

Abbott's Run (Phase 2, 3, & 4)

Environmental Impact Statement

Submitted to Minto (Hazeldean) GP Inc.
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DRAFT

Environmental Impact Study

Abbott's Run (Phase 2, 3, & 4), City of Ottawa

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Executive Summary

Minto (Hazeldean) GP Inc. purchased the property at 5618 Hazeldean Road in Stittsville, City of Ottawa, Ontario (the "Subject Site") and is proposing to develop the Abbott's Run for Phases 2, 3, and 4 by building a mix of single homes, executive town homes, and 4-6 storey medium density condos (the Project). This Environmental Impact Statement has been prepared to assess the Project's potential for environmental impacts and to propose mitigation and compensation measures.

The City of Ottawa requires that an Environmental Impact Statement be completed when development or site alteration is proposed on or adjacent to environmentally sensitive lands or other features outlined in the City's Natural Heritage System.

This Environmental Impact Statement (EIS) has been prepared to support Site Plan approval and to make an informed decision as to whether the proposed Project will have a negative impact on any significant natural heritage features and/or ecological functions that are present within the Study Area. The EIS outlines the methodologies and associated results of the background screening and field data collection completed as part of this study. The following natural heritage features were identified within the Study Area:

- Eight (8) headwater drainage features were assessed within the Subject Site. The proposed management recommendation for these features is "Mitigation", meaning they can be incorporated into a stormwater management system providing that flows to downstream receivers are maintained. Authorization under the *Conservation Authorities Act* (1990) is required to remove these features.
- Field surveys also confirmed the presence of habitat for five (5) Species at Risk, (little brown myotis, northern myotis, tri-colored bat, butternut, black ash), however no individuals were observed on Site.
- Two (2) wetland communities were identified within the Site. These wetlands are not significant and would not warrant protection, however, are proposed for on-Site retention.
- The Subject Site also contains two wooded areas identified as "not Significant" as per City guidelines. The full retention of these features is incorporated into Concept Plan.

The field surveys showed that the headwater drainage feature in the centre of the Subject Site has ephemeral flow, limited riparian function, contributing function to fish habitat, and limited function for terrestrial habitat. As such, the management recommendation is "mitigation", and this feature will be realigned and maintain the conveyance of flows and the contributing functions of the feature.

Due to the disturbed nature of the Subject Site, and low ecological value, from an environmental perspective the Subject Site is an excellent candidate for the proposed development.

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Table of Abbreviations and Acronyms

Term	Meaning
Arcadis	Arcadis Professional Services (Canada) Inc. (Formerly IBI Group Professional Services (Canada) Inc.)
City	The City of Ottawa
DFO	The Department of Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
EIS	<i>Environmental Impact Study</i>
ELC	Ecological Land Classification
ESA	<i>Endangered Species Act, 2007</i>
FWCA	<i>Fish and Wildlife Conservation Act, 1997</i>
HDF	Headwater Drainage Feature
ISA	International Society of Arboriculture
MBCA	<i>Migratory Birds Convention Act, 1994</i>
MBR	<i>Migratory Birds Regulations, 2022</i>
Minto	Minto (Hazeldean) GP Inc.
MNR	Ministry of Natural Resources (Formerly the Ministry of Natural Resources and Forestry)
NHIC	Natural Heritage Information Centre
NHRM	<i>Natural Heritage Reference Manual</i> (MNR 2010)
NHS	Natural Heritage System
PPS	<i>Provincial Planning Statement, 2024</i>
SAR	Species at Risk
SARA	<i>Species at Risk Act, 2002</i>
Study Area	The Subject Site and the area within 120 m of the Subject Site
SWG	"Significant Woodlands Guidelines" (City of Ottawa 2022d)
SWH	Significant Wildlife Habitat
SWMP	Stormwater Management Pond

1 Introduction

Arcadis Professional Services (Canada) Inc. (Arcadis; Formerly IBI Group) was retained by Minto (Hazeldean) GP Inc. (Minto; the "Client") to complete this *Environmental Impact Study* (EIS) for the continued development of Abbott's Run, particularly Phases 2, 3, and 4 (the "Project"), located at 5618 Hazeldean Road in Stittsville, City of Ottawa, Ontario (the "Subject Site").

The Subject Site is approximately 86 ha and generally rectangular in shape, located northeast of the existing houses on Iber Road, between Hazeldean Road to the northwest, Honeylocust Avenue to the east, and Abbott Street East to the southeast. Robert Grant Avenue is expected to continue its existing northwest trajectory and bisect the Subject Site in a general northwest / southeast direction.

The Subject Site property is within the City of Ottawa's Urban Area ('Neighbourhood' with portions of 'Evolving Neighbourhood'), as designated in the City's *Official Plan* (City OP), and the Project has been divided into three separate phases, depicted in **Figure 1**.

Although Arcadis was retained by Minto to produce this EIS for Phases 2, Phase 3A, Phase 3B, and Phase 4 of the development, this report will address the entire Subject Site property, including Phase 1, and Phase 5 areas. It should also be noted that during the preparation of this report, construction / site alteration activities have already begun within the Project area, associated with Phase 1, Phase 2, Phase 3, and Phase 4 of the development.

1.1 Study Area

This report describes the natural heritage features within the Subject Site (5618 Hazeldean Road) and the area within 120 m of the Subject Site (collectively referred to as the Study Area), to account for policy requirements and setback distances outlined in the *Provincial Planning Statement* (2024) and the accompanying *Natural Heritage Reference Manual* (MNR 2010). As necessary, consideration has been given to wildlife occurrences (including SAR) reported up to 10 km away, due to the nature of desktop resources (i.e., online databases and atlases) with data presented in a 10 km x 10 km grid.

1.2 Background

Minto is one of Canada's largest home real estate development companies that offers homes in master-planned communities and condominiums for individuals, couples, and families at almost every stage of life. Based out of Ottawa, Ontario, Minto Communities are sustainably built to lower environmental impacts and provide homeowners with a home that is healthier, more comfortable, and more energy efficient.

The proposed Abbott's Run residential development is currently underway in Phase 1, and while Arcadis was retained by Minto for Phases 2 and 3, this EIS will address the entire property, including Phase 1 areas. According to the most recent Concept Plan 34 (**Figure 7**), Minto has proposed the construction of 415 single family homes (ranging from 28' to 43'), 803 town homes (including Executive, Avenue [B2B], and Rear Lane), and 880 4-6 storey medium-density condominiums. A total of 6.61 ha (16.33 acres) of parkland is required, of which 4.36 ha (10.77 acres) have been dedicated thus far.

In line with Minto's commitment to sustainability, the purpose of this EIS is to collect and evaluate all the appropriate and necessary information to develop an understanding of the boundaries, attributes, connectivity, and functions of relevant environmental features within the Subject Site and surrounding Study Area (Subject Site + 120 m). Furthermore, this report has been prepared to support land-use planning for the development of

Abbott's Run to make an informed decision as to whether the proposed Project will have a negative impact on any significant natural heritage features and/or ecological functions that are present within the Study Area. This Project represents the continuation (Phases 2, 3, and 4) of the Abbott's Run development currently underway within the same Subject Site property. Refer to **Figure 1** for locations of the Project phases within the Subject Site.

Finally, this report provides a summary of the available information from the review of background documents / resources and eight (8) site visits conducted by Arcadis Ecologists to date (between April 17 and August 2, 2024). Using this data, the functions and values of the natural heritage features within the Subject Site and surrounding Study Area, as well as an evaluation of their significance as per applicable guidelines (i.e., City OP, provincial and/or federal policies, etc.) will be documented. This report will conclude with general recommendations on avoidance and mitigation measures to protect natural heritage features from impacts.

1.3 Property Information

Table 1 below provides basic property information for the Subject Site.

Table 1: Subject Site Property Information

Owner(s):	Minto (Hazeldean) GP Inc.
Lot and Concession:	5618 Hazeldean Road, Stittsville, City of Ottawa, Ontario
Zoning:	Neighbourhood (Schedule B5 - Suburban West)
Official Plan designation:	Evolving Neighbourhood Overlay (Schedule B5)
Existing Land Uses:	Undeveloped / Agricultural
Traditional Territory:	Anishinabewaki and Omàmiwininiwag (Algonquin)

1.1 First Nations Land Acknowledgement

Arcadis would like to acknowledge that the Subject Lands in Stittsville, City of Ottawa, Ontario are located on the traditional lands / territories of the Anishinabewaki and Omàmiwininiwag (Algonquin) (NLD 2024).

We acknowledge that the First Nations are land stewards and caretakers of the land and waters within this territory in perpetuity.



Legend

- - Site
- Study Area (120m)
- Site Phases

0 50 100 200 300 400 Meters

Scale: 1:6,000


Project:

Abbott's Run Phases 2, 3, & 4

Title:

Site and Study Area

Prepared By:



Design & Consultancy
for natural and
built assets

Project: 146887

Date: 12/20/2024


Figure: 1

1.2 Environmental Impact Study Approach

The following approach has been developed to provide a clear methodological direction towards characterizing the natural environment and assessing the potential for significant species and habitats within the Study Area. This approach also identifies the potential for impacts to natural heritage features and mitigation measures to lessen or negate those impacts.

Throughout this EIS, common names of species are used and binomial nomenclature (i.e., scientific names) are provided in the species lists in **Appendix** . Both names of species (i.e., common and scientific) follow those used by MNRF (2024) in the Natural Heritage Information Centre (NHIC) Ontario Species Tables.

Table 2: Study Approach



Relevant Policy and Legislative Framework:	This section outlines the policies and legislation that apply to the protection of natural heritage features within the Study Area as it relates the Project.
Natural Heritage Screening:	This section provides the detailed background information collected from a variety of publicly accessible resource databases to describe the natural heritage features and significant features that may occur within the Study Area.
Field Methodology:	This section provides a summary of the specific protocols and methods used to evaluate potential natural heritage features and species identified within the natural heritage screening.
Field Survey Results:	This section provides the results from the field surveys. This also includes any incidental observations or notable observations made by the field biologists.
Evaluation of Significance:	This section assesses the significance of natural heritage features confirmed present with respect to the relevant policies and legislation.
Description of the Proposed Project:	This section provides a summary of the Project, including the activities which may impact the natural environment.
Impact Assessment and Mitigation:	<p>This section provides the assessment of the Project's potential impacts on the natural heritage system, including the natural heritage features and species confirmed present through this study.</p> <p>The mitigation measures proposed in this section are aimed at reducing or eliminating potential impacts to natural heritage features. Where mitigation may not be possible, compensation may be proposed.</p>
Summary and Conclusions:	This section provides a summary of the Study's findings, outlines Arcadis' general recommendations, and identifies any future permitting or agency authorizations that may be required before the Project may proceed.

2 Relevant Policy and Legislative Framework

This EIS references the regulatory agencies and legislative authorities mandated to protect different elements of natural heritage features and functions within Canada, Ontario, and the community of Stittsville in the City of Ottawa, as applicable. The scope of this report evaluates the natural heritage features and SAR governed by the policies outlined in **Table 3** below. The following subsections provide a high-level summary of the policies and legislation, noting their most recent date of amendment (at this time of preparation of this report). Each subsection also contains a short description of the policy's / legislation's applicability to this specific Project.

Table 3: Relevant Environmental Policies and Legislation

Policy / Legislation	Governing Body, Guidelines, and Resources
Federal Government of Canada	
Migratory Birds Convention Act, 1994 (S.C. 1994, c. 22) (MBCA)	Environment and Climate Change Canada (ECCC) <ul style="list-style-type: none"> - <i>Guidelines to Avoid Harm to Migratory Birds</i> (ECCC 2023a) - <i>Migratory Birds Regulations, 2022</i> - <i>Fact sheet: Nest Protection under the Migratory Birds Regulations, 2022</i> (ECCC 2023b) - <i>Nesting Calendars</i> (ECCC 2023c)
Species at Risk Act, 2002 (S.C. 2002, c. 29) (SARA)	Environment and Climate Change Canada (ECCC) <ul style="list-style-type: none"> - <i>Federal Species at Risk Public Registry</i> - Distribution of aquatic Species at Risk mapping (DFO 2024) - ECCC Open Data: Range Map Extents, and Critical Habitat for Aquatic SAR, Provincial SAR, and National SAR (ECCC 2022)
Fisheries Act, 1985 (R.S.C., 1985, c. F-14)	Fisheries and Oceans Canada <ul style="list-style-type: none"> - <i>Projects Near Water</i> online resources (DFO 2022) - <i>The Fish and Fish Habitat Protection Program (FFHPP) Regulatory Review Process Map</i> (DFO 2020)
Provincial Government of Ontario	
Fish and Wildlife Conservation Act, 1997 (S.O. 1997, c. 41) (FWCA)	Ministry of Natural Resources (MNR) <ul style="list-style-type: none"> - Wildlife Schedules (O. Reg. 669/98)
Conservation Authorities Act, 1990 (R.S.O. 1990, c. C.27)	Mississippi Valley Conservation Authority (MVCA) <ul style="list-style-type: none"> - <i>Prohibited Activities, Exemptions and Permits</i> (O. Reg. 41/24) - MVCA Regulation Public Mapping Browser (MVCA 2024) - <i>Ontario Stream Assessment Protocol</i> (Stanfield 2017)
Endangered Species Act, 2007 (S.O. 2007, c. 6) (ESA)	Ministry of the Environment, Conservation and Parks (MECP) <ul style="list-style-type: none"> - <i>Species at Risk in Ontario List</i> (O. Reg. 230.08)
Planning Act, R.S.O. 1990, c. P.13	Ministry of Municipal Affairs and Housing <ul style="list-style-type: none"> - <i>Provincial Planning Statement, 2024</i> (PPS)
	MNR Natural Heritage Information Centre (NHIC) Database (MNR 2024): <ul style="list-style-type: none"> - Species at Risk occurrence records - Identification of Species of Conservation Concern - Mapping of Natural Heritage Features

Local Municipalities

City of Ottawa Official Plan (City OP)	City of Ottawa <ul style="list-style-type: none"> - <i>Official Plan 2022</i>, adopted by <i>By-law 2021-386</i> (City of Ottawa 2022b) - geoOttawa mapping resource - Neighbourhood and Evolving Neighbourhood (<i>Official Plan</i> Schedule B5) - Urban Area – Natural Heritage System (West) (<i>Official Plan</i> Schedule C11A) - <i>Bird-Safe Design Guidelines</i> (City of Ottawa 2022a) - <i>Environmental Impact Statement Guidelines</i> (City of Ottawa 2023) - <i>Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment</i> (SWG; City of Ottawa 2022c)
Zoning By-law 2008-250	City of Ottawa <ul style="list-style-type: none"> - <i>Zoning By-law 2008-250</i>, 2023 consolidation (City of Ottawa 2023) - Section 69: Setback from watercourses and waterbodies
Tree Protection By-Law 2020-340	City of Ottawa <ul style="list-style-type: none"> - <i>By-law 2020-340</i> (City of Ottawa 2021)

2.1 Federal Policies and Legislation

2.1.1 *Migratory Birds Convention Act, 1994 (MBCA)*

The federal MBCA was originally adopted in 1916, updated in June 1994 to strengthen the enforcement provisions and significantly increases the penalties. The MBCA was last amended in December 2017 and the associated *Migratory Birds Regulations* (MBR), were most recently updated in July 2022. Together then MBCA and the MBR protect migratory bird populations and individuals by regulating potentially harmful anthropogenic activities which may cause harm to the nests, eggs, and any part of a listed bird species.

Under the MBCA, protected species are listed under Article I. In general, birds not falling under federal jurisdiction within Canada include grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, falcons, cormorants, pelicans, crows, jays, kingfishers, and some species of blackbirds. However, if the species identified is protected under Ontario's *Endangered Species Act, 2007* or Canada's *Species at Risk Act, 2002*, additional restrictions may apply.

The changes in the *MBR* altered the protection for nests of MBCA-listed birds. With the exception of 18 species listed under Schedule 1 of the MBR, which have year-round protection, instead of safeguarding *all* nests of MBCA-listed birds at *all* time, the new MBR protect *most* nests only when they are "active"; i.e., when they contain a live bird or a viable egg - generally during the breeding window (Late March – Late August with some regional variation, in the southern half of Ontario).

The changes to the MBR support conservation benefits, as the nests of most MBCA-listed birds only have conservation value when they are active. The changes also provide flexibility and predictability for stakeholders to manage their compliance requirements as they undertake activities on the landscape that may affect migratory birds and/or their nests.

Harm to a MBCA-listed bird species that results from human activities that are not directed at the birds or nests is called "incidental take" because it occurs incidental to otherwise lawful activity. Incidental take is a contravention of the MBCA.

Under specific conditions, a permit or authorization for activities that would otherwise not be allowable under MBCA or MBR can be obtained from ECCC.

MBCA - Applicability to the Project

Within Canada, the MBCA applies to activities conducted by the public and all levels of government. The killing or harming of an MBCA-listed bird or destruction / disturbance of a nest and eggs is unlawful, regardless of intent. As such, the MBCA applies to the entire Subject Site and Study Area. Therefore, if a protected species or their nest is encountered during Project activities, the Project must comply with the prohibitions of the MBCA. All impacts to natural habitat (e.g., ground cover, trees, or any structure with a nest) should follow appropriate timing windows and Best Management Practices.

In the case of species listed under Schedule 1, targeted surveys and mitigation measures may be required to ensure nests are not impacted. Regardless of the time of year, nests of these species may only be removed with a permit from ECCC.

2.1.2 Species at Risk Act, 2002 (SARA)

The federal SARA was adopted in 2002 and last amended in February 2023. The purposes of SARA are to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are Extirpated, Endangered, or Threatened because of human activity, and to manage species of Special Concern to prevent them from becoming Endangered or Threatened. Those species listed as Threatened, Endangered, or Extirpated under Schedule 1 are afforded both individual and habitat protection under SARA on federal lands. Additionally, outside of federal land, Section 58 of SARA affords protection to critical habitat of:

- Species of migratory birds protected by the *Migratory Birds Convention Act, 1994* that fall under Schedule 1 of SARA; and
- Aquatic species that fall under Schedule 1 of SARA.

A permit, or authorization, for activities that would otherwise not be allowable under SARA can be obtained from ECCC.

SARA – Applicability to the Project

The Study Area is not on federal land and the Subject Site does not provide critical habitat to any federally listed bird or fish species (DFO 2022a, ECCC 2022).

2.1.3 Fisheries Act, 1985

The federal *Fisheries Act* was established in 1985. On August 28, 2019, provisions of the new *Fisheries Act* came into force including new protections for fish and fish habitat in the form of standards, codes of practice, and guidelines for projects near water. The *Fisheries Act* provides protection to fishes and fish habitat such that:

"No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat" (Section 35 (1)).

Fish habitat is defined by the *Fisheries Act* as:

"Water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas" (Section 2 (1)).

