidago canadensis*), Kentucky Bluegrass (*Poa pratensis*), Arrow-leaved Aster (*Symphyotrichum urophyllum*), and Tufted Vetch (*Vicia cracca*). This area has a shallow depth of sandy loam over loam which allows for good drainage and supports a slightly drier species assemblage than the other areas of buckthorn-dominated thicket.
CUW1 (8.61 ha)	Mineral Cultural Woodland	Two areas of cultural woodland are present within the property. Most of the treed western portion of the property is comprised of Manitoba Maple and Black Walnut as the dominant species, with sparse regeneration of White Ash, Black Cherry (*Prunus serotina*) and Bitternut Hickory (*Carya cordiformis*). This area did contain a homeless encampment, and a BMX bike track is present and was constructed in an old foundation southeast of the reservoir. The second area of cultural woodland is bisected by Falcon Creek in the central portion of the property. This area has a gradual slope toward the watercourse on the east side and is level at creek bank height on the west side. It has a sparse canopy of mid-age Black Walnut with light to moderate coverage of European Buckthorn and patches of Black Raspberry (*Rubus occidentalis*), Orchard Grass, Garlic Mustard, and Dame's Rocket. Two Butternut (*Juglans cinerea*) trees were observed along this section of the watercourse, one of which is dead (JUG-005) (Map 6). In the eastern side, next to southwest corner of CUM1, there is a localized depression in the floodplain. Both areas appear to be the result of 30-40 years of succession following cessation of active agriculture. The soil along the southern boundary of the property varies from silt loam to sandy loam in the western extent and loam soil in the east along Falcon Creek. The soil mottle depth in the low-lying woodland along Falcon Creek was noted to be approximately 60 cm below surface and not indicative of wetland conditions.
Forest		
FOD2-2 (2.73 ha)	Dry-Fresh Oak-Hickory Deciduous Forest	The northern portion of the ravine is comprised of a mature canopy of Shagbark Hickory (*Carya ovata*) with a small proportion of Sugar Maple (*Acer saccharum*) and White Ash. European Buckthorn and White Ash regeneration is occasional in the shrub layer with buckthorn more common along the edges of the forest and infrequent along the crest of slope and within the valley.

ELC Ecosite Type (Total Area)	ELC Description	Environmental Characteristics
		The groundcover includes Pennsylvania Sedge (*Carex pensylvanica*), Calico Aster, Spotted Geranium (*Geranium maculatum*) and Blue-stemmed Goldenrod (*Solidago caesia*). As a continuation of the oak-hickory forest cover to the south, this treed ravine constitutes the most botanically rich portion of the property. The valley walls are moderately to very steep with erosion and slumping occurring along the meandering watercourse. A second area of forest that is a near-monoculture of Shagbark Hickory without a shrub layer or groundcover is present to the northeast of the reservoir. This stand of trees is devoid of groundcover, potentially as a result of extensive deer browse. One Butternut is located within this community, its location shown on Map 6. The soil in this community is dry to fresh silt-loam.
FOD2-4 (3.45 ha)	Dry-Fresh Oak-Hardwood Deciduous Forest	Although still containing a large component of Shagbark Hickory in the canopy, the forest community to the south of FOD2-2 is predominantly Red Oak (*Quercus rubra*) with Hop Hornbeam (*Ostrya virginiana*) and Black Cherry in the understorey. The shrub layer contains suppressed White Ash and large Witch-hazel (*Hamamelis virginiana*) are occasional throughout. The groundcover includes Pennsylvania Sedge, Blue-stemmed Goldenrod, Poison Ivy (*Toxicodendron radicans* var. *rydbergii*), Spinulose Wood Fern (*Dryopteris carthusiana*) and False Solomon's Seal (*Maianthemum racemosum*). Garlic Mustard is locally common in some of the low-lying draws that are perpendicular to the watercourse. Three Butternut trees are located within this community, locations are shown on Map 6. The soil in this community is similar to that of the FOD2-2 community to the north with dry to fresh silt loam comprising the effective soil. The deeply incised creek channel displays a deep deposit of red clay.
Wetland/Open Aquatic		
MAM2 (0.13 ha)	Mineral Meadow Marsh	A marsh inclusion is present near King Road at the northern extent of a cultural thicket community. This feature is approximately 0.1 ha in size and is comprised of Devil's Beggarticks (*Bidens frondosa*), Panicled Aster (*Symphyotrichum lanceolatum*), Broad-leaved Cattail (*Typha latifolia*), Common Boneset (*Eupatorium perfoliatum*), and Blue Vervain (*Verbena hastata*). In addition to non—native Purple Loosestrife (*Lythrum salicaria*), small patches of European Common Reed are present within the feature and likely established from the dense patch that lines the King Road ditch. Ash (*Fraxinus* sp.) and American Elm (*Ulmus americana*) deadfall is present. The low-lying area is isolated and receives surface flow from a small catchment of agricultural field to the west. The ditch along King Road is not hydrologically connected to the wetland.

ELC Ecosite Type (Total Area)	ELC Description	Environmental Characteristics
SWD4 (0.49 ha)	Deciduous Swamp	An area of swamp with a canopy of non-native Crack Willow (*Salix euxina*) is present to the southeast of the reservoir. The feature contains an abundance of ash snags and deadfall with Green Ash (*Fraxinus pennsylvanica*) saplings scattered throughout the understorey and shrub layer. American Elm and European Buckthorn are also present in the shrub layer in small numbers. Shallow standing water was present in this area during the spring and summer vegetation surveys and although an equalization pipe or culvert was not observed, the water elevation within the swamp appeared to reflect the water elevation within the reservoir. By the fall vegetation survey, the water had dissipated leaving muddy leaf litter and allowing a few vegetative sedges to grow on root flares and areas of slightly higher elevation. The soil in this area of swamp includes a shallow deposit of organics (3 cm) above a deep layer of silt-loam. Soil mottling is evident near the surface with gley at approximately 23 cm depth.
SWD2-2 (0.44 ha)	Green Ash Mineral Deciduous Swamp	Two areas of Green Ash swamp are present in the northwest portion of the property. Both features have mid-age canopies of ash that are regenerating after the die-off of the mature canopy as a result of Emerald Ash Borer (*Agrilus planipennis*). The shrub layer contains a mixture of European Buckthorn and a small number of Red Osier Dogwood (*Cornus sericea*). The groundcover includes Lake Sedge (*Carex lacustris*) and Sensitive Fern (*Onoclea sensibilis*). The overall diversity of these swamp features is low, and both are susceptible to non-native species introductions such as European Common Reed or Glossy Buckthorn (*Frangula alnus*) due to the proximity to Highway 403 and the cyclical growth and dieback of ash trees. The western feature receives surface water from north of the highway and conveys it to the west while the hydrology of the eastern feature reflects the water level in the reservoir. The loam soil within these areas of wetland had soil mottling evident at approximately 25 cm depth with no gley observed to at least 60 cm depth where auger refusal occurred.
MAM2-6 (0.03 ha)	Broad-leaved Sedge Mineral Meadow Marsh	Predominantly Lake Sedge with smaller amounts of wetland forbs, such as Purple-stemmed Aster (*Symphyotrichum puniceum*), Spotted Joe-pye Weed (*Eutrochium maculatum*) and Spotted Jewelweed (*Impatiens capensis*), and hold standing water during the spring.
SWT2-2 (0.03 ha)	Willow Mineral Thicket Swamp	Predominantly American Pussy Willow (*Salix discolor*) and Bebb's Willow (*Salix bebbiana*), situated on seasonally wet substrates but does not contain appreciable depth of standing water.
OA (0.48 ha)	Open Aquatic	The reservoir in the western extent of the property contains a dense mat of Stonewort (*Chara* sp.) – an invasive macroalgae, as observed from the edge of the feature. The soil profile could not be assessed due to the steep drop-off near the edge of the feature. An 800 m^2 stand of Buttonbush (*Cephalanthus occidentalis*) is present along the northern edge of the reservoir. Emergent vegetation is limited to non-native Rough Mannagrass (*Glyceria maxima*)

ELC Ecosite Type (Total Area)	ELC Description	Environmental Characteristics
		while aquatic species include small numbers of a narrow-leaved Pondweed species (*Potamogeton* sp.) and Lesser Duckweed (*Lemna minor*). Combined, these three species cover less than 1% of the open water. A band of Nodding Beggarticks (*Bidens cernua*), Devil's Beggarticks (*Bidens frondosa*), Common Boneset, Fowl Mannagrass (*Glyceria striata*) and Blue Vervain lines the perimeter of the feature. Although turtles were observed basking below the water surface, no logs, rock or other features are present within the water. Both Green Heron (*Butorides virescens*) and Great Blue Heron (*Ardea herodias*) were observed perched at the edge of the reservoir.

4.2.2 Vascular Flora

The most current three-season vascular plant survey documented a modest total of 166 species from the subject property (Appendix V). The highest diversity of native species occurs in the forests along the Falcon Creek ravine while the cultural woodlands, thickets and meadows are largely comprised of early successional species and non-native species that reflect past disturbance. In general, the cultural portions of the site exhibit low species diversity with extensive areas of thicket containing bare mineral soil with patchy herbaceous vegetation.

Species at Risk

Butternut, a SAR, was observed in the Dry-Fresh Oak-Hardwood Deciduous Forest (FOD2-4), Dry-Fresh Oak-Hickory Deciduous Forest (FOD2-2) and within the eastern Cultural Woodland (CUW1) community (Map 6). While Butternut is a widespread tree species that can be found throughout much of southern Ontario, many Ontario trees are infected with Butternut Canker (*Ophiognomonia clavigignenti-juglandacearum*) which is a fungal disease that often results in tree mortality (MECP 2021).

Six trees were observed within the subject property (Map 6) and Butternut Health Assessments (BHAs) were completed for each tree on June 17, 2024, by a certified Butternut Health Assessor. All six butternuts were classified as Category 1, meaning that these trees are affected by butternut canker to such a high degree that their retention is not required. Butternut #5 is dead and has fallen over. The results of the BHAs were submitted to the MECP in June 2024. An additional Butternut was observed by WSP (WSP Tree #6, Figure 6-1; 2018), however despite repeated extensive search efforts, NRSI was unable to locate it.

One plant of American Columbo (*Frasera caroliniensis*) was observed in 2016 by WSP consultants during their single season (spring) botanical inventory. This herbaceous plant is a monocarpic perennial that can persist as a rosette of 3-30 basal leaves for 5-15 years, before bolting as a flowering plant for a single season and then dying (Bickerton 2013). Unlike long-lived perennials and plants that may reproduce vegetatively, the long-term persistence of American Columbo at a site depends on successful flowering, seed production and seedling establishment. Populations must continually renew themselves through sexual reproduction and require pollinators. Self-pollination is possible; however, cross-pollinations leads to a more successful reproductive output (Baskin and Baskin 1986). A large population of this species is known from lands immediately north of Highway 403 in an area owned by Mercedes/Astra.

NRSI biologists thoroughly searched the documented American Columbo location by WSP and beyond on May 23, 2024, to determine whether the single plant was still present or if the population had expanded. No individuals were documented. Given that the isolated observation was approximately 8 years ago, it is likely the individual is no longer present in the FOD2-4 community. No other SAR or SCC plant species were observed.

A total of nine species that are considered rare and 21 species that are considered uncommon (Appendix V) in Halton Region (Varga et al. 2000) were documented from the subject property. This list was created in 2000 and is generally considered out of date. As per the NHIC central database (2022d), all of the rare and uncommon species noted are ranked S4 and S5 and are ranked common and widespread in Ontario.

During the vegetation surveys, NRSI staff were aware of the presence of the tallgrass prairie community near Grove Park to the south of the rail corridor. With the exception of a single small patch of Big Bluestem, no other prairie indicator species were observed, and the community type is not present within the subject property.

Invasive, non-native species that were observed include Common Buckthorn, European Common Reed, Multiflora Rose (*Rosa multiflora*), Bell's Honeysuckle, Japanese Barberry (*Berberis thunbergii*), Garlic Mustard, Purple Loosestrife, Dog-strangling Vine, Dame's Rocket, and Rough Mannagrass. Most Ash and American Elm trees have succumbed to Emerald Ash Borer and Dutch Elm Disease, respectively, which has resulted in the proliferation of Common Buckthorn due to the increased understory sunlight levels and disturbed soils.

4.2.3 Tree Inventory

A comprehensive tree inventory will be completed within 6 m of the development footprint and will include off-property lands where necessary. The existing overall health and/or potential for structural failure of inventoried trees will be compared to the proposed development layout to determine whether existing trees will be impacted by the proposed undertaking. The results of the TIPP will be provided as an addendum to this EIA at detailed design.

4.2.4 Wetlands

A series of site visits were conducted throughout the 2022 field season to review the ELC and wetland area boundaries, which included traversing the entirety of the subject property to update/refine wetland boundaries where required.

The wetland communities were mapped by Pat Deacon, a Certified Wetland Evaluator based on his ELC and OWES assessments and were later surveyed in the field by Tara Brenton, a Certified Wetland Evaluator, with the use of a mapping grade GPS unit. A letter attached in Appendix XII, includes their professional attestation as to the final boundaries to be used for these wetland areas. The wetlands delineated by NRSI have been compared to those mapped by Conservation Halton (2025) and the MNRF (2020) and wetland community descriptions as documented by NRSI are provided in Table 5.

The province has updated the wetland evaluation system. Under the previous version of the Ontario Wetland Evaluation System (OWES), a Provincially Significant Wetland complex was identified that spanned the subwatersheds found on-site and included widely dispersed wetland pockets to the north of Highway 403. This report (Section 5.1) provides a re-evaluation of these wetlands using the 4th edition of the OWES (MNRF 2022b).

Conservation Halton Wetlands

Conservation Halton (2025) is responsible for regulated features including wetlands. Alinea worked closely with CH to ensure wetland regulatory matters and the CH perspective were well-understood.

Falcon Creek was not observed by NRSI to have any wetland characteristics as it is a creek corridor, with areas of steep banks, exposed banks and limited to no wetland vegetation.

The wetland features in the western portion of the natural area were refined and delineated by NRSI. That work excluded the small pockets identified by Conservation Halton given the absence of wetland characteristics.

MNRF Wetlands

The two wetland pockets mapped by the MNRF (2020) within the agricultural field west of King Road were not observed to be present during the detailed field surveys (Map 4). The agricultural field has been actively tilled with no evidence of a wetland feature beyond the extent surveyed by NRSI on August 26, 2022.

Indian Creek is a narrow feature with relatively steep banks and limited riparian vegetation that bisects the subject property. The creek and riparian vegetation are not considered to be a wetland feature.

Further discussion regarding updated wetland evaluations is provided in Section 5.

Wetland Hydrology

NRSI has identified three wetland units, and pond (OA) at the west end of the subject property. Two of these wetlands are located within the Grindstone Creek subwatershed (W1 and W2), and the third is on the western edge of the Falcon Creek subwatershed (W3).

As described in the Wetland Water Balance Report (Terra-Dynamics 2026a), an aquitard is present in the area, and the shallow groundwater table responds quickly to precipitation and snow melt events. Recharge to the aquitard appears to be limited to wet seasons and after rain events. The wetlands are underlain by poorly sorted clay and fines, which result in low hydraulic conductivities. W1 and W2 are connected to the Western and Eastern Grindstone Creek tributaries, respectively, with intermittent inflow and outflow. The hydrology of these two wetlands is generally controlled by surface water input from the tributaries as well as localized runoff. The tight soils underlying the wetlands reduces the influence of groundwater discharge to the wetlands. W3 is an isolated wetland with no observed inflow or outflow; localized runoff contributes most of the water to this wetland community.

4.3 Wildlife

4.3.1 Birds

Breeding Bird Surveys

In total, 110 bird species have been reported from within 10 km of the study area based on the OBBA, NHIC database and other background sources (BSC et al. 2008, MECP 2022a, Savanta 2015). Fifty-four species were documented within the subject property during field surveys, of which 26 exhibited signs of breeding, such as males singing, adults carrying food, the presence of fledged young, and adults sitting on nests, etc. No owls were observed during the 2022 survey or incidentally. A complete list of bird species, along with breeding evidence, is provided in Appendix VI.

A total of 17 SAR or SCC bird species are reported from the vicinity of the study area based on OBBA records and other background data (BSC et al 2008., MNRF 2022d, Savanta 2015). Of these species, two SAR and three SCC species were observed by NRSI biologists within the subject property (Map 6), as described below. All other species are ranked as common and secure within the province (Appendix VI).

Species at Risk

Bobolink (*Dolichonyx oryzivorus*) is listed as Threatened provincially and federally[1], was incidentally observed by NRSI biologists on June 11, 2024, in the eastern fields. No Bobolink were observed in 2025.

Red-headed Woodpecker (*Melanerpes erythrocephalus*) is listed as Endangered provincially and federally (MECP 2022c, Government of Canada 2024). One individual was observed as an incidental during an amphibian egg mass survey on April 29, 2022. No species observations were recorded during the breeding bird window (May 24 - July 10), and it is concluded that this was a migrant and not a resident breeding species.

Species of Conservation Concern

Bald Eagle (*Haliaeetus leucocephalus*) is listed as Special Concern provincially and Not at Risk federally (MECP 2022c, Government of Canada 2024). One adult individual was observed in the study area, approximately 750 m north of Highway 403 above Grindstone Creek during the winter wildlife survey. No breeding evidence was observed, and no suitable habitat is present within the subject property.

Barn Swallow (*Hirundo rustica*) is listed as Special Concern provincially and federally (MECP 2022c, Government of Canada 2024). One individual was observed flying over the subject property during breeding bird surveys in 2022 at BMB-02. No breeding evidence was observed, and no suitable nesting habitat is present within the subject property.

Eastern Wood-Pewee (*Contopus virens*) is listed as Special Concern provincially and federally (MECP 2022c, Government of Canada 2024). During the second breeding bird survey, an individual was heard singing during transit from monitoring station BMB-03 to BMB-04. Another individual, or perhaps the same, was heard singing while exiting the property from BMB-05. As such, it is 'Possible' that Eastern Wood-Pewee is breeding within the deciduous woodland on the subject property.

[1] In 2022, COSEWIC redesignated Bobolink as Special Concern and it is currently under consideration for status change under SARA (COSEWIC 2022).

4.3.2 Herpetofauna

In total, 25 herpetofauna species were reported from within 10 km of the study area based on the ORAA, NHIC database and other background sources (MNRF 2022d, ORAA 2024, Savanta 2015). Nine of these species, including six reptile and three amphibian species, were recorded in the subject property during 2022 field surveys. Of these species, two SCC were observed by NRSI biologists within the subject property, as described below. All other species are ranked as common and secure within the province. A complete list of all observed species and species reported from the vicinity of the study area is provided in Appendix VII. The results of species-specific surveys are detailed in the following sections.

Snapping turtle (*Chelydra serpentina*) is listed as Special Concern provincially and federally (MECP 2022c, Government of Canada 2024). Adults, as many as seven individuals, were observed throughout the field season in the pond (Map 6), although no evidence of breeding was observed.

Anuran Call Survey Results

Anuran call surveys yielded a total of two species of anuran American Toad (*Anaxyrus americanus*) and Green Frog (*Lithobates clamitans*). Monitoring station ANR-05 was the only station where anurans were heard calling, although numbers were low and calls never reached a full chorus.

Salamander Egg Mass Survey Results

No amphibian egg masses were observed during two surveys.

Basking Turtle Survey Results

Basking turtle surveys consistently resulted in two species observed: Midland Painted Turtle (*Chrysemys picta marginata*) and Snapping Turtle. Painted Turtle was observed in both the human-made pond (OA) and the adjacent deciduous swamp (SWD4), with numbers as high as 38 individuals observed. Snapping Turtle was observed only in the human-made pond.

Turtle Nesting Survey Results

No turtles were observed nesting during six surveys, nor were any nests and/or nest remnants found.

Snake Coverboard and Visual Encounter Surveys

Four species of snake, Dekay's Brownsnake (*Storeria dekayi*), Eastern Gartersnake (*Thamnophis sirtalis sirtalis*), Eastern Milksnake and Red-bellied Snake (*Storeria occipitomaculata*) were observed within the subject property in 2022. A total of ten coverboards were placed throughout the subject property to monitor snake presence and diversity, resulting in the observation of five Eastern Gartersnake, five DeKay's Brownsnake and five Eastern Milksnake observations. Snake visual surveys resulted in three snake observations: one Milksnake and two Eastern Gartersnakes. One Red-bellied snake was observed incidentally.

4.3.3 Mammals

In total, 41 mammals were reported from within 10 km of the study area based on the Mammal Atlas of Ontario, NHIC database and other background sources (Dobbyn 1994, MNRF 2022d, Savanta 2015). NRSI biologists observed 18 mammal species during surveys completed within the subject property. No SAR, SCC, or locally significant mammal species were observed during field surveys in 2022. A complete list of all observed species and species reported from the vicinity of the study area is provided in Appendix VIII.

NRSI observed evidence of eight mammal species within the subject property during winter wildlife, crepuscular mammal and incidental wildlife surveys including Eastern Gray Squirrel (*Sciurus carolinensis*), White-tailed Deer (*Odocoileus virginianus*), Eastern Cottontail (*Sylvilagus floridanus*), Striped Skunk (*Mephitis mephitis*), American Mink (*Neovison vison*), Coyote (*Canis latrans*), Deer mice (*Peromyscus* sp.), and Meadow Vole (*Microtus pennsylvanicus*). None of these species have any provincial or federal status.

Bats

This section summarizes the results of the SAR bat surveys conducted in 2022 and evaluation of significance surveys conducted in 2024.

<u>Bat Habitat Assessment</u>

A total of 176 potential roost trees for Little Brown Myotis, Northern Myotis, Silver-haired Bat, or Big Brown Bat and 10 potential roost trees for Tri-colored Bat (i.e., trees with suitable leaf clusters) were documented during the targeted bat habitat assessments from within plots and inventory areas. No open, sunny, rocky features potentially suitable for Eastern Small-footed Myotis, or any features suitable for hibernation, were identified on the property.

The densities of potential roost in each community are shown in Table 6. Each vegetation community is shown on Map 5 and identified using the number in the table below.

Table 6. Density of potential roost trees in each treed community.

No.	Vegetation Community	Area (ha)	Density (No. Potential Roost Trees/ha)		High Quality Potential SAR Bat Roosting Habitat?[2]	Candidate SWH Maternity Colony Habitat?[3]
			Any Size[1]	DBH[2,3] ≥25cm		
1	(CUT1) Mineral Cultural Thicket Ecosite	0.53	0.00	0.00	-	-
2	(CUT1) Mineral Cultural Thicket Ecosite	1.39	2.88	1.44	-	-
3	(CUT1) Mineral Cultural Thicket Ecosite	0.67	10.45	2.99	-	-
4	(CUW1) Mineral Cultural Woodland Ecosite	3.43	66.00	18.00	**Yes**	-
5	(CUT1) Mineral Cultural Thicket Ecosite	2.6	42.00	20.00	**Yes**	-
6	(FOD2-2) Dry – Fresh Oak – Hickory Deciduous Forest Type	2.73	62.00	28.00	**Yes**	**Yes**
7	(FOD2-4) Dry – Fresh Oak – Hardwood Deciduous Forest Type	3.46	46.00	26.00	**Yes**	**Yes**
8	(CUW1) Mineral Cultural Woodland Ecosite	1.54	24.00	10.00	**Yes**	-
9	(CUT1) Mineral Cultural Thicket Ecosite	5.54	2.00	2.00	-	-
10	(CUW1) Mineral Cultural Woodland Ecosite	3.65	56.00	28.00	**Yes**	-
11	(CUT1) Mineral Cultural Thicket Ecosite	0.23	8.70	8.70	-	-
12	(SWD4) Mineral Deciduous Swamp	0.49	10.20	6.12	-	-
13	(FOD2-2) Dry – Fresh Oak – Hickory Deciduous Forest Type	0.31	3.23	3.23	-	-
14	(SWD2-2) Green Ash Mineral Deciduous Swamp Type	0.45	2.22	2.22	-	-
15	(CUT1) Mineral Cultural Thicket Ecosite	1.17	10.00	8.00	-	-
16	(SWD2-2) Green Ash Mineral Deciduous Swamp Type	0.45	4.44	4.44	-	-

[1]Trees potentially suitable as roosts for the SAR Little Brown Myotis, Northern Myotis, and Silver-haired Bat, and for the non-SAR Big Brown Bat. Includes trees with leaf clusters potentially suitable for roosting Tri-colored Bat.

[2] Diameter at Breast Height (DBH).

[3] Communities with potential roost trees at least 25cm DBH in size which contain cavities, crevices and exfoliating bark in densities that equal or exceed 10 per hectare represent higher quality potential roosting habitat for the applicable SAR bats. Deciduous and mixed forests (Ecological Land Classification codes FOD, FOM, SWD, SWM) with densities of such trees equalling or exceeding 10 per hectare represent Candidate Significant Wildlife Habitat for Bat Maternity Colonies (Big Brown Bat).

Bat Exit Surveys

Visual bat exit surveys were conducted within community 7 (FOD2-4) listed in Table 6 above, where tree removal is proposed to accommodate the proposed Street A.

No bats were documented exiting from surveyed trees. As a result, the community does not provide SWH for bat maternity colonies.

Bat Acoustic Monitoring

Seven bat species were documented as present during passive acoustic monitoring within the subject property; six of which are listed as Endangered on the *Species at Risk in Ontario List* (O. Reg. 230/08); with Big Brown Bat being the exception. A summary of the acoustic monitoring results from the 33 monitoring stations is provided in Table 7.

Table 7. Bat species and species groupings recorded during passive acoustic monitoring.

Classification		Number of Recorded Bat Pass Sequences	Percent of Total Recorded Bat Pass Sequences
Common Name	**Scientific Name**		
Northern Myotis	*Myotis septentrionalis*	1	0.01%
Eastern Small-footed Myotis	*Myotis leibii*	416	2%
Little Brown Myotis	*Myotis lucifugus*	475	2%
Myotis sp.[1]	-	1,463	8%
Eastern Red Bat	*Lasiurus borealis*	4,077	21%
40kHz[2]	-	995	5%
Big Brown Bat	*Eptesicus fuscus*	4,877	26%
Silver-haired Bat	*Lasionycteris noctivagans*	862	5%
30kHz[3]	-	2,056	11%
Hoary Bat	*Lasiurus cinereus*	900	5%
Low Frequency[4]	-	2,983	16%
TOTAL		**19,105**	

[1]Myotis sp. classification includes Little Brown Myotis, Eastern Small-footed Myotis, and Northern Myotis.
[2]40kHz classification includes Eastern Red Bat, Little Brown Myotis, Eastern Small-footed Myotis, Northern Myotis, and Tri-colored Bat (*Perimyotis subflavus*).
[3]30kHz classification includes Big Brown Bat and Silver-haired Bat.
[4]Low Frequency classification includes Hoary Bat, Big Brown Bat, and Silver-haired Bat.

4.3.4 Insects

Lepidoptera

In total, 69 butterfly species were reported within 10 km of the study area based on the Ontario Butterfly Atlas, NHIC database and other background sources (MacNaughton et al. 2024, MNRF 2022d, Savanta 2015). NRSI biologist observed 14 species during surveys completed within the subject property, which included one SCC the Monarch (*Danaus plexippus*). All other species are ranked as common and secure within the province. A complete list of all observed species and species reported from the vicinity of the study area is provided in Appendix IX.

Monarch is listed provincially as Special Concern (MECP 2022c) and federally as Endangered (Government of Canada 2024). Individuals were observed within the agricultural fields, meadows, woodlands, and wetlands (Map 6). Only adults were documented. The species' larval host plant, Milkweed (*Asclepias* sp.), was documented occasionally during ELC and vascular plant surveys within the CUW1 and CUM1 communities, but not in abundance.

Odonates

In total, 57 dragonfly and damselfly species were reported from within 10 km of the study area based on the Ontario Odonate Database Atlas and other background sources (OOAD 2024, MNRF 2022d, Savanta 2015). NRSI biologist observed 13 species during surveys completed within the subject property, none of which are considered provincially or locally significant. A complete list of all observed species and species reported from the vicinity of the study area is provided in Appendix X.

4.4 Aquatic Features

4.4.1 Aquatic Habitat

The subject property is located within portions of the Indian Creek, Falcon Creek and Grindstone Creek subwatersheds, with tributaries of each creek presenting aquatic features within the subject property. The unnamed tributary of Indian Creek (AHP-001 and AHP-002) was observed within the northeastern portion of the subject property directing flow in a generally easterly direction exiting the subject property within an engineered channel along the eastern edge of the subject property. Falcon Creek (AHP-003 and AHP-004) was observed within the center of the subject property within the deciduous forest habitat directing flow in a generally easterly direction outletting to the existing CN property along the southern edge of the subject property. The unnamed tributary of Grindstone Creek is represented by two reaches within the southwestern edge of the subject property: a poorly defined stormwater drainage channel

directing flow from Highway 403 beyond the existing Aldershot Via Rail Carpool Lot (AHP-005), and the poorly defined channel directing flow to the human-made pond within the deciduous swamp (AHP-006) (Map 3).

During the summer of 2022 low water conditions were observed throughout the study area as indicated by the confirmed “Level 1” and “Level 2” low water conditions reported by Conservation Halton and the “Abnormally Dry” to “Moderate Drought” conditions reported by Agriculture Canada’s Canadian Drought Monitor program (Conservation Halton 2023, Government of Canada 2023). This is consistent with the findings of Terra Dynamics (2023).

Unnamed Tributary of Indian Creek – AHP-001

This reach of the unnamed tributary of Indian Creek comprises an engineered channel directing flow along the edge of the existing agricultural field within the northeastern portion of the subject property. During the summer of 2022, no surface water, saturated soils, nor evidence of recent water flow was observed within this reach of the unnamed tributary of Indian Creek. Vegetation within this reach of the Unnamed Tributary of Indian Creek was observed to consist of dense terrestrial grasses and Broadleaved Cattail (*Typha latifolia*). A 50 m section of engineered channel centered at AHP-001 was characterized as dry on August 31, 2022, and bankfull widths within this reach ranged from 2.5 – 3.75 m with bankfull heights ranging from 0.5 – 0.75 m with moderate bank stability. Vegetation along the banks include abundant overhanging terrestrial grasses, and deciduous shrubs. Instream cover was observed to consist of woody debris and terrestrial vegetation. Channel substrate compositions were observed to be comprised of clay, silt, detritus, and a smaller amount of gravel.

Due to the dry conditions observed on August 31, 2022, no fish community characterization was completed. Observations of flowing water within the unnamed tributary of Indian Creek during the spring of 2022 in combination with debris accumulation along the engineered banks suggest that this reach of the unnamed tributary of Indian Creek is an intermittent/ephemeral water course directing surface water flow to downstream resources only during the spring freshet and significant rain events, providing indirect fish habitat for the remainder of the year. This unnamed tributary of Indian Creek is mapped as a Warmwater Fish community by OMNRF Aquatic Resource Area Data (MNRF 2022a).

Unnamed Tributary of Indian Creek – AHP-002

This reach of the unnamed tributary of Indian Creek comprises an engineered channel directing flow from the existing agricultural field beyond the subject property. During the summer of 2022, no surface water, saturated soils, nor evidence of recent water flow was observed within this reach of the unnamed tributary of Indian Creek, with the channel bed vegetated with terrestrial grasses and areas of exposed soil within the heavily shaded channel. A 65 m section of engineered channel centered at AHP-002 was characterized as dry on August 31, 2022. Engineered banks within the meandering channel ranged from 1.75 – 2.5 m with bankfull heights ranging from 0.25 – 0.5m with a high degree of bank stability. Vegetation along the banks include overhanging terrestrial grasses, and deciduous trees. Instream cover was observed to consist of woody debris, and terrestrial vegetation. Channel substrate composition was observed to be comprised of clay, silt, and detritus.

Due to the dry conditions observed on August 31, 2022, no fish community characterization was completed. Observations of flowing water within the unnamed tributary of Indian Creek during the spring of 2022, in combination with debris accumulation along the engineered banks suggest that this reach of the unnamed tributary of Indian Creek is an intermittent/ephemeral watercourse directing surface water flow to downstream resources only during the spring freshet and significant rain events providing indirect fish habitat for the remainder of the year. This unnamed tributary of Indian Creek is mapped as a Warmwater Fish community by MNRF Aquatic Resource Area Data (MNRF 2022a).

Falcon Creek – AHP-003

The reach of Falcon Creek centered on AHP-003 comprises a well-defined naturalized channel directing flow from Highway 403 through the deciduous forest within the central portion of the subject property. During the summer of 2022, no surface water, saturated soils, nor evidence of recent water flow was observed within this reach of the Falcon Creek. Within the well-defined deeply entrenched natural channel representing this reach of Falcon Creek within the Study Area, signs of extensive bank erosion and scour, a further lack of in channel vegetation suggests that this reach of Falcon Creek is subject to significant flow velocities during the spring freshet and significant precipitation events. A 75 m section of naturalized channel centered at AHP-003 was characterized as dry on August 31, 2022, with bankfull widths within this reach ranged from 4.5 – 7.5 m with bankfull heights ranging from 1.0 – 1.75 m and poor bank stability. Vegetation along the top of the channelized banks includes abundant overhanging deciduous

trees. Instream cover was observed to consist of dense accumulations of woody debris, and terrestrial vegetation. Channel substrate composition was observed to be comprised of clay, silt, cobble, and a smaller amount of gravel.

Due to the dry conditions observed on August 31, 2022, no fish community characterization was completed. Observations of flowing water within Falcon Creek during the spring of 2022 in combination with debris accumulation along the engineered banks suggest that this reach of Falcon Creek is an intermittent/ephemeral water course directing surface water flow to downstream resources only during the spring freshet and significant rain events providing indirect fish habitat for the remainder of the year. This reach of Falcon Creek is mapped as a Warmwater Fish community by MNRF Aquatic Resource Area Data (MNRF 2022a).

Falcon Creek – AHP-004

The reach of Falcon Creek centered on AHP-004 comprises a well-defined naturalized channel directing flow from the deciduous forest within the central portion of the subject property to the CN yard along the eastern edge of the subject property. During the summer of 2022, no surface water, saturated soils, nor evidence of recent water flow was observed within this reach of the Falcon Creek. Within the well-defined deeply entrenched natural channel representing this reach of Falcon Creek within the Study Area of extensive bank erosion and scour, along with a lack of in channel vegetation suggests that this reach of Falcon Creek is subject to significant flow velocities during the spring freshet and significant precipitation events. A 50 m section of naturalized channel centered at AHP-004 was characterized as dry on August 31, 2022, with bankfull widths within this reach ranged from 5.15 – 6.5 m with bankfull heights ranging from 1.0 – 1.5 m with poor bank stability. Vegetation along the top of the entrenched banks was represented by abundant overhanging deciduous trees. Instream cover was observed to consist of dense accumulations of woody debris, and terrestrial vegetation. Channel substrate compositions are comprised of clay, silt, cobble, and a smaller amount of gravel. Characterization of Falcon Creek at AHP-004 ended at the boundary of the subject property and the CN yard. Beyond this boundary no defined surface water feature was observed. Based on observations from the bordering fence line it appears that this reach of Falcon Creek dissipates to within the crushed rock and gravel lining the existing CN yard.

Due to the dry conditions observed on August 31, 2022, no fish community characterization was completed. Observations of flowing water within Falcon Creek during the spring of 2022 in combination with debris accumulation along the engineered banks suggest that this reach of

Falcon Creek is an intermittent/ephemeral water course directing surface water flow to downstream resources only during the spring freshet and significant rain events providing indirect fish habitat for the remainder of the year. This reach of Falcon Creek is mapped as a Warmwater Fish community by MNRF Aquatic Resource Area Data (MNRF 2022a).

Unnamed Tributary of Grindstone Creek – AHP-005

This reach of the unnamed tributary of Grindstone Creek comprises an engineered channel directing flow from Highway 403 beyond the existing Aldershot Via Rail Carpool Lot along the edge of the subject property. During the summer of 2022, the only surface water was an isolated pool within the existing box culvert at the Highway 403 on ramp with no evidence of recent water flow within this reach. The channel bed was vegetated with terrestrial grasses, Broadleaved Cattail, and traces of Lesser Duckweed within the isolated pool. A 50 m section of engineered channel centered at AHP-005 was dry on August 31, 2022. Engineered bankfull widths ranged from 3.5 – 5.25 m and bankfull heights ranged from 1.25 – 2.5 m with a high degree of bank stability. Vegetation along the banks include overhanging terrestrial grasses, and deciduous trees. Instream cover was observed to consist of woody debris, and terrestrial vegetation. Channel substrate composition was observed to be comprised of clay, silt, and detritus.

Due to the dry conditions observed on August 31, 2022, no fish community characterization was completed. Observations of flowing water within the unnamed tributary of Grindstone Creek during the spring of 2022 in combination with debris accumulation along the engineered banks indicate that this reach of the unnamed tributary of Grindstone Creek is an intermittent/ephemeral watercourse directing surface water flow to downstream reaches only during the spring freshet and significant rain events. As such, this reach provides indirect fish habitat for the remainder of the year. This reach is mapped as a Coldwater Fish community by OMNRF Aquatic Resource Area Data, however due to the age of this assessment and the lack of flowing surface water during 2022, this characterization is not consistent with the current conditions present within the unnamed tributary of Grindstone Creek (MNRF 2022a).

Unnamed Tributary of Grindstone Creek – AHP-006

This reach comprises a naturalized channel draining flow from Highway 403 to the existing pond habitat within the deciduous swamp located within the southern portion of the subject property. During the summer of 2022 and Spring of 2024, the only surface water was the existing pond habitat with no evidence of recent water flow within this reach. A 50 m section of the naturalized

channel centered at AHP-006 was characterized as dry on August 31, 2022, and May 23, 2024. Bankfull widths were observed to range from 0.75 – 1.25 m and bankfull heights ranged from 0.25 - 0.5 m with a high degree of bank stability. Vegetation along the top of banks was observed to include overhanging terrestrial grasses, and deciduous trees. Instream cover was observed to consist of woody debris, and terrestrial vegetation. Channel substrate composition was observed to be comprised of clay, silt, and detritus.

Previous habitat surveys completed in the vicinity of the unnamed Tributary of Grindstone Creek pond indicated the presence of a dry overflow channel directing surplus surface water flows from the existing pond to surrounding lands during their 2016 field surveys (WSP 2018). During NRSI's 2022 spring and summer aquatic habitat surveys channel definition and surface water conditions did not indicate the continued presence of this dry ephemeral channel. This can be attributed to the previously observed dry conditions within the overflow channel, continued naturalization of the manmade pond, and low water conditions during NRSI's 2022 field surveys. Additional focused aquatic habitat characterization surveys on May 23, 2024, characterized the overflow channel as a dry ephemeral channel with poorly defined banks, with bankfull widths ranging from 0.75-1.0 m and bankfull heights ranging from 0.1-0.25 m. Vegetation throughout the channel bed and along the top of banks was observed to include overhanging deciduous trees and mosses, with dense accumulations of woody debris immediately downstream of the outlet of the unnamed pond structure. Channel substrate composition was observed to be primarily silt and clay, with isolated deposits of gravel along the edge of the failed pond berm.

The existing pond located at the downstream extent of this reach comprised a 0.4 ha area of open water pond habitat with dense riparian habitat comprised primarily of terrestrial grasses and Broad Leave Cattail, with no instream vegetation observed within the existing pond habitat. Substrates throughout the pond were observed to be comprised primarily of loose unconsolidated silt and organic detritus, substantial water depths within the pond precluded further characterization of the instream habitat within the pond.

Due to the dry conditions observed on August 31, 2022, and May 23, 2024, no fish community characterization was completed within this reach. Observations of flowing water within the reach during the spring of 2022 in combination with debris accumulation along the naturalized banks indicate that this reach is an intermittent/ephemeral watercourse directing surface water flow to downstream reaches only during the spring freshet and significant rain events. As such, this reach provides indirect fish habitat for the remainder of the year.

4.4.2 Fish Community

Based on historical fish community data collected from MNRF Aquatic Resource Area Data, NHIC Database, and iNaturalist (Government of Ontario 2022, MNRF 2022d, iNaturalist 2022), 13 fish species were mapped as potentially occurring within the subject property. During 2022 field surveys, no fish were captured from aquatic habitats within the subject property, with dry conditions observed throughout the subject property. A complete list of species potentially known from within the subject property along with their habitat preferences and the potential seasonal suitability of the aquatic features within the Study Area to support these species is provided in Appendix XI.

Significant Aquatic Species

According to background information, no significant fish species are known from within the subject property, with no additional significant aquatic species observed by NRSI during 2022 surveys. The low water levels and limited fish habitat observed during 2022 suggests that the aquatic features within the Study Area present direct fish habitat during spring freshet conditions and indirect fish habitat for the remainder of the year. Reported thermal regimes suggest overall warmwater conditions throughout the Study Area.

4.5 Summary of Tree Assessment Findings

In total, 287 trees were tallied, across 28 tree plots (Map 10), comprising 16 species, the majority of which were Green Ash (*Fraxinus pennsylvanica*) (n=124, 43%). Due to the prevalence of Emerald Ash Borer (EAB), many of the Green Ash located mainly within the central portion of the cultural thicket habitat and intermittently throughout the property were documented to be in very poor condition or dead. In areas (e.g., Campus/Commercial Node, Residential Node) the tall shrub, European Buckthorn was the main element on the intermediate tree canopy. The next most common tree species observed within the tally plots were Hawthorns (*Crataegus* spp.) (n=45), Black Cherry (*Prunus serotina*) (n=26) and Black Walnut (*Juglans nigra*) (n=21). Of the trees inventoried and assessed, 274 (95%) are native species and 13 (5%) are non-native. An outline of species composition in each development block is summarized below:

A. Parkway Link: In total 130 trees were tallied, comprising 13 species within 15 plots in the Parkway Link development block. Three species dominated this area: Black Cherry (n=25), Black Walnut (n=21), and Green Ash (n=21). Of the trees inventoried and assessed, 129 (99.2%) are native species and 1 (0.80%) are non-native.

B. Campus/Residential node: In total 92 trees were tallied, comprising 7 species within 7 plots in the Campus/Residential node development block. The vast majority of tree species were of Green Ash (n=75), followed by Hawthorn (n=9) and American Elm (*Ulmus americana*) (n=4). Of the trees inventoried and assessed, 72 (96%) are native species and 3 (4%) are non-native.

C. Residential: In total 65 trees were tallied, comprising 5 species within 6 plots in the High-Rise Residential development block. Two tree species dominated in this area: Green Ash (n=28), and Hawthorn (n=26), with fewer non-native Sweet Cherry (*Prunus avium)* (n=9). Of the trees inventoried and assessed, 56 (86%) are native species and 9 (14%) are non-native.

None of the tree species observed are regionally significant or protected under the *Species at Risk Act* (2002) or *Endangered Species Act* (2007).

A complete list of inventoried trees is provided in Appendix XIII and tree plot locations and proposed development blocks are shown on Map 10. This analysis will be updated with a complete tree inventory and can be provided as an addendum to this EIA.

5.0 Significance and Sensitivity of Natural Features

The identification of significant and sensitive natural features is required to understand what areas need to be protected, restored and enhanced and what areas present opportunities for development. Natural features that are sensitive to disturbance are identified based on the rarity or significance of the feature in the context of the natural heritage policies governing their protection.

Appendix XIV provides a summary of natural features and functions, organized by feature and function importance and sensitivity. This table informs the impact assessment.

Key points from Appendix XIV are as follows:

- Most aspects of natural heritage on the subject property exhibit low sensitivity (a result of the high degree of existing disturbance),
- The Falcon Creek forested corridor has some sensitivity to disturbance, especially in woodland FOD2-2 and the northern half of FOD 2-4, where the canopy, understory and groundcover have not become infested with invasive species such as buckthorn (note presence of Sassafras seedlings),
- Candidate bat maternity colony locations occur through all wooded areas
- The wetland grouping also includes sensitivity for bats (roosting, foraging, and drinking)
- The rare Buttonbush Thicket Swamp occurs along the northern edge of the created reservoir

Many of the natural features in the study area are considered Key Natural Features in the City of Burlington and Key Features in Halton Region, including wetlands, Significant Woodlands, Significant Wildlife Habitat, fish habitat and watercourses. As a part of the natural landscape of the area, these features are important for their ecological and social value. These features are described in more detail below and are shown on Maps 7, 8a and 8b. Those limits on Map 7 are the limits of the Natural Heritage System. Generally, development and site alteration are not permitted within Key Natural Features and their established buffers, unless such works comply with the permitted uses, and it can be demonstrated that there will be no negative impacts on the feature areas or their ecological and hydrologic functions or linkages as a result of the proposed undertaking (City of Burlington 2020).

In addition to these features, confirmed and candidate habitat of SAR is also present throughout the subject property for a number of species which are governed by the policies of the amended ESA (2007) and the applicable regulations.

The City of Burlington does not prescribe minimum buffers for Key Natural Features, but indicates they are to be determined through the EIA. Buffers are also known in some circumstances (e.g. Greenbelt) as vegetation protection zones (VPZ). Buffers are defined in this EIA (Section 5.7), in response to feature and function sensitivity in relation to the development plans.

Natural heritage features are discussed below in terms of their presence within the subject property, as well as within the study area and conceptual development area in order to assist in framing potential impacts and mitigation measures to be assessed through the EIA.

5.1 Wetlands

Four wetland communities are present within the subject property (Table 5) which encompass five wetland pockets that are each less than 0.5 ha (Map 4). Previously, the small wetlands within the western portion of the subject property were complexed as portions of the Grindstone - Falcon Creeks Headwater PSW (WSP 2018). The current OWES no longer allows the identification of wetland complexes. It instead refers to wetland groupings that are closer together and more functionally related. Under current provincial rules, the wetlands within western portion of the subject property are no longer evaluated as provincially significant (PSW).

Many of the on-site wetlands are associated with modified channels and/or disturbed soil areas (with berming, etc.). Their small size and disturbed character limit their habitat quality. However, some amphibian and reptile species (namely turtles) were noted from the human-made pond (OA). This pond also has a small stand of Buttonbush along its north shore.

With the exception of closely grouped wetlands, single wetland units that are part of a previously evaluated wetland complex can be re-evaluated (re-scored and re-mapped) without requiring a complete re-evaluation of all units in the existing wetland complex (MNRF 2022b).

Two areas of Green Ash swamp (SWD2-2) are present in the northwest portion of the property. Both features have mid-age canopies of ash that are beginning to regenerate after the die-off of the mature canopy because of Emerald Ash Borer. The shrub layer contains a mixture of

European Buckthorn and a small number of Red Osier Dogwood. The groundcover includes Lake Sedge and Sensitive Fern. The overall diversity of these swamp features is low, and both are susceptible to non-native species introductions such as European Common Reed or Glossy Buckthorn due to the proximity to Highway 403 and the cyclical growth and dieback of ash trees. The western feature receives surface water from north of the highway and conveys it to the west while the hydrology of the eastern feature reflects the water level in the reservoir

MNRF Wetlands

The two wetland pockets mapped by the MNRF within the agricultural field west of King Road were not observed to be present during the detailed field surveys (Map 4). The agricultural field has been actively tilled with no evidence of a wetland feature beyond the extent surveyed by NRSI on August 26, 2022.

Conservation Halton Wetlands

Conservation Halton identified a relatively large deciduous swamp feature along the southern boundary of the subject property that extends into the larger wooded area. During the detailed vegetation community mapping, NRSI identified this area to be comprised of Cultural Thicket, dominated by dead and dying White Ash and Cultural Woodland.

Falcon Creek was not observed by NRSI to have any wetland characteristics as it is a creek corridor, with areas of steep banks, exposed banks and limited to no wetland vegetation.

Notwithstanding that the areas of the wetland communities are very small (<2.0 ha), which would normally not be suitable for evaluation, the two wetland clusters were evaluated using the 4th edition of OWES. The full evaluations are appended to this report (see Appendix XII). These evaluations confirm that the on-site wetlands are not provincially significant. The wetlands were included in the wetland evaluation completed by WSP in 2020 as part of the Provincially Significant Grindstone-Falcon Creeks Headwater Wetland Complex; however, onsite surveys were apparently not completed for the 1200 King Road parcel.

The Wetland Evaluation Data Scoring Record (WEDSR) presented here is a revision prepared by NRSI in July 2023 that reflects recent changes made by the Government of Ontario as part of Bill 23, More Homes Built Faster Act which passed in December 2022.

Rationale for Identifying the 1200 King Reservoir Wetland Complex (W2 and W3 associated with the human-made reservoir)

The separation of the wetland units from the former complex is based on the division of natural heritage functions separated by the Highway 403 corridor. The two units within this revised grouping include marsh and swamp communities that are in close proximity (approximately 3 m apart). The two wetland units are separated by a low and narrow berm that may include an equalization culvert (although one was not observed by NRSI biologists in 2022). Since species that are dependent on wetlands could easily move between the units, the two-unit grouping is justified. The wetlands are bounded to the north by Highway 403 with no other wetlands present in the upper reach of the 8.67 ha catchment that would warrant consideration as part of a wetland grouping.

5.2 Significant Woodlands

Woodlands can provide a variety of benefits including soil erosion prevention, nutrient and hydrological cycling, the long-term storage of carbon, and the provision of wildlife habitat (MNR 2010). The protection of woodlands, especially those deemed Significant, is important because the loss of habitat can pose a serious threat to biodiversity (MNR 2010), and valuable ecological benefits may be lost within the landscape.

The western half of the subject property is dominated by intermediate to mature woodlands (in proximity to Falcon Creek), cultural vegetation, thickets, and early successional woodlands that have established on lands that had been historically impacted. Those impacts are exhibited by disturbed soils and waste clay products (e.g., tiles, bricks) and an abundance of invasive buckthorn. There is an area of intermediate to mature deciduous woodland associated with Falcon Creek, as well as a few smaller scattered pockets of older trees along the north property boundary along the Highway 403 right-of-way.



Figure 1. In the general study area around Falcon Creek, a small fragment of woodland was established in 1954 (University of Toronto).

The City of Burlington OP (2020) defines Significant Woodland as a Woodland ≥0.5 ha determined through a site-specific Environmental Impact Assessment, and meeting one or more of the four following criteria: age (patches 99+ years old), size (2 ha+ if located in Urban Area), an interior core area of 4 ha+ or if a major creek is within 50 m of the woodland. The contiguous woodland which includes the Dry-Fresh Oak-Hickory Deciduous Forest (FOD2-2), and Dry-Fresh Oak-Hardwood Deciduous Forest (FOD2-4) was determined to be significant.

Outside those more mature woodlands that are relatively intact, stands of cultural woodland interspersed with cultural thicket occur on highly disturbed landscapes/soils. These areas do not meet reasonable tests of significance. Attachment of significance to these successional features would require that they are ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. These areas have emerged after decades of agro-industrial use and are in many cases infested with non-native trees and shrubs able to establish on the non-viable disrupted soils. The photos below provide an indication of the degree of Buckthorn infestation that was removed from what some believed was important forest cover.



Cultural woodland interspersed with Cultural Thicket (before Buckthorn removal)



Cultural woodland interspersed with Cultural Thicket (after Buckthorn removal)

Significance also applies to areas of natural heritage which are important for their environmental and social values as a legacy of the natural landscapes of an area. These cultural woodlands and cultural thickets do not afford any opportunity to conserve a legacy of the natural landscapes of an area.

According to the City of Burlington OP (2020), the identified woodland feature would represent a Significant Woodland on the basis of age (aerial imagery dating back to 1934 shows established tree cover along Falcon Creek), size (greater than 2 ha) and the presence of a major creek (Falcon Creek) and would be subject to the City's policies governing this form of Natural Heritage Systems. In accordance with the City, development or site alteration within or adjacent to (i.e., within 120 m of) Significant Woodlands is prohibited unless it has been demonstrated that there will be no negative impacts on the natural feature or ecological functions (Halton Region 2022, City of Burlington 2020). The development plan has been designed to avoid and to minimize negative impacts to the significant woodlands on the subject property (recognizing the municipal requirement for the east-west Street A (Parkway Link). A range of enhancement measures will increase the intact native woodland size within the subject property compared with existing conditions. This analysis is provided throughout the impact assessment in Section 6 below.

5.3 Habitat of Endangered and Threatened Species

Based on the results of the wildlife inventories completed as part of this study, a number of SAR were identified as occurring or potentially occurring within the study area and subject property, including Butternut, Bobolink and candidate bat SAR. These species and provincial policy considerations are described in further detail below.

Butternut

All six Butternut trees observed are classified as Category 1 and are not afforded protections under the *ESA*.

Bobolink

Although not observed during breeding bird surveys completed during 2022, Bobolink were observed within the subject property incidentally during field surveys in June 2024. It was observed that the meadow vegetation is seasonally cut by a tenant farmer. Given that these habitats are considered to be agricultural in nature, Section 4.1 of O.Reg.242/08 allows for agricultural operations to continue where this species occurs on the landscape. As such, the open fields are not considered to be SAR habitat for Bobolink protected by the ESA.

Species at Risk Bats

Bat habitat assessments identified 176 potential roost trees for Little Brown Myotis, Northern Myotis and Silver-haired Bat, as well as 10 potential roost trees for Tri-colored Bat within the

subject property. Passive acoustic monitoring was undertaken to determine if these trees provide bat habitat within the subject property and, if so, identify which species are utilizing this potential habitat.

5.3.1 SAR Bat Maternity Habitat

The MECP has identified that maternity habitat for SAR bats is protected by the ESA, and includes the occupied roosting feature(s) as well as the area within 1 km of the roosting features which may be relied upon for rearing pups (MECP 2025), such as foraging and drinking resources. Within open agricultural lands, bat activity is highly concentrated along the edges of wooded features, particularly within 40 m of the edge (Jantzen and Fenton 2013). As a result, the meadow agricultural lands may be considered as rearing habitat if located within 1 km of a maternity roost.

An analysis of the presence of maternity roosting and rearing habitat for each SAR bat detected at the property is included below.

- Eastern Small-footed Myotis: Potential roosting habitats (whether rocky or buildings) are absent from within the subject property, however it was documented during acoustic monitoring. The timing of recordings identified to this species and to unidentified *Myotis* suggests that this species likely forages and drinks within the forest, as few recordings were made within the first hour of sunset, increasing steadily in abundance until later in the evening. Since recordings close to emergence time were relatively few but consistently increasing in number on a regular basis, it is possible that a maternity colony could be located within 1km of the site, and thus the natural areas may provide habitat relied upon for rearing pups. Habitat for this species is shown on Map 8a.
- Little Brown Myotis: While a similar number of call sequences of Little Brown Myotis were recorded as of Eastern Small-footed Myotis, very few were recorded within the first hour after sunset, and the majority were recorded later in the night. As a result, this species is not likely maternity roosting within 1 km of the subject property.
- Northern Myotis: Only one call sequence of this species was identified and as a result, it likely represents a transient individual flying by the detector on one occasion.
- Silver-haired Bat: The timing pattern of recorded call sequences of Silver-haired Bats was observed to be similar to that of Eastern Small-footed Myotis. Small numbers of recordings were made within one hour after sunset, with steadily increasing numbers

later into the evening. As a result, although maternity roosting habitat is unlikely to be present, the natural areas on the subject property may provide habitat relied upon for rearing pups. Maternity habitat for this species is shown on Map 8a.

- Eastern Red Bat: In NRSI's experience the earliest recordings of this species are often made within the first few minutes after sunset, suggesting that areas containing roosting Eastern Red Bat can be expected to record this species very early in the evening. This species was recorded within 10 minutes of sunset in the FOD2-2, FOD2-4, and the large southwestern CUW1 (communities 6, 7, and 10 as identified on Map 5). Eastern Red Bat was also recorded within 10 minutes of sunset at the Open Aquatic pond (community 12 on Map 5), though it is most likely these represented bats roosting elsewhere on the property who have quickly arrived to drink from the pond. The species was also recorded in large numbers beginning as early as 22 minutes after sunset on a consistent basis within the CUW1 along the east side of the large forest (community 4 on Map 5). Eastern Red Bat roosts solitarily with their young, so we are not able to differentiate between individual male or reproductive females who may be roosting. As a result, these areas (community 4, 6, 7, and 10) have been identified as maternity roosting, and their associated rearing habitat likewise identified within the remainder of the property, which entirely falls within 1 km of the roosting areas (Map 8b).
- Hoary Bat: As with Eastern Red Bat, in NRSI's experience the earliest recordings of this species are often made within the first few minutes of sunset, and the species also maternity roosts solitarily with young. Hoary Bat was not recorded within 10 minutes of sunset at any station within the subject property. Recordings made within 30 minutes of sunset were relatively low and inconsistently recorded through the duration of monitoring. While recordings of the species were documented in greater numbers later into the evening, the species is not likely roosting within 1km with any regularity. As a result, maternity habitat for this species has not been identified.

5.3.2 SAR Migratory Bat Stopover Habitat

Stopover habitats for Silver-haired Bat, Eastern Red Bat, and Hoary Bat are treed areas or buildings relied upon by multiple individuals for roosting and foraging before carrying on with another stage of their long-distance migration. In Ontario, Long Point on Lake Erie is known to be a provincially significant stopover area for migratory bats (MNRF 2015b), however, other areas are under-studied. There is currently no guidance available from the province for identifying or surveying for migratory stopover habitat.

Reports of these species in Ontario during late fall (October-November) and early spring (March-April) are generally restricted to areas within 5 km of the Great Lakes and their connecting rivers, with increasing abundance of observations reported within closer proximity to the shoreline, and frequently on points of land (iNaturalist Community 2025).

As the subject property is approximately 1.8 km from the Lake Ontario shoreline, it is possible that the woodland and other trees within the subject property may be used by migratory bats stopping over during migration.

In addition to the occupied feature (e.g., the trees within the subject property), any migratory stopover habitat is also considered by MECP to include areas within 1 km that are required for staging (MECP 2025), such as foraging and drinking resources, which could be found throughout the larger natural feature, including up to 40m from the forest and thicket habitat edges into the meadow communities (Jantzen and Fenton 2013). The area identified as potential migratory stopover habitat for Eastern Red Bat, Silver-haired Bat, and Hoary Bat is shown on Map 8b.

5.3.3 SAR Migratory Bat Overwintering Habitat

While no underground hibernacula for Little Brown Myotis, Northern Myotis, Eastern Small-footed Myotis, or Tri-colored Bat are located within or within 1 km of the subject property, overwintering habitat for Eastern Red Bat and Silver-haired Bat may be present.

Eastern Red Bat is known to overwinter in leaf litter in regions with moderate winters such as the mid- and south-latitude United States (COSEWIC 2023). However, Eastern Red Bat has also recently been documented in areas within 5 km of the north shore of Lake Erie in Ontario in December and January (iNaturalist Community 2025). Since the subject property is approximately 1.8 km from Lake Ontario (which may have a moderating effect), it is possible that Eastern Red Bat may overwinter in leaf litter within woody habitats containing trapped leaf litter in years with moderate or mild winters.

Silver-haired Bat overwinters in mines, rock crevices, trees, and snags (COSEWIC 2023), as well as on or in buildings (iNaturalist Community 2025). Silver-haired Bat is known to occasionally overwinter within the Great Lakes region, though they primarily overwinter further south in the United States and in more moderate regions of Canada, such as southeastern British Columbia (COSEWIC 2023). The species has been documented in small numbers

throughout winter in Ontario near the Great Lakes; primarily in areas less than 5 km from Lake Erie. However, Silver-haired Bat has also been documented at Presqu'ile on Lake Ontario in the winter months in recent years (iNaturalist Community 2025). Given the subject property is within 5km of Lake Ontario, it is possible that Silver-haired Bat may be overwintering in trees within the subject property in years with moderate or mild winters.

The area of overwintering habitat for migratory bat species including Eastern Red Bat and Silver-haired Bat is considered by MECP to include all area within 25 m from the occupied feature (MECP 2025). Potential overwintering habitat for Eastern Red Bat and Silver-haired Bat is shown on Map 8b.

Little is known about the winter ecology of Hoary Bat, but they are primarily found in warmer climates of the United States during the winter months (COSEWIC 2023). Hoary Bat is generally not observed in Ontario between November and April (iNaturalist Community 2025, NRSI unpublished data).

The Endangered Species Act is currently being repealed through Bill 5 and is planned to be replaced by the Species Conservation Act (SCA) which will provide a revised definition of 'habitat' and new regulations for protection of SAR. The applicable and in-force legislation for protection of SAR bats will be adhered to and will be further assessed closer to the initiation of development.

5.4 Significant Wildlife Habitat and Linkages

Significant Wildlife Habitat has the potential to be present within the subject property (Appendix III). The locations of confirmed SWH are shown on Maps 7, 8a and 8b, the bulk of which are located within areas conserved as natural features.

5.4.1 Seasonal Concentration Areas

Turtle Wintering Area (Confirmed)

Snapping Turtle and Midland Painted Turtle were confirmed overwintering in the human-made pond (OA) in the western half of the subject property. Given that the pond is well-established (i.e., 50+ years old), naturalized, is habitat to high numbers of turtles, and it represents one of the few open water features in the adjacent landscape, this pond is confirmed as SWH. The turtles present in this pond depend on this habitat for overwintering, and considerations for the protection and enhancement of this feature are described further within this report.

Bat Maternity Colonies SWH (Candidate)

Candidate Bat Maternity Colony Significant Wildlife Habitat is identified where >10/ha, large-diameter (>25 cm DBH) potential (i.e. containing cavities, crevices or exfoliating bark) occur within mature deciduous or mixed forest stands (FOD, FOM, SWD, SWM). If Candidate SWH for Bat Maternity Colonies is present, it is considered significant if a maternity colony is present which consists of >10 Big Brown Bats or >5 adult female Silver-haired Bats (MNRF 2015).

Based on the results of the bat habitat assessments (outlined in Table 6), two communities meet the criteria for candidate Bat Maternity Colonies SWH: the central FOD2-2 and FOD2-4 communities. Considering the proposed removal of trees within the FOD2-4 community, evaluation of the community's significance was completed through visual exit surveys. Despite suitable weather conditions, no bats were observed emerging from, nor entering any of the 10 surveyed trees. As a result, FOD2-4 does not provide Bat Maternity Colony Habitat Significant Wildlife Habitat. Visual exit surveys were not completed within the FOD2-2 community as part of the field program; therefore, FOD2-2 is considered candidate Bat Maternity Colonies SWH for the purposes of this report.