The *Fisheries Act* requires that any work, undertaking, or activity avoid harmful alteration, disruption, or destruction of fish habitat unless authorized by Fisheries and Oceans Canada.

Fisheries Act - Applicability to the Project

The *Fisheries Act* governs all fish habitat (as defined above) within Canada. The *Fisheries Act* applies to the Subject Site and Study Area where watercourses / drainage features provide fish habitat.

2.2 Provincial Policies and Legislation

2.2.1 Fish and Wildlife Conservation Act, 1997 (FWCA)

The Ontario *Fish and Wildlife Conservation Act* (FWCA) was established in 1997 and most recently amended in June 2023. The FWCA is managed by the MNR and applies to 'wildlife' which is defined as:

"An animal that belongs to a species that is wild by nature and includes game wildlife and specially protected wildlife" (Section 1 (1))."

Those species considered "specially protected wildlife" include those specially protected amphibians, birds, invertebrates, mammals, and reptiles, as identified within Schedules 6 to 11 under the FWCA.

Under the FWCA, it is also illegal to destroy, take, or possess the nests, eggs, or young of most native bird species in Ontario without a permit. This includes stick nests constructed by birds such as hawks, owls, ospreys, eagles, and herons.

A permit, or authorization, for activities that would otherwise not be allowable under the FWCA can be obtained from MNR.

FWCA – Applicability to the Project

During the wildlife active period (typically spring through autumn), the probability of wildlife being found in the Subject Site and not leaving on their own accord is low. In the case that wildlife relocation is required, consultation with MNR would be required to obtain the necessary permits and approvals under the FWCA.

2.2.2 Endangered Species Act, 2007 (ESA)

The Ontario ESA first came into effect on June 30, 2008, and was last amended in January 2022. Section 9 of the ESA protects members of species listed as Endangered, Threatened, or Extirpated on the Species at Risk in Ontario List. Section 10 of the ESA prohibits the damage or destruction of the habitat of species listed as Endangered or Threatened. Species listed as Special Concern provincially are not afforded protection under the ESA.

In July 2019, amendments to the ESA came into effect through the *More Homes, More Choice Act*, and changes implemented in December 2021 enabled the payment of species conservation charges to the Species at Risk Conservation Fund and streamlined certain conditional exemptions for activities impacting prescribed SAR.

A permit, or authorization, for activities that would otherwise not be allowable under Sections 9 or 10 of the ESA can be obtained from MECP.

ESA - Applicability to the Project

Within Ontario, the ESA applies to activities conducted by the public and all levels of government. The killing or harming of a Threatened or Endangered SAR or destruction of its critical habitat is unlawful, regardless of intent. As such, the MBCA applies to the entire Study Area. Therefore, if a protected species or their critical habitat (even in absence of the species) is encountered during Project activities, the Project must comply with the prohibitions of the ESA. Project registration or a permit under the ESA may be required.

2.2.3 Planning Act, 1990

The *Planning Act* was passed into law in 1990 and was recently amended in April 2022 by the *More Homes for Everyone Act*, with the most recent amendment in 2023. The *Planning Act* is provincial legislation that sets out the ground rules for land use planning in Ontario. It describes how land uses may be controlled and who may control them.

The *Planning Act* is the foundation for creating plans that guide development at both regional and municipal levels.

Planning Act - Applicability to the Project

The *Planning Act* applies across the province to all projects outside of federal land. Project activities must be in compliance with and conducted under the appropriate permit(s) of, the *Planning Act*.

2.2.3.1 Provincial Planning Statement, 2024 (PPS)

The *Provincial Planning Statement* (PPS) was issued under Section 3 of the *Planning Act* (1990). The current PPS came into effect on October 20, 2024. It replaces the *Provincial Policy Statement* that came into effect on May 1, 2020, and provides overall policy direction on matters of provincial interest related to land use planning and development in Ontario. Natural features are afforded protections under Section 4.1- Natural Heritage, of the PPS. Protections may include maintenance, restoration, and improved function of diversity, connectivity, ecological function, and biodiversity of natural heritage systems. These protections restrict development and site alteration in significant natural areas (e.g., woodlands, wetlands, wildlife habitat) unless it can be demonstrated that there will be no negative effects on the features and ecological functions of those natural areas.

Technical guidance for implementing the natural heritage policies of the PPS is found within the second edition of the *Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005*. This manual recommends the approach and technical criteria for protecting natural heritage features and areas in Ontario.

The PPS identifies seven natural heritage features and provides planning policies for each. These features are:

- Significant wetlands (including coastal wetlands);
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat (SWH);
- Significant areas of natural and scientific interest;
- Significant habitat of Endangered and Threatened species; and
- Fish habitat.

Each of these features is afforded varying levels of protection subject to guidelines and/or regulations. Municipalities are the primary lead for implementing provincial policies, such as the PPS and other planning-related policies, through their official plans. Generally, special buffers and studies are prescribed based on the natural heritage features present and the land use proposed.

PPS - Applicability to the Project

The PPS, issued under Section 3 of the *Planning Act* by the Ministry of Municipal Affairs and Housing, applies across the province to all projects outside of federal land.

2.2.4 Conservation Authorities Act, 1990

The *Conservation Authorities Act* was originally legislated in 1946 but has undergone many amendments since. Approved changes came into effect on April 1, 2024. These changes revoked the existing 36 conservation authority-specific regulations and the regulation governing their contents and replaced them with one new minister's regulation governing prohibited activities, exemptions, and permits under the *Conservation Authorities Act (Ontario Regulation 41/24, Prohibited Activities, Exemptions and Permits)*. This minister's regulation applies to all conservation authorities resulting in a clear and streamlined permitting process that protects people and property from natural hazards across Ontario (Government of Ontario 2024).

Section 28 Part VI of the *Conservation Authorities Act* identifies the regulation of areas over which authorities have jurisdiction. These regulations include prohibited activities in watercourses, wetlands, etc. such as development in areas that could be unsafe due to natural processes associated with flooding or erosion, and interference with, or alterations to, watercourses, wetlands, or shorelines.

Conservation Authorities Act - Applicability to the Project

The Study Area is under the jurisdiction of the Mississippi Valley Conservation Authority (MVCA) under which the *Conservation Authorities Act* is applied through O. Reg. 41/24 (*Prohibited Activities, Exemptions and Permits*). Proposed Project activities within the Regulated Area will require authorization from MVCA.

2.3 Municipal Policies and Legislation

2.3.1 City of Ottawa Official Plan

An Official Plan is a land use planning document that guides and shapes development by identifying where and under what circumstances specific types of land uses can be located. It is used to ensure that future planning development appropriately balances social, economic, and environmental interests of the community. As per the City of Ottawa *Official Plan, 2022* (City OP), a natural heritage assessment is required to determine if significant natural features have been designated in or adjacent to the Site, followed by an assessment of the potential impacts to any identified natural environment feature from the proposed development.

The City's natural heritage features are listed in the City OP Subsection 4.8.1 Policy 3. Natural heritage features that are within a Natural Heritage System (NHS) are assessed by the City as having greater significance compared to features that are outside of the NHS. The NHS includes both Core Natural Areas and Natural Linkage Areas, both of which are found on Schedule C11.

No part of the City's NHS is within the vicinity of the Study Area; however, it is important to note that, as per Subsection 5.6.4.1 Policy 2, the edge of the NHS boundary would need to be verified on-site, as the City OP only displays to a reasonable level of detail. Where identified, the boundaries of any significant natural heritage features are to be noted and the potential for the proposed development to cause negative impacts is to be assessed.

City of Ottawa Official Plan - Applicability to the Project

The City OP applies to the Study Area. Project activities are expected to adhere to the environmental protection policies and guidelines within the OP

The Natural Heritage Features identified in the City OP include the following:

- ✓ Significant wetlands
- ✓ Habitat for Endangered and Threatened Species (SAR)
- ✓ Significant woodlands
- ✓ Significant valleylands
- ✓ Significant wildlife habitat
- ✓ Areas of Natural and Scientific Interest
- ✓ Urban Natural Features
- ✓ Natural Environment Areas
- ✓ Natural linkage features and corridors
- ✓ Groundwater Features
- ✓ Surface water features, including Fish Habitat; and
- ✓ Landform Features

2.3.2 Tree Protection By-law No. 2020-340

This City of Ottawa *Tree Protection By-law* is in place to regulate trees on or affecting public property. Without a permit, no person shall injure or destroy a public tree or permit the injury or destruction of a public tree, and no person shall plant or permit the planting of a tree on public property.

By-law No. 2020-340- Applicability to the Project

Under the *Tree Protection By-law*, the following protected trees cannot be injured or removed without a permit from the City:

- All City-owned trees throughout the urban and rural area.
- All trees 10 cm or more in diameter at breast height (dbh) on private properties within the urban area that are subject to a *Planning Act* application for Site Plan, Plan of Subdivision, or Plan of Condominium.
- All trees 10 cm or more in dbh on private properties within the urban area that are over 1 hectare in size.
- All distinctive trees, which are trees 30 cm or more in dbh on private properties within the urban area that are 1 hectare or less in size.

3 Natural Heritage Screening / Background Review

A desktop review of the existing natural heritage features identified within the Study Area was completed during preparation of this EIS to inform the studies required. Natural heritage features identified to require consideration in the City OP (as designated in City OP Schedules) were the primary focus. Further information collected from external sources was used to help inform of the functions of these features and to identify those not depicted on the City OP Schedules (e.g., endangered and threatened species habitat).

Information gathered from government websites / resources, site-specific reports produced by other professionals and consulting firms, and professional knowledge / interpretation has been incorporated, as appropriate. Furthermore, consideration has been given to wildlife occurrences (including SAR) reported up to 10 km away, due to the nature of desktop resources (i.e., online databases and atlases) with data presented in a 10 km x 10 km grid.

Overall, a variety of secondary sources were reviewed, the primary of which include:

Reports pertaining to the Study Area and immediate surroundings:

- *Tree Conservation Report and Environmental Impact Statement – Update* (Muncaster 2022).
- *Concept Plan 34*, dated September 23, 2024 (Minto 2024); and

Ontario wildlife atlases and observation records:

- Natural Heritage Information Centre (NHIC) Database (MNR 2024);
- Ontario Breeding Bird Atlas (BSC et al. 2006);
- Ontario Reptile and Amphibian Atlas (Ontario Nature 2019);
- Ontario Butterfly Atlas (TEA 2023);
- iNaturalist observation records (iNaturalist 2024);
- eBird HotSpot species lists (eBird 2024);
- Bat Conservation International Inc. Bat Profiles (BCI 2024); and
- Atlas of the Mammals of Ontario (Dobbyn 1994).

Conservation Authority resources:

- Mississippi Valley Conservation Authority Regulation Public Mapping Browser (MVCA 2024).

City of Ottawa Resources:

- City of Ottawa *Official Plan* (City of Ottawa 2022b);
- geoOttawa interactive mapping tool (City of Ottawa 2024);
- City of Ottawa *Environmental Impact Statement Guidelines* (City of Ottawa 2023);
- *Zoning By-law 2008-250* (City of Ottawa 2023);
- *Tree Protection By-law No. 2020-340* (City of Ottawa 2021); and
- *Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment* (SWG; City of Ottawa 2022d).

Other provincial resources:

- Species-specific resources (such as recovery strategies, etc.), as required; and
- Agency Consultation, as required.

This section outlines the relevant natural heritage background from secondary source review.

3.1 Historic Land Use

A desktop review of recent and historic aerial imagery highlights the land uses within and adjacent to the Study Area (GeoOttawa 2024; **Figure 2**). From this review, residential developments within the City have been expanding since the late 1980's, with the landscape around the Study Area being predominantly residential, commercial, and agricultural interspersed with some wooded areas. More recently, the residential area present immediately to the northeast has continued expanding toward the Study Area. The current proposed Project represents a continuation (Phases 2 and 3) of the ongoing Abbott's Run residential development within the Subject Site.

Aerial imagery and background review of the Subject Site for the proposed Abbott's Run (Phases 2 and 3) Project indicates that the property itself has experienced little change since at least 1976, generally remaining as undeveloped agricultural lands bordered intermittently by deciduous hedgerows (GeoOttawa 2024). As the Subject Site is designated mainly as 'Neighbourhood' with portions of 'Evolving Neighbourhood' on Schedule B5 of the City OP, the proposed residential development represents a suitable use of the property.

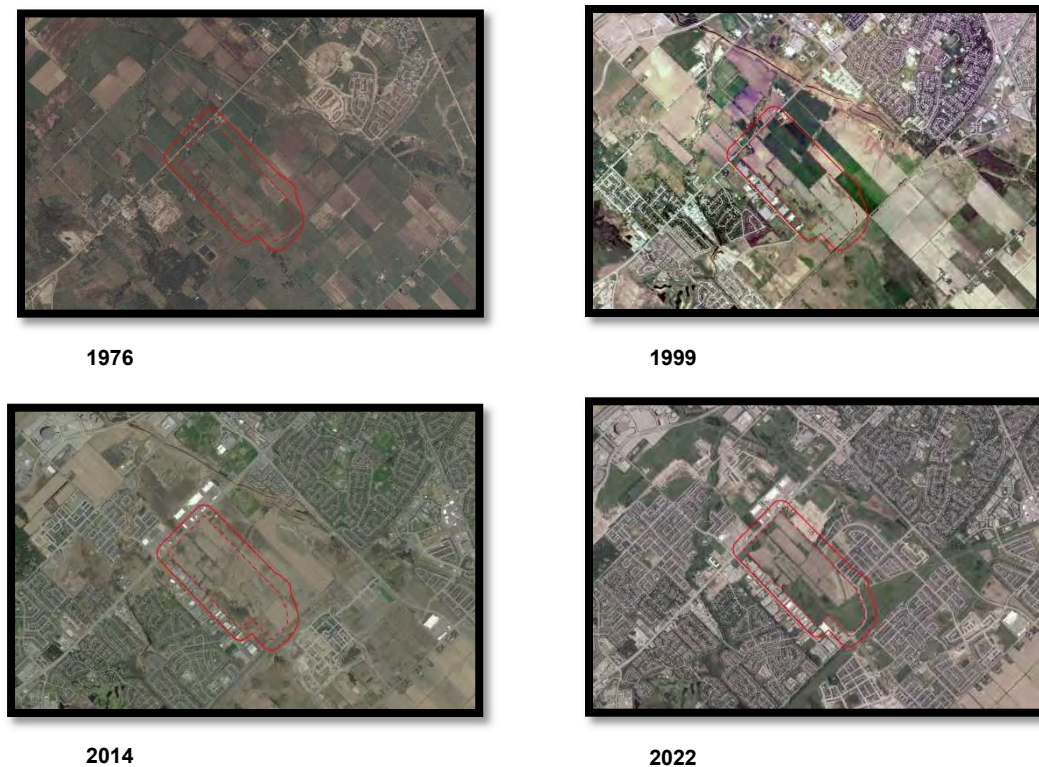


Figure 2: Aerial Imagery Showing Land Use Changes Over Time

3.2 Landform, Geology, and Soils

The following Ontario Geological Survey (OGS) data has been obtained from the new Geology Ontario hub (Geology Ontario 2024):

Majority of the surficial geology of the Study Area is made up of “massive-well laminated” fine-textured glaciomarine deposits mainly composed of silt and clay, with minor contributions of sand and gravel. Smaller portions of the Study Area are composed of “stone-poor, carbonate-derived silty to sandy till” on Paleozoic terrain, Paleozoic bedrock, and Organic deposits including peat, muck, and marl (OGS 2010).

The underlying bedrock of the Study Area is part of the “limestone, dolostone, shale, arkose, sandstone: Ottawa Group; Simcoe Group; Shadow Lake Formation” (OGS 2011).

No physiographic regions characterized by the OGS were mapped within the Study Area (OGS 2007).

3.3 Aquatic Environment and Fish Habitat

Within the context of this report, the aquatic environment includes inland surface water and groundwater, as well as the characteristics of the water and organisms / wildlife living within the water. The following subsections describe the aquatic features at a watershed and site-specific scale.

3.3.1 Surface Water

The Study Area is located within the Mississippi Valley Conservation Authority (MVCA) jurisdiction and associated watersheds (MVCA 2024).

Mapping by MVCA and the City indicate the presence of two “streams” or headwater drainage features (HDFs) that occur within the Subject Site, as described below. Both features are mapped to contribute to the Carp River which is located approximately 520 m northeast of the northeastern corner of the property.

Feature-1

One watercourse (“Feature-1”) is present within the northwestern corner of the property where it is mapped to exist just south of Hazeldean Road within a relatively small, pre-existing wooded area / unevaluated wetland before traversing the road northward.

Feature-2

The second watercourse (“Feature-2”) flows eastward from the Granite Ridge Stormwater Management facility, traversing under Iber Road and entering the Subject Site on the northwestern side of Paul-Desmarais High School.

As part of the construction of the Paul-Desmarais High School, Feature-2 was piped for the first 190 m from the southwestern edge of the Subject Site, and a temporary channel was created along the east edge of the school to collect drainage from the Abbott Street extension and surrounding lands. In 2015, the channel of Feature-2 was temporarily realigned to run in a straight trajectory including diagonally through the east portion of the Phase 2 lands, and then along the northeast edge of the property (Muncaster 2022).

Feature-3 (Historic)

Finally, a third HDF shown on background mapping (“Feature-3”; historic tributary to the Carp River) bisected the middle of the Subject Site in a general southwest to northeast direction. However, review of more recent aerial imagery and the *Tree Conservation Report and Environmental Impact Statement – Update* (Muncaster 2022) indicate this feature has been substantially altered and no longer supports aquatic habitat.

3.3.2 Groundwater and Hydrologic / Hydrogeologic Description

The groundwater and hydrologic / hydrogeologic conditions of the Subject Site have been reported by Houle Chevrier (2016) for purposes of the *Tree Conservation Report and Environmental Impact Statement – Update* (Muncaster 2022), described further in **Section 5.2.2**.

3.3.3 Floodplain and Regulated Limit

Mississippi Valley Conservation Authority (MVCA) is the governing body that regulates zones with potential for flooding, protects associated natural features, and restores and enhances ecosystems within the Mississippi and Carp River watersheds. MVCA also maintains, monitors, and collects information related to water quality / quantity, fisheries resources, forestry, land use, and wetlands.

The MVCA Regulation Public Mapping Browser shows that although the property is within the MVCA jurisdiction, no portion of the Subject Site or surrounding Study Area is located within the Regulated Limits (MVCA 2024).

3.3.4 Fishes and Fish Habitat

According to mapping resources including the ArcGIS Aquatic Resource Area feature layers provided by Land Information Ontario (LIO), the Watercourse features on the Subject Site provided both direct and indirect / contributing fish habitat, as described below:

Feature-1 (Indirect / Contributing Fish Habitat)

The following surveys were conducted within the reach of Feature-1 within the Study Area, listed in order from upstream to downstream:

Survey Point	Survey Date	Survey Method	Surveyor	Fish Species Summary
Survey Point 1	November 11, 2018	Other, non-standard	Unnamed Consulting Company	No fisheries data provided.
Survey Point 2	May 9, 2005	Electrofishing, non-standard	Stantec Consulting Ltd.	No fisheries data provided.

Both surveys either yielded no fishes, or fisheries data was not provided for these survey points. Further field investigation would be required to determine the presence / confirm the absence of fishes within this watercourse.

Feature-1 provides indirect / contributing fish habitat as it is mapped to contribute flows downstream to the Carp River that contains direct fish habitat.

Feature-2 (Indirect / Contributing Fish Habitat)

The following surveys were conducted within the reach of Feature-2 within the Study Area, listed in order from upstream to downstream:

Survey Point	Survey Date	Survey Method	Surveyor	Fish Species Summary
Survey Point 1	July 26, 2022	Ontario Stream Assessment Protocol (OSAP), electrofishing	CIMA+	No fisheries data provided.
Survey Point 2	July 26, 2022	Ontario Stream Assessment Protocol (OSAP), electrofishing	CIMA+	No fisheries data provided
Survey Point 3	April 3, 2022	Other, non-standard	CIMA+	No fisheries data provided

These surveys either yielded no fishes, or fisheries data was not provided for these survey points. Further field investigation would be required to determine the presence / confirm the absence of fishes within this HDF.

Feature-2 provides indirect / contributing fish habitat as it is mapped to contribute flows downstream to the Carp River that contains direct fish habitat.

Feature-3 (Historic Direct Fish Habitat)

As mentioned above in **Section 3.3.1**, Feature-3 was present historically but has recently been substantially altered and no longer provides aquatic habitat (Muncaster 2022). This feature had historically converged with Feature-2 just north of the proposed SWMP (part of Phase 1) before flowing to the Carp River which is expected to contain direct fish habitat.

The following surveys were conducted within the reach of Feature-3 within the Study Area prior to alteration, listed in order from upstream to downstream:

Survey Point	Survey Date	Survey Method	Surveyor	Fish Species Summary
Survey Point 1	April 3, 2022	Ontario Stream Assessment Protocol (OSAP), electrofishing	CIMA+	No fisheries data provided.
Survey Point 2	October 27, 2019	Other, non-standard	Unnamed Consulting Company	<ul style="list-style-type: none"> • Banded Killifish • Blacknose Dace • Bluntnose Minnow • Brook Stickleback • Common Carp • Common Shiner • Creek Chub • Fathead Minnow • Iowa Darter • Johnny Darter • Northern Pearl Dace • Northern Redbelly Dace • Pumpkinseed • White Sucker
Survey Point 3	April 3, 2022	Ontario Stream Assessment Protocol (OSAP), electrofishing	CIMA+	No fisheries data provided.
Survey Point 4	August 26, 2022	Ontario Stream Assessment Protocol (OSAP), electrofishing	CIMA+	<ul style="list-style-type: none"> • Blacknose Shiner • Bluntnose Minnow • Brook Stickleback • Central Mudminnow • Common Carp • Fathead Minnow • Largemouth Bass • Pumpkinseed

Feature-3 historically provided direct fish habitat due to the historic presence of fishes in this feature though is no longer present as fish / aquatic habitat on the Subject Site due to alteration activities (Muncaster 2022).

Finally, no aquatic SAR, Species of Conservation Concern, and/or their habitat have been reported within the Subject Site or surrounding Study Area based on the DFO aquatic SAR map. See **Section 3.4.6** for more information on SAR.

3.4 Terrestrial Environment

The Subject Site is mostly comprised of undeveloped and agricultural lands divided by intermittent deciduous hedgerows. The ground surface of the property is relatively flat, sloping gently to the east. Natural heritage features initially observed present in the Project area mainly included unevaluated wetlands and corresponding wooded areas, as well as intermittent deciduous hedgerows. As active construction and other site alteration activities have already begun for Phase 1 at the time of preparation of this EIS and TCR, environmental conditions may differ from those depicted on mapping resources.

Several specific natural heritage features require consideration for protection under the Ontario PPS. The protection of these features is generally administered by the City of Ottawa and MVCA consistent with relevant provincial and federal legislation. These features are:

- Provincially Significant Wetlands;
- Significant Woodlands;
- Significant Valleylands;
- Areas of Natural and Scientific Interest;
- Significant Wildlife Habitat (SWH);
- Species at Risk habitat; and
- Fish habitat.

The subsections below provide a review of available background records to determine the potential presence of these natural heritage features within the Study Area. Where possible, natural heritage features have been illustrated in **Figure 3**.

3.4.1 Wetlands

A review of the MVCA Regulation Public Mapping Browser and provincial natural heritage mapping (NHIC) indicates the presence of three mapped, unevaluated wetlands within the Study Area (**Figure 3**).

One wetland ("Wetland 1"; approximately 1.25 ha) is mapped to be located along the Hydro Line / Corridor on the Subject Site, approximately 140 m northwest of the Paul-Desmarais High School property.

A second wetland ("Wetland 2"; approximately 0.98 ha) is mapped to be located directly south of Hazeldean Road within the northwestern corner of the Subject Site, associated with a pre-existing wooded area. The third wetland ("Wetland 3"; approximately 1.75 ha) is located exclusively within the Study Area on the other side of Hazeldean Road, approximately 80 m north of Wetland 2, and seems to be associated with a stormwater management pond located west of the (SWMPs).

No Provincially Significant Wetlands (PSWs) are mapped within the Subject Site or surrounding Study Area.

3.4.2 Woodlands

Based on review of background documents and NHIC mapping, wooded areas are generally mapped to encompass the wetland areas discussed above, as well as form the intermittent deciduous hedgerows along the edges of the agricultural lands.

Google Earth mapping dated March 2024 suggests that most of the pre-existing deciduous hedgerows have been removed, and the wooded area associated with Wetland 2 may have been altered from the onset of Phase 1 construction activities. Furthermore, wooded area associated with the SWMP located exclusively within the Study Area north of Hazeldean Road seems to mainly occur directly north and along the edges of the SWMP (Google 2024).

3.4.3 Valleylands

No Significant Valleylands were identified present within the Subject Site or surrounding Study Area.

3.4.4 Areas of Natural and Scientific Interest

No Areas of Natural and Scientific Interest (ANSIs) are present within the Subject Site or surrounding Study Area.

3.4.5 Significant Wildlife Habitat (SWH)

Four categories of SWH exist within the eastern Ontario ecoregion 6E (MNR 2015). These include:

- Seasonal Concentration Areas of Animals;
- Rare Vegetation Communities or Specialized Habitat for Wildlife;
- Habitat for Species of Conservation Concern (not including Threatened or Endangered Species); and
- Animal Movement Corridors.

There are no SWH features included in the City's OP schedules. The potential for the presence of habitats matching the description of these SWH is discussed further in **Section 4.3.2. Significant Wildlife Habitat**

3.4.6 Wildlife Habitat

A review of current and historic aerial photos of the Study Area were used to identify potential wildlife habitat. Several species of fauna common to the City of Ottawa's rural and urban areas are known to live in the habitats present within the Study Area. These species may include, but are not limited to:

- **Mammals:** northern raccoon, white-tailed deer, coyote, eastern gray squirrel, eastern cottontail, among others.
- **Reptiles & Amphibians:** eastern gartersnake, American toads, among others.
- **Birds:** American crow, American robin, northern cardinal, American goldfinch, black-capped chickadee, blue jay, song sparrow, among others.

3.4.7 Species at Risk and Species at Risk Habitat

For purposes of this report, the term Species at Risk (SAR) is used to describe only those species that receive provincial protection under the ESA (i.e., endangered or threatened), in the province of Ontario, Canada, as the Subject Site is situated solely on private lands.

A list of potential SAR was compiled using various sources. It should be noted that not all information for all species is available to the public. Also, the absence of a record does not necessarily indicate that the species is absent from the area. Added to this list were species that often occur within the general area based on personal experience or observations. Overall, the desktop review identified the potential for 15 SAR to occur within and adjacent to the Subject Site (**Appendix C**).

Under the ESA, all species listed as threatened or endangered in Ontario receive immediate 'general habitat protection'. This includes places that are used as dens, nests, hibernacula, or other residences. For some species, agencies have defined general habitat descriptions that provide science-based criteria for the habitat to be protected. Regulated habitat has a detailed description and is prescribed in an Ontario Regulation. General habitat often splits the habitat requirements into up to three categories, listed as Categories 1-3, with 1 being the most sensitive to disturbances. Where guidance is provided by the government, this is used to evaluate whether to bring the species forward to assessment. When there is no guidance available, the available literature is used to evaluate the suitability of the habitat on-site for that species.

A review of aerial imagery was used to identify general candidate habitat for SAR based on the description of habitat provided. A list of species identified as having potential to occur within the vicinity of the Study Area is provided in **Appendix C**, including an assessment of habitat potential based on the MNRF's habitat description. This resulted in the larger list of SAR for the Study Area being reduced to only five (5) potential SAR based on a moderate to high probability of occurrence (**Table 4**).

Table 4: Species at Risk with Occurrence Records and Suitable Habitat within the Study Area

Common Name	Scientific Name	S-Rank	ESA Status	SARA Status
MAMMALS				
Little Brown Myotis	<i>Myotis lucifugus</i>	S4	END	END
Northern Myotis	<i>Myotis septentrionalis</i>	S3	END	END
Tri-colored Bat	<i>Perimyotis subflavus</i>	S3?	END	END
TREES				
Black Ash	<i>Fraxinus nigra</i>	S4	END	No Status
Butternut	<i>Juglans cinerea</i>	S2?	END	END

Notes:

S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common.

ESA = *Endangered Species Act, 2007* Status, SARA = *Species at Risk Act, 2002* Status, END: Endangered, THR: Threatened, SC: Special Concern.

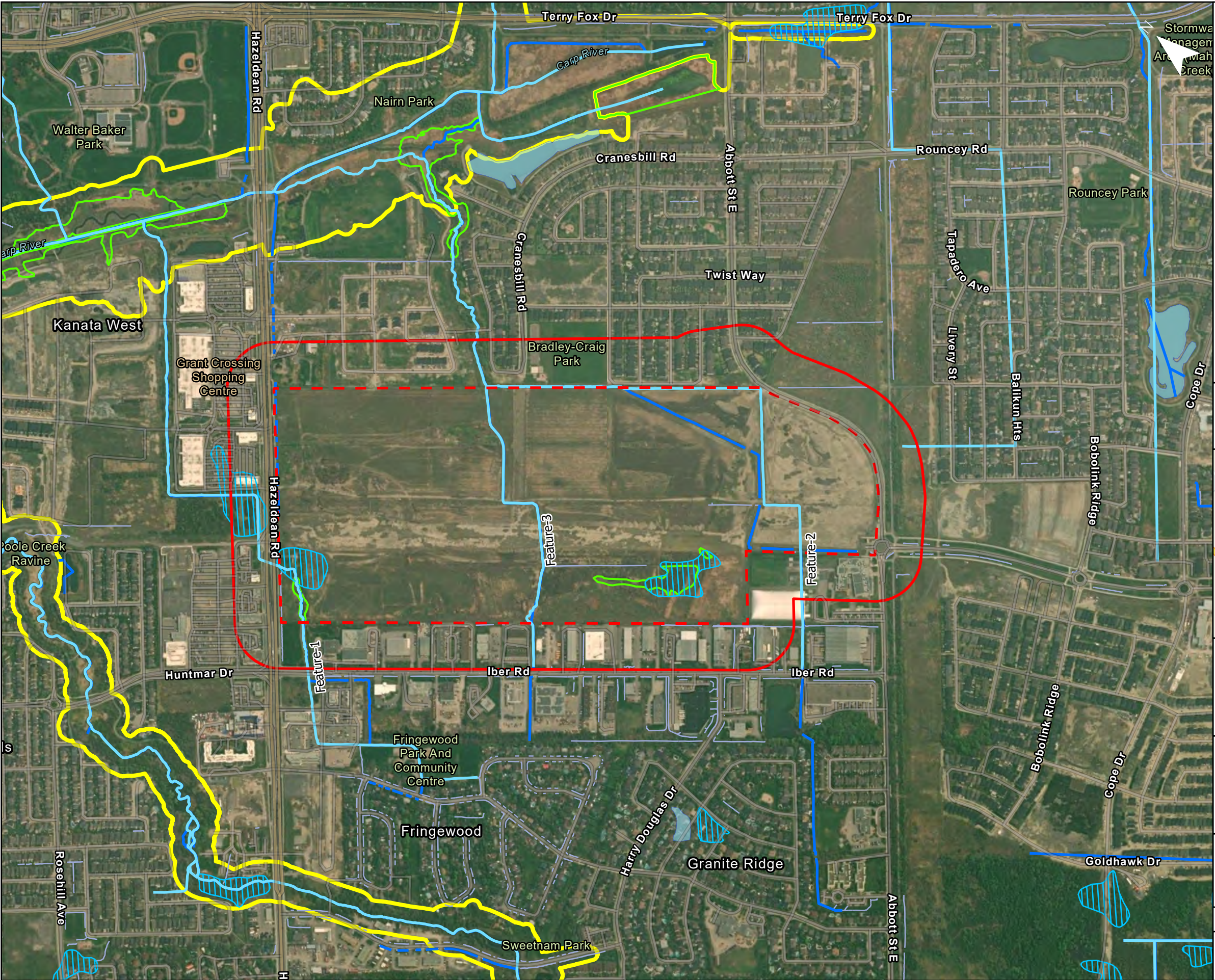
3.5 Summary of Natural Heritage Features

Based on a review of background documents / resources and aerial imagery, the majority of the Subject Site is comprised of undeveloped / agricultural lands, with remnant woodlands contained within the unevaluated wetland habitats. There are three (3) HDF (HDF-1 and HDF-2 both contain indirect / contributing fish habitat) also present within the property. A summary of the known natural heritage features identified within the Study Area during the background review are summarized in

Table 5 below and are presented in **Figure 3**. Further background data is presented in **Appendix A**

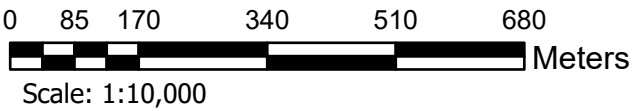
Table 5: Known Natural Heritage Features within the Study Area

Natural Heritage Feature	Present within Study Area	Comments	Further Assessment Required
Provincially Significant Wetlands	None	No PSWs identified during background review.	No
Significant Woodlands	Woodlands identified on Site	Two (2) small woodlands identified during review of satellite imagery.	Yes Discussed in Section 5.6.2.
Significant Valleylands	None	No valleylands identified during review of satellite imagery.	No
Areas of Natural and Scientific Interest (ANSI)	None	No ANSIs identified during background review.	No
Significant Wildlife Habitat	None identified in OP schedules	Potential for SWH / SAR needs to be determined following assessment of the suitable habitats in Study Area.	Yes Discussed in Section 5.6.3.
Species at Risk Habitat	None identified in OP schedules		Yes Discussed in Section 5.4.
Fish Habitat	HDF-1 HDF-2	Direct (HDF-2) and indirect (HDF-1) fish habitat is confirmed for these features. HDF-3 represents historic fish habitat.	Yes Discussed in Section 5.2.



Legend

- - Site
- Study Area (120m)
- Watercourse (LIO, 2024)
- Unevaluated Wetland (LIO, 2024)
- Watercourse (geoOttawa, 2024)
- Drainage Ditch (geoOttawa, 2024)
- Waterbody (geoOttawa, 2024)
- Non Evaluated Wetlands (MVCA, 2024)
- Regulation Limit (MVCA, 2024)



Project:
**Abbott's Run
Phases 2, 3, & 4**

Title:
**Natural Heritage
Background Information**

Prepared By:
ARCADIS Design & Consultancy
for natural and
built assets

Project: 146887

Date: 12/12/2024

Figure: 3

4 Field Methodology

Based on the description of the existing natural environment outlined above, the natural heritage surveys outlined below have been completed to assess the impacts of the proposed development on the natural environment. A total of eight (8) site visits were conducted by Arcadis Ecologists in 2024 (between April 17 and August 2) for purposes of ground-truthing and characterizing the natural heritage features identified on the property during the background review. These site visits and associated natural heritage surveys follow industry standard protocols and are intended to establish baseline conditions. Furthermore, these surveys are used to evaluate the potential for negative impacts which may occur because of the proposed Project activities. Surveys were undertaken within the Subject Site and, when possible, features within the surrounding Study Area were evaluated from a distance or via air-photo interpretation.

To evaluate potential natural features within the Study Area, and establish baseline conditions, the following studies were completed:

Aquatic Environment

- Headwater Drainage Features (HDF) Assessment.

Terrestrial Environment

- Ecological Land Classification (ELC).
- Wetland delineation / verification.
- Breeding bird surveys.
 - Raptor nest searches.
 - Pileated woodpecker habitat searches.
- Amphibian breeding surveys.

Species at Risk

- Identification of potential Species at Risk and Species at Risk habitat.
- Butternut and Black Ash Inventory.

Incidental Wildlife

- Visual and auditory observations of wildlife during all field studies.

Natural Heritage Features

- Significant Woodlands Assessment.
- Significant Wildlife Habitat Assessment.

4.1 Aquatic Environment

4.1.1 Surface Water Assessment

For purposes of this EIS, surface water associated with the aquatic environment within the Study Area is confined to the HDFs, of which assessments were conducted by Arcadis Ecologists in 2024.

Headwater Drainage Feature Assessment

HDF assessments were based on the Toronto and Region Conservation Authority (TRCA) and Credit Valley Conservation (CVC) protocol, outlined in the *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* ("HDF Guidelines"; TRCA and CVC 2014). Two (2) site visits were conducted as part of this assessment to gather baseline data in spring freshet conditions, as well as a summer conditions assessment in 2024. These surveys were carried out following the rapid assessment method, which utilizes the Unconstrained Headwater Sampling (Section 4, Module 11) methodology in the *Ontario Stream Assessment Protocol* (Stanfield 2017).

This assessment included a description of the channel morphology, channel width, wetted width, bankfull depth, water depth, substrate, and in-stream cover. See **Figure 4** depicting the survey location.

4.1.2 Groundwater Assessment

A hydrological / hydrogeological investigation was undertaken by Houle Chevrier (2016). Results are summarized in **Section 5.2.2** below.

4.1.3 Fishes and Fish Habitat Assessment

The headwater drainage feature assessments and fish habitat assessment will further investigate the potential for fish migration.

4.2 Terrestrial Environment

4.2.1 Vegetation Communities / Ecological Land Classification

Vegetation communities within the Study Area were characterized and mapped using the *Ecological Land Classification for Southern Ontario* (ELC) (Lee et al. 1988). The ecological community boundaries were determined through the review of aerial photography and then further refined through on-site vegetation surveys as specified by the protocol. Field studies were completed by systematically walking the Site. For areas where access was not granted, observations were conducted from either the road right-of-way or the property edge to the extent visible.