5.4.2 Rare Vegetation Communities

A small, provincially rare Buttonbush mineral thicket swamp occurs on the northern edges of the created/naturalized pond.

5.4.3 Specialized Wildlife Habitat

No specialized wildlife habitats were identified within the subject property or study area. Incidental observations on these lands in the fall suggest the open water and adjacent treed swamp are locally important for migratory bird stopover.

5.4.4 Habitat for Species of Conservation Concern

Species of Conservation Concern are those with a provincial S-rank of S1 to S3, those listed as species of Special Concern provincially, or species listed as Endangered or Threatened nationally with no provincial designation (i.e., not protected by the ESA). Confirmed habitat for SCC may be considered Significant Wildlife Habitat (MNR 2000). Based on the results of wildlife-specific field surveys, a number of Species of Conservation Concern were identified. These species and their habitats are considered in terms of significance, below.

Eastern Wood-Pewee

A single Eastern Wood-Pewee was observed to be 'possibly' breeding within the higher quality FOD communities of the subject property. However, given the isolated nature of the woodland features and the presence of much higher quality woodlands (both in terms of size and composition) north of Highway 403, coupled with the low number of Eastern Wood-Pewee observed, this habitat is not considered to be SWH. General considerations for this species are provided within this report in terms of necessary mitigation measures related to construction activities.

Snapping Turtle

Snapping Turtles were observed throughout the field season in the human-made pond, sometimes in high numbers. As detailed above, this naturalized pond is important in the local landscape and this population of Snapping Turtles is dependent on it as habitat. Turtle nesting areas were not confirmed despite extensive searches. It is likely nesting activities occur nearby on CN lands, where south facing slopes and suitable nesting soils occur.

Monarch

Milkweed is present within the CUW1 and CUM1 communities and this species is likely breeding in low numbers on the site. However, given the low quality of the meadow and woodland habitat where the Milkweed is located (presence of invasive species, lack of considerable native flowering plant species, proximity to busy roads, lack of nearby shelter), these areas should not be considered to be SWH. Nonetheless, opportunities for maintaining and improving Monarch habitat on this site are available and include Milkweed plantings of similar size/density in available vegetation protection zones to maintain the abundance of milkweed for larval development and adult nectaring, on this site.

5.5 Aquatic Habitats

Fish habitat, as defined in the federal *Fisheries Act*, are those parts of the environment on which fish depend, directly or indirectly, in order to carry out their life processes. Within the subject property four watercourses were characterized during summer 2022 field surveys. Each of the four on-site watercourses were characterized as ephemeral or temporary with variable flow regimes, drying up completely during the summer of 2022. Beyond low water depths and dry conditions there are no direct barriers to fish passage within the on-site watercourses, the potential for a resident fish population exists in the human-made pond habitat and within

watercourse reaches upstream of the subject property. No significant fish species are known from these habitats and the results of the field assessment concluded that these reaches provide indirect habitats for much of the year.

Each identified water course in the subject property was characterized as a warmwater thermal regime.

5.6 Ecological Linkages

Linkages are considered Key Natural Features by the City of Burlington. As per Schedule M, the subject property does not contain lands designated as Other Enhancement Areas, Linkages and Buffers.

The existing natural and naturalized habitats on the subject property are ecologically isolated from other similar habitats. Highway 403 creates a substantial separation for the movement of wildlife, in terms of distance, potential wildlife/vehicular collisions, and lengthy, dark culverts. These effectively isolate the subject property from any habitats to the north. On the south side of Highway 403, the site is also isolated from other natural habitats. The lands to the west are also developed. To some degree the CN lands provide a pathway for connectivity, although the viability is affected by the frequency of trains and shunting activities. The existing surrounding developed lands are dominated by dense commercial and employment lands, with limited greenspace.

The history of the lands is evident in the current vegetation communities. As discussed earlier in this report, and detailed in Cambium (2024a), there is evidence of historical brickworks throughout the site, such as waste bricks, discarded clay-based articles (pipes, etc.), berming, channelization and damming of watercourses, as well as more current unauthorized uses with associated trails, debris, garbage and encampments.

These historical and ongoing influences are reflected in a number of ways, such as the successional nature of most of the vegetation, especially the thickets and cultural woodlands in the west, disruption of drainage by berms, channelization, dams, as well as the proliferation of invasive species. A noise analysis is being completed by Valcoustics. From a wildlife perspective, substantial noise levels occur throughout the site originating from Highway 403. Noise levels can affect some life behaviours (e.g., songbird calls/mating).

5.7 Development Limit and Buffer Discussion

Development constraints include:

- Significant Woodlands
- Important Wetlands Grouping
- Endangered Bat species reliant on Significant Woodlands
- Species at Risk and Significant Wildlife Habitat

Limits of woodland and wetlands have been staked and agreed upon by the City, Conservation Halton and Alinea representatives. To ensure those limits remain intact and that the natural areas remain unaffected by direct and indirect activities, buffers have been identified to add a layer of protection on the external faces of features that will interact with development.

Buffers are an important part of helping to manage impacts, including access to natural features. Minimum buffers or VPZs are not prescribed within the City of Burlington Official Plan within the City NHS limits and buffers are to be determined through the completion of the EIA in order to ensure no negative impacts from the development, as per policy 4.2.2.m.ii (City of Burlington 2025). Typical considerations for buffer widths include: the area and nature of the feature being protected, the nature of the anticipated adjacent land use, the functions that the buffer is expected to perform, and the local biophysical context (e.g., slopes, soils, surface drainage, groundwater conditions and flows) (Beacon 2012).

Buffers are more effective with well-designed fencing/barriers, controlled access points and readily available information about the importance and sensitivity of natural areas. Colucent has studied buffers in relation to adjacent land uses and has found little evidence that wide buffers limit access. In fact, wider buffers have been observed in some situations to be an attractant for a network of random trails.

Buffers were analyzed based upon an assessment of the natural heritage features and functions and their relative importance and sensitivity to changes in land use and development activities. Table 8 provides an illustration of the steps taken and conclusions reached regarding how best to mitigate impacts associated with the proposed development.

It is apparent in Appendix XIV that buffers are an important aspect of impact mitigation for several more sensitive characteristics and functions, including:

- Moderation of risks and natural hazards,
- Biological diversity,

- Vegetation community structure,
- Species Richness,
- Biological Productivity,
- Some wildlife habitat and occurrences,
- Source and sustainability of water (most influenced by the SWM strategy), and
- Contributions to human access management

When planned, designed and implemented precisely, buffers can contribute to:

- Temperature and quality control for areas receiving overland runoff,
- Managing pedestrian access to natural features, while contributing to fostering community stewardship of natural features, and
- Protecting the integrity of edges of vegetation communities.

Buffers are one part of the larger package of mitigation measures which include stormwater management and erosion control.

With this context, natural feature significance, and an understanding of their sensitivity to impacts, final buffer recommendations have been provided in Table 8 for ease of reference.

Both the City and CH consider wetlands (e.g., in terms of Natural Heritage System and hazards respectively). The CA Act, in conjunction with Ontario Regulation 41/24, are the key tools in fulfilling the CH mandate because they prevent or restrict development activity in areas where the control of flooding, erosion, dynamic beaches, unstable soil or bedrock may be affected by development.

Under Ontario Regulation 41/24, CH regulates all watercourses, valleylands, wetlands, Lake Ontario Shoreline, hazardous lands and unstable soil and bedrock, as well as lands adjacent to these features. A permit is required from CH prior to undertaking any development within CH's regulated area. Permit applications are reviewed under Section 2 of CH's Policies and Guidelines for the Administration of Ontario Regulation 41/24, as well as within 30 m from a wetland, except where:

- allowed under Policies 2.4-2.46 (inclusive), and
- the wetland limit is to be established in the field in conjunction with Conservation Halton staff, staff from the local municipality (if necessary) and the applicant.

CH requires that an area of permanent, self-sustaining vegetation be established within the regulatory allowance and within other areas adjacent to wetlands to mitigate flooding and erosion impacts by stabilizing soils, maintaining hydrologic conditions, and supporting the hydrologic function of wetlands; put simply, CH regulated wetlands with a 30m limit. That 30m can be reduced to 15m, however, upon demonstration of the maintenance of hydrological conditions.

CH no longer participates in land use review and has shifted its focus to the administration and impact of its regulations. In summary, CH regulates wetlands with a standard 30 m limit, which may be reduced to 15 m, provided a permit application is submitted and it can be demonstrated that there will be no hydrological impact. CH does not refer to these areas as buffers.

Table 8. Buffer recommendations and rationale.

NHS Element	Location	Refined Science Based Buffers
Wetlands	Western Wetland Grouping South side, abutting Street A (OA, SWD4)	• The alignment of Street A was selected after a multidisciplinary review of alternatives. More northern alternatives, while minimizing impacts on the wetland grouping would have included a crossing through the widest and most intact portion of the forested Falcon Creek Valley. Direct and indirect impacts would have been substantial in the most intact natural area on the subject property. • Impacts from Street A will include the removal of the southern edges of both the OA features and the treed swamp. A buffer along the cut edge would afford no additional impact mitigation from the proposed works. • Any development adjacent to other sides of the wetland grouping (e.g., western portions of Block 8) include a 30 m buffer from the limits of proximate wetland areas

		SWD4 and the OA due to SWH (Turtle Overwintering).
	Western Wetlands North side adjacent to Hwy. 403 (SWD2-2, MAM2-6)	• 15 m because these wetlands are not Provincially Significant, do not contain SWH and do not provide SAR habitat.
Woodlands	Falcon Creek Woodlands (FOD2-2, FOD 2-4)	• North and southern edges: 10 m from FOD2-2 limit Dripline • North and southern edges: 10 m from FOD2-4 limit Dripline • West edge: 10 m from Dripline (enhancement area, no proposed development and therefore buffers are not specifically required. This 10 m buffer is identified to ensure large trees with widely spreading rooting systems are not negatively impacted by enhancement measures: (i.e., there are larger, more mature trees along this edge)
	Western Woodland (FOD2-2	• 10 m buffer recommended, although much of this feature falls within the larger 15 m buffer from the adjacent wetlands.
Watercourses	Blocks 18, 19, 20 Indian Creek Realignment and Natural Channel Design	• Urbantech and GEO Morphix are developing a hydrological and natural channel design to meet hydrologic requitements and to create additional specialized ecological habitat on the floor of that channel (subsequent detailed design required). Ecological buffers are built into the channel designs, as appropriate.
	Grindstone Creek Tributary and Falcon Creek	• 15 m from CH's regulated limits (flooding and erosion hazards) as these provide indirect fish habitat.

Beyond potential direct and indirect impacts associated with construction activities, noise and physical disturbances associated with increased human presence in the area was the primary

Within available literature (e.g. Woodard and Rock 1995; Schueler 2000; Matteo et al. 2006) average buffer recommendations are between 10 m and 40 m for maintaining watercourse water quality, with an average single recommendation of about 30 m for watercourses. For aquatic habitat protection, average buffer recommendations range between 10 m and 75 m, with an average single recommendation of about 50 m depending on the significance of the feature. Given the disturbed nature of the natural features within the subject property, such extensive buffers are not deemed to be necessary. Discussions with Conservation Halton will allow the refinement and confirmation of riparian buffers.

In Ontario, the critical tree protection zone is typically measured from the base of the trunk to the external tree dripline (Beacon 2012). A commonly applied minimum buffer to the tree dripline is 10 m (e.g. Region of Waterloo, City of Guelph, etc.). Woodland buffers are almost always narrower in width than wetland buffers and are based on protecting the critical tree root zone and reducing edge effects.

Given the constraints related to establishing a necessary east-west Street A (Parkway Link), in some areas, the application of these VPZs will not be possible, given that woodland and wetland removal, as well as crossings/realignment of the watercourses is proposed (see Section 6.1 for a description of these undertakings).

The finalized buffers will protect the form and function of the significant natural features of the subject property and the species that inhabit them, while allowing for development near areas that are generally lower-quality and degraded. The buffers will also allow for strategic area grading to occur to maintain water inputs to wetlands while protecting and enhancing natural.

6.0 Impact Analysis

NRSI worked closely with the study team to ensure the proposed development was designed to minimize impacts to significant natural features within the subject property and adjacent lands. This impact analysis provides an assessment of potential impacts as a result of both the anticipated development blocks as well as for the east-west Street A (Parkway Link) that is planned to traverse the south end of the subject property.

The following is a description of the types of impacts which are discussed.

- Direct impacts to the natural features on the subject property associated with disruption or displacement caused by the 'footprint' of the undertaking;
- Indirect impacts associated with changes in site conditions such as drainage and water quantity/quality;
- Induced impacts associated with impacts after the development is constructed such as subsequent demand on the resources created by increased habitation/use of the area and vicinity; and
- Cumulative impacts as a result of incremental impacts of multiple or successive developments.

6.1 Proposed Undertaking

A Master Plan has been prepared by Giannone Petricone Associates (GPA 2025), which comprises mixed-use employment, mixed-use residential, high density residential, and several park areas including a centrally located park. An Education Campus/Commercial node, Residential and the Future Development Block are included in the western portion of the property. The locations of the development blocks have been determined in conjunction with the boundaries of the NHS which includes Significant Woodland and wetlands and their respective VPZs (Section 5.7). A conceptual trail network is also proposed that will connect the parkland within the subject property to the campus/residential block further west via the woodland areas. The feasibility of a trail in these natural areas will be further assessed as part of the Environmental Implementation Report (EIR) to be prepared at the detailed design stage of the project. Preliminary recommendations related to trail design principles are provided in section 6.7.

An east-west Street A (Parkway Link) is proposed to connect King Road to Aldershot GO Station and is considered essential infrastructure. NRSI and Colucent participated in an

assessment and evaluation of the preferred path for the east-west Street A (Parkway Link). That iterative planning and design process involved a review of the following environmental criteria:

- Current biophysical character and sensitivity;
- The presence of wetland groupings;
- The potential presence of species at risk (e.g., bats);
- Areas of existing disturbance where further removal of natural features would not aggravate fragmentation; and
- The areas where a road crossing would have the least impact on the Significant Woodlands along Falcon Creek.

Initially, there were three alternative alignments proposed for the east-west Street A (Parkway Link). The first alignment followed the northern boundary of the property, which would have resulted in the removals of much of the eastern SWD2-2, the smaller FOD2-2, both MAM2-6 communities, the northern boundary of the larger FOD2-2 and across Falcon Creek in a section that is wide with well defined, steep banks.

The second alignment was centrally located and would cut through and fragment the central wetland grouping north of the human-made pond (including the Buttonbush thicket section), the high-quality woodlands and across Falcon Creek in a section that is wide and well defined with steep banks.

The third alignment, and the one proposed in the Master Plan, follows the southern boundary of the subject property where it is more disturbed and impacts will be lessened to wetlands (avoids the Buttonbush Thicket) and Falcon Creek, which flattens in this area. It also cuts through the narrowest portion of the Significant Woodland. The Master Plan features enhanced and preserved natural features in the western portion of the subject property. Tylin (2026) also provides justification for this alignment from a traffic perspective.

The evaluation clearly demonstrated that the third alignment, and the one proposed in the Master Plan, is the only alignment that adequately protects natural heritage features for the long term, minimizes negative impacts on wetlands, Significant Woodlands, potential SAR habitat, and Falcon Creek, and maintains ecological function and connectivity.

6.2 Stormwater Management Approach

The proposed approach to SWM is detailed within the *Enhanced Functional Servicing and Stormwater Management* report prepared by Urbantech (2026). In general, the majority of stormwater within the development between Falcon Creek and King Road will be conveyed to two stormwater ponds, which are situated in the southeast corner of the subject property on both sides of Indian Creek. The residential block located directly to the east of Falcon Creek will outlet directly to Falcon Creek with appropriate controls. The residential block and mixed-use employment block between Grindstone Creek and Falcon Creek will outlet to Grindstone Creek with appropriate controls. Storage for the Falcon Creek and Grindstone Creek catchments will be provided through the use of a combination of underground storage tanks, super pipes and LIDs.

Quality control will be provided using two SWM Ponds for Indian Creek, and a combination of Oil and Grit Separators (OGS) and Catch Basin (CB) shield devices for the roads, and a Jellyfish filter in buildings. For the SWM Ponds, enhanced water quality protection through the removal of 80% of total suspended solids (TSS) will be provided. TSS removal rate for the combination of OGS and CB shields would be 75%, and the jellyfish filter will provide 87.6% TSS removal rate.

A discussion of water balance for this site based on the hydrogeological report is provided in Section 6.5.1 below.

6.3 Approach to Impact Analysis

Potential impacts arising from the proposed undertaking were determined by comparing the details of the proposed undertaking, including the site plan, grading details, storm water management (SWM) plans, geotechnical information, the hydrogeological assessment, and any other components of the development, with the characteristics of the existing natural features and their functions. Where the development proposal overlaps or is in close proximity with the natural features, impacts may arise.

This EIA has considered different types of predicted effects (i.e., direct, indirect, induced, and cumulative) and various mitigation measures that are available and proven to address predicted impacts.

The mitigation hierarchy typically includes the following common steps:

- Avoidance;
- Minimization;
- Restoration/enhancement; and
- Creation.

Avoidance is often the first mitigation measure to consider (e.g., in this case, selecting an east-west Street A (Parkway Link) alignment that avoids more significant and sensitive features). In some cases, where features are required to be removed to accommodate development, impacts can be minimized through actions such as design modifications and best practices in impact assessment (e.g., tree protection planning). Restoration is used to improve conditions in retained features (e.g., removal of invasive species). In addition to restoration/enhancement measures, creation may also be required to address any residual impacts that are not fully addressed by avoidance, minimization, and restoration/enhancement (e.g., habitat creation, biodiversity enhancement).

The Natural Heritage Reference Manual provides guidance and clarification as to the identification of no negative impacts. The result of this process is the identification of potential residual negative impacts, including the analysis of whether these are significant.

6.4 Direct Impacts

The approach to identifying and delineating the natural features and associated buffers was aimed at avoiding direct impacts from development on important natural features. The following is a list of potential sources of direct impacts associated with the proposed development:

- Tree and vegetation removal;
- Site grading;
- Impacts to wetlands;
- Alteration of watercourses; and
- Wildlife habitat impacts.

6.4.1 Tree and Vegetation Removal

Although the development plan, including the east-west Street A (Parkway Link) has been designed to avoid much of the NHS, tree and vegetation removal is anticipated where the plan overlaps with treed areas. The primary areas of tree removal are anticipated to be in conjunction with the east-west Street A (Parkway Link) that traverses the southern portion of the site, although some isolated tree and vegetation removal is also anticipated within the

development blocks. Street A may also require additional SWM infrastructure to be located in thicket or buffer areas abutting the road and will be assessed once more detailed plans are available. In accordance with the City's Official Plan (policy 4.2.2 m(ii)) no negative impacts are anticipated to vegetation communities that are part of the NHS on the subject property due to the proposed development, except where Street A (essential infrastructure) is proposed (City of Burlington 2025).

Tree removal also has the potential to be required for the establishment of a trail network throughout the site, although details related to the precise location and specifications of the trail are conceptual at this time. A Tree Inventory and Preservation Plan will be undertaken as a condition of Draft Plan approval to detail the specifics of tree removal and necessary compensation. In the meantime, as detailed in Section 3.2, a tree density and assessment were undertaken to provide an estimate of expected tree removal as a result of this development (Appendix XIII).

In addition, vegetation removal of shrubbery and groundcover associated with wetland, thicket, and meadow areas is also anticipated and is summarized in Table 9 in terms of approximate areas (ha).

A Vegetation Management Plan (Appendix XV) was prepared and submitted to the City to outline the removal and management of the dense central buckthorn thicket where Block 8 is proposed. Buckthorn removals were carried out in November 2025.

Table 9. Summary of Direct Impacts to Vegetation from the Proposed Work

Proposed Impact	ELC Ecosite Removal in Hectares											
	CUM1	CUT1	CUT1-4	CUW1	FOD2-2	FOD2-4	SWD2-2	SWD4	MAM2	OA	SWT2-2	MAM2-6
Street A (Parkway Link)	1.64	0.28	0.16	1.76	0	0.57	0	0.15	0	0.04	0	0
Residential Node (westernmost) (Block 14)	0.12	0	0.04	0.62	0	0	0	0	0	0	0	0
Education Campus/Commercial Node (Block 8)	0	2.76	0	0.28	0	0	0	0	0	0	0.03	0
Residential Node (Central) Blocks 9-13, 26	8.28	1.10	0	0.99	0	0	0	0	0	0	0	0
Central Park (Block 15)	2.03	0	0	0	0	0	0	0	0	0	0	0
Entertainment District (Block 5)	2.63	0.30	0	0	0	0	0	0	0	0	0	0
Education Campus Node (Blocks 6-7)	1.46	0	0	0	0	0	0	0	0	0	0	0
Retail/Mixed Use Node (Blocks 1-4)	0.61	1.15	0	0	0	0	0	0	0.13	0	0	0
Total	**16.77**	**5.59**	**0.20**	**3.65**	**0**	**0.57**	**0**	**0.15**	**0.13**	**0.04**	**0.03**	**0**

The proposed development will result in the removal of 26.21 ha of successional habitat (i.e. CUM/CUT/CUW communities; Table 9). These communities lack significant features and in some cases are infested with invasive species, notably the buckthorn thickets. The Cultural Meadows (CUM) are largely in the east end of the subject property and are proposed to be removed in its entirety. The Cultural Thickets are largely in the western portion of the subject property and much of them are proposed to be removed, although the remaining portions will either be restored/enhanced, managed for invasive species or are proposed for creation of new habitat (i.e. wetlands and woodlands) (see Section 7). Cultural Woodlands (CUW) are also proposed to be removed in the western half of the property. These are successional woodlands consisting mainly of Manitoba Maple and Black Walnut and have been influenced by people over the years; there are BMX trails, hiking trails, old foundations and encampments scattered throughout. The majority of the existing higher quality FOD woodlands will be retained and adequately buffered from the development.

The east-west Street A (Parkway Link) will mainly transect cultural woodland and thickets, although it will also require tree removals through the southern portion of the oak-hardwood forest (FOD2-4). Care will need to be taken to ensure that trees to be retained within this feature that are immediately adjacent will not be impacted, as detailed by the mitigation measures below. Any trees that are identified as hazard trees or may become hazard trees due to the adjacent tree removal will be identified by an arborist during the tree inventory of these areas. Recommendations for edge management are described further under indirect impacts in Section 6.6 below.

A preliminary estimate suggests that 1,985 trees will be removed (Appendix XIII), but this will be further refined through the Tree Preservation Plan at detailed design.

Mitigation

- *The limit of development should be clearly delineated in the field prior to construction beginning;*
- *Prior to construction work starting examination of work area by qualified professional and relocation of any wildlife;*
- *Temporary Tree Protection Fencing (TPF) should be installed along the buffers to woodlands adjacent to the proposed development. TPF must be installed and*

inspected by a qualified professional prior to construction and maintained during construction;

- *Any limbs or roots of trees to be retained which are damaged during construction should be pruned using appropriate arboricultural techniques. Hazard trees should be identified by a qualified professional and removed as warranted;*
- *TPF should be inspected on a regular basis by an Environmental Inspector or qualified biologist and should be inspected by a qualified professional to ensure no roots or limbs are damaged during installation;*
- *The limit of construction should be inspected by a qualified professional on a regular basis to document any potential negative impacts to the woodlands (e.g., construction garbage, ineffective boundary markings, erosion, etc.);*
- *A qualified professional is recommended to be on-site during tree removal and construction activities in the area of the Parkway Link until the areas are deemed to be stable and additional impacts to trees are not anticipated;*
- *Final details of the vegetation to be removed, vegetation to be retained, compensation and specific mitigation strategies (e.g., tree protection fencing) should be included in the TPP and subsequent EIA/EIRs that are forthcoming;*
- *Locally significant species to Halton Region should be retained or transplanted when possible;*
- *Suitable, regionally native species should be selected for planting, and these should be maintained appropriately; and*
- *A Forest Management Plan will be required at plan of subdivision stage of development for woodlands impacted by Street A.*

6.4.2 Site Grading

A grading plan has been prepared by Urbantech in conjunction with the storm, sanitary, and water servicing system design for the development (2026). Site grading is required throughout much of the eastern half of the subject property. The site grading plan has been overlayed with the vegetation community mapping to identify areas of potential impact (Map 11). All recommended buffers for features to be retained have been adhered to, and grading is anticipated to be located outside of wetland and Significant Woodland areas and will be largely restricted to areas of thicket dominated by buckthorn or the cultural meadows in the eastern section of the subject property. The exception to this is the east-west Street A (Parkway Link)

which will require grading within the southern fringe of the OA, SWD4 and FOD2-4 features, as well as areas that are under consideration for earth filling (Urbantech 2026; GRD1, GRD2 and GRD3). Negative impacts to these features can be minimized through the targeted mitigation strategies outlined below.

Mitigation

- *The limit of grading should be protected by heavy-duty silt fencing in areas around isolated features or isolated trees to be retained;*
- *Any cutting or filling on site will match existing grades at buffer limits;*
- *A double layer of heavy-duty ESC fencing is to be installed in areas adjacent to wetlands, watercourses, and any additional areas where sediment and erosion concerns are more likely to occur (i.e., slopes, top of bank features, etc.);*
- *The Tree Preservation Plan should identify specific requirements for trees along the grading limits of Street A to ensure impacts to trees are avoided within the FOD2-4 feature, wherever possible;*
- *The impact analysis is to be revised at the Draft Plan stage following completion of detailed grading plans associated with trails and Street A; and*
- *Grading areas are to be revegetated as soon as possible, or within 30 days of site works being inactive, to minimize erosion and should comprise of an herbaceous seed mix that is complementary to the surrounding vegetation communities.*

6.4.3 Impacts to Wetlands

The proposed development plan will have an impact on non-provincially significant wetlands (total wetland area of 0.31 ha). Minor removals include a small meadow marsh (MAM2; 0.13 ha) in the eastern end of the subject property, the small willow mineral thicket swamp (SWT2-2; 0.03 ha) where Block 8 is proposed, as well as small portions of both the deciduous swamp (SWD4; 0.15 ha) and the human-made pond (OA; 0.04 ha) in the western portion of the site to facilitate Street A. These wetlands are not considered to be Key Natural Heritage features under policy 4.2.2.e (i) (City of Burlington 2025), although they are considered to be a component of the City NHS. As identified under policy 4.2.2 m (ii), development is only permitted within the NHS providing it can be demonstrated that there will be no negative impacts. The small meadow marsh (MAM2) and thicket swamp (SWT2-2) are very small, isolated in nature, and as detailed within this EIA, do not contain significant habitats or species

that would warrant protection. As such, impacts to the NHS and its function are not expected as a result of the removal of these small wetland features.

The alignment of the east-west Street A (Parkway Link) was designed to minimize impacts to these swamp and pond and their necessary VPZs, although a small overlap with both the SWD4 and the pond will occur along the southern fringe of these features (Map 7). The Buttonbush thicket swamp feature of the pond is not anticipated to be affected by development. CH's policy 2.36.5 states that development activities proposed within 15 m and 30 m of a wetland less than 2 ha in size must be supported by a hydrogeological evaluation (please see Terra-Dynamics 2026a). Wetland impacts are anticipated to be minimal, aside from Street A, which is considered public infrastructure and falls under CH's policy 2.44 which recognizes the need for public infrastructure to cross CH regulated features when there is no reasonable alternative (see Section 6.1 above) and the area of construction disturbance will be kept to a minimum (see Urbantech 2026).

A detailed enhancement plan will be prepared, as per Section 7 of this report, which will include wetland creation to offset for the removals of the aforementioned wetlands. Future plans will identify the specific areas and nature of the enhancements, as well as mitigation measures to avoid impacts during these works.

Mitigation

- *Removal of wetlands will require a permit with CH under O.Reg 41/24;*
- *To provide an enhanced post-development condition, wetland habitat creation should include a high diversity of native plants;*
- *Construction timing in wetlands should be targeted for winter months to the greatest extent possible when vegetation is dormant and water flows are minimal. The area of in-water/wetland work is to be isolated and de-watered prior to the winter season, and a wildlife salvage undertaken by qualified biologist; and*
- *Completion of a detailed enhancement plan with information on the location, size, depth, and construction plan for wetland enhancement areas. This plan will include details related to invasive species removal/management, native species plantings and re-vegetation, and detailed monitoring, among others.*

6.4.4 Alteration of Watercourses

Fish habitat, both direct and indirect, is present within the study area of the proposed development (Falcon Creek, and the tributaries of Indian and Grindstone Creeks). The proposed development proposes to cross each of these watercourses through a series of trail and road crossings by the east-west road system, in addition to the influences resulting from the proposed stormwater management approach. The Indian Creek channel is proposed to be restored and realigned to improve riparian and aquatic conditions and provide a well-developed bankfull channel with morphological variability (GEO Morphix 2026). While the undertaking will largely be a restoration effort along the majority of the channel, there are also proposed changes to the gradient and flow of the creek.

The two Street A creek crossings have the potential to result in a harmful alteration, disruption or destruction of fish habitat or result in the direct death of fish in contravention of the *Fisheries Act*. As per policy 4.2.2 m (i), development is not permitted in fish habitat except in accordance with provincial and federal legislation and regulations (City of Burlington 2025). The DFO provides measures to protect fish and fish habitat and recommended codes of practice to ensure the protection of fish and fish habitat in compliance with the *Fisheries Act.* If all of the measures are followed, then further review by the DFO is not required. However, if all recommended mitigation measures cannot be implemented, a Request for Review must be initiated from the DFO.

It is recommended that a Request for Review be submitted to the DFO for approval at the Detailed Design stage, when full details of the watercourse crossing design and stormwater management approach are known. In addition, the tributary of Indian Creek is anticipated to experience an overall positive impact as a result of the proposed development. The tributary of Indian creek is located within the proposed restoration corridor buffer, providing an opportunity for riparian habitat enhancement resulting in an improvement of the condition of the existing unvegetated banks providing increased habitat features and functions and improved fish habitat.

Mitigation:

- *At the Detailed Design stage, a Request for Review should be submitted to the DFO to confirm that the proposed avoidance and mitigation measures are appropriate. The response from the DFO will be provided as a Letter of Advice;*

- *Follow the Pathways of Effects and Codes of Practice outlined by the DFO to ensure appropriate mitigation measures are followed and implemented;*
- *During the construction phase complete a fish relocation within the vicinity of each culvert replacement, the fish relocation should be completed prior to any in-water works at any of the proposed culvert replacements;*
- *In-water works should not be completed between March 15 – July 15 to prevent potential impacts to spawning fish, developing eggs and fry;*
- *Any temporary stockpiled soil, construction debris, etc., should be stockpiled at least 30m from the watercourse and should be contained properly;*
- *Removal of riparian vegetation should be avoided where possible, following construction, any areas of exposed soil adjacent to the watercourse should be re-vegetated with appropriate native plant species;*
- *Ensure downstream flows at each proposed culvert crossing are maintained at all times by implementing a dewatering and pumping plan, to be developed by a qualified professional and reviewed by a* qualified biologist. *Settling areas or filtration bags should be utilized, as necessary, to prevent sedimentation to any watercourse;*
- *A comprehensive ESC plan must be developed by a qualified professional and implemented during construction to ensure sediment does not enter the watercourse during construction. Sediment fencing should be installed prior to the initiation of construction and maintained over the course of the project. ESC measures should be monitored by an environmental monitor on a regular basis (e.g. weekly) and following precipitation events to ensure it is functioning correctly; and*
- *Develop an Emergency Spill Response Plan to be implemented in the event of a spill of deleterious substances.*

6.4.5 Wildlife Habitat Impacts

A number of wildlife habitats are present or have the potential to occur within the subject property and require further consideration in order to avoid direct impacts.

Species at Risk Bat Habitat

The proposed east-west Street A (Parkway Link) requires the removal of approximately 0.15 ha of SAR bat habitat, including maternity habitat for Eastern Red Bat and Silver-haired Bat. The final extent of proposed tree removals will be determined at a later stage in the development

process, at which time consultation with MECP may be required prior to the proposed vegetation removals to ensure compliance with endangered species legislation.

The province has enacted the Species Conservation Act, 2025 (SCA), to come into force on an unidentified date in the future (currently expected in early 2026). Requirements for consultation and permitting with MECP are expected to be different under the SCA than the current process under the ESA, such as project self-registration with development and implementation of a mitigation and monitoring plan. The applicable in-force legislation will be implemented closer to the time of development, and will be re-assessed at the EIR stage of this project.

The following mitigation measures are recommended to be considered in consultation with the MECP and/or in accordance with requirements under the SCA to minimize impacts to SAR and non-SAR bats within the subject property (and are to be considered in conjunction with other recommendations for vegetation removal with respect to nesting birds):

- *In general, vegetation removal should occur between December 1-March 14 in order to be outside of the bat active season (March 15-November 30) and the bird core nesting period (April 1-August 31). If removal of woody vegetation >1m in height is required during the bat active season, additional assessments of potential impacts to bat SAR habitat will be required, which may include consultation with the MECP. In conjunction with the considerations related to bat habitat, if vegetation removals are necessary during the bird core nesting period, a nest search to assess nesting activity may be undertaken in "simple habitats" (i.e. individual trees, hedgerows, sparsely vegetated features). A clearance letter is to be prepared by the qualified biologist as evidence of due diligence. Nest searches are generally considered valid for a period of 48 hours.*

Other Wildlife Species

The proposed development may temporarily displace wildlife species that are currently using the subject property while the site is under construction. Species that use the subject property are common and well-adapted to relatively urban conditions and landscapes and are expected to return to the adjacent natural areas and protected buffer areas post-development provided that native tree herbaceous plantings are incorporated in the Natural Heritage System buffer.

Vegetation clearing has the potential to directly impact bird breeding activity through damage and destruction of nests, eggs, and young, or avoidance of the area by breeding adults.

According to the Canadian Wildlife Service (CWS), the peak breeding period for migratory birds that nest in treed habitat in southern Ontario is between April 1 and August 31 (Government of Canada 2017). During this period the CWS recommends that no clearing of vegetation within simple and/or complex habitats occur. The 1994 *Migratory Birds Convention Act* (MBCA, Government of Canada 1994) protects migratory birds, their eggs and nests from being harmed or destroyed at any time of the year. However, nest searches, as a means of mitigation during the core breeding period, may be undertaken in "simple" habitats such as hedgerows, isolated trees, or constructed features (e.g., bridges, barns, etc.) where the potential to observe all active nests is relatively high. It is therefore recommended that tree and vegetation removal occur outside the peak breeding bird period, where possible (in addition to other requirements related to bat habitat).

In addition, turtles were found to be abundant within the human-created pond, and as a result, there is the potential for direct mortality of herpetofauna as a result of construction activities as well as post-construction via vehicular traffic along the Parkway Link and development areas. Mitigation measures are to be implemented both during and following construction, as described below.

The following mitigation measures are proposed to avoid negative impacts to wildlife:

Mitigation:

- *In general, vegetation removal should occur between December 1 - March 14 in order to be outside of the bat active season (March 15 - November 30) and the bird core nesting period (April 1-August 31). If removal of woody vegetation >1 m in height is required during the bat active season, additional assessments of potential impacts to bat SAR habitat will be required, which may include consultation with the MECP. In conjunction with the considerations related to bat habitat, if vegetation removals are necessary during the bird core nesting period, a nest search to assess nesting activity may be undertaken in "simple habitats" (i.e. individual trees, hedgerows, sparsely vegetated features). A clearance letter is to be prepared by the qualified biologist as evidence of due diligence. Nest searches are generally considered valid for a period of 48 hours;*
- *Timing of vegetation and removals should consider the timing windows for bird species protected under the Fish and Wildlife Conservation Act (e.g. raptor species)*

that are not afforded protection under the MBCA. If these species or their active nests are identified during construction activities, a qualified biologist should be contacted prior to resuming works;

- *ESC/wildlife exclusion fencing is to be erected along the limit of development prior to any on-site works to prevent herpetofauna from entering the construction area as well as to ensure that construction activities and equipment are maintained outside of the protected areas and their buffers;*
- *Permanent wildlife exclusion fencing is necessary to mitigate impacts to herpetofauna within the adjacent wetland habitats, particularly in the location of the Parkway Linke. Fencing should follow the guidelines outlined in the documents, Reptile and Amphibian Exclusion Fencing (MECP 2022d) and Best Management Practices for Mitigating the Effects of Roads on Amphibian and Reptile Species at Risk in Ontario (MNRF 2016b). It is expected that wildlife exclusion fencing will be integrated with culvert crossings associated with the watercourses. Culverts should include appropriate openness ratios to support movement of herpetofauna species; and*
- *Wildlife salvages should be completed (led by a qualified professional) during the active season for herpetofauna, which is generally from early spring until late fall, within the fenced area prior to the initiation of any construction activities to relocate any individuals that may have become trapped inside the development area during fence installation.*

6.5 Indirect Impacts

The following section outlines potential sources of indirect impacts associated with the proposed development:

- Changes to surface flow, water quantity, and water quality;
- Sedimentation and erosion;
- Indirect impacts to wildlife and vegetation;
- Edge effects to woodlands.

6.5.1 Surface Flow, Groundwater Quantity and Water Quality

This section of the impact analysis focuses on potential changes to the flow patterns, quality and quantity of groundwater and surface water flows to the wetlands and watercourses within and downstream of the subject property as a result of the proposed development.

A Pre-development Wetland Water Balance was prepared by Terra-Dynamics (2026a) that identifies the hydrological function of sources of water to the wetlands in the subject property. Surface and groundwater monitoring within and near the SWD2-2 wetlands (W1 and W2) on the west side of the property indicate that the hydroperiods are similar to that of typical alluvial swamps, which respond quickly to local rainfall events (Mitsch and Gosselink 2007). NRSI's observations of water levels in the SWD4 wetland (W3) are similar to the hydroperiod of a typical "bottomland hardwood swamp", as described in the Pre-development Wetland Water Balance (Terra-Dynamics 2026a). Based on the observed hydroperiods and the runoff dominated hydrology of the wetlands, maintaining surface water runoff to these features in the post-development scenario will be important.

Maintaining wet (late fall, winter and early spring) and dry (late spring, summer and early fall) conditions for the wetlands in the post-development scenario is important to ensure the hydroperiod and hydrological function of these features is maintained. A detailed pre- and post-development feature-based water balance for W1-W3 was prepared by Terra-Dynamics (2026a). The post-development water balances of W1 and W2 are expected to be maintained because the on-site portion of both catchments account for 5% (W1) and 3% (W2) of their respective catchment areas and the remaining off-site catchments will sustain saturated conditions during average conditions (Terra-Dynamics 2026a). Similarly, W3 is expected to maintain saturated conditions from June to October, similar to the pre-development conditions. Terra-Dynamics notes that should the southern portion of W3 be removed as proposed, a berm should be constructed to maintain the existing hydroperiod. A monthly feature-based water balance is required at the Draft Plan stage in order to assess potential impacts to these features and associated habitats during the sensitive growing season.

The LID measures, underground storage tanks and superpipe that will collect flows will outlet east to SWM Pond 1 and west to Grindstone Creek North (Urbantech 2026). No adverse downstream impacts are anticipated under Regional storm conditions (Urbantech 2026).

Preliminary surface flow and groundwater reports by Terra-Dynamics Inc. (2026b) do not predict that there will be any significant adverse impacts to the water quantity, water quality, nor the thermal regime of the wetlands and watercourses from the proposed development. A hydrogeologic investigation of the western half of the site is still pending. At this time dewatering may not be feasible or necessary due to low hydraulic conductivity values across the subject property, although it may be considered at later design stages (Terra-Dynamics 2026b).

Potential impacts to wildlife species as a result of changes to the hydrological regime are described below in Section 6.5.3.

Mitigation:

- *Once the minimum 12 months of groundwater data is obtained for the western portion of the site, the water balance assessment should be reviewed to confirm there will be no negative impacts to retained wetlands;*
- *A monthly, feature-based water balance is required to fully assess potential impacts to wetlands during the growing season;*
- *During and post-construction, groundwater level monitoring is recommended across the site to ensure that predevelopment drainage patterns are not altered that would result in a change in surface water and groundwater flows to wetlands;*
- *To avoid impacts to the wetlands, the water quantity of the wetlands should be maintained during all construction activities. If construction dewatering is required, an additional impact assessment is necessary to understand if there will be impacts to wetlands or other retained features;*
- *Permeable surfaces such as crushed gravel or mulch are recommended for trails in sensitive areas, such as wetland buffer or riparian areas;*
- *Runoff directed upstream of wetlands should be maintained to pre-development measures of quantity and quality to avoid impacts to downstream habitats;*
- *The limit of grading should be protected with heavy duty silt fencing in areas around wetland and watercourse features;*
- *An Erosion and Sediment Control (ESC) Plan should be developed to ensure the fencing is properly installed and functioning during construction;*
- *A Salt Management Plan should be implemented as part of the proposed development; and*

- *Snow storage should be located well away from natural features or areas that will drain into natural features, particularly the on-site wetlands.*

6.5.2 Sedimentation and Erosion

During construction, areas of bare soil will be exposed, which have the potential to erode during rainfall events and impact adjacent natural features. In the event of a heavy rain, sediment-laden runoff can enter adjacent natural areas by way of overland flow. In order to protect on-site and off-site natural features from potential impacts due to sediment, an Erosion and Sediment Control (ESC) Plan must be developed and implemented prior to any construction activities on the site.

During the site grading work, suitable sedimentation controls will be required to help control and reduce the turbidity of run-off water which may flow towards the surface water features. As construction work progresses at the site, regular maintenance and additional sedimentation measures may be required to limit the effect of siltation of run-off water in localized areas.

Mitigation:

- *Develop and implement an Erosion and Sediment Control Plan prior to construction. Siltation control measures such as silt fencing, a mud mat at the construction entrance, and tree protection fencing are recommended;*
- *Disturbed areas should be kept to a minimum and re-vegetated in a reasonable timeframe (within 30 days) in order to minimize dust;*
- *Inspection and maintenance of the installed Erosion and Sediment measures throughout the duration of construction, to ensure they are functioning as originally intended; and*
- *An environmental monitoring program is recommended and provided below to ensure that the sediment and erosion control measures are installed, maintained and functioning as intended.*

6.5.3 Indirect Impacts to Wildlife and Vegetation

Indirect impacts to wildlife and vegetation have the potential to occur both during the construction phase of development as well as through the final development of the site. During construction, potential indirect impacts to wildlife and vegetation in the retained natural areas may arise from noise and dust associated with construction activities and unnatural lighting

resulting from the development. Indirect impacts associated with construction are anticipated to be minimized, localized, and temporary, and it is expected that displaced wildlife species will return to the retained natural features following construction.

Indirect impacts to wildlife may also occur as a result of alterations to movement patterns from intensification of the land use. Currently, much of the subject property is relatively naturalized which allows for relative ease of wildlife movement. Following development, the two main nodes of NHS will be partially bisected by the presence of the Campus/Commercial Node (Block 8). Connections will be maintained along the HWY 403 edge where a vegetated strip approximately 30-50 m in width will be maintained as well as to the south of Street A. Although this development block is expected to be more 'permeable' to wildlife than other development types, it is nonetheless recommended that to help maintain ecological connectivity, culverts/underpasses beneath Street A should be considered.

Indirect impacts to wildlife may also occur as a result of changes to hydrological patterns, particularly for sensitive species. It is currently anticipated that the hydroperiods will remain the same in the retained wetlands in the post-development conditions (Terra-Dynamics 2026a), allowing the wetland species to continue their life processes. Following completion of a detailed monthly water balance, this impact analysis is to be revisited to assess potential impacts to sensitive species.

Of the bird species observed by NRSI staff within or near the wetland communities, six species are listed as low (5) to moderately (1) sensitive to hydrological changes (TRCA 2017). No breeding evidence was identified for these species during breeding bird surveys, except for Canada Goose, where a single egg was identified between the eastern SWD2-2 (W2) and the pond (OA).Light pollution can also have an impact on wildlife predator-prey relationships in natural areas. For example, it can result in reduced foraging times for some species (e.g., bats) and can compromise cover or the ability for an individual to remain hidden from predators. General wildlife indirect impacts associated with light pollution can be mitigated by restricting the daily timing of construction activities to day-light hours. Any artificial lighting used for construction purposes should be turned off or directed away from adjacent natural features following the completion of daily construction activities. Any post-construction, permanent outdoor lighting should be selected to minimize light pollution. This can be achieved through the following:

- Eliminate the use of decorative lighting;
- Use covered bulbs that light facing downward. Ensure the cone of light does not extend beyond the development footprint to adjacent natural areas;
- Use “warm” or filtered LEDs (CCT < 3,000 K; S/P ratio < 1.2) to minimize blue emission;
- Use motion sensors and timers to minimize unnecessary lighting; and
- Use International Dark-Sky Association (IDA) approved fixtures.

Mitigation:

- *In order to suppress dust, areas of bare soil should be moistened with water during construction activities to ensure that the amount of dust within the subject property is reduced. Topsoil stockpile locations should be in areas of lesser wind exposure and away from natural features and their buffers;*
- *Disturbed areas with exposed soils should be kept to a minimum and re-vegetated with an approved native seed mix in a reasonable timeframe in order to stabilize soils and minimize dust;*
- *All machinery, storage and refueling to be maintained outside of the natural features and their buffers;*
- *Daily timing of construction activities should be limited to between 0700 and 1900 to avoid noise-related impacts to wildlife during construction. This recommended timing restriction includes the use of generators or pumps insofar as possible;*
- *Any lighting equipment associated with construction activities should be turned off following cessation of daily construction activities or at least turned away from the adjacent natural features to prevent ‘light wash’ of these areas. Permanent lighting is to be directional and away from the natural features to the extent feasible; and*
- *The impact analysis pertaining to wildlife and vegetation is to be reviewed and updated as needed following completion of a detailed, feature-based water balance.*

6.6 Edge Effects

The removal of trees within woodlands will be necessary to facilitate the Parkway Link. Across the western portion of the subject property, this road will create a new woodland edge through the cultural woodland (CUW1), deciduous swamp (SWD4), and the oak-hardwood forest (FOD2-4). This has the potential to affect the trees/vegetation to be retained both to the north

and south of the Parkway Link. These effects may relate to changes in sunlight, humidity, and/or wind that can impact the health and structural integrity of these trees. These trees should be monitored to ensure that new hazard trees are not created, during or following construction.

Mitigation:

- *Trees required to be removed should be marked by a qualified professional in advance of any tree clearing;*
- *After tree clearing occurs, any damaged limbs or tree roots should be pruned following proper arboricultural techniques;*
- *ESC/TPF should be installed at the outer extent of the embankment for the east-west Street A (Parkway Link) prior to construction and should be inspected by a qualified professional to ensure proper installation. Some minor vegetation removal is expected to be necessary to install the fencing; and*
- *Conduct an inspection of dead and/or hazardous trees within striking distance tree fall risk zone) of the newly created edge approximately 1 year after tree removal occurs and remove any additional hazard trees (continue to monitor through the post-construction monitoring period). Where additional tree removals are necessary, compensation plantings should be provided as will be detailed in the future TIPP.*

6.7 Induced Impacts

Induced impacts are described as those that are not directly related to the construction or operation of the facilities in question but rather arise from the use of the natural areas as a result of the development. The simplest example is increased use of a natural area by residents or users of the property, feral domestic wildlife, and unauthorized trail/pathway construction. Since this is proposed as a mixed-use area, with both residential and employment blocks, the potential impacts from residents and domestic wildlife are increased.

The primary methods for mitigating induced impacts as a result of an increased resident and commercial population is to control access to these features and provide necessary education about minimizing impacts to sensitive features. Access control is primarily related to providing physical barriers such as permanent fencing in areas where human intrusion to the NHS is undesirable, while ensuring that any trail system provides a logical connection between areas that people are likely to travel between (to reduce the likelihood of ad hoc trail creation). These

options should be further explored through the detailed design of this development to determine the optimal options to reduce induced impacts.

Signage and educational brochures will also be a key tool to instruct residents and users to respect wildlife and natural features. Locations of signage and content suggestions should be provided within the EIR and associated mapping.

Mitigation:

- *A trail network should be considered to provide reasonable and controlled access to the natural features on the site; it should be integrated with educational materials (e.g. signage, brochures);*
- *Signage and educational brochures (for residents) should be used to direct people not to trespass into sensitive natural areas or restoration areas as well as various ways they can help reduce stress and impacts to these features. These materials will also be used to inform residents of the value and importance of using natural areas carefully and sustainably;*
- *Permanent fencing should be erected to manage human induced impacts to more sensitive natural areas;*
- *Wildlife proof waste receptacles should be made available throughout the development blocks and along the walking trails (if/as present) to reduce litter and its associated impacts in the natural areas; and*
- *Traffic calming measures (e.g., road signage) should be considered along the east-west Street A (Parkway Link), where wildlife movement is expected to occur, to minimize human/wildlife interactions.*

6.8 Cumulative Impacts

Cumulative impacts can result from a variety of sources including incremental impacts of multiple or successive developments, influences of developments on neighbouring lands or others within the subwatershed of the subject property, etc. Cumulative impacts must also consider the implications of historical land use, and the outcomes of proposed habitat enhancement, creation, and management. As such, the analysis of cumulative impacts includes temporal and spatial considerations and is an effective approach to assess the potential for significant residual negative impacts (as per the Natural Heritage Reference Manual interpretation of the analysis of negative impacts in the PPS).

Earlier sections of this report discussed the changes to the land uses on the subject property over the past >100 years. These changes show that the property was extensively used for agriculture and industry, with little natural vegetation retained for many decades or longer. These changes also occurred on neighbouring lands, including a substantial impact resulting from the construction of the highway, North Service Road and surrounding industrial developments. The result is an isolated and impacted site.

On the subject property, cessation of some of the recent historic land uses has allowed establishment of second growth vegetation, principally cultural shrub-dominated thickets. In most cases, these areas are dominated by invasive buckthorn.

The proposed undertaking recognizes and conserves the higher quality habitats on-site (more mature deciduous woodlands, watercourses and wetland groupings). The proposal also includes creation of habitats including wetlands adjacent to existing wetlands in the western portion, and woodlands adjacent to existing high-quality woodlands), restoration of degraded habitats that are to be retained (wetlands/riparian habitat along the Indian Creek corridor), and management of the retained portions of vegetation communities.

As a result, a net improvement in the quality of the on-site vegetation is predicted. As well, the net natural vegetation area is expected to roughly equate to what is on-site currently (excluding the areas of non-native invasive species that are proposed to be removed to avoid spread).

As discussed above, the subject property is essentially the last remaining vacant development lands in the vicinity. Lands surrounding the property are currently developed as industrial (east and south) or the Go Station (west). The property is bound by the highway and separated from un-developed lands to the north. Other developments are proposed for current vacant lands north of Highway 403, which will need to consider the headwaters of the on-site watercourses. Apart from culverts under the highway, there are no viable ecological linkages between the subject property and lands to the north.

The proposed MTO transitway is a potential source of additional and overlapping predicted negative impacts to the on-site natural features. The EA for the transitway is just starting at this time, so the location of the proposed transitway is unknown. The Master Plan has considered the potential for the transitway to be constructed along the south side of the highway (i.e., overlapping with the northern portions of some on-site habitats and creek crossings). These impacts may result in degradation of habitat function to areas that have been identified for

retention and management in this EIA. Future assessment of such will be conducted by others through the transitway EA process.

7.0 Retention, Enhancement and Creation of Habitats

The characteristics of the on-site habitats, as well as their ecologically isolated context lends itself to a combination of retention, enhancement, and creation (Map 9).

Natural Feature Conservation

- The human-made pond and the grouping of wetland habitats around the perimeter of this pond;
- The channels of the tributary of the Grindstone Creek, Falcon Creek, including its steep-sided valley, and Indian Creek;
- The central deciduous woodland (FOD2-2 and FOD2-4) and western woodland (FOD2-2).

Enhancement:

- All retained portions of terrestrial and wetland habitats including but not limited to removal of debris and garbage;
- Management of invasive species;
- Woodland edges will be enhanced (0.60 ha), including identification of hazard trees for removal, infestations of grape vine and Virginia creeper;
- Replanting any of the small thicket areas to be retained post buckthorn removal with native tree and shrub species.

Creation

- Creation of wetlands by joining the two SWD2-2 features in the northwest corner of the property, totaling approximately 0.69 ha. These two wetlands are near to one another and expanding them into their buffers provides an opportunity to increase wetland habitat in a cultural thicket ecosite. The creation and expansion of these wetlands will introduce new opportunities for wetland species to become established;
- Consideration of habitat diversification in the human-created reservoir (i.e., might include lower gradient slopes in places and additional native plant installations);
- Installation of artificial turtle nesting beaches in proximity to the existing open water pond; and

- Creation of woodlands in areas adjacent to existing woodlands in the western half of the lands totaling 2.29 ha. These new woodlands will include native species consistent with those already occurring within the subject property and will result in an overall higher quality than those woodlands proposed to be removed. Additionally, the woodlands will expand habitat for shelter and protection for species living in these habitats.
- Riparian habitat enhancement along the Indian Creek corridor in the east.

The existing wetlands total 1.57 ha and will increase to 2.26 ha after the proposed wetland creation, while woodland cover will increase from 6.08 ha to 8.37 ha and riparian enhancements will increase by 1.88 ha.

GEO Morphix (2026) has provided a conceptual restoration plan for the Indian Creek channel corridor to improve riparian habitat and promote wildlife biodiversity. Their plan incorporates a variety of techniques to restore the habitat, including basking logs for turtles, a variety of wood and debris piles to encourage forage and habitat for wildlife, raptor poles, turtles nesting sites and vegetative planting using native plant species. For a fulsome outline of the restoration plan, please refer to the 2026 GEO Morphix report.

8.0 Monitoring Plan

A specific monitoring program is recommended through the pre-, during, and post-construction periods of the project. Given that monitoring is intended to evaluate effects predicted in this EIA, and given the relatively disturbed nature of the subject property, monitoring pre and post construction monitoring is focused on:

- Confirming the maintenance and enhancement of the existing wetland groupings;
- Confirming the maintenance and enhancement of the more intact woodlands (retained along Falcon Creek);
- Monitoring the planted enhancement and riparian buffer areas of the newly aligned Indian Creek; and
- Monitoring and actively responding to the presence of invasive plant species in order to facilitate the establishment of native vegetation communities.

During Construction Monitoring is more traditional and is focused on ensuring compliance with impact avoidance, minimization and enhancement measures generated in the EIA. This program will be integrated with ground and surface water monitoring to avoid duplication and to ensure the monitoring outcomes are meaningful and comprehensible. It will also be integrated with other aspects of construction monitoring (e.g., engineering, construction operations and schedule). The monitoring program listed and further described below will be fully detailed at the EIR stage of this project, but in general will include the following:

1. **Pre-construction Monitoring**: A pre-construction monitoring program will be initiated prior to construction in order to gather further information on baseline wetland and woodland conditions, and to confirm that tree protection, ESC, and exclusion fencing is in place prior to the start of construction.
2. **Construction Monitoring**: Monitoring of construction activities and associated mitigation measures to ensure compliance with recommendations set out in the EIA (including ESC/TPF, hazard trees, etc.).
3. **Post-construction monitoring**: Restoration plantings within enhancement areas will be monitored following installation to ensure the objectives of the plantings are met in terms of establishing a self-sustaining natural vegetation.

8.1 Pre-construction Monitoring

Prior to the initiation of any construction activities, the following baseline monitoring of current ecological conditions is to be undertaken:

- Vegetation monitoring transects/plots (in mature woodland and existing wetlands);
- Amphibian and reptile monitoring in and adjacent to existing wetland areas (e.g., amphibian call surveys, reptile coverboards and nesting/hibernation site assessments);
- Water level monitoring in the existing wetland areas (water level, inflow and outflow measurements)

The proposed monitoring programs for these items will be defined in more detail as the development is further refined and as discussions occur amongst the city and the proponent.

8.2 Construction Monitoring

Construction monitoring is the responsibility of the proponent and is tied to the specific undertaking. Generally, construction monitoring must occur to ensure compliance with the conditions of various permits, including permit(s) from CH under Ontario Regulation 41/24. The proposed construction monitoring will be integrated amongst technical experts to ensure that natural features are being adequately protected, and mitigation measures are functioning effectively. It is recommended that construction monitoring include inspection/consideration for the following items during the construction phase of the project:

- Compliance with the ESC Plan through completion of monitoring consistent with *the Erosion & Sediment Control Guideline for Urban Construction* (Greater Golden Horseshoe Area Conservation Authorities 2006). Monitor after significant rainfall events of ≥13 mm, and accumulated sediment will be removed when it amounts to 1/3 of the silt fence height. Monitor sediment and erosion control measures a minimum of once per month to ensure that silt fencing remains properly keyed-in. Any necessary repairs should be completed within 48 hours;
- In general, vegetation removal should occur between December 1 - March 14 in order to be outside of the bat active season (March 15 - November 30) and the bird core nesting period (April 1 - August 31). If removal of woody vegetation >1 m in height is required during the bat active season, additional assessments of potential impacts to bat SAR habitat will be required, which may include consultation with the MECP. In conjunction with the considerations related to bat habitat, if vegetation removals are necessary

during the bird core nesting period, a nest search to assess nesting activity may be undertaken in “simple habitats” (i.e. individual trees, hedgerows, sparsely vegetated features). A clearance letter is to be prepared by the qualified biologist as evidence of due diligence. Nest searches are generally considered valid for a period of 48 hours;

- Monitor for areas of bare soil that present a risk of erosion hazards to natural features, and recommend that they be re-vegetated with a suitable seed mix within 30 days of being cleared and/or inactive to prevent erosion of soils;
- Note any damage to limbs or roots of trees to be retained so that they can be pruned using proper arboricultural techniques;
- Ensure storage and maintenance of machinery during construction occurs at a designated location away from the natural area and associated VPZ;
- Hazard tree monitoring is to occur during the 1st year following tree removal on this site, but also in conjunction with the buffer monitoring mentioned above. All hazard trees will be noted, and recommended actions provided to the team and City staff.

8.3 Post-construction Monitoring

Post-construction monitoring will gather information on the ecological health of the natural heritage system, which can be compared to the baseline conditions to assess potential impacts and the need for additional mitigation measures.

In particular, the following will be confirmed:

- A reduction in the abundance and cover of non-native plant species;
- Increased diversity of native plants and expansion of native plant communities;
- Increased species numbers and abundance of amphibians and reptiles;
- Degree of effective management of human intrusions into intact natural areas; and
- Effectiveness of nature appreciation and awareness in the new community.

8.4 Monitoring Reporting

The results of mitigation effectiveness monitoring will be summarized in reporting, that will be distributed to the City staff, for their review and consideration. The reporting period will depend upon the locations and timing of the development. Details regarding the monitoring work and reporting will be subject to discussion, however, the following are expected to be included in reporting:

The annual reports will generally include the following components:

1. A **Summary of Findings** of each monitoring discipline provides the reader with a synopsis of all the information and highlights any substantial changes in the methodologies.

2. **Reporting on Effects** from the past year stemming from observations of concern (if any) is appended and summarized.

3. **Trends and Effects** are identified and addressed in detail. All known causes related to each trend or effect are included in the discussion. The discussion is based on all applicable monitoring data, and can also make use of construction inspection reports and/or effects reporting.

4. **Recommended Actions** are provided to deal with trends or effects. They should also indicate a review of the issue and provide a timeframe for action.

5. **Corrective Measures** that have taken place in the previous year are documented. The associated discussion clearly indicates whether the recommendation has been implemented and improvements made.

6. **A review of future monitoring needs** will summarize recommendations from the individual reports, and provide any clarification required to ensure continued coordination of the monitoring disciplines.

9.0 Conclusions

Natural Resource Solutions Inc. (NRSI) was retained by Alinea Land Corporation to complete an Environmental Impact Assessment (EIA) in response to the proposed development located at 1200 King Road in Burlington.

The proposed development property is approximately 49.17 ha and currently owned Alinea Land Corporation. It is bordered by Highway 403 to the northwest, King Road to the northeast, railroad tracks to the southeast, and Aldershot Go Station to the southwest

A Master Plan has been prepared by GPA, which is a concept plan consisting of mixed-use employment, mixed-use residential, high density residential, and several park areas including a centrally located park. An Education Campus/Commercial node is included in the western portion of the property. An east-west Street A (Parkway Link) connects King Road to Aldershot GO Station. The Master Plan features enhanced and preserved natural features in the western portion of the subject property.

The existing natural and naturalized habitats on the subject property are ecologically isolated from other similar habitats. Highway 403 creates a substantial separation in terms of distance, potential wildlife/vehicle collisions and lengthy culverts (i.e., unfavourable for wildlife passage). These effectively isolate the site from any habitats to the north. On the south side of Highway 403, the site is also isolated from other natural habitats, with no similar woodland or wetland habitats to the south or east. The lands to the west are also developed.

The existing surrounding developed lands are dominated by dense commercial and employment lands, with limited greenspace.

The history of the lands is evident in the current vegetation communities. Throughout the site, there is evidence of historical brickworks such as waste bricks, discarded clay-based articles (pipes, etc.), berming, channelization of watercourses, and damming, as well as more current unauthorized uses with associated trails, debris, garbage, and encampments. These historical and ongoing influences are reflected in a number of ways such as the successional nature of most of the vegetation, especially the thickets and cultural woodlands in the west, disruption of drainage from berms, channelization, dams, as well as the proliferation of invasive species.

Despite the influences of context and historical land uses, there are some species of interest that are using the site, as well as some remnant habitats that are in more intact.

There is a relatively small area of deciduous woodland associated with Falcon Creek, as well as a few smaller scattered pockets along the north property boundary along the Highway 403 right-of-way. Based on the results of the wildlife inventories completed as part of this study, a number of wildlife species use the on-site mature woodland.

Many of the on-site wetlands are associated with modified channels and/or disturbed soil areas (with berming, etc.). Their small size and character limit their habitat quality. However, some amphibian and reptile species (namely turtles) were noted from the human-made pond (OA), and it also has a small stand of buttonbush along its north edge. The pond and nearby communities also support regular foraging and drinking by Species at Risk bats; however, the subject property may also provide maternity habitats for Eastern Red Bat and Silver-haired Bat.

The updated OWES has been reviewed and compared to the on-site wetland conditions. The extent of the wetland complex has been reviewed and re-assessed based on the latest OWES manual. Complexing across Hwy 403 is not seen as supportable under the new system. As well, there are two subcatchments on-site which contain small wetland areas (tributary to the Grindstone Creek and Falcon Creek). It is concluded that these wetlands should be considered two separate groupings. The areas of the wetland communities are very small (<2.0 ha) which would normally not be suitable for evaluation. The two wetland clusters were evaluated using the 4th edition of OWES. These evaluations confirm that the on-site wetlands are not provincially significant.

Currently there are very limited open country habitats (e.g., meadows). Most of the open portions of the subject property are actively tilled.

A prairie indicator plant species was found in the central portion of the property, but this small patch was not of sufficient character to qualify as prairie.

All four of the on-site watercourses have fluctuating flow regimes and were dry during the summer of 2022. No significant fish species are known from these habitats and the results of the field assessment concluded that these reaches as well as the habitats downstream of the property, provide indirect habitats for much of the year.

The thermal regime of these watercourses was concluded to be warmwater.

The characteristics of the on-site habitats, as well as their ecologically isolated context lends itself to a combination of retention, enhancement and creation.

Recommendations are provided as input to the layout and design of the proposed development on the subject property. These recommendations are based on the current character of the habitats, as well as a series of development objectives (e.g., connectivity of road system, necessary stormwater management, land use targets resulting for the location of the lands at a main transportation hub). This includes retention of the human-made pond (OA) and the grouping of wetland habitats around the perimeter of this pond, the channels of the tributary of the Grindstone Creek, Falcon Creek, including its steep-sided valley, and Indian Creek, and the central deciduous woodland.

Enhancement of all retained portions of terrestrial and wetland habitats including but not limited to removal of debris, and garbage, as well as management of invasive species, woodland edges, and replanting any of the small thicket areas to be retained post buckthorn removal.

A number of areas of habitat creation are recommended including wetland creation/expansion in the western lands around SWD2-2 communities; riparian creation/restoration along the Indian Creek corridor; and woodland creation/expansion near the human-made pond and adjacent to existing woodlands.

Potential impacts arising from the proposed undertaking were determined by comparing the details of the proposed undertaking, including the site plan, grading details, storm water management (SWM) plans, geotechnical information, the hydrogeological assessment, and any other components of the development, with the characteristics of the existing natural features and their functions. Where the development proposal overlaps with the natural features, impacts may arise.

The Master Plan is a high-level plan that provides layout of the proposed development. Future design refinements and associated engineering will be based on this plan. The level of detail of the impact analysis included in this EIA is consistent with the level of detail of the Master Plan. Recommendations are made for mitigation as well as future design considerations. The impact analysis found that minor and temporary impacts are anticipated to occur to the areas of high-quality habitats currently found on the property. Some tree removals will be required but are to be detailed through a Tree Preservation Plan at a later stage.

Road crossings of the creeks and a small portion of wetland are required to construct the east-west Street A (Parkway Link). Standard design and construction mitigation measures are available to minimize the impacts to these features.

Areas of created habitats, especially wetlands and tree plantings will enhance the current character of the vegetation on the property. As a result, a net improvement in the quality of the on-site vegetation is anticipated. As well, the net area is anticipated to roughly equate to what is on-site currently (excluding the areas of non-native invasive species that are proposed to be removed to avoid spread etc.). Wetland habitat will increase from 1.57 ha to 2.26 ha, woodlands from 6.08 ha to 8.37 ha and riparian enhancement along Indian Creek will total 1.88 ha. (Map 9).

The implementation of effective stormwater management and revegetation of stream corridors (especially Indian Creek) will ensure the maintenance of water balances to the creeks and retained wetlands.

The overall result of the retention, enhancement, creation, and management of the on-site features in conjunction with implementation of effective mitigation measures are anticipated to result in no significant residual negative impacts to the vegetation, wildlife, and aquatic resources on the property.

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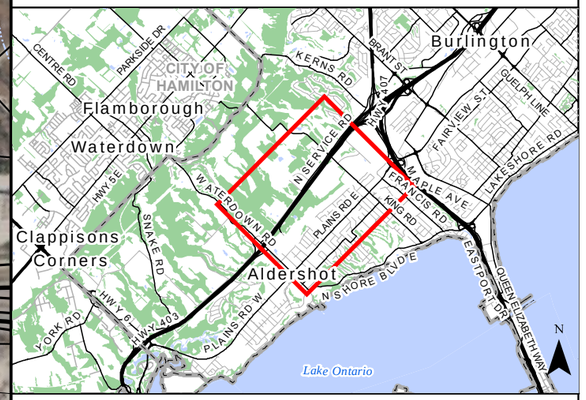
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MAPS

Map 1

1200 King Road, Burlington

Subject Property & Study Area



Legend

- Subject Property
- Study Area (250m)
- Utility Line
- Railway
- Highway
- Primary Road
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse

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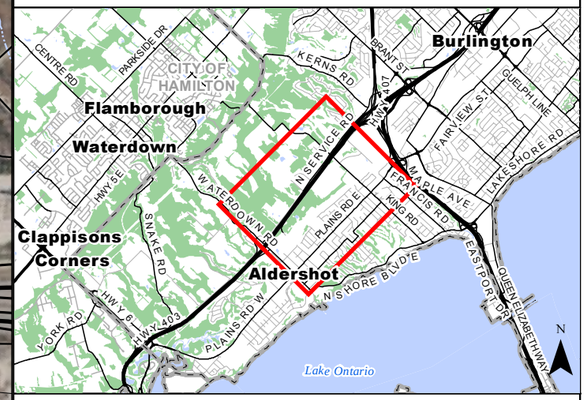
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Map 2

1200 King Road, Burlington

Background Review



Legend

- Study Area (250m)
- Subject Property
- Utility Line
- Railway
- Highway
- Primary Road
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse
- Floodplain Hazard (Approximate)
- Wetland Hazard (Approximate)

Conservation Halton Wetland Mapping (ELC 2017)

- MAM, Meadow Marsh
- MAS, Shallow Marsh
- OAO, Open Aquatic
- SWD, Deciduous Swamp

Natural Heritage System (NHS)

- Greenbelt Plan NHS
- Growth Plan for the Greater Golden Horseshoe NHS

Aquatic Resource Area

- Aquatic Resource Point
- ARA Line
- ARA Polygon

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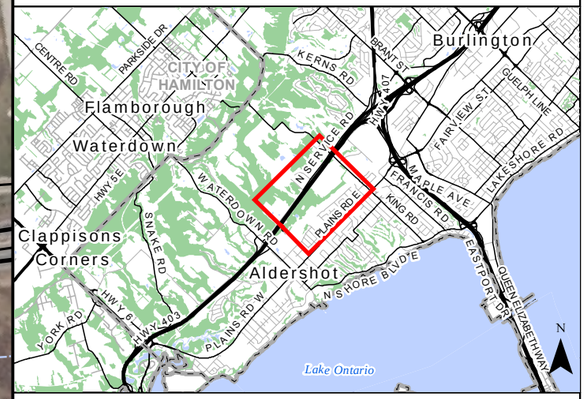
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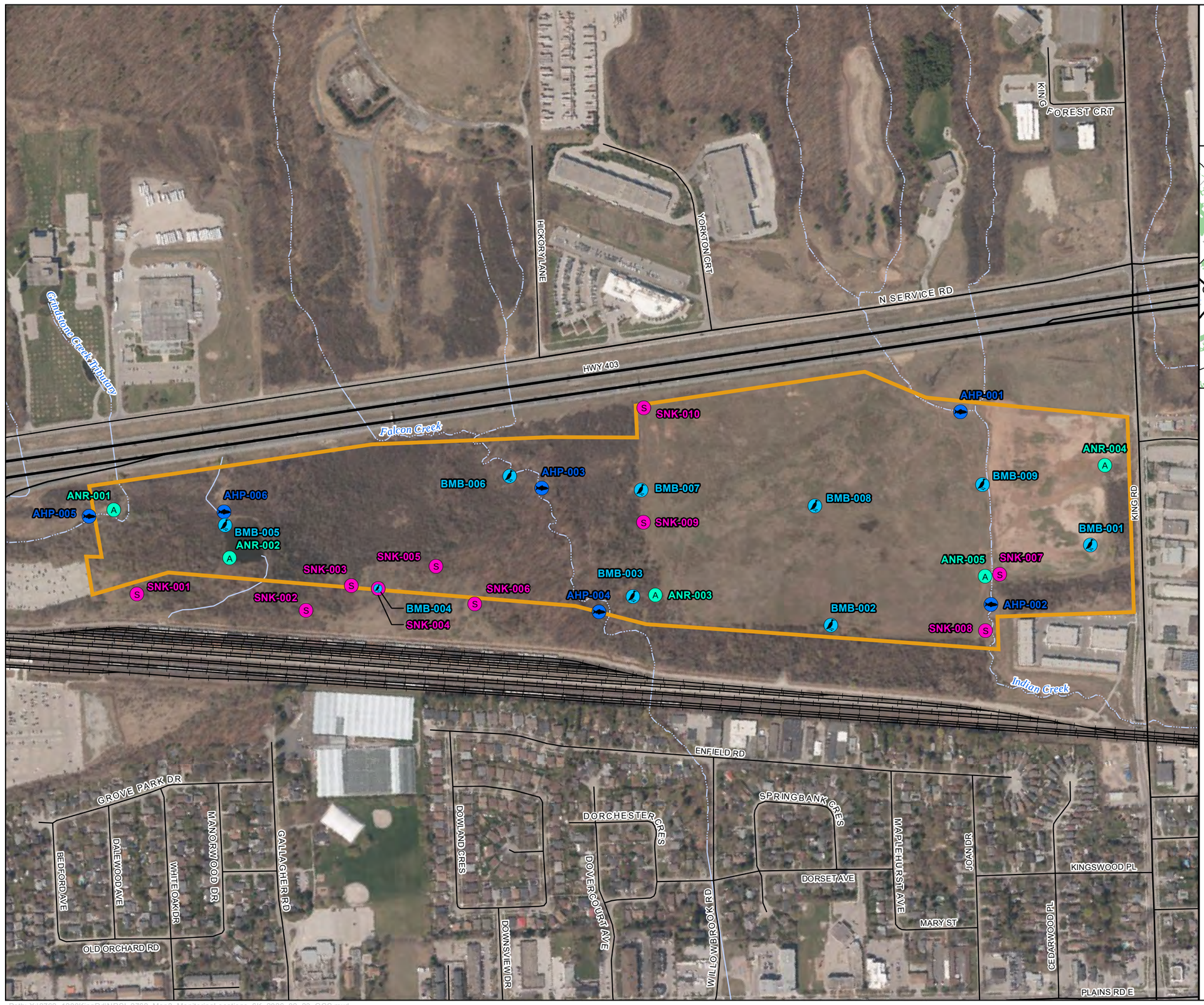
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Map 3

1200 King Road, Burlington

Monitoring Locations





Legend

- Subject Property
- Anuran Monitoring Station (ANR)
- Bird Breeding Monitoring (BMB)
- Snake Monitoring Station (SNK)
- Aquatic Habitat Monitoring Point (AHP)
- Highway
- Primary Road
- Secondary Road
- Railway
- Permanent Watercourse
- Intermittent Watercourse

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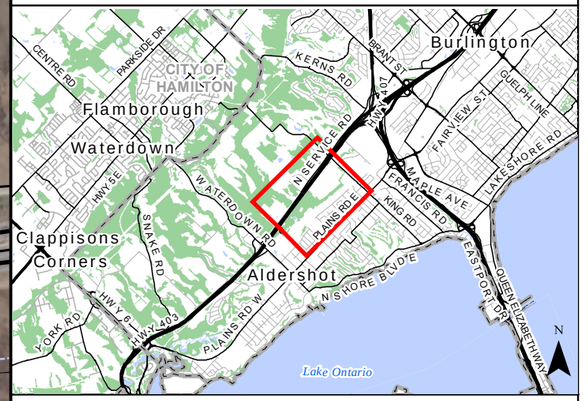
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Map 4

1200 King Road, Burlington

Vegetation Communities and Wetlands



Legend

- Subject Property
- Utility Line
- Railway
- Highway
- Primary Road
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse
- Dripline (Confirmed with City of Burlington September 18, 2025)
- Wetland (Confirmed with Conservation Halton September 9, 2025)
- Wetland
- Buckthorn Management Area
- Ecological Land Classification (ELC)
- (Ag) Agriculture / Annual Row Crop - Soy Beans
- (CUM1) Mineral Cultural Meadow
- (CUT1) Mineral Cultural Thicket Ecosite
- (CUT1-4) Gray Dogwood Cultural Thicket Type
- (CUW1) Mineral Cultural Woodland Ecosite
- (FOD2-2) Dry – Fresh Oak – Hickory Deciduous Forest Type
- (FOD2-4) Dry – Fresh Oak – Hardwood Deciduous Forest Type
- (H) Hedgerow
- (MAM2) Mineral Meadow Marsh Ecosite
- (MAM2-6) Broad-leaved Sedge Mineral Meadow Marsh Type
- (OA) Open Water
- (SWD2-2) Green Ash Mineral Deciduous Swamp Type
- (SWD4) Deciduous Swamp
- (SWT2-2) Willow Mineral Thicket Swamp Type
- ELC Inclusion

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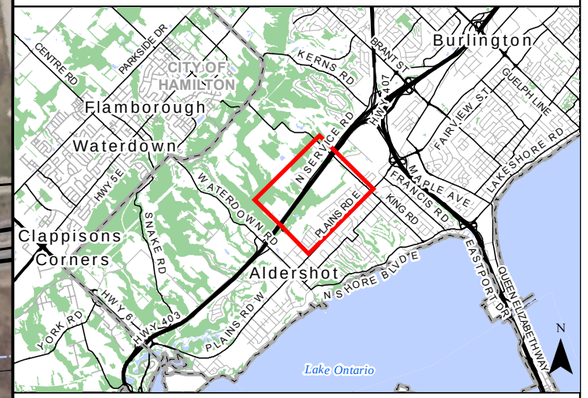
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Map 5

1200 King Road, Burlington

Bat Habitat and Monitoring Locations



Legend

- Subject Property
- Utility Line
- Railway
- Highway
- Primary Road
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse
- Exit Survey Station (Candidate SWH)
- SAR Bat Acoustic Monitoring Station (BAT)

Potential SAR Bat Habitat

- Plot-based Inventory
- Full Tree Inventory
- High Quality Potential Maternity Roosting Habitat for Little Brown Myotis, Northern Myotis and Silver-haired Bat

- Ecological Land Classification
- (Ag) Agriculture / Annual Row Crop - Soy Beans
- (CUM1) Mineral Cultural Meadow
- (CUT1) Mineral Cultural Thicket Ecosite
- (CUT1-4) Gray Dogwood Cultural Thicket Type
- (CUW1) Mineral Cultural Woodland Ecosite
- (FOD2-2) Dry – Fresh Oak – Hickory Deciduous Forest Type
- (FOD2-4) Dry – Fresh Oak – Hardwood Deciduous Forest Type
- (H) Hedgerow
- (MAM2) Mineral Meadow Marsh Ecosite
- (MAM2-6) Broad-leaved Sedge Mineral Meadow Marsh Type
- (OA) Open Water
- (SWD2-2) Green Ash Mineral Deciduous Swamp Type
- (SWD4) Deciduous Swamp
- (SWT2-2) Willow Mineral Thicket Swamp Type
- ELC Inclusion

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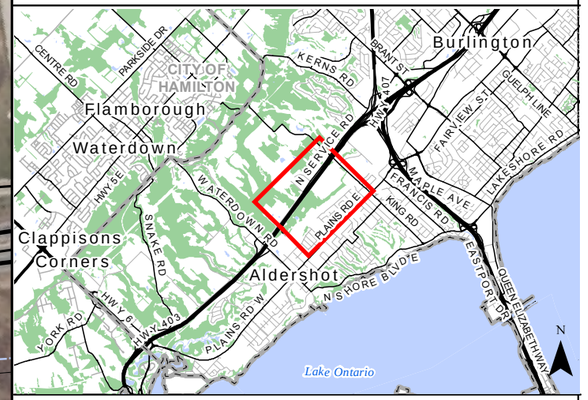
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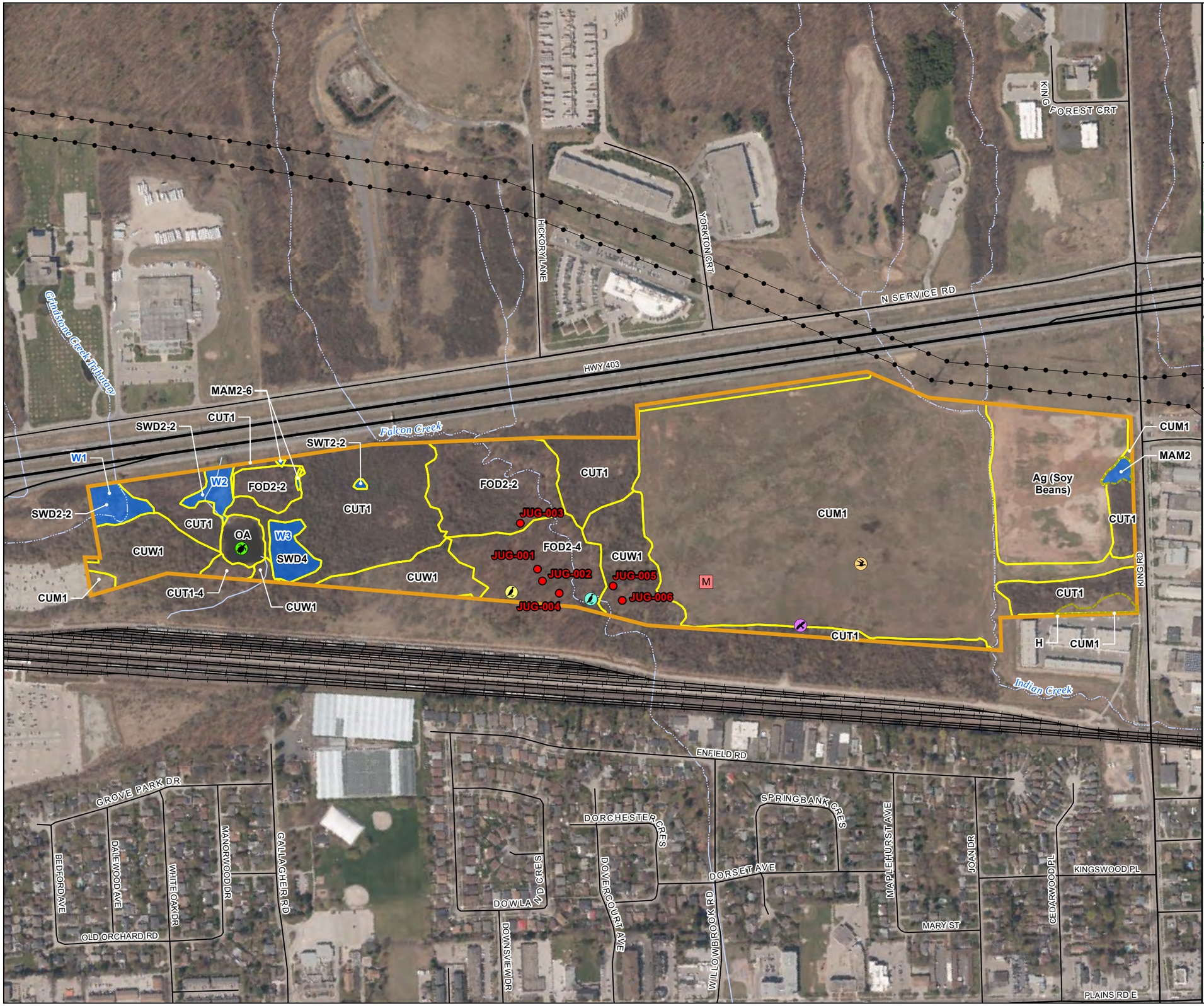
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Map 6

1200 King Road, Burlington

Significant Species Observations





Legend

- Subject Property
- Utility Line
- Railway
- Highway
- Primary Road
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse
- Wetland

Species at Risk Observations

- Butternut: Category 1 – No protection
- Bobolink
- Red-headed Woodpecker

Species of Conservation Concern

- Barn Swallow
- Eastern Wood-Pewee
- Monarch
- Snapping Turtle
- Ecological Land Classification

(Ag) Agriculture / Annual Row Crop - Soy Beans

(CUM1) Mineral Cultural Meadow

(CUT1) Mineral Cultural Thicket Ecosite

(CUT1-4) Gray Dogwood Cultural Thicket Type

(CUW1) Mineral Cultural Woodland Ecosite

(FOD2-2) Dry – Fresh Oak – Hickory Deciduous Forest Type

(FOD2-4) Dry – Fresh Oak – Hardwood Deciduous Forest Type

(H) Hedgerow

(MAM2) Mineral Meadow Marsh Ecosite

(MAM2-6) Broad-leaved Sedge Mineral Meadow Marsh Type

(OA) Open Water

(SWD2-2) Green Ash Mineral Deciduous Swamp Type

(SWD4) Deciduous Swamp

(SWT2-2) Willow Mineral Thicket Swamp Type

ELC Inclusion

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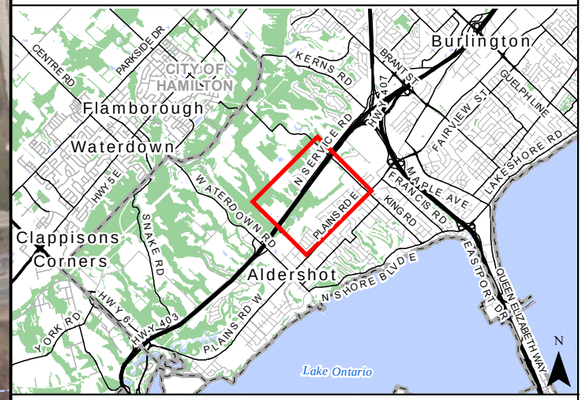
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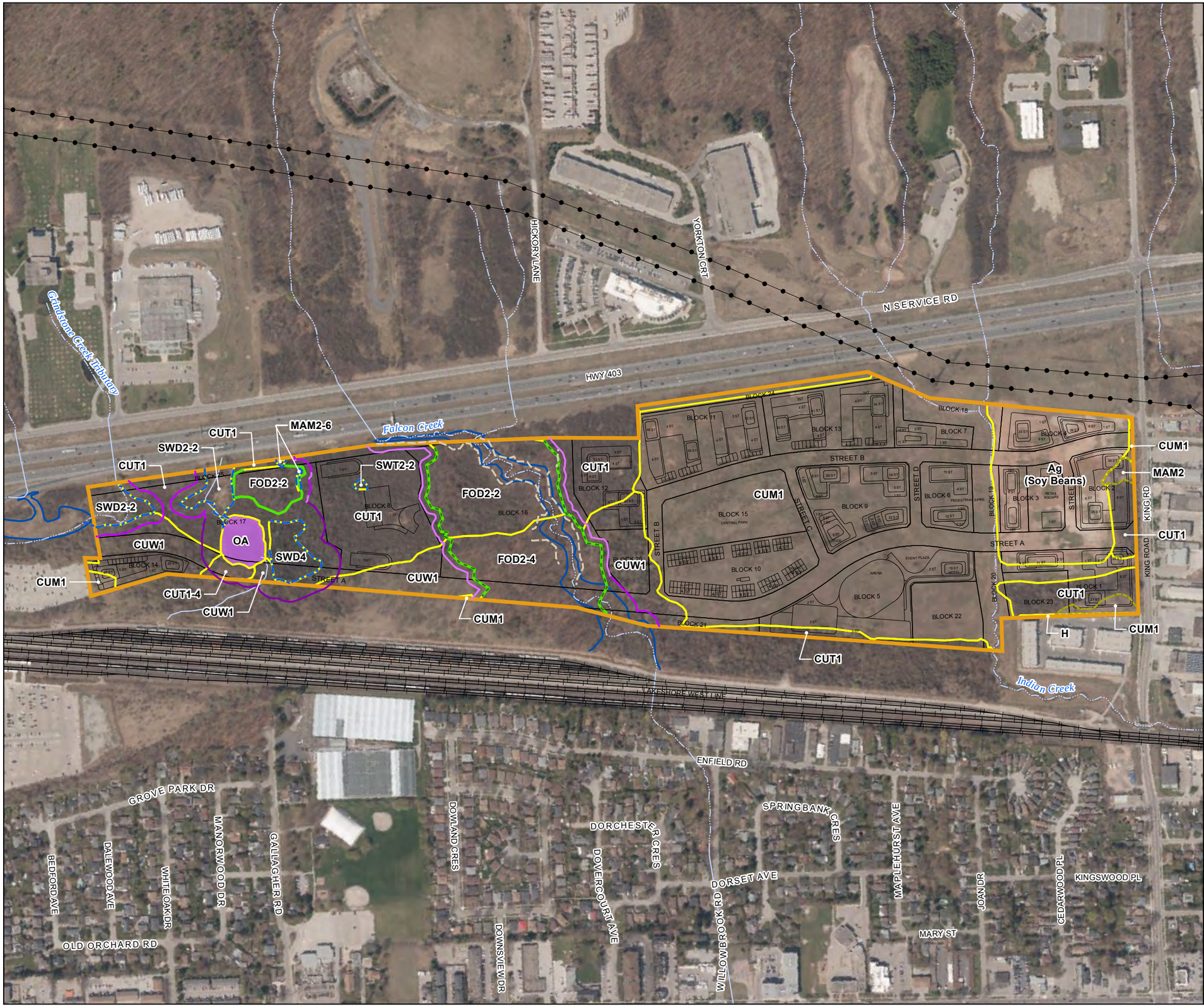
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Map 7

1200 King Road, Burlington

Significant Features with Concept Plan





Legend

- Subject Property
- Proposed Site Plan
- Utility Line
- Railway
- Permanent Watercourse
- Intermittent Watercourse
- Floodplain Hazard (Approximate)
- Top of Bank (Confirmed with Conservation Halton September 9, 2025)
- Wetland (Confirmed with Conservation Halton September 9, 2025)
- Dripline (Confirmed with City of Burlington September 18, 2025)
- Significant Woodland Dripline
- Vegetation Protection Zone (VPZ) (10m)
- Vegetation Protection Zone (VPZ) (15m)
- Vegetation Protection Zone (VPZ) (30m)

Confirmed SWH (Significant Wildlife Habitat)

- Turtle Wintering Area

- Ecological Land Classification
- (Ag) Agriculture / Annual Row Crop - Soy Beans
- (CUM1) Mineral Cultural Meadow
- (CUT1) Mineral Cultural Thicket Ecosite
- (CUT1-4) Gray Dogwood Cultural Thicket Type
- (CUW1) Mineral Cultural Woodland Ecosite
- (FOD2-2) Dry – Fresh Oak – Hickory Deciduous Forest Type
- (FOD2-4) Dry – Fresh Oak – Hardwood Deciduous Forest Type
- (H) Hedgerow
- (MAM2) Mineral Meadow Marsh Ecosite
- (MAM2-6) Broad-leaved Sedge Mineral Meadow Marsh Type
- (OA) Open Water
- (SWD2-2) Green Ash Mineral Deciduous Swamp Type
- (SWD4) Deciduous Swamp
- (SWT2-2) Willow Mineral Thicket Swamp Type
- ELC Inclusion

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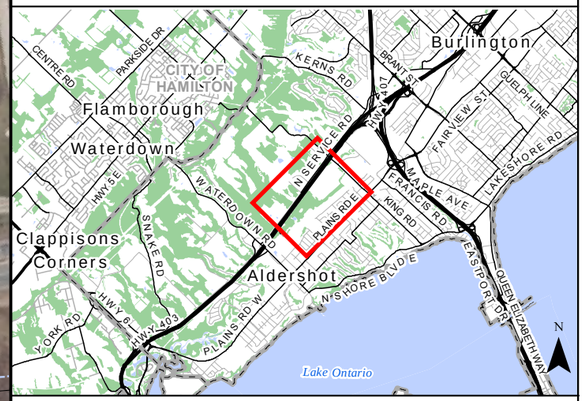
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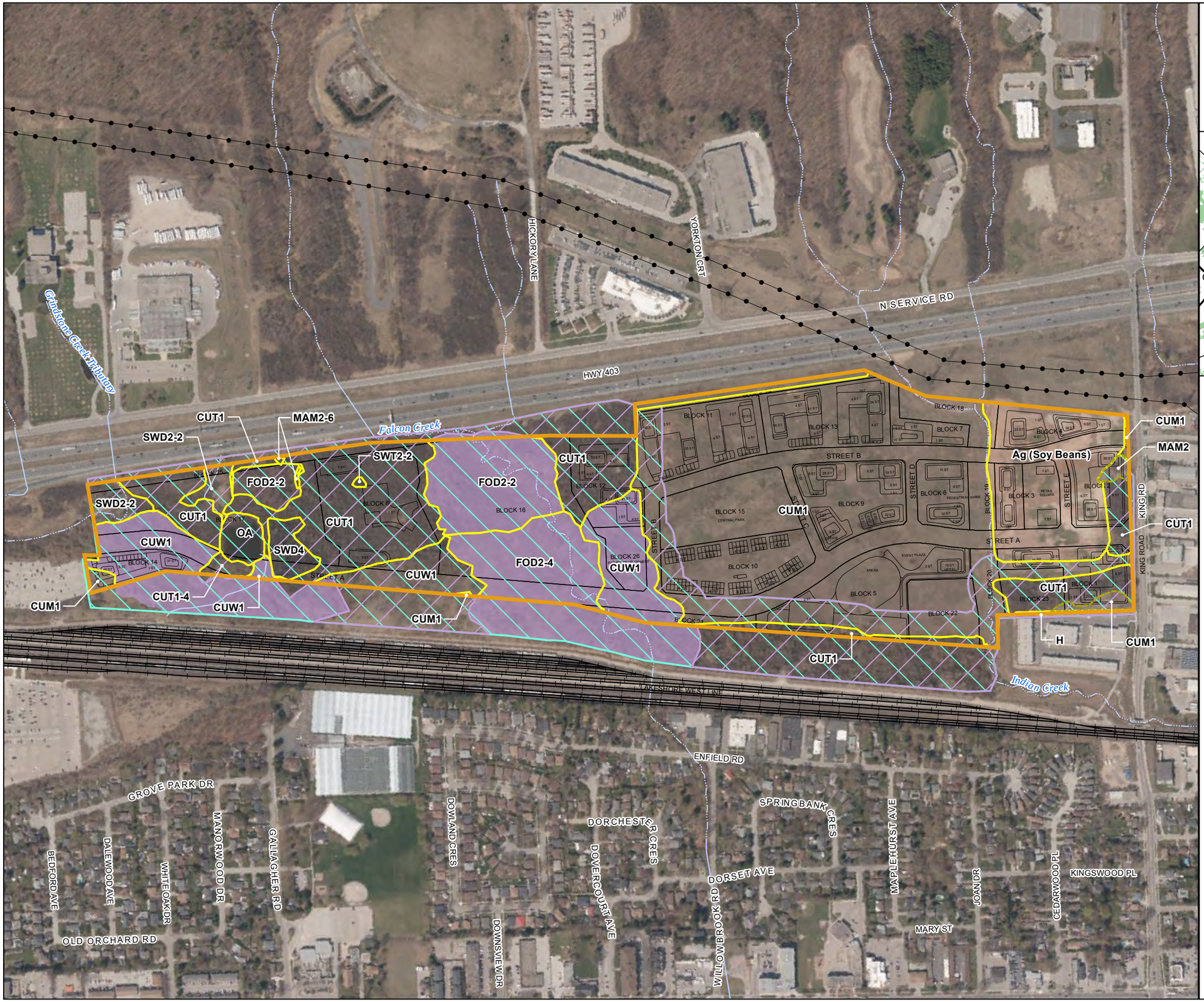
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Map 8a

1200 King Road, Burlington

Significant Features: Bat Habitat





Legend

- Subject Property
- Proposed Site Plan
- Utility Line
- Railway
- Permanent Watercourse
- Intermittent Watercourse

Potential Maternity Habitat for Silver-haired Bat

- Rearing Habitat

Potential Maternity Habitat for Eastern Red Bat

- Rearing Habitat
- Roosting Habitat

- Ecological Land Classification (ELC)
- (Ag) Agriculture / Annual Row Crop - Soy Beans
- (CUM1) Mineral Cultural Meadow
- (CUT1) Mineral Cultural Thicket Ecosite
- (CUT1-4) Gray Dogwood Cultural Thicket Type
- (CUW1) Mineral Cultural Woodland Ecosite
- (FOD2-2) Dry – Fresh Oak – Hickory Deciduous Forest Type
- (FOD2-4) Dry – Fresh Oak – Hardwood Deciduous Forest Type
- (H) Hedgerow
- (MAM2) Mineral Meadow Marsh Ecosite
- (MAM2-6) Broad-leaved Sedge Mineral Meadow Marsh Type
- (OA) Open Water
- (SWD2-2) Green Ash Mineral Deciduous Swamp Type
- (SWD4) Deciduous Swamp
- (SWT2-2) Willow Mineral Thicket Swamp Type
- ELC Inclusion

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Project: 2762 Date: February 27, 2026	NAD83 - UTM Zone 17 Size: 11x17" **1:6,000**

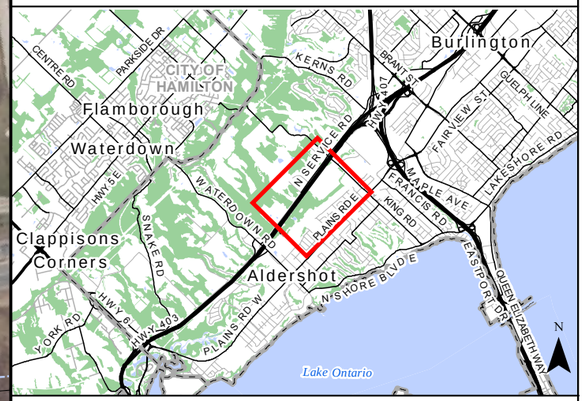
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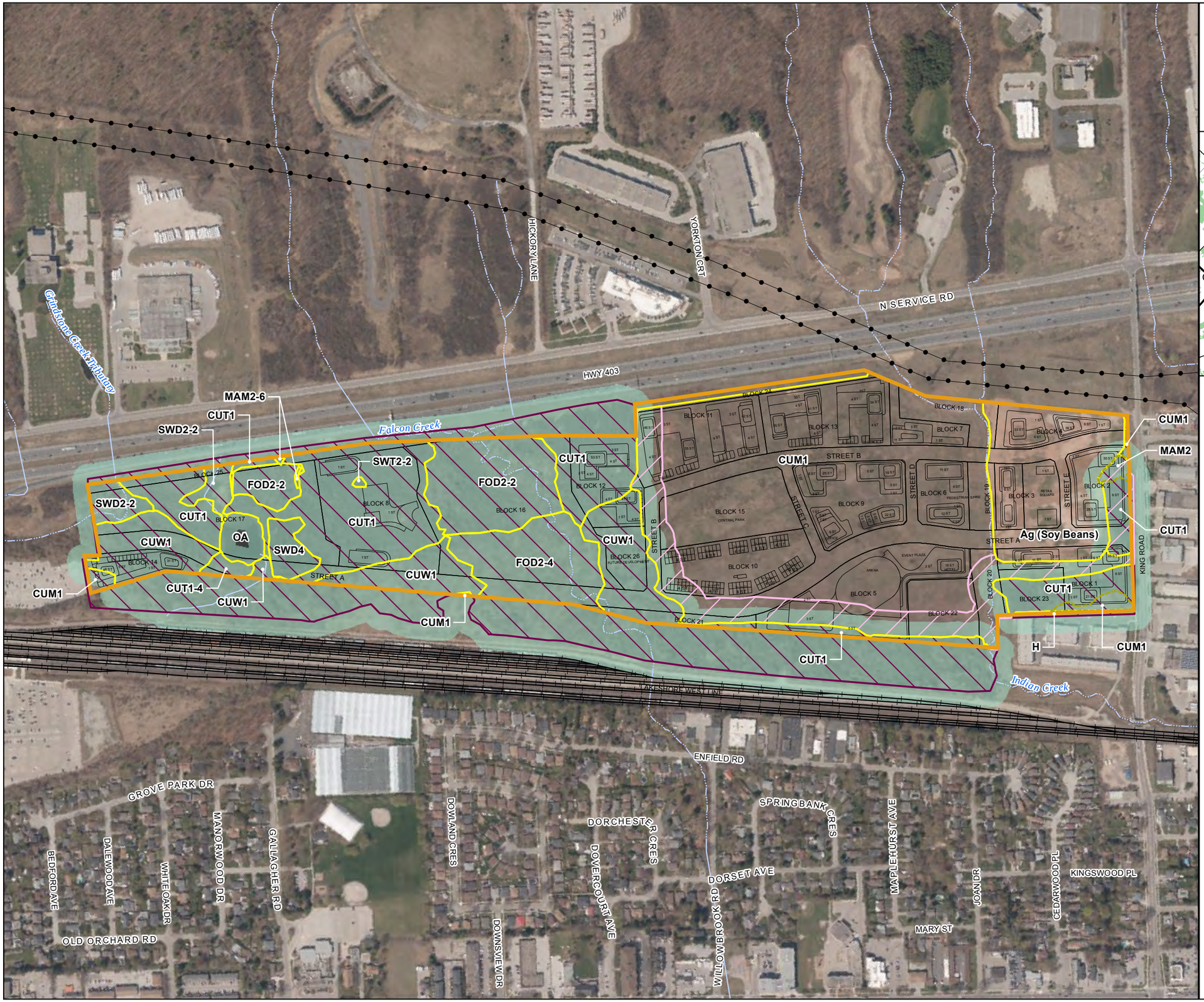
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Map 8b

1200 King Road, Burlington

Significant Features: Bat Habitat





Legend

- Subject Property
- Proposed Site Plan
- Utility Line
- Railway
- Permanent Watercourse
- Intermittent Watercourse

Potential Migratory Bat Overwintering Habitat

- Eastern Red Bat and Silver-haired Bat

Potential Migratory Bat Stopover Habitat

- Staging Habitat
- Stopover Roosting Habitat

- Ecological Land Classification (ELC)
- (Ag) Agriculture / Annual Row Crop - Soy Beans
- (CUM1) Mineral Cultural Meadow
- (CUT1) Mineral Cultural Thicket Ecosite
- (CUT1-4) Gray Dogwood Cultural Thicket Type
- (CUW1) Mineral Cultural Woodland Ecosite
- (FOD2-2) Dry – Fresh Oak – Hickory Deciduous Forest Type
- (FOD2-4) Dry – Fresh Oak – Hardwood Deciduous Forest Type
- (H) Hedgerow
- (MAM2) Mineral Meadow Marsh Ecosite
- (MAM2-6) Broad-leaved Sedge Mineral Meadow Marsh Type
- (OA) Open Water
- (SWD2-2) Green Ash Mineral Deciduous Swamp Type
- (SWD4) Deciduous Swamp
- (SWT2-2) Willow Mineral Thicket Swamp Type
- ELC Inclusion

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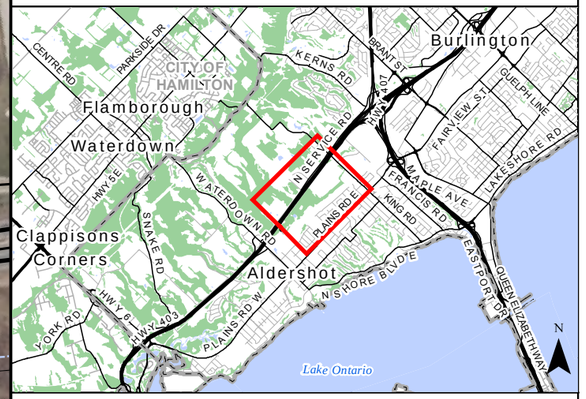
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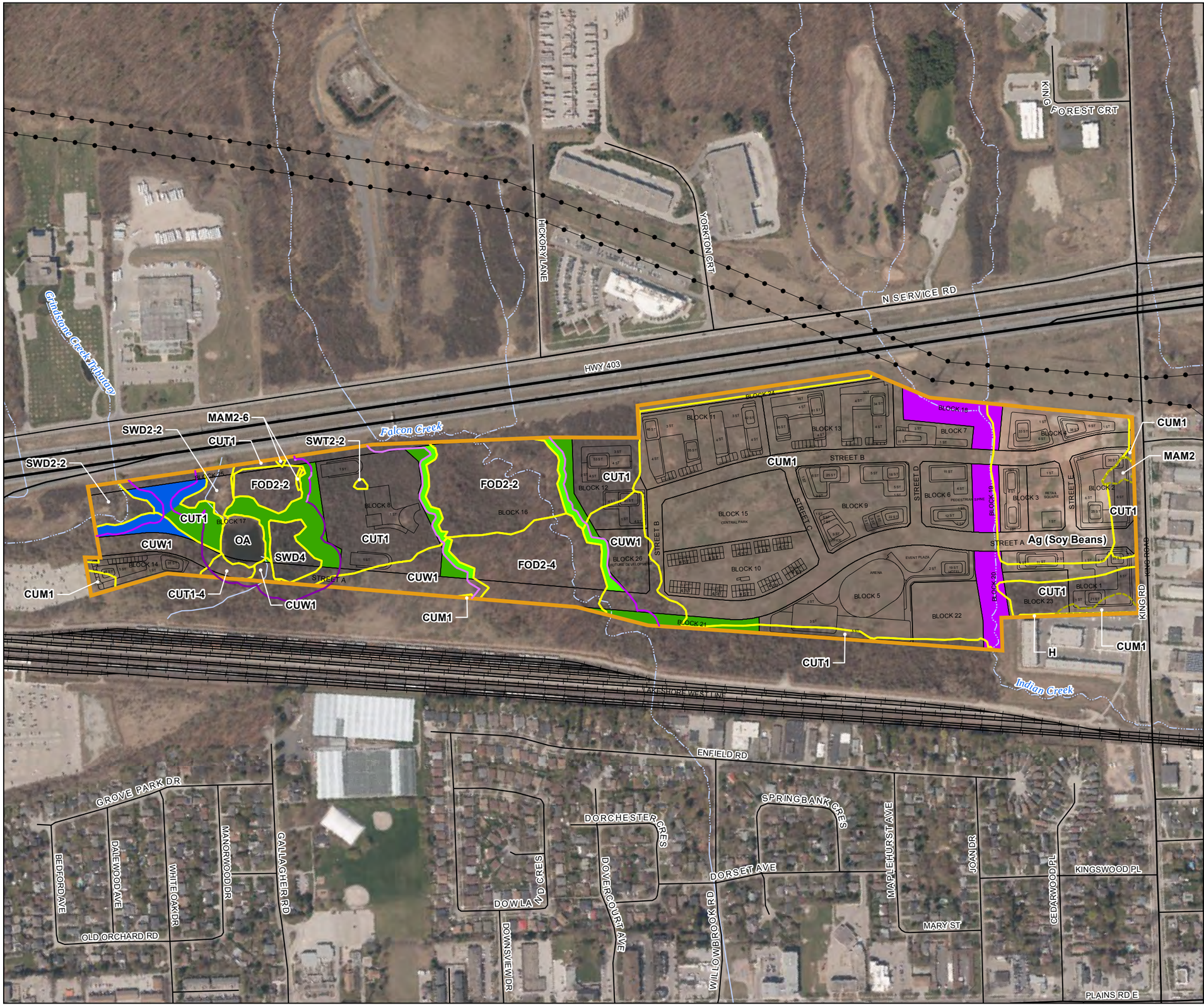
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Map 9

1200 King Road, Burlington

Habitat Creation/Enhancement with Concept Plan





Legend

- Subject Property
- Proposed Site Plan
- Utility Line
- Railway
- Highway
- Primary Road
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse
- Vegetation Protection Zone (VPZ) (10m)
- Vegetation Protection Zone (VPZ) (15m)
- Vegetation Protection Zone (VPZ) (30m)
- Riparian Creation/Enhancement (1.88ha)
- Wetland Creation (0.69ha)
- Woodland Buffer Enhancement (0.60ha)
- Woodland Creation (2.29ha)

- Ecological Land Classification
- (Ag) Agriculture / Annual Row Crop - Soy Beans
- (CUM1) Mineral Cultural Meadow
- (CUT1) Mineral Cultural Thicket Ecosite
- (CUT1-4) Gray Dogwood Cultural Thicket Type
- (CUW1) Mineral Cultural Woodland Ecosite
- (FOD2-2) Dry – Fresh Oak – Hickory Deciduous Forest Type
- (FOD2-4) Dry – Fresh Oak – Hardwood Deciduous Forest Type
- (H) Hedgerow
- (MAM2) Mineral Meadow Marsh Ecosite
- (MAM2-6) Broad-leaved Sedge Mineral Meadow Marsh Type
- (OA) Open Water
- (SWD2-2) Green Ash Mineral Deciduous Swamp Type
- (SWD4) Deciduous Swamp
- (SWT2-2) Willow Mineral Thicket Swamp Type
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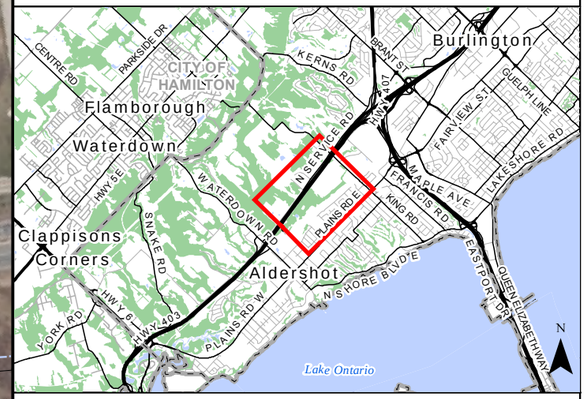
Project: 2762 Date: February 27, 2026	NAD83 - UTM Zone 17 Size: 11x17" **1:6,000**

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Map 10

1200 King Road, Burlington

Concept plan with Tree Density Survey



Legend

- Subject Property
- Tree Plot
- Proposed Site Plan
- Utility Line
- Railway
- Permanent Watercourse
- Intermittent Watercourse
- Ecological Land Classification
- (Ag) Agriculture / Annual Row Crop - Soy Beans
- (CUM1) Mineral Cultural Meadow
- (CUT1) Mineral Cultural Thicket Ecosite
- (CUT1-4) Gray Dogwood Cultural Thicket Type
- (CUW1) Mineral Cultural Woodland Ecosite
- (FOD2-2) Dry – Fresh Oak – Hickory Deciduous Forest Type
- (FOD2-4) Dry – Fresh Oak – Hardwood Deciduous Forest Type
- (H) Hedgerow
- (MAM2) Mineral Meadow Marsh Ecosite
- (MAM2-6) Broad-leaved Sedge Mineral Meadow Marsh Type
- (OA) Open Water
- (SWD2-2) Green Ash Mineral Deciduous Swamp Type
- (SWD4) Deciduous Swamp
- (SWT2-2) Willow Mineral Thicket Swamp Type
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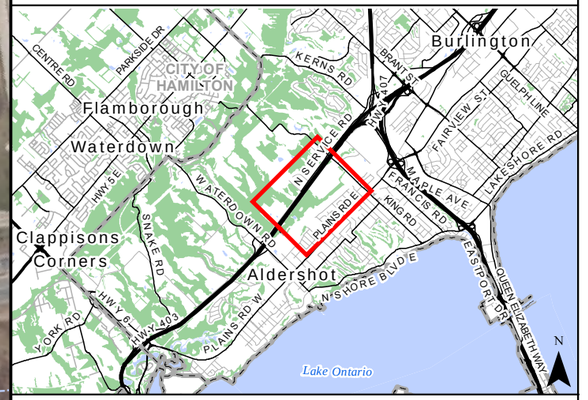
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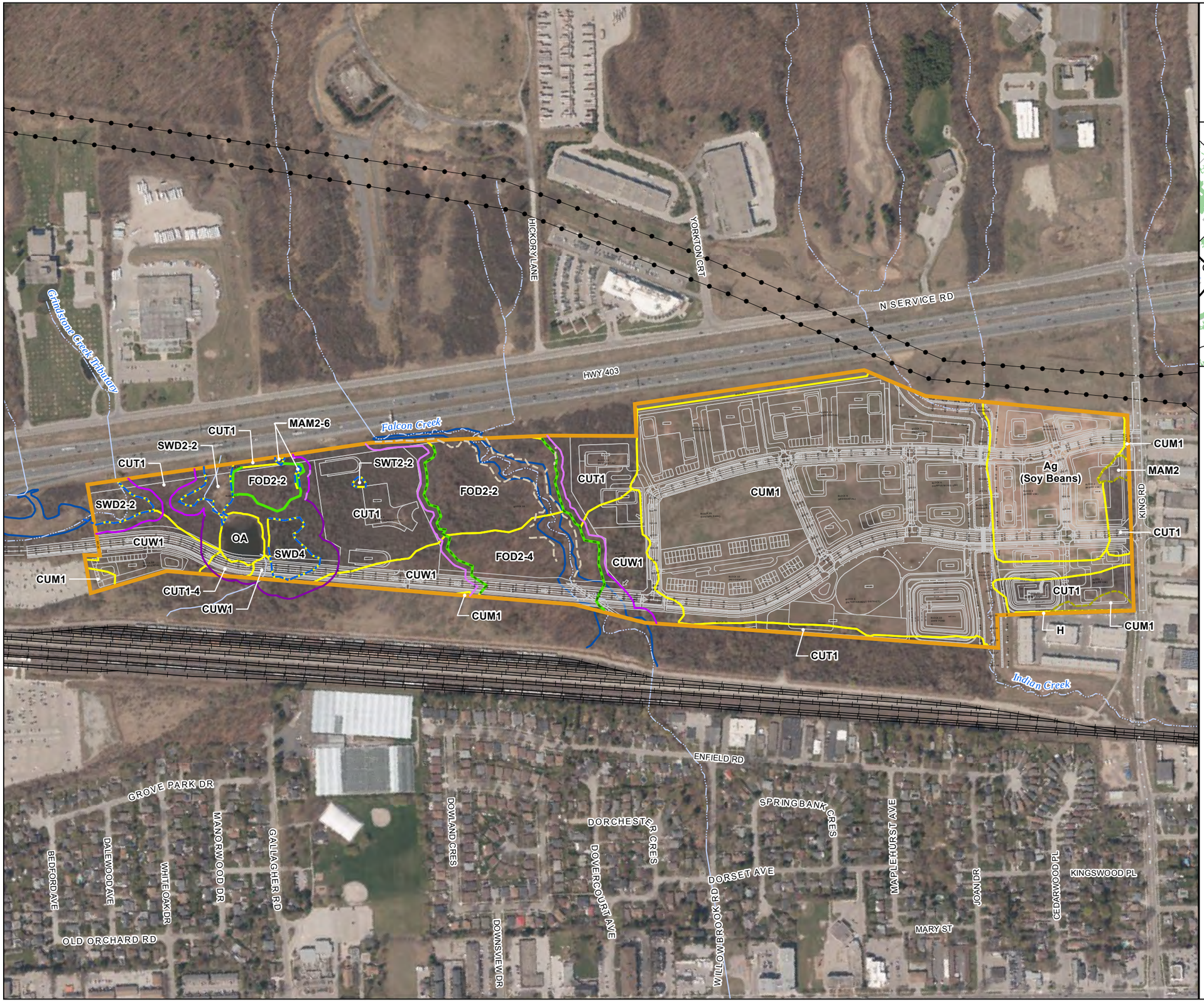
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Map 11

1200 King Road, Burlington

Grading Plan Overlay





Legend

- Subject Property
- Proposed Grading/Site Plan
- Utility Line
- Railway
- Permanent Watercourse
- Intermittent Watercourse
- Floodplain Hazard (Approximate)
- Top of Bank (Confirmed with Conservation Halton September 9, 2025)
- Wetland (Confirmed with Conservation Halton September 9, 2025)
- Dripline (Confirmed with City of Burlington September 18, 2025)
- Significant Woodland Dripline
- Vegetation Protection Zone (VPZ) (10m)
- Vegetation Protection Zone (VPZ) (15m)
- Vegetation Protection Zone (VPZ) (30m)
- Ecological Land Classification (ELC)
- (Ag) Agriculture / Annual Row Crop - Soy Beans
- (CUM1) Mineral Cultural Meadow
- (CUT1) Mineral Cultural Thicket Ecosite
- (CUT1-4) Gray Dogwood Cultural Thicket Type
- (CUW1) Mineral Cultural Woodland Ecosite
- (FOD2-2) Dry – Fresh Oak – Hickory Deciduous Forest Type
- (FOD2-4) Dry – Fresh Oak – Hardwood Deciduous Forest Type
- (H) Hedgerow
- (MAM2) Mineral Meadow Marsh Ecosite
- (MAM2-6) Broad-leaved Sedge Mineral Meadow Marsh Type
- (OA) Open Water
- (SWD2-2) Green Ash Mineral Deciduous Swamp Type
- (SWD4) Deciduous Swamp
- (SWT2-2) Willow Mineral Thicket Swamp Type
- ELC Inclusion

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Appendix I

Terms of Reference

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

MEMO

Project 2762

To: Halton Region Conservation Authority
2596 Britannia Road West
Burlington, ON
L7P 0G3

From: David Stephenson

Date: **September 9, 2022**

Re: **1200 King Road, Burlington, Ontario – Environmental Impact Assessment Terms of Reference**

Natural Resource Solutions Inc. (NRSI) is pleased to provide the following Terms of Reference (TOR) for an Environmental Impact Assessment (EIA) in support of proposed development of 1200 King Road, Burlington, Ontario (hereafter referred to as the Subject Property) (Map 1).

Introduction

The Subject Property, which are approximately 49.17ha and currently owned by Penta Properties Inc., are bordered by Highway 403 to the northwest, King Road to the northeast, railroad tracks to the southeast, and Aldershot Go Station to the southwest (Map 1).

The Subject Property is currently vacant and the westerly portion of the site is covered with forested area. The easterly portion of the site was formerly used for agricultural activities. The first identified use of the Site was for industrial purposes based on available aerial photography, city directories, and land titles. Review of land titles indicated the first industrial use of the Site was in 1894 when part of the Site was transferred to Burlington Pressed Brick & Terra Cotta Co.

The preliminary concept plan consists of mixed-use development blocks, an east-west road connecting King Road to Aldershot GO Station, a fine grid of walkable streets connecting the proposed development blocks, and an interconnected network of open space including the enhanced and preserved natural features, a central park and a linear

park along the proposed east-west road. The proposed undertaking is shown on the concept prepared by Dialog Design.

The Subject Property falls within the Conservation Halton regulated area due to the presence of creeks, and flooding hazards within the Subject Property (Map 1; The Halton Region Conservation Authority 2019). The Subject Property are characterized as cultural meadow in the northeast and woodland in the southwest, where a small manmade waterbody approximately 0.35ha is located. Indian Creek flows southeast through the cultural meadow portion of the Subject Property, while Falcon Creek, and Grindstone Creek are located in the woodland portion of the Subject Property (Conservation Halton 2021). Halton Region ROPA 48 shows that much of the existing natural features on the property are NHS. The province has also provided an evaluation of the wetlands in the western portion of the property conducted by WSP, and classified them as Provincially Significant Grindstone - Falcon Creeks Headwaters Wetland Complex.

Planning Context

The following TOR outlines the steps required to complete the EIA for the proposed development in accordance with the:

- PPS (MMAH 2020),
- Greater Golden Horseshoe Growth Plan (MMAH 2020),
- Ontario Regulation 162/06 (Government of Ontario 2013),
- Conservation Halton (The Halton Region Conservation Authority) Policies and Guidelines for the Administration of Ontario Regulation 162/06 and Land Use Planning Policy Document (The Halton Region Conservation Authority 2006),
- Conservation Halton Environmental Impact Assessment Guidelines (The Halton Region Conservation Authority 2020),
- City of Burlington Official Plan (City of Burlington 2018),
- Halton Region Official Plan (Regional Municipality of Halton 2021).

Dialogue Design has assembled a team to undertake the necessary studies. Each team member and their respective role in the project undertaking are as follows:

- Penta Properties Inc. (property owner and developer),

- Dialog Design (project design),
- Colucent Environmental (project adviser),
- NRSI (EIA),
- Urbantech (Engineering).

The Subject Site is currently designated as Employment Area under the Regional Official Plan and as Employment Lands under City of Burlington Official Plan. Pursuant to Zoning By-law 2020, the subject site is zoned as following:

- O2 (Open Space),
- BC1 (Business Corridor),
- H-MXE-411 (Mixed-use Corridor -Employment),
- H-GE1-410 (General Employment),
- CE-412 (Employment Commercial).

It is noted that the area of Falcon Creek retains its original zoning (pre-Zoning By-law 2020) as a result of an outstanding appeal. The proposal requests land use conversion from Employment to Mixed Use to allow for the development of a complete community with employment, residential, institutional, and recreational uses.

Background Review

The background information review for this study focused on characterizing the natural heritage features of the Subject Property and Study Area to inform the preparation of the Preliminary Environmental Constraints Analysis (Phase 2). While "Subject Property" refers to the property located at 1200 King Road, the "Study Area" includes the adjacent lands up to approximately 250m (Map 1) to better understand the existing conditions and how the project development may impact the natural environment of the adjacent lands. The existing conditions of the terrestrial and aquatic natural features within the Study Area will add valuable context regarding potential cumulative impacts to the natural environment, SAR, SWH, and the Provincially Significant Grindstone-Falcon Creeks Headwater Wetland Complex within and beyond the boundary of the Subject Property. The extent of each study component is described below along with the approach to characterization.

NRSI collected existing background information on the natural heritage features for the Subject Property and Study Area, for review. Guidelines, technical documents and

natural heritage information used to inform this EIA were compiled from the following sources:

- City of Burlington Official Plan (City of Burlington 2018),
- Land Information Ontario (LIO) (Government of Ontario 2015a),
- Conservation Halton Planning and Permits Map Tool (2019),
- Make a Map: Natural Heritage Areas online mapping tool (MNRF 2019),
- Government of Canada Species at Risk Act (SARA) Registry (2021),
- Ontario Breeding Bird Atlas (OBBA) (BSC et al. 2008),
- Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature 2019),
- Atlas of the Mammals of Ontario (Dobbyn 1994),
- Department of Fisheries and Oceans Canada - Aquatic SAR Mapping (DFO 2021),
- Ontario Butterfly Atlas (MacNaughton et al. 2021),
- Ontario Odonata Atlas (2021),
- Planning Justification Report (Metropolitan Consulting Inc. 2014),
- 1200 King Road ESA (Savanta Inc. 2015),
- Forest Assessment/Tree Inventory Preservation Plan Report (Kuntz Forestry Consulting Inc. 2015),
- Conservation Halton Comments (2015) on 2015 Submissions,
- Peer Review Comments (2016) on 2015 Submissions,
- Halton Region Comments (2016) on 2015 Submissions,
- New Provincially Significant Grindstone-Falcon Creeks Headwater Wetland Complex (MNRF 2020).

The wildlife and insect atlases listed above provide data based on 10x10km survey squares. Information was compiled from the atlas square that overlaps the Subject Property (square 17NH99).

Biophysical Inventory

The study will use a series of nested study areas.

- The Subject Property will be surveyed in its entirety in detail.
- Normally, neighbouring lands to 120m from the property would be assessed to include adjacent lands distances as per the PPS, but in this case, 120m would only overlap with existing developed lands and the

highway. As such, the connectivity and/or relationship to off-site natural features will focus on vacant lands immediately adjacent to the property and the potential corridor connections (especially under Highway 403)

- For the watercourses, up and downstream conditions will be noted based on air photos, road crossings and background information to approximately 250m.
- Background information sources related to subwatersheds as well as legacy data atlas squares will also be collected.

Although it is understood that standard practice is that field surveys commence after agency comments on the TOR are received, however, given the need to utilize peak seasonal periods for time sensitive surveys and avoid missing these data, surveys have commenced before submission of this document.

The field work program was developed based on review of aerial image analysis, background sources and familiarity with the vicinity of the Subject Property to determine the natural features and habitats that are present (e.g. the results of the SAR and SWH screening described above).

As part of the 2015 EIA prepared by Savanta, a number of field surveys were conducted in 2010, 2011 and early 2013. This included vegetation mapping, vascular flora inventories, breeding bird surveys, anuran call surveys, insect surveys, winter wildlife surveys, aquatic habitat and benthic surveys, as well as records of wildlife observations. Although some of this data is now over 10 years old, this data provides valuable information and will be integrated with the findings of the proposed field surveys.

In addition, agency review comments on the EIA were reviewed to further guide the preparation of the field surveys.

A multi-season (winter, spring, summer, and fall) field inventory program was developed to include assessment of on-site and adjacent species and habitats. A tree inventory will be timed for later stages in the process once the layout and design of the proposed undertaking are available. This will assist in focusing the survey locations.

Numerous site visits have been completed to date including some winter surveys: January 26, February 18, and March 4, 2022, as well as spring surveys for anurans, focused wildlife surveys, and vegetation. These surveys provide an understanding of the current conditions within the property and assist in the identification of potential constraints to development, and have been used to inform the scope of the Terms of Reference. During the site visits, NRSI biologists documented the following information:

- Conducted preliminary mapping of vegetation communities using standard ELC system
- Confirmed absence of candidate over wintering habitat in culverts for SAR bats (Tri-colored Bat) within the Study Area
- Noted evidence of candidate Significant Wildlife Habitat (SWH) and SAR bat habitat
- Conducted winter wildlife surveys
- Conducted anuran call surveys (2 of 3)
- Set out snake boards
- Completed Ecological Land Classification (ELC) mapping and spring floral surveys.

Inventories of wildlife and vegetation on the Subject Property and adjacent habitats include the following specific surveys:

Winter Wildlife Surveys

Three winter wildlife surveys have been completed within the Subject Property by NRSI biologists on January 26, February 18, and March 4, 2022. These surveys consisted of a team of biologists traversing the property approximately 24hrs after substantial snow falls. Tracks were mapped and identified, and any observations of wildlife were recorded.

Vegetation Community Mapping

The vegetation communities were preliminarily characterized and mapped by NRSI biologists using the Ecological Land Classification (ELC) for southern Ontario (Lee et al. 1998) protocol on February 18, 2022. This was further refined to include details about the vegetation communities such as species composition, dominance, uncommon species or features, etc. A second classification survey was conducted on May 20,

2022, a third on August 15, 2022 and a final fall assessment of natural areas on site, with refinement of ELC classification as necessary, will be conducted.