The ELC protocol recommends that a vegetation community be a minimum of 0.5 ha in size before they are defined as a discrete community. Unique communities less than 0.5 ha or disturbed/planted vegetation have been described to the community level only or have been described as an inclusion or complex to an existing vegetation community. In some instances, where vegetation is less than 0.5 ha, but appears relatively undisturbed and clearly fits within an ELC vegetation type, the more refined classification was used.

In 2007, the MNR refined their original vegetation type codes to encompass the vast range of natural and cultural communities more fully across Southern Ontario. Through this process, many new codes have been added while some have changed slightly. These new ELC codes have been used for reporting purposes in this study as they are more representative of the vegetation communities within the Study Area.

4.2.2 Wetland Verification / Delineation

Wetland communities were mapped using satellite imagery and verified during the ELC field visits. Wetland verification included a botanical inventory, and vegetation was characterized based on the *Ontario Wetland Evaluation System, Southern Manual* (OWES) (MNR 2022).

As per OWES, the outer boundaries of the wetlands within the Site were delineated and mapped using the “50% wetland vegetation rule” which estimates the relative abundance of wetland and upland species in each layer. Our OWES qualified professional walked the outer limits of the wetlands, using a hand-held GPS to create a boundary line. As per OWES, the minimum community size to be delineated is 0.5 ha and the minimum wetland size to be assessed is 2 ha unless special functions or ecological importance is identified. In this case, smaller wetland communities or wetlands may be delineated.

4.2.3 Botanical Inventory

A botanical / vegetation inventory was compiled by Arcadis Ecologists from the 2024 field investigations. Vegetation was inventoried in conjunction with ELC surveys, and a list of vascular plant species was compiled. This inventory was also used to screen for any SAR and/or provincially rare species not previously identified within the Study Area.

Scientific nomenclature, English colloquial names, and scientific binomials of plant species generally followed Newmaster et al. (2005) with updates taken from published volumes of the *Flora of North America Editorial Committee* (2000+ accessed 2015) and *Michigan Flora Online* (2015).

4.2.4 Amphibian Call Surveys

Amphibian Breeding Surveys were conducted by Arcadis Ecologists on April 30, June 4, and July 7, 2024, and followed the *Marsh Monitoring Program - Participant's Handbook for Surveying Amphibians* (Bird Studies Canada 2008).

Surveys began at least one half-hour after sunset during evenings with a minimum night temperature of 14 °C and 24 °C for each of the three respective surveys. Four (4) survey locations were situated within the woodland and/or wetland features within the Study Area.

Each amphibian survey involved standing at a predetermined station for three (3) minutes and listening for amphibian calls. The calling activity of individuals estimated to be within 100 m of the observation point was documented. All individuals beyond 100 m were recorded as outside the count semi-circle. Calling activity was then ranked using one of the three abundance code categories:

Code 1: The number of individuals can be accurately counted.

Code 2: Calls are distinguishable and some calls simultaneous, the number of individuals can be reliably estimated.

Code 3: Full chorus; calls continuous and overlapping, the number of individuals cannot be estimated.

Refer to **Figure 4** for a depiction of wildlife survey locations.

4.2.5 Breeding Bird Surveys

Diurnal breeding bird surveys were conducted by Arcadis Ecologists within the Study Area and followed methods outlined in the *Ontario Breeding Bird Atlas Guide for Participants* (Bird Studies Canada 2001). Two surveys were completed during the bird breeding season: June 7 and June 19, 2024.

Each survey consisted of visiting three point-count locations for six minutes to establish quantitative estimates of bird abundance in different habitat types within the Study Area. To supplement the surveys, area searches of the habitats were completed by meandering throughout the Study Area on foot and using binoculars to observe species presence and breeding activity. Area searches involved noting all individual bird species and their corresponding breeding evidence.

Refer to **Figure 4** for a depiction of wildlife survey locations.

4.2.5.1 Raptor Nest Surveys

The raptor nest survey consisted of searching for individuals or evidence of nesting (such as stick nests, food caches, whitewashing of branches and foliage, accumulation of feathers/fur, or prey remains on the ground or in shrubs as per the *Significant Wildlife Habitat Technical Guide* (SWHTG) Appendix O).

Refer to **Figure 4** for a depiction of wildlife survey locations.

4.2.5.2 Pileated Woodpecker Nest Surveys

Surveys for pileated woodpecker nests were completed within the Study Area. Transects spaced 10 m apart were walked in suitable habitat. Trees larger than 25 cm dbh were scanned with binoculars for cavities. Nests are those which are dome shaped 10 - 13 cm high and 7 - 10 cm wide (ECCC 2022). If more than one such hole is present in a decaying tree it will be considered a roosting cavity. A photograph was taken along with notes on cavity size, tree species, and tree health. Pileated woodpecker nests are protected year-round for three years since the date of last occupancy, based on the MBR (2022).

Refer to **Figure 4** for a depiction of wildlife survey locations.

4.2.6 Species at Risk

Preliminary screening for SAR was conducted and a list of potential SAR was compiled for the Subject Site through review of various resources (**Appendix C**). The desktop review identified the potential for five (5) SAR

(little brown myotis, northern myotis, tri-colored bat, butternut, black ash) to occur within the Study Area based on suitable habitat conditions.

Site visits recorded the location for all plant and animal species that are listed provincially as threatened and endangered, if observed. Records of SAR included an estimate of abundance. Site visits recorded suitable SAR habitat present within the Study Area. All SAR observations are included in the SAR screening results described in **Section 5.4** below.

4.2.6.1 Butternut and Black Ash Inventory

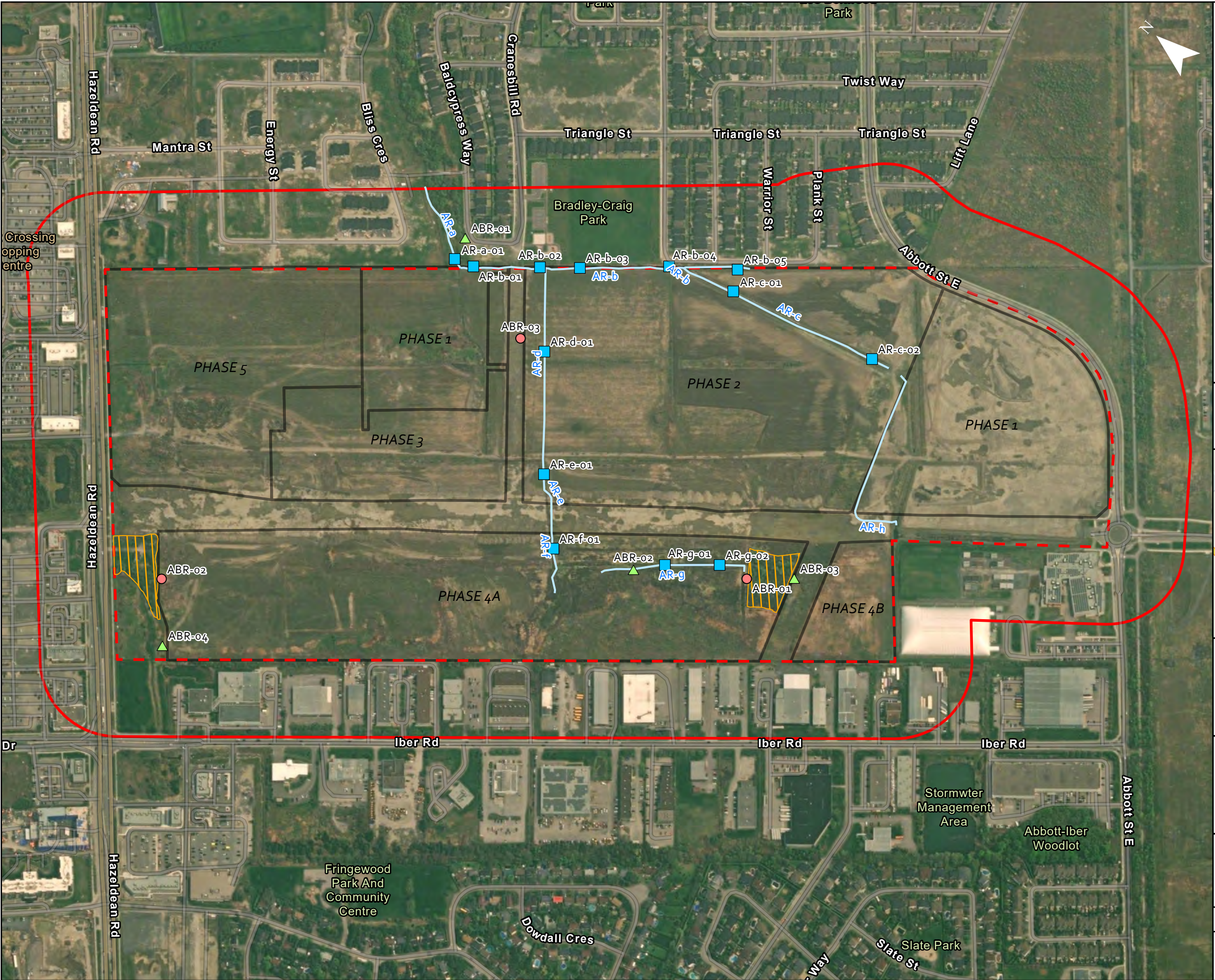
Specific attention was paid to locating SAR plants or plant species of conservation value listed as potentially occurring within the Study Area, specifically butternut and black ash. If these species were observed, they would be photographed, and their coordinates recorded. Each individual tree is to be assigned a number and flagged (e.g., flagging tape).

For this survey, transects spaced 10 m apart were walked in suitable habitat, including all treed / forested areas on site and the 50 m surrounding area. Where the 50 m extended to neighbouring lands, inventory was assessed from a distance / over the fence.

Survey area locations are depicted in **Figure 4**.

4.2.7 Incidental Wildlife

Any incidental observations of wildlife as well as other wildlife evidence such as vocalizations, dens, tracks, and scat are to be documented by means of observational notes and photographs. Such observations help validate our conclusions regarding the ecological function and wildlife use of the Study Area.



Legend

- - Site
- Study Area (120m)
- Site Phases
- ▲ Breeding Amphibian Survey
- Breeding Bird Survey
- Headwater Drainage Feature Survey Location
- Headwater Drainage Feature
- Vegetation Species at Risk Transects (5m)

0 50 100 200 300 400 Meters

Scale: 1:6,000


Project:

Abbott's Run Phases 2, 3, & 4

Title:

Field Survey Locations

Prepared By:



Design & Consultancy
for natural and
built assets

Project: 146887

Date: 12/20/2024

Figure: 4

4.3 Natural Heritage Features Assessment

The natural heritage features identified as candidate features based on background review or confirmed present based on field investigations are brought forward for evaluation, as per the applicable provincial and/or federal guidelines for that feature. These methods are described in the sections below.

4.3.1 Significant Woodlands – Urban Criteria

This report makes use of the City of Ottawa's recently released *Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment* (SWG; City of Ottawa 2022d) which notes that within the Urban Area, Ottawa defines all urban woodlands meeting minimum size and age thresholds as significant under the *Natural Heritage Reference Manual* (NHRM) Criterion 4 – Economic and Social Functional Values (MNR 2010).

This policy does not preclude the possibility that urban woodlands may also qualify as significant under other NHRM criteria (City of Ottawa 2022d).

4.3.2 Significant Wildlife Habitat

The PPS indicates that no development or site alteration is permitted within SWH unless it has been demonstrated that there will be no negative impacts on the natural feature or its ecological functions. Wildlife habitat is defined as:

“Areas where plants, animals and other organisms live and find adequate amounts of food, water, shelter, and space needed to sustain their populations. Specific wildlife habitat of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or non-migratory species”.

The ELC communities were compared to the MNRF's *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (2015) and those that were deemed candidate SWH are discussed in **Section 5.6.3** below.

5 Field Survey Results

Fieldwork conducted for the Abbott's Run (Phases 2, 3, and 4) development took place between April 17 and August 2, 2024 by Arcadis Ecologists when weather conditions and timing were deemed suitable based on the survey protocols being implemented. The following sections outline the findings from the field surveys and characterize the existing conditions within the Study Area.

5.1 Site Visit Dates and Purpose

A summary of the dates, times, ambient conditions, and purpose for the site visits are provided in **Table 6** below.

Table 6: Site Visit Summary

Purpose Of Visit	Date	Time	Staff	Weather Conditions	Air Temperature (°C)
HDF#1, PIWO	17-04-2024	1:30PM – 6:00PM	B.Semmler	Mainly Sunny, Gentle Breeze	9
MMP#1	30-04-2024	8:00PM – 10:00PM	B.Semmler, C.Little	Overcast, Light Breeze	7
MMP#2	04-06-2024	8:45PM – 11:45PM	B.Semmler, D.Shaw	Partly Cloudy, Moderate Breeze	26
BBS#1	07-06-2024	4:30AM – 7:30AM	D.Shaw	Mainly Clear, Light Breeze	15
BBS#2	19-06-2024	5:30AM – 8:00AM	D.Shaw	Cloudy, Calm to Light Breeze	32
MMP#3	03-07-2024	9:00PM - 11:00PM	B.Semmler, D.Shaw	Mostly Cloudy, Gentle Breeze	22
HDF#2	18-07-2024	8:00AM – 2:00PM	D.Shaw	Mainly Sunny, Moderate Breeze	17
ELC, SAR	02-08-2024	8:30AM – 2:00PM	D.Shaw	Mostly Cloudy, Light Breeze	24

Notes:

BBS – Breeding Bird Survey

ELC – Ecological Land Classification

HDF – Headwater Drainage Feature; HDF#1 = spring assessment, HDF#2 = summer assessment

MMP – Marsh Monitoring Protocol (i.e., amphibian breeding / call surveys)

PIWO – Pileated Woodpecker (SAR) cavity nest search

SAR – Species-at-Risk

5.2 Aquatic Environment

5.2.1 Headwater Drainage Feature Assessment

A total of eight (8) drainage features were located within the boundaries of the Study Area and were assessed. The detailed HDF assessment table can be found below in **Table 7**. This detailed assessment highlights the management classification proposed by the HDF Guidelines (TRCA and CVC 2014) and the revised management recommendations carried forward in this study based on the specific landscape context of these features.

The management recommendations proposed herein are intended to provide a framework to guide future development while maintaining the ecological and hydrological function that these features have in the natural heritage system. The following provides a summary of the intent for each of the proposed management recommendations, as described in the HDF Guidelines (TRCA and CVC 2014):

Protection: Protect and/or enhance the existing feature and its riparian corridor in-situ.

Conservation: Maintain, relocate, and/or enhance drainage feature and its riparian zone corridor.

Mitigation: Replicate or enhance functions through enhanced conveyance measures. Flows should be conveyed to the appropriate downstream receiver.

Maintain Recharge: Maintain overall water balance by through measures to infiltrate clean stormwater.

Maintain/Replicate Terrestrial Linkage: Maintain or replicate the terrestrial corridor between features.

No Management Required: Incorporate flow conveyance into standard stormwater solutions.

The following sections provide a brief description of the HDF features identified within the Study Area and the proposed management recommendations for each.

Reach AR-a

Based on the background review of feature AR-a, the reach has a history of functioning as an agricultural drain prior to development directly north and south of the feature. Water flow within this reach originates from Phase 2 and Phase 3A and is directed to AR-a through downstream reaches (AR-f, AR-e, and AR-d). Flow within AR-a then travels north towards a section of the Carp River. It was observed that surface flow within this reach is present year-round, with spring depths measuring 295 mm and summer depths measuring 675 mm. Despite being influenced by urban development in the surrounding area, such as roads and residential communities within the 30-meter evaluation zone, this reach still provides important riparian habitat. These habitats are classified as a Dry - Fresh Deciduous Regeneration Thicket (THDM4) and a Dry - Fresh Mixed Meadow (MEMM3), which are valued for their ecological function.

The background review additionally indicated that fish passage occurred within this reach prior to the development of the adjacent community and of Phase 2. Although there is a possibility that fishes may travel through this reach by way of the Carp River, no fishes were observed within this reach at the time of evaluation. Breeding amphibian studies within 2024 revealed that no breeding amphibian habitat was present within or near this reach, nor was any substantial hydrologic function. **Given these characteristics to the presence of Valued Riparian habitat, the proposed management recommendation for Reach AR-a is "Conservation".**



AR-a, April 17, 2024



AR-a, July 18, 2024

Reach AR-b

Feature AR-b has historically functioned as an agricultural ditch prior to being incorporated into a construction drainage channel to facilitate the development of the site. Water flow within this reach originates from Phase 2 and Phase 3A and is directed to reach AR-b through downstream reaches (AR-f, AR-e, and AR-d). Flow within this reach then travels towards AR-a and into the Carp River, or towards AR-c due to a small change in topography. Surface flow within AR-b was minimal during the spring and summer assessment, where recorded depths averaged at 336 mm and 322 mm respectively. Due to a large amount of annual rainfall within the 2024 summer season, it is anticipated that these levels are elevated from their normal limits. It is assumed that under normal rainfall rates, that this reach would contain standing water or be surface damp by summer.

This reach provided limited terrestrial habitat as site conditions were associated with managed lawn, construction, and paved roadways. No fishes or suitable fish habitat was observed on-site. Residential litter, cattails and phragmites were present within the reach, likely due to the ongoing construction within the region. Breeding amphibian studies within 2024 revealed that no suitable breeding amphibian habitat was present within or near this reach, nor was there any substantial hydrologic function. **Given these characteristics, the proposed management recommendation for Reach AR-b is “Mitigation”.**



AR-b, April 17, 2024



AR-b, July 18, 2024

Reach AR-c

Feature AR-c has historically functioned as an agricultural ditch until the development of Phase 1 and Phase 2. Currently, this feature conveys flow from Phase 2, under a culvert towards reach AR-h before being deposited in a SWMP. Surface flow within reach AR-c was minimal year-round with an average depth of 310 mm in the spring and 545 mm in the summer. Due to a large amount of annual rainfall within the 2024 summer season, it is anticipated that these levels are elevated from their normal limits. It is assumed that under normal rainfall rates, that this reach would contain standing water or be surface damp by summer.

This reach provided limited terrestrial habitat as site conditions were associated with cleared / regenerating meadow and construction. No fishes or suitable fish habitat was observed on-site. Cattails and phragmites were present within the reach, likely due to the ongoing construction within the region. Breeding amphibian studies within 2024 revealed that no suitable breeding amphibian habitat was present within or near this reach, nor was

there any substantial hydrologic function. **Given these characteristics, the proposed management recommendation for Reach AR-c is “Mitigation”.**



AR-c, April 17, 2024



AR-c, July 18, 2024

Reach AR-d

Feature AR-d (discussed as Reach-3 in section 3.3.4) has functioned as an agricultural drainage ditch until being re-aligned to facilitate drainage during the development of Phase 2 and Phase 3A. Prior to re-alignment, this reach allowed for fish passage with recorded species noted in Section 3.3.4. However, in the process of re-aligning this feature, fish passage between reach AR-d and AR-a was severed by a 3' change in elevation. Flow from this reach originates from southwest of the site through upstream reaches (AR-e and AR-f) prior to being deposited into downstream reaches (AR-b, AR-a) and the Carp River. Surface flow within reach AR-d was minimal year-round with a depth of 80 mm in the spring and 104 mm in the summer. Due to a large amount of annual rainfall within the 2024 summer season, it is anticipated that these levels are elevated from their normal limits. It is assumed that under normal rainfall rates, that this reach would contain standing water or be surface damp by summer.

This reach provided limited terrestrial habitat as site conditions were associated with cleared / regenerating meadow and construction, with the reach itself being devoid of any vegetation. No fishes or suitable fish habitat was observed on-site. Breeding amphibian studies within 2024 revealed that no suitable breeding amphibian habitat was present within or near this reach, nor was there any substantial hydrologic function. **Given these characteristics, the proposed management recommendation for Reach AR-d is “Mitigation”.**



AR-d, April 17, 2024



AR-d, July 18, 2024

Reach AR-e & AR-f

These features functioned as agricultural drainage ditches prior to the development of Phase 2 and Phase 3A. These reaches are separated by a culvert beneath a construction access road, which channels flow from Phase 3A to the downstream reaches (AR-d, AR-b, AR-a) and the Carp River. Runoff from the business sector near Iber Road flows into the southwestern part of the site before being collected in reach AR-f. Surface flow in both reaches was minimal year-round, with AR-e measuring 120 mm in depth during spring and 168 mm in summer, and AR-f measuring 140 mm in spring and 375 mm in summer. Due to the high rainfall during the summer of

2024, these levels are expected to be higher than usual. Under normal rainfall conditions, it is assumed that this reach would either contain standing water or remain surface damp by summer.

These reaches provide limited terrestrial habitat due to site conditions, which are primarily associated with cleared or regenerating meadows and construction activities. Tire treads from active clearing were visible throughout this section of the site. No fishes or suitable fish habitat was observed on-site. Breeding amphibian studies within 2024 revealed that no suitable breeding amphibian habitat was present within or near this reach, nor was there any substantial hydrologic function. **Given these characteristics, the proposed management recommendation for Reach AR-e and AR-f is “Mitigation”.**



AR-e, April 17, 2024



AR-e, July 18, 2024



AR-f, April 17, 2024



AR-f, July 18, 2024

Reach AR-g

Reach AR-g is isolated and not connected to any upstream or downstream features. It was likely created during recent construction activities, as evidenced by tire treads. Recent clearing in the area has resulted in minimal riparian habitat along the feature. Since this reach is disconnected, no fish or suitable fish habitat were observed. Breeding amphibian surveys in 2024 found no suitable breeding habitat within or near this reach, and no significant hydrological function was observed. **This isolated reach receives a management recommendation of “No Management Required”.**



AR-g, April 17, 2024



AR-g, July 18, 2024

Reach AR-h

Reach AR-h is a recently engineered stormwater management drain with steep slopes made of loose gravel. Waterflow from this reach is collected from AR-c and AR-b, then conveyed through the site to a SWMP outside the Study Area. Due to construction activities from Phases 1, 2, 3, and 4A, the riparian zone lacks any terrestrial habitat. No fishes or fish habitat were observed during HDF surveys, and there was no evidence of breeding amphibians or significant hydrogeologic functions. As this drain is newly constructed, it does not technically meet the criteria for an HDF. **Given these characteristics, the proposed management recommendation for Reach AR-h is “No Management Required”.**



AR-h, April 17, 2024



AR-g, April 17, 2024

A summary of the management recommendations for each feature is provided below in **Table 7** and displayed in **Figure 6**.

Table 7: Headwater drainage Features Assessment and Management Recommendations

Drainage Feature Segment	Step 1		Step 2	Step 3	Step 4	CVC/ TRCA Management Classification	Study Area Management Recommendations
	Hydrology	Modifiers	Riparian Habitat	Fish Habitat	Terrestrial Habitat		
AR-a	Important Function: This reach maintains surface flow year-round.	Flow originates from nearby construction activities and runoff from residential houses in Phase 2.	Valued Function: The adjacent riparian conditions are dominated by recently disturbed meadow and pockets of willow thicket.	Contributing Function: This feature provides minimal allochthonous transport to downstream habitats. No fish were observed within reach.	Limited Function: There are no upstream features on this site that facilitate habitat mobility.	Protection	Conservation Originally designed as an agricultural drain, this reach now channels flow from construction activities in Phase 2 toward two stormwater management ponds and a section of the Carp River to the northwest.
AR-b	Important Function: This reach maintains minimal surface flow year-round.	Flow originates from nearby construction activities. Construction sediment was observed within the reach.	Limited Function: Riparian conditions are associated with managed Lawn for the adjacent recreation park and pavement associated with Blackbend Terrace.	Contributing Function: This feature provides minimal allochthonous transport to downstream habitats. No fish were observed within reach.	Limited Function: There are no upstream features on this site that facilitate habitat mobility.	Protection	Mitigation Site conditions are heavily influenced by on-site construction activities related to the development of Phase 2. An unseasonably wet year allowed surface flow to persist into the summer, whereas under normal conditions, the area would likely experience either standing water or surface dampness. No other significant ecological functions were observed.
AR-c	Important Function: Minimal surface flow was observed in this reach during all HDF assessments.	Flow from the active construction stie currently contributes to this site. High concentrations of precipitation occurred this year	Limited Function: This area has been recently cleared and graded. Newly established vegetation occurs adjacent to reach.	Contributing Function: This feature provides minimal allochthonous transport to downstream habitats. No fish were observed within reach	Limited Function: There are no upstream features on this site that facilitate habitat mobility.	Protection	Mitigation Site conditions are heavily influenced by on-site construction activities related to the development of Phase 2. An unseasonably wet year allowed surface flow to persist into the summer, whereas under normal conditions, the area would likely experience either standing water or surface dampness. No other significant ecological functions were observed.
AR-d	Important Function: This reach maintains minimal surface flow year-round.	This reach has ben recently dug for the purpose of facilitating flow across the site. No vegetation is present.	Limited Function: This area has been recently cleared and graded. Newly established vegetation occurs adjacent to reach.	Contributing Function: This feature provides minimal allochthonous transport to downstream habitats. No fish were observed within reach	Limited Function: There are no upstream features on this site that facilitate habitat mobility.	Protection	Mitigation This reach features a recently excavated drainage channel dug for the purpose of facilitating flow across the site. Although flow was present during all HDF assessments, it is assumed that an unseasonably wet year allowed surface flow to persist into the summer, whereas under normal conditions, the area would likely experience either standing water or surface dampness. No vegetation or suitable habitat is located within this reach.
AR-e	Important Function: This reach maintains minimal surface flow year-round.	This reach has been recently dug for the purpose of facilitating flow across the site. No vegetation is present.	Limited Function: This area has been recently cleared and graded. Newly established vegetation occurs adjacent to reach.	Contributing Function: This feature provides minimal allochthonous transport to downstream habitats. No fish were observed within reach	Limited Function: There are no upstream features on this site that facilitate habitat mobility.	Protection	Mitigation This reach features a recently excavated drainage channel dug for the purpose of facilitating flow across the site. Although flow was present during all HDF assessments, it is assumed that an unseasonably wet year allowed surface flow to persist into the summer, whereas under normal conditions, the area would likely experience either standing water or surface dampness. No vegetation or suitable habitat is located within this reach.

Drainage Feature Segment						CVC/ TRCA Management Classification	Study Area Management Recommendations
	Step 1		Step 2	Step 3	Step 4		
	Hydrology	Modifiers	Riparian Habitat	Fish Habitat	Terrestrial Habitat		
AR-f	Important Function: This reach maintains minimal surface flow year-round.	Tread marks from land clearing activities have flattened out this reach resulting in a disrupted flow.	Limited Function: This area has been recently cleared and graded. Newly established vegetation occurs adjacent to reach.	Contributing Function: This feature provides minimal allochthonous transport to downstream habitats. No fish were observed within reach	Limited Function: There are no upstream features on this site that facilitate habitat mobility.	Protection	Mitigation his reach channels runoff from the western extent of the site and the Business Sector (CVC_1) to the west. Flow from AR-f continues to bisect the property through newly constructed drains.
AR-g	Not Applicable: This feature is isolated and not connected to any upstream or downstream features. Standing water was observed during spring and summer surveys.	Tread marks from land clearing activities have flattened out this reach resulting in a disrupted flow.	Limited Function: This area has been recently cleared and graded. Newly established vegetation occurs adjacent to reach.	Contributing Function: This feature provides minimal allochthonous transport to downstream habitats. No fish were observed within reach	Limited Function: There are no upstream features on this site that facilitate habitat mobility.	Protection	No Management Required This feature is no longer connected to upstream or downstream watercourses and does not convey flow. As such, it does not actually meet the definition of a headwater feature.
AR-h	Not Applicable: This feature is a recently engineered storm water management drain with flow during spring and summer surveys.	Steep gravel banks devoid of vegetation line the reach.	Limited Function: This area has been recently constructed to convey runoff from existing communities and has no existing vegetation.	Contributing Function: This feature provides minimal allochthonous transport to downstream habitats. No fish were observed within reach	Limited Function: There are no upstream features on this site that facilitate habitat mobility.	Protection	No Management Required This feature is a recently engineered storm water management drain and does not actively meet the definition of a headwater feature.

5.2.2 Groundwater and Hydrologic / Hydrogeologic Assessment

The following details regarding the groundwater and hydrological / hydrogeological characteristics of the Subject Site have been determined from Houle Chevrier (2016):

- Subsurface conditions consisted of a topsoil layer underlain by surficial deposits of silty clay, silt, sandy silt and clayey silt.
- Overburden thickness ranged from 0 to 3 metres within the west portion of the Phase 1 and 2 lands, increasing to between 5 and 10 metres to the north and east.
- Published geologic mapping indicates that the bedrock is mapped as interbedded silty dolostone, limestone, shale and fine-grained calcareous quartz sandstone of the Gull River formation.
- No bedrock faults are mapped at the site.
- Groundwater was observed between ground surface and 2.5 metres below ground surface in selected test pits. Houle Chevrier (2016) also noted that substantial groundwater inflow should be expected from tile drains that are present under many of the agricultural fields, particularly during wet periods of the year.

Refer to Houle Chevrier (2016) for more details. Further investigation by other professionals may be required to provide an update to the Houle Chevrier (2016) report regarding the existing groundwater and hydrologic / hydrogeologic conditions at the Subject Site.

5.2.3 Fishes and Fish Habitat Assessment

All headwater drainage features were assessed for the presence of fishes and fish habitat; however, no fishes were observed during the survey period. Observations revealed that reaches located on-site are not connected to any upstream features and have no connectivity to quality fish habitat except for the easternmost drainage feature segment, reach AR-a.

AR-a (Direct)

This reach is situated exclusively within the Study Area and not located on-site. No fishes or invertebrates were observed within the assessed reach of AR-a during the assessment. However, as AR-a has direct linkage to the Carp River, it is assumed that this reach may contain fishes and direct fish habitat. While fish passage from this feature into AR-b is possible, a 3' elevation change disconnects reach AR-a from AR-d. Highwater conditions could facilitate the movement of fishes upstream from AR-a towards reaches AR-b, AR-c, and AR-h.

AR-b (Direct / Indirect)

This constructed reach is situated along the central-eastern border of the Site and lies between reach AR-a and AR-c. No fishes or invertebrates were observed in the assessed segment of AR-b during surveys. AR-b is directly connected to reach AR-a, which has been identified as direct fish habitat. Highwater conditions could facilitate the movement of fishes upstream from AR-a towards reach AR-b, AR-c, and AR-h. High concentrations of debris and invasive species such as Phragmites dominate this region.

AR-c (Indirect)

This constructed reach traverses across the southeastern corner of Phase 2 of the Site and lies between reach AR-b and AR-h. No fishes or invertebrates were observed in the assessed segment of AR-c during surveys.

Highwater conditions could facilitate the movement of fishes upstream from AR-a towards reach AR-b, AR-c, and into AR-h.

AR-d (Indirect)

Nearly bisecting the property, this recently dug trench serves as a realignment of Feature-3, as outlined in Section 3.3.4. Field investigations indicated that the potential for fish migration from AR-a into reach AR-d is limited due to a 3-foot elevation change along the excavated drainage channels created by ongoing construction, which acts as a barrier to fish movement. Prior to the realignment, mapping from DFO suggests that Feature-3 hosted fish species, as reviewed in the Background Review (Section 3.3.4). The lack of connectivity to both upstream and downstream fish habitat further indicates that this reach does not support fish mobility.

AR-e (Indirect)

Connected to AR-d and AR-f, this reach extends across the site beneath culverts that support the construction access road for Phase 1 development. No fishes or invertebrates were observed in AR-e during the assessments. A lack of connectivity to both upstream and downstream fish habitat indicates that this reach does not support fish mobility.

AR-f (Indirect)

Connected to AR-e, this reach extends across the site beneath culverts that support the construction access road for Phase 1 development. Wet areas of a Constructed/Fresh-Moist Mixed Meadow (CV/MEMM4) are located to the west of the reach, where they convey runoff from developed areas at the western end of the site. No fishes or invertebrates were observed in AR-f during the assessments, and the lack of connectivity to both upstream and downstream fish habitat suggests that this reach does not support fish mobility.

AR-g (Disconnected Feature)

No fishes or invertebrates were observed within this disconnected feature during the assessment, and the lack of connectivity to both upstream and downstream fish habitat suggests that this reach does not support fish mobility.

AR-h (Indirect / Contributing)

This recently constructed stormwater management drain is located on the border between Phase 1 and the hydro cut. Reach AR-h is connected to reach AR-c via a culvert that runs under a construction road. Field investigations indicated that while fish migration from AR-c into AR-h is limited, it may be possible during high-water conditions, which could facilitate upstream fish movement. However, this feature lacks in-stream vegetation and has steep, loose gravel slopes, suggesting that this reach does provide minimal fish habitat.

5.3 Terrestrial Environment

The subsections below provide the results of surveys related to the terrestrial environment of the Study Area. Where applicable, survey results are illustrated in **Figure 5** below.

5.3.1 Ecological Land Classification

The ELC survey identified a total of eighteen (18) vegetation communities (minimum size 0.5 ha as per ELC, unless a significant smaller community is identified), representing two (2) wetland communities, five (5) upland communities, and six (6) cultural communities within the Study Area.

The wetland environment includes:

- Meadow Marsh (tree and shrub cover $\leq 25\%$; dominated by emergent hydrophytic macrophytes, made up of species less tolerant to prolonged flooding)
- Thicket Swamp (tree cover $\leq 25\%$; hydrophytic shrubs $\geq 25\%$)

The upland environment includes:



- Forb Meadow (dominated by broadleaf species)
- Mixed Meadow (dominated by herbaceous species with no more than 25% cover provided by either shrub or tree species)
- Thicket (shrub cover $>25\%$, tree cover $< 25\%$, shrub cover varies from scattered and patchy to continuous)
- Woodland (tree cover $>35\%$ but $<60\%$, semi-closed treed communities)
- Deciduous Forest (deciduous tree species $> 75\%$ of canopy cover)

The cultural environment is characterized by $\leq 60\%$ tree cover, often having a large proportion of non-native plant species with variable site conditions and substrate types. These communities result from, or are maintained by, cultural or anthropogenic-based disturbances. The cultural environment within the Study Area includes:


- Agriculture
- Constructed



The communities documented during ELC surveys, including reference photos, as well as the dominant vegetation cover is summarized below in Error! Reference source not found. and displayed in **Figure 5**.

Table 8: Summary of Ecological Land Classification

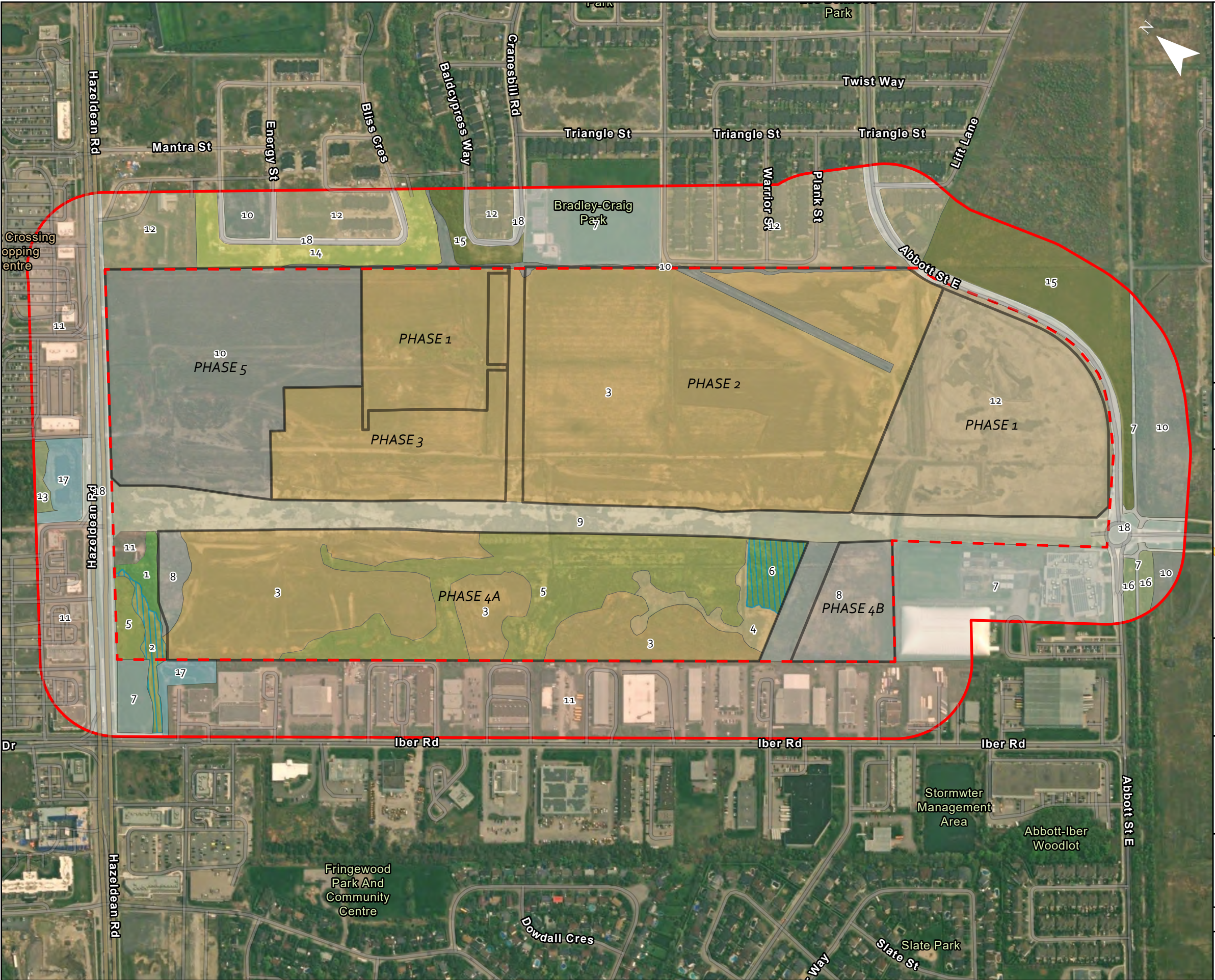
ELC TYPE	TOTAL AREA (HA)	COMMUNITY DESCRIPTION	PHOTO RECORD
UPLAND – Forb Meadow (MEF)			
CV / MEFM1 Constructed / Dry-Fresh Forb Meadow	43.3	This community exists within the eastern and western extents of the Site, taking up Phase 2 and the northern portion of Phase 1 in the eastern extents. This is a highly disturbed area having been cleared in the previous years and was agriculture historically. Some areas have settling mounds in rows and the segments between have slightly different vegetation communities. Centrally, ground cover is sparser (60% coverage) with asters and goldenrods among primrose and invasive clovers. To the south of Phase 2 the area becomes dominated by invasive wild parsnip and bull thistle with other broadleaf species poking through, coverage is also denser (80% coverage) comparatively. The areas in western extent are less disturbed but still rife with invasives like bull thistle and purple loosestrife. There is some canopy (<5% coverage) along the property on Iber road primarily composed of green ash.	Looking west along eastern extent, showing regeneration in disturbed area. Photo taken 19.06.2024. 
CV / MEMM4 Constructed / Fresh-Moist Mixed Meadow	6.9	This community exists within the western extent of the Site, bordering the swamp thicket (SWTM5). As with others, it has been significantly disturbed. Areas around thicket have been cleared and water pools in equipment tracks. Along edges of wet spots, sedges can be found (e.g. bladder sedge, dark-green rush, cotton-grass) with invasive purple loosestrife.	Looking south along SWTM5 boundary. Photo taken 02.08.2024. 