Vascular Flora Surveys

A 3-season vascular flora inventory will involve surveying plant species in vegetation communities within the Subject Property in spring, summer, and fall. The spring and summer surveys took place on May 20 and August 15, 2022. Any rare species identified and their location(s) will be recorded with a handheld GPS unit.

Wetland Boundary and Woodland Dripline Delineation and Mapping

The boundaries of the wetlands were delineated, flagged and surveyed using a high-accuracy GPS by one of NRSI's Certified Wetland Evaluators following the Ontario Wetland Evaluation System (OWES) (MNR 2013) on August 26, 2022. If requested, the flagged wetland boundaries may be reviewed the field with Conservation Halton and City of Burlington staff. Woodland driplines will be surveyed using a high-accuracy GPS unit in the fall.

Breeding Bird Surveys

In accordance with OBBA methods (BSC et al. 2021), two breeding bird surveys were conducted at least 10 days apart between late May and early July. A third survey may take place if bobolink or meadowlark are observed on the Subject Property. The first breeding bird survey took place on May 25 and the second on June 22, 2022. Species were documented through extensive area searches through all habitat types. Surveys were completed between a half-hour before sunrise and 10am.

Nocturnal Owl Survey

A single silent listening owl survey was conducted on April 22, 2022 and followed the Standardized Owl Surveys Instruction Manual (OBBA 2002) protocol.

Reptile Surveys

Snake Visual Encounter Surveys (VES) will be completed during subsequent site visits between April and August 2022 following methods outlined in the Survey Protocol for Ontario's Species at Risk Snakes (MNRF 2016) during suitable weather conditions within suitable habitats (i.e., along woodland and wetland edges and within open areas). Biologists will slowly walk-through suitable habitats and searched under cover objects

such as logs, rocks, etc. To date, eight VES's have occurred (April 29, May 9, May 11, May 18, June 22, July 7, August 10 and September 7).

Ten snake coverboards (4ft x 4ft) were installed within suitable habitats (i.e., along woodland and wetland edges and within open areas) on May 6, 2022. Snake cover boards will be checked in the morning or late evening during subsequent site visits. When checking boards, biologists will approach the board cautiously and lift it to check for snakes underneath, taking care to replace the board in its original location. All snake species, sex (if known), number of individuals, and behaviour will be recorded on a detailed observation form. Photo records were also collected when possible. To date, seven snake coverboard checks have occurred (May 9, May 11, May 18, June 22, July 7, August 10 and September 7).

Turtle basking surveys were undertaken following ice-out until mid-May within the wetlands and pond as per MNRF guidelines (2015). These surveys occurred on sunny days with temperatures exceeding 5°C or on overcast days with temperatures above 15°C. Suitable habitats were visually scanned, following the protocols outlined in the Occurrence Survey Protocol for Blanding's Turtle in Ontario (MNRF 2015b), which is suitable for identifying all turtle species. As per protocol recommendations, six surveys were carried out in 2022 (April 29, May 2, May 5, May 9, May 11 and May 18).

NRSI biologists will also watch for turtles during all site visits within the subject property. During each visual encounter survey, detailed notes will be taken that described the habitat searched, level of effort, weather conditions, and species observed.

Amphibian Surveys

Three anuran (frog and toad) point count surveys were completed following the Marsh Monitoring Program Protocol for Surveying Amphibians (BSC 2009). Surveys were conducted on April 22, May 13, and June 20, 2022, at least one-half hour after sunset, and when the air temperatures were >5°C, >10°C and >17°C, respectively. Point count stations are located in areas with suitable habitat.

Egg mass surveys were conducted to inform the presence of amphibian breeding habitat. Two egg mass surveys were completed on April 29 and May 11. These included walking and visually scanning the edges of wetland habitats and the pond for

egg masses. Species were identified and the number of egg masses and individuals were estimated.

Aquatic Habitat Assessment

A detailed aquatic habitat and fish community assessment of the watercourses was conducted on August 31, 2022 to coincide with base flow conditions. Methodologies used followed the OSAP protocol (OSAP 2017). Fish community assessments were conducted using a backpack electrofishing unit and will provide an understanding of the diversity, abundance, and species of fish that may occupy the feature.

Crepuscular Surveys

Mammal focused crepuscular surveys were conducted on April 22, May 13 and June 20, 2022. These consisted of observations of mammals throughout the property. Acoustic bat surveys are described below under Bats.

Butterfly, Dragonfly and Damselfly Surveys

Systematic area searches were carried out for insects across all habitat types within the subject property and involved observing insects visually through binoculars and capture with an insect sweep net when needed to confirm identifications. Surveys were carried out on July 7, August 10 and September 7, with incidental observations recorded throughout the field season, to capture both early and late emerging species. Surveys were undertaken during fair weather conditions with temperatures exceeding 15°C and during daylight hours. All species of odonates and butterflies observed during field surveys were recorded

In addition, surveys will be conducted with specific focus on Mottled Duskywing and Monarchs. Mottled Duskywing surveys will follow the methodology outlined in the Standardized Survey Protocol for Mottled Duskywing (*Erynnis martialis*) with surveys occurring in May and June to coincide with flight periods. These surveys will only occur if stands of New Jersey Tea (*Ceanothus americanus)* are located.

Stands of Milkweed (*Asclepias syriaca*) will be recorded to assist in assessing potential habitat for Monarchs.

Incidental Wildlife

In addition to the targeted surveys noted above, all wildlife species observations were/will be recorded during all field surveys. This includes direct observations, as well as signs such as dens, tracks, scats, etc. General assessments of habitat connectivity and ecological linkage areas will also be completed in tandem with the above-noted surveys.

Bat Habitat Assessment

An assessment of potential bat hibernacula in a culvert under Highway 403 within the eastern portion of the Study Area was conducted on January 26, 2022. Background research identified the property is approximately 5km east of a known hibernaculum for Tri-colored Bat, in a culvert under Highway 403. The tunnel within the eastern portion of the Study Area is of similar length (~75m) under Highway 403 for the creek running through the property. NRSI biologists determined the concrete box culvert to be solid without cracks, and unsuitable for bat hibernation.

A preliminary assessment of trees and snags within Subject Property was conducted on March 4, 2022 during the leaf-off period following MNRF protocols (MNRF 2014, 2017) to determine the presence of potentially suitable maternity roosting cavities, and loose bark for SAR bats to inform if follow-up surveys may be required.

The following information was collected for each standing live or dead trees ≥10 cm DBH with cracks, crevices, hollows, cavities, and/or loose or naturally exfoliating bark to identify suitable maternity roost trees:

- Species;
- DBH (cm);
- Decay class (Watt & Caceres 1999);
- Canopy cover (%);
- Approximate tree height (m); and
- Roost tree attributes:
  - Number, type, and height of cavities;
  - Presence of loose bark; and
  - Evidence of use by predators or other species.

NRSI biologists determined there are many potentially suitable maternity roosting cavities for SAR bats present within the Subject Property.

NRSI biologists determined there are many Maples (*Acer* sp.) or Oaks (*Quercus* sp.) within the Subject Property that may be suitable for Tri-colored Bat roosting sites (i.e., dead leaf clusters).

Passive acoustic surveys began on May 31 and were completed on July 7, 2022 to assess the use of identified candidate habitats by bat SAR. Bat activity was monitored with the use of an omnidirectional microphone (SMM-U1) and a Wildlife Acoustics Song Meter full spectrum ultrasonic acoustic recorder (SM4BAT). The acoustic recorder employs direct digital recording technology and is designed to collect records from the full spectrum of bat calls (15-120kHz) for the entire duration of the monitoring period. This allows for a full analysis of activity in the vicinity of each acoustic monitoring station.

Based on current liaison with staff of MECP, 29 monitoring stations assessed activity in candidate bat SAR roosting habitats and were within 10m of the best candidate roost trees where possible. An additional 4 monitoring stations were installed near suitable foraging areas or travel/movement corridors along treed community edges to document foraging and movement activity within the subject property.

Passive acoustic surveys were conducted in accordance with provincial protocols for a minimum of 10 nights with suitable weather conditions between May 31st and July 7th, commencing at sunset and continuing for 5 hours each evening.

All bat echolocation calls recorded during passive acoustic surveys will initially be autoclassified to species level or species grouping using the software program SonoBat v4.2.2. Manual vetting will be completed for recorded calls that are auto-classified to “rare” SAR bat species (i.e., Northern Myotis, Tri-colored Bat and Eastern Small-footed Myotis) only. Manual vetting will be completed by experienced and qualified NRSI biologists and will confirm the recorded call identification to species or species grouping.

Tree Inventory

A comprehensive tree inventory will be completed by Certified Arborists, accounting for trees ≥10cm diameter-at-breast-height (DBH) within and immediately adjacent to proposed development footprint on the Subject Property. This will be completed once details of the proposed layout of the development are available. Each inventoried tree

will be marked with a numbered aluminum forestry tag and its location will be recorded along with the following information:

- Tree tag number,
- Tree species,
- DBH measurement (cm),
- Crown radius (m),
- Overall health (excellent, good, fair, poor, very poor, dead),
- Potential for structural failure (improbable, possible, probable, imminent),
- Tree location (surveyed using a SXBlue II GNSS GPS unit with sub-meter accuracy), and
- General comments (i.e., disease, aesthetic quality, development constraints, sensitivity to development).

All information gathered during the tree inventory will be submitted along with the EIA, summarizing the findings of the tree inventory, and compare tree layout to the proposed site plan.

Biophysical Analysis

Species at Risk and Species of Conservation Concern Screening

Initial wildlife species lists for the area were developed using these background sources and informed a desktop screening exercise in conjunction with field surveys in early 2022 to determine the potential for Species at Risk (SAR) and Species of Conservation Concern (SCC) to occur within or adjacent to the Subject Property.

SAR are those listed on the Species at Risk in Ontario (SARO) List (MNRF 2021), and include species identified by the Committee on the Status of Species at Risk in Ontario (COSSARO) as provincially Endangered, Threatened, or Special Concern. Regulated SAR refer to species listed as Endangered or Threatened, due to the protection afforded to the species and their habitat under the Endangered Species Act (ESA) (Government of Ontario 2007).

SCC includes species that are:

- Designated provincially as Special Concern (MNRF 2021),

- Assigned a conservation status (S-Rank) of S1 to S3 or SH (i.e., critically imperiled, imperiled, vulnerable, or historical) (MNRF 2021),
- Designated federally as Threatened or Endangered by the Committee for the Status of Endangered Wildlife in Canada (COSEWIC) (Government of Canada 2021), but not provincially by the COSSARO. These species are protected by the federal Species at Risk Act (SARA) but not provincially by the ESA.

Based on the results of the preliminary screening exercise the following SAR and Species of Conservation Concern (SCC) are reported from the vicinity and were identified as potentially having suitable habitats within the Subject Property to inform the need for further assessment:

- Black-crowned Night-Heron (*Nycticorax nycticorax*) – provincially rare (S3B, S2N, S4M),
- Purple Martin (*Progne subis*) – provincially rare (S3B),
- Eastern Wood-Pewee (*Contopus virens*) – Special Concern,
- Red-headed Woodpecker (*Melanerpes erythrocephalus*) – Endangered,
- Louisiana Waterthrush (*Parkesia motacilla*) – Threatened,
- Snapping Turtle (*Chelydra serpentina*) – Special Concern,
- Milksnake (*Lampropeltis Triangulum*) – Special Concern,
- Little Brown Myotis (*Myotis lucifugus*) – Endangered,
- Tri-colored Bat (*Perimyotis subflavus*) – Endangered,
- Monarch (*Danaus plexippus*) – Special Concern,
- Mottled Duskywing (*Erynnis martialis*) – Endangered,
- Unicorn Clubtail (*Arigomphus villosipes*) – provincially rare (S3),
- Arrowhead Spiketail (*Cordulegaster obliqua*) – provincially rare (S3),
- Double-striped Bluet (*Enallagma basidens*) – provincially rare (S3),
- Swamp Darner (*Epiaeschna heros*) – provincially rare (S3S4),
- Painted Skimmer (*Libellula semifasciata*) – provincially rare (S3).

Further site investigations are necessary to confirm the presence of the listed SAR and SCC within the Subject Property. Dead Butternut (*Juglans cinerea*) were observed during the ongoing field surveys on the Subject Property. Should a live specimen be

identified, it will be necessary to undertake Butternut Health Assessments (BHAs) and testing to determine the health category and genetic purity of these trees.

Significant Wildlife Habitat Screening

Based on available background information, a desktop Significant Wildlife Habitat (SWH) screening exercise was also completed to identify a preliminary list of candidate SWH types (MNR 2000, MNRF 2015b) which may be present within or adjacent to the Subject Property, and which will be assessed through the field program. Any SWH have been confirmed through field surveys and will be carried forward into the EIA.

Based on the results of the initial field surveys the following SWH types have been considered confirmed SWH on the Subject Property:

- Raptor Wintering Area (Confirmed),
- Bat Maternity Colonies (Confirmed),
- Tallgrass Prairie (Confirmed).

Based on the results of the preliminary screening exercise the following SWH types may be found on the Subject Property and potential presence has been used to identify the need for further assessment:

Seasonal Concentration Areas:

- Turtle Wintering Area,
- Reptile Hibernaculum,
- Colonial Nesting Breeding Bird Habitat (Tree/Shrub),
- Migratory Butterfly Stopover Areas,
- Landbird Migratory Stopover Areas.

Specialized Wildlife Habitat

- Woodland Raptor Nesting Habitat,
- Turtle Nesting Areas,
- Seeps and Springs,
- Amphibian Breeding Habitat (Woodland),
- Amphibian Breeding Habitat (Wetland).

Species of Conservation Concern

- Terrestrial Crayfish,
- Special Concern and Rare Wildlife Species.

Further field studies will be necessary to assess the potential presence of these SWH types within the Subject Property. Appendix II provides a full summary of SWH assessed as part of the background information review. As noted in Appendix II in many cases where SWH have been screened, proposed field surveys will provide further information and confirm or amend the screening.

Information collected through background information and natural heritage characterization will be integrated with results of field surveys to identify and evaluate natural heritage features and functions. An evaluation of significance will be conducted based on applicable policies, legislation, and provincial technical manuals. Significant natural heritage features for protection shall be identified, including appropriate environmental buffers, based on current policies, regulations, and guidelines, from the:

- PPS (MMAH 2020),
- Endangered Species Act (Government of Ontario 2007),
- Greater Golden Horseshoe Growth Plan (MMAH 2020),
- Ontario Regulation 162/06 (Government of Ontario 2013),
- Conservation Halton (The Halton Region Conservation Authority) Policies and Guidelines for the Administration of Ontario Regulation 162/06 and Land Use Planning Policy Document (The Halton Region Conservation Authority 2006),
- Natural Heritage Reference Manual (MNR 2010),
- Ontario Wetland Evaluation System: Southern Manual (MNR 2013) (see below),
- Conservation Halton Environmental Impact Assessment Guidelines (The Halton Region Conservation Authority 2020),
- City of Burlington Official Plan (City of Burlington 2018),
- Halton Region Official Plan (Regional Municipality of Halton 2021), including ROPA 48 NHS mapping (see below),
- SWH Criteria Schedules for Ecoregion 7E (MNR 2000, MNRF 2015b).

This information will be shared with the study team as input to the layout and design of the proposed undertaking.

Impact Assessment, Mitigation and Residual Impacts

The proposed development will be reviewed and compared to the existing conditions within and adjacent to the Subject Property in order to assess potential impacts to natural features in the Subject Property and on adjacent lands.

Direct, indirect, induced and cumulative impacts anticipated as a result of the proposed development will be assessed.

- Direct impacts to the natural features on the Subject Property associated with disruption or displacement caused by the actual proposed 'footprint' of the undertaking,
- Indirect impacts associated with changes in site conditions such as drainage and water quantity/quality,
- Induced impacts associated with impacts after the development is constructed such as subsequent demand on the resources created by increased habitation/use of the area,
- Cumulative Impacts are potential changes that are occurring or may occur in the future on surrounding lands within the same subwatershed as the Subject Property. Cumulative impacts include spatial crowding, temporal crowding, spatial lags and temporal lags. This analysis will include considerations of cumulative impacts (noise, air quality, water quality) related to the existing developed conditions (rail, highways, roads, etc.).

<u>Mitigation Measures and Restoration</u>

Recommendations regarding avoidance, minimization, and mitigation of impacts will be made and opportunities for restoration will be highlighted. Site-specific restoration needs, as well as species-specific conservation recommendations and long-term stewardship will also feed into the recommendations, and a construction monitoring program will be outlined.

Environmental Impact Study Report

The findings of the natural heritage characterization, Significance and Sensitivity Analysis, and Impact Analysis will be compiled in a comprehensive EIA report. At a minimum the report will include:

- A description of the proposed development,
- A detailed characterization of natural heritage features (e.g., character and condition) within the Study Area,
- Identification of potential direct, indirect or induced and cumulative impacts and requirements for mitigating adverse impacts including contingency planning,
- Recommendations for mitigation and restoration,
- Recommendations for pre-, during, and post-construction monitoring, including the possible role of existing biological data for monitoring, as well as the need for additional baseline monitoring will be identified, and monitoring methods, timing etc. will be discussed,
- Mapping that shows the boundaries of confirmed natural heritage features, flooding hazards, and the location of any significant habitats or species,
- Detailed species list appendices, and
- Recommendations and conclusions with respect to the 'no negative impact' test.

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Appendix II
Species at Risk & Species of Conservation Concern Screening Table

Species at Risk (SAR) and Species of Special Concern (SCC) Screening Table

Common Name	Scientific Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	NRSI Observed (2022)	Habitat Source	Habitat Preference	Suitable Habitats within Study Area	Carried Forward to EIS?	Rationale
Vascular Plants												
Eastern Flowering Dogwood	*Cornus florida*	S2?	END	E	E	Schedule 1	No	Michigan Flora Online (A. A. Reznicek, E. G. Voss, & B. S. Walters. 2011)	Dry (usually oak) to rich deciduous forests, especially on hillsides and river banks; rarely recorded with tamaracks. Flowering in spring. Fruiting in summer to fall.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Large-bracted Tick-trefoil	*Desmodium cuspidatum*	S3					No	The Ontario distribution mapped by Cody (1982)	Dry, sandy or rocky woods in the Carolinian Zone and also near the St. Lawrence River in southeastern Ontario.	No	No	No preferred habitat (dry, sand, rocky woods) within Subject Property and species not observed during 2022 surveys.
American Chestnut	*Castanea dentata*	S1S2	END	E	E	Schedule 1	No	Flora of North America Online (Flora of North America Editorial Committee, eds. 1993+)	Rich deciduous and mixed forests, particularly with oak. Flowering in summer.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
American Columbo	*Frasera caroliniensis*	S2	END	E	E	Schedule 1	No	Michigan Flora Online (A. A. Reznicek, E. G. Voss, & B. S. Walters. 2011)	Dry (oak, hickory, sassafras) or sometimes moist forests and openings.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Pignut Hickory	*Carya glabra*	S3					No	Argus et al. 1982-1987	Rare and local in dry deciduous woods and savannahs, often on sandy soil with oaks, in the Carolinian Zone of southwestern Ontario	No	No	No preferred habitat (savannahs or sandy soil) within Subject Property and species not observed during 2022 surveys.
Butternut	*Juglans cinerea*	S2?	END	E	E	Schedule 1	Yes	Michigan Flora Online (A. A. Reznicek, E. G. Voss, & B. S. Walters. 2011)	Stream banks and swamps, as well as upland beech-maple, oak-hickory, and mixed hardwood stands.	Yes	Yes	Preferred habitat present within Subject Property and species confirmed within Subject Property.
Spotted Wintergreen	*Chimaphila maculata*	S2	END	T	T	Schedule 1	No	Michigan Flora Online (A. A. Reznicek, E. G. Voss, & B. S. Walters. 2011)	Deciduous forests of several kinds, often with some conifers, but especially under oaks on sandy soils, as on forested dunes. Flowering in spring to summer.	No	No	No preferred habitat (sand soils) within Subject Property and species not observed during 2022 surveys.
Black Snakeroot	*Actaea racemosa*	S2					No	Argus et al. 1982-1987	Rich woods and slopes in the Carolinian Zone.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Bristly Buttercup	*Ranunculus hispidus*	S3					No	Duncan 1980	Rare and local in dry, open, upland deciduous woods in southern Ontario, primarily in the Carolinian Zone (Duncan 1980).	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Rue-anemone	*Thalictrum thalictroides*	S3					No	The Ontario distribution mapped by Cody (1982)	Uncommon and local in dry, open deciduous woods in southern Ontario.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Midland Sedge	*Carex mesochorea*	S1					No	Oldman 1999	Known from a few scattered sites in southern Ontario mostly in somewhat disturbed habitats (fields, roadsides).	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Perfoliate Bellwort	*Uvularia perfoliata*	S1S2					No	Argus et al. 1982-1987 and Soper 1952	Rich woods and thickets and dry oak - pine woods in southwestern Ontario.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Forked Panicgrass	*Dichanthelium dichotomum*	S2					No	Argus et al. 1982-1987	Very local in dry, sandy or rocky oak or oak-pine woods in southwestern and southeastern Ontario. First collected in Ontario in 1903 by W. Herriot at Galt, Waterloo Region (OAC, QK).	No	No	No preferred habitat (savannahs or sandy soil) within Subject Property and species not observed during 2022 surveys.
Shiny Wedge Grass	*Sphenopholis nitida*	S1					No	Argus et al. 1982-1987 and Dore and McNeill 1980	A rare and local grass in rich deciduous woods in southwestern Ontario.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Birds												

Red-necked Grebe	*Podiceps grisegena*	S3	NAR	NAR	NS	No schedule	No	OMNR 2000	Permanent freshwater lakes with a fringe of aquatic emergent vegetation; marshes, impoundments or sewage lagoons with > 4 ha of open water; protected marshy areas or bays in larger lakes; nest greatly affected by wave action of boats and other human disturbances	No	No	No freshwater lakes >4ha within Subject Property and species not observed during 2022 surveys.
Chimney Swift	*Chaetura pelagica*	S3B	THR	T	T	Schedule 1	No	Species at Risk in Ontario (MECP 2020), Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Commonly found in urban areas near buildings; nests in chimneys, hollow trees,and crevices of rock cliffs. Feeds over open water.	No	No	No nesting habitat within Subject Property and species not observed during 2022 surveys.
Common Gallinule	*Gallinula galeata*	S3B					No	Birds of Ontario (Hughes 2001)	Marshes and vegetated ponds.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Least Bittern	*Ixobrychus exilis*	S4B	THR	T	T	Schedule 1	No	Species at Risk in Ontario (MECP 2020), Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Strongly prefers cattail marshes with a mix of open pools and channels. Also found in swamps and bogs and marshy borders of lakes, ponds, streams and ditches with dense emergent vegetation of cattail, bulrush and sedge. Nests in cattails. Intolerant of loss of habitat and human disturbance.	No	No	No preferred habitat within Subject Property and species not observed during 2022 surveys.
Bald Eagle	*Haliaeetus leucocephalus*	S4	SC	NAR	NS	No schedule	Yes	Species at Risk in Ontario (MECP 2020), Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	A variety of mature forest types adjacent to large lakes or rivers. Generally nest in tall supercanopy trees, a short distance from shore.	Yes	Yes	Preferred habitat present within Subject Property and species confirmed within Subject Property.
Red-headed Woodpecker	*Melanerpes erythrocephalus*	S3	END	E	E	Schedule 1	Yes	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Open, deciduous forest with little understory; fields, parks or pasture lands with scattered large trees; wooded swamps; orchards, small woodlots or forest edges; groves of dead or dying trees. Requires cavity trees with at least 40 cm dbh.	Yes	Yes	Preferred habitat present within Subject Property and species confirmed within Subject Property.
Peregrine Falcon	*Falco peregrinus*	S4	SC	NAR	SC	Schedule 1	No	Species at Risk in Ontario (MECP 2020), Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Usually nest on tall, steep cliff ledges close to large bodies of water. Can also nest on the ledges of tall buildings.	No	No	No nesting habitat within Subject Property and species not observed during 2022 surveys.
Eastern Wood-Pewee	*Contopus virens*	S4B	SC	SC	SC	Schedule 1	Yes	Species at Risk in Ontario (MECP 2022)	Mid-canopy layer of forest clearings and edges of deciduous and mixed forest. Abundant in intermediate-age mature forest stands with little understory vegetation.	Yes	Yes	Preferred habitat present within Subject Property and species confirmed within Subject Property.
Barn Swallow	*Hirundo rustica*	S4B	SC	SC	T	Schedule 1	Yes	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Farmlands, rural areas and other open or semi-open areas near body of water. Nests almost exclusively on human-made structures such as open barns, buildings, bridges and culverts.	Yes	Yes	Preferred habitat present within Subject Property and species confirmed within Subject Property.
Purple Martin	*Progne subis*	S3B					No	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Open, trees areas such as farmland, parks, yards, marshes; usually near large bodies of water; colonial; nests in tree cavities, cliff ledges; most common in nest boxes; requires open space for foraging; prefers trees >15 cm dbh.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Bank Swallow	*Riparia riparia*	S4B	THR	T	T	Schedule 1	No	Recovery Strategy for the Bank Swallow in Ontario (Falconer et al. 2016)	Nests in burrows in natural and human-made settings with vertical faces in silt and sand deposits. Ususally on banks of river and lakes, but also found in sand and gravel pits.	No	No	No preferred habitat within Subject Property and species not observed during 2022 surveys.
Tufted Titmouse	*Baeolophus bicolor*	S3					No	Birds of Ontario (Hughes 2001)	Deciduous and mixed forests of southern counties. Also present in wooded sand dunes and residential gardens.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Wood Thrush	*Hylocichla mustelina*	S4B	SC	T	T	Schedule 1	No	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Carolinian and Great Lakes-St. Lawrence forest zones. Undisturbed moist mature deciduous or mixed forest with deciduous sapling growth. Near pond or swamp. Must have some trees higher than 12 m.	No	No	No preferred habitat within Subject Property and species not observed during 2022 surveys.
Bobolink	*Dolichonyx oryzivorus*	S4B	THR	SC	T	Schedule 1	Yes	Recovery Strategy for the Bobolink and Eastern Meadowlark in Ontario (McCracken et al. 2013)	Large (>10 ha), open expansive grasslands, pastures, hayfields, meadows or fallow fields with dense ground cover. Occassionally nest in large (>50 ha) fields of winter wheat and rye in southwestern Ontario.	Yes	Yes	Species observed during 2024 surveys.

Eastern Meadowlark	*Sturnella magna*	S4B,S3N	THR	T	T	Schedule 1	Yes	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000); Recovery Strategy for the Bobolink and Eastern Meadowlark in Ontario (McCracken et al. 2013)	Open pastures, hayfields, grasslands or grassy meadows with elevated singing perches (small trees, shrubs or fence posts). Also weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields or other open areas. Generally prefers larger tracts of habitat >10 ha, but will sometimes use smaller tracts.	Yes	Yes	Species observed during 2024 surveys.
Louisiana Waterthrush	*Parkesia motacilla*	S2B	THR	T	T	Schedule 1	No	Species at Risk in Ontario (MECP 2020), Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Usually steep, forested ravines with fast-flowing streams. Prefers running water, especially clear, coldwater streams, but also less frequently inhabits heavily wooded, deciduous swamps having large pools of open water.	No	No	No preferred habitat within Subject Property and species not observed during 2022 surveys.
Golden-winged Warbler	*Vermivora chrysoptera*	S3B	SC	T	T	Schedule 1	No	Species at Risk in Ontario (MECP 2020), Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Areas with young shrubs surrounded by mature forest, including locations that have recently been disturbed, such as abandoned fields, field edges, hydo or utility right-of-ways, or logged areas with saplings and grasses.	No	No	No preferred habitat within Subject Property and species not observed during 2022 surveys.
Reptiles and Amphibians												
Snapping Turtle	*Chelydra serpentina*	S4	SC	SC	SC	Schedule 1	Yes	Species at Risk in Ontario (MECP 2022)	Slow-flowing rivers and streams, lakes, and permanent or semi-permanent wetlands with soft substrates and vegetation. Key habitat requirements: open areas with structures for basking, open sand or gravel areas for nesting, shallow areas with soft substrates to bury in, soft banks or substrates for hibernation.	Yes	Yes	Preferred habitat present within Subject Property and species confirmed within Subject Property.
Midland Painted Turtle	*Chrysemys picta marginata*	S4		SC	SC	Schedule 1	Yes	COSEWIC Status Report on Midland and Eastern Painted Turtles (COSEWIC 2018)	Slow-flowing wetlands and water bodies that are well vegetated with abundant basking sites and organic substrates. Nesting occurs in open canopy areas such as shorelines or lakes and wetlands, beaver dams, and sand dunes but will also utilize anthropogenic habitat such as railway embankments, dirt roads, an unpaved road shoulders.	Yes	Yes	Preferred habitat present within Subject Property and species confirmed within Subject Property.
Northern Map Turtle	*Graptemys geographica*	S3	SC	SC	SC	Schedule 1	No	Species at Risk in Ontario (MECP 2020)	Large bodies of water such as rivers and lakes with soft bottoms, aquatic vegetation, abundant mollusc prey, and basking structures such as logs or rocks. Nesting occurrs in open areas with soft substrates such as sand or gravel. Hibernate on the bottom of deep areas of lakes or deep, slow-moving sections of rivers.	No	No	No preferred habitat within Subject Property and species not observed during 2022 surveys.
Eastern Musk Turtle	*Sternotherus odoratus*	S3	SC	SC	SC	Schedule 1	No	Species at Risk in Ontario (MECP 2020)	Ponds, lakes, marshes, and slow-moving rivers with abundant emergent or floating vegetation, and muddy, soft substrates. A high aquatic species that typically basks at the water's surface, under floating vegetation, and nests close to the water's edge on beaver or muskrat lodges, in shoreline debris, rock crevices, etc. Overwinters in soft substrates of water bodies.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Timber Rattlesnake	*Crotalus horridus*	SX	EXP	XT	XT	Schedule 1	No	Species at Risk in Ontario (MECP 2020)	The Timber rattlesnake was consciously eradicated from Ontario.	No	No	Highly unlikely to find within the Subject Property.
Milksnake	*Lampropeltis triangulum*	S4	NAR	SC	SC	Schedule 1	Yes	OMNR 2000	Farmlands, meadows, hardwood or aspen stands; pine forest with brushy or woody cover; river bottoms or bog woods; hides under logs, stones, or boards or in outbuildings; often uses communal nest sites.	Yes	Yes	Preferred habitat present within Subject Property and species confirmed within Subject Property.
Jefferson Salamander	*Ambystoma jeffersonianum*	S2	END	E	E	Schedule 1	No	Recovery Strategy for the Jefferson Salamander (Linton, J, J. McCarter and H. Fotherby)	Large deciduous or mixed forest containing, or in close proximity to, suitable breeding ponds which include fishless vernal pools or wetlands with suitable hydroperiod for larval development (was present until Aug/Sept). Habitats must contain shelter features including leaf litter, woody debris, rocks, logs, or stumps. Hibernation sites are underground in mammal burrows, root systems, or crevices or fissures in rocks.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.

Unisexual Ambystoma (Jefferson Salamander-dependent population)	*Ambystoma laterale - (2) jeffersonianum*	S2	END	E	E	Schedule 1	No	Species at Risk in Ontario (MECP 2020)	Unisexual Ambystoma salamanders live in leaf litter, under logs and in underground cavities in deciduous and mixed forests, typically within close proximity to breeding habitats. Adults breeds in vernal pools (temporary woodland ponds) or fish-free permanent wetlands. They lay their eggs in clumps attached to underwater vegetation in shallow water. The eggs hatch into aquatic larvae after about one month, and the larvae transform into juveniles by the end of summer. The juveniles leave the pond and head into the surrounding forest. Unisexual Ambystoma salamanders spend the winter underground where they can get below the frost line and avoid freezing temperatures, such as in mammal burrows, rock crevices or other underground cavities. Although these salamanders spend much of the year underground or under cover, they can often be observed in early spring when they travel to breeding sites.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Mammals												
Silver-haired Bat	*Lasionycteris noctivagens*	S3	END					COSEWIC Assessment and Status Report on the Hoary Bat Lasiurus cinereus Eastern Red Bat Lasiurus borealis Silver-haired Bat Lasionycteris noctivagans in Canada (COSEWIC 2023)	Roosts primarily in cavities, crevices, and exfoliating bark of typically large-diameter trees in forests and occasionally in or on buildings. Forages in forests of any age, along forests edges and in openings in forests. Primarily overwinters within the U.S.	Yes	Yes	Suitable roosting and foraging habitat is present (woodlands).
Eastern Red Bat	*Lasiurus borealis*	S3	END					COSEWIC Assessment and Status Report on the Hoary Bat Lasiurus cinereus Eastern Red Bat Lasiurus borealis Silver-haired Bat Lasionycteris noctivagans in Canada (COSEWIC 2023)	Roosts in foliage of trees; reproductive roosting occurs in upper foliage of typically large-diameter, super-canopy trees in deciduous and coniferous forests of any age. Males occasionally roost in shrubs or saplings. Primarily overwinters within the U.S.	Yes	Yes	Suitable roosting and foraging habitat is present (woodlands).
Hoary Bat	*Lasiurus cinereus*	S3	END					COSEWIC Assessment and Status Report on the Hoary Bat Lasiurus cinereus Eastern Red Bat Lasiurus borealis Silver-haired Bat Lasionycteris noctivagans in Canada (COSEWIC 2023)	Roosts in foliage of trees; reproductive roosting occurs in upper foliage of typically large-diameter, super-canopy trees in deciduous and coniferous forests of any age. Forages in the open, such as open wetlands, grasslands and fields with patchy tree cover. Primarily overwinters in the U.S.	Yes	Yes	Suitable roosting and foraging habitat is present (woodlands).
Eastern Small-footed Myotis	*Myotis leibii*	S2S3	END				Yes	Recovery Strategy for the Eastern Small-footed Myotis (Humphrey, C. 2017)	Roosts in caves, mine shafts, crevices or buildings that are in or near woodland. Hibernates in cold dry caves or mines. Maternity colonies in caves or buildings. Hunts in forests.	Yes	Yes	Preferred habitat present within Subject Property and species confirmed within Subject Property.
Little Brown Myotis	*Myotis lucifugus*	S3	END	E	E	Schedule 1	Yes	Recovery Strategy for the Little Brown Myotis, Northern Myotis and Tri-colored Bat in Ontario (Humphrey, C. & H. Fortherby. 2019)	Uses caves, quarries, tunnels, hollow trees or buildings for roosting. Winters in humid caves. Maternity sites in dark warm areas such as attics and barns. Feeds primarily in wetlands and forest edges.	Yes	Yes	Preferred habitat present within Subject Property and species confirmed within Subject Property.
Northern Myotis	*Myotis septentrionalis*	S3	END	E	E	Schedule 1	Yes	Recovery Strategy for the Little Brown Myotis, Northern Myotis and Tri-colored Bat in Ontario (Humphrey, C. & H. Fortherby. 2019)	Roosts in houses and man-made structures but prefers hollow trees or under loose bark. Hibernates in mines or caves. Hunts within forest, below the canopy.	Yes	Yes	Preferred habitat present within Subject Property and species confirmed within Subject Property.
Tri-colored Bat	*Perimyotis subflavus*	S3?	END	E	E	Schedule 1	No	Recovery Strategy for the Little Brown Myotis, Northern Myotis and Tri-colored Bat in Ontario (Humphrey, C. & H. Fortherby. 2019)	Roosts and maternity colonies in older forests and occassionally in barns or other sturctures. Forage over water and along streams in the forest. Hibernate in caves.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Woodland Vole	*Microtus pinetorum*	S3?	SC	SC	SC	Schedule 1	No	Species at Risk in Ontario (MECP 2022)	Mature deciduous forest in the Carolinian region where there is a deep litter layer that allows it to burrow.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Gray Fox	*Urocyon cinereoargenteus*	S1	THR	T	T	Schedule 1	No	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Hardwood forests with a mix of fields and woods; swamps; wooded, brushy or rocky habitats; woodland farmland edge; old fields with thickets; dens in hollow log or tree; individual has numerous winter dens throughout its range which is > 40 ha.	No	No	Prefered habitat range not present within Subject Property and species not observed during 2022 surveys.
American Badger (Southwestern Ontario population)	*Taxidea taxus jacksoni*	S1	END	E	E	Schedule 1	No	Significant Wildlife Habitat Technical Guide: Appendix G (OMNR 2000)	Open grasslands and oak savannahs; dens in new hole or enlarged existing hole; sometimes makes food caches.	No	No	No preferred habitat within Subject Property and species not observed during 2022 surveys.
Butterflies												

Mottled Duskywing	*Erynnis martialis*	S2	END	E	NS	No schedule	No	Species at Risk in Ontario (MECP 2020)	Dry habitats with sparse vegetation, including open barrens, sandy patches among woodlands, and alvars. In Ontario, eggs are deposited only on New Jersey Tea (Ceanothus americanus) and Prairie Redroot (Ceanothus herbaceus).	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Monarch	*Danaus plexippus*	S2N,S4B	SC	E	SC	Schedule 1	Yes	Species at Risk in Ontario (MECP 2020)	Adults found in a diversity of habitats with a variety of wildflowers. Caterpillars are confined to meadows and open areas where milkweeds grow (larval food plants).	Yes	Yes	Preferred habitat present within Subject Property and species confirmed within Subject Property.
Odonates												
Double-striped Bluet	*Enallagma basidens*	S3					No	Dragonflies and Damselflies of Southwestern Ontario (Carmichael et al. 2004)	Can be found near permanent or semi-permanent lakes, ponds, reservoirs, borrow pits, slow parts of streams or rivers, or spring fed streams. Will also rarely occur in bog ponds.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Swamp Darner	*Epiaeschna heros*	S3S4					No	Dragonflies and Damselflies of Southwestern Ontario (Carmichael et al. 2004)	Can be found near shallow, shaded woodland ponds, including those that are temporary; also swamps and slow streams.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Unicorn Clubtail	*Arigomphus villosipes*	S3					No	Paulson, D.R. 2017.	Can be found near ponds, lakes, and slow streams with muddy bottoms and little submerged vegetation. At lakes, they seem to prefer inlets.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Arrowhead Spiketail	*Cordulegaster obliqua*	S3					No	Catling et al., 2004	Can be found in sunny clearings near clean, stable, very small, shallow, seep- fed forest streams, often temporary, with silty substrate & vegetated banks.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.
Painted Skimmer	*Libellula semifasciata*	S3					No	Dunkle 1980.	Shallow, vegetated ponds, pools and puddles.	Yes	No	Preferred habitat present within Subject Property but species not observed during 2022 surveys.

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Appendix III
Significant Wildlife Habitat Screening Tables

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 1. Characteristics of Seasonal Concentration Areas

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
Waterfowl Stopover and Staging Areas (Terrestrial)					
Habitat important to migrating waterfowl	American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan	CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these Ecosites. - Fields with seasonal flooding and waste grain in the Long Point, Rondeau, Lake. St. Clair, Grand Bend and Pt. Pelee areas may be important to Tundra Swans.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available[cxlviii] <u>Information Sources</u> • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities (CAs) • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • Any mixed species aggregations of 100[i] or more individuals required. • The area of the flooded field ecosite habitat plus a 100-300m radius buffer dependant on local site conditions and adjacent land use is the significant wildlife habitat[cxlviii]. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • SWHMIST[cxlix] Index #7 provides development effects and mitigation measures.	Fields with spring sheet water and of a suitable size are likely not present in the Study Area. **Not SWH.**
Waterfowl Stopover and Staging Areas (Aquatic)					
Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district	Canada Goose Cackling Goose Snow Goose Green-winged Teal American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Blue-winged Teal Hooded Merganser Common Merganser Red-breasted Merganser Lesser Scaup Greater Scaup	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. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). <u>Information Sources</u> • Environment Canada	Studies carried out and verified presence of: • Aggregations of 100[i] or more of listed species for 7 days[j], results in >700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH[cxlix] • The combined area of the ELC ecosites and a 100m radius area is the SWH[cxlviii] • Wetland area and shorelines associated with sites identified within the SWHTG[cxlviii] Appendix K[cxlix] are significant wildlife	Ponds, marshes, lakes, bays, coastal inlets, and watercourses of sufficient size to be used during migration not present within the Subject Property. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 1. Characteristics of Seasonal Concentration Areas

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
	Common Goldeneye Bufflehead Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Canvasback Redhead Ruddy Duck Brant White-winged Scoter Black Scoter		• Naturalist clubs often are aware of staging/stopover areas • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	habitat. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWHMIST[cxlix] Index #7 provides development effects and mitigation measures.	
Shorebird Migratory Stopover Area					
High quality shorebird stopover habitat is extremely rare and typically has a long history of use	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH. <u>Information Sources</u> • Western hemisphere shorebird reserve network • Canadian Wildlife Service (CWS) Ontario Shorebird Survey • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000[l] shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period). • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100[l] Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area[cxlviii] • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMIST[cxlix] Index #8 provides development effects and mitigation measures.	Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats are not present within the Subject Property to potentially support large shorebird aggregations. **Not SWH.**
Raptor Wintering Area					
Sites used by multiple species, a high number of	Rough-legged Hawk Red-tailed Hawk Northern Harrier	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to	The habitat provides a combination of fields and woodlands that provide roosting,	Studies confirm the use of these habitats by: • One or more Short-eared Owls,	Recorded sightings of Rough-legged Hawk and Bald Eagle during winter wildlife surveys. There is no shoreline

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 1. Characteristics of Seasonal Concentration Areas

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
individuals and used annually are most significant	American Kestrel Snowy Owl <u>Special Concern</u>: Short-eared Owl Bald Eagle	have present one Community Series from each land class. Forest: FOD, FOM, FOC Upland: CUM, CUT, CUS, CUW <u>Bald Eagle:</u> Forest Community Series: FOD, FOM, FOC, SWD, SWM, or SWC, on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	foraging and resting habitats for wintering raptors. Raptor wintering (hawk/owl) sites need to be > 20ha[cxlviii, cxlix] with a combination of forest and upland[xvi, xvii, xviii, xix, xx, xxi]. Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands[cxlix] Field area of the habitat is to be wind swept with limited snow depth or accumulation. Eagle sites have open water and large trees and snags aviable for roosting[cxlix] <u>Information Sources</u> • OMNRF Districts • Natural clubs • Natural Heritage Information Centre (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Reports and other information available from CAs • Results of Christmas Bird Counts	or, One of more Bald Eagles or; at least 10 individuals and two listed hawk/owl species • To be significant a site must be used regularly (3 in 5 years)[cxlix] for a minimum of 20 days by the above number of birds[l]. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMIST[cxlix] Index #10 and #11 provides development effects and mitigation measures.	habitat for Bald Eagle to hunt and there were less than 10 individuals of Rough-legged Hawk. **Not SWH.**
Bat Hibernacula					
Bat hibernacula, are rare habitats in all Ontario landscapes.	Big Brown Bat Eastern Pipistrelle/Tri-colored Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. Active mine sites should not be considered The locations of bat hibernacula are relatively poorly known. <u>Information Sources</u> • OMNRF for possible locations and contact for local experts • Natural Heritage Information Centre (NHIC) Bat Hibernaculum	• All sites with confirmed hibernating bats are SWH[l]. • The area includes 200m radius around the entrance of the hibernaculum[cxlviii, ccvii, l]. for the development types and 1000m for wind farms [ccv.] • Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the[ccv]."Bats and Bat Habitats: Guidelines for Wind Power Projects" [ccv] • SWHMIST[cxlix] Index #1	A bat hibernaculum survey confirmed no overwintering Tri-colored Bats in culvert under Highway 403 on the east side of the study area. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 1. Characteristics of Seasonal Concentration Areas

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
			• Ministry of Northern Development and Mines for location of mine shafts • Clubs that explore caves (eg. Sierra Club) • University Biology Departments with bat experts	provides development effects and mitigation measures.	
Bat Maternity Colonies					
Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	Maternity colonies can be found in tree cavities, vegetation and often in building [sxxii, xxv, xxvi, xxvii, xxxi] (buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario[xxii]. • Maternity colonies located in Mature deciduous or mixed forest stands[ccix, ccx] with >10/ha large diameter (>25cm dbh) wildlife trees[ccvii]. • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3[ccxiv] or class 1 or 2[ccxii]. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred[ccx]. <u>Information Sources</u> • OMNRF for possible locations and contact for local experts • University Biology Departments with bat experts	Maternity Colonies with confirmed use by: • >10 Big Brown Bats[l] • >5 Adult Female Silver-haired Bats[l] • The area of the habitat includes the entire woodland or the forest stand ELC Ecosite containing the maternity colonies[l]. • Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects"[ccv]. • SWHMIST[cxlix] Index #12 provides development effects and mitigation measures.	Maternity colonies may exist in the woodland area on the west side of the Subject Property. **Candidate SWH.**
Turtle Wintering Area					
Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Midland Painted Turtle <u>Special Concern</u>: Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles: ELC Community Classes: SW, MA, OA and SA ELC Community Series: FEO and BOO Northern Map Turtle: Open Water areas such as deeper rivers or streams and lakes	• For most turtles, 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. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen[cix, cx,	• Presence of 5 over-wintering Midland Painted Turtles is significant[l]. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant[l]. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site	Recorded sightings of Snapping and Midland Painted Turtles within the Subject Property [Savanta 2015] and deciduous swamps present on the west side of the Subject Property. A man-made waterbody is also present within the Subject Property to potentially supply over-wintering habitat. **Confirmed SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 1. Characteristics of Seasonal Concentration Areas

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
		with current can also be used as over-wintering habitat.	[cxi, cxviii]. • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH <u>Information Sources</u> • EIS studies carried out by Conservation Authorities • Field naturalists clubs • OMNRF Ecologist or Biologist • Natural Heritage Information Centre (NHIC)	is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – Apr)[cvii]. Congregation of turtles is more common where wintering areas are limited and therefore significant[cix, cx, cxi, cxii]. • SWHMIST[cxlix] Index #28 provides development effects and mitigation measures for turtle wintering habitat.	
Reptile Hibernaculum					
Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant	<u>Snakes:</u> Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake <u>Special Concern</u>: Milksnake Eastern Ribbonsnake	For all snakes, habitat may be found in any ecosite in southern Ontario other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats. Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator. The existence of rock piles or slopes, stone fences, and crumbling foundations assist in identifying candidate SWH.	For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations. Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line[xliv, l, li, lii, cxii]. 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. <u>Information Sources</u> • In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). • Reports and other information available from CAs • Local naturalists and experts, as well as university herpetologists may also know where to find some of these sites.	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp., or, individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp., or, 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)[l]. • Note: If there are Special Concern Species present, then site is SWH • Note: Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The	No reptile hibernaculum were observed within the Subject Property. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 1. Characteristics of Seasonal Concentration Areas

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
			• Natural Heritage Information Centre (NHIC)	feature in which the hibernacula is located plus a 30m buffer is the SWH[cxlix]. • SWHMIST[cxlix] Index #13 provides development effects and mitigation measures for snake hibernacula.	
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)					
Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• 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 (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation. <u>Information Sources</u> • Reports and other information available from CAs • Ontario Breeding Bird Atlas[ccv]. • Bird Studies Canada: Nature Counts http://www.birdscanada.org/birdmon/ • Field Naturalist clubs	Studies confirming: • Presence of 1 or more nesting sites with 8[cxlvix] or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests[ccvii]. • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi]. • SWHMIST[cxlix] Index #4 provides development effects and mitigation measures.	Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, and barns are not present within the Subject Property. **Not SWH.**
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)					
Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	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. • Most nests in trees are 11 to 15 m from ground, near the top of the tree. <u>Information Sources</u> • Ontario Breeding Bird Atlas[ccv], colonial nest records. • Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF).	Studies confirming: • Presence of 2 or more active nests of Great Blue Heron or other list species. • The habitat extends from the the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH[cc, ccvii]. • Confirmation of active colonies must be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the	No active nesting colonies in live or dead standing trees and shrubs in wetlands were observed within the Subject Property. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 1. Characteristics of Seasonal Concentration Areas

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
			• Natural Heritage Information Centre (NHIC) Mixed Wader Nesting Colony • Aerial photographs can help identify large heronries. • Reports and other information available from CAs • MNRF District Offices • Field naturalist clubs	presence of fresh guano, dead young and/or eggshells • SWHMIST[cxlix] Index #5 provides development effects and mitigation measures.	
Colonially - Nesting Bird Breeding Habitat (Ground)					
Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	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 of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. <u>Information Sources</u> • Ontario Breeding Bird Atlas[ccv], rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from CAs • Natural Heritage Information Centre (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices • Field naturalist clubs	Studies confirming: • Presence of >25 active nests for Herring Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern[l]. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant[l]. • Presence of 5 or more pairs for Brewer's Blackbird[l]. • The edge of the colony and a minimum 150m radius area of the habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH[cc, ccvii]. • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi]. • SWHMIST[cxlix] Index #6 provides development effects and mitigation measures.	Islands or peninsulas associated with open water are not present within the Subject Property. **Not SWH.**
Migratory Butterfly Stopover Areas					
Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter	Painted Lady Red Admiral <u>Special Concern</u>: Monarch	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUM CUT CUS	A butterfly stopover area will be a minimum of 10ha in size with a combination of field and forest habitat present, and will be located within 5km of Lake Ontario and Erie[cxlix]. • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long	Studies confirm: • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)[xliii]. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day[xxxvii], significant variation can occur	Large numbers of Monarch Butterflies were not observed within the Subject Property. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 1. Characteristics of Seasonal Concentration Areas

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
		Forest: FOC FOD FOM CUP Anecdotally, a candidate sight for butterfly stopover will have a history of butterflies being observed.	migration south [xxxii, xxxiii, xxxiv, xxxv, xxxvi]. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat [cxlviii, cxlix]. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes [xxxvii, xxxviii, xxxix, xl, xli]. <u>Information Sources</u> • MNRF District Offices • Natural Heritage Information Centre (NHIC) • Agriculture Canada in Ottawa may have list of butterfly experts. • Field Naturalist Clubs • Toronto Entomologists Association • Conservation Authorities	between years and multiple years of sampling should occur[xl, xlii]. • 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 White Admiral's is to be considered significant[l]. • SWHMIST[cxlix] Index #16 provides development effects and mitigation measures.	
Landbird Migratory Stopover Areas					
Sites with a high diversity of species as well as high numbers are most significant	All migratory songbirds Canadian Wildlife Service Ontario website: http://www.on.ec.gc.ca/wildlife_e.html All migrant raptors species Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	Woodlots need to be >5 ha[l] in size and within 5km [iv, v, vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv] of Lake Ontario and Erie. If woodlands are rare in an area of shoreline, woodland fragments 2-5ha can be considered for this habitat • If multiple woodlands are located along the shoreline those Woodlands <2km from Lake Erie or Ontario are more significant[cxlix]. • Sites have a variety of habitats: forest, grassland and wetland complexes[cxlix]. • The largest sites are more significant[cxlix] • Woodlots and forest fragments are important habitats to migrating birds[ccxviii], these features located along the shore and located within 5km of Lake Ontario and Lake Erie are Candidate SWH[cxlviii].	Studies confirm: • 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[l]. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (March/May) and fall (Aug/Oct) migration using standardized assessment techniques. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi]. • SWHMIST[cxlix] Index #9 provides development effects and mitigation measures.	Large numbers of population/species were not observed within the Subject Property. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 1. Characteristics of Seasonal Concentration Areas

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
			Information Sources • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Ontario Important Bird Areas (IBA) Program		
Deer Winter Congregation Areas					
Deer movement during winter in the southern areas of Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions [cxlviii]	White-tailed Deer	All Forested Ecosites with these ELC Community Series: FOC FOM FOD SWC SWM SWD Conifer plantations (CUP) smaller than 50 ha may also be used.	• Woodlots >100 ha in size or if large woodlots are rare in a planning area woodlots>50ha[i]. • Deer movement during winter in Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands[cxlviii]. • Large woodlots > 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[ccxxiv]. • Woodlots with high densities of deer due to artificial feeding are not significant[i]. Information Sources • MNRF District Offices • LIO/NRVIS	Studies confirm: • Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF[cxlviii]. • Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF[i]. • Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques[ccxxiv], ground or road surveys, or a pellet count deer density survey[ccxxv]. • SWHMIST[cxlix] Index #2 provides development effects and mitigation measures.	The Subject Property does not contain a woodlot greater than 50 ha. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 2. Characteristics of Rare Vegetation Communities

Rationale	Candidate SWH			Confirmed SWH	Study Area
	ELC Ecosite Codes	Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
Cliffs and Talus Slopes					
Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: 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. Information Sources • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location information available on their website • Field naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes[lxxviii] • SWHMIST[cxlix] Index #21 provides development effects and mitigation measures.	The Subject Property does not contain cliff or talus slopes. **Not SWH.**
Sand Barren					
Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry.	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. 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%.	A sand barren area >0.5ha in size Information Sources • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location information available on their website • Field naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens[lxxviii] • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotics sp)[i]. • SWHMIST[cxlix] Index #20 provides development effects and mitigation measures.	Sand barren greater than 0.5 ha is not present within the Subject Property. **Not SWH.**
Alvar					
Alvars are extremely rare habitats in Ecoregion 7E	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar Indicator Species:**	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	An Alvar site > 0.5ha in size[lxxv]. Alvar is particularly rare in Ecoregion 7E where the only known sites are found in the western islands of Lake Erie[cxcix]. Information Sources • Alvars of Ontario (2000), Federation of Ontario Naturalists[lxxvi]. • Ontario Nature – Conserving Great Lakes Alvars[ccviii].	Field studies identify four of the five **Alvar indicator species**[lxxv] at a candidate Alvar site is Significant • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses[lxxv]. • SWHMIST[cxlix] Index #17	An alvar is not present within the Subject Property. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 2. Characteristics of Rare Vegetation Communities

Rationale	Candidate SWH			Confirmed SWH	Study Area
	ELC Ecosite Codes	Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
	1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum These indicator species are very specific to Alvars within Ecoregion 7E[cxlix]	grasslands and shrublands and comprising a number of characteristic or indicator plant. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from patchy to barren with a less than 60% tree cover[lxxviii].	• Natural Heritage Information Centre (NHIC) has location information available on their website • OMNRF Staff • Field Naturalist clubs • Conservation Authorities	provides development effects and mitigation measures.	
Old Growth Forest					
Due to historic logging practices and land clearance for agriculture, old growth forest is rare in Ecoregion 7E.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old growth forests are 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.	Woodland area is >0.5ha Information Sources • OMNRF Forest Resource Inventory mapping • OMNRF Districts • Field naturalist clubs • Conservation Authorities • Sustainable Forestry Licence (SFL) companies will possibly know locations through field operations. • Municipal forestry departments	Field Studies will determine: • If dominant trees species of the ecosite are >140 years old, then stand is Significant Wildlife Habitat[cxlviii]. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities [cxlviii] (cut stumps will not be present) • Determine ELC Vegetation Type for forest area containing the old growth characteristics[lxxviii]. • SWHMIST[cxlix] Index #23 provides development effects and mitigation measures.	Subject Property was logged within 140 years. **Not SWH.**
Tallgrass Prairie					
Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover. In Ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in	No minimum size to site[l]. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. Information Sources • Natural Heritage Information Centre (NHIC has location information available on their website • OMNRF Districts • Field naturalists clubs • Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in[lxxv] Appendix N should be present[l]. Note: Prairie plant spp. list from Ecoregion 7E should be used. • Area of the ELC Vegetation Type is the SWH[lxxviii]. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).	A Tallgrass Prairie species was observed within the Subject Property (Big Bluestem), but the patch was not large enough to be considered Tallgrass Prairie. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 2. Characteristics of Rare Vegetation Communities

Rationale	Candidate SWH			Confirmed SWH	Study Area
	ELC Ecosite Codes	Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
		the Toronto area (north of Lake Ontario)[cc].		• SWHMIST[cxlix] Index #19 provides development effects and mitigation measures.	
Savannah					
Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. In Ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario)[cc].	No minimum size to site[l] Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <u>Information Sources</u> • OMNRF Districts • Natural Heritage Information Centre (NHIC) has location data available on their website • Field naturalists clubs • Conservation Authorities	Field studies confirm one or more of the Savannah indicator species listed in[lxxv] Appendix N should be present[l]. Note: Savannah plant spp. list from Ecoregion 7E should be used. • Area of the ELC Vegetation type is the SWH[lxxviii]. • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics). • SWHMIST[cxlix] Index #18 provides development effects and mitigation measures.	Savannah is present within the Study area east of the Aldershot Go Station. However, following preliminary ELC, Savannah does not exist within the Subject Property. **Not SWH.**
Other Rare Vegetation Communities					
Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG[cxlviii]. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M[cxlviii]. The OMNRF/NHIC will have up to date listing for rare vegetation communities. <u>Information Sources</u> • Natural Heritage Information Centre (NHIC) has location information available on their website • OMNRF Districts • Field naturalists clubs • Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG[cxlviii]. • Area of the ELC Vegetation Type polygon is the SWH. • SWHMIST[cxlix] Index #37 provides development effects and mitigation measures.	Rare ELC Vegetation types are not expected to be present within the Subject Property. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 3. Characteristics of Specialized Wildlife Habitat

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
Waterfowl Nesting Area					
Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	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 **Note: includes adjacency to Provincially Significant Wetlands**	A waterfowl nesting area extends: 120m[cxlix] from a wetland (>0.5ha) or a wetland (>0.5ha) with small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120m of each individual wetland where waterfowl nesting is known to occur[cxlix]. • Upland areas should be at least 120m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. <u>Information Sources</u> • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from CAs	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards[l], or, • Presence of 10 or more nesting pairs for listed species including Mallards[l]. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • 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 120m[cxlviii] from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMIST[cxlix] Index #25 provides development effects and mitigation measures.	Waterfowl nesting was not observed within the Subject Property. **Not SWH.**
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat					
Nest sites are fairly uncommon in Ecoregion 7E and are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey <u>Special Concern</u>: Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. 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. Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area[cxlviii]. • 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 300m radius around the nest or the contiguous woodland stand is the SWH[ccvii],	Minimal habitat to support Osprey within the subject property, however two Bald Eagles were observed (adult and juvenile) during the leaf-off bat and wildlife winter assessment. Bald Eagles, however, were not observed beyond that instance. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 3. Characteristics of Specialized Wildlife Habitat

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
			constructed nesting platforms). Information Sources • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario • MNRF values information (LIO/NRVIS) will list known nesting locations, Note: data from NRVIS is provided as a point format and does not include all the habitat. • Nature Counts, Ontario Nest Records Scheme data • OMNRF Districts • Check the Ontario Breeding Bird Atlas[ccv] or Rare Breeding Birds in Ontario for species documented • Reports and other information available from CAs • Field naturalists clubs	maintaining undisturbed shorelines with large trees within this area is important[cxlviii]. • For a Bald Eagle the active nest and a 400-800m radius around the nest is the SWH[cvi, ccvii]. Area of the habitat from 400-800m is dependant on site lines from the nest to the development and inclusion of perching and foraging habitat[cvi]. • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for ≥3 years or suspected of not being used for >5 years before being considered not significant[ccvii]. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMIST[cxlix] Index #26 provides development effects and mitigation measures.	
Woodland Raptor Nesting Habitat					
Nests sites for these species are rarely identified; these area sensitive habitats are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3	All natural or conifer plantation woodland/forest stands combined >30ha or with >4ha of interior habitat[lxxxviii, lxxxix, xc, xci, xciii, xciv, xcv,xcvi, cxxxiii]. Interior habitat determined with a 200m buffer[cxlviii]. • Stick nests found in a variety of intermediate-aged to mature conifer, 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. • In disturbed sites, nests may be used again, or a new nest will be	Studies confirm: • Presence of 1 or more active nests from species list is considered significant[cxlviii]. • Red-shouldered Hawk and Northern Goshawk – A 400m radius around the nest or 28 ha of habitat is the SWH[ccvii].(the 28ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) • Barred Owl – A 200m radius around the nest is the SWH[ccvii]. • Broad-winged Hawk and Coopers Hawk – A 100m radius	No raptors were observed nesting in the woodland area within the Subject Property. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 3. Characteristics of Specialized Wildlife Habitat

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
			in close proximity to old nest. Information Sources • OMNRF Districts • Check the Ontario Breeding Bird Atlas[ccv] or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada • Reports and other information available from CAs	around the nest is the SWH[ccvii]. • Sharp-Shinned Hawk – A 50m radius around the nest is the SWH[ccvii]. • 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. • SWHMIST[cxlix] Index #27 provides development effects and mitigation measures.	
Turtle Nesting Areas					
These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	Midland Painted Turtle Special Concern: Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m)[cxlviii] or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• 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. • 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. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. Information Sources • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them.	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles[l] • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH[l] • 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[cxlviii]. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100m area of habitat[cxlix]. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observation studies observing the turtles nesting is a recommended method. • SWHMIST[cxlix] Index #28 provides development effects and mitigation measures for turtle nesting habitat.	No nesting turtles or turtles nests were observed. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 3. Characteristics of Specialized Wildlife Habitat

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
			• Natural Heritage Information Center (NHIC) Field naturalist clubs		
Seeps and Springs					
Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas 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.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system[cxvii, cxlix]. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species[cxix, cxx, cxxi, cxxii, cxiii, cxiv]. Information Sources • Topographical Map • Thermography • Hydrological surveys conducted by CAs and MOE • Field naturalists and landowners • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped	Field Studies confirm: • Presence of a site with 2 or more[l] seeps/springs should be considered SWH. • The area of a ELC forest ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation of the habitat[cxlviii]. • SWHMIST[cxlix] Index #30 provides development effects and mitigation measures.	No seeps/springs were observed within the Subject Property. **Not SWH.**
Amphibian Breeding Habitat (Woodland)					
These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD 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.	• Presence of a wetland, pond or woodland pool (including vernal pools) >500m^2 (about 25m diameter) [ccvii] within or adjacent (within 120m) to a woodland (no minimum size)[clxxxii, lxiii, lxv, lxvi, lxvii, lxviii, lxix, lxx]. Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat[cxlviii]. Information Sources • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also	Studies confirm: • 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. • A combination of observational study and call count surveys [cviii] will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230m radius of woodland area[lxiii, lxv, lxvi, lxvii, lxviii, lxix,	Field surveys did not observe newt/salamanders or Call Level Codes of 3 within Subject Property. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 3. Characteristics of Specialized Wildlife Habitat

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
			provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF Districts and wetland evaluations • Field naturalist clubs • Canadian Wildlife Service Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	[lxx, lxxi]. 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. • SWHMIST[cxlix] Index #14 provides development effects and mitigation measures.	
Amphibian Breeding Habitat (Wetland)					
Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario Landscapes	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	• Wetlands >500m^2 (about 25m diameter)[ccvii] supporting high species diversity are significant: some small or ephemeral habitats may not be identified on MNR mapping and could be important amphibian breeding habitats[clxxxiv]. • 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. <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) • Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. • OMNRF Districts and wetland evaluations • Reports and other information available from CAs	Studies confirm: • Presence of breeding population of 1or more of the listed newt/salamander species or 2 or more of the listed frog or toad species and with at least 20 breeding individuals (adults and eggs masses)[lxxi, lxxiii] or 2 or more of the listed frog/toad species with Call Level of 3. or; Wetland with confirmed breeding Bullfrogs are significant[l]. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys cviii to determine breeding/larval stages will be required during the spring (May March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • SWHMIST[cxlix] Index #15 provides development effects and mitigation measures.	No Call Level of 3 was observed within the subject property. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 3. Characteristics of Specialized Wildlife Habitat

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
Woodland Area-Sensitive Bird Breeding Habitat					
Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Pileated Woodpecker <u>Special Concern</u>: Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	• Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs. old) forest stands or woodlots >30ha[cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxxv, cxxxvi, cxxxvii, cxxxviii, cxxxix, cxl, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cl, cli, clii, cliii, cliv, clv, clvi, clvii, clviii, clix]. • Interior forest habitat is at least 200m from forest edge habitat[clxiv]. <u>Information Sources</u> • Local birder clubs • Canadian Wildlife Service (CWS) for the location of forest bird monitoring • Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species. • Reports and other information available from CAs	Studies confirm: • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species[i]. • Note: any site with breeding Cerulean Warblers or Canada Warbler is to be considered SWH[i]. • Conduct field investigations in early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMIST[cxlix] Index #34 provides development effects and mitigation measures.	No woodland area >200 m from forest edge within the Subject Property. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 4. Characteristics of Habitat for Species of Conservation Concern

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
Marsh Bird Breeding Habitat					
Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Gallinule American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Green Heron Trumpeter Swan <u>Special Concern</u>: Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites	• Nesting occurs in wetlands • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present[cxxiv]. • 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. <u>Information Sources</u> • OMNRF Districts and wetland evaluations • Field naturalist clubs • Natural Heritage Information Centre (NHIC) • Reports and other information available from CAs • Ontario Breeding Bird Atlas[ccv]	Studies confirm: • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species[l]. • Note: any wetland with breeding of 1 or more Trumpeter Swans, Black Terns, Green Heron or Yellow Rail is SWH[l]. • Area of the ELC ecosite is the SWH • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMIST[cxlix] Index #35 provides development effects and mitigation measures	No marsh birds observed breeding within the Subject Property. **Not SWH.**
Open Country Bird Breeding Habitat					
This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow <u>Special Concern</u>: Short-eared Owl	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30ha[clx, clxi, clxii, clxiii, clxiv, clxv, clxvi, clxvii, clxviii, clxix]. 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)[l]. 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. The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.	Field Studies confirm: • Presence of nesting or breeding of 2 or more of the listed species[l]. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMIST[cxlix] Index #32	Grassland area within the Subject Property >30ha cultivated within the last 5 years. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 4. Characteristics of Habitat for Species of Conservation Concern

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
			Information Sources • Agricultural land classification maps Ministry of Agriculture • Local birder clubs • Ontario Breeding Bird Atlas[ccv] • EIS Reports and other information available from CAs	provides development effects and mitigation measures	
Shrub/Early Successional Bird Breeding Habitat					
This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	Indicator Spp: Brown Thrasher Clay-coloured Sparrow Common Spp. Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher Special Concern: Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat such as woodland area for some bird species.	Large natural field areas succeeding to shrub and thicket habitats >10ha[clxiv] in size. Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years)[i]. Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species[clxxiii]. Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. Information Sources • Agricultural land classification maps, Ministry of Agriculture. • Local bird clubs • Ontario Breeding Bird Atlas[ccv] • Reports and other information available from CAs	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species[i]. • A field with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat[i]. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"[ccxi] • SWHMIST[cxlix] Index #33 provides development effects and mitigation measures.	Not areas succeeding to shrub and thicket habitats >10ha within the Subject Property. **Not SWH.**
Terrestrial Crayfish					
Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare. [Ccii]	Chimney or Digger Crayfish (*Fallicambarus fodiens*) Devil Crawfish or Meadow Crayfish (*Cambarus Diogenes*)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT	Wet meadow and edges of shallow marshes (no minimum size) identified should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable marsh meadow or terrestrial sites[cci]. • Area of ELC Ecosite or an ecoelement area of meadow marsh or swamp within the large ecosite area is the SWH • Surveys should be done April	No terrestrial crayfish were observed within the Subject Property. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 4. Characteristics of Habitat for Species of Conservation Concern

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
		SWM CUM1 with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish	consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. <u>Information Sources</u> • Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF March 1998.	to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult [cci] • SWHMIST[cxlix] Index #36 provides development effects and mitigation measures.	
Special Concern and Rare Wildlife Species					
These species are quite rare or have experienced significant population declines in Ontario	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre (NHIC).	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is 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[lxxviii]. <u>Information Sources</u> • Natural Heritage Information Centre (NHIC) will have the Special Concern and Provincially Rare (S1-S3, SH) species lists and element occurrences for these species. • NHIC Website: "Get Information" http://nhic.mnr.gov.on.ca • Ontario Breeding Bird Atlas[ccv] • Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: • 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. • 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 to be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat for foraging habitat. • SWHMIST[cxlix] Index #37 provides development effects and mitigation measures.	Several species of Special Concern and Provincially Rare (S1-S3, SH) animal species occur within the Subject Property. **Confirmed SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 5. Characteristics of Animal Movement Corridors

Rationale	Wildlife Species	Candidate SWH		Confirmed SWH	Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
Amphibian Movement Corridors					
Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Blue-spotted Salamander Spotted Salamander Four-toed Salamander Gray Treefrog Northern Leopard Frog Pickerel Frog Western Chorus Frog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1.	Movement corridors between breeding habitat and summer habitat[clxxiv, clxxv, clxxvi, clxxvii, clxxviii, clxxix, clxxx, clxxxi] Movement corridors must be considered when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat – Wetland) of this Schedule[i]. <u>Information Sources</u> • MNRF District Office • Natural Heritage Information Centre NHIC • Reports and other information available from CAs • Field naturalist Clubs	• 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[cxlix]. • Corridors should have at least 15m of vegetation on both sides of waterwaycxlix or be up to 200m widecxlix of woodland habitat and with gaps <20m[cxlix] • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat[cxlix]. • SWHMIST[cxlix] Index #40 provides development effects and mitigation measures.	No amphibian species were observed moving along corridors within the Subject Property. **Not SWH.**

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 6. Exceptions for Ecodistricts within Ecoregion 7E.