ELC TYPE	TOTAL AREA (HA)	COMMUNITY DESCRIPTION	PHOTO RECORD
UPLAND – Mixed Meadow (MEM)			
MEMM3 Dry-Fresh Mixed Meadow	2	This area is outside the property along the eastern boundary of Phase 4 and the northern portion of Phase 1. This area has a mix of graminoids such as Kentucky blue grass and reed canary grass along with forb species such as wild parsnip and bull thistle.	
CV / MEMM4 Constructed / Fresh- Moist Mixed Meadow	6.9	This community exists within the western extents of the Site, with a small area in the north-west corner and south between MEFM1 communities. This regenerative area has been significantly disturbed but less recently than other areas. The canopy (10% coverage, 10-12m tall), similar to MEFM1, primarily exists along western border properties along Iber Road and is comprised mainly of green ash with invasive buckthorn. The subcanopy (5% coverage) and understory (5% coverage) have the same species with grape vine. Ground cover (90% coverage) is more dense than in the eastern extents as regenerative growth has had more time. This area has a mix of graminoid and forb species, graminoids such as reed canary grass are extensive while forb species like goldenrod, asters, and thistles were mixed in.	Looking across site. Photo taken 02.08.2024. 
UPLANDS – Thicket (TH)			
CV / CUT Constructed / Cultural Thicket	3.8	This community exists directly south of hydrocut and SWTM5 in the south-west corner of the property, Phase 3B. Also an area of disturbance but is regenerating with shrub species such as dogwood and willow. The area also features the invasive wild parsnip. The area has a similar height throughout (1.5m tall) and somewhat densely populated (85% coverage).	

ELC TYPE	TOTAL AREA (HA)	COMMUNITY DESCRIPTION	PHOTO RECORD
THDM4 Dry-Fresh Deciduous Regeneration Thicket	4.8	This community has a small area east of the property and north of Bradley-Craig Park and a larger area to the south-east of the property, both areas are off property but partially within the study area. These areas have been impacted by development but show regenerating stems of green ash and Manitoba maple along with shrubby species like dogwood and buckthorn, the ground features a mix of forb and graminoid species, with the majority being invasives.	
UPLANDS – Woodland (WO)			
WOD Deciduous Woodland	0.4	This community borders a multi-use recreational trail to the south-west of the property and is located south of Abbott Street East. This area contains basswood, Norway maple, and ash trees, with shrubby species such as European buckthorn in the lower levels.	
UPLANDS – Deciduous Forest (FOD)			
FOD Deciduous Forest	0.2	This community exists north of Hazeldean Road, in line with the center of the property.	
FODM7-7 Fresh-Moist Manitoba Maple Lowland Deciduous Forest	0.4	This Manitoba maple lowland deciduous forest is located in the north-west corner of the Site, adjacent to Guardsman Insurance Services. The canopy is dominated by Manitoba maple (15-20m tall, 30% coverage) with green ash and willow in the subcanopy (8-12m tall, 20% coverage). There was a similar composition in the understory (0.5-5m tall, 40% coverage) along with buckthorn and river grape vine. The ground layer (60% coverage) have a variety of the above mentioned species along with forb species such as goldenrods and reed canary grass coming in from the edges. The trees south of the insurance business were cleared prior to assessment, assume a similar composition.	<p>Looking across property line with insurance business and what remains of forest. Photo taken 02.08.2024.</p> 

ELC TYPE	TOTAL AREA (HA)	COMMUNITY DESCRIPTION	PHOTO RECORD
WETLAND – Meadow Marsh (MAM)			
MAMM1-3 Reed-canary Grass Graminoid Mineral Meadow Marsh	0.5	<p>This reed canary grass meadow marsh is in the north-west corner of the Site, west of Guardsman Insurance. The area borders the watercourse coming from the pond offsite and leading north past Hazeldean road. The canopy (10% coverage, 10-12m tall) was sparse with small stems of green ash and buckthorn. The subcanopy (5% coverage, 7-8m tall) and understory (5% coverage, 0.5-5m tall) had similar composition with willow and buckthorn stems mixed in. The ground layer (90% coverage) was dense with reed canary grass as well as purple loosestrife and cattails towards the west end of area.</p>	<p>Looking south across area. Photo taken 19.06.2024.</p> 
WETLAND - Thicket Swamp (SWT)			
CV / SWTM5 Constructed / Mineral Deciduous Thicket Swamp	0.8	<p>This ecosite is in the south-west corner of the Site, with the hydrocut along its southern border. This area has been fenced with orange temporary snow fencing (in photo for MEFM4), so it is slightly less disturbed than surrounding areas. The canopy (12-15m tall, 20% coverage) was primarily trembling aspen, with the same for the sub-canopy (8-10m tall, 10% coverage). Whereas the understory (0.5-5m tall, 20% coverage) featured glossy buckthorn centrally with more green ash and willow along the edges. Ground cover (70% coverage) was composed of sensitive fern, loosestrife, blue-stemmed goldenrod mixed in with ash and buckthorn saplings. Hummock-type depressions with evidence of holding water were present throughout.</p>	<p>Patch of sensitive fern inside thicket 02.08.2024.</p> 

ELC TYPE	TOTAL AREA (HA)	COMMUNITY DESCRIPTION	PHOTO RECORD
CULTURAL – Constructed (CV)			
CGL Green Lands	8.4	Bradley-Craig Park east of the Site and sports fields in south-west corner.	
CV Constructed Lands	7.5	Areas within the Study Area are comprised of active construction lands and construction access roads. Almost all areas have been impacted by construction activities recently. This area also includes a watercourse along the eastern border of the property.	
CVC_1 Commercial and Institutional	20.1	There is an insurance company in the north-west extent of the Site at 5654 Hazeldean Road, along with businesses on the north side of Hazeldean, and there are businesses along Iber Road, the western border of the Site.	
CVI Transportation and Utilities	1.2	This area consists of a storm water management pond located on the north side of Hazeldean Road.	
CVI_1 Transportation	6.2	These areas consist of major roads, right of ways, and hydro corridors.	
CVR Residential	19.6	These areas consist of residential homes south and east of the Site.	



Legend

- Site
- Study Area (120m)
- Site Phases

Ecological Land Classification

- 1 - Fresh - Moist Manitoba Maple Lowland Deciduous Forest (FODM7-7)
- 2 - Reed-canary Grass Graminoid Mineral Meadow Marsh (MAMM1-3)
- 3 - Constructed / Dry - Fresh Forb Meadow (CV / MEFM1)
- 4 - Constructed / Fresh - Moist Forb Meadow (CV / MEFM4)
- 5 - Constructed / Fresh - Moist Mixed Meadow (CV / MEMM4)
- 6 - Constructed / Mineral Deciduous Thicket Swamp (CV / SWTM5)
- 7 - Green Lands (CGL)
- 8 - Constructed / Cultural Thicket (CV / CUT)
- 9 - Constructed - Access Road (CV)
- 10 - Constructed (CV)
- 11 - Business Sector (CVC_1)
- 12 - Residential (CVR)
- 13 - Deciduous Forest (FOD)
- 14 - Dry - Fresh Mixed Meadow (MEMM3)
- 15 - Dry - Fresh Deciduous Regeneration Thicket (THDM4)
- 16 - Deciduous Woodland (WOD)
- 17 - Transportation and Utilities - SWMP (CVI)
- 18 - Transportation (CVI_1)

0 50 100 200 300 400 Meters

Scale: 1:6,000


Project:

Abbott's Run Phases 2, 3, & 4

Title:

Ecological Land Classification

Prepared By:



Design & Consultancy
for natural and
built assets

Project: 146887

Date: 12/20/2024

Figure: 5

5.3.2 Botanical Inventory

The botanical inventory identified eighty-three (83) vegetation species within the Study Area which are listed in **Appendix** . Majority of the vascular plants inventoried are considered common throughout Ontario and are native species.

A Floristic Quality Assessment (FQA) was conducted to determine the site's level of ecological integrity based on plant species composition. A coefficient of conservatism (CC) value is assigned to each species, ranging from 0 to 10, with 10 having a lower tolerance to disturbance and restricted to undisturbed habitats.

Only two (2) vascular plants had CC values ranging from 7-10 (high to highest sensitivity). These included meadow evening-primrose and upland white goldenrod. However, the average CC value was 1.8, indicating that most of the vascular plants within the Study Area have a relatively high tolerance to disturbance and, if given the opportunity, could recover in adjacent suitable habitat. No SAR or Species of Conservation Concern plants were observed.

5.3.3 Amphibian Call Surveys

A total of one (1) amphibian species was observed within the Study Area during the 2024 field program, outlined in **Table 9** below.

Table 9: Amphibian Survey Results

Common Name	Scientific Name	Station ID	Number of Observations	Meets SWH Criteria
Green Frog	<i>Lithobates clamitans</i>	ABR-04	1 (Call Code 1)	No

During the third survey, a single Green Frog was heard calling at station ABR-04, located in the southwest corner of the site. While this frog was recorded within the Reed-canary Grass Graminoid Mineral Meadow Marsh (MAMM1-3) community, it was the only occurrence of a breeding amphibian on the entire site. The quantity or species diversity required to support Candidate Amphibian Breeding SWH (Woodland) was not met within the developable property.

5.3.4 Breeding Bird Survey

A total of 22 bird species were recorded during the breeding bird surveys. Evidence of breeding birds occurred as the following:

- Singing males being present within suitable nesting habitat [**Possible Breeders**];
- Pairs of a species and territorial behaviour observed in suitable nesting habitat or singing on territory on both visits or adults carrying food (for young) [**Probable Breeders**];

There were no active nests of fledged young observed for confirmed breeding status.

Most of the birds recorded are common within the City of Ottawa, and generally have secure populations within Ontario. No SAR or Species of Conservation Concern birds were observed during these surveys. Several probable breeding pairs of songbirds, (e.g. yellow warbler and common yellowthroat) were observed singing on both visits to suggest breeding territory. Additionally, the eastern extent had many probable breeders of song and savannah sparrows as they were observed carrying food assumed for young. In this area killdeer were also observed feigning injury in a typical nest defence strategy, so they were also a probable breeding species.

A record of the bird species observed within the Study Area, including their conservation status, can be found in **Appendix**.

5.4 Species at Risk

5.4.1 SAR Bats

Although no targeted acoustic surveys were completed, suitable day roost habitat is present in the forested areas within the Subject Site.

It has been determined that there is suitable habitat for bats within the Study Area. For this reason, these species are being carried forward to evaluation.

5.4.2 Butternut

Butternut was searched for within the forested areas on the Subject Site and surrounding Study Area; however, this species was not observed during field surveys completed in 2024.

It has been determined that there is no known butternut trees present within the Study Area. Note that butternut inventories have a validity period of 2 years (in this case until August 31, 2026). For this reason, this species is being carried forward to evaluation.

5.4.3 Black Ash

Black ash was searched for in tandem with butternut searches. There was no observations of black ash or suitable habitat for this species within the Study Area.

It has been determined that there is no known black ash trees present within the Study Area. For this reason, this species is not being carried forward to evaluation.

5.5 Incidental Wildlife

Incidental wildlife species and general wildlife observations were documented during the field survey program, and included black swallowtail, coyote, northern leopard frog, northern raccoon, and white-tailed deer, among others. A complete list of observed incidental wildlife can be found in **Appendix E**.

Most species observed are common in Ontario and the City of Ottawa and appeared as residents of the Study Area.

5.6 Natural Heritage Features

5.6.1 Wetlands

NHIC mapping indicated the presence of two (2) unevaluated wetlands within both woodlands in the Study Area. These features were identified in the background review using MVCA and LIO databases as illustrated in **Figure 3**. These communities were verified during the ELC field visits and a detailed description of the ELC communities can be found in Error! Reference source not found. above.

Wetland Feature 1: This feature is in the northwestern extent of the Site, south of Hazelden Road and northeast of Iber Road. Both MCVA and LIO mapping identify this feature as a 'Swamp' community measuring 0.16 ha and 1 ha in size respectively. A review of historical aerial photography from geoOttawa suggest that this feature once operated as an agricultural drain in a naturally low-lying point. In 2024, this wetland receives flow from an underground culvert running under Hazelden Road from the SWMP north of the Site. During the 2024 ELC

surveys, this feature was classified as a Reed-canary Grass Graminoid Mineral Meadow Marsh (MAMM1-3) community measuring approximately 0.5 ha in size (**Figure 4**). The area surrounding the feature has been heavily altered due to land development in adjacent areas, contributing to the dominating presence of invasive, non-native Reed Canary Grass. No breeding amphibians were heard calling within this feature during targeted surveys in 2024.

Wetland Feature 2: This feature is situated at the southeastern corner of Phase 3A, bordering the hydro corridor that separates Phase 3A from Phase 3B. Both MVCA and LIO mapping identify this feature as a 'Swamp' community measuring 0.8 ha and 1.3 ha respectively. During the 2024 ELC delineation surveys, this feature was identified as a Constructed / Mineral Deciduous Thicket Swamp (CV / SWTM5) community measuring approximately 0.8 ha. Historical imagery from geoOttawa suggests that a majority of the original feature was removed between 2022 and 2024. It is understood that this feature has been significantly impacted by ongoing property development, which is why it has been classified as a Constructed (CV) community, preceding the vegetative community designation. This community supports a variety of fast-growing deciduous species, including trembling aspen, glossy buckthorn, and sensitive fern. Snow fencing surrounds the perimeter, indicating that the feature is being protected from further development. Water is supplied to this feature by runoff from elevated lands to the west and north, which accumulates in the community and is retained by the low-lying clay basin. Drainage features to the north of the community once provided additional flow to this wetland. However, these features have been disturbed by construction activities, with large holes and trenches now surrounding the fenced edges.

Based on the ELC/wetland verification surveys completed in 2024, it has been determined that there is two (2) wetland ecosites within the Site boundaries.

5.6.2 Significant Woodlands

This report makes use of the City of Ottawa's recently released *Significant Woodlands Guidelines*, (2022) which notes that Ottawa defines all urban woodlands meeting minimum size and age thresholds as significant under *NHRM Criterion 4 – Economic and Social Functional Values*. In application, only those areas of an urban woodland that are greater than 60 years old, as demonstrated through aerial photography or other means, will be identified as significant and counted toward the 0.8 ha size threshold.

A review of historical imagery dating back to 1976 reveals that there are no woodlands greater than 60 years old that had measured greater than 0.8 ha in size (**Photo 1**).



Photo 1: Historical Imagery from 1976

Imagery from 1976 shows that the Fresh-Moist Manitoba Maple Lowland Deciduous Forest (FODM7-7) in the northwestern section of the site contained only a few mature trees, covering about 0.2 ha. This small woodlot, visible in the 1976 aerial imagery, has been subsequently removed to facilitate the development of Phase 3A.

The Constructed / Mineral Deciduous Thicket Swamp (CV / SWTM5) to the southwest of the Site, was not present in 1976. Instead, a small thicket community is visible in the areal imagery, which later transformed into a woodlot in the early 2000's.

There are no woodlands considered significant as they do not meet the minimum age or size requirements as per City guidelines.

5.6.3 Significant Wildlife Habitat

The ELC communities within the Study Area were compared to the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNRF 2015) and those that were deemed candidate SWH are discussed below. The full SWH assessment can be found in **Appendix** .

- Based on the results of the amphibian surveys and general field observations, suitable Woodland Amphibian Breeding Habitat is present within the Mineral Deciduous Thicket Swamp community. However, only one green frog was observed within this feature during surveys, which does not meet the quantity or species diversity requirements to support *Candidate Amphibian Breeding Habitat* (Woodland).
- Based on the results of the bat habitat assessment, ***Candidate Bat Maternity Colony Habitat*** is not present within the Mineral Deciduous Thicket Swamp community, as the trees within this feature do meet the se requirement or decay class to support maternity roosting. However, day roosting habitat is available within the forested areas on Site.

Based on the results of the field surveys, Significant Wildlife Habitat is not present within the Study Area.

5.7 Summary of Existing Conditions

Following the background review and site investigations, the following have been confirmed *absent* from the Study Area:

- Areas of Natural and Scientific Interest.
- Provincially Significant Wetlands.
- Significant Valleylands.
- Significant Woodlands
- Significant Wildlife Habitat.

Furthermore, the vegetation communities and landscape within the Study Area have been confirmed to provide the following:

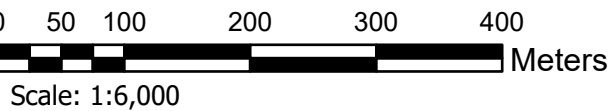
- Habitat for Endangered or threatened species (SAR Bats).
- Unevaluated wetlands; and
- Indirect / contributing fish habitat.

Figure 66 displays the notable results of the field surveys, and **Table 101010** provides a summary of the work completed and existing conditions within the Abbott's Run Study Area.



Legend

- - Site
- Study Area (120m)
- Site Phases
- Field Mapped Wetlands
- HDF Management Reccomendations
 - Conservation
 - Mitigation
 - No Management Required



Project:
**Abbott's Run
Phases 2, 3, & 4**

Title:
Field Survey Results

Prepared By:
ARCADIS Design & Consultancy
for natural and
built assets

Project: 146887
Date: 12/20/2024

Figure: 6

Table 1010: Summary of Existing Conditions

Natural Heritage Feature	Field Surveys Completed	Confirmed within the Study Area	Existing Conditions	Regulatory Agency
Fish Habitat	<ul style="list-style-type: none"> Fish Habitat Assessment HDF Assessments 	✓	<ul style="list-style-type: none"> Indirect / contributing fish habitat present as HDF-1 and HDF-2. HDF-3 (historic direct fish habitat) substantially altered and no longer supports fish / aquatic habitat. Downstream receivers of flows from the Study Area likely contain direct fish habitat (e.g., Carp River). 	<ul style="list-style-type: none"> DFO MVCA
Groundwater	<ul style="list-style-type: none"> Refer to Houle Chevrier (2016) 	-	-	<ul style="list-style-type: none"> Mississippi Rideau Source Protection Region
Wetlands	<ul style="list-style-type: none"> ELC Wetland Delineation 	✓	<ul style="list-style-type: none"> Results of the 2024 wetland verification surveys confirmed two (2) wetlands within the Study Area. 	<ul style="list-style-type: none"> City of Ottawa MVCA
Woodlands	<ul style="list-style-type: none"> Significant Woodlands Assessment 	-	<ul style="list-style-type: none"> There are no Significant Woodlands within the Subject Site 	<ul style="list-style-type: none"> City of Ottawa
Significant Wildlife Habitat	<ul style="list-style-type: none"> Amphibian Breeding Surveys Breeding Bird Surveys Incidental Wildlife Observations Significant Wildlife Habitat Assessment 	-	<ul style="list-style-type: none"> There is no Significant Wildlife habitat within the Subject Site 	<ul style="list-style-type: none"> City of Ottawa
Species at Risk	<ul style="list-style-type: none"> Breeding Bird Surveys SAR Plant Searches Incidental Wildlife Observations 	✓	<ul style="list-style-type: none"> Suitable habitat for bats within the Study Area. 	<ul style="list-style-type: none"> MECP

6 Description of the Development Proposal

The Abbott's Run Concept Plan for Phases 2, 3, and 4 is proposing to develop a mix of single homes, executive town homes, and 4-6 storey medium density condos. This plan also includes a school, dedicated park areas, a stormwater management pond, and associated roadway and parking areas. It should be noted that the proposed Concept Plan has incorporated retention of the only woodland (Mineral Deciduous Thicket Swamp – SWTM5) within the Subject Site as well as the wetland feature (reed canary grass meadow marsh – MAMM1-3) in the northwestern extents of the Site. Refer to **Figure 7** below for the proposed Site Plan.

6.1 Construction Activities

Much of the Subject Site has already been cleared and graded and is currently under active construction. It is assumed the development of this property will include the following major Project components:

- Surveying and staking out the development.
- Clearing of vegetation, excavation, and grading to accommodate construction.
- Installation of stormwater drainage network and related infrastructure.
- Excavation to accommodate underground utilities including water, sewer, gas, and hydro.
- Construction of homes, condos, and a school; and
- Landscaping and fencing.

6.2 Stormwater Management

The property has been graded to allow stormwater to run into the proposed stormwater drainage network within the Phase 1 block on the eastern extents of the Subject Site. The Study Area currently conveys flows this direction and runoff will be managed by the SWMP.

7 Development Constraints and Opportunities Analysis

The Subject Site has few constraints present. The Site is highly disturbed due to past clearing activities and current active construction. The vegetation present is dominated by weedy and non-native species that provide low wildlife value. The primary constraints to development are the two (2) wetland communities, two (2) wooded areas, and the headwater drainage features (**Figure 3**). These constraints are further explained below:

- This EIS recommends retention of the woodland/swamp community (Mineral Deciduous Thicket Swamp – SWTM5) in the south-west corner of the Site.
- This EIS recommends retention of the wetland feature (reed canary grass meadow marsh – MAMM1-3) in the northwestern extents of the Site.
- The management recommendation for the headwater drainage feature that runs through the Study Area is "mitigation". As such, contributing function of the feature should be maintained. These details should support approval of an MVCA permit and realignment of this feature.

8 Impact Assessment and Mitigation Measures

The following sections describe the anticipated environmental impacts associated with the proposed development and the mitigation measures that should be implemented to protect the natural heritage features identified within the Subject Site. This Section also outlines the constraints and potential opportunities associated with the proposed development within the Study Area (**Figure 8**).

This impact assessment and associated mitigation measures consider both temporary (i.e., construction-related) impacts and permanent impacts associated with the occupation of the development.,

8.1 Aquatic Environment

8.1.1 Headwater Drainage Features

The proposed development of the Subject Site will require the removal of a headwater drainage features that run through the middle of the Site. Headwater drainage feature flows will be conveyed from the west, on-site stormwater will be captured by the proposed stormwater management pond located in Block 1 and conveyed downstream.

As per the HDF Guideline, the “mitigation” management recommendation suggests retaining the key functions of the feature. Based on existing conditions, the absence of fish habitat and the current function of the headwater drainage feature is to convey stormwater to the proposed SWMP in the eastern extents of the Subject Site.

8.1.1.1 Recommendations

- ✓ Stormwater retention, site grading, and quality control measures should be designed to appropriately direct stormwater and surface flows to downstream receivers to maintain the function of the HDF features identified as “Mitigation”. This includes features, AR-b, AR-c, AR-d, AR-e, and AR-f.
- ✓ Features AR-g and AR-h, with a “no management required” recommendation, can be removed and incorporated into the stormwater management system.
- ✓ Consultation with MVCA is recommended to ensure in compliance with the *Conservation Authorities Act* regarding reaches AR-a and AR-b.

8.1.1.2 General Mitigation Measures

- ✓ A detailed *Erosion and Sediment Control Site Plan* should be developed for implementation during construction to prevent impacts from all associated activities to adjacent water features.
- ✓ Fish timing window (July 1 to March 14, inclusive) – no work within the highwater mark of HDFs outside of this period, and high risk of negative impacts if accidents or malfunctions affecting water quality occur outside of this period.

8.1.2 Groundwater Assessment

Refer to Houle Chevrier (2016) for more details. Further investigation by other professionals may be required to provide an update to the Houle Chevrier (2016) report regarding the existing groundwater and hydrologic / hydrogeologic conditions at the Subject Site

8.1.2.1 Recommendations

- ✓ It is recommended that Low Impact Design alternatives include elements that would contribute to or enhance the natural heritage system.

8.1.3 Fish and Fish Habitat

Three headwater drainage features historically bisected the property, providing direct fish habitat on the Subject Site. However, the central and southern features have been removed or significantly altered under the previous / on-going Abbott's Run Phase 1 development and was determined by Muncaster (2022) to no longer provide aquatic habitat. The northern feature only bisects a corner of the development area and will be retained within a naturalized corridor. The headwater drainage features assessed in 2024 were primarily associated with permanent or temporary stormwater management solutions to facilitate ongoing construction activities. As such it is understood that these features will be either realigned or removed to accommodate the ultimate stormwater solution.

Retained Feature

The feature identified in the northwestern corner of the subject property lacked the characteristics of a watercourse during field investigations and will be retained within a naturalized corridor as noted above.

Based on field observations and background review of the HDFs proposed to be retained on the landscape, it is understood that headwater drainage feature *AR-a* provides direct fish habitat and will be retained within a naturalized corridor.

In contrast, feature *AR-h* is a constructed municipal drain, and it is expected that this feature will be retained to convey stormwater flows through the development as designed. Given it is functionally disconnected from downstream receivers, it is expected there will be no direct impacts to fishes or fish habitat.

8.1.3.1 Recommendations

- ✓ Ensure no impacts (direct or indirect) to fish habitat occur.

8.1.3.2 General Mitigation Measures

- ✓ A detailed Erosion and Sediment Control Site Plan should be developed for implementation during construction to prevent impacts from all associated activities to HDFs.
- ✓ Consultation with DFO through the Request for Review process is recommended to ensure in compliance with the Fisheries Act regarding reaches *AR-a* and *AR-b* as these are directly linked to fish habitat and may facilitate fish movement.
- ✓ Fish timing window (July 1 to March 14, inclusive) – no work within the highwater mark of HDFs outside of this period, and high risk of negative impacts if accidents or malfunctions affecting water quality occur outside of this period.

Removed Feature

The following features assessed in 2024 will be removed to accommodate the Phase 2, 3, and 4 development, *AR-b*, *AR-c*, *AR-d*, *AR-e*, *AR-f*, and *AR-g*. Muncaster (2022) outlined the following recommendations detailing the removal the historic HDF's;

- Well before it is proposed to remove the remaining portion of the *AR-e*, and *AR-f*, a Request for Review will be submitted to DFO and the Mississippi Valley Conservation Authority (MVCA) will be contacted.

- Off-site contributions, including from the Granite Ridge stormwater management facility, will be piped to the remaining portion of the AR-c, and AR-h, to remain open to the east of the site. The downstream reach contains a canopy cover, which is not present on-site, and the channel has many more natural features and a greater fish community than the on-site attributes.
- The AR-a will remain open downstream of the site for approximately 880 metres east and northeast to the Carp River.
- Flows from a stormwater management facility constructed in the central-east portion of the overall site north of the Phase 1 and 2 lands will outlet to the AR-a, maintaining the existing flow contributions to the site while treating the stormwater.

It is assumed the proposed management details above were implemented as part of Phase 1, the following impacts are expected to have occurred because of removing the extent of AR-d, AR-e, and AR-f on the Subject Site:

- The permanent loss of direct fish habitat on the Subject Site.
- Potential physical harm to fishes during clearing and construction activities.
- Displacement, injury, or death resulting from contact with heavy equipment during clearing and grading activities.
- Loss of general aquatic habitat suitable for the life processes of common urban and rural wildlife.
- Disturbance to fishes and other wildlife resulting from noise and vibrations associated with construction activities, particularly during breeding periods; and
- Reduced flow contributions to downstream waterbodies / watercourses (i.e., Carp River).

8.1.3.3 Recommendations

- ✓ As outlined in the Fernbank Environmental Management Plan, enhancements will be funded by the applicant to improve the aquatic habitat structure in the Carp River corridor upstream (south) of Hazeldean Road.
- ✓ These enhancements will be specified in a Compensation Plan for the removal of the portions of AR-d, AR-e, and AR-f on the site.

8.1.3.4 General Mitigation Measures

- ✓ A detailed Erosion and Sediment Control Site Plan should be developed for implementation during construction to prevent impacts from all associated activities to adjacent water features.
- ✓ Fish timing window (July 1 to March 14, inclusive) – no work within the highwater mark of HDFs outside of this period, and high risk of negative impacts if accidents or malfunctions affecting water quality occur outside of this period.

8.2 Terrestrial Environment

Due to the lack of significant valleylands, significant woodlands, significant wildlife habitat and areas of natural and scientific interest within the Subject Site, impacts to these features are not anticipated.

8.2.1 Vegetation Communities

To accommodate the future development at the Subject Site, associated vegetation communities will be cleared and graded. The impacts associated with this clearing may include:

- The permanent loss of or disturbance to vegetation.

- Increased heat retention due to replacement of vegetated areas with infrastructure.
- Potential for spread of invasive species.
- Potential for accidental damage or loss of trees.
- Changes in natural drainage.
- Decreased biodiversity and decreased abundance of species; and/or
- Potential for on-site erosion and deposition of sediment into adjacent vegetation communities.

8.2.1.1 Recommendations

- ✓ The woodland/swamp community (Mineral Deciduous Thicket Swamp – SWTM5) in the south-west corner of the Site should be retained and incorporated into the Block 10 Parkette (as currently proposed in the Concept Plan – **Figure 8**).
- ✓ Landscaping plans shall incorporate native vegetation and plantings to offset the loss of species and biodiversity from vegetation removals.
 - Opportunities for enhanced natural landscape features should be considered during detailed design. These features may include the planting of native calliper trees and shrubs along the Hazeldean tributary within Block 196 (Phase 4a).
 - Landscape plans to be completed at the Detail Design stage in consultation with a qualified biologist.
- ✓ Incorporate permeable or light-coloured surfaces wherever possible to reduce heat retention.

8.2.1.2 General Mitigation Measures

- ✓ Orange snow fencing or other suitable fencing should be used to delineate the construction limits from the woodland/swamp community (e.g., woodlands to be retained).
- ✓ A site-specific *Erosion and Sediment Control Plan* should be implemented to prevent on-site erosion and sedimentation outside of work areas (e.g, into HDFs).
- ✓ Invasive species to be removed shall be done so using species-appropriate methods (following best management practices outlined by the Ontario Invasive Plant Council to prevent further contamination (<https://www.ontarioinvasiveplants.ca/>)).
- ✓ Machinery will arrive on site in a clean condition and will be free of fluid leaks, invasive species, and noxious weeds.

8.2.2 Wetlands

Two wetland communities were identified within the Subject Site; a Reed-canary Grass Graminoid Mineral Meadow Marsh (MAMM1-3) community measuring approximately 0.5 ha in size situated in the northwestern extents, and a Mineral Deciduous Thicket Swamp (SWTM5) community measuring approximately 0.8 ha situated at the southeastern corner of Phase 3A, bordering the hydro corridor that separates Phase 3A from Phase 3B. According to the most recent Site Plan (Concept Plan 34), both wetland features are to be retained, and Project activities are expected to adhere to applicable environmental protection policies and guidelines (e.g., City of Ottawa Official Plan).

8.2.2.1 Recommendations

- ✓ Under the new OP, the City of Ottawa has adopted a 'no net loss' of wetland policy. This may mean compensation, or another form of offset, may be required if direct impacts cannot be avoided.
- ✓ Silt fencing and/or other equivalent erosion and sediment control measures should be installed around the perimeter of the retained wetland features to prevent erosion and sedimentation into adjacent habitats.
- ✓ Design of stormwater conveyance and site grading shall explore opportunities to supplement overland flows into the retained wetlands to ensure pre-development hydraulic conditions are maintained.

8.2.2.2 General Mitigation Measures

- ✓ Forest edge management and restoration objectives shall be included in the *Landscape Plan* to manage impacts associated with the removal of native trees and shrubs.

8.2.3 Woodlands

Based on our understanding of the most recent Site / Concept Plan 34 (dated August 2, 2024; **Figure 7**), the Mineral Deciduous Thicket Swamp (SWTM5) toward the in the south-west corner of the Site is proposed to be retained and seems to be proposed for conversion into the 0.93-ha Block 10 Parkette of the Concept Plan 34. The Fresh-Moist Manitoba Maple Lowland Deciduous Forest (FODM7-7) present in the northwest extent of the Site is not expected to be altered because of the development.

General indirect impacts to these wooded features associated on the Subject Site / surrounding Study Area may include, but are not limited to:

- Erosion and sedimentation into adjacent habitats (i.e., wooded areas, HDFs);
- Increased invasion pressure due to adjacent construction activities and future long-term presence of residential communities on the property; and
- Potential for accidental damage and/or loss of trees.

8.2.3.1 Recommendations

- ✓ Design of stormwater conveyance and site grading should explore opportunities to supplement overland flows into the retained woodland features to ensure pre-development hydraulic conditions are maintained.
- ✓ The retained wooded feature (FODM7-7) as part of the Block 10 Parkette should be made safe and accessible to the new community with trails, benches, etc.

8.2.3.2 General Mitigation Measures

- ✓ Heavy-duty silt fencing and/or other equivalent erosion and sediment control measures should be installed around the perimeter of the retained wooded feature to prevent erosion and sedimentation into these adjacent habitats.
- ✓ Machinery will arrive on the Subject Site in a clean condition and will be free of fluid leaks, invasive species, and noxious weeds.

8.3 Wildlife and Wildlife Habitat

It is understood that the nature of the proposed development will have a negative impact on local wildlife due to the general loss of natural habitat and direct impacts related to construction activities. The following general direct and indirect impacts to wildlife may occur because of the proposed development on the Subject Site:

- Displacement, injury, or death resulting from contact with heavy equipment during clearing and grading activities.
- Loss of general natural habitat suitable for the life processes of common urban and rural wildlife.
- Disturbance to wildlife resulting from noise associated with construction activities, particularly during breeding periods; and/or
- Conflict between wildlife and humans following development (including mortality from vehicles), particularly as the proposed development is residential.

8.3.1 Recommendations

- ✓ “Bird-friendly” building design principals should be considered in the design of the development. For example, general building design should incorporate anti-reflection / anti-collision bird-friendly glass.
- ✓ Vegetation plantings should consider bird breeding, wildlife shelter, and foraging habitat within the Subject Site.
- ✓ Tree planting and landscape design trees should provide suitable bat roosting habitat upon reaching maturity, specifically surrounding aquatic features (Oak, Maple, Hickory, etc.).

8.3.2 General Mitigation Measures

- ✓ Impacts to natural vegetation should be minimized to the extent possible.
- ✓ Clearing of trees / snags that have potential to provide bat roosting habitat should be avoided during the active bat season (i.e., April through October, inclusive).
- ✓ Clearing of vegetation should be avoided during the breeding bird season (i.e., between April 15 and August 31).
 - Should any clearing be required during the breeding bird season, a nest search should be conducted by a qualified person within 48 hours prior to clearing activities. If nests are found, an appropriate setback will be established by the qualified professional. No work will be permitted within this setback until the nest is no longer active, in accordance with the federal MBCA.
- ✓ Idling of construction machinery should be limited to reduce disturbance to resident wildlife.
- ✓ Should wildlife enter the work area, activities in that area shall cease and the wildlife shall be allowed to vacate the site under its own power.
- ✓ Other mitigation measures outlined in the *Protocol for Wildlife Protection during Construction* (City of Ottawa 2022c) should be considered prior to construction of the proposed development.
- ✓ A qualified wildlife rehabilitation centre should be contacted if any wildlife is injured or found injured during construction. Injured wildlife should be transported to a qualified facility for care, with a small donation of money to help pay for their care.

8.4 Species at Risk

The constraints associated with SAR that may be present within the Study Area was evaluated based on the potential direct and indirect impacts that the proposed development may have, and the potential for those impacts to contravene the ESA. Based on our understanding of SAR presence within the Subject Site, it is unlikely that the activities from the proposed development will impact SAR, as well as the potential for those impacts to contravene the ESA.

8.4.1 Species-at-Risk Bats

No suitable habitat was observed present within the Study Area for either Bat Hibernacula or Bat Maternity Colonies. However, bats may utilize large, mature cavity trees or other similar structures for roosting habitat.