Rationale	Wildlife Species	Candidate SWH			Confirmed SWH	Study Area
		ELC Ecosites	Habitat Description	Habitat Criteria and Information Sources	Defining Criteria	Assessment Details
Bat Migratory Stopover Area						
Stopover areas for long distance migrant bats are important during fall migration.	Hoary Bat Eastern Red Bat Silver-haired Bat	No specific ELC types		• Long distance migratory bats typically migrate during late summer and early fall migrating summer breeding habitats throughout Ontario to southern wintering areas. Their annual fall migration may concentrate these species of bats at stopover areas. • This is the only known bat migratory stopover habitats based on current information. <u>Information Sources</u> • OMNRF for possible locations and contact for local experts • University of Waterloo, Biology Department	• Long Point (42°35'N, 80°30'E, to 42°33'N, 80°03'E) has been identified as a significant stop-over habitat for fall migrating Silver-haired bats, due to significant increases in abundance, activity and feeding that was documented during fall migration[ccxv]. • The confirmation criteria and habitat areas for this SWH are still being determined. • SWHMIST[cxlix] Index #38 provides development effects and mitigation measures	Not present within the Subject Property. **Not SWH.**

Appendix IV
Field Survey Summary

Survey Type	Protocol	Date[1]	Observer(s)[2,3]
Vegetation			
Vegetation Community Mapping	Lee et al. 1998	February 18	AT, PWD
		May 4	DES, RJP, NS1, AMC
		May 20	NS1, PWD
		August 15	PWD
		October 4	PWD
Vascular Flora Inventories*	Systematic search by ELC polygon	May 4	DES
		May 20	NS1, PWD
		August 15	PWD
		October 4	PWD
		May 23, 2024	PWD, MAD
		August 12, 2024	JW
		September 26, 2024	BN
Significant Tree Species Inventory*	Systematic search by ELC polygon	June 10	EEV, JML
Dripline Staking and Review with the City of Burlington	N/A	September 18, 2025	MAD, RJP, NGM, JS[5], DB[6]
Wetland Boundary Flagging	MNR 2014	August 26	NS1, TMB
Wetland Boundary Review with Conservation Halton	N/A	September 9, 2025	PWD, RJP, TM[4]
Bird Surveys			
Breeding Bird Survey*	OBBA 2001	May 25	KSR, MA
		June 22	CT, SM
		June 19, 2024	JN
		June 27, 2024	JN
		July 5, 2024	BMN
Owl Survey*	OBBA 2002	April 22	ECG, WK
Reptile and Amphibian Surveys			
Anuran Call Survey	BSC 2009	April 22	ECG, WK
		May 13	MA, NJG, RWA
		June 27	NS1, NS2, RJP
Salamander Egg Mass Survey	Jefferson Salamander Recovery Team 2013	April 29	JIM, RJP
		May 11	JEL, MA
Basking Turtle Survey	MNRF 2015c	April 29	JIM. RJP
		May 2	NST, RJP
		May 5	RJP
		May 9	RJP
		May 11	JEL, MA
		May 18	NS1, RJP
Turtle Nesting Survey	MNRF 2015c	June 13, 2023	LH, RM
		June 14, 2023	NGM, SB
		June 16, 2023	AK, RM
		June 20, 2023	ALS, EMB

Survey Type	Protocol	Date[1]	Observer(s)[2,3]
		June 22, 2023	RMW, OAH
		June 29, 2023	ALS, SLM
Snake Board Survey	MNRF 2016b	May 6 (Boards Placed)	ACM, NJG, RJP
		May 9	RJP
		May 11	JEL, MA
		May 18	NS1, RJP
		June 22	CT, SM
		June 30	RJP, SLM
		July 7	RJP, NGM
		August 10	CT, SM
		September 7	CT
		October 25	JIM, TMB
		June 27, 2024	JN
		July 5, 2024	KB
		September 26, 2024	BN
Snake Visual Encounter Survey*	MNRF 2016b	April 29	JIM, RJP
		May 9	RJP
		May 11	JEL, MA
		May 18	NS1, RJP
		June 22	CT, SM
		June 30	RJP, SM
		July 7	NGM, RJP
		August 10	CT, SM
		September 7	CT
		October 25	JIM, TMB
Mammal Surveys			
Bat Acoustic Monitoring	MNRF 2017, MECP 2022a, MECP 2022b	May 31 (Set-up)	CLH, RJP, HAF, DLF, SM, AM
		June 10 (Status checks)	EEV, JML
		June 14 (Move stations to new locations)	KM, RJP, SLH, MB, NST, MR
		June 22 (Status checks)	KM, SM
		July 6 (Station Take-down)	KM, CK, SM
Bat Habitat Assessment (Roost Trees)	MNR 2011, MNRF 2017, MECP 2022a, MECP 2022b, MNR 2011	March 4, 2022 March 21-22, 2024	PWD, TMB MS, EK, SLM, MB
Bat Habitat Assessment (Hibernacula)	MECP 2022b	January 26	PWD, AT
Bat Exit Surveys	MNR 2011	June 10, 2024	JMB, CLH, JNM, MB
Crepuscular Mammal Survey	Systematic area searches throughout all habitats	April 22	ECG, WK
		May 13	MA, NJG, RWA
		June 27	NS1, NS2, RJP
Winter Wildlife Survey	Systematic area searches throughout all habitats	January 26	PWD, AT
		February 18	PWD, AT

Survey Type	Protocol	Date[1]	Observer(s)[2,3]
Insect Surveys			
Insect Survey*	Systematic search by ELC polygon	June 8	NGM, RJP
		August 10	CT, SM
		September 7	CT, RJP
Tree Surveys			
Tree Assessment Survey	See methodology above.	May 5, 2023	EM, TMB
		May 11, 2023	EM, SLH
Aquatic Surveys			
Aquatic Habitat and Fish Community Assessment	OSAP 2017	August 31, 2022	BB, NST
		May 23, 2024	BB, OAH

[1]Surveys were completed in 2022.

[2]ALS = Andie Siemens, AK = Ainsley Kraut, AM = Amy Marubashi, AMC = Ashley Cantwell, AT = Art Timmerman, BB = Blair Baldwin, BN = Baxter Naday, CK = Carla Kolar, CLH = Christy Humphrey, CT = Charlotte Teat, DES = David Stephenson, DLF = Desta Frey, ECG = Ethan Gosnell, EEV = Emma Voogjarv, EK = Eve Krauss, EM = Elizabeth Milne, EMB = Erin Bannon, HAF = Heather Fotherby, JEL = Jessica Linton, JIM = Jennifer McCarter, JMB = Jillyan Birtch, JML = Joseph Lance, JN = Jonny Nene, JNM = Jocelyn Mennen, JW = Jackie Weber, KB = Kimberly Broadbelt, KM = Kayla Mimms, KSR = Katharina Richter, LH = Laura Hockley, MA = Maria Alexandrou, MB = Meagan Beck, MR = Miranda Rueckert, MS = Meagan Sanderson, NGM = Nathan Miller, NJG = Nathan Grant, NS1 = Noelle Starling, NS2 = Natasha Sawatzky, NST = Nathan Tuck, OAH = Owen Holbrook, PWD = Patrick Deacon, RM = Riley MacArthur, RJP = Robert Pivar, RMW = Ryan Wolfe, RWA = Ryan Archer, SLH = Shelby Hofstetter, SLM = Sophia Munoz, SM = Spenser Morouney, SB = Steve Burgin, TMB = Tara Brenton, WK = William Konze.

[3]Colucent Environmental Inc. (Tom Hilditch) conducted additional surveys on the subject lands on the following dates: November 4, 12, 2021, February 10, 2023, and September 25, 2023.

[4]Conservation Halton Staff (Tawnia Martel)

[5]City of Burlington Staff (John Stuart)

[6]Dillon Consulting (Dan Bourassa)

*In addition to the specific dates listed in the table, observations of plants and wildlife were recorded during all field survey dates.

Appendix V
Vascular Flora Species Observed Within the Subject Property

Plant Species Reported from the Study Area - NHS - 1200 King Road (Project #2762)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Halton Region	1200 King Road EIA	Grindstone - Falcon Creeks Headwater Wetland Complex Summary	1200 King Road Forest Assessment/ TIPP	NHIC Data*	NRSI Observed
		NDMNRF 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	Varga 2000	Savanta Inc. 2015	WSP Canada Groupd Limited 2020	Kuntz Forestry Consulting Inc. 2015	NDMNRF 2022	NRSI Results From 2022-2024
Pteridophytes	**Ferns & Allies**											
Dryopteridaceae	**Wood Fern Family**											
Dryopteris carthusiana	Spinulose Wood Fern	S5					X		X			X
Matteuccia struthiopteris var. pensylvanica	Ostrich Fern	S5					X	X				
Equisetaceae	**Horsetail Family**											
Equisetum arvense	Field Horsetail	S5					X		X			
Gymnosperms	**Conifers**											
Cupressaceae	**Cypress Family**											
Juniperus virginiana	Eastern Red Cedar	S5					U					X
Dicotyledons	**Dicots**											
Aceraceae	**Maple Family**											
Acer negundo	Manitoba Maple	S5					X	X	X	X		X
Acer rubrum	Red Maple	S5					X	X		X		X
Acer saccharinum	Silver Maple	S5					X		X			
Acer saccharum	Sugar Maple	S5					X	X	X	X		X
Anacardiaceae	**Sumac or Cashew Family**											
Rhus typhina	Staghorn Sumac	S5					X	X	X	X		X
Toxicodendron radicans var. radicans	Eastern Poison Ivy	S5					X		X			X
Toxicodendron radicans var. rydbergii	Western Poison Ivy	S5					X	X	X			X
Apiaceae	**Carrot or Parsley Family**											
Daucus carota	Wild Carrot	SE5					X	X	X			X
Torilis japonica	Erect Hedge-parsley	SE4					X					X
Apocynaceae	**Dogbane Family**											
Apocynum cannabinum	Hemp Dogbane	S5					U					X
Araliaceae	**Ginseng Family**											
Aralia nudicaulis	Wild Sarsaparilla	S5					X					X
Asclepiadaceae	**Milkweed Family**											
Asclepias exaltata	Poke Milkweed	S4					U		X			
Asclepias syriaca	Common Milkweed	S5					X	X	X			X
Vincetoxicum rossicum	European Swallow-wort	SE5					X	X	X			X
Asteraceae	**Composite or Aster Family**											
Achillea millefolium	Common Yarrow	SE5?					X	X	X			X
Ageratina altissima	Common White Snakeroot	S5					X	X	X			X
Ambrosia artemisiifolia	Common Ragweed	S5					X	X	X			X
Ambrosia trifida	Great Ragweed	S5					X					X
Antennaria parlinii	Parlin's Pussytoes	S5										X
Antennaria parlinii ssp. fallax	Deceitful Pussytoes	S5					U					X
Antennaria parlinii ssp. parlinii	Parlin's Pussytoes	SU							X			
Arctium lappa	Great Burdock	SE5					X	X	X			X
Arctium minus	Common Burdock	SE5					X	X	X			X
Bidens cernua	Nodding Beggarticks	S5					X		X			
Bidens frondosa	Devil's Beggarticks	S5					X	X	X			X
Carduus nutans ssp. nutans	Nodding Thistle	SE5					X	X	X			
Chondrilla juncea	Rush Skeletonweed	SE1						X				
Cichorium intybus	Chicory	SE5					X					X
Cirsium arvense	Creeping Thistle	SE5					X	X	X			X
Cirsium vulgare	Bull Thistle	SE5					X	X	X			X

Erechtites hieraciifolius	Eastern Burnweed	S5					R3					X
Erigeron annuus	Annual Fleabane	S5					X		X			X
Erigeron canadensis	Canada Horseweed	S5					X					X
Erigeron philadelphicus var. philadelphicus	Philadelphia Fleabane	S5					X					X
Erigeron strigosus	Rough Fleabane	S5					X	X	X			X
Eupatorium perfoliatum	Common Boneset	S5					X	X	X			X
Eurybia macrophylla	Large-leaved Aster	S5					X	X	X			X
Euthamia graminifolia	Grass-leaved Goldenrod	S5					X					X
Eutrochium maculatum	Spotted Joe Pye Weed	S5					X		X			X
Eutrochium purpureum	Purple Joe Pye Weed	S4										X
Helianthus divaricatus	Woodland Sunflower	S5					U		X			X
Helianthus strumosus	Pale-leaved Sunflower	S5					R3		X			X
Heliopsis helianthoides	False Sunflower	S4S5										X
Lactuca biennis	Tall Blue Lettuce	S5					R3					X
Lactuca serriola	Prickly Lettuce	SE5					X	X				
Lapsana communis	Common Nipplewort	SE5					X	X	X			X
Leucanthemum vulgare	Oxeye Daisy	SE5					X	X	X			
Picris hieracioides	Hawkweed Oxtongue	SE5					X					X
Rudbeckia hirta	Black-eyed Susan	S5					X					X
Rudbeckia laciniata	Cut-leaved Coneflower	S5					U					X
Rudbeckia triloba	Brown-eyed Susan	SE4					X					X
Solidago altissima	Tall Goldenrod	S5						X	X			X
Solidago arguta var. arguta	Cut-leaved Goldenrod	S4					R2		X			
Solidago caesia	Blue-stemmed Goldenrod	S5					X	X	X			X
Solidago canadensis	Canada Goldenrod	S5					X					X
Solidago flexicaulis	Zigzag Goldenrod	S5					X	X	X			X
Solidago gigantea	Giant Goldenrod	S5					U		X			X
Solidago juncea	Early Goldenrod	S5					U		X			X
Solidago nemoralis	Gray-stemmed Goldenrod	S5										X
Solidago rugosa	Rough-stemmed Goldenrod	S5										X
Sonchus arvensis	Field Sow-thistle	SE5										X
Sonchus asper	Prickly Sow-thistle	SE5					X	X	X			
Symphyotrichum cordifolium	Heart-leaved Aster	S5					X					X
Symphyotrichum ericoides	White Heath Aster	S5						X				X
Symphyotrichum ericoides var. ericoides	White Heath Aster	S5					X		X			
Symphyotrichum laeve	Smooth Aster	S5										X
Symphyotrichum laeve var. laeve	Smooth Aster	S5					U	X	X			
Symphyotrichum lanceolatum	Panicled Aster	S5					X					X
Symphyotrichum lanceolatum ssp. lanceola	Panicled Aster	S5					X	X	X			
Symphyotrichum lateriflorum	Calico Aster	S5						X				X
Symphyotrichum lateriflorum var. lateriflor	Calico Aster	S5					X		X			
Symphyotrichum novae-angliae	New England Aster	S5					X	X	X			X
Symphyotrichum oolentangiense	Sky-blue Aster	S4										X
Symphyotrichum pilosum	Old Field Aster	S5										X
Symphyotrichum urophyllum	Arrow-leaved Aster	S4					R5					X
Tanacetum vulgare	Common Tansy	SE5					X	X	X			X
Taraxacum officinale	Common Dandelion	SE5					X	X	X			X
Tripleurospermum inodorum	Scentless Chamomile	SE					X	X				
Tussilago farfara	Colt's-foot	SE5					X	X	X			X
Balsaminaceae	**Touch-me-not Family**											
Impatiens capensis	Spotted Jewelweed	S5					X	X	X			X
Impatiens pallida	Pale Jewelweed	S4					X		X			
Berberidaceae	**Barberry Family**											
Berberis thunbergii	Japanese Barberry	SE5					X	X	X			X
Podophyllum peltatum	May-apple	S5					X	X	X			X
Betulaceae	**Birch Family**											
Carpinus caroliniana ssp. virginiana	Blue-beech	S5					X	X	X			
Ostrya virginiana	Eastern Hop-hornbeam	S5					X	X	X			X
Boraginaceae	**Borage Family**											

Hackelia virginiana	Virginia Stickseed	S5					U	X	X			X
Myosotis laxa	Small Forget-me-not	S5					X	X	X			
Brassicaceae	**Mustard Family**											
Alliaria petiolata	Garlic Mustard	SE5					X	X	X	X		X
Barbarea vulgaris	Bitter Wintercress	SE5					X	X	X			X
Berteroa incana	Hoary False-alyssum	SNA					X	X	X			X
Hesperis matronalis	Dame's Rocket	SE5					X	X	X			X
Lepidium campestre	Field Peppergrass	SE5					X	X	X			
Campanulaceae	**Bellflower Family**											
Lobelia siphilitica	Great Blue Lobelia	S5					X		X			
Caprifoliaceae	**Honeysuckle Family**											
Lonicera dioica	Limber Honeysuckle	S5					X	X				
Lonicera morrowii	Morrow's Honeysuckle	SE3					X		X			X
Lonicera tatarica	Tatarian Honeysuckle	SE5					X	X	X			
Lonicera x bella	*(Lonicera morrowii X Lonicera tatarica)*	SNA					X					X
Triosteum aurantiacum	Orange-fruited Horse-gentian	S4S5					X					X
Triosteum perfoliatum	Perfoliate Horse-gentian	S1										X
Viburnum opulus var. americanum	Highbush Cranberry	S5					X	X				
Caryophyllaceae	**Pink Family**											
Dianthus armeria	Deptford Pink	SE5					X		X			X
Silene latifolia	White Campion	SE5					X	X	X			
Silene vulgaris	Bladder Campion	SE5					X	X				
Chenopodiaceae	**Goosefoot Family**											
Atriplex patula	Spear Saltbush	SE5					X	X				
Chenopodium album	White Goosefoot	SE5					X	X	X			
Clusiaceae	**St. John's-wort Family**											
Hypericum perforatum	Common St. John's-wort	SE5					X	X	X			X
Convolvulaceae	**Morning-glory Family**											
Convolvulus arvensis	Field Bindweed	SE5					X	X	X			
Cornaceae	**Dogwood Family**											
Cornus florida	Eastern Flowering Dogwood	S2?	END	E	E	Schedule 1	U				X	
Cornus obliqua	Pale Dogwood	S5					U		X			
Cornus racemosa	Gray Dogwood	S5					X	X	X	X		X
Cornus sericea	Red-osier Dogwood	S5					X	X				X
Crassulaceae	**Stonecrop Family**											
Penthorum sedoides	Ditch-stonecrop	S5					U		X			X
Dipsacaceae	**Teasel Family**											
Dipsacus fullonum	Common Teasel	SE5					X	X	X			X
Elaeagnaceae	**Oleaster Family**											
Elaeagnus angustifolia	Russian Olive	SE3					X		X			
Euphorbiaceae	**Spurge Family**											
Acalypha rhomboidea	Common Three-seeded Mercury	S5					X	X	X			
Fabaceae	**Pea Family**											
Amphicarpaea bracteata	American Hog-peanut	S5					X		X			X
Desmodium canadense	Showy Tick-trefoil	S4					U					X
Desmodium cuspidatum	Large-bracted Tick-trefoil	S3					R3				X	
Hylodesmum glutinosum	Large Tick-trefoil	S4					X					X
Lotus corniculatus	Garden Bird's-foot Trefoil	SE5					X		X			X
Medicago lupulina	Black Medic	SE5					X					X
Melilotus albus	White Sweet-clover	SE5					X		X			X
Robinia pseudoacacia	Black Locust	SE5					X	X				
Securigera varia	Common Crown-vetch	SE5					X	X				X
Trifolium hybridum	Alsike Clover	SE5					X		X			X
Trifolium pratense	Red Clover	SE5					X		X			
Vicia cracca	Tufted Vetch	SE5					X	X	X			X
Vicia tetrasperma	Four-seeded Vetch	SE5					X	X	X			X
Fagaceae	**Beech Family**											
Castanea dentata	American Chestnut	S1S2	END	E	E	Schedule 1	R3				X	
Fagus grandifolia	American Beech	S4					X	X	X			X

Quercus alba	White Oak	S5					X	X	X			X
Quercus macrocarpa	Bur Oak	S5					X	X	X	X		
Quercus rubra	Northern Red Oak	S5					X	X	X	X		X
Quercus velutina	Black Oak	S4					U					X
Gentianaceae	**Gentian Family**											
Frasera caroliniensis	American Columbo	S2	END	E	E	Schedule 1	R3		X		X	
Geraniaceae	**Geranium Family**											
Geranium maculatum	Spotted Geranium	S5					U	X				X
Grossulariaceae	**Currant Family**											
Ribes rubrum	Northern Red Currant	SE5					X	X	X			
Haloragaceae	**Water-milfoil Family**											
Myriophyllum spicatum	Eurasian Water-milfoil	SE5					X		X			
Hamamelidaceae	**Witch-hazel Family**											
Hamamelis virginiana	American Witch-hazel	S4S5					X					X
Juglandaceae	**Walnut Family**											
Carya cordiformis	Bitternut Hickory	S5					X	X	X	X		X
Carya glabra	Pignut Hickory	S3					R2				X	
Carya ovata	Shagbark Hickory	S5						X	X	X		X
Juglans cinerea	Butternut	S2?	END	E	E	Schedule 1	X	X	X	X	X	X
Juglans nigra	Black Walnut	S4?					X	X	X	X		X
Lamiaceae	**Mint Family**											
Collinsonia canadensis	Canada Horsebalm	S4					U					X
Glechoma hederacea	Ground Ivy	SE5					X	X				
Leonurus cardiaca	Common Motherwort	SE5										X
Leonurus cardiaca ssp. cardiaca	Common Motherwort	SE5					X	X	X			X
Lycopus americanus	American Water-horehound	S5					X	X	X			
Lycopus europaeus	European Water-horehound	SE5					X	X	X			X
Lycopus uniflorus	Northern Water-horehound	S5					X		X			X
Monarda fistulosa	Wild Bergamot	S5					X	X	X			X
Nepeta cataria	Catnip	SE5					X	X	X			
Prunella vulgaris	Self-heal	S5										X
Prunella vulgaris ssp. lanceolata	Lance-leaved Self-heal	S5					X	X	X			
Lauraceae	**Laurel Family**											
Sassafras albidum	Sassafras	S4					U		X			X
Lythraceae	**Loosestrife Family**											
Lythrum salicaria	Purple Loosestrife	SE5					X	X	X			X
Malvaceae	**Mallow Family**											
Malva neglecta	Dwarf Cheeseweed	SE5					X	X				
Moraceae	**Mulberry Family**											
Morus alba	White Mulberry	SE5					X	X	X			
Oleaceae	**Olive Family**											
Fraxinus americana	White Ash	S4					X	X	X			X
Fraxinus pennsylvanica	Green Ash	S4					X	X	X	X		X
Ligustrum vulgare	European Privet	SE5					X	X	X			X
Syringa vulgaris	Common Lilac	SE5					X	X	X			
Onagraceae	**Evening-primrose Family**											
Chamaenerion angustifolium	Fireweed	S5							X			
Circaea canadensis	Broad-leaved Enchanter's Nightshade	S5					X	X	X			X
Circaea canadensis ssp. canadensis	Canada Enchanter's Nightshade	S5					X					X
Epilobium ciliatum ssp. ciliatum	Northern Willowherb	S5					X		X			
Epilobium coloratum	Purple-veined Willowherb	S5					U	X				
Epilobium hirsutum	Hairy Willowherb	SE5					X	X				
Epilobium parviflorum	Small-flowered Willowherb	SE4					X	X				X
Oenothera biennis	Common Evening-primrose	S5					R1		X			
Oxalidaceae	**Wood Sorrel Family**											
Oxalis stricta	Upright Yellow Wood-sorrel	SE5					X		X			
Papaveraceae	**Poppy Family**											
Sanguinaria canadensis	Bloodroot	S5					X		X			
Plantaginaceae	**Plantain Family**											

Plantago major	Common Plantain	SE5					X		X			X
Polygonaceae	**Smartweed Family**											
Fallopia convolvulus	Black Bindweed	SE5					X	X				
Persicaria hydropiper	Marshpepper Smartweed	SE5					X	X				X
Persicaria lapathifolia	Pale Smartweed	S5					U	X				
Persicaria maculosa	Spotted Lady's-thumb	SE5					X	X				X
Persicaria pensylvanica	Pennsylvania Smartweed	S5					R2		X			
Persicaria punctata	Dotted Smartweed	S5					R5		X			X
Persicaria virginiana	Virginia Smartweed	S4					R4		X			X
Polygonum aviculare	Prostrate Knotweed	S4?					X	X				
Rumex crispus	Curly Dock	SE5					X	X	X			X
Primulaceae	**Primrose Family**											
Lysimachia nummularia	Creeping Jennie	SE5					X					X
Pyrolaceae	**Wintergreen Family**											
Chimaphila maculata	Spotted Wintergreen	S2	END	T	T	Schedule 1					X	
Ranunculaceae	**Buttercup Family**											
Actaea racemosa	Black Snakeroot	S2						X	X			
Actaea rubra	Red Baneberry	S5					X					X
Anemone virginiana	Tall Anemone	S5										X
Clematis virginiana	Virginia Virgin's-bower	S5					X	X				
Hepatica acutiloba	Sharp-lobed Hepatica	S5					X		X			
Hepatica americana	Round-lobed Hepatica	S5					U	X				
Ranunculus abortivus	Kidney-leaved Buttercup	S5					X	X				
Ranunculus acris	Tall Buttercup	SE5					X	X	X			X
Ranunculus hispidus	Bristly Buttercup	S3						X	X		X	
Ranunculus repens	Creeping Buttercup	SE5					X					X
Ranunculus sceleratus var. sceleratus	Cursed Buttercup	SE						X	X			
Thalictrum dioicum	Early Meadow-rue	S5					X	X	X			X
Thalictrum thalictroides	Rue-anemone	S3					R2				X	
Rhamnaceae	**Buckthorn Family**											
Ceanothus americanus	New Jersey Tea	S4					X		X			
Rhamnus cathartica	Common Buckthorn	SE5					X	X	X	X		X
Rosaceae	**Rose Family**											
Agrimonia eupatoria	European Agrimony	SE1					X					X
Agrimonia gryposepala	Hooked Agrimony	S5					X	X	X			X
Agrimonia striata	Woodland Agrimony	S4										X
Crataegus sp.	Hawthorn sp.							X	X	X		X
Crataegus punctata	Dotted Hawthorn	S5					X		X			
Fragaria vesca	Woodland Strawberry	S5						X				
Fragaria vesca ssp. americana	American Woodland Strawberry	S5					X		X			
Fragaria virginiana ssp. virginiana	Wild Strawberry	S5					X	X	X			
Geum aleppicum	Yellow Avens	S5					X	X	X			
Geum canadense	White Avens	S5					X	X	X			
Geum laciniatum	Rough Avens	S4					X					X
Geum urbanum	Wood Avens	SE3					X					X
Geum x catlingii	*(Geum canadense X Geum urbanum)*	SNA										X
Malus pumila	Common Apple	SE4					X		X			
Potentilla recta	Sulphur Cinquefoil	SE5					X	X	X			
Potentilla simplex	Old-field Cinquefoil	S5					U	X				X
Prunus avium	Sweet Cherry	SE4					X		X			X
Prunus mahaleb	Perfumed Cherry	SE2										X
Prunus serotina	Black Cherry	S5					X	X	X	X		X
Prunus virginiana var. virginiana	Choke Cherry	S5					X	X				
Rosa multiflora	Multiflora Rose	SE5					X	X	X			X
Rubus idaeus	Common Red Raspberry	S5										X
Rubus idaeus ssp. strigosus	Wild Red Raspberry	S5					X	X		X		X
Rubus occidentalis	Black Raspberry	S5					X	X	X			X
Spiraea alba	White Meadowsweet	S5					X					X
Rubiaceae	**Madder Family**											

Cephalanthus occidentalis	Eastern Buttonbush	S5					R4	X	X			X
Galium aparine	Cleavers	S5					U	X	X			X
Galium trifidum	Three-petalled Bedstraw	S5										X
Galium triflorum	Three-flowered Bedstraw	S5					X	X	X			X
Salicaceae	**Willow Family**											
Populus deltoides	Eastern Cottonwood	S5					U			X		X
Populus deltoides ssp. deltoides	Eastern Cottonwood	S5					U	X	X			
Populus tremuloides	Trembling Aspen	S5					X		X			
Salix alba	White Willow	SE4					X		X			
Salix amygdaloides	Peach-leaved Willow	S5					U			X		X
Salix bebbiana	Bebb's Willow	S5					X			X		
Salix euxina	Crack Willow	SE										X
Salix interior	Sandbar Willow	S5					U		X			X
Salix purpurea	Purple Willow	SE4					X	X				
Scrophulariaceae	**Figwort Family**											
Chaenorhinum minus	Dwarf Snapdragon	SE5					X	X				
Chelone glabra	White Turtlehead	S5					U		X			
Linaria vulgaris	Butter-and-eggs	SE5					X	X	X			X
Verbascum thapsus	Common Mullein	SE5					X	X	X			
Veronica officinalis	Common Speedwell	SE5					X	X	X			X
Veronica serpyllifolia	Thyme-leaved Speedwell	SU					X	X				X
Solanaceae	**Nightshade Family**											
Solanum dulcamara	Bittersweet Nightshade	SE5					X		X			
Tiliaceae	**Linden Family**											
Tilia americana	American Basswood	S5					X	X	X	X		X
Ulmaceae	**Elm Family**											
Celtis occidentalis	Common Hackberry	S4					R3		X			
Ulmus americana	American Elm	S5					X	X	X	X		X
Ulmus rubra	Slippery Elm	S5					X		X			
Urticaceae	**Nettle Family**											
Boehmeria cylindrica	False Nettle	S5					X		X			
Pilea pumila	Dwarf Clearweed	S5					X	X	X			X
Urtica dioica ssp. dioica	European Stinging Nettle	SE2						X	X			
Verbenaceae	**Vervain Family**											
Verbena hastata	Blue Vervain	S5					X		X			X
Verbena stricta	Hoary Vervain	S4						X				
Verbena urticifolia	White Vervain	S5					X	X	X			X
Violaceae	**Violet Family**											
Viola sororia	Woolly Blue Violet	S5						X	X			X
Vitaceae	**Grape Family**											
Parthenocissus quinquefolia	Virginia Creeper	S4?					R	X				X
Parthenocissus vitacea	Thicket Creeper	S5					X		X			X
Vitis aestivalis	Summer Grape	S4					R3		X			X
Vitis riparia	Riverbank Grape	S5					X	X	X	X		X
Monocotyledons	**Monocots**											
Alismataceae	**Water-plantain Family**											
Alisma triviale	Northern Water-plantain	S5					X		X			X
Araceae	**Arum Family**											
Arisaema triphyllum	Jack-in-the-pulpit	S5					X	X	X			X
Cyperaceae	**Sedge Family**											
Carex bebbii	Bebb's Sedge	S5					U	X				X
Carex blanda	Woodland Sedge	S5					X					X
Carex cephalophora	Oval-leaved Sedge	S5					X					X
Carex communis	Fibrous-root Sedge	S5					X		X			
Carex cristatella	Crested Sedge	S5					X		X			X
Carex digitalis	Slender Woodland Sedge	S4S5					U					X
Carex granularis	Limestone Meadow Sedge	S5					X	X	X			
Carex hitchcockiana	Hitchcock's Sedge	S4S5					X					X
Carex intumescens	Bladder Sedge	S5					X		X			

Carex lacustris	Lake Sedge	S5					U		X			X
Carex mesochorea	Midland Sedge	S1									X	
Carex pensylvanica	Pennsylvania Sedge	S5					X	X	X			X
Carex platyphylla	Broad-leaved Sedge	S4S5					X		X			X
Carex praegracilis	Clustered Field Sedge	SE5					X					X
Carex prasina	Drooping Sedge	S4					R3		X			X
Carex projecta	Necklace Sedge	S5					U	X	X			
Carex pseudocyperus	Cyperus-like Sedge	S5					X		X			
Carex radiata	Eastern Star Sedge	S5					X	X	X			X
Carex rosea	Rosy Sedge	S5					X					X
Carex spicata	Spiked Sedge	SE5					X					X
Carex stipata	Awl-fruited Sedge	S5					X	X	X			X
Carex tenera	Tender Sedge	S5					X		X			X
Carex tribuloides	Blunt Broom Sedge	S4					U		X			
Carex tuckermanii	Tuckerman's Sedge	S5					U		X			X
Carex vulpinoidea	Fox Sedge	S5					X					X
Cyperus erythrorhizos	Red-rooted Flatsedge	S4					R2		X			
Cyperus esculentus	Perennial Yellow Flatsedge	S5					X	X	X			
Eleocharis obtusa	Blunt Spikerush	S5					U	X	X			X
Schoenoplectus tabernaemontani	Soft-stemmed Bulrush	S5					X					X
Scirpus atrovirens	Dark-green Bulrush	S5					X					X
Scirpus cyperinus	Cottongrass Bulrush	S5					X					X
Dioscoreaceae	**Yam Family**											
Dioscorea villosa	Wild Yam	S4					R1		X			X
Juncaceae	**Rush Family**											
Juncus articulatus	Jointed Rush	S5					U					X
Juncus compressus	Flattened Rush	SE5					X					X
Juncus dudleyi	Dudley's Rush	S5					X	X				X
Juncus effusus ssp. solutus	Soft Rush	S5?					X		X			
Juncus tenuis	Path Rush	S5					X					X
Juncus torreyi	Torrey's Rush	S5					X					X
Luzula acuminata	Hairy Woodrush	S5					U					X
Lemnaceae	**Duckweed Family**											
Lemna minor	Lesser Duckweed	S5					X	X	X			X
Spirodela polyrhiza	Great Duckweed	S5						X	X			
Liliaceae	**Lily Family**											
Allium sativum	Cultivated Garlic	SE2					X	X	X			
Asparagus officinalis	Garden Asparagus	SE5					X	X				X
Convallaria majalis	European Lily-of-the-valley	SE5					X	X				X
Erythronium americanum	Yellow Trout-lily	S5										X
Maianthemum racemosum	Large False Solomon's Seal	S5					X	X				X
Polygonatum pubescens	Hairy Solomon's Seal	S5					X	X				
Trillium grandiflorum	White Trillium	S5					X	X	X			
Uvularia perfoliata	Perfoliate Bellwort	S1S2					R2				X	
Orchidaceae	**Orchid Family**											
Epipactis helleborine	Eastern Helleborine	SE5					X	X	X			X
Poaceae	**Grass Family**											
Agrostis gigantea	Redtop	SE5					X					X
Agrostis perennans	Upland Bentgrass	S4?					U					X
Agrostis stolonifera	Creeping Bentgrass	SE5					X					X
Alopecurus pratensis	Meadow Foxtail	SE5					X	X				
Andropogon gerardi	Big Bluestem	S4					R5					X
Arrhenatherum elatius	Tall Oatgrass	SE4					X	X				
Bromus inermis	Smooth Brome	SE5					X	X	X			
Bromus tectorum	Downy Brome	SE5					X	X				
Calamagrostis canadensis	Bluejoint Reedgrass	S5					X		X			
Dactylis glomerata	Orchard Grass	SE5					X	X				X
Danthonia spicata	Poverty Oatgrass	S5					XU?		X			X
Dichanthelium dichotomum	Forked Panicgrass	S2					R1				X	

Echinochloa crus-galli	Large Barnyard Grass	SE5					X	X				X
Elymus canadensis	Canada Wildrye	S5					XU					X
Elymus hystrix	Bottlebrush Grass	S5					X					X
Elymus repens	Creeping Wildrye	SE5					X	X				X
Elymus virginicus var. virginicus	Virginia Wildrye	S5					X		X			
Glyceria grandis	Tall Mannagrass	S5					XU	X	X			
Glyceria maxima	Rough Mannagrass	SE4					X	X	X			X
Glyceria striata	Fowl Mannagrass	S5					X	X	X			X
Hordeum jubatum	Foxtail Barley	S5?										X
Hordeum jubatum ssp. jubatum	Foxtail Barley	S5?					X	X				
Leersia oryzoides	Rice Cutgrass	S5					X		X			X
Leersia virginica	Virginia Cutgrass	S4					U					X
Phalaris arundinacea	Reed Canary Grass	S5					X		X			X
Phleum pratense	Common Timothy	SE5					X		X			X
Phragmites australis ssp. australis	European Reed	SE5							X			X
Poa compressa	Canada Bluegrass	SE5					X	X	X			X
Poa palustris	Fowl Bluegrass	S5					X		X			X
Poa pratensis	Kentucky Bluegrass	S5										X
Poa pratensis ssp. pratensis	Kentucky Bluegrass	SE5					X	X				
Setaria viridis	Green Foxtail	SE5					X					X
Sphenopholis nitida	Shiny Wedge Grass	S1					R2				X	
Smilacaceae	**Catbrier Family**											
Smilax tamnoides	Hispid Greenbrier	S5					U					X
Typhaceae	**Cattail Family**											
Typha angustifolia	Narrow-leaved Cattail	SE5					X	X	X			X
Typha latifolia	Broad-leaved Cattail	S5					X		X			X
Typha x glauca	*(Typha angustifolia X Typha latifolia)*	SNA					X	X	X			
TOTAL								**176**	**206**	**23**	**13**	**232**

*NHIC Atlas Squares: 17NH9396, 17NH9397, 17NH9497

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Appendix VI
Bird Species Reported from the Study Area

Bird Species Reported from the Study Area - NHS - 1200 King Road (Project #2762)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	1200 King Road EIA	Grindstone - Falcon Creeks Headwater Wetland Complex Summary	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence	BMB-001	BMB-002	BMB-003	BMB-004	BMB-005	BMB-006	BMB-007	BMB-008	BMB-009	Transect	Other Observations
		NDMNRF 2022	MECP 2022	Government of Canada 2022	Government of Canada 2022	Government of Canada 2022	Savanta Inc. 2015	WSP Canada Group Limited 2020	BSC et al. 2006	NDMNRF 2022	NRSI Results from 2022-2024											
Anatidae	**Ducks, Geese & Swans**																					
Aix sponsa	Wood Duck	S5B,S3N					X	X	CO		**OB**											OB
Anas crecca	Green-winged Teal	S4B,S4N,S5M							CO													
Anas platyrhynchos	Mallard	S5					X	X	CO		**OB**											OB
Anas rubripes	American Black Duck	S4							PO													
Aythya americana	Redhead	S2B,S4N							CO													
Branta canadensis	Canada Goose	S5					X	X	CO		**OB**								OB			OB
Cygnus buccinator	Trumpeter Swan	S4	NAR	NAR	NS	No schedule			CO													
Cygnus olor	Mute Swan	SNA							CO													
Mareca strepera	Gadwall	S4B,S4N,S5M							CO													
Phasianidae	**Partridges, Grouse & Turkeys**																					
Meleagris gallopavo	Wild Turkey	S5						X			**PO**											PO
Podicipediformes	**Grebes**																					
Podiceps grisegena	Red-necked Grebe	S3	NAR	NAR	NS	No schedule			CO													
Columbidae	**Pigeons & Doves**																					
Columba livia	Rock Pigeon	SNA					X	X	CO		**OB**	OB										
Zenaida macroura	Mourning Dove	S5					X	X	CO		**PR**	PR	PO			PR					PO	OB
Cuculiformes	**Cuckoos & Anis**																					
Coccyzus erythropthalmus	Black-billed Cuckoo	S4S5B							PO		**OB**											OB
Coccyzus sp.	Black/Yellow-billed Cuckoo	NP							PO													
Apodidae	**Swifts**																					
Chaetura pelagica	Chimney Swift	S3B	THR	T	T	Schedule 1	X	X	CO		**PO**	PO										OB
Trochilidae	**Hummingbirds**																					
Archilochus colubris	Ruby-throated Hummingbird	S5B						X	PR		**PR**			PR								
Rallidae	**Rails, Gallinules & Coots**																					
Gallinula galeata	Common Gallinule	S3B							PO													
Porzana carolina	Sora	S5B							PO													
Rallus limicola	Virginia Rail	S4S5B							PR													
Charadriidae	**Plovers & Lapwings**																					
Charadrius vociferus	Killdeer	S4B					X	X	CO		**PO**	PO	PO		OB			PO		PO		OB
Scolopacidae	**Sandpipers & Allies**																					
Actitis macularia	Spotted Sandpiper	S5B					X	X	CO		**PR**	PR								PO		OB
Gallinago delicata	Wilson's Snipe	S5B					X				**OB**											OB
Scolopax minor	American Woodcock	S4B						X	CO													
Tringa solitaria	Solitary Sandpiper	S4B,S5M					X															
Laridae	**Gulls, Terns & Skimmers**																					
Hydroprogne caspia	Caspian Tern	S3B,S5M	NAR	NAR	NS	No schedule			CO													
Larus argentatus	Herring Gull	S4B,S5N						X	CO		**OB**					OB						OB
Larus delawarensis	Ring-billed Gull	S5					X	X	CO		**OB**	OB	OB	OB		OB		OB				OB
Sterna hirundo	Common Tern	S4B	NAR	NAR	NS	No schedule			CO													
Phalacrocoracidae	**Cormorants**																					
Nannopterum auritum	Double-crested Cormorant	S5B,S4N	NAR	NAR	NS	No schedule	X		CO		**OB**											OB
Ardeidae	**Herons & Bitterns**																					
Ardea herodias	Great Blue Heron	S4						X			**OB**								OB			OB
Butorides virescens	Green Heron	S4B					X	X	PO		**PR**					PR						OB
Ixobrychus exilis	Least Bittern	S4B	THR	T	T	Schedule 1			PO													
Nycticorax nycticorax	Black-crowned Night-Heron	S3B,S2N,S4M					X	X	CO													
Cathartidae	**Vultures**																					
Cathartes aura	Turkey Vulture	S5B,S3N					X	X	PR		**OB**		OB		OB							OB
Pandionidae	**Osprey**																					
Pandion haliaetus	Osprey	S5B						X														
Accipitridae	**Hawks, Kites, Eagles & Allies**																					
Accipiter cooperii	Cooper's Hawk	S4	NAR	NAR	NS	No schedule	X	X	CO													
Buteo jamaicensis	Red-tailed Hawk	S5	NAR	NAR	NS	No schedule	X	X	PR		**PR**				PR							OB
Buteo lagopus	Rough-legged Hawk	S1B,S4N	NAR	NAR	NS	No schedule					**OB**											OB
Haliaeetus leucocephalus	Bald Eagle	S4	SC	NAR	NS	No schedule		X			**OB**											OB
Strigidae	**Typical Owls**																					
Bubo virginianus	Great Horned Owl	S4						X	PO													
Megascops asio	Eastern Screech-Owl	S4	NAR	NAR	NS	No schedule		X	CO													
Alcedinidae	**Kingfishers**																					
Megaceryle alcyon	Belted Kingfisher	S5B,S4N					X	X	CO		**PR**					PR						OB
Picidae	**Woodpeckers**																					
Colaptes auratus	Northern Flicker	S5					X	X	CO		**CO**			PR	PO	PO		PO				CO
Dryobates pubescens	Downy Woodpecker	S5					X	X	CO		**PR**	PR		PR	PO	PR		PR				OB
Dryobates villosus	Hairy Woodpecker	S5					X	X	CO													
Dryocopus pileatus	Pileated Woodpecker	S5							PR													
Melanerpes carolinus	Red-bellied Woodpecker	S5					X	X	PR		**PO**				PO							OB
Melanerpes erythrocephalus	Red-headed Woodpecker	S3	END	E	E	Schedule 1			PO		**OB**											OB
Sphyrapicus varius	Yellow-bellied Sapsucker	S5B,S3N									**OB**											OB
Falconidae	**Caracaras & Falcons**																					
Falco peregrinus	Peregrine Falcon	S4	SC	NAR	SC	Schedule 1			CO													
Falco sparverius	American Kestrel	S4					X		CO													
Tyrannidae	**Tyrant Flycatchers**																					
Contopus virens	Eastern Wood-Pewee	S4B	SC	SC	SC	Schedule 1	X	X	PR	X	**PO**						PO					PO
Empidonax alnorum	Alder Flycatcher	S5B							PO													
Empidonax traillii	Willow Flycatcher	S4B						X	PR		**PO**										PO	
Myiarchus crinitus	Great Crested Flycatcher	S5B					X	X	CO		**PR**			PR	PO	PR	PO					OB
Sayornis phoebe	Eastern Phoebe	S5B							PR													
Tyrannus tyrannus	Eastern Kingbird	S4B					X	X	CO		**PR**		PO			PR			PR	PO		OB

Vireonidae	**Vireos**																					
Vireo flavifrons	Yellow-throated Vireo	S4B							PO													
Vireo gilvus	Warbling Vireo	S5B					X	X	CO		**OB**											OB
Vireo griseus	White-eyed Vireo	S1B									**PO**	PO			PO							
Vireo olivaceus	Red-eyed Vireo	S5B					X	X	CO		**PR**			PR	PR	PO	PO					OB
Corvidae	**Crows & Jays**																					
Corvus brachyrhynchos	American Crow	S5					X	X	CO		**PO**		PO	PO	PO	PO	PO					OB
Cyanocitta cristata	Blue Jay	S5					X	X	CO		**PR**	PO	PO	PR	PR	PR	PR	PR	OB			OB
Alaudidae	**Larks**																					
Eremophila alpestris	Horned Lark	S4					X	X	CO													
Hirundinidae	**Swallows**																					
Hirundo rustica	Barn Swallow	S4B	SC	SC	T	Schedule 1	X	X	CO	X	**PO**		OB						PO		PO	PO
Petrochelidon pyrrhonota	Cliff Swallow	S4S5B						X			**OB**											OB
Progne subis	Purple Martin	S3B					X		PO													
Riparia riparia	Bank Swallow	S4B	THR	T	T	Schedule 1		X														
Stelgidopteryx serripennis	Northern Rough-winged Swallow	S4B					X	X	CO		**PR**	PR	PO						PR			OB
Tachycineta bicolor	Tree Swallow	S4S5B					X	X	CO		**PO**					PO						OB
Paridae	**Chickadees & Titmice**																					
Baeolophus bicolor	Tufted Titmouse	S3								X												
Poecile atricapillus	Black-capped Chickadee	S5					X	X	CO		**CO**	PO		PR	PR	PO	PR					CO
Sittidae	**Nuthatches**																					
Sitta carolinensis	White-breasted Nuthatch	S5					X	X	PR		**PO**				PO							PO
Certhiidae	**Creepers**																					
Certhia americana	Brown Creeper	S5							PO													
Troglodytidae	**Wrens**																					
Cistothorus palustris	Marsh Wren	S4B,S3N							PR													
Thryothorus ludovicianus	Carolina Wren	S4							PR		**PO**											PO
Troglodytes aedon	House Wren	S5B					X	X	CO		**CO**			PR	PR	PR						CO
Troglodytes hiemalis	Winter Wren	S5B,S4N							PO													
Polioptilidae	**Gnatcatchers**																					
Polioptila caerulea	Blue-gray Gnatcatcher	S4B					X	X	PO													
Regulidae	**Kinglets**																					
Corthylio calendula	Ruby-crowned Kinglet	S5B,S3N					X				**OB**											OB
Turdidae	**Thrushes**																					
Hylocichla mustelina	Wood Thrush	S4B	SC	T	T	Schedule 1	X		PR	X												
Turdus migratorius	American Robin	S5					X	X	CO		**CO**	PO	PR	CO	PR	PR	PR	PR	PO			OB
Mimidae	**Mockingbirds, Thrashers & Allies**																					
Dumetella carolinensis	Gray Catbird	S5B,S3N					X	X	CO		**PR**	PO	PO	PR	PR	PR	PO					PO
Mimus polyglottos	Northern Mockingbird	S4					X		CO													
Toxostoma rufum	Brown Thrasher	S4B							PR													
Sturnidae	**Starlings**																					
Sturnus vulgaris	European Starling	SNA					X	X	CO		**CO**	CO	CO	PO		PR		CO	CO	CO		CO
Bombycillidae	**Waxwings**																					
Bombycilla cedrorum	Cedar Waxwing	S5					X	X	CO		**PR**	PO			PR	PR	PO					OB
Passeridae	**Old World Sparrows**																					
Passer domesticus	House Sparrow	SNA					X	X	CO		**PO**			PO	PO							OB
Fringillidae	**Finches & Allies**																					
Haemorhous mexicanus	House Finch	SNA					X	X	CO													
Spinus psaltria	Lesser Goldfinch	SNA									**PO**					PO						
Spinus tristis	American Goldfinch	S5					X	X	CO		**PR**	PR	PR	PR	PR	PR	PO	PO	PR	PR		PO
Emberizidae	**New World Sparrows & Allies**																					
Melospiza georgiana	Swamp Sparrow	S5B,S4N						X	PR													
Melospiza melodia	Song Sparrow	S5					X	X	CO		**PR**	PR	PR	PR	PR	PR	PR	PR	PR	PR		PO
Passerculus sandwichensis	Savannah Sparrow	S5B,S3N					X	X	PR		**PR**	PO	PR					PO	PR	PR	PO	OB
Pipilo erythrophthalmus	Eastern Towhee	S4B,S3N						X	PR													
Pooecetes gramineus	Vesper Sparrow	S4B					X	X	PO													
Spizella pallida	Clay-colored Sparrow	S4B							PO													
Spizella passerina	Chipping Sparrow	S5B,S3N					X	X	CO													
Spizella pusilla	Field Sparrow	S4B,S3N					X	X	CO													
Spizelloides arborea	American Tree Sparrow	S5					X				**OB**											OB
Zonotrichia albicollis	White-throated Sparrow	S5					X															
Icteridae	**Troupials & Allies**																					
Agelaius phoeniceus	Red-winged Blackbird	S5					X	X	CO		**CO**	CO	PR	PR	PR	PR	PO	CO	PR	CO	CO	CO
Dolichonyx oryzivorus	Bobolink	S4B	THR	SC	T	Schedule 1			PO	X	**PR**								PR			
Icterus galbula	Baltimore Oriole	S4B					X	X	CO		**CO**			PO					CO			PO
Icterus spurius	Orchard Oriole	S4B							CO													
Molothrus ater	Brown-headed Cowbird	S5					X	X	CO		**PR**	PR		PR	PO			PO				OB
Quiscalus mexicanus	Great-tailed Grackle	SNA									**PO**				PO							
Quiscalus quiscula	Common Grackle	S5					X	X	CO		**CO**	CO	PO	PO		CO		CO		OB		OB
Sturnella magna	Eastern Meadowlark	S4B,S3N	THR	T	T	Schedule 1			CO	X	**PR**		PR									OB
Parulidae	**Wood Warblers**																					
Geothlypis philadelphia	Mourning Warbler	S5B							PO		**PO**		PO									
Geothlypis trichas	Common Yellowthroat	S5B,S3N					X	X	PR		**PO**			PO								OB
Parkesia motacilla	Louisiana Waterthrush	S2B	THR	T	T	Schedule 1			PO	X												
Parkesia noveboracensis	Northern Waterthrush	S5B						X														
Seiurus aurocapilla	Ovenbird	S5B							PR													
Setophaga coronata	Yellow-rumped Warbler	S5B,S4N									**OB**											OB
Setophaga pensylvanica	Chestnut-sided Warbler	S5B						X	PO													
Setophaga petechia	Yellow Warbler	S5B					X	X	CO		**PR**	PO		PO	PO	PR						OB
Setophaga pinus	Pine Warbler	S5B,S3N							PR													
Setophaga ruticilla	American Redstart	S5B						X	PO		**PO**			PO		PO						PO
Vermivora chrysoptera	Golden-winged Warbler	S3B	SC	T	T	Schedule 1			PO													
Vermivora cyanoptera	Blue-winged Warbler	S4B							PO													
Vermivora sp.	Blue-winged/Golden-winged Warbler	NP							PO													
Cardinalidae	**Cardinals, Grosbeaks & Allies**																					
Cardinalis cardinalis	Northern Cardinal	S5					X	X	CO		**PR**	PR	PR	PR	PR	PR	PO	PR				PR
Passerina cyanea	Indigo Bunting	S5B					X	X	PR		**PR**		PR	PR	PO			PR	PR			PO
Pheucticus ludovicianus	Rose-breasted Grosbeak	S5B					X	X	CO		**PO**				PO			PO				
Piranga olivacea	Scarlet Tanager	S5B							PR													
Total							**65**	**72**	**108**	**7**	**70**	**23**	**21**	**25**	**27**	**27**	**13**	**16**	**15**	**9**	**5**	**60**

*OBBA Atlas Square: 17NH99

**NHIC Atlas Squares: 17NH9396, 17NH9397, 17NH9497

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Appendix VII
Herpetofauna Species Reported from the Study Area

Reptile and Amphibian Species Reported from the Study Area - NHS - 1200 King Road (Project #2762)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	1200 King Road EIA	Grindstone - Falcon Creeks Headwater Wetland Complex Summary	ORAA*	NHIC Data**	NRSI Observed	Anuran Call Survey	Turtle Basking Survey	Snake Cover Board Survey
		NDMNRF 2022	MECP 2022	Government of Canada 2022	Government of Canada 2022	Government of Canada 2022	Savanta Inc. 2015	WSP Canada Groupd Limited 2020	Ontario Nature 2019	NDMNRF 2022	NRSI Results from 2022			
Turtles														
Chelydra serpentina	Snapping Turtle	S4	SC	SC	SC	Schedule 1	X	X	X	X	X		X	
Chrysemys picta marginata	Midland Painted Turtle	S4		SC	SC	Schedule 1	X	X	X	X	X		X	
Graptemys geographica	Northern Map Turtle	S3	SC	SC	SC	Schedule 1			X					
Sternotherus odoratus	Eastern Musk Turtle	S3	SC	SC	SC	Schedule 1			X					
Snakes														
Crotalus horridus	Timber Rattlesnake	SX	EXP	XT	XT	Schedule 1			X	X				
Lampropeltis triangulum	Milksnake	S4	NAR	SC	SC	Schedule 1		X	X	X	X			X
Nerodia sipedon sipedon	Northern Watersnake	S5	NAR	NAR	NS	No schedule			X					
Storeria dekayi	Dekay's Brownsnake	S5	NAR	NAR	NS	No schedule		X	X		X			X
Storeria occipitomaculata	Red-bellied Snake	S5						X	X		X			
Thamnophis sirtalis sirtalis	Eastern Gartersnake	S5						X	X		X			X
Salamanders														
Ambystoma sp.	Jefferson/Blue-spotted Salamander Compl	NP							X					
Ambystoma jeffersonianum	Jefferson Salamander	S2	END	E	E	Schedule 1			X					
Ambystoma laterale - (2) jeffersonianum	Unisexual Ambystoma (Jefferson Salamar	S2	END	E	E	Schedule 1				X				
Ambystoma laterale	Blue-spotted Salamander	S4							X					
Ambystoma maculatum	Spotted Salamander	S4							X					
Necturus maculosus	Mudpuppy	S4	NAR	NAR	NS	No schedule			X					
Notophthalmus viridescens viridescens	Red-spotted Newt	S5							X					
Plethodon cinereus	Eastern Red-backed Salamander	S5						X	X		X			
Frogs and Toads														
Anaxyrus americanus	American Toad	S5					X	X	X		X	X		
Dryophytes versicolor	Gray Treefrog	S5					X		X		X			
Pseudacris crucifer	Spring Peeper	S5							X					
Lithobates catesbeianus	American Bullfrog	S4							X					
Lithobates clamitans	Green Frog	S5					X	X	X		X	X		
Lithobates palustris	Pickerel Frog	S4	NAR	NAR	NS	No schedule			X					
Lithobates pipiens	Northern Leopard Frog	S5	NAR	NAR	NS	No schedule			X					
Lithobates sylvaticus	Wood Frog	S5							X					
Total							**5**	**9**	**25**	**5**	**10**	**2**	**2**	**3**

*ORAA Atlas Square: 17NH99

**NHIC Atlas Squares: 17NH9396, 17NH9397, 17NH9497

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Appendix VIII
Mammal Species Reported from the Study Area

Mammal Species Reported from the Study Area - NHS - 1200 King Road (Project #2762)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	1200 King Road EIA	Grindstone - Falcon Creeks Headwater Wetland Complex Summary	Ontario Mammal Atlas	NHIC Data**	NRSI Observed
		NDMNRF 2022	MECP 2022	Government of Canada 2022	Government of Canada 2022	Government of Canada 2022	Savanta Inc. 2015	WSP Canada Groupd Limited 2020	Dobbyn 1994	NDMNRF 2022	NRSI Results from 2022
Didelphimorphia	**Opossums**										
Didelphis virginiana	Virginia Opossum	S4							X		X
Eulipotyphla	**Shrews, Moles, Hedgehogs, and Allies**										
Blarina brevicauda	Northern Short-tailed Shrew	S5							X		
Condylura cristata	Star-nosed Mole	S5							X		
Parascalops breweri	Hairy-tailed Mole	S4							X		
Sorex cinereus	Masked Shrew	S5							X		
Sorex fumeus	Smoky Shrew	S5							X		
Chiroptera	**Bats**										
Eptesicus fuscus	Big Brown Bat	S4					X		X		X
Lasionycteris noctivagans	Silver-haired Bat	S4	END						X		X
Lasiurus borealis	Eastern Red Bat	S4	END						X		X
Lasiurus cinereus	Hoary Bat	S4	END						X		X
Myotis leibii	Eastern Small-footed Myotis	S2S3	END						X		X
Myotis lucifugus	Little Brown Myotis	S3	END	E	E	Schedule 1			X		X
Myotis septentrionalis	Northern Myotis	S3	END	E	E	Schedule 1			X		X
Perimyotis subflavus	Tri-colored Bat	S3?	END	E	E	Schedule 1			X		
Lagomorpha	**Rabbits and Hares**										
Lepus europaeus	European Hare	SNA							X		
Sylvilagus floridanus	Eastern Cottontail	S5					X	X	X		X
Rodentia	**Rodents**										
Castor canadensis	Beaver	S5					X		X		
Glaucomys volans	Southern Flying Squirrel (Great Lakes Plai	S4	NAR	NAR	NS	No schedule			X		
Marmota monax	Woodchuck	S5							X		
Microtus pennsylvanicus	Meadow Vole	S5					X		X		X
Microtus pinetorum	Woodland Vole	S3?	SC	SC	SC	Schedule 1			X		
Mus musculus	House Mouse	SNA							X		
Napaeozapus insignis	Woodland Jumping Mouse	S5							X		
Ondatra zibethicus	Muskrat	S5						X	X		X
Peromyscus leucopus	White-footed Mouse	S5					X		X		
Peromyscus maniculatus	Deer Mouse	S5					X	X	X		X
Rattus norvegicus	Norway Rat	SNA							X		
Sciurus carolinensis	Eastern Gray Squirrel	S5					X	X	X	X	
Tamias striatus	Eastern Chipmunk	S5					X	X	X		
Tamiasciurus hudsonicus	Red Squirrel	S5					X		X		
Zapus hudsonius	Meadow Jumping Mouse	S5						X	X		
Canidae	**Canines**										
Canis latrans	Coyote	S5						X	X		X
Urocyon cinereoargenteus	Gray Fox	S1	THR	T	T	Schedule 1			X		
Vulpes vulpes	Red Fox	S5							X		X
Mephitidae	**Skunks and Stink Badgers**										
Mephitis mephitis	Striped Skunk	S5							X		X
Mustelidae	**Weasels and Allies**										
Mustela frenata	Long-tailed Weasel	S4					X		X		
Mustela richardsonii	American Ermine	S5							X		
Neovison vison	American Mink	S4					X		X	X	X
Taxidea taxus jacksoni	American Badger (Southwestern Ontario p	S1	END	E	E	Schedule 1			X		
Procyonidae	**Raccoons and Allies**										
Procyon lotor	Northern Raccoon	S5					X	X	X		X
Artiodactyla	**Deer and Bison**										
Odocoileus virginianus	White-tailed Deer	S5					X	X	X		X

Total	**13**	**9**	**41**	**2**	**18**

*Mammal Atlas Square Numbers: 17NT99
**NHIC Atlas Squares: 17NH9396, 17NH9397, 17NH9497

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Appendix IX
Lepidoptera Species Reported from the Study Area

Butterfly Species Reported from the Study Area - NHS - 1200 King Road (Project #2762)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	1200 King Road EIA	Grindstone - Falcon Creeks Headwater Wetland Complex Summary	Ontario Butterfly Atlas*	NHIC Data**	NRSI Observed
		NDMNRF 2022	MECP 2022	Government of Canada 2022	Government of Canada 2022	Government of Canada 2022	Savanta Inc. 2015	WSP Canada Groupd Limited 2020	Macnaughton et al. 2022	NDMNRF 2022	NRSI Results from 2022
Hesperiidae	**Skippers**										
Anatrytone logan	Delaware Skipper	S4							X		
Ancyloxypha numitor	Least Skipper	S5					X		X		
Carterocephalus palaemon	Arctic Skipper	S5					X		X		
Epargyreus clarus	Silver-spotted Skipper	S4						X	X		
Erynnis baptisiae	Wild Indigo Duskywing	S4						X	X		X
Erynnis icelus	Dreamy Duskywing	S5							X		
Erynnis juvenalis	Juvenal's Duskywing	S5						X	X		
Erynnis lucilius	Columbine Duskywing	S4							X		
Erynnis martialis	Mottled Duskywing	S2	END	E	NS	No schedule			X		
Euphyes dion	Dion Skipper	S4							X		
Euphyes vestris	Dun Skipper	S5							X		X
Hylephila phyleus	Fiery Skipper	SNA							X		
Pholisora catullus	Common Sootywing	S4						X	X		
Poanes hobomok	Hobomok Skipper	S5						X	X		X
Poanes viator	Broad-winged Skipper	S4							X		
Polites mystic	Long Dash Skipper	S5							X		
Polites peckius	Peck's Skipper	S5						X	X		
Polites themistocles	Tawny-edged Skipper	S5						X	X		
Pompeius verna	Little Glassywing	S4							X		
Thorybes pylades	Northern Cloudywing	S5							X		X
Thymelicus lineola	European Skipper	SNA					X	X	X		X
Wallengrenia egeremet	Northern Broken Dash	S5						X	X		
Papilionidae	**Swallowtails**	0	0	0	0	0					
Battus philenor	Pipevine Swallowtail	SNA							X		
Papilio canadensis	Canadian Tiger Swallowtail	S5					X	X			
Papilio cresphontes	Giant Swallowtail	S4							X		
Papilio glaucus	Eastern Tiger Swallowtail	S5					X	X	X		X
Papilio polyxenes	Black Swallowtail	S5					X	X	X		X
Papilio troilus	Spicebush Swallowtail	S4							X		
Pieridae	**Whites and Sulphurs**	0	0	0	0	0					
Colias eurytheme	Orange Sulphur	S5					X	X	X		X
Colias philodice	Clouded Sulphur	S5					X	X	X		X
Pieris oleracea	Mustard White	S4							X		
Pieris rapae	Cabbage White	SNA					X	X	X		X
Lycaenidae	**Harvesters, Coppers, Hairstreaks, Blue**	0	0	0	0	0					
Celastrina ladon	Spring Azure	SU					X	X			
Celastrina lucia	Northern Spring Azure	S5							X		
Celastrina neglecta	Summer Azure	S5					X	X	X		
Celastrina sp.	Azure species	SNA							X		
Cupido comyntas	Eastern Tailed Blue	S5					X	X	X		X
Feniseca tarquinius	Harvester	S4							X		
Glaucopsyche lygdamus	Silvery Blue	S5					X	X	X		X
Lycaena hyllus	Bronze Copper	S5							X		
Lycaena phlaeas	American Copper	S5							X		
Satyrium acadica	Acadian Hairstreak	S4							X		
Satyrium calanus	Banded Hairstreak	S4							X		
Satyrium caryaevorus	Hickory Hairstreak	S4						X	X		
Satyrium liparops	Striped Hairstreak	S5						X	X		

Strymon melinus	Gray Hairstreak	S4							X		
Nymphalidae	**Brush-footed Butterflies**	0	0	0	0	0					
Aglais milberti	Milbert's Tortoiseshell	S5						X	X		
Cercyonis pegala	Common Wood-Nymph	S5						X	X		X
Chlosyne nycteis	Silvery Checkerspot	S5						X	X		
Coenonympha california	Common Ringlet	S5					X	X			X
Danaus plexippus	Monarch	S2N,S4B	SC	E	SC	Schedule 1		X	X		X
Junonia coenia	Common Buckeye	SNA							X		
Lethe anthedon	Northern Pearly-Eye	S5						X	X		
Lethe eurydice	Eyed Brown	S5					X		X		
Libytheana carinenta	American Snout	SNA							X		
Limenitis archippus	Viceroy	S5					X		X		
Limenitis arthemis arthemis	White Admiral	S5					X		X		
Limenitis arthemis astyanax	Red-spotted Purple	S5					X	X	X		
Megisto cymela	Little Wood-Satyr	S5					X	X	X		X
Nymphalis antiopa	Mourning Cloak	S5					X	X	X		X
Nymphalis l-album	Compton Tortoiseshell	S5							X		
Phyciodes cocyta	Northern Crescent	S5							X		
Phyciodes tharos	Pearl Crescent	S4						X	X		
Polygonia comma	Eastern Comma	S5						X	X		X
Polygonia interrogationis	Question Mark	S5					X		X		
Polygonia progne	Gray Comma	S5							X		
Speyeria aphrodite	Aphrodite Fritillary	S5							X		
Speyeria cybele	Great Spangled Fritillary	S5							X		
Vanessa atalanta	Red Admiral	S5B					X	X	X		X
Vanessa cardui	Painted Lady	S5B							X		
Vanessa virginiensis	American Lady	S5						X	X		
							22	**34**	**68**	**0**	**19**

**NHIC Atlas Squares: 17NH9396, 17NH9397, 17NH9497

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Appendix X
Odonata Species Reported from the Study Area

Odonate Species Reported from the Study Area - NHS - 1200 King Road (Project #2762)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Grindstone - Falcon Creeks Headwater Wetland Complex Summary	Odonate Atlas*	NHIC Data**	NRSI Observed
		NDMNRF 2022	MECP 2022	Government of Canada 2022	Government of Canada 2022	Government of Canada 2022	WSP Canada Groupd Limited 2020	OOAD 2022	NDMNRF 2022	
Calopterygidae	**Broadwinged Damselflies**									
Calopteryx maculata	Ebony Jewelwing	S5					X	X		X
Hetaerina americana	American Rubyspot	S4						X		
Lestidae	**Spreadwings**									
Lestes congener	Spotted Spreadwing	S5						X		
Lestes disjunctus	Northern Spreadwing	S5								
Lestes dryas	Emerald Spreadwing	S5						X		
Lestes forcipatus	Sweetflag Spreadwing	S4						X		
Lestes rectangularis	Slender Spreadwing	S5						X		X
Lestes unguiculatus	Lyre-tipped Spreadwing	S5						X		
Coenagrionidae	**Narrow-winged Damselflies**									
Amphiagrion saucium	Eastern Red Damsel	S4						X		
Argia apicalis	Blue-fronted Dancer	S4						X		
Argia fumipennis violacea	Violet Dancer	S5						X		
Argia moesta	Powdered Dancer	S5						X		
Coenagrion resolutum	Taiga Bluet	S5						X		
Enallagma aspersum	Azure Bluet	S4						X		
Enallagma basidens	Double-striped Bluet	S3						X		
Enallagma carunculatum	Tule Bluet	S5						X		
Enallagma civile	Familiar Bluet	S5					X	X		
Enallagma ebrium	Marsh Bluet	S5					X	X		
Enallagma exsulans	Stream Bluet	S5						X		
Enallagma geminatum	Skimming Bluet	S4						X		
Enallagma signatum	Orange Bluet	S4						X		
Ischnura posita	Fragile Forktail	S4					X	X		X
Ischnura verticalis	Eastern Forktail	S5					X	X		X
Nehalennia irene	Sedge Sprite	S5						X		
Aeshnidae	**Darners**									
Aeshna canadensis	Canada Darner	S5								
Aeshna constricta	Lance-tipped Darner	S5						X		
Aeshna umbrosa	Shadow Darner	S5						X		
Anax junius	Common Green Darner	S5					X	X		X
Epiaeschna heros	Swamp Darner	S3S4						X		
Gomphidae	**Clubtails**									
Arigomphus villosipes	Unicorn Clubtail	S3					X	X		
Gomphurus fraternus	Midland Clubtail	S4						X		
Phanogomphus lividus	Ashy Clubtail	S4						X		
Cordulegasteridae	**Spiketails**									
Cordulegaster obliqua	Arrowhead Spiketail	S3						X		
Corduliidae	**Emeralds**									
Epitheca canis	Beaverpond Baskettail	S5						X		
Epitheca cynosura	Common Baskettail	S5						X		
Epitheca princeps	Prince Baskettail	S5						X		
Somatochlora williamsoni	Williamson's Emerald	S4					X	X		
Libellulidae	**Skimmers**									
Celithemis elisa	Calico Pennant	S5						X		
Celithemis eponina	Halloween Pennant	S4						X		X
Erythemis simplicicollis	Eastern Pondhawk	S5					X	X		X
Leucorrhinia intacta	Dot-tailed Whiteface	S5					X	X		X
Libellula luctuosa	Widow Skimmer	S5					X	X		X
Libellula pulchella	Twelve-spotted Skimmer	S5					X	X		X
Libellula quadrimaculata	Four-spotted Skimmer	S5						X		
Libellula semifasciata	Painted Skimmer	S3						X		
Pachydiplax longipennis	Blue Dasher	S5					X	X		X
Pantala flavescens	Wandering Glider	S4					X	X		
Pantala hymenaea	Spot-winged Glider	S4						X		
Perithemis tenera	Eastern Amberwing	S4					X	X		
Plathemis lydia	Common Whitetail	S5					X	X		X
Sympetrum internum	Cherry-faced Meadowhawk	S5					X	X		
Sympetrum obtrusum	White-faced Meadowhawk	S5						X		
Sympetrum rubicundulum	Ruby Meadowhawk	S5						X		
Sympetrum semicinctum	Band-winged Meadowhawk	S4					X	X		
Sympetrum vicinum	Autumn Meadowhawk	S5					X	X		X
Tramea carolina	Carolina Saddlebags	SNA					X	X		
Tramea lacerata	Black Saddlebags	S4					X	X		X
Tramea onusta	Red Saddlebags	SNA						X		
Total							**21**	**55**	**0**	**13**

**Odonate Atlas Square Numbers: 17NH99*

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Appendix XI
Fish Species Reported from the Study Area

Fish Species Reported from the Study Area - NHS - 1200 King Road (Project #2762)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Fisheries and Oceans SAR Data	Aquatic Resource Area Data	NHIC Data*
		NDMNRF 2022	MECP 2022	ernment of Canada	ernment of Canada	ernment of Canada	DFO 2022	Government of Ontario 2022	NDMNRF 2022
Cyprinidae	**Carps**								
Cyprinus carpio	Common Carp	SNA						X	
Leuciscidae	**Minnows**								
Carassius auratus	Goldfish	SNA						X	
Luxilus cornutus	Common Shiner	S5						X	
Notropis hudsonius	Spottail Shiner	S5						X	
Pimephales promelas	Fathead Minnow	S5						X	
Rhinichthys atratulus	Blacknose Dace	SNR						X	
Semotilus atromaculatus	Creek Chub	S5						X	
Catostomidae	**Suckers**								
Catostomus commersonii	White Sucker	S5						X	
Salmonidae	**Trouts and Salmons**								
Oncorhynchus mykiss	Rainbow Trout	SNA						X	
Centrarchidae	**Sunfishes and Basses**								
Lepomis cyanellus	Green Sunfish	S4	NAR	NAR	NS	No schedule		X	
Lepomis gibbosus	Pumpkinseed	S5						X	
Percidae	**Perches and Darters**								
Etheostoma caeruleum	Rainbow Darter	S4						X	
Total							**0**	**12**	**0**

*NHIC Atlas Square(s): 17NH9396, 17NH9397, 17NH9497

References

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Appendix XII
Wetland Evaluations

1200 King Road Reservoir Wetland Complex

July 2023 Provincially Significant Wetland Re-evaluation

Natural Resource Solutions Inc.

1) 1200 King Road Reservoir Wetland Complex Summary

The 1200 King Road Road Reservoir Wetland Complex occurs on the Iroquois Plain physiographic region (Chapman and Putnam 1984) and is part of ecodistrict 7E3. It is situated in the western extent of the City of Burlington, being bounded by Highway 403 to the north, the CN Rail corridor to the south, Waterdown Road to the west and King Road to the east. The wetland is located within the headwater reach of Grindstone Creek.

The wetlands were included in the wetland evaluation completed by WSP in 2020 as part of the Provincially Significant Grindstone-Falcon Creeks Headwater Wetland Complex; however, on-site surveys were not completed for the 1200 King Road parcel. The Wetland Evaluation Data Scoring Record (WEDSR) presented here is a revision prepared by NRSI in July 2023 that reflects recent changes made by the Government of Ontario as part of Bill 23, More Homes Built Faster Act which passed in December 2022. The Act resulted in changes to the Ontario Wetland Evaluation System (OWES) manual; most notably removing scoring for endangered and threatened species under the Special Features section, and altering the parameters for the complexing of wetland units. Under the revised OWES manual, an existing wetland complex must be considered as individual units with any multi-unit complexing supported with rationale. Based on our review of the existing catchment and 30 wetland units identified as part of the complex, it was determined that the reservoir and areas of swamp immediately adjacent occur in a small catchment on the tableland between the larger Grindstone Creek and Falcon Creek systems to the west and east, respectively. The application of updated wetland complexing rules reduces the complex of units and their catchment substantially as reflected in appended mapping. Where the existing WEDSR had identified these wetlands as part of a 30-unit complex, this re-evaluation focuses on 2 units.

Wetland Evaluation Data Scoring Record Summary

Biological Component

The complex has a score of 105 for its biological component. 100% of the wetland is situated on clay-loam soil with intermittent palustrine inflow and outflow. No evidence of groundwater seepage has been documented from these wetland units. As a small complex of 2 units comprised of 3 vegetation communities, interspersion is relatively low. The dominant cover includes regenerating Green Ash (*Fraxinus pensylvanica*), dead deciduous tree snags, European Buckthorn (*Rhamnus cathartica*), Buttonbush (*Cephalanthus occidentalis*) and a mixture of broad-leaved and graminoid wetland groundcover and submerged aquatic vegetation. The wetlands are surrounded by cultural thicket and cultural woodland communities that provide a buffer from the adjacent highway. Although the wetlands may facilitate the movement of wildlife from the east toward Waterdown Road, the Waterdown Road-Highway 403 interchange creates a barrier of open, urbanized land use that does not lend itself to wildlife movement further west toward Grindstone Creek. Anuran surveys completed by NRSI

biologists did not document any calling anurans from a monitoring station that was located to the immediate southwest of the reservoir, facing northeast.

Social Component

The wetland has a low score of 65 for its social component. The wetland units are almost entirely in private ownership (estimated to be 95%), with the remainder occurring on Ministry of Transportation lands along the southern edge of Highway 403. Due to the historic land use of the site, the proximity of Highway 403, the prevalence of aggressive invasive species and changes that have occurred due to Emerald Ash Borer, the wetlands are relatively degraded and exhibit low species diversity.

Non-research reports, including the existing WEDSR (WSP 2020) and Environmental Impact Assessments (Savanta 2015; NRSI 2023), have assessed all or a portion of the wetland complex and have provided valuable insight into the function and natural heritage values associated with these wetlands.

Hydrological Component

The wetland has a high score of 208 for its hydrological component. The wetland contributes to flood attenuation within the greater Grindstone Creek subwatershed, short term water quality improvement and groundwater recharge. The wetland is located within a headwater area but is not directly hydrologically connected to Grindstone Creek.

Special Features

The wetland has a high score of 154 for its special features. Significant species that have been documented from the wetland complex by NRSI and Savanta are outlined in Table 1.

Table 1. Significant species

Provincially-tracked Species

- Snapping Turtle
- Midland Painted Turtle

Regionally or Locally Significant Species

- None

The wetland units provide suitable habitat for waterfowl breeding as open water marsh is present in close proximity to seasonally-flooded swamp that contains snag trees. Wood Duck has been observed in the vicinity of the swamp and may suggest that the feature provides waterfowl breeding habitat. No calling anuran activity was documented from the naturalized reservoir or adjacent swamp features. The feature may receive pollutants including salt and petroleum products as runoff or spray from nearby Highway 403.

Conclusion

With a total score of 533, the 1200 King Road Reservoir Wetland Complex is not considered to be provincially significant. A wetland that scores 600 or more points or has 200 or more points in either the biological or special features component is deemed to be provincially significant.

The remaining wetland units identified in the 2020 WEDSR (WSP 2020) retain provincially significant status at this time.

Recommendations
The 2 wetland units identified in this complex provide flood attenuation for a large upstream catchment that directs flow toward Grindstone Creek which passes through the Hendrie Valley and outlets to Lake Ontario in the Hamilton Harbour. This function for receiving and storing surface water during precipitation event should be maintained.

The naturalized reservoir, now functioning as open water marsh, provides wildlife habitat that is not common in the Burlington area and the preservation of its function is important. The Buttonbush thicket swamp community at the northern edge of the reservoir is notable for the Burlington area.

Although the non-native European Buckthorn is already present within and adjacent to the wetland units, any future development and natural feature buffering should seek to enhance the native plant species diversity within these wetlands through native species planting or invasive species management, where practical. The suppression of invasive shrubs through the establishment of native tree canopy may be more practical than widespread and prolonged application of herbicide to control problematic species.

The severe decline of Ash is resulting in a transition toward European Buckthorn thicket. The introduction of other site-appropriate wetland tree and shrub species would constitute a benefit to site diversity and would contribute to limiting the proliferation of invasive shrubs.

2) Rationale for Identifying the 1200 King Reservoir Wetland Complex

The separation of the 2 wetland units from the larger 30-unit complex is based on the division of natural heritage function as a result of the Highway 403 corridor. The 2 units within this revised complex include marsh and swamp communities that are in close proximity (approximately 3m apart). The two wetland units are separated by a low and narrow berm that may include an equalization culvert (although one was not observed by NRSI biologists in 2022). In the absence of a culvert structure, it is inferred that surface water would percolate from the naturalized reservoir, through the berm, and into the swamp to the southeast of the reservoir. Water in the reservoir may also periodically overtop the berm and spill into the swamp feature. As the hydrology of these adjacent wetland units is interconnected and species that are dependent on wetlands could easily move between the units, the two-unit complex is justified. The wetlands are bounded to the north by Highway 403 with no other wetlands present in the upper reach of the 8.67 hectare catchment that would warrant consideration as part of a complex.

The remaining portion of the Provincially Significant Wetland (PSW) Complex, as designated by WSP in 2020, retains PSW status and the associated regulatory protection.

The subject wetlands total 1.43 hectares in size with a catchment area of 8.67 hectares which encompasses an area to the north of Highway 403 that does not contain other wetland units.

Rationale for the Inclusion of Wetland Units Less Than 2 Hectares in Size

As the updated OWES manual stipulates that the WEDSR can be re-evaluated as a living document. The WSP evaluation, which identifies PSW to be present, is the starting point for this re-evaluation exercise. The existing WEDSR and associated mapping was completed by WSP without access to the 1200 King Road property. The mapping of wetland on the 1200 King property may have relied on aerial photography interpretation, reference to existing wetland mapping, or property line assessment and estimation of feature boundaries. NRSI conducted surveys throughout the 1200 King Road property which included wetland characterization and boundary delineation that was subsequently surveyed using a high-accuracy GPS unit. One notable difference between the WSP wetland mapping and the mapping prepared by NRSI biologists is the break in wetland between NRSI Unit 1 and the wetlands to the north of the Aldershot GO Station as identified by WSP. Much of this area is comprised of a disturbed upland thicket of European Buckthorn with a break in surface water catchments (flows move west or east from a topographic high that divides the area into two distinct catchments.

Both of the wetland units are less than 2 hectares in size; Unit 1 totals 0.94 hectares and Unit 2 is 0.49 hectares in size. The guidance provided in the OWES manual identifies that such small wetland units would not typically be included in an evaluation unless a rare vegetation community is present or the wetland provides notable habitat function. As this re-evaluation applying the 2022 OWES criteria is required since an existing PSW designation applies to these features as part of a much larger complex, all wetland units less than 2 hectares (or 0.5 hectares) must be considered in the assessment. In the event that no evaluation had been completed for these wetland units previously, neither unit would fulfill the criteria to warrant a new evaluation be completed.

Rationale for the Extent of Catchment

The catchment was determined based upon field surveys conducted by NRSI staff in 2022. The catchment slopes very gently to the south but a surface water 'outlet' toward the rail corridor was not observed and the topography rises along the southern property boundary. The W1 marsh, a former reservoir that has naturalized, essentially receives and holds surface water from the upper portion of the catchment. This feature has steep, well-defined banks and the southern and eastern edges include mineral soil berms. The eastern berm is low and narrow, approximately 0.75m tall and 2-3m wide for most of its length. Due to the porosity of the soil, which may contain stone or brick fragments, water collected in the W1 marsh percolates through the berm and collects in the hS1-B swamp community to the east. It is also possible that surface water may overtop low sections of the berm during high rainfall events or spring melt. The reservoir holds water year-round, while the hS1-B swamp is inundated through the spring and dries up by summer. These two units combined constitute the topographic low elevation of the catchment. The reservoir and associated swamp communities are situated between a tributary to Grindstone Creek to the west and Falcon Creek to the east. In general, headwater drainage in the area originates from the Niagara Escarpment, approximately 2.2km to the north with a series of linear ravines in a northwest-southeast orientation originating at the base of the Escarpment and extending toward Lake Ontario. These ravines create catchment divides where high elevations direct surface water to the west or east. The NRSI OWES evaluator examined topographic mapping in combination with the Ontario Watershed Information Tool to map the extent of the catchment above the subject wetlands. The identified

catchment is relatively quite small in comparison to the Grindstone Creek tributary catchment to the west and the Falcon Creek catchment to the east. This 8.67 ha catchment is a small area of tableland situated between the two much larger catchments.

Due to a culvert beneath Highway 403, the catchment includes lands to the north of the highway. This reach of the catchment underwent channel improvement works in 2017-2018 and surface water is collected from a commercial development and forested area and directed south through a naturalized channel that includes a series of rock check dams.

Please contact me should you have any questions regarding this evaluation.



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1.2.2 Wetland Vegetation Communities

Wetland #	Map Codes	Vegetation Forms	Dominant Species (noted by an asterisk "*") (size in hectares, site type, soil type, % open water, presence of seepage, significant species)
1	hS1	h*, ts	h*: *Fraxinus pennsylvanica*, ts: *Rhamnus cathartica* (0.45, P, clay-loam, ow-0%; no seepage; significant species: n/a)
1	tsS2	ts*	ts*: *Cephalanthus occidentalis* (0.01, P, clay-loam, no seepage, ow-100%; significant species: n/a)
1	W1	su*	su*: *Chara* sp., *Myriophyllum* sp. (0.39, P, clay-loam, no seepage, ow-100%; significant species: n/a)
2	hS1	h*, ts	h*: *Fraxinus pennsylvanica*, ts: *Rhamnus cathartica* (0.49, P, clay-loam, no seepage, ow-0%; significant species: n/a)

1200 King Road Reservoir Wetland Complex

Wetland Evaluation 2023 (update to 3rd ed. version 3.3 completed by NRSI)

Comments

Attached Documents Include:

1) 1200 King Road Reservoir Wetland Complex Summary
2) Rationale for identifying this wetland complex, reasons for the inclusion of wetland units under 2.0 ha in size, and rationale for wetland vegetation communities under 0.5 ha in size
3) List of vegetation communities in the 1200 King Road Reservoir Wetland Complex
4) Map of Catchment area and detention area for the 1200 King Road Reservoir Wetland Complex
5) Map of the 1200 King Road Reservoir Wetland Complex
6) Map of Interspersion for the 1200 King Road Reservoir Wetland Complex

Species lists of vascular plants, birds, mammals, herpetofauna and insects reported from the vicinity of the 1200 King Road Wetland Complex are provided in the 1200 King Road Framework Plan - Environmental Impact Assessment (NRSI 2023)

This version of the Wetland Evaluation Data Scoring Record has been adapted from the spreadsheet provided by the Aurora District Ministry of Natural Resources and Forestry (MNRF) staff (Version 3.3 of the 3rd Edition). NRSI aknowledges the work of MNRF's Biodiversity Policy Section and Wetland Evaluation Technical Team and others who developed the OWES as a means to ensure the protection and sustainable management of the province's wetlands. The adapted scoring provided herein reflects changes made by the Government of Ontario as part of Bill 23, *More Homes Built Faster Act* which passed in December 2022. The Act removes MNRF oversight and administration of the OWES and places greater epmhasis on the opinion of the OWES-certified evaluator and the role of local decision makers (i.e. muncipalities). Should you have any questions related to this evaluation, please feel free to contact Natural Resource Solution Inc. staff.

Additional Information

Include relevant information that can not be entered in the wetland data record (Ex. Sections that have not been completed.)

Official Name:	1200 King Road Reservoir Wetland Complex				
Evaluation Edition:	2023	Class:	\	\	
Wetland Significance:	Year/Month Last Evaluated		December 2019 (accepted December 2020)		
Non-Provincially Significant	Year/Month Last Updated		July 2023		
Special Planning Considerations:			**Scores**		
Wetland Area (ha):	1.43		Biological:	105	
Other Detention Areas:	0.00		Social:	65	
Catchment Area (ha):	8.67		Hydrological:	208	
Coastal Unit Area:	0.00		Special Features:	154	
OMNRF Source:			Overall:	533	
Information Source:	Savanta 2015, WSP 2020, NRSI 2023				
Submitted by:	Natural Resource Solutions Inc.		Date	July 10, 2023	

General Information

Wetland Evaluator(s)

Name:	Patrick Deacon	Affiliation:	Natural Resource Solutions Inc.
Name:		Affiliation:	
Name:		Affiliation:	
Name:		Affiliation:	
Name:		Affiliation:	

Date(s) wetland visited (in field): **(2022) Apr. 22, 29; May 2, 5, 9, 11, 13, 15, 18, 25; June 20, 22; Aug. 15, 26; Oct. 4**

Date evaluation completed: **July 10, 2023**

Estimated time devoted to completing the field survey in person hours: 15

Weather Conditions

i) at time of field work: Appropriate for surveys being conducted (generally mild and with low wind and limited to no rain).

ii) summer conditions in general: Summer 2022 was relatively dry

Landowner Notification

Name:	Penta Properties Inc.	Parcel:	Part Lot 4 and 5, Conc. 1, East Flamborough
Name:		Parcel:	
Name:		Parcel:	
Name:		Parcel:	

WETLAND EVALUATION DATA

AND SCORING RECORD

i) Wetland Name: 1200 King Road Reservoir Wetland Complex

ii) MNRF Administrative Region: Southern Region
MNRF District: Aurora
MNRF Area Office: Aurora

iii) Conservation Authority Jurisdiction: Conservation Halton

iv) County or Regional Municipality: Halton Region

v) Township/Geographic Twp and/or Local Municipality: East Flamborough

vi) Lots & Concessions: Part Lots 4 and 5, Concession 1

vii) Ecodistrict/Ecoregion: Grimsby Ecodistrict (7E-3)/Lake Erie - Lake Ontario Ecoregion (7E)

viii) Map and Air Photo References:

a) Latitude: 43.317378 Longitude: -79.85174

b) UTM grid reference:

Zone: NAD83 17T Block: N E: 593110 N: 4796700

c) National Topographic Series:

Map name(s): Burlington

Map number(s): 030M05

Edition:
Scale:

d) Aerial photographs:

Date(s) photo taken: ESRI 2021

e) Ontario Base Map number: 1017590047950

Wetland Area
1.43

Site Type	Area	%
Isolated	0.00	0.00
Palustrine (permanent or intermittent flow)	1.43	1.00
Riverine	0.00	0.00
Riverine (at rivermouth)	0.00	0.00
Lacustrine (at rivermouth)	0.00	0.00
Lacustrine (on enclosed bay, with barrier beach)	0.00	0.00
Lacustrine (exposed to lake)	0.00	0.00
Lacustrine (at lake inflow or outflow)	0.00	0.00
	1.43	1.00

Palustrine with inflow	1.43	1
Palustrine with no inflow	0.00	0
		1.43

Determination of watershed improvement factor (WIF)	Area Sum
Lacustrine (at rivermouth) & Lacustrine (exposed to lake)	0.00

Soil Type	Area	%
clay/loam	1.43	1.00
silt/marl	0.00	0.00
limestone	0.00	0.00
sand	0.00	0.00
humic/mesic	0.00	0.00
fibric	0.00	0.00
granite	0.00	0.00
	1.43	1.00

Dominate Vegetation	Area	%
h	0.94	0.66
c	0.00	0.00
dh	0.00	0.00
dc	0.00	0.00
ts	0.10	0.07
ls	0.00	0.00
ds	0.00	0.00
gc	0.00	0.00
m	0.00	0.00
ne	0.00	0.00
be	0.00	0.00
re	0.00	0.00
ff	0.00	0.00
f	0.00	0.00
su	0.39	0.27
u (unvegetated)	0.00	0.00
	1.43	1.00

Wetland Type	Area	%
Swamp	1.04	0.73
Marsh	0.39	0.27
Fen	0.00	0.00
Bog	0.00	0.00
	1.43	1.00

Open Water Area	%
0.39	0.27

List of vegetation communities in the 1200 King Road Reservoir Wetland Complex

Complex Unit	Community	Area	Palustrine Inflow?	Soil Type	Surface Hydrology	Forms	Dominant Form	Open Water?
1	hS1-A	0.45	Palustrine with inflow	Clay/Loam	Palustrine	h, ts, gc	h	
1	tsS2	0.10	Palustrine with inflow	Clay/Loam	Palustrine	ts, su	ts	Perm. open water
1	W1	0.39	Palustrine with inflow	Clay/Loam	Palustrine	su	su	Perm. open water
2	hS1-B	0.49	Palustrine with inflow (percolation of W1 through soil berm)	Clay/Loam	Isolated	h, dh	h	
	Total	**1.43**						

ix) Wetland Size
(circle appropriate category, a or b)

a) Single contiguous wetland area:

Total wetland size = _____ hectares

b) Wetland complex comprised of 2 individual wetlands:

Wetland Unit No.	1	0.94
Wetland Unit No.	2	0.49
Wetland Unit No.	3	
Wetland Unit No.	4	
Wetland Unit No.	5	
Wetland Unit No.	6	
Wetland Unit No.	7	
Wetland Unit No.	8	
Wetland Unit No.	9	
Wetland Unit No.	10	
Wetland Unit Totals:		1.43

(Attach additional sheets if necessary)

Total Wetland Size = 1.43 hectares (add together size of each unit)

Documentation requirements for evaluated wetland complexes (attach additional sheet if necessary):

: a statement of rationale for identifying a wetland complex;
: a statement of rationale for identifying any wetland complex less than 2 ha in total size;
: a statement of rationale for any vegetation community less than 0.5 ha in size;
: adherence to the wetland complexing rules (“watershed rule”; lacustrine wetlands); and
: written documentation of the reasons for including wetland units smaller than 2 ha.

See attached documents.

1.0 BIOLOGICAL COMPONENT

1.1 Productivity

1.1.1 Growing Degree-Days/Soils (max: 30 pts)

Refer to page 43 of manual for further explanation.

1. Determine the correct GDD value for your wetland (use Figure 5).
2. Circle the appropriate GDD value from the evaluation table below.
3. Determine the Fractional Area (FA) of the wetland for each soil type.
4. Multiply the fractional area of each soil type by the applicable score-factor in the evaluation table.
5. Sum the scores for each soil type to obtain the final score (maximum score is 30 points).

Note: In wetland complexes the evaluator should aim at determining the fractional area occupied by the categories for the complex as a whole.

Growing Degree- Days	Clay- Loam	Silt- Marl	Lime- stone	Sand	Humic- Mesic	Fibric	Granite
<2800	15	13	11	9	8	7	5
2800-3200	18	15	13	11	9	8	7
3200-3600	22	18	15	13	11	9	7
3600-4000	26	21	18	15	13	10	8
>4000	30	25	20	18	15	12	8

Soil Type	FA of wetland in soil type	Enter appropriate score-factor from above table				
clay/loam:	1.00	X	26	=	26.0	(1.43 ha)
silt/marl:	0.00	X		=	0.0	(0.00 ha)
limestone:	0.00	X		=	0.0	(0.00 ha)
sand:	0.00	X		=	0.0	(0.00 ha)
humic/mesic:	0.00	X		=	0.0	(0.00 ha)
fibric:	0.00	X		=	0.0	(0.00 ha)
granite:	0.00	X		=	0.0	(0.00 ha)
Total					26.0	

GDD/Soils score (maximum 30 points) **26**

1.1.2 Wetland Type

(Fractional Area = area of wetland type/total wetland area)

	Fractional Area			Score	
Bog	0.00	X	3 =	**0.0**	(0.00 ha)
Fen	0.00	X	6 =	**0.0**	(0.00 ha)
Swamp	0.73	X	8 =	**5.8**	(1.04 ha)
Marsh	0.27	X	15 =	**4.1**	(0.39 ha)
Total			=	**9.9**	

Wetland type score (maximum 15 points) **10**

1.1.3 Site Type

(Fractional Area = area of site type/total wetland area)

	Fractional Area		Score	
Isolated	0.00	x 1 =	**0.00**	(0.00 ha)
Palustrine (permanent or intermittent flow)	1.00	x 2 =	**2.00**	(1.43 ha)
Riverine	0.00	x 4 =	**0.00**	(0.00 ha)
Riverine (at rivermouth)	0.00	x 5 =	**0.00**	(0.00 ha)
Lacustrine (at rivermouth)	0.00	x 5 =	**0.00**	(0.00 ha)
Lacustrine (on enclosed bay,with barrier beach)	0.00	x 3 =	**0.00**	(0.00 ha)
Lacustrine (exposed to lake)	0.00	x 2 =	**0.00**	(0.00 ha)
		Subtotal:	**2.00**	

Site Type Score (maximum 5 points) **2**

1.2 Biodiversity

1.2.1 Number of Wetland Types

(Check only one)

	one	=	9	points
13	two	=	13	
	three	=	20	
	four	=	30	

Number of Wetland Types Score (maximum 30 points) **13**

1.2.2. Vegetation Communities

Use the data sheet provided in Appendix 4 to record and score vegetation communities (the completed form must be attached to this data record)

Scoring (circle only one option for each of the columns below):

Total # of communities with 1-3 forms	
1 =	1.5 pts
2 =	2.5
3 =	3.5
4 =	**4.5**
5 =	5
6 =	5.5
7 =	6
8 =	6.5
9 =	7
10 =	7.5
11 =	8
+ 0.5 for each additional community =	4.5
Total of 4 Communities	

Total # of communities with 4-5 forms	
1 =	2 pts
2 =	3.5
3 =	5
4 =	6.5
5 =	7.5
6 =	8.5
7 =	9.5
8 =	10.5
9 =	11.5
10 =	12.5
11 =	13
+ 0.5 for each additional community =	
Total of 0 Communities	

Total # of communities with 6 or more forms	
1 =	3 pts
2 =	5
3 =	7
4 =	9
5 =	10.5
6 =	12
7 =	13.5
8 =	15
9 =	16.5
10 =	18
11 =	19
+ 0.5 for each additional community =	
Total of 0 Communities	

Subtotal: **5**

Vegetation Communities Score (maximum 45 points) **5**

Wetland Name:	**1200 King Road Reservoir Wetland Complex**

Wetland Size (ha):	1.43

Vegetation Form	% area in which form is dominant	
h	65.73	(0.94 ha)
c	0.00	(0.00 ha)
dh	0.00	(0.00 ha)
dc	0.00	(0.00 ha)
ts	6.99	(0.10 ha)
ls	0.00	(0.00 ha)
ds	0.00	(0.00 ha)
gc	0.00	(0.00 ha)
m	0.00	(0.00 ha)
ne	0.00	(0.00 ha)
be	0.00	(0.00 ha)
re	0.00	(0.00 ha)
ff	0.00	(0.00 ha)
f	0.00	(0.00 ha)
su	27.27	(0.39 ha)
u (unvegetated)	0.00	(0.00 ha)
Total = 100%	100.00	

1.2.3 Diversity of Surrounding Habitat

Check all appropriate items. Only habitat within 1.5 km of the wetland boundary and at least 0.5 ha in size are to be scored.

1	row crop
	pasture
1	abandoned agricultural land
1	deciduous forest
	coniferous forest
1	mixed forest*
	abandoned pits and quarries
	open lake or deep river
	fence rows with cover, or shelterbelts
1	terrain appreciably undulating,hilly,or with ravines
1	creek flood plain
6	Subtotal

** "Mixed forest" is defined as either 25% coniferous trees distributed singly or in clumps in deciduous forest, or 25% deciduous treesdistributed singly or in clumps in coniferous forest. Note that Forest Resource Inventory (FRI) maps can be misleading since 25% conifer within a unit could be entirely concentrated around a lake.*

Score 1 point for each feature checked, up to a maximum of 7 points.

Diversity of Surrounding Habitat Score (maximum 7 points) **6**

1.2.4 Proximity to Other Wetlands

Check highest appropriate category. (Note: if the wetland is lacustrine, score option #1 at 8 points).

		points
	Hydrologically connected by surface water to other wetlands (different dominant wetland type) or to open lake or deep river within 1.5 km	8
	Hydrologically connected by surface water to other wetlands (same dominant wetland type) within 0.5 km	8
	Hydrologically connected by surface water to other wetlands (different dominant wetland type), or to open lake or deep river from 1.5 to 4 km away	5
	Hydrologically connected by surface water to other wetlands (same dominant wetland type) from 0.5 to 1.5 km away	5
5	Within 0.75 km of other wetlands (different dominant wetland type) or open water body, but not hydrologically connected by surface water	5
	Within 1 km of other wetlands, but not hydrologically connected by surface water	2
	No wetland within 1 km	0

Name and distance (from wetland) of wetlands/water bodies scored above:

Marsh-dominated wetland is present approximately 50m to the west (not hydrologically connected).

Proximity to other Wetlands Score (maximum 8 points) **5**

1.2.5 Interspersion

Number of Intersections = 63

	Number of Intersections *(Check only one)*		Points
	26 or less	=	3
	27 to 40	=	6
	41 to 60	=	9
X	61 to 80	=	12
	81 to l00	=	15
	101 to 125	=	18
	126 to 150	=	21
	151 to 175	=	24
	176 to 200	=	27
	>200	=	30

Interspersion Score 12
(maximum 30 points)

1.2.6 Open Water Types

Note: this attribute is only to be scored for permanently flooded open water within the wetland (adjacent lakes do not count). Check one option only.

	Open Water Type	Characteristic	Points
	type 1	Open water occupies < 5 % of wetland area	8
	type 2	Open water occupies 5-25% of wetland (occurring in central area)	8
	type 3	Open water occupies 5-25% (occurring in various-sized ponds, dense patches of vegetation or vegetation in diffuse stands)	14
X	type 4	Open water occupies 26-75% of wetland (occurring in a central area)	20
	type 5	Open water occupies 26-75% of wetlands (small ponds and embayments are common)	30
	type 6	Open water occupies 76%-95% of wetland (occurring in large central area; vegetation is peripheral)	8
	type 7	Open water occupies 76-95% of wetland (vegetation in patches or diffuse open stands)	14
	type 8	Open water occupies more than 95% of wetland area	3
	no open water		0

Open water occupies **0.27 % (0.39 ha) of wetland complex.**

Open Water Type Score 20
(maximum 30 points)

1.3 Size (Biological Component)

Total Size of Wetland = **1.43** ha

Sum of scores from Biodiversity Subcomponent

1.2.1
+1.2.2
+1.2.3
+1.2.4
+1.2.5
+1.2.6
61

Wetland	Total Score for Biodiversity Subcomponent									
size (ha)	<37	37-48	49-60	61-72	73-84	85-96	97- 108	109-120	121- 132	>132
<20 ha	1	5	**7**	8	9	17	25	34	43	50
20-40	5	7	8	9	10	19	28	37	46	50
41-60	6	8	9	10	11	21	31	40	49	50
61-80	7	9	10	11	13	23	34	43	50	50
81-100	8	10	11	13	15	25	37	46	50	50
101-120	9	11	13	15	18	28	40	49	50	50
121-140	10	13	15	17	21	31	43	50	50	50
141-160	11	15	17	19	23	34	46	50	50	50
161-180	13	17	19	21	25	37	49	50	50	50
181-200	15	19	21	23	28	40	50	50	50	50
201-400	17	21	23	25	31	43	50	50	50	50
401-600	19	23	25	28	34	46	50	50	50	50
601-800	21	25	28	31	37	49	50	50	50	50
801-1000	23	28	31	34	40	50	50	50	50	50
1001-1200	25	31	34	37	43	50	50	50	50	50
1201-1400	28	34	37	40	46	50	50	50	50	50
1401-1600	31	37	40	43	49	50	50	50	50	50
1601-1800	34	40	43	46	50	50	50	50	50	50
1801-2000	37	43	47	49	50	50	50	50	50	50
>2000	40	46	50	50	50	50	50	50	50	50

Size Score (Biological Component) **7**
(maximum 5O points)

2.0 SOCIAL COMPONENT

2.1 Economically Valuable Products

2.1.1 Wood Products

Check the option that best reflects the total area (ha) of forested wetland (i.e., areas where the dominant vegetation form is h or c). Note that this is the area of all the forested vegetation communities, not total wetland size. Do not ***include areas where harvest is not permitted. Check only one option.***

Area of wetland used for scoring 2.1.1:

h:	0.94	c:	0.00

0	<5 ha	=	0
	5 -25 ha	=	3
	26 -50 ha	=	6
	51- l00 ha	=	9
	101-200 ha	=	12
	>200 ha	=	18

Source of information:

ELC and wetland boundary survey (NRSI 2023)

Wood Products Score (maximum 18 points) **0**

2.1.2 Wild Rice

Check only one.

	Present (minimum size 0.5 ha)	=	6 pts
0	Absent	=	0
	Harvest not permitted	=	0

Source of information:

ELC and wetland boundary survey (NRSI 2023)

Wild Rice Score (maximum 6 points) **0**

2.1.3 Commercial Bait Fish

Check only one.

	Present	=	12 pts
0	Absent	=	0
	Fishing not permitted	=	0

Source of information:

NRSI surveys (2023)

(no incidental observations of fish)

Commercial Fish Score (maximum 12 points) **0**

2.1.4 Furbearers

Only species recognized as furbearers under the Fish & Wildlife Conservation Act may be scored here. Score 3 points for each furbearer species listed, up to a maximum of 12 points.

		Name of furbearer	Source of information
1	3	Beaver	Savanta 2015
2	3	Coyote	WSP 2020, NRSI 2022
3	3	Mink	Savanta 2015, NRSI 2022
4	3	Muskrat	WSP 2020, NRSI 2022
5		Opossum	NRSI 2022
6		Raccoon	Savanta 2015, WSP 2020, NRSI 2022
7		Red Squirrel	Savanta 2015
8		Long-tailed Weasel	Savanta 2015
9		Striped Skunk	NRSI 2022
	12	Subtotal	

Furbearer Score (maximum 12 points) **12**

2.2 Recreational Activities

Sources of information and reasons for scoring a wetland under high or moderate use below, must be included below.

Circle one score for each of the activities listed. Score is cumulative – add score for hunting, nature enjoyment and fishing together for final score.

Intensity of Use	Type of Wetland-Associated Use						
		Hunting		Nature Enjoyment/ Ecosystem Study		Fishing	
	High	40 points		40 points		40 points	
	Moderate	20		20		20	
	Low	8		8		8	
	Not possible/NotKnown	0	0	0	0	0	0
	Totals		0		0		0
							0

Sources of information (include evidence/criteria forming basis for score and any relevant reference used to obtain that information):
- e.g., Hunting scored at 20 points: 5 hunting blinds observed; hunters using area frequently monitored for compliance (source: D. Black, MNR Conservation Officer)

Hunting: Private property in an urban area, hunting does not occur.

NRSI 2023

Nature: Private property with no public access.

NRSI 2023

Fishing: Private property with no public access.

NRSI 2023

Recreational Activities Score (maximum 80 points) **0**

2.3 Landscape Aesthetics

2.3.1 Distinctness

Check only one.

	Clearly distinct	=	3	pts
0	Indistinct	=	0	

Landscape Distinctness Score (maximum 3 points) **0**

2.3.2 Absence of Human Disturbance

Check only one.

	Human disturbances absent or nearly so	=	7	pts
4	One or several localized disturbances	=	4	
	Moderate disturbance; localized water pollution	=	2	
	Wetland intact but impairment of ecosystem quality intense in some areas	=	1	
	Extreme ecological degradation, or water pollution severe and widespread	=	0	

Details regarding type, extent and location of disturbance scored:

The open water marsh and swamp are a remnant of past industrial and agricultural land use at the site.
The reservoir has naturalized and functions as open water marsh.
A low/narrow mineral soil berm separates the open water marsh from the deciduous swamp to the east.

Source of information:

NRSI 2023

Absence of Human Disturbance Score (maximum 7 points) **4**

2.4 Education and Public Awareness

2.4.1 Educational Uses

Check highest appropriate category.

	Frequent	=	20	pts
	Infrequent	=	12	
0	No visits	=	0	

Details regarding the type and frequency of education uses scored above:

Private property with no public access.

Source of information:

NRSI 2023

Educational Uses Score (maximum 20 points) **0**

2.4.2 Facilities and Programs

Check all appropriate options, score highest category checked.

	Staffed interpretation centre	=	8	pts
	No interpretation centre or staff but a system of self-guiding trails or brochures available	=	4	
	Facilities such as maintained paths (e.g., woodchips) boardwalks, boat launches or observation towers but no brochures or other interpretation	=	2	
0	No facilities or programs	=	0	

Additional Notes/Comments:

Private property with no public access.

Source of information:

NRSI 2023

Facilities and Programs Score (maximum 8 points) **0**

2.4.3 Research and Studies

Check all that apply; score highest category checked.

	Long term research has been done	=	12	pts
	Research papers published in refereed scientific journal or as a thesis	=	10	
5	One or more (non-research) reports have been written on some aspect of the wetland's flora, fauna,hydrology etc.	=	5	
	No research or reports	=	0	
5	Subtotal:			

List of reports, publications, research studies etc. scored above:

Savanta 2015 (Environmental Impact Assessment)
WSP 2020 (Wetland Evaluation)
NRSI 2023 (Environmental Impact Assessment)

Research and Studies Score (maximum 12 points) **5**

2.5 Proximity to Areas of Human Settlement

Name of Settlement: City of Burlington

Distance of wetland from settlement: Within settlement

Population of settlement: 186,948 Source: Statistics Canada 2021

Circle only the highest score applicable

Distance of wetland to settlement	population >10,000		population 2,500-10,000		population <2,500 or cottage community	
Within or adjoining settlement	40 points	40	26 points		16 points	
0.5 to 10 km from settlement	26		16		10	
10 to 60 km from settlement	12		8		4	
>60 km from settlement	5		2		0	
		40		0		0

Proximity to Human Settlement Score (maximum 40 points) **40**

2.4.3 Research and Studies
Additional Reports
Not applicable.

2.6 Ownership

FA of wetland held by or held under a legal contract by a conservation body (as defined by the Conservation Land Act) for wetland protection		x	10	=	0.00
FA of wetland occurring in provincially or nationally protected areas (e.g., parks and conservation reserves)		x	10	=	0.00
FA of wetland area in Crown/public ownership, not as above		x	8	=	0.00
FA of wetland area in private ownership, not as above		x	4	=	0.00

Source of information:

Assessment parcel information

Ownership Score (maximum 10 points) **0**

2.7 Size (Social Component)

Total Size of Wetland = **1.43** ha

Sum of scores from Subcomponents 2.1, 2.2, and 2.5 = **52**

Circle the appropriate score from the table below.

	Total for Size Dependent Score									
	<31	31-45	46-60	61-75	76-90	91-105	106-120	121-135	136-150	>150
<2 ha	1	2	**4**	8	10	12	14	14	14	15
2 - 4ha	1	2	4	8	12	13	14	14	15	16
5 - 8ha	2	2	5	9	13	14	15	15	16	16
9 - 12ha	3	3	6	10	14	15	15	16	17	17
13-17	3	4	7	10	14	15	16	16	17	17
18-28	4	5	8	11	15	16	16	17	17	18
29-37	5	7	10	13	16	17	18	18	19	19
38-49	5	7	10	13	16	17	18	18	19	20
50-62	5	8	11	14	17	17	18	19	20	20
63-81	5	8	11	15	17	18	19	20	20	20
82-105	6	9	11	15	18	18	19	20	20	20
106-137	6	9	12	16	18	19	20	20	20	20
138-178	6	9	13	16	18	19	20	20	20	20
179-233	6	9	13	16	18	20	20	20	20	20
234-302	7	9	13	16	18	20	20	20	20	20
303-393	7	9	14	17	18	20	20	20	20	20
394-511	7	10	14	17	18	20	20	20	20	20
512-665	7	10	14	17	18	20	20	20	20	20
666-863	7	10	14	17	19	20	20	20	20	20
864-1123	8	12	15	17	19	20	20	20	20	20
1124-1460	8	12	15	17	19	20	20	20	20	20
1461-1898	8	13	15	18	19	20	20	20	20	20
1899-2467	8	14	16	18	20	20	20	20	20	20
>2467	8	14	16	18	20	20	20	20	20	20

Total Size Score (Social Component) **4**

2.8 Aboriginal Values and Cultural Heritage

Either or both Aboriginal or Cultural Values may be scored. However, the maximum score permitted for 2.8 is 30 points.

Full documentation of sources must be attached to the data record.

2.8.1 Aboriginal Values

	Significant	=	30 pts
	Not Significant	=	0
0	Unknown	=	0
0	Total:		

Additional Comments/Notes:

A Stage 1-2 Archaeological Assessment was completed in 2014 by Archaeological Assessments Inc. for the area to the east of the wetlands which includes a treed ravine and agricultural field. Artefacts were documented that indicate the presence of aboriginal campsites. A stage 3 assessment was recommended to determine cultural significance of the site.

The vicinity of the wetland units has been extensively disturbed by industrial land use. The open water marsh is a recently-created feature.

2.8.2 Cultural Heritage

	Significant	=	30 pts
0	Not Significant	=	0
	Unknown	=	0
0	Total:		

Additional Comments/Notes:

The naturalized reservoir is not seen as a significant part of the cultural heritage of the area.

Aboriginal Values/Cultural Heritage Score (maximum 30 points) **0**

3.0 HYDROLOGICAL COMPONENT

3.1 Flood Attenuation

Check one of the following four options.

	If wetland is a single contiguous coastal wetland, [a] score 0 points for this section.
	If all wetland units of a wetland complex are coastal wetland units, [a] score 0 points for this section.
	If wetland or wetland complex is entirely isolated in site type, [a] score 100 points automatically.
X	Wetland not as above – proceed through 'steps' A through L below.

(A) Total wetland area = **1.43** ha

(B) Size of wetland's catchment = **8.67** ha

(C) Size of other detention areas in catchment = **0.00** ha

(D) Size of 'isolated' portions of wetland = **0.00** (FA = **0.00**)

(E) Size of coastal units of wetland complex = **0.00** (FA = **0.00**)

Points for Isolated Portion of Wetland (If not applicable, enter '0'):

(F) (FA of D) x 100 pts = **0** pts

Points for Coastal Portion(s) of Wetland (if not applicable, enter '0')

(G) (FA of E) x 100 pts = **0.00** pts

(H) Size of wetland minus the isolated and coastal portions = {A – D – E} = **1.43** ha

(I) Number of points available to score 'rest' of wetland = {100 – F – G} = **100.00** pts

(J) Total area of upstream detention areas = {A + C } = **1.43** ha

(K) Upstream Detention Factor {(H/J) x 2} = **2.00** = **1.00** (maximum 1.0)

(L) Attenuation Factor {(H/B) x 10} = **1.65** = **1.00** (maximum 1.0)

Flood Attenuation Final Score = {[((K + L) /2) x I] + F} = **100.00**

Flood Attenuation Score (maximum l00 points) **100**

3.2 Water Quality Improvement

Step 1: Determination of maximum initial score

	Wetland on one of the 5 defined large lakes or 5 major rivers (Go to Step 5A)
X	All other wetlands (Go through Steps 2, 3, 4, and 5B)

Step 2: Determination of watershed improvement factor (WIF)

Calculation of WIF is based on the fractional area (FA) of each site type that makes up the total area of the wetland.

(FA= area of site type/total area of wetland)

		Fractional Area					
FA of isolated wetland	=	0.00	x	0.5	=	0.00	(0.00 ha)
FA of riverine wetland	=	0.00	x	1	=	0.00	(0.00 ha)
FA of palustrine wetland with no inflow	=	0.00	x	0.7	=	0.00	(0.00 ha)
FA of palustrine wetland with inflows	=	1.00	x	1	=	1.00	(1.43 ha)
FA of lacustrine on lake shoreline	=	0.00	x	0.2	=	0.00	(0.00 ha)
FA of lacustrine at lake inflow or outflow	=	0.00	x	1	=	0.00	(0.00 ha)
				Sub Total:		1.00	

Sum (WIF cannot exceed 1.0) **1.00**

Step 3: Determination of catchment land use factor (LUF)

(Choose the first category that fits upstream landuse in the catchment.)

1.0	Over 50% agricultural and/or urban	=	1.0
	Between 30 and 50% agricultural and/or urban	=	0.8
	Over 50% forested or other natural vegetation	=	0.6

LUF (maximum 1.0) **1.00**

Step 4: Determination of pollutant uptake factor (PUT)

Calculation of PUT is based on the fractional area (FA) of each vegetation type that makes up the total area of the wetland. Base assessment on the dominant vegetation form for each community except where dead trees or shrubs dominate. In that case base assessment on the domininant live vegetation. (FA = area of vegetation type/total area of wetland)

FA of wetland with live trees, shrubs, herbs or mosses (c,h,ts,ls,gc,m)	0.73	x	0.75	=	0.55
FA of wetland with emergent,submergent or floating vegetation (re,be,ne,su,f,ff)	0.27	x	1	=	0.27
FA of wetland with little or no vegetation (u)	0.00	x	0.5	=	0.00
			Subtotal:		0.82

Sum (PUT cannot exceed 1.0) **0.82**

Step 5: Calculation of final score

	Wetland on large lakes or major rivers	0
X	All other wetlands -calculate as follows	
	Initial score	60
	Water quality improvement factor (WIF)	1.00
	Land use factor (LUF)	1.00
	Pollutant uptake factor (PUT)	0.82
	Final score: 60 x WIF x LUF x PUT =	49.09

Short Term Water Quality Improvement Score (maximum 60 points) **49**

3.2.2 Long Term Nutrient Trap

Step 1:

	Wetland on large lakes or 5 major rivers	=	0 points
X	All other wetlands (proceed to Step 2)		

Step 2: Choose only one of the following settings that best describes the wetland being evaluated

	Wetland located in a river mouth	=	10 pts
	Wetland is a bog, fen or swamp with more than 50% of the wetland being covered with organic soil	=	10
	Wetland is a bog, fen or swamp with less than 50% of the wetland being covered with organic soil	=	3
	Wetland is a marsh with more than 50% of the wetland covered with organic soil	=	3
0	None of the above	=	0

Long Term Nutrient Trap Score (maximum 10 points) **0**

3.2.3 Groundwater Discharge

Circle the characteristics that best describe the wetland being evaluated and then sum the scores. If the sum exceeds 30 points, assign the maximum score of 30). Note: for wetland type, wetland type scored does not have to the dominant type in the wetland.

Percentage of Wetland Area: **0.16** %

	Potential for Discharge					
		None to Little		Some		High	
Wetland Characteristics	Wetland type	Bog = 0		Swamp/Marsh = 2	**2**	Fen = 5	
	Topography	Flat/rolling = 0	**0**	Hilly = 2		Steep = 5	
	Wetland Area: Upslope Catchment Area	Large (>50%) = 0		Moderate (5-50%) = 2	**2**	Small <(5%) = 5	
	Lagg Development	None found = 0	**0**	Minor = 2		Extensive = 5	
	Seeps	None = 0	**0**	= or < 3 seeps = 2		> 3 seeps = 5	
	Surface marl deposits	None = 0	**0**	= or < 3 sites = 2		> 3 sites = 5	
	Iron precipitates	None = 0	**0**	= or < 3 sites = 2		> 3 sites = 5	
	Located within 1 km of a major aquifer	N/A = 0	**0**	N/A = 0		Yes = 10	
	Totals		**0**		**4**		**0**

Additional Comments/Notes:

Groundwater Discharge Score (maximum 30 points) **4**

3.3 Carbon Sink

Check only one of the following:

	Bog, fen or swamp with more than 50% coverage by organic soil	=	5 pts
	Bog, fen or swamp with between 10 to 49% coverage by organic soil	=	2
	Marsh with more than 50% coverage by organic soil	=	3
0	Wetlands not in one of the above categories	=	0

Carbon Sink Score (maximum 5 points) **0**

3.4 Shoreline Erosion Control

Step 1:

0	Wetland entirely isolated or palustrine	=	0 pts
	Any part of the Wetland riverine or lacustrine	=	Go to step 2

Step 2: *Choose the one characteristic that best describes the shoreline vegetation*
see page 109 for description of "shoreline".)

	Trees and shrubs	=	15 pts
	Emergent vegetation	=	8
	Submergent vegetation	=	6
	Other shoreline vegetation	=	3
	No vegetation	=	0

Shoreline Erosion Control Score (maximum 15 points) **0**

3.5 Groundwater Recharge

3.5.1 Site Type

Wetland > 50% lacustrine (by area) or located on one of the five major rivers				=	0	pts	
Wetland not as above. Calculate final score as follows:							
=	FA of isolated or palustrine wetland	=	1.00	x	50	=	50.0
=	FA of riverine wetland	=	0.00	x	20	=	0.0
=	FA of lacustrine wetland (wetland <50% lacustrine)	=	0.00	x	0	=	0.0
					Subtotal:		50.0

Groundwater Recharge/Wetland Site Type Score (maximum 50 points) **50**

3.5.2 Soil Recharge Potential

Circle only one choice that best describes the soils in the area surrounding the wetland being evaluated (the soils within the wetland are not scored here).

		Group A, B, C (sands, gravels, loams)		Group D (clays, substrates in high water tables, shallow substrates over impervious materials such as bedrock)	
Dominant Wetland Type	Lacustrine or major river	0		0	
	Isolated	10		5	
	Palustrine	7		4	4
	Riverine (not on a major river)	5		2	
	Totals		0		4

Groundwater Recharge/Wetland Soil Recharge Potential Score (maximum 10 points) **4**

4.0 SPECIAL FEATURES COMPONENT

4.1 Rarity

4.1.1 Wetland Types

Ecodistrict	Rarity within the Landscape (4.1.1.1)	Rarity of Wetland Type (4.1.1.2)			
		Marsh	Swamp	Fen	Bog
6E-1	60	40	0	80	80
6E-2	60	40	0	80	80
6E-3	40	10	0	40	80
6E-4	60	40	0	80	80
6E-5	20	40	0	80	80
6E-6	40	20	0	80	80
6E-7	60	10	0	80	80
6E-8	20	20	0	80	80
6E-9	0	20	0	80	80
6E-10	20	0	20	80	80
6E-11	0	30	0	80	80
6E-12	0	30	0	60	80
6E-13	60	10	0	80	80
6E-14	40	20	0	40	80
6E-15	40	0	0	80	80
7E-1	60	0	60	80	80
7E-2	60	0	0	80	80
7E-3	**60**	**0**	**0**	80	80
7E-4	80	0	0	80	80
7E-5	60	20	0	80	80
7E-6	80	30	0	80	80

4.1.1.1 Rarity within the Landscape

Choose appropriate score from 2nd column above.

Score (maximum 80 points) **60**

4.1.1.2 Rarity of Wetland Type

Score is cumulative, based on presence/absence. Circle all appropriate scores from above table and sum.

Score (maximum 80 points) **0**

4.1.2.1 Provincially Significant Animal Species

	Common Name	Scientific Name	Activity	Date Observed	Info Source
X	Snapping Turtle	*Chelydra serpentina*	Basking in marsh	Various dates	Savanta 2015, NRSI 2022
X	Midland Painted Turtle	*Chrysemys picta marginata*	Basking in marsh	Various dates	Savanta 2015, NRSI 2022
80	Total				

Additional Notes/Comments:
WSP also observed these species in the vicinity, but not specifically on the 1200 King Road lands.

For Section 4.1.2.3, one species that is considered regionally uncommon, Fragile Forktail, was documented from the marsh, but this species is not treated as rare or significant in the context of this wetland complex.

One	species	= 50 pts	9	species	= 140	17	species	= 160
2	species	= 80	10	species	= 143	18	species	= 162
3	species	= 95	11	species	= 146	19	species	= 164
4	species	= 105	12	species	= 149	20	species	= 166
5	species	= 115	13	species	= 152	21	species	= 168
6	species	= 125	14	species	= 154	22	species	= 170
7	species	= 130	15	species	= 156	23	species	= 172
8	species	= 135	16	species	= 158	24	species	= 174
						25	species	= 176

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species (no maximum) **80**

4.1.2.2 Provincially Significant Plant Species

Common Name	Scientific Name	Activity	Date Observed	Info Source
None				

Additional Notes/Comments:
No provincially-significant plants were observed (NRSI 2022).

For Section 4.1.2.3, two species that are considered regionally uncommon, Ditch Stonecrop and Lake Sedge, were documented from the marsh, but these species are not treated as rare or significant in the context of this wetland complex.

One	species	= 50 pts	9	species	= 140	17	species	= 160
2	species	= 80	10	species	= 143	18	species	= 162
3	species	= 95	11	species	= 146	19	species	= 164
4	species	= 105	12	species	= 149	20	species	= 166
5	species	= 115	13	species	= 152	21	species	= 168
6	species	= 125	14	species	= 154	22	species	= 170
7	species	= 130	15	species	= 156	23	species	= 172
8	species	= 135	16	species	= 158	24	species	= 174
						25	species	= 176

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species (no maximum) **0**

4.1.2.3 Regionally Significant Species

Common Name	Scientific Name	Activity	Date Observed	Info Source
None				

One	species	=	20 pts	4	species	=	45	7 species = 58 pts
2	species	=	30	5	species	=	50	8 species = 61
3	species	=	40	6	species	=	55	9 species = 64
								10 species = 67

For each significant species over 10 in wetland, add 1 point.

Regionally Significant Species Score (no maximum score) **0**

4.1.2.4 Locally Significant Species

Common Name	Scientific Name	Activity	Date Observed	Info Source
None				

One	species	=	10 pts	4	species	=	31 pts	7 species = 43 pts
2	species	=	17	5	species	=	38	8 species = 45
3	species	=	24	6	species	=	41	9 species = 47
								10 species = 49

For each significant species over 10 in wetland, add 1 point.

Locally Significant Species Score (no maximum score) **0**

4.2 Significant Features and Habitats

4.2.1 Colonial Waterbirds

Record all available information. Score the highest applicable category. Include additional information as possible (e.g., nest locations, etc).

Activity	Species	Info Source	Points	
Currently nesting			= 50	
Known to have nested within the past 5 years			= 25	
Active feeding area (great blue heron excluded)			= 15	
None known			= 0	0
Total:				0

Additional Notes/Comments:
No evidence of colonial waterbird nesting observed by NRSI in 2022.

Colonial Waterbird Nesting Score (maximum 50 points) **0**

4.2.2 Winter Cover for Wildlife

Score highest appropriate category. Include rationale/sources of information.

	Provincially significant	=	100 pts
	Significant in Ecoregion	=	50
	Significant in Ecodistrict	=	25
	Locally significant	=	10
0	Little or poor winter cover	=	0
0			

Species/habitat/vegetation community scored (e.g., winter deer cover in hemlock swamp, S3 and S4b):
Suitable winter cover habitat not present (site is open or deciduous cover).

Source of information:
ELC surveys (NRSI 2022)

Winter Cover for Wildlife Score (maximum 100 points) **0**

4.2.3 Waterfowl Staging and/or Moulting Areas

Check highest level of significance for both staging and moulting; add scores for staging and for moulting together for final score. However, maximum score for evaluation under this section is 150 points.

	Staging			Moulting		
Nationally/internationally significant	=	150	pts	=	150	pts
Provincially significant	=	100		=	l00	
Significant in the Ecoregion	=	50		=	50	
Significant in Ecodistrict	=	25		=	25	
Known to occur	=	10		=	10	
Not possible/Unknown	=	0	**0**	=	0	**0**
Subtotal:			**0**			**0**
Subtotal:			**0**			

Species/habitat/vegetation community scored (e.g., approx 20 mallards in W3):

Open water marsh is relatively small and does not support waterfowl staging and/or moulting.

Source of information:

NRSI 2022

Waterfowl Staging/Moulting Score (maximum 150 points) **0**

4.2.4 Waterfowl Breeding

Check highest level of significance.

	Nationally/internationally significant	=	150 pts
	Provincially significant	=	l00
	Significant in the Ecoregion	=	50
	Significant in Ecodistrict	=	25
10	Habitat Suitable	=	10
	Habitat not suitable	=	0

Species/habitat/vegetation community scored (e.g., mallard in W3):

Wood Duck was reported by Savanta (2015) and suitable nesting habitat is present.

Source of information:

Savanta 2015

Waterfowl Breeding Score (maximum 100 points) **10**

4.2.5 Migratory Passerine, Shorebird or Raptor Stopover Area

Check highest level of significance.

	Nationally / internationally significant	=	150 pts
	Provincially significant	=	l00
	Significant in Ecoregion	=	50
	Significant in Ecodistrict	=	25
	Known to occur	=	10
0	Not possible / Unknown	=	0

Species/habitat/vegetation community scored:

The significance of the site is unknown. Bird migration surveys have not been conducted.

Source of information:

Passerine, Shorebird or Raptor Stopover Score (maximum 100 points) **0**

4.2.6 Fish Habitat

4.2.6.1 Spawning and Nursery Habitat

Area Factors for Low Marsh, High Marsh and Swamp Communities.

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 1:

[ ]	Fish habitat is not present within the wetland	Go to Step 7, Score 0 points
[X]	Fish habitat is present within the wetland	Go to Step 2

Step 2: Choose only one option

[ ]	Significance of the spawning and nursery habitat within the wetland is known	Go to Step 3
[X]	Significance of the spawning and nursery habitat within the wetland is not known	Go through Steps 4, 5 and 6

Step 3: Select the highest appropriate category below, attach documentation:

[ ]	Significant in Ecoregion	Go to Step 7,	l00 points
[ ]	Significant in Ecodistrict	Go to Step 7,	50
[ ]	Locally Significant Habitat (5.0+ ha)	Go to Step 7,	25
[ ]	Locally Significant Habitat (<5.0 ha)	Go to Step 7,	15

Subtotal: 0

Source of information:

Step 4: Low Marsh = the 'permanent' marsh area, from the existing water line out to the outer boundary of the wetland.

[ ]	Low marsh not present	Go to Step 5
[X]	Low marsh present	Continue through Step 4, scoring as noted below

Scoring of Low Marsh:

1. Check the appropriate **Vegetation Group** (see Appendix 7) for each Low Marsh community. (Based on the one most clearly dominant plant species of the dominant form in each Low Marsh vegetation community.)
2. Sum the areas (ha) of the vegetation communities assigned to each **Vegetation Group.**
3. Use these areas to assign an **Area Factor** for each checked **Vegetation Group**.
4. Multiply the **Area Factor** by the **Multiplication Factor** for each row to calculate Score.
5. Sum all numbers in Score column to get **Total Score for Low Marsh**.

Scoring for Presence of Key Vegetation Groups – Low Marsh

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
1	Tallgrass				6	**0.0**
2	Shortgrass-Sedge				11	**0.0**
3	Cattail-Bulrush-Burreed				5	**0.0**
4	Arrowhead-Pickerelweed				5	**0.0**
5	Duckweed				2	**0.0**
6	Smartweed-Waterwillow				6	**0.0**
7	Waterlily-Lotus				11	**0.0**
8	Waterweed-Watercress				9	**0.0**
9	Ribbongrass	X	0.39	**0.1**	10	**1.0**
10	Coontail-Naiad-Watermilfoil				13	**0.0**
11	Narrowleaf Pondweed				5	**0.0**
12	Broadleaf Pondweed				8	**0.0**
			Sub Total Score			**1.0**
			Total Score (maximum 75 points)			**1.0**

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 5: High Marsh = the 'seasonal' marsh area, from the water line to the inland boundary of marsh wetland type. This is essentially what is commonly referred to as a wet meadow, in that there is insufficient standing water to provide fisheries habitat except during flood or high water conditions.

X	High marsh not present	Go to Step 6
	High marsh present	Continue through Step 5, scoring as noted below

Scoring of High Marsh:

1. Check the appropriate **Vegetation Group** (see Appendix 7) for each High Marsh community. (Based on the one most clearly dominant plant species of the dominant form in each High Marsh vegetation community.)
2. Sum the areas (ha) of the vegetation communities assigned to each **Vegetation Group.**
3. Use these areas to assign an **Area Factor** (from Table 8) for each checked **Vegetation Group**.
4. Multiply the **Area Factor** by the **Multiplication Factor** for each row to calculate Score.
5. Sum all numbers in Score column to get **Total Score for High Marsh**.

Scoring for Presence of Key Vegetation Groups – High Marsh

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
1	Tallgrass				6	**0.0**
2	Shortgrass-Sedge				11	**0.0**
3	Cattail-Bulrush-Burreed				5	**0.0**
4	Arrowhead-Pickerelweed				5	**0.0**
				Sub Total Score		**0.0**
				Total Score for High Marsh (maximum 25 points)		**0.0**

Continue to Step 6

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 6:

Scoring of Swamp:

1. Determine the total area (ha) of seasonally flooded swamp communities within the wetland containing fish habitat and record below.
2. Determine the total area (ha) of permanently flooded swamp communities within the wetland containing fish habitat and record below.
3. Use these areas to assign an **Area Factor** (from Table 8).
4. Multiply the Area Factor by the **Multiplication Factor** for each row to calculate Score.
5. Sum all numbers in Score column to get **Total Score for Swamp**.

Scoring Swamps for Fish Habitat (Seasonally flooded; Permanently flooded)					
Swamp Containing Fish Habitat	Present (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
Seasonally Flooded Swamp				10	**0.0**
Permanently Flooded Swamp	X	0.1	**0.1**	10	**1.0**
		Sub Total Score			**1.0**
		Total Score for Swamp (maximum 20 points)			**1.0**
		Continue to Step 7			

Step 7: CALCULATION OF FINAL SCORE

NOTE: Scores for Steps 4, 5 and 6 are only recorded if Steps 1 and 3 have not been scored.

A. Score from Step 1 (fish habitat not present)	=	**0**
B. Score from Step 3 (significance known)	=	**0**
C. Score from Step 4 (Low Marsh)	=	**1.0**
D. Score from Step 5 (High Marsh)	=	**0.0**
E. Score from Step 6 (Swamp)	=	**1.0**
Subtotal:		**2.0**

Calculation of Final Score for Spawning and Nursery Habitat = A or B or Sum of C, D, and E

Score for Spawning and Nursery Habitat (maximum 100 points)	**2**

4.2.6.2 Migration and Staging Habitat

Step 1:

[X]	Staging or Migration Habitat is not present in the wetland	Go to Step 4, Score 0 points
[ ]	Staging or Migration Habitat is present in the wetland significance of the habitat is known	Go to Step 2
[ ]	Staging or Migration Habitat is present in the wetland significance of the habitat is not known	Go to Step 3

Step 2: Select the highest appropriate category below. Ensure that documentation is attached to the data record.

[ ]	Significant in Ecoregion	Score 25 points in Step 4
[ ]	Significant in Ecodistrict	Score 15 points in Step 4
[ ]	Locally Significant	Score 10 points in Step 4
[ ]	Fish staging and/or migration habitat present, but not as above	Score 5 points in Step 4

Source of information:

_____

_____

Step 3: Select the highest appropriate category below based on presence of the designated site type (i.e. does not have to bethe dominant site type). Refer to Site Types recorded earlier (section 1.1.3). Attach documentation.

[ ]	Wetland is riverine at rivermouth or lacustrine at rivermouth	Score 25 points in Step 4
[ ]	Wetland is riverine,within 0.75 km of rivermouth	Score 15 points in Step 4
[ ]	Wetland is lacustrine,within 0.75 km of rivermouth	Score 10 points in Step 4
[ ]	Fish staging and/or migration habitat present, but not as above	Score 5 points in Step 4

Step 4: Enter a score from only one of the three above Steps.

Score for Staging and Migration Habitat (maximum 25 points)	**0**

4.3 Ecosystem Age

		Fractional Area			Scoring
Bog	=	0.00	x	25 =	0.0
Fen, on deeper soils; floating mats or marl	=	0.00	x	20 =	0.0
Fen, on limestone rock	=	0.00	x	5 =	0.0
Swamp	=	0.73	x	3 =	2.2
Marsh	=	0.27	x	0 =	0.0
				Sub Total:	2.2

Ecosystem Age Score (maximum 25 points) **2**

4.4 Great Lakes Coastal Wetlands

Choose one only. Only coastal wetland units may be scored.

	wetland < 10 ha	=	10 pts
	wetland 10 - 50 ha	=	25
	wetland 51 - 100 ha	=	50
	wetland > 100 ha	=	75

Great Lakes Coastal Wetland Score (maximum 75 points) **0**

WETLAND EVALUATION SCORING RECORD

Wetland Name: 1200 King Road Reservoir Wetland Complex

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

26	1.1.1	Growing Degree-Days/Soils
10	1.1.2	Wetland Type
2	1.1.3	Site Type

1.2 BIODIVERSITY

13	1.2.1	Number of Wetland Types
5	1.2.2	Vegetation Communities
6	1.2.3	Diversity of Surrounding Habitat
5	1.2.4	Proximinty to Other Wetlands
12	1.2.5	Interspersion
20	1.2.6	Open Water Type

7	1.3 SIZE (Biological Component)
105	Subtotal
105	TOTAL (Biological Component)

2.0 SOCIAL COMPONENT

2.1 ECONOMICALLY VALUABLE PRODUCTS

0	2.1.1 Wood Products
0	2.1.2 Wild Rice
0	2.1.3 Commerical Fish (Bait Fish and/or Coarse Fish)
12	2.1.4 Furbearers

0	2.2 RECREATIONAL ACTIVITIES

2.3 LANDSCAPE AESTHETICS

0	2.3.1 Distinctness
4	2.3.2 Absence of Human Disturbance

2.4 EDUCATION AND PUBLIC AWARENESS

0	2.4.1 Educational Uses
0	2.4.2 Facilities and Programs
5	2.4.3 Research and Studies

40	2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT
0	2.6 OWNERSH1P
4	2.7 SIZE (Social Component)
0	2.8 ABORIGINAL AND CULTURAL VALUES

2.8.1 Aboriginal Values
2.8.2 Cultural Heritage

65	Subtotal
65	TOTAL (Social Component)

3.0 HYDROLOGICAL COMPONENT

100	3.1 FLOOD ATTENUATION
	3.2 WATER QUALITY IMPROVEMENT
49	3.2.1 Short Term Water Quality Improvement
0	3.2.2 Long Term Nutrient Trap
4	3.2.3 Groundwater Discharge
0	3.3 CARBON SINK
0	3.4 SHORELINE EROSION CONTROL
	3.5 GROUNDWATER RECHARGE
50	3.5.1 Site Type
4	3.5.2 Soils
208	Subtotal
208	TOTAL (Hydrological Component)

4.0 SPECIAL FEATURES COMPONENT

4.1 RARITY

4.1.1 Wetland Types

60	4.1.1.1 Rarity within the Landscape
0	4.1.1.2 Rarirty of Wetland Type

4.1.2 Species

80	4.1.2.1 Provincially Significant Animal Species
0	4.1.2.2 Provincially Significant Plant Species
0	4.1.2.3 Regionally Significant Species
0	4.1.2.4 Locally Significant Species

4.2 SIGNIFICANT FEATURES OR HABITATS

0	4.2.1 Colonial Waterbirds
0	4.2.2 Winter Cover for Wildlife
0	4.2.3 Waterfowl Staging and/or Moulting Areas
10	4.2.4 Waterfowl Breeding
0	4.2.5 Migratory Passerine, Shorebird or Raptor Stopover Area
	4.2.6 Fish Habitat
2	4.2.6.1 Spawning and Nursery Habitat
0	4.2.6.2 Migration and Staging Habitat

2	4.3 ECOSYSTEM AGE
0	4.4 GREAT LAKES COASTAL WETLANDS

154	Subtotal
154	TOTAL (Special Features Component)

SUMMARY OF EVALUATION RESULT

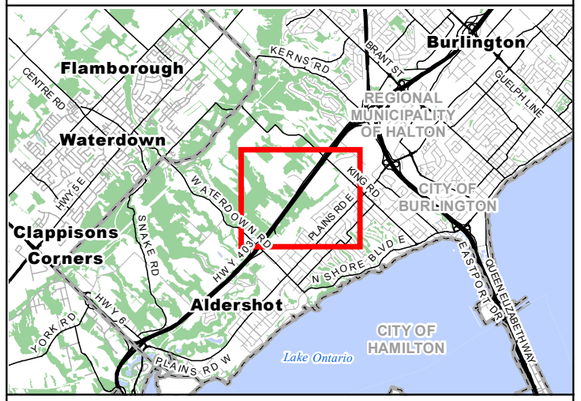
105	1.0	TOTAL FOR BIOLOGICAL COMPONENT
65	2.0	TOTAL FOR SOCIAL COMPONENT
208	3.0	TOTAL FOR HYDROLOGICAL COMPONENT
154	4.0	TOTAL FOR SPECIAL FEATURES COMPONENT
533		TOTAL WETLAND SCORE

FOR MUNICIPALITY USE ONLY

Reviewer (Name & Position)	
Reviewer Comments	

1200 King Road Reservoir Wetland Evaluation

Catchment Basin Map



Legend

- Study Area (250m)
- Subject Property
- Catchment Basin
- Railway
- Utility Line
- Highway
- Primary Road
- Secondary Road
- Contour (5m Interval)
- Permanent Watercourse
- Intermittent Watercourse
- Water Body
- Provincially Significant Wetland (PSW)

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Project: 2762
Date: February 9, 2023

NAD83 - UTM Zone 17
Size: 11x17"
1:8,000

0 100 200 300 400 500 Metres

N

Path: X:\2762_1200KingRd\NRSI_2762_KingRdReservoir_CatchmentBasin_10K_2023_02_09_KEF.mxd



Legend

- Railway
- Utility Line
- Highway
- Primary Road
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse
- Catchment Basin
- Intermittent Flow
- Contour (5m Interval)
- 1 Wetland Complex Unit Number
- Wetland Vegetation Community

1200 King Road Reservoir Wetland Evaluation

Wetland Vegetation Community

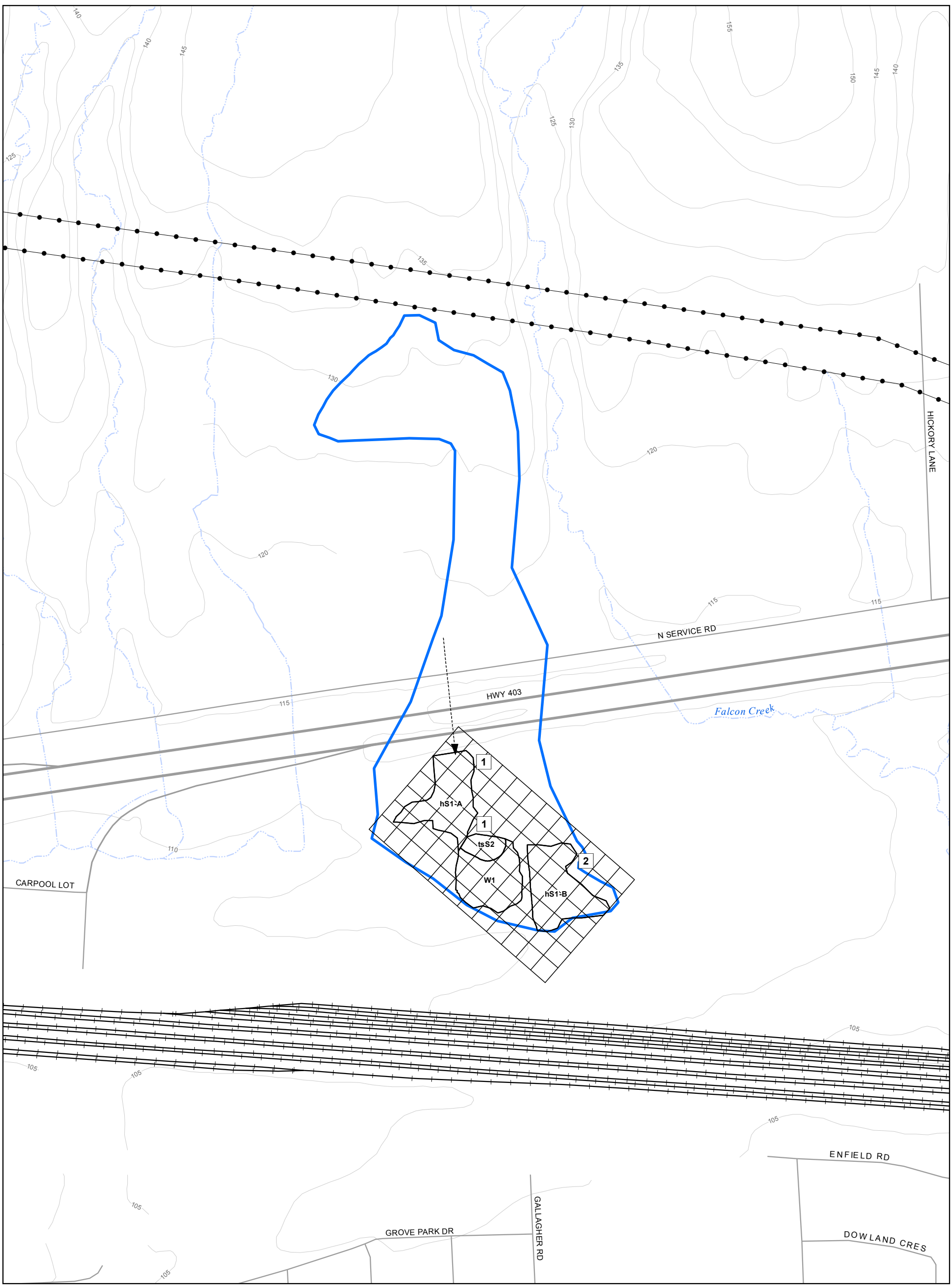
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0 40 80 120 160 200 Meters

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Project: 2762
Date: February 13, 2023
NAD83 - UTM Zone 17
Scale 1:4,000 (11x17")

Path: X:\2762_1200KingRd\NRSI_2762_KingRdReservoir_Wetland_ELC_Areas_4K_2023_02_13_KEF.mxd



Legend

- Railway
- Utility Line
- Highway
- Primary Road
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse
- Catchment Basin
- Interspersion Grid
- Intermittent Flow
- Contour (5m Interval)
- 1 Wetland Complex Unit Number
- Wetland Vegetation Community

1200 King Road Reservoir Wetland Evaluation

Interspersion Map

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 40 80 120 160 200 Meters

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Project: 2762
Date: February 13, 2023
NAD83 - UTM Zone 17
Scale 1:4,000 (11x17")

Path: X:\2762_1200KingRd\NRSI_2762_KingRdReservoir_Interspesion_10K_2023_02_13_KEF.mxd

Aldershot GO Station Wetland Complex

July 2023 Provincially Significant Wetland Re-evaluation

Natural Resource Solutions Inc.

1) Aldershot GO Station Wetland Complex Summary

The Aldershot GO Station Wetland Complex occurs on the Iroquois Plain physiographic region (Chapman and Putnam 1984) and is part of ecodistrict 7E3. It is situated in the western extent of the City of Burlington, being bounded by Highway 403 to the north, the CN Rail corridor to the south, Waterdown Road to the west and King Road to the east. The wetland is located within the headwater reach of Grindstone Creek.

The wetlands were included in the wetland evaluation completed by WSP in 2020 as part of the Provincially Significant Grindstone-Falcon Creeks Headwater Wetland Complex; however, on-site surveys were not completed for the 1200 King Road parcel. The Wetland Evaluation Data Scoring Record (WEDSR) presented here is a revision prepared by NRSI in July 2023 that reflects recent changes made by the Government of Ontario as part of Bill 23, More Homes Built Faster Act which passed in December 2022. The Act resulted in changes to the Ontario Wetland Evaluation System (OWES) manual; most notably removing scoring for endangered and threatened species under the Special Features section, and altering the parameters for the complexing of wetland units. Under the revised OWES manual, an existing wetland complex must be considered as individual units with any multi-unit complexing supported with rationale. Based on our review of the existing catchment and 30 wetland units identified as part of the complex, it was determined that the reservoir and areas of swamp immediately adjacent occur in a small catchment on the tableland between the larger Grindstone Creek and Falcon Creek systems to the west and east, respectively. The application of updated wetland complexing rules reduces the complex of units and their catchment substantially as reflected in appended mapping. Where the existing WEDSR had identified these wetlands as part of a 30-unit complex, this re-evaluation focuses on 2 units.

Wetland Evaluation Data Scoring Record Summary

Biological Component

The complex has a score of 70 for its biological component. 100% of the wetland is situated on clay-loam soil with intermittent palustrine inflow and outflow. No evidence of groundwater seepage has been documented from these wetland units. As a small complex of 2 units comprised of 3 vegetation communities, interspersion is relatively low. The dominant cover includes Reed Canary Grass (*Phalaris arundinacea*), Cattail (*Typha* sp.), European Common Reed (*Phragmites australis* ssp. *australis*), regenerating Green Ash (*Fraxinus pensylvanica*), European Buckthorn (*Rhamnus cathartica*). The wetlands are surrounded by cultural thicket and cultural woodland communities that provide a buffer from the adjacent highway. Although the wetlands may facilitate the movement of wildlife from the east toward Waterdown Road, the Waterdown Road-Highway 403 interchange creates a barrier of open, urbanized land use that does not lend itself to wildlife movement further west toward Grindstone Creek. Anuran surveys

completed by NRSI biologists did not document any calling anurans from a monitoring station that was located to the northeast of the parking lot on the 1200 King Road lands.

Social Component

The wetland has a low score of 69 for its social component. The wetland units are almost entirely in private ownership (estimated to be 95%), with the remainder occurring on Ministry of Transportation lands along the Highway 403 on-ramp. Due to the historic land use of the site, the proximity of Highway 403, the prevalence of aggressive invasive species and changes that have occurred due to Emerald Ash Borer, the wetlands are relatively degraded and exhibit low species diversity.

Non-research reports, including the existing WEDSR (WSP 2020) and Environmental Impact Assessments (Savanta 2015; NRSI 2023), have assessed all or a portion of the wetland complex and have provided valuable insight into the function and natural heritage values associated with these wetlands.

Hydrological Component

The wetland has a high score of 157 for its hydrological component. The wetland contributes to flood attenuation within the greater Grindstone Creek subwatershed, short term water quality improvement and groundwater recharge. The wetland is located in a headwater area and provides spring base flows to a tributary of Grindstone Creek.

Special Features

The wetland has a high score of 65 for its special features. No significant species that have been documented from the wetland complex by NRSI or Savanta.

During the 2022 surveys conducted by NRSI, no calling anuran activity was documented from the Unit 2 wetlands to the north of the parking lot. The features may receive pollutants including salt and petroleum products as runoff or spray from nearby Highway 403.

Conclusion

With a total score of 361, the Aldershot GO Station Wetland Complex is not considered to be provincially significant. A wetland that scores 600 or more points or has 200 or more points in either the biological or special features component is deemed to be provincially significant. The remaining portion of the 2020 WEDSR (WSP 2020) retains provincially significant status at this time.

Recommendations

The 2 wetland units identified in this complex provide flood attenuation for a large upstream catchment that directs flow toward Grindstone Creek which passes through the Hendrie Valley and outlets to Lake Ontario in the Hamilton Harbour. This function for receiving and storing surface water during precipitation event should be maintained.

Although the non-native European Buckthorn is already present within and adjacent to the wetland units, any future development and natural feature buffering should seek to enhance the native plant species diversity within these wetlands through native species planting or invasive species management, where practical. The suppression of invasive shrubs through the

establishment of native tree canopy may be more practical than widespread and prolonged application of herbicide to control problematic species. European Common Reed is already present in the marshes and will not be easy to manage. Due to the prevalence of this invasive grass along Highway 403 and the relative isolation of the subject wetland units, management of this species is not recommended.

2) **Rationale for Identifying the Aldershot GO Station Wetland Complex**

The separation of the 2 wetland units from the larger 30-unit complex is based on the division of natural heritage function as a result of the Highway 403 corridor. The 2 units within this revised complex include marsh and swamp communities that are in close proximity (the two marsh units are approximately 13m apart and connected by a box culvert beneath the highway on-ramp). As the hydrology of these adjacent wetland units is interconnected and species that are dependent on wetlands could easily move between the units, the two-unit complex is justified. The wetlands are bounded to the north by Highway 403 with no other wetlands present in the upper reach of the catchment that would warrant consideration as part of a complex.

The remaining portion of the Provincially Significant Wetland (PSW) Complex, as designated by WSP in 2020, retains PSW status and the associated regulatory protection.

The subject wetlands total 1.07 hectares in size with a catchment area of 306.09 hectares which encompasses an area to the north of Highway 403 that includes ravines through Sassafras Woods and extends to an area on the escarpment tableland in the vicinity of Mountain Brow Road.

Rationale for the Inclusion of Wetland Units Less Than 2 Hectares in Size

The existing WEDSR and associated mapping was completed without access to the 1200 King Road property. It is unknown if WSP access the marsh areas adjacent to the highway on-ramp that occur largely on MTO property. The mapping of wetland on the 1200 King property may have relied on aerial photography interpretation, reference to existing wetland mapping, or property line assessment and estimation of feature boundaries. NRSI conducted surveys within the eastern extent of wetland Unit 2 which included a boundary delineation that was subsequently surveyed using a high-accuracy GPS unit. One notable difference between the WSP wetland mapping and the mapping prepared by NRSI biologists is the break in wetland between Unit 2 and the wetlands associated with a reservoir to the east – this area is comprised of a disturbed upland thicket of European Buckthorn with a break in surface water catchments. The extent of wetland on either side of the Highway 403 on ramp was reviewed from the roadside by NRSI biologists and was assessed largely based on aerial imagery.

As the updated OWES manual stipulates that the WEDSR can be re-evaluated as a living document, the WSP evaluation, which identifies PSW to be present, is the starting point for a re-evaluation exercise. The OWES manual identifies that wetland units less than 2.0 ha (as well as units less than 0.5 ha) can be included in an evaluation if justification for their inclusion is made. Examples of reasons for inclusion could include the presence of a wetland that is rare in the ecodistrict (bog or fen), small wetlands that provide critical habitat functions for wetland-dependent wildlife, or consideration of many small features that collectively serve a valuable habitat function.

Based on the characterization of Wetland Unit 1 (0.25ha) and Unit 2 (0.82 ha) that did not find any significant function in either wetland, we would not conclude that these wetlands warrant inclusion in a wetland evaluation. As a pre-existing evaluation that included these wetlands has been completed, this re-evaluation has been conducted to align with provincial guidance outlined in the updated OWES regarding the re-evaluation process.

While the re-evaluation determined the wetlands to be non-provincially significant, if no existing evaluation had been completed, under the updated OWES manual, neither wetland would be considered in a new evaluation.

Rationale for the Extent of Catchment

The catchment was determined based upon field surveys conducted by NRSI staff in 2022. The western marsh unit (Unit 1) is located west of the highway on-ramp and was not surveyed by NRSI biologists. A concrete box culvert beneath the on-ramp connects the two wetland units. A series of ravines through Sassafras Woods, north of Highway 403, convey flow toward the North Service Road, then beneath the highway and into the subject marsh and swamp communities. Flow is intermittent and largely occurs during the spring melt or high rainfall events. These two units combined constitute the topographic low elevation of the catchment. The wetlands and the greater catchment are part of a tributary to Grindstone Creek to the west. In general, headwater drainage in the area originates from the Niagara Escarpment, approximately 2.2km to the north with a series of linear ravines in a northwest-southeast orientation originating at the base of the Escarpment and extending toward Lake Ontario. These ravines create catchment divides where high elevations direct surface water to the west or east. The NRSI OWES evaluator examined topographic mapping in combination with the Ontario Watershed Information Tool to map the extent of the catchment above the subject wetlands. This 306.09 ha catchment is a relatively large area in comparison to the small catchment on tableland to the immediate east that is associated with the naturalized reservoir. A topographic high elevation separates the subject wetland catchment from the catchment surrounding the reservoir.

Please contact me should you have any questions regarding this evaluation.



Patrick Deacon
Terrestrial and Wetland Biologist, OWES Certified (2012)

References

Chapman, L.J. and D.F. Putnam 1984. The Physiography of Southern Ontario. Ontario Geological Survey, Special Volume 2.

Natural Resource Solutions Inc. (NRSI). 2023. 1200 King Road Environmental Impact Assessment.

Savanta Inc. 2015. 1200 King Road Environmental Impact Assessment. Volumes 1 and 2.

WSP Canada Group Ltd. 2020. Provincially Significant Grindstone – Falcon Creeks Headwater Wetland Complex Summary and Wetland Evaluation Data Scoring Record

1.2.2 Wetland Vegetation Communities

Wetland #	Map Codes	Vegetation Forms	Dominant Species (noted by an asterisk "*") (size in hectares, site type, soil type, % open water, presence of seepage, significant species)
1	neM1	ne*, re	ne*: *Phalaris arundinacea*, re: *Typha latifolia*, *Phragmites australis* (0.25, P, clay-loam, ow-0%; no seepage; significant species: n/a)
2	neM1	ne*, re	ne*: *Phalaris arundinacea*, re: *Typha latifolia*, *Phragmites australis* (0.26, P, clay-loam, no seepage, ow-0%; significant species: n/a)
2	hS1	h*, ts	h*: *Fraxinus pennsylvanica*, ts: *Rhamnus cathartica*, *Cornus sericea* (0.26, P, clay-loam, no seepage, ow-0%; significant species: n/a)

Aldershot GO Station Wetland Complex

Wetland Evaluation 2023 (update to 3rd ed. Ver. 3.3 completed by NRSI)

Comments

Attached Documents Include:

1) Aldershot GO Station Wetland Complex Summary
2) Rationale for identifying this wetland complex, reasons for the inclusion of wetland units under 2.0 ha in size, and rationale for wetland vegetation communities under 0.5 ha in size
3) List of vegetation communities in the Aldershot GO Station Wetland Complex
4) Map of Catchment area and detention area for the Aldershot GO Station Wetland Complex
5) Map of the Aldershot GO Station Wetland Complex
6) Map of Interspersion for the Aldershot GO Station Wetland Complex

Species lists of vascular plants, birds, mammals, herpetofauna and insects reported from the vicinity of the Aldershot GO Station Wetland Complex are provided in the 1200 King Road Framework Plan - Environmental Impact Assessment (NRSI 2023)

This version of the Wetland Evaluation Data Scoring Record has been adapted from the spreadsheet provided by the Aurora District Ministry of Natural Resources and Forestry (MNRF) staff (Version 3.3 of the 3rd Edition). NRSI aknowledges the work of MNRF's Biodiversity Policy Section and Wetland Evaluation Technical Team and others who developed the OWES as a means to ensure the protection and sustainable management of the province's wetlands. The adapted scoring provided herein reflects changes made by the Government of Ontario as part of Bill 23, *More Homes Built Faster Act* which passed in December 2022. The Act removes MNRF oversight and administration of the OWES and places greater epmhasis on the opinion of the OWES-certified evaluator and the role of local decision makers (i.e. muncipalities). Should you have any questions related to this evaluation, please feel free to contact Natural Resource Solution Inc. staff.

Additional Information

Include relevant information that can not be entered in the wetland data record (Ex. Sections that have not been completed.)

Official Name:	Aldershot GO Station Wetland Complex				
Evaluation Edition:	2022	Class:	\	\	
Wetland Significance:	Year/Month Last Evaluated		December 2019 (accepted December 2020)		
Non-Provincially Significant	Year/Month Last Updated		July 2023		
Special Planning Considerations:			**Scores**		
Wetland Area:	1.07		Biological:	70	
Other Detention Areas:	0.00		Social:	69	
Catchment Area (ha):	306.09		Hydrological:	157	
Coastal Unit Area:	0.00		Special Features:	65	
OMNRF Source:			Overall:	361	
Information Source:	Savanta 2015, WSP 2020, NRSI 2023				
Submitted by:	Natural Resource Solutions Inc.		Date	July 10, 2023	

General Information

Wetland Evaluator(s)

Name:	Patrick Deacon	Affiliation:	Natural Resource Solutions Inc.
Name:		Affiliation:	
Name:		Affiliation:	
Name:		Affiliation:	
Name:		Affiliation:	

Date(s) wetland visited (in field): **(2022) Apr. 22, 29; May 2, 5, 9, 11, 13, 15, 18, 25; June 20, 22; Aug. 15, 26; Oct. 4**

Date evaluation completed: **July 10, 2023**

Estimated time devoted to completing the field survey in person hours: 10

Weather Conditions

i) at time of field work: Appropriate for surveys being conducted (generally mild and with low wind and limited to no rain).

ii) summer conditions in general: Summer 2022 was relatively dry

Landowner Notification

Name:	Penta Properties Inc.	Parcel:	Part Lot 5, Conc. 1, East Flamborough
Name:	Government of Ontario (not notified/accessed)	Parcel:	Part Lot 5 and 6, Conc. 1, East Flamborough
Name:		Parcel:	
Name:		Parcel:	

WETLAND EVALUATION DATA

AND SCORING RECORD

i) Wetland Name: Aldershot GO Station Wetland Complex

ii) MNRF Administrative Region: Southern Region
MNRF District: Aurora
MNRF Area Office: Aurora

iii) Conservation Authority Jurisdiction: Conservation Halton

iv) County or Regional Municipality: Halton Region

v) Township/Geographic Twp and/or Local Municipality: East Flamborough

vi) Lots & Concessions: Part Lots 5 and 6, Concession 1

vii) Ecodistrict/Ecoregion: Grimsby Ecodistrict (7E-3)/Lake Erie - Lake Ontario Ecoregion (7E)

viii) Map and Air Photo References:

a) Latitude: 43.317378 Longitude: -79.85174

b) UTM grid reference:

Zone: NAD83 17T Block: N E: 593110 N: 4796700

c) National Topographic Series:

Map name(s): Burlington

Map number(s): 030M05

Edition:
Scale:

d) Aerial photographs:

Date(s) photo taken: ESRI 2021

e) Ontario Base Map number: 1017590047950

Wetland Area
1.07

Site Type	Area	%
Isolated	0.00	0.00
Palustrine (permanent or intermittent flow)	1.07	1.00
Riverine	0.00	0.00
Riverine (at rivermouth)	0.00	0.00
Lacustrine (at rivermouth)	0.00	0.00
Lacustrine (on enclosed bay, with barrier beach)	0.00	0.00
Lacustrine (exposed to lake)	0.00	0.00
Lacustrine (at lake inflow or outflow)	0.00	0.00
	1.07	1.00

Palustrine with inflow	0.00	0
Palustrine with no inflow	0.00	0
		0.00

Determination of watershed improvement factor (WIF)	Area Sum
Lacustrine (at rivermouth) & Lacustrine (exposed to lake)	0.00

Soil Type	Area	%
clay/loam	1.07	1.00
silt/marl	0.00	0.00
limestone	0.00	0.00
sand	0.00	0.00
humic/mesic	0.00	0.00
fibric	0.00	0.00
granite	0.00	0.00
	1.07	1.00

Dominate Vegetation	Area	%
h	0.56	0.52
c	0.00	0.00
dh	0.00	0.00
dc	0.00	0.00
ts	0.00	0.00
ls	0.00	0.00
ds	0.00	0.00
gc	0.00	0.00
m	0.00	0.00
ne	0.51	0.48
be	0.00	0.00
re	0.00	0.00
ff	0.00	0.00
f	0.00	0.00
su	0.00	0.00
u (unvegetated)	0.00	0.00
	1.07	1.00

Wetland Type	Area	%
Swamp	0.56	0.52
Marsh	0.51	0.48
Fen	0.00	0.00
Bog	0.00	0.00
	1.07	1.00

Open Water Area	%
0.00	0.00

List of vegetation communities in the Aldershot GO Station Parking Lot Wetland Complex

Complex Unit	Community	Area	Palustrine Inflow?	Soil Type	Surface Hydrology	Forms	Dominant Form	Open Water?
1	neM1	0.25	Palustrine with inflow	Clay/Loam	Palustrine	ne	ne	
2	neM1	0.26	Palustrine with inflow	Clay/Loam	Palustrine	ne	ne	
2	hS1	0.56	Palustrine with inflow	Clay/Loam	Palustrine	h, gc	h	
	Total	**1.07**						

ix) Wetland Size
(circle appropriate category, a or b)

a) Single contiguous wetland area:

Total wetland size = **1.07** hectares

b) Wetland complex comprised of 2 individual wetlands:

Wetland Unit No.	1	0.25
Wetland Unit No.	2	0.82
Wetland Unit No.	3	
Wetland Unit No.	4	
Wetland Unit No.	5	
Wetland Unit No.	6	
Wetland Unit No.	7	
Wetland Unit No.	8	
Wetland Unit No.	9	
Wetland Unit No.	10	
Wetland Unit Totals:		1.07

(Attach additional sheets if necessary)

Total Wetland Size = 1.07 hectares (add together size of each unit)

Documentation requirements for evaluated wetland complexes (attach additional sheet if necessary):

: a statement of rationale for identifying a wetland complex;
: a statement of rationale for identifying any wetland complex less than 2 ha in total size;
: a statement of rationale for any vegetation community less than 0.5 ha in size;
: adherence to the wetland complexing rules (“watershed rule”; lacustrine wetlands); and
: written documentation of the reasons for including wetland units smaller than 2 ha.

See attached documents.

1.0 BIOLOGICAL COMPONENT

1.1 Productivity

1.1.1 Growing Degree-Days/Soils (max: 30 pts)

Refer to page 43 of manual for further explanation.

1. Determine the correct GDD value for your wetland (use Figure 5).
2. Circle the appropriate GDD value from the evaluation table below.
3. Determine the Fractional Area (FA) of the wetland for each soil type.
4. Multiply the fractional area of each soil type by the applicable score-factor in the evaluation table.
5. Sum the scores for each soil type to obtain the final score (maximum score is 30 points).

Note: In wetland complexes the evaluator should aim at determining the fractional area occupied by the categories for the complex as a whole.

Growing Degree- Days	Clay- Loam	Silt- Marl	Lime- stone	Sand	Humic- Mesic	Fibric	Granite
<2800	15	13	11	9	8	7	5
2800-3200	18	15	13	11	9	8	7
3200-3600	22	18	15	13	11	9	7
3600-4000	**26**	21	18	15	13	10	8
>4000	30	25	20	18	15	12	8

Soil Type	FA of wetland in soil type	Enter appropriate score-factor from above table				
clay/loam:	1.00	X	**26**	=	**26.0**	(1.07 ha)
silt/marl:	0.00	X		=	**0.0**	(0.00 ha)
limestone:	0.00	X		=	**0.0**	(0.00 ha)
sand:	0.00	X		=	**0.0**	(0.00 ha)
humic/mesic:	0.00	X		=	**0.0**	(0.00 ha)
fibric:	0.00	X		=	**0.0**	(0.00 ha)
granite:	0.00	X		=	**0.0**	(0.00 ha)
Total					**26.0**	

GDD/Soils score (maximum 30 points) **26**

1.1.2 Wetland Type

(Fractional Area = area of wetland type/total wetland area)

	Fractional Area			Score	
Bog	0.00	X	3 =	**0.0**	(0.00 ha)
Fen	0.00	X	6 =	**0.0**	(0.00 ha)
Swamp	0.52	X	8 =	**4.2**	(0.56 ha)
Marsh	0.48	X	15 =	**7.1**	(0.51 ha)
Total			=	**11.3**	

Wetland type score (maximum 15 points) **11**

1.1.3 Site Type

(Fractional Area = area of site type/total wetland area)

	Fractional Area		Score	
Isolated	0.00	x 1 =	**0.00**	(0.00 ha)
Palustrine (permanent or intermittent flow)	1.00	x 2 =	**2.00**	(1.07 ha)
Riverine	0.00	x 4 =	**0.00**	(0.00 ha)
Riverine (at rivermouth)	0.00	x 5 =	**0.00**	(0.00 ha)
Lacustrine (at rivermouth)	0.00	x 5 =	**0.00**	(0.00 ha)
Lacustrine (on enclosed bay,with barrier beach)	0.00	x 3 =	**0.00**	(0.00 ha)
Lacustrine (exposed to lake)	0.00	x 2 =	**0.00**	(0.00 ha)
		Subtotal:	**2.00**	

Site Type Score (maximum 5 points) **2**

1.2 Biodiversity

1.2.1 Number of Wetland Types

(Check only one)

	one	=	9	points
13	two	=	13	
	three	=	20	
	four	=	30	

Number of Wetland Types Score (maximum 30 points) **13**

1.2.2. Vegetation Communities

Use the data sheet provided in Appendix 4 to record and score vegetation communities (the completed form must be attached to this data record)

Scoring (circle only one option for each of the columns below):

Total # of communities with 1-3 forms	
1 =	1.5 pts
2 =	2.5
3 =	3.5
4 =	4.5
5 =	5
6 =	5.5
7 =	6
8 =	6.5
9 =	7
10 =	7.5
11 =	8
+ 0.5 for each additional community	
=	**2.5**
Total of 2 Communities	

Total # of communities with 4-5 forms	
1 =	2 pts
2 =	3.5
3 =	5
4 =	6.5
5 =	7.5
6 =	8.5
7 =	9.5
8 =	10.5
9 =	11.5
10 =	12.5
11 =	13
+ 0.5 for each additional community	
=	**0.0**
Total of 0 Communities	

Total # of communities with 6 or more forms	
1 =	3 pts
2 =	5
3 =	7
4 =	9
5 =	10.5
6 =	12
7 =	13.5
8 =	15
9 =	16.5
10 =	18
11 =	19
+ 0.5 for each additional community	
=	**0.0**
Total of 0 Communities	

Subtotal: **3**

Vegetation Communities Score (maximum 45 points) **3**

Wetland Name:	**Aldershot GO Station Parking Lot Wetland Complex**

Wetland Size (ha):	1.07

Vegetation Form	% area in which form is dominant	
h	52.34	(0.56 ha)
c	0.00	(0.00 ha)
dh	0.00	(0.00 ha)
dc	0.00	(0.00 ha)
ts	0.00	(0.00 ha)
ls	0.00	(0.00 ha)
ds	0.00	(0.00 ha)
gc	0.00	(0.00 ha)
m	0.00	(0.00 ha)
ne	47.66	(0.51 ha)
be	0.00	(0.00 ha)
re	0.00	(0.00 ha)
ff	0.00	(0.00 ha)
f	0.00	(0.00 ha)
su	0.00	(0.00 ha)
u (unvegetated)	0.00	(0.00 ha)
Total = 100%	100.00	

1.2.3 Diversity of Surrounding Habitat

Check all appropriate items. Only habitat within 1.5 km of the wetland boundary and at least 0.5 ha in size are to be scored.

1	row crop
	pasture
1	abandoned agricultural land
1	deciduous forest
	coniferous forest
1	mixed forest*
	abandoned pits and quarries
	open lake or deep river
	fence rows with cover, or shelterbelts
1	terrain appreciably undulating,hilly,or with ravines
1	creek flood plain
6	Subtotal

** "Mixed forest" is defined as either 25% coniferous trees distributed singly or in clumps in deciduous forest, or 25% deciduous treesdistributed singly or in clumps in coniferous forest. Note that Forest Resource Inventory (FRI) maps can be misleading since 25% conifer within a unit could be entirely concentrated around a lake.*

Score 1 point for each feature checked, up to a maximum of 7 points.

Diversity of Surrounding Habitat Score (maximum 7 points) **6**

1.2.4 Proximity to Other Wetlands

Check highest appropriate category. (Note: if the wetland is lacustrine, score option #1 at 8 points).

		points
8	Hydrologically connected by surface water to other wetlands (different dominant wetland type) or to open lake or deep river within 1.5 km	8
	Hydrologically connected by surface water to other wetlands (same dominant wetland type) within 0.5 km	8
	Hydrologically connected by surface water to other wetlands (different dominant wetland type), or to open lake or deep river from 1.5 to 4 km away	5
	Hydrologically connected by surface water to other wetlands (same dominant wetland type) from 0.5 to 1.5 km away	5
	Within 0.75 km of other wetlands (different dominant wetland type) or open water body, but not hydrologically connected by surface water	5
	Within 1 km of other wetlands, but not hydrologically connected by surface water	2
	No wetland within 1 km	0

Name and distance (from wetland) of wetlands/water bodies scored above:
Various deciduous swamp units present in the mid and upper part of the catchment to the northof Highway 403 in the Sassafras Woods ESA (the subject wetlands dominated by narrow emergent marsh).

Proximity to other Wetlands Score (maximum 8 points) **8**

1.2.5 Interspersion

Number of Intersections = 35

	Number of Intersections *(Check only one)*		Points
	26 or less	=	3
X	27 to 40	=	6
	41 to 60	=	9
	61 to 80	=	12
	81 to l00	=	15
	101 to 125	=	18
	126 to 150	=	21
	151 to 175	=	24
	176 to 200	=	27
	>200	=	30

Interspersion Score 0
(maximum 30 points)

1.2.6 Open Water Types

Note: this attribute is only to be scored for permanently flooded open water within the wetland (adjacent lakes do not count). Check one option only.

	Open Water Type	Characteristic	Points
	type 1	Open water occupies < 5 % of wetland area	8
	type 2	Open water occupies 5-25% of wetland (occurring in central area)	8
	type 3	Open water occupies 5-25% (occurring in various-sized ponds, dense patches of vegetation or vegetation in diffuse stands)	14
	type 4	Open water occupies 26-75% of wetland (occurring in a central area)	20
	type 5	Open water occupies 26-75% of wetlands (small ponds and embayments are common)	30
	type 6	Open water occupies 76%-95% of wetland (occurring in large central area; vegetation is peripheral)	8
	type 7	Open water occupies 76-95% of wetland (vegetation in patches or diffuse open stands)	14
	type 8	Open water occupies more than 95% of wetland area	3
0	no open water		0

Open water occupies **0.00 % (0.00 ha) of wetland complex.**

Open Water Type Score 0
(maximum 30 points)

1.3 Size (Biological Component)

Total Size of Wetland = **1.07** ha

Sum of scores from Biodiversity Subcomponent

1.2.1
+1.2.2
+1.2.3
+1.2.4
+1.2.5
+1.2.6
30

Wetland	Total Score for Biodiversity Subcomponent									
size (ha)	<37	37-48	49-60	61-72	73-84	85-96	97- 108	109-120	121- 132	>132
<20 ha	1	5	7	8	9	17	25	34	43	50
20-40	5	7	8	9	10	19	28	37	46	50
41-60	6	8	9	10	11	21	31	40	49	50
61-80	7	9	10	11	13	23	34	43	50	50
81-100	8	10	11	13	15	25	37	46	50	50
101-120	9	11	13	15	18	28	40	49	50	50
121-140	10	13	15	17	21	31	43	50	50	50
141-160	11	15	17	19	23	34	46	50	50	50
161-180	13	17	19	21	25	37	49	50	50	50
181-200	15	19	21	23	28	40	50	50	50	50
201-400	17	21	23	25	31	43	50	50	50	50
401-600	19	23	25	28	34	46	50	50	50	50
601-800	21	25	28	31	37	49	50	50	50	50
801-1000	23	28	31	34	40	50	50	50	50	50
1001-1200	25	31	34	37	43	50	50	50	50	50
1201-1400	28	34	37	40	46	50	50	50	50	50
1401-1600	31	37	40	43	49	50	50	50	50	50
1601-1800	34	40	43	46	50	50	50	50	50	50
1801-2000	37	43	47	49	50	50	50	50	50	50
>2000	40	46	50	50	50	50	50	50	50	50

Size Score (Biological Component) **1**
(maximum 5O points)

2.0 SOCIAL COMPONENT

2.1 Economically Valuable Products

2.1.1 Wood Products

Check the option that best reflects the total area (ha) of forested wetland (i.e., areas where the dominant vegetation form is h or c). Note that this is the area of all the forested vegetation communities, not total wetland size. Do not ***include areas where harvest is not permitted. Check only one option.***

Area of wetland used for scoring 2.1.1:

h:	0.56	c:	0.00

0	<5 ha	=	0
	5 -25 ha	=	3
	26 -50 ha	=	6
	51- l00 ha	=	9
	101-200 ha	=	12
	>200 ha	=	18

Source of information:

ELC and wetland boundary survey (NRSI 2023)

Wood Products Score (maximum 18 points) **0**

2.1.2 Wild Rice

Check only one.

	Present (minimum size 0.5 ha)	=	6 pts
0	Absent	=	0
	Harvest not permitted	=	0

Source of information:

ELC and wetland boundary survey (NRSI 2023)

Wild Rice Score (maximum 6 points) **0**

2.1.3 Commercial Bait Fish

Check only one.

	Present	=	12 pts
0	Absent	=	0
	Fishing not permitted	=	0

Source of information:

NRSI surveys (2023)

(no incidental observations of fish)

Commercial Fish Score (maximum 12 points) **0**

2.1.4 Furbearers

Only species recognized as furbearers under the Fish & Wildlife Conservation Act may be scored here. Score 3 points for each furbearer species listed, up to a maximum of 12 points.

		Name of furbearer	Source of information
1	3	Beaver	Savanta 2015
2	3	Coyote	NRSI 2023
3	3	Mink	Savanta 2015, NRSI 2023
4	3	Muskrat	NRSI 2023
5		Opossum	NRSI 2023
6		Raccoon	Savanta 2015, NRSI 2023
7		Red Squirrel	Savanta 2015
8		Long-tailed Weasel	Savanta 2015
9		Striped Skunk	NRSI 2023
	12	Subtotal	

Furbearer Score (maximum 12 points) **12**

2.2 Recreational Activities

Sources of information and reasons for scoring a wetland under high or moderate use below, must be included below.

Circle one score for each of the activities listed. Score is cumulative – add score for hunting, nature enjoyment and fishing together for final score.

Intensity of Use	Type of Wetland-Associated Use						
		Hunting		Nature Enjoyment/ Ecosystem Study		Fishing	
	High	40 points		40 points		40 points	
	Moderate	20		20		20	
	Low	8		8		8	
	Not possible/NotKnown	0	0	0	0	0	0
	Totals		0		0		0
							0

Sources of information (include evidence/criteria forming basis for score and any relevant reference used to obtain that information):
- e.g., Hunting scored at 20 points: 5 hunting blinds observed; hunters using area frequently monitored for compliance (source: D. Black, MNR Conservation Officer)

Hunting: Private property in an urban area and crown land along major highway, hunting does not occur.

NRSI 2023

Nature: Private property with no public access and crown land along a major highway not conducive to nature enjoyment.

NRSI 2023

Fishing: Private property with no public access or fishing locations.

NRSI 2023

Recreational Activities Score (maximum 80 points) **0**

2.3 Landscape Aesthetics

2.3.1 Distinctness

Check only one.

	Clearly distinct	=	3	pts
0	Indistinct	=	0	

Landscape Distinctness Score (maximum 3 points) **0**

2.3.2 Absence of Human Disturbance

Check only one.

	Human disturbances absent or nearly so	=	7	pts
	One or several localized disturbances	=	4	
2	Moderate disturbance; localized water pollution	=	2	
	Wetland intact but impairment of ecosystem quality intense in some areas	=	1	
	Extreme ecological degradation, or water pollution severe and widespread	=	0	

Details regarding type, extent and location of disturbance scored:

An on-ramp to Highway 403 bisects the narrow emergent marsh (has created two separate units). Oil and salt runoff very likely reach the marsh and watercourse as there are no curbs. Imagery indicates tree removals occurred between 2009-2013 along with Grindstone Creek re-alignment works.

Source of information:

NRSI 2023, Google Earth imagery

Absence of Human Disturbance Score (maximum 7 points) **2**

2.4 Education and Public Awareness

2.4.1 Educational Uses

Check highest appropriate category.

	Frequent	=	20	pts
	Infrequent	=	12	
0	No visits	=	0	

Details regarding the type and frequency of education uses scored above:

Private property with no public access. Crown land is somewhat inaccessible and located beside highway.

Source of information:

NRSI 2023, Google Earth imagery

Educational Uses Score (maximum 20 points) **0**

2.4.2 Facilities and Programs

Check all appropriate options, score highest category checked.

	Staffed interpretation centre	=	8	pts
	No interpretation centre or staff but a system of self-guiding trails or brochures available	=	4	
	Facilities such as maintained paths (e.g., woodchips) boardwalks, boat launches or observation towers but no brochures or other interpretation	=	2	
0	No facilities or programs	=	0	

Additional Notes/Comments:

Private property with no public access. Crown land is inaccessible and not suitable for facilities/programs.

Source of information:

NRSI 2023, Google Earth imagery

Facilities and Programs Score (maximum 8 points) **0**

2.4.3 Research and Studies

Check all that apply; score highest category checked.

	Long term research has been done	=	12	pts
	Research papers published in refereed scientific journal or as a thesis	=	10	
5	One or more (non-research) reports have been written on some aspect of the wetland's flora, fauna,hydrology etc.	=	5	
	No research or reports	=	0	
5	Subtotal:			

List of reports, publications, research studies etc. scored above:

Savanta 2015 (Environmental Impact Assessment)
WSP 2020 (Wetland Evaluation)
NRSI 2023 (Environmental Impact Assessment)

Research and Studies Score (maximum 12 points) **5**

2.5 Proximity to Areas of Human Settlement

Name of Settlement: City of Burlington

Distance of wetland from settlement: Within settlement

Population of settlement: 186,948 Source: Statistics Canada 2021

Circle only the highest score applicable

Distance of wetland to settlement	population >10,000		population 2,500-10,000		population <2,500 or cottage community	
Within or adjoining settlement	40 points	40	26 points		16 points	
0.5 to 10 km from settlement	26		16		10	
10 to 60 km from settlement	12		8		4	
>60 km from settlement	5		2		0	
		40		0		0

Proximity to Human Settlement Score (maximum 40 points) **40**

2.4.3 Research and Studies
Additional Reports
Natural Resource Solutions Inc. (NRSI). 2023. 1200 King Road Environmental Impact Assessment.
Savanta Inc. 2015. 1200 King Road Environmental Impact Assessment. Volumes 1 and 2.

2.6 Ownership

FA of wetland held by or held under a legal contract by a conservation body (as defined by the Conservation Land Act) for wetland protection		x	10	=	0.00
FA of wetland occurring in provincially or nationally protected areas (e.g., parks and conservation reserves)		x	10	=	0.00
FA of wetland area in Crown/public ownership, not as above	0.60	x	8	=	4.80
FA of wetland area in private ownership, not as above	0.40	x	4	=	1.60

Source of information:

Assessment parcel information. FA estimated.

Ownership Score (maximum 10 points) **6**

2.7 Size (Social Component)

Total Size of Wetland = **1.07** ha

Sum of scores from Subcomponents 2.1, 2.2, and 2.5 = **52**

Circle the appropriate score from the table below.

	Total for Size Dependent Score									
	<31	31-45	46-60	61-75	76-90	91-105	106-120	121-135	136-150	>150
<2 ha	1	2	**4**	8	10	12	14	14	14	15
2 - 4ha	1	2	4	8	12	13	14	14	15	16
5 - 8ha	2	2	5	9	13	14	15	15	16	16
9 - 12ha	3	3	6	10	14	15	15	16	17	17
13-17	3	4	7	10	14	15	16	16	17	17
18-28	4	5	8	11	15	16	16	17	17	18
29-37	5	7	10	13	16	17	18	18	19	19
38-49	5	7	10	13	16	17	18	18	19	20
50-62	5	8	11	14	17	17	18	19	20	20
63-81	5	8	11	15	17	18	19	20	20	20
82-105	6	9	11	15	18	18	19	20	20	20
106-137	6	9	12	16	18	19	20	20	20	20
138-178	6	9	13	16	18	19	20	20	20	20
179-233	6	9	13	16	18	20	20	20	20	20
234-302	7	9	13	16	18	20	20	20	20	20
303-393	7	9	14	17	18	20	20	20	20	20
394-511	7	10	14	17	18	20	20	20	20	20
512-665	7	10	14	17	18	20	20	20	20	20
666-863	7	10	14	17	19	20	20	20	20	20
864-1123	8	12	15	17	19	20	20	20	20	20
1124-1460	8	12	15	17	19	20	20	20	20	20
1461-1898	8	13	15	18	19	20	20	20	20	20
1899-2467	8	14	16	18	20	20	20	20	20	20
>2467	8	14	16	18	20	20	20	20	20	20

Total Size Score (Social Component) **4**

2.8 Aboriginal Values and Cultural Heritage

Either or both Aboriginal or Cultural Values may be scored. However, the maximum score permitted for 2.8 is 30 points.

Full documentation of sources must be attached to the data record.

2.8.1 Aboriginal Values

	Significant	=	30 pts
	Not Significant	=	0
0	Unknown	=	0
0	Total:		

Additional Comments/Notes:

A Stage 1-2 Archaeological Assessment was completed in 2014 by Archaeological Assessments Inc. for the area to the east of the wetlands which includes a treed ravine and agricultural field. Artefacts were documented that indicate the presence of aboriginal campsites. A stage 3 assessment was recommended to determine cultural significance of the site.

The vicinity of the wetland units has been extensively disturbed by creek re-alignment and the construction of the highway on-ramp.

2.8.2 Cultural Heritage

	Significant	=	30 pts
0	Not Significant	=	0
	Unknown	=	0
0	Total:		

Additional Comments/Notes:

The wetlands are not seen as a significant part of the cultural heritage of the area.

Aboriginal Values/Cultural Heritage Score (maximum 30 points) **0**

3.0 HYDROLOGICAL COMPONENT

3.1 Flood Attenuation

Check one of the following four options.

	If wetland is a single contiguous coastal wetland, [a] score 0 points for this section.
	If all wetland units of a wetland complex are coastal wetland units, [a] score 0 points for this section.
	If wetland or wetland complex is entirely isolated in site type, [a] score 100 points automatically.
X	Wetland not as above – proceed through 'steps' A through L below.

(A) Total wetland area = **1.07** ha

(B) Size of wetland's catchment = **306.09** ha

(C) Size of other detention areas in catchment = **0.00** ha

(D) Size of 'isolated' portions of wetland = **0.00** (FA = **0.00**)

(E) Size of coastal units of wetland complex = **0.00** (FA = **0.00**)

Points for Isolated Portion of Wetland (If not applicable, enter '0'):

(F) (FA of D) x 100 pts = **0** pts

Points for Coastal Portion(s) of Wetland (if not applicable, enter '0')

(G) (FA of E) x 100 pts = **0.00** pts

(H) Size of wetland minus the isolated and coastal portions = {A – D – E} = **1.07** ha

(I) Number of points available to score 'rest' of wetland = {100 – F – G} = **100.00** pts

(J) Total area of upstream detention areas = {A + C } = **1.07** ha

(K) Upstream Detention Factor {(H/J) x 2} = **2.00** = **1.00** (maximum 1.0)

(L) Attenuation Factor {(H/B) x 10} = **0.03** = **0.03** (maximum 1.0)

Flood Attenuation Final Score = {[((K + L) /2) x I] + F} = **51.75**

Flood Attenuation Score (maximum l00 points) **52**

3.2 Water Quality Improvement

Step 1: Determination of maximum initial score

	Wetland on one of the 5 defined large lakes or 5 major rivers (Go to Step 5A)
X	All other wetlands (Go through Steps 2, 3, 4, and 5B)

Step 2: Determination of watershed improvement factor (WIF)

Calculation of WIF is based on the fractional area (FA) of each site type that makes up the total area of the wetland.

(FA= area of site type/total area of wetland)

		Fractional Area					
FA of isolated wetland	=	0.00	x	0.5	=	0.00	(0.00 ha)
FA of riverine wetland	=	0.00	x	1	=	0.00	(0.00 ha)
FA of palustrine wetland with no inflow	=	0.00	x	0.7	=	0.00	(0.00 ha)
FA of palustrine wetland with inflows	=	1.00	x	1	=	1.00	(0.00 ha)
FA of lacustrine on lake shoreline	=	0.00	x	0.2	=	0.00	(0.00 ha)
FA of lacustrine at lake inflow or outflow	=	0.00	x	1	=	0.00	(0.00 ha)
				Sub Total:		1.00	

Sum (WIF cannot exceed 1.0) **1.00**

Step 3: Determination of catchment land use factor (LUF)

(Choose the first category that fits upstream landuse in the catchment.)

	Over 50% agricultural and/or urban	=	1.0
0.8	Between 30 and 50% agricultural and/or urban	=	0.8
	Over 50% forested or other natural vegetation	=	0.6

LUF (maximum 1.0) **0.80**

Step 4: Determination of pollutant uptake factor (PUT)

Calculation of PUT is based on the fractional area (FA) of each vegetation type that makes up the total area of the wetland. Base assessment on the dominant vegetation form for each community except where dead trees or shrubs dominate. In that case base assessment on the domininant live vegetation. (FA = area of vegetation type/total area of wetland)

FA of wetland with live trees, shrubs, herbs or mosses (c,h,ts,ls,gc,m)	0.52	x	0.75	=	0.39
FA of wetland with emergent,submergent or floating vegetation (re,be,ne,su,f,ff)	0.48	x	1	=	0.48
FA of wetland with little or no vegetation (u)	0.00	x	0.5	=	0.00
			Subtotal:		0.87

Sum (PUT cannot exceed 1.0) **0.87**

Step 5: Calculation of final score

	Wetland on large lakes or major rivers	0
X	All other wetlands -calculate as follows	
	Initial score	60
	Water quality improvement factor (WIF)	**1.00**
	Land use factor (LUF)	**0.80**
	Pollutant uptake factor (PUT)	**0.87**
	Final score: 60 x WIF x LUF x PUT =	**41.72**

Short Term Water Quality Improvement Score (maximum 60 points) **42**

3.2.2 Long Term Nutrient Trap

Step 1:

	Wetland on large lakes or 5 major rivers	=	0 points
X	All other wetlands (proceed to Step 2)		

Step 2: Choose only one of the following settings that best describes the wetland being evaluated

	Wetland located in a river mouth	=	10 pts
	Wetland is a bog, fen or swamp with more than 50% of the wetland being covered with organic soil	=	10
	Wetland is a bog, fen or swamp with less than 50% of the wetland being covered with organic soil	=	3
	Wetland is a marsh with more than 50% of the wetland covered with organic soil	=	3
0	None of the above	=	0

Long Term Nutrient Trap Score (maximum 10 points) **0**

3.2.3 Groundwater Discharge

Circle the characteristics that best describe the wetland being evaluated and then sum the scores. If the sum exceeds 30 points, assign the maximum score of 30). Note: for wetland type, wetland type scored does not have to the dominant type in the wetland.

Percentage of Wetland Area: **0.00** %

	Potential for Discharge					
	None to Little		Some		High	
Wetland Characteristics: Wetland type	Bog = 0		Swamp/Marsh = 2	**2**	Fen = 5	
Topography	Flat/rolling = 0		Hilly = 2	**2**	Steep = 5	
Wetland Area: Upslope Catchment Area	Large (>50%) = 0		Moderate (5-50%) = 2		Small <(5%) = 5	**5**
Lagg Development	None found = 0	**0**	Minor = 2		Extensive = 5	
Seeps	None = 0	**0**	= or < 3 seeps = 2		> 3 seeps = 5	
Surface marl deposits	None = 0	**0**	= or < 3 sites = 2		> 3 sites = 5	
Iron precipitates	None = 0	**0**	= or < 3 sites = 2		> 3 sites = 5	
Located within 1 km of a major aquifer	N/A = 0	**0**	N/A = 0		Yes = 10	
Totals		**0**		**4**		**5**

Additional Comments/Notes:
The middle and upper reach of the catchment includes a series of ravines and the Niagara Escarpment.

Groundwater Discharge Score (maximum 30 points) **9**

3.3 Carbon Sink

Check only one of the following:

	Bog, fen or swamp with more than 50% coverage by organic soil	=	5 pts
	Bog, fen or swamp with between 10 to 49% coverage by organic soil	=	2
	Marsh with more than 50% coverage by organic soil	=	3
0	Wetlands not in one of the above categories	=	0

Carbon Sink Score (maximum 5 points) **0**

3.4 Shoreline Erosion Control

Step 1:

0	Wetland entirely isolated or palustrine	=	0 pts
	Any part of the Wetland riverine or lacustrine	=	Go to step 2

Step 2: *Choose the one characteristic that best describes the shoreline vegetation*
see page 109 for description of "shoreline".)

	Trees and shrubs	=	15 pts
	Emergent vegetation	=	8
	Submergent vegetation	=	6
	Other shoreline vegetation	=	3
	No vegetation	=	0

Shoreline Erosion Control Score (maximum 15 points) **0**

3.5 Groundwater Recharge

3.5.1 Site Type

Wetland > 50% lacustrine (by area) or located on one of the five major rivers				=	0	pts	
Wetland not as above. Calculate final score as follows:							
=	FA of isolated or palustrine wetland	=	1.00	x	50	=	50.0
=	FA of riverine wetland	=	0.00	x	20	=	0.0
=	FA of lacustrine wetland (wetland <50% lacustrine)	=	0.00	x	0	=	0.0
					Subtotal:		50.0

Groundwater Recharge/Wetland Site Type Score (maximum 50 points) **50**

3.5.2 Soil Recharge Potential

Circle only one choice that best describes the soils in the area surrounding the wetland being evaluated (the soils within the wetland are not scored here).

		Group A, B, C (sands, gravels, loams)		Group D (clays, substrates in high water tables, shallow substrates over impervious materials such as bedrock)	
Dominant Wetland Type	Lacustrine or major river	0		0	
	Isolated	10		5	
	Palustrine	7		4	4
	Riverine (not on a major river)	5		2	
	Totals		0		4

Groundwater Recharge/Wetland Soil Recharge Potential Score (maximum 10 points) **4**

4.0 SPECIAL FEATURES COMPONENT

4.1 Rarity

4.1.1 Wetland Types

Ecodistrict	Rarity within the Landscape (4.1.1.1)	Rarity of Wetland Type (4.1.1.2)			
		Marsh	Swamp	Fen	Bog
6E-1	60	40	0	80	80
6E-2	60	40	0	80	80
6E-3	40	10	0	40	80
6E-4	60	40	0	80	80
6E-5	20	40	0	80	80
6E-6	40	20	0	80	80
6E-7	60	10	0	80	80
6E-8	20	20	0	80	80
6E-9	0	20	0	80	80
6E-10	20	0	20	80	80
6E-11	0	30	0	80	80
6E-12	0	30	0	60	80
6E-13	60	10	0	80	80
6E-14	40	20	0	40	80
6E-15	40	0	0	80	80
7E-1	60	0	60	80	80
7E-2	60	0	0	80	80
7E-3	**60**	**0**	**0**	80	80
7E-4	80	0	0	80	80
7E-5	60	20	0	80	80
7E-6	80	30	0	80	80

4.1.1.1 Rarity within the Landscape

Choose appropriate score from 2nd column above.

Score (maximum 80 points) **60**

4.1.1.2 Rarity of Wetland Type

Score is cumulative, based on presence/absence. Circle all appropriate scores from above table and sum.

Score (maximum 80 points) **0**

4.1.2.1 Provincially Significant Animal Species

	Common Name	Scientific Name	Activity	Date Observed	Info Source
	None				
0	Total				

Additional Notes/Comments:

One	species	= 50 pts	9	species	= 140	17	species	= 160
2	species	= 80	10	species	= 143	18	species	= 162
3	species	= 95	11	species	= 146	19	species	= 164
4	species	= 105	12	species	= 149	20	species	= 166
5	species	= 115	13	species	= 152	21	species	= 168
6	species	= 125	14	species	= 154	22	species	= 170
7	species	= 130	15	species	= 156	23	species	= 172
8	species	= 135	16	species	= 158	24	species	= 174
						25	species	= 176

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species (no maximum) **0**

4.1.2.2 Provincially Significant Plant Species

Common Name	Scientific Name	Activity	Date Observed	Info Source
None				

Additional Notes/Comments:

No provincially-significant plants were observed (NRSI 2022).

One	species	=	50 pts	9	species	=	140	17 species = 160
2	species	=	80	10	species	=	143	18 species = 162
3	species	=	95	11	species	=	146	19 species = 164
4	species	=	105	12	species	=	149	20 species = 166
5	species	=	115	13	species	=	152	21 species = 168
6	species	=	125	14	species	=	154	22 species = 170
7	species	=	130	15	species	=	156	23 species = 172
8	species	=	135	16	species	=	158	24 species = 174
								25 species = 176

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species (no maximum) **0**

4.1.2.3 Regionally Significant Species

Common Name	Scientific Name	Activity	Date Observed	Info Source
None				

One species	=	20 pts	4 species	=	45	7 species	=	58 pts
2 species	=	30	5 species	=	50	8 species	=	61
3 species	=	40	6 species	=	55	9 species	=	64
						10 species	=	67

For each significant species over 10 in wetland, add 1 point.

Regionally Significant Species Score (no maximum score) **0**

4.1.2.4 Locally Significant Species

Common Name	Scientific Name	Activity	Date Observed	Info Source
None				

One species	=	10 pts	4 species	=	31 pts	7 species	=	43 pts
2 species	=	17	5 species	=	38	8 species	=	45
3 species	=	24	6 species	=	41	9 species	=	47
						10 species	=	49

For each significant species over 10 in wetland, add 1 point.

Locally Significant Species Score (no maximum score)

4.2 Significant Features and Habitats

4.2.1 Colonial Waterbirds

Record all available information. Score the highest applicable category. Include additional information as possible (e.g., nest locations, etc).

Activity	Species	Info Source	Points	
Currently nesting			= 50	
Known to have nested within the past 5 years			= 25	
Active feeding area (great blue heron excluded)			= 15	
None known			= 0	0
Total:				0

Additional Notes/Comments:

No evidence of colonial waterbird nesting observed by NRSI in 2022.

Colonial Waterbird Nesting Score (maximum 50 points) **0**

4.2.2 Winter Cover for Wildlife

Score highest appropriate category. Include rationale/sources of information.

	Provincially significant	=	100 pts
	Significant in Ecoregion	=	50
	Significant in Ecodistrict	=	25
	Locally significant	=	10
0	Little or poor winter cover	=	0
0			

Species/habitat/vegetation community scored (e.g., winter deer cover in hemlock swamp, S3 and S4b):

Suitable winter cover habitat not present (site is open or deciduous cover).

Source of information:

ELC surveys (NRSI 2022)

Winter Cover for Wildlife Score (maximum 100 points) **0**

4.2.3 Waterfowl Staging and/or Moulting Areas

Check highest level of significance for both staging and moulting; add scores for staging and for moulting together for final score. However, maximum score for evaluation under this section is 150 points.

	Staging			Moulting		
Nationally/internationally significant	=	150	pts	=	150	pts
Provincially significant	=	100		=	l00	
Significant in the Ecoregion	=	50		=	50	
Significant in Ecodistrict	=	25		=	25	
Known to occur	=	10		=	10	
Not possible/Unknown	=	0	**0**	=	0	**0**
Subtotal:			**0**			**0**
Subtotal:			**0**			

Species/habitat/vegetation community scored (e.g., approx 20 mallards in W3):

Open water marsh is relatively small and does not support waterfowl staging and/or moulting.

Source of information:

NRSI 2022

Waterfowl Staging/Moulting Score (maximum 150 points) **0**

4.2.4 Waterfowl Breeding

Check highest level of significance.

	Nationally/internationally significant	=	150 pts
	Provincially significant	=	l00
	Significant in the Ecoregion	=	50
	Significant in Ecodistrict	=	25
	Habitat Suitable	=	10
0	Habitat not suitable	=	0

Species/habitat/vegetation community scored (e.g., mallard in W3):

Source of information:

Waterfowl Breeding Score (maximum 100 points) **0**

4.2.5 Migratory Passerine, Shorebird or Raptor Stopover Area

Check highest level of significance.

	Nationally / internationally significant	=	150 pts
	Provincially significant	=	l00
	Significant in Ecoregion	=	50
	Significant in Ecodistrict	=	25
	Known to occur	=	10
0	Not possible / Unknown	=	0

Species/habitat/vegetation community scored:

The significance of the site is unknown. Bird migration surveys have not been conducted.

Source of information:

Passerine, Shorebird or Raptor Stopover Score (maximum 100 points) **0**

4.2.6 Fish Habitat

4.2.6.1 Spawning and Nursery Habitat

Area Factors for Low Marsh, High Marsh and Swamp Communities.

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 1:

[ ]	Fish habitat is not present within the wetland	Go to Step 7, Score 0 points
[X]	Fish habitat is present within the wetland	Go to Step 2

Step 2: Choose only one option

[ ]	Significance of the spawning and nursery habitat within the wetland is known	Go to Step 3
[X]	Significance of the spawning and nursery habitat within the wetland is not known	Go through Steps 4, 5 and 6

Step 3: Select the highest appropriate category below, attach documentation:

[ ]	Significant in Ecoregion	Go to Step 7,	l00 points
[ ]	Significant in Ecodistrict	Go to Step 7,	50
[ ]	Locally Significant Habitat (5.0+ ha)	Go to Step 7,	25
[ ]	Locally Significant Habitat (<5.0 ha)	Go to Step 7,	15

Subtotal: 0

Source of information:

Step 4: Low Marsh = the 'permanent' marsh area, from the existing water line out to the outer boundary of the wetland.

[X]	Low marsh not present	Go to Step 5
[ ]	Low marsh present	Continue through Step 4, scoring as noted below

Scoring of Low Marsh:

1. Check the appropriate **Vegetation Group** (see Appendix 7) for each Low Marsh community. (Based on the one most clearly dominant plant species of the dominant form in each Low Marsh vegetation community.)
2. Sum the areas (ha) of the vegetation communities assigned to each **Vegetation Group.**
3. Use these areas to assign an **Area Factor** for each checked **Vegetation Group**.
4. Multiply the **Area Factor** by the **Multiplication Factor** for each row to calculate Score.
5. Sum all numbers in Score column to get **Total Score for Low Marsh**.

Scoring for Presence of Key Vegetation Groups – Low Marsh						
Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
1	Tallgrass				6	**0.0**
2	Shortgrass-Sedge				11	**0.0**
3	Cattail-Bulrush-Burreed				5	**0.0**
4	Arrowhead-Pickerelweed				5	**0.0**
5	Duckweed				2	**0.0**
6	Smartweed-Waterwillow				6	**0.0**
7	Waterlily-Lotus				11	**0.0**
8	Waterweed-Watercress				9	**0.0**
9	Ribbongrass				10	**0.0**
10	Coontail-Naiad-Watermilfoil				13	**0.0**
11	Narrowleaf Pondweed				5	**0.0**
12	Broadleaf Pondweed				8	**0.0**
			Sub Total Score			**0.0**
			Total Score (maximum 75 points)			**0.0**

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 5: High Marsh = the 'seasonal' marsh area, from the water line to the inland boundary of marsh wetland type. This is essentially what is commonly referred to as a wet meadow, in that there is insufficient standing water to provide fisheries habitat except during flood or high water conditions.

[ ]	High marsh not present	Go to Step 6
[X]	High marsh present	Continue through Step 5, scoring as noted below

Scoring of High Marsh:

1. Check the appropriate **Vegetation Group** (see Appendix 7) for each High Marsh community. (Based on the one most clearly dominant plant species of the dominant form in each High Marsh vegetation community.)
2. Sum the areas (ha) of the vegetation communities assigned to each **Vegetation Group.**
3. Use these areas to assign an **Area Factor** (from Table 8) for each checked **Vegetation Group**.
4. Multiply the **Area Factor** by the **Multiplication Factor** for each row to calculate Score.
5. Sum all numbers in Score column to get **Total Score for High Marsh**.

Scoring for Presence of Key Vegetation Groups – High Marsh

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
1	Tallgrass	X	0.51	**0.2**	6	**1.2**
2	Shortgrass-Sedge				11	**0.0**
3	Cattail-Bulrush-Burreed				5	**0.0**
4	Arrowhead-Pickerelweed				5	**0.0**
				Sub Total Score		**1.2**
				Total Score for High Marsh (maximum 25 points)		**1.2**

Continue to Step 6

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 6:

Scoring of Swamp:

1. Determine the total area (ha) of seasonally flooded swamp communities within the wetland containing fish habitat and record below.
2. Determine the total area (ha) of permanently flooded swamp communities within the wetland containing fish habitat and record below.
3. Use these areas to assign an **Area Factor** (from Table 8).
4. Multiply the Area Factor by the **Multiplication Factor** for each row to calculate Score.
5. Sum all numbers in Score column to get **Total Score for Swamp**.

Scoring Swamps for Fish Habitat (Seasonally flooded; Permanently flooded)					
Swamp Containing Fish Habitat	Present (check)	Total Area (ha)	Area Factor (from Table 8)	Multiplication Factor	Score
Seasonally Flooded Swamp	X	0.56	0.2	10	2.0
Permanently Flooded Swamp				10	0.0
		Sub Total Score			2.0
		Total Score for Swamp (maximum 20 points)			2.0

Continue to Step 7

Step 7: CALCULATION OF FINAL SCORE

NOTE: Scores for Steps 4, 5 and 6 are only recorded if Steps 1 and 3 have not been scored.

A. Score from Step 1 (fish habitat not present)	=	0
B. Score from Step 3 (significance known)	=	0
C. Score from Step 4 (Low Marsh)	=	0.0
D. Score from Step 5 (High Marsh)	=	1.2
E. Score from Step 6 (Swamp)	=	2.0
Subtotal:		3.2

Calculation of Final Score for Spawning and Nursery Habitat = A or B or Sum of C, D, and E

Score for Spawning and Nursery Habitat (maximum 100 points) **3**

4.2.6.2 Migration and Staging Habitat

Step 1:

[X]	Staging or Migration Habitat is not present in the wetland	Go to Step 4, Score 0 points
[ ]	Staging or Migration Habitat is present in the wetland significance of the habitat is known	Go to Step 2
[ ]	Staging or Migration Habitat is present in the wetland significance of the habitat is not known	Go to Step 3

Step 2: Select the highest appropriate category below. Ensure that documentation is attached to the data record.

[ ]	Significant in Ecoregion	Score 25 points in Step 4
[ ]	Significant in Ecodistrict	Score 15 points in Step 4
[ ]	Locally Significant	Score 10 points in Step 4
[ ]	Fish staging and/or migration habitat present, but not as above	Score 5 points in Step 4

Source of information:

_____

_____

Step 3: Select the highest appropriate category below based on presence of the designated site type (i.e. does not have to bethe dominant site type). Refer to Site Types recorded earlier (section 1.1.3). Attach documentation.

[ ]	Wetland is riverine at rivermouth or lacustrine at rivermouth	Score 25 points in Step 4
[ ]	Wetland is riverine,within 0.75 km of rivermouth	Score 15 points in Step 4
[ ]	Wetland is lacustrine,within 0.75 km of rivermouth	Score 10 points in Step 4
[ ]	Fish staging and/or migration habitat present, but not as above	Score 5 points in Step 4

Step 4: Enter a score from only one of the three above Steps.

Score for Staging and Migration Habitat (maximum 25 points)	**0**

4.3 Ecosystem Age

		Fractional Area			Scoring
Bog	=	0.00	x	25 =	0.0
Fen, on deeper soils; floating mats or marl	=	0.00	x	20 =	0.0
Fen, on limestone rock	=	0.00	x	5 =	0.0
Swamp	=	0.52	x	3 =	1.6
Marsh	=	0.48	x	0 =	0.0
				Sub Total:	1.6

Ecosystem Age Score (maximum 25 points) **2**

4.4 Great Lakes Coastal Wetlands

Choose one only. Only coastal wetland units may be scored.

	wetland < 10 ha	=	10 pts
	wetland 10 - 50 ha	=	25
	wetland 51 - 100 ha	=	50
	wetland > 100 ha	=	75

Great Lakes Coastal Wetland Score (maximum 75 points) **0**

WETLAND EVALUATION SCORING RECORD

Wetland Name: 1200 King Road Reservoir Wetland Complex

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

26	1.1.1	Growing Degree-Days/Soils
11	1.1.2	Wetland Type
2	1.1.3	Site Type

1.2 BIODIVERSITY

13	1.2.1	Number of Wetland Types
3	1.2.2	Vegetation Communities
6	1.2.3	Diversity of Surrounding Habitat
8	1.2.4	Proximinty to Other Wetlands
0	1.2.5	Interspersion
0	1.2.6	Open Water Type

1	1.3 SIZE (Biological Component)
70	Subtotal
70	TOTAL (Biological Component)

2.0 SOCIAL COMPONENT

2.1 ECONOMICALLY VALUABLE PRODUCTS

0	2.1.1 Wood Products
0	2.1.2 Wild Rice
0	2.1.3 Commerical Fish (Bait Fish and/or Coarse Fish)
12	2.1.4 Furbearers

0	2.2 RECREATIONAL ACTIVITIES

2.3 LANDSCAPE AESTHETICS

0	2.3.1 Distinctness
2	2.3.2 Absence of Human Disturbance

2.4 EDUCATION AND PUBLIC AWARENESS

0	2.4.1 Educational Uses
0	2.4.2 Facilities and Programs
5	2.4.3 Research and Studies

40	2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT
6	2.6 OWNERSH1P
4	2.7 SIZE (Social Component)
0	2.8 ABORIGINAL AND CULTURAL VALUES

2.8.1 Aboriginal Values
2.8.2 Cultural Heritage

69	Subtotal
69	TOTAL (Social Component)

3.0 HYDROLOGICAL COMPONENT

52	3.1 FLOOD ATTENUATION
	3.2 WATER QUALITY IMPROVEMENT
42	3.2.1 Short Term Water Quality Improvement
0	3.2.2 Long Term Nutrient Trap
9	3.2.3 Groundwater Discharge
0	3.3 CARBON SINK
0	3.4 SHORELINE EROSION CONTROL
	3.5 GROUNDWATER RECHARGE
50	3.5.1 Site Type
4	3.5.2 Soils
157	Subtotal
157	TOTAL (Hydrological Component)

4.0 SPECIAL FEATURES COMPONENT

4.1 RARITY

4.1.1 Wetland Types

60	4.1.1.1 Rarity within the Landscape
0	4.1.1.2 Rarirty of Wetland Type

4.1.2 Species

0	4.1.2.1 Provincially Significant Animal Species
0	4.1.2.2 Provincially Significant Plant Species
0	4.1.2.3 Regionally Significant Species
0	4.1.2.4 Locally Significant Species

4.2 SIGNIFICANT FEATURES OR HABITATS

0	4.2.1 Colonial Waterbirds
0	4.2.2 Winter Cover for Wildlife
0	4.2.3 Waterfowl Staging and/or Moulting Areas
0	4.2.4 Waterfowl Breeding
0	4.2.5 Migratory Passerine, Shorebird or Raptor Stopover Area
	4.2.6 Fish Habitat
3	4.2.6.1 Spawning and Nursery Habitat
0	4.2.6.2 Migration and Staging Habitat

2	4.3 ECOSYSTEM AGE
0	4.4 GREAT LAKES COASTAL WETLANDS
65	Subtotal
65	TOTAL (Special Features Component)

SUMMARY OF EVALUATION RESULT

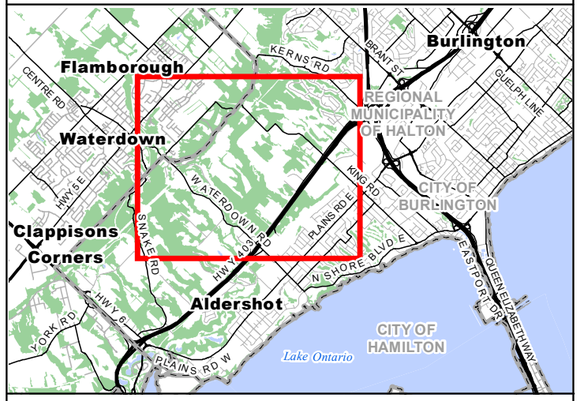
70	1.0	TOTAL FOR BIOLOGICAL COMPONENT
69	2.0	TOTAL FOR SOCIAL COMPONENT
157	3.0	TOTAL FOR HYDROLOGICAL COMPONENT
65	4.0	TOTAL FOR SPECIAL FEATURES COMPONENT
361		TOTAL WETLAND SCORE

FOR MUNICIPALITY USE ONLY

Reviewer (Name & Position)	
Reviewer Comments	

Aldershot GO Parkinglot Wetland Evaluation

Catchment Basin Map



Legend

- Study Area (250m)
- Subject Property
- Catchment Basin
- Railway
- Utility Line
- Highway
- Primary Road
- Secondary Road
- Contour (5m Interval)
- Permanent Watercourse
- Intermittent Watercourse
- Water Body
- Provincially Significant Wetland (PSW)

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

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Project: 2762
Date: February 9, 2023

NAD83 - UTM Zone 17
Size: 11x17"
1:15,000

0 200 400 600 800 Metres

N

Path: X:\2762_1200KingRd\NRSI_2762_Aldershot_CatchmentBasin_15K_2023_02_09_KEF.mxd



Legend

- Railway
- Utility Line
- Highway
- Primary Road
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse
- Catchment Basin
- Intermittent Flow
- Contour (5m Interval)
- 1 Wetland Complex Unit Number
- Wetland Vegetation Community

Aldershot GO Parkinglot Wetland Evaluation

Wetland Vegetation Community

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

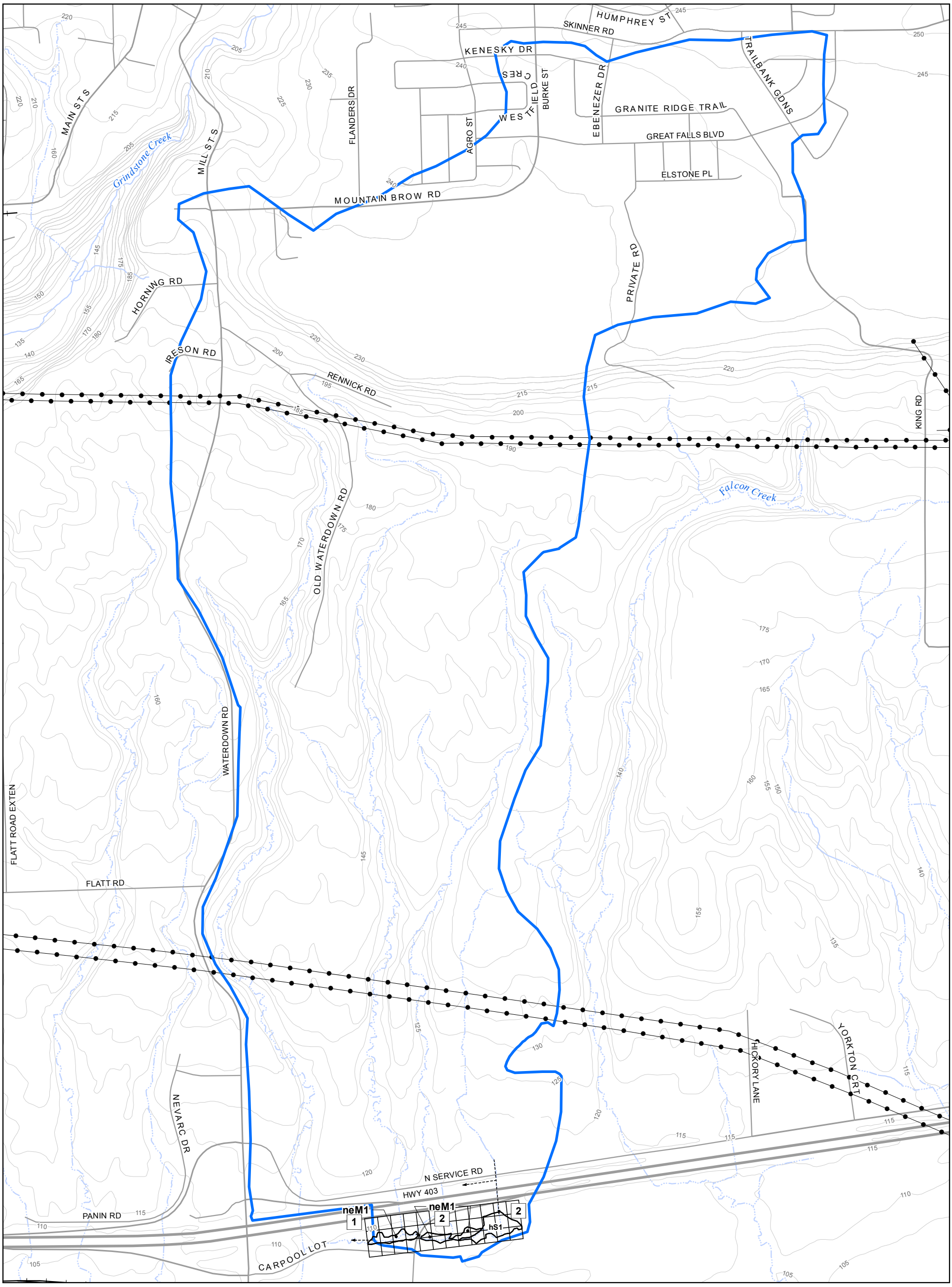
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Date: February 13, 2023

NAD83 - UTM Zone 17
Scale 1:10,000 (11x17")

Path: X:\2762_1200KingRd\NRSI_2762_Aldershot_Wetland_ELC_Areas_10K_2023_02_13_KEF.mxd



Legend

- Railway
- Utility Line
- Highway
- Primary Road
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse
- Catchment Basin
- Interspersion Grid
- Intermittent Flow
- Contour (5m Interval)
- 1 Wetland Complex Unit Number
- Wetland Vegetation Community

Aldershot GO Parkinglot Wetland Evaluation

Interspersion Map

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 100 200 300 400 500 Meters

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Project: 2762
Date: February 13, 2023
NAD83 - UTM Zone 17
Scale 1:10,000 (11x17")

Appendix XIII
Tree Assessment Tables

Summary of assessed trees

Polygon Number/ Map Reference	Common Name	Health	Number of Trees in DBH Range (cm)				
			10-20	20-30	30-40	40-50	>50
Mobility Link Development Area							
1	Green Ash	Dead	2	1			
1	White Elm	Poor	1				
1	White Elm	Dead		2			
1	Black Cherry	Fair			1		
1	Manitoba Maple	Poor		1			
1	Manitoba Maple	Fair		1			
2	Shagbark Hickory	Good	1	1			
2	Shagbark Hickory	Fair	2				
2	Green Ash	Very Poor	2				
2	Green Ash	Fair	1				
2	Green Ash	Dead			1		
2	Manitoba Maple	Fair		1			
2	Black Cherry	Fair	2				
2	Black Cherry	Dead		1			
2	White Elm	Poor		2			
3	Green Ash	Dead		2			
3	Manitoba Maple	Fair	1	1			
4	No trees in plot						
5	Black Cherry	Fair	1	2			
5	White Ash	Poor	1				
5	White Ash	Fair		1			
5	Green Ash	Dead	5				
5	White Elm	Poor	1				
5	White Elm	Fair		1			
5	Bur Oak	Poor	1				
5	Bur Oak	Fair		1	1		
6	Green Ash	Dead	1	3			
6	Hawthorne sp.	Fair	3				
7	Black Walnut	Good			1		1
7	Green Ash	Dead		1			
12	Black Walnut	Fair	2	2	3		
12	Black Walnut	Poor	1	1			
13	Shagbark Hickory	Good		1			
13	Black Walnut	Fair		1			
17	Black Walnut	Poor	2	1	1	1	
17	Black Walnut	Fair		1	1		
18	Red Oak	Fair		2	3	1	

Polygon Number/ Map Reference	Common Name	Health	Number of Trees in DBH Range (cm)				
			10-20	20-30	30-40	40-50	>50
18	Red Oak	Poor			1		
18	Black Cherry	Fair		1	1		
19	Bitternut Hickory	Very Poor	1				
19	Bitternut Hickory	Poor	1				
19	Bitternut Hickory	Fair		1	1		
19	Red Oak	Poor	2				
19	Red Oak	Fair			2		
19	Eastern Cottonwood	Fair				1	
19	Bur Oak	Very Poor	1				
19	Bur Oak	Poor				1	
19	Black Cherry	Fair	1		1		
20	Red Oak	Very Poor		1			
20	Red Oak	Fair					1
20	Green Ash	Very Poor	1				
20	Black Cherry	Fair	7	3	3		
20	Black Cherry	Poor	1				
20	Hawthorne sp.	Fair	1				
21	Green Ash	Dead		1			
21	Hawthorne sp.	Fair	3	3			
21	Manitoba Maple	Fair	1	2			
21	Manitoba Maple	Poor		2			
21	Manitoba Maple	Good	1				
21	Manitoba Maple	Very Poor	1				
32	Manitoba Maple	Dead		1			
32	Manitoba Maple	Poor		1			
32	Manitoba Maple	Fair		1			
32	Black Walnut	Fair		2			
32	Sweet Cherry	Fair		1			
Innovation Node Development Area							
8	Green Ash	Dead	3	2			
8	Green Ash	Very Poor	1				
8	Common Apple	Poor	1				
9	Green Ash	Dead	19	6			
9	Green Ash	Very Poor	1				
10	Green Ash	Dead	2	3			
11	Hawthorne sp.	Fair	1				
11	Green Ash	Dead	6				
11	Green Ash	Poor	1				
11	Common Pear	Fair			1		
11	White Mulberry	Very Poor	1				

Polygon Number/ Map Reference	Common Name	Health	Number of Trees in DBH Range (cm)				
			10-20	20-30	30-40	40-50	>50
14	Hawthorne sp.	Fair	5		1		
14	Hawthorne sp.	Poor	2				
14	Green Ash	Dead	7	2			
14	Green Ash	Poor	1				
14	Black Cherry	Fair				1	
15	Green Ash	Dead	8	2			
15	Green Ash	Very Poor	1	2			
16	White Elm	Fair	1				
16	White Elm	Dead	2				
16	White Elm	Poor	1				
16	Green Ash	Dead	7	1			
High-Rise Residential Development Area							
24	Sweet Cherry	Fair	3	3			
24	Sweet Cherry	Poor	1	1			
24	Sweet Cherry	Dead	1				
24	Hawthorne sp.	Fair	9				
25	Green Ash	Poor	1				
25	Green Ash	Very Poor	1				
25	Hawthorne sp.	Fair	3				
26	Shagbark Hickory	Good			1		
26	Green Ash	Dead	5	1			
26	Green Ash	Very Poor	1				
26	Green Ash	Poor	4				
27	Green Ash	Dead	7	2			
27	Green Ash	Poor	1				
27	Green Ash	Very Poor	1				
27	Hawthorne sp.	Fair	1				
28	Hawthorne sp.	Fair	6				
28	Green Ash	Dead	4				
29	Hawthorne sp.	Fair	5				
29	Hawthorne sp.	Fair		2			
29	White Ash	Fair	1				

Summary of trees to be removed from each development block.

Development Block	Area (hectares)	Tree Density per Hectare	# of Trees Estimated to be Removed	Species Compartment Notes
A (Mobility Link)	1.15	300 trees/hectare	345 trees	The proposed mobility service road development spans across cultural woodland (CUW1), gray dogwood cultural thicket (CUT1-4), cultural thicket (CUT1), deciduous swamp (SWD4), and fresh oak deciduous forest (FOD2-4). It is comprised of areas of dense European Buckthorn (*Rhamnus cathartica*), dead or dying Green Ash (*Fraxinus pennsylvanica*), White Ash (*Fraxinus americana*), American Elm (*Ulmus americana*), Manitoba Maple (*Acer negundo*), Shagbark Hickory (*Carya ovata*), Black Cherry (*Prunus serotina*), Bur Oak (*Quercus macrocarpa*), Hawthorne sp. (*Crataegus* sp.), Black Walnut (*Juglans nigra*), Northern Red Oak (*Quercus rubra*), Black Cherry (*Prunus serotina*), Bitternut Hickory (*Carya cordiformis*), Eastern Cottonwood (*Populus deltoides*) and Sweet Cherry (*Prunus avium)*. The majority of trees observed in the Mobility Link development block are in fair condition (n=73, 56%) with around 39% (n=44) in poor, very poor to dead condition. The trees tallied range in size from 10 to >50cm DBH, with the majority of trees ranging in size from 10-30cm DBH (n=103, 79%).
B (Innovation Node)	2.54	438 trees/hectare	1,113 trees	Immature treed compartment within a cultural thicket (CUT1) comprised mainly of dense European Buckthorn, and dead or dying Green Ash, and intermittent Hawthorne sp. and American Elm. The majority of trees observed in the Innovation Node development block are

Development Block	Area (hectares)	Tree Density per Hectare	# of Trees Estimated to be Removed	Species Compartment Notes
				dead (n=70, 76%). The trees tallied range in size from 10 to 50cm DBH, with the majority of trees ranging in size from 10-20cm DBH (n=71, 77%).
C (High-Rise Residential)	1.46	361 trees/hectare	527 trees	Immature treed compartment within a cultural thicket (CUT1) comprised mainly of dense European Buckthorn, and dead or dying Green Ash, and intermittent Hawthorne sp. and Sweet Cherry. The majority of trees observed in the High-Rise Residential development block are in fair condition (n=33, 51%) with around 31% (n=20) in dead condition. The trees tallied range in size from 10 to 40cm DBH, with the majority of trees on the smaller side, ranging in size from 10-20cm DBH (n=55, 85%).

Appendix XIV
Natural Heritage Functional Assessment

NATURAL HERITAGE FUNCTIONAL ASSESSMENT

1200 KING ROAD LANDS

FUNCTIONS AND FEATURES	INDIAN CREEK	FALCON CREEK	GRINDSTONE CREEK	WETLANDS, OPEN WATER	SENSITIVITY TO IMPACTORS	MITIGATION ACTIVITIES AND OPPORTUNITIES
Carbon Sequestration and Storage	Low	Medium	Medium	High	Low	N/A
Local Climate and Air Quality	Low	Medium	Low	Low	Low	N/A
Moderation of Risks (i.e., floods, storms)	Low	Medium	Medium	Medium	Medium	SWM strategy dependent
Erosion Prevention	Low	Low To Medium	Medium	Medium	Low to Medium	SWM strategy dependent
Pollination	Low	Medium	Medium	Medium	Low	Buffers may allow a focus on new pollinator habitat creation
Ground Water Discharge - Headwaters (ground and surface water interactions)	Absent	Absent	Absent	Low	Low	Geotechnical / engineering controls as required
Ground Water Recharge - Seasonal or Permanent	Low	Low	Low	Low	Low	Geotechnical / engineering controls as required
Ground Water Quality and Temperature Effects	Low	Low	Low	Low	Low	Geotechnical / engineering controls as required; Habitat creation areas may include opportunities for infiltration galleries (i.e., size and area dependent)
Floodwater and Flow Regulation, Storage	Low	Medium to High	Low to Medium	Low to Medium	Medium	SWM strategy dependent

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FUNCTIONS AND FEATURES	INDIAN CREEK	FALCON CREEK	GRINDSTONE CREEK	WETLANDS, OPEN WATER	SENSITIVITY TO IMPACTORS	MITIGATION ACTIVITIES AND OPPORTUNITIES
Erosion Control/Shoreline Stabilization/ Sediment Stabilization	Low	Low to Medium	Low to Medium	Low to Medium	Low to Medium	SWM strategy dependent
Quality and Temperature Effects	Low	Low to Medium	Low to Medium	Low to Medium	Low	Buffers may add canopy cover which will contribute to quality and temperature control
Sediment/Toxicant Reduction and Retention	Low	Low to Medium	Low to Medium	Medium to High	Low	Buffers may contribute to sediment deposition before entering aquatic systems (depending upon flow distance and surface roughness)
Organic Contributions – Invertebrates and Debris	Low	Low to Medium	Low to Medium	Medium to High	Low	Buffers may add canopy and riparian cover which will contribute to organic contributions
Biogeochemical Processes – Cycling, Removal and/or Storage	Low	Medium	Low to Medium	Medium to High	Low	Limited role of buffers, if any With innovation, the created wetland features and associated functions can be improved
Decomposition Processes	Low	Medium	Low to Medium	Medium to High	Low	Limited role of buffers, if any
Biological Diversity	Low	Medium to High	Low to Medium	High	Medium	Buffers contribute to biodiversity conservation and increase importance of pedestrian access barrier communications
Community Structure	Low	Medium to High	Low	Low	Low to Medium	Buffers contribute to biodiversity conservation and increase importance of access barrier communication

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FUNCTIONS AND FEATURES	INDIAN CREEK	FALCON CREEK	GRINDSTONE CREEK	WETLANDS, OPEN WATER	SENSITIVITY TO IMPACTORS	MITIGATION ACTIVITIES AND OPPORTUNITIES
Species Richness	Low	Medium	Low to Medium	Low to Medium	Low to Medium	Limited role of buffers, if any
Productivity	Low	Medium to High	Low to Medium	Medium	Low	Limited role of buffers, if any
Soils Formation	Low	Low to Medium	Low to Medium	Medium	Low	Limited role of buffers, if any
Deer, Waterfowl, Reptiles, Bats	Absent	Low to Medium	Low to Medium	Low to Medium	Medium to High	Buffers will protect forest edges Opportunities for bat roost installations Net increase in abundance
Area Dependent	Absent	Medium	Absent	Medium	Medium	Buffers will protect intact forest edges
Colonial Nesting	Absent	Absent	Absent	Unconfirmed; presence of individuals of both Green Heron and Great Blue Heron	Medium	Limited role of buffers, if any Opportunity to add Green Heron nesting features
Winter Mammal Cover	Absent	Medium	Low	Low to Medium	N/A	N/A
Waterfowl Nesting	Low	Low	Low	Low	N/A	N/A
Amphibian Breeding	Low	Low	Low	Medium to High	Low to Medium	Buffers will increase foraging and distribution habitat
Turtle Nesting	Absent	Absent	Absent	Absent	Low to Medium	Buffers may incorporate created nesting features for turtles, near open water basking areas
Seeps and Springs	Absent	Absent	Absent	Absent	N/A	N/A

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FUNCTIONS AND FEATURES	INDIAN CREEK	FALCON CREEK	GRINDSTONE CREEK	WETLANDS, OPEN WATER	SENSITIVITY TO IMPACTORS	MITIGATION ACTIVITIES AND OPPORTUNITIES
Vegetation Communities at Risk	Absent	Present – Mature/older forest	Absent	Medium – An 800m^2 stand of Eastern Buttonbush	Medium to High	Buffers will help conserve the older Falcon Creek forested valley Buttonbush community depends upon matching hydrology and likely ice conditions/ changes
Species at Risk	Absent	Present – Two healthy Butternut trees – Eastern Wood-Pewee – Eastern Milksnake – Snapping Turtle – SWD & FOD forest communities are candidate SWH for candidate Bat Maternity Colonies – Monarch butterfly	Present	Present	Medium to High	Buffers can help minimize noise and light, but the existing high traffic on Highway 403 and nearby rail lines already creates a baseline impact that limits both opportunities and how effective local buffers can be.

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FUNCTIONS AND FEATURES	INDIAN CREEK	FALCON CREEK	GRINDSTONE CREEK	WETLANDS, OPEN WATER	SENSITIVITY TO IMPACTORS	MITIGATION ACTIVITIES AND OPPORTUNITIES
Wetland Scarcity	N/A	See Wetlands, Open Water	N/A	N/A	N/A	N/A
Riparian	Low	Low to Medium	Low to Medium	Low	Low	N/A
Cross-terrain	Low	Low to Medium	Low	Low	Low	N/A
Degree of Natural Barriers	Low	Low to Medium	Low	Low	Low	N/A
Degree of Artificial Barriers	Low	Medium	Low to Medium	Low to Medium	Low	N/A
Indirect Barriers and Influences (e.g., con-centration of access and intrusion)	Low	Medium	Low	Low	Medium to High	N/A
Productive	N/A	Low	N/A	N/A	Low	Limited role of buffers, if any
Consumptive	N/A	Low	N/A	N/A	Low	Limited role of buffers, if any
Recreation/Passive	N/A	Low	N/A	N/A	Low	Buffers and restoration areas may accommo-date human access (trails)
Wellness	N/A	Low	N/A	N/A	Low	Limited role of buffers, if any
Source of Water	Low to Medium	Medium	Medium	Medium	Medium	Limited role of buffers, if any
Sustainability of Supply	Low to Medium	Medium	Low to Medium	Medium	Medium	Limited role of buffers, if any

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FUNCTIONS AND FEATURES	INDIAN CREEK	FALCON CREEK	GRINDSTONE CREEK	WETLANDS, OPEN WATER	SENSITIVITY TO IMPACTORS	MITIGATION ACTIVITIES AND OPPORTUNITIES
Natural or Artificial Source	Low to Medium	Medium	Medium	Medium	Medium	Limited role of buffers, if any
Resilience of Natural Vegetation and Wildlife	Low	Medium	Low to Medium	Medium	Low	Limited role of buffers, if any
Predicted Climate Change Effects / Resiliency	Low	Low to Medium	Low	Low to Medium	Low	Limited role of buffers, if any
Flood Damage Prevention	Low to Medium	Low to Medium	Low to Medium	Low to Medium	Low	Limited role of buffers, if any

NOTES:

1. This functional assessment tool has been developed from a variety of key domestic and international resource materials by Colucent Environmental Inc.
2. The assessment of features, functions and processes is a relative, not an absolute exercise
3. This includes an indication of the sensitivity of features and functions to typical development impacts; impacts are assessed in more detail in the EIA
4. The mitigation hierarchy incudes avoidance, minimization, mitigation/enhancement/restoration and offsets
5. Buffers are one aspect of mitigation, and this table provides some guidance where buffers will be more beneficial in reducing negative impacts and increasing opportunities for nature positive outcomes

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Appendix XV
Vegetation Management Plan

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

November 6, 2025 2762

Alinea Land Corporation
4480 Paletta Court
Burlington, Ontario
L7L 5R2

RE: 1200 King Road, Burlington – Vegetation Management Plan

Introduction

Natural Resource Solutions Inc. (NRSI) was retained by Alinea Land Corporation in 2021 to prepare an Environmental Impact Assessment (EIA) for the proposed mixed-use development located at 1200 King Road in Burlington, Ontario, hereafter referred to as subject property (Map 1).

As part of the restoration and enhancement efforts for the natural heritage features located on the subject property, the removal of a dense European Buckthorn (*Rhamnus cathartica)* and Common Buckthorn (*Frangula alnus*) thicket located within Block 13 of the proposed development area has been recommended (Map 1). The approximately 2.5ha block consists primarily of a dense buckthorn thicket interspersed with Hawthorn (*Crataegus* spp.) and a limited number of dead or declining White Ash (*Fraxinus americana*) trees. The block is bounded by a woodland community to the east, which contains the Falcon Creek natural feature, and additional forest and wetland communities to the west. To the south, the area transitions to cultural woodland, dominated by Black Walnut (*Juglans nigra)*, while the northern boundary of the block is defined by Highway 403.

Implementing buckthorn control efforts at this stage of the project will help prevent the further encroachment of this invasive species into these sensitive natural areas and will support long-term ecological restoration objectives. The following Vegetation Management Plan outlines the proposed management plan for the removal and long-term control of buckthorn within Block 13.

Management Approach

Mechanical Removal (Fall 2025)

Mechanical removal of buckthorn within Block 13 is scheduled to occur in late October 2025. Removal activities will be completed using a skid steer equipped with a brush mower attachment, or similar low-impact equipment. All buckthorn stems will be cut at or near ground level to avoid disturbance to the underlying soil and minimize the potential for erosion or inadvertent damage to native root systems.

Removal work occurring within or adjacent to the 10m wetland and woodland buffer areas in Block 13 will be overseen by an NRSI Biologist to ensure that natural heritage features and protected vegetation will not be adversely affected by the operation. No buckthorn removals are planned to take place within the wetland or woodland features at this time. Buckthorn will instead be removed from these natural areas in stages, following a targeted plan that will be outline in the ongoing EIA and within a Forest Management Plan. These documents will be

shared with the City to confirm that the approach to managing buckthorn and other invasive species within these areas is effective and acceptable.

In accordance with the *Forestry Act* (1990) and the City of Burlington *Private Tree By-law* (02-2022), no trees located within the designated work area are to be removed or damaged during mechanical operations. All Hawthorn within the management area were flagged for protection by an NRSI Certified Arborist and Registered Professional Forester on October 22, 2025, to ensure their preservation throughout the removal process.

Woody debris generated during the removal will be left on-site to provide erosion control and help suppress buckthorn regrowth. By removing fruit-bearing buckthorn shrubs at this stage, the quantity of viable seed inputs to the soil seed bank will be significantly reduced. This proactive approach will make it easier to exhaust the remaining seed bank during subsequent herbicide treatments planed for fall 2025, as few if any individuals will reach fruit-bearing maturity before that time.

Herbicide Treatment (Fall 2026)

Following the completion of mechanical removal, a targeted herbicide treatment will be scheduled for fall 2026 to address any buckthorn resprouts or root suckers that emerge during the 2026 growing season. The application will be conducted by a licenced herbicide applicator in accordance with Ontario's *Pesticides Act* (1990) and Ontario Regulation 63/09.

The treatment will occur in late summer or early fall (August – September 2026), after buckthorn has fully leafed out but prior to the first hard frost, ensuring optimal herbicide uptake and effectiveness. A cut-stump or direct foliar application method will be used depending on the density and size of regrowth. Herbicide formulations will contain Glyphosate, as determined appropriate by the licensed applicator based on site conditions and proximity to non-target vegetation and natural features. All applicators will exercise caution to prevent drift or contact with non-target vegetation and features, including trees, flagged Hawthorn and other native species. All herbicide work will be documented in an application log noting the product used, concentration, date, weather conditions, and treated area.

Monitoring and Maintenance

Site monitoring will occur in spring 2026, following mechanical removal, to assess the extent of buckthorn regrowth and evaluate the condition of native vegetation within Block 13. Observations collected during this assessment will inform the scope and timing of the herbicide treatment later that year.

In spring 2027, follow-up monitoring will continue to evaluate treatment effectiveness and identify any new buckthorn seedlings or resprouting steams. Spot treatments may be conducted as needed to prevent reinfestation. Any areas of exposed bare soil will have a cover crop, such as annual oats (*Avena sativa*), applied to stabilize the soil. This measure will help reduce the risk of erosion and prevent increased water turbidity within the adjacent wetland features.

Annual monitoring reports will be prepared during the first two years to document site conditions, treatment outcomes, and vegetation recovery. Additional monitoring and reporting efforts beyond this period will be contingent upon the findings from the final year of monitoring.

Future Management

As discussed above, buckthorn removals within the wetland and woodland features will occur in a targeted and phased manner, as further detailed in the ongoing EIA and forthcoming Forest Management Plan. These documents will outline additional removal activities within the adjacent natural features, including appropriate timing and methods for sensitive areas. All materials will be shared with the City to ensure that buckthorn and other invasive species control efforts are effective and acceptable.

Should you have any questions or comments regarding this management plan, please do not hesitate to contact the undersigned.

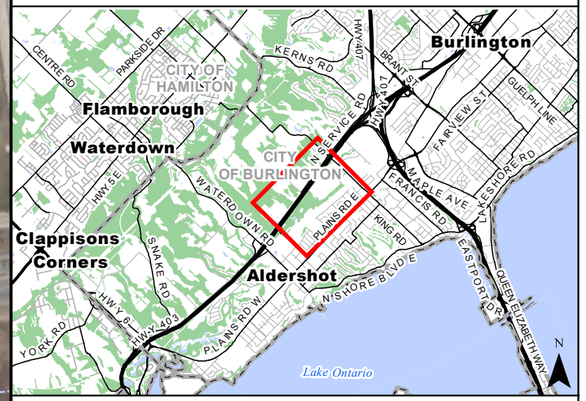
Sincerely,
Natural Resource Solutions Inc.

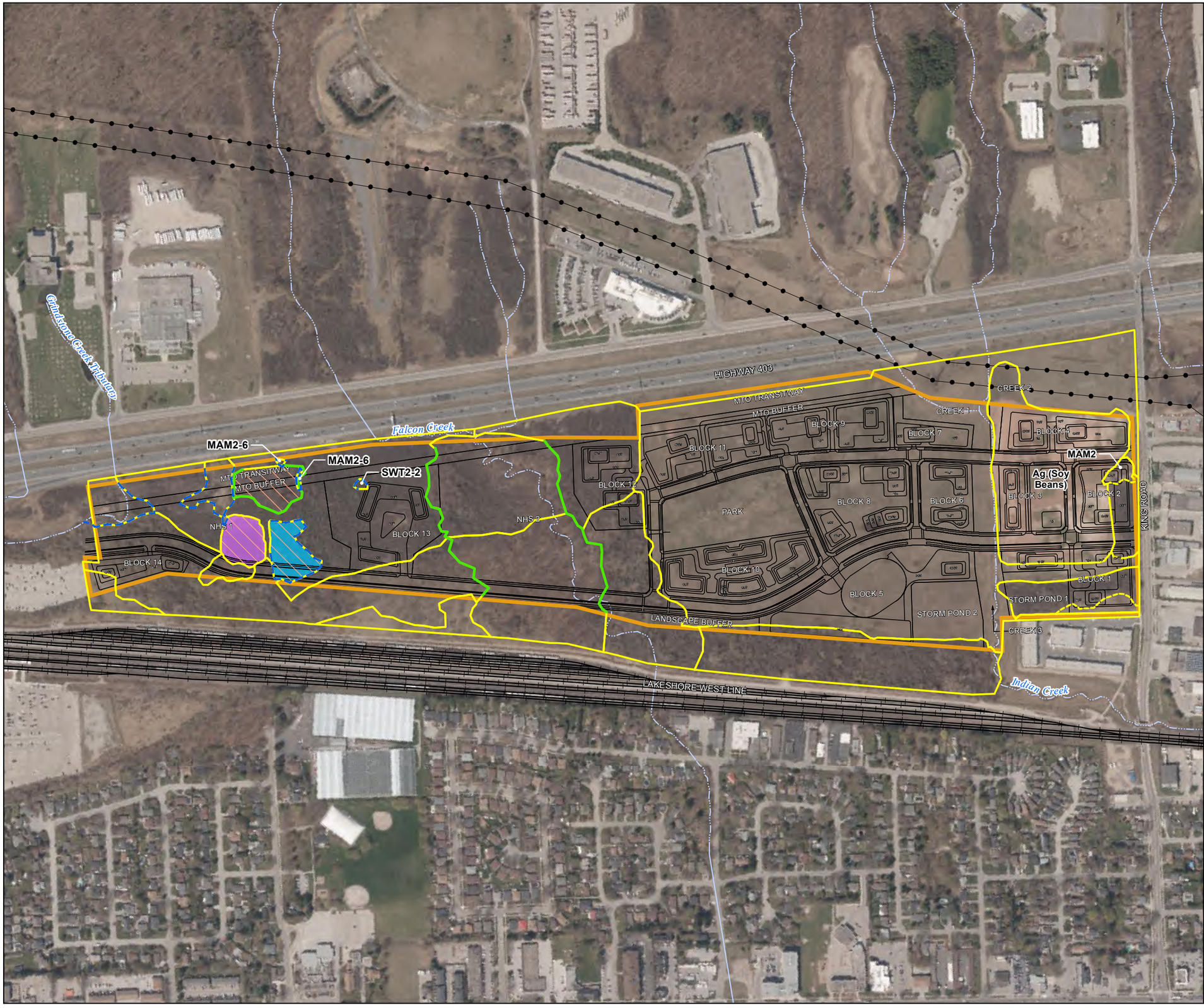


Madison Postma, M.F.C., R.P.F.
Registered Professional Forester

1200 King Road, Burlington

Natural Features





Legend

- Subject Property
- Proposed Development
- Utility Line
- Railway
- Permanent Watercourse
- Intermittent Watercourse
- Wetland (Confirmed with Conservation Halton September 9, 2025)
- Dripline (Confirmed with the City of Burlington September 18, 2025)

Confirmed SWH

- Turtle Wintering
- Foraging / Drinking Habitat for Eastern Small-footed Myotis

Species at Risk Bat Habitat

- Foraging / Drinking Habitat for Little Brown Myotis
- Ecological Land Classification
- (Ag) Agriculture / Annual Row Crop - Soy Beans
- (CUM1) Mineral Cultural Meadow
- (CUT1) Mineral Cultural Thicket Ecosite
- (CUT1-4) Gray Dogwood Cultural Thicket Type
- (CUW1) Mineral Cultural Woodland Ecosite
- (FOD2-2) Dry – Fresh Oak – Hickory Deciduous Forest Type
- (FOD2-4) Dry – Fresh Oak – Hardwood Deciduous Forest Type
- (H) Hedgerow
- (MAM2) Mineral Meadow Marsh Ecosite
- (MAM2-6) Broad-leaved Sedge Mineral Meadow Marsh Type
- (OA) Open Water
- (SWD2-2) Green Ash Mineral Deciduous Swamp Type
- (SWD4) Deciduous Swamp
- (SWT2-2) Willow Mineral Thicket Swamp Type
- ELC Inclusion

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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Project: 2762 Date: October 31, 2025	NAD83 - UTM Zone 17 Size: 11x17" **1:6,000**

0 100 200 300 400 Metres

Path: X:\2762_1200KingRd\NRSI_2762_NaturalFeatures_6K_2025_10_31_LRC.mxd