Basic management recommendations and mitigation measures are proposed below to mitigate the potential impacts of the proposed development.

8.4.2 Butternut and Black Ash

The potential to impact SAR plants is associated with activities that affect the ability of the plant to continue to grow and replicate in an area. For this project, that would be limited to areas that are associated with the clearing of vegetation and/or excavation of soil, in the laydown areas and access roads. Indirect impacts can result from items such as changes to drainage, compression of soil, accumulation of dust on leaves, or inadvertently affecting the root system or aboveground structures in the area where vegetation is to be retained.

General searches of the Study Area were completed to determine SAR plant presence. No butternut or black ash trees were identified within the Subject Site from 2022 to 2024, based on field surveys conducted for purposes of this EIS (Arcadis 2024) and Muncaster (2022).

At this time, no butternut or black ash were identified. As such, this evaluation assumes that there is a low potential to impact these species. Regardless, basic management recommendations and mitigation measures are proposed below to mitigate the potential impacts to these SAR trees resulting from the proposed development.

8.4.2.1 Recommendations

- ✓ Where possible, retain large mature cavity trees to maintain available roosting habitat.
- ✓ Tree planting and landscape design trees should provide suitable roosting habitat upon reaching maturity, specifically surrounding aquatic features (Oak, Maple, Hickory, etc.).
- ✓ The shelf-life of butternut surveys is 2 years; as such, species-specific surveys will need to be completed prior to construction if the work is not completed before August 31, 2026.

8.4.2.2 General Mitigation Measures

- ✓ Other mitigation measures outlined in the *Protocol for Wildlife Protection during Construction* (City of Ottawa 2022c) should be considered prior to construction of the proposed development.
- ✓ Clearing of forest vegetation should be avoided during the general active periods for bats (April 1st to September 30th).
 - If this is not possible, conduct exit survey prior to cutting them down. If the exit survey identifies bats, contact MECP or biologist for additional guidance.
- ✓ Clearing of vegetation should be avoided during the breeding bird season (i.e., between April 15 and August 31).

9 Summary and Conclusions

This *Environmental Impact Study* (EIS) provides an analysis of the potential impacts to the natural heritage features that may result from the proposed continued residential development of Abbott's Run, located at 5618 Hazeldean Road in Stittsville, City of Ottawa, Ontario. This Project is owned by the Client, Minto (Hazeldean) GP Inc., of which Arcadis was retained to support Phases 2 and 3 of the development. This report covers Phases 1 to 4, despite construction / Project activities for Phase 1 already being underway.

Much of the land surrounding the Study Area is residential, of which Abbott's Run represents an addition to the new subdivision. Project activities for the proposed residential development required the clearing and grading of the Subject Site, much of which has already occurred, resulting in the removal of vegetation and HDF-3, corresponding with a general loss of natural wildlife habitat.

Two wooded areas (Mineral Deciduous Thicket Swamp - SWTM5, and the Fresh-Moist Manitoba Maple Lowland Deciduous Forest - FODM7-7; **Figure 3**) were identified present within the Subject Site through background resources, both were assessed as non-significant in relation to the guidelines for 'peri-urban woodlots', as outlined in the City's *Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment* (City of Ottawa 2022d). According to the most recent Site Plan (Concept Plan 34), both woodlands within are to be retained, and Project activities are expected to adhere to applicable environmental protection policies and guidelines (e.g., *Tree Protection By-law 2020-340*, MBCA, etc.).

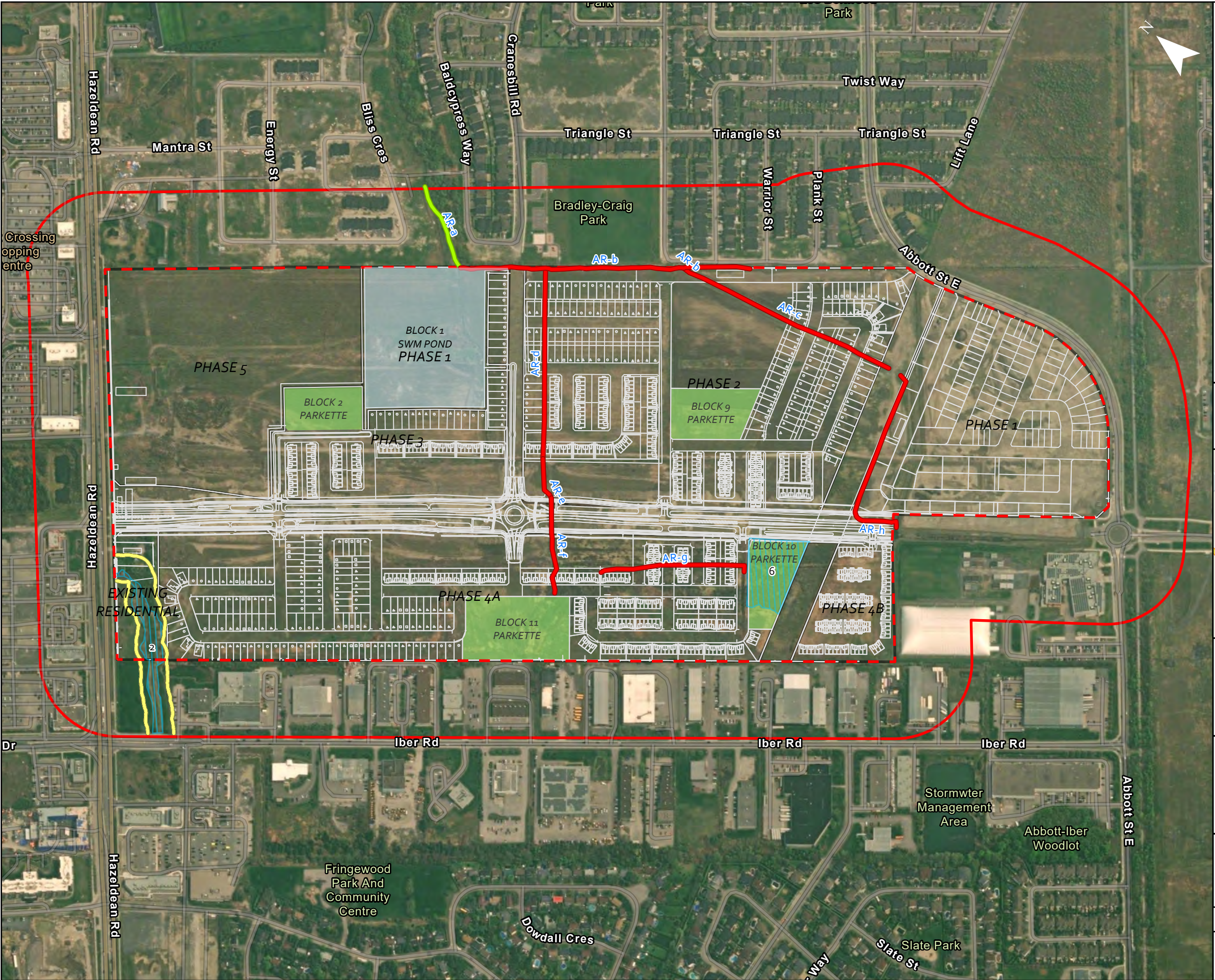
Two wetland communities were also identified within the Subject Site; a Reed-canary Grass Graminoid Mineral Meadow Marsh (MAMM1-3) community measuring approximately 0.5 ha in size situated in the northwestern extents, and a Mineral Deciduous Thicket Swamp (SWTM5) community measuring approximately 0.8 ha situated at the southeastern corner of Phase 4A within Block 10, bordering the hydro corridor that separates Phase 4A from Phase 4B. According to the most recent Site Plan (Concept Plan 34), both wetland features are to be retained, and Project activities are expected to adhere to applicable environmental protection policies and guidelines (e.g., *City of Ottawa Official Plan*).

No SAR were observed within the Subject Site boundaries. It has been confirmed that there is no suitable maternity roosting habitat for SAR bats, and although suitable habitat is present for black ash and butternut, none were observed. Basic management recommendations and mitigation measures have been provided to mitigate the potential impacts to SAR and/or SAR habitat from the proposed development.

This EIS provides an evaluation of the anticipated environmental impacts associated with the construction and long-term occupation of the proposed residential development (i.e., Minto's Abbott's Run) located at 5618 Hazeldean Road in Stittsville, City of Ottawa, Ontario. Mitigation and compensation measures have been recommended (as required) to protect natural heritage features and offset impacts, respectively. The findings in this report are based on desktop screening results, site-specific background documents completed by others – particularly, the previous Muncaster (2022) EIS – and eight (8) Arcadis site visits conducted to date (April to August 2024).

Although the removal of HDF features may pose potential development limitations, we believe these features will not impede progress provided the mitigation and avoidance measures are adhered to, as outlined in this EIS.

Overall, despite the development constraints outlined within this document, the Subject Site has been identified as an excellent location for the proposed residential land development from a natural heritage perspective.

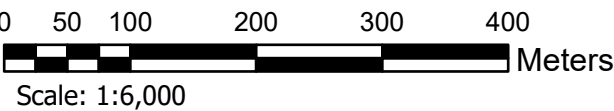


Legend

- - Site
- Study Area (120m)
- Site Phases
- Site Plan (Jan 20, 2025)
- Proposed Park
- Retained Wetland Features
- Wetland Feature Protection Buffer (20 m)

Anticipated HDF Impacts

- Retain
- Remove



Project:

Abbott's Run Phases 2 & 3

Title:

Anticipated Impacts

Prepared By:



Project: 146887

Date: 1/22/2025

Figure: 8

9.1 Policy Conformity and Next Steps

Project-specific details and next steps, to help ensure adherence to the applicable policies and legislation, are included below:

- *Fish and Wildlife Conservation Act, 1997* – In the case that wildlife is observed within the work area, all work in the area shall stop until the animal has left the area on its own. In the case that wildlife relocation is required, consultation with MNRF would be required to obtain the necessary permits and approvals under the FWCA.
- *Fisheries Act, 1985* - DFO to be contacted through the Request for Review process to seek advice if impacts to HDFs and associated downstream fish habitat are anticipated. No development should occur within 30 m of an HDF without a permit from.
- *Conservation Authorities Act, 1990* – Permitting / approval under *O. Reg. 41/24* will be required due to the removal of AR-d, AR-e, and AR-f running through the middle of the Subject Site.
- *Migratory Birds Convention Act, 1994* – No vegetation removal should occur between April 15 and August 15, to reduce the potential for incidental take of active bird nests.

9.2 Standard of Care and Limitations

Field surveys have been carried out using investigative techniques and ecological methods consistent with those ordinarily exercised by Arcadis and other scientific practitioners, working under similar conditions and subject to the time, financial, and physical constraints applicable to these investigations. Survey results presented in this report are based on work undertaken by trained professionals and technical staff, and the reasonable and professional interpretation using acceptable scientific practices current at the time the work was performed.

The results and findings of this study coming from various sources have been reported without bias or prejudice. Thus, conclusions have been based on our own professional opinion, substantiated by the results of this study, and have not been influenced in any way.

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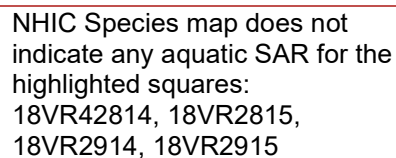
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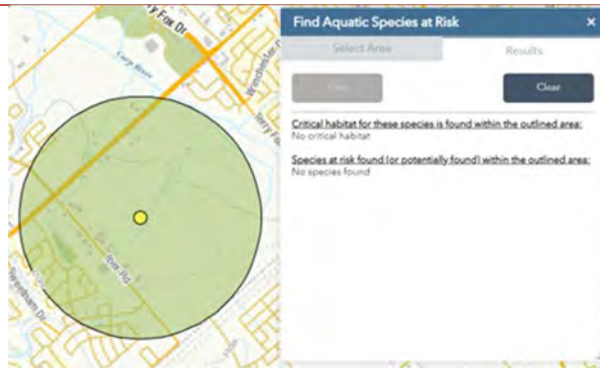
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Appendix A

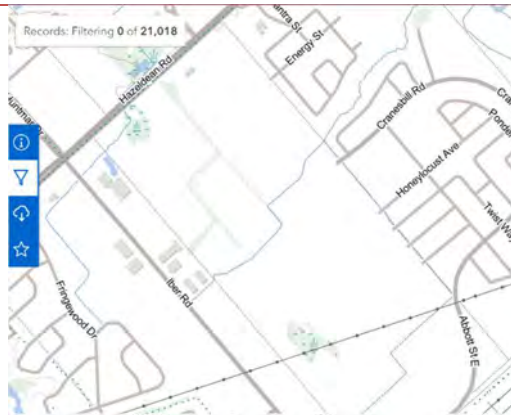
Aquatic Environment Background Screening

[illegible]

The DFO species at risk map does not indicate species or critical habitat present within the study area.



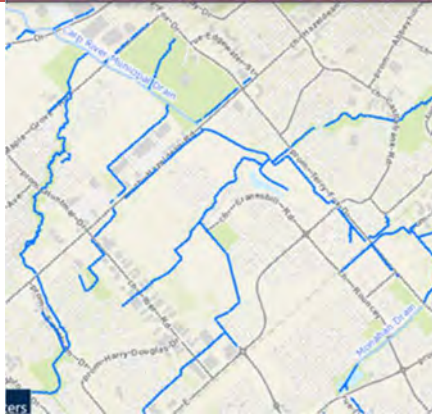
There are no records of fish activity on the Site.



Hazeldean Creek passes through the north-west corner of Site.



The Carp River Municipal Drain is north-east of the Site, while the Monahan Drain is south-east.



The Site falls within the MVCA, note the wetlands in the north-west extent as part of Hazeldean Creek and the south-west extent by hydro corridor.



Appendix B

Terrestrial Environment Background Screening

Terrestrial Resources Background Information

Comments

General NHIC map showing unevaluated wetlands at north-west end off Hazeldean Road and south-west corner off hydro corridor, with drain bisecting the Site.

Resource Material



Wetland

- Provincially Significant Wetland Evaluated
- Non - Provincially Significant Wetland Evaluated
- Unevaluated Wetland

- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System

NHIC Species map indicates threatened and endangered SAR, bobolink and butternut respectively, within the highlighted squares: 18VR42814, 18VR2815, 18VR2914, 18VR2915





Table 1: NHIC Data

Table 2: NHIC Data

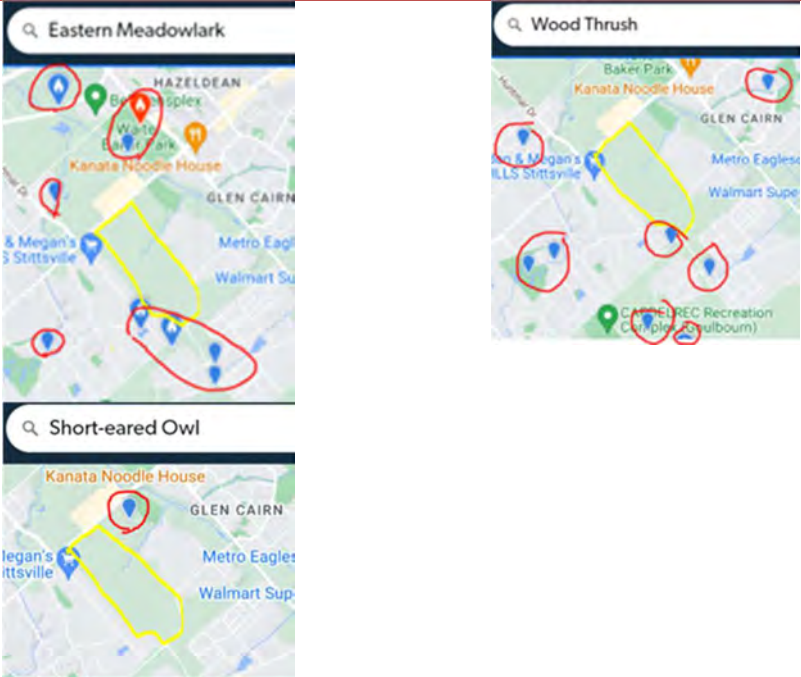
NO	Element	Comments	Academic Name	Value	SRM	CHW	CHW	CHW	CHW
18VR42814	Wetland	Wetland	Wetland	100	100	100	100	100	100
18VR2815	Wetland	Wetland	Wetland	100	100	100	100	100	100
18VR2914	Wetland	Wetland	Wetland	100	100	100	100	100	100
18VR2915	Wetland	Wetland	Wetland	100	100	100	100	100	100

Terrestrial Resources Background Information

Comments	Resource Material
<p>An iNaturalist search for research grade observations within 2km buffer from the center of Site shows 747 species have been observed and identified.</p> <p>Notable SAR: least bittern (1 obs), wood thrush (1), and Blanding's turtle (14 obs), all outside Site.</p>	
<p>Exploring nearby eBird reports for SAR shows 8 notable species reported: Bank swallow, bobolink, chimney swift, eastern meadowlark, least bittern, lesser yellowlegs, short-eared owl, and wood thrush.</p>	

Terrestrial Resources Background Information

Comments	Resource Material
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The study area falls within 1 square of the OBBA. Square 18TVR21 has 120 breeding species.

Notable SAR: bank swallow, least bittern, wood thrush, bobolink, eastern meadowlark, and wood thrush.



The ORAA showed Site within square 18VR21 with 17 species. Notable SAR: Blanding's turtle and western chorus frog.

All species in square 18VR21 (located in OTTA)
Found 230 records from 1903 to 2019
17 species

Species List
order of drop-down menu
this area [link](#) whole province [link](#)
this area [link](#) whole province [link](#)

Display Records
this area [link](#) whole province [link](#)

Time Trend
- in this square and for the whole province

Topographic Map for Square 18VR21
- bird areas may (where available)

Species #	Common Name	# of Records	Earliest Yr	Latest Yr
1	Blanding's Turtle	42	1954	2019
3	Midland Painted Turtle	20	1954	2019
5	Snapping Turtle	23	1978	2019
12	Eastern Garter Snake	18	1956	2017
15	Eastern Milk Snake	11	1978	2019
19	Northern Ring-necked Snake	1	2019	2019
22	Red-bellied Snake	4	2011	2019
28	Gray Treefrog	9	1954	2019
29	Green Frog	12	1954	2011
30	Musk Frog	2	1903	1968
31	Northern Leopard Frog	18	1903	2019
33	Spring Peeper	29	1964	2019
34	Western Chorus Frog	18	2000	2019
35	Wood Frog	6	1963	2015
36	American Toad	7	1954	2019
40	Blue-spotted Salamander	3	2018	2019
50	Northern Two-lined Salamander	1	1903	1903

Terrestrial Resources Background Information

Comments	Resource Material
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The OBA showed Site in square 18VR21 (66 species). Monarch (sp of concern) observed.



100	Great Horned Owl	Suburban Blue	2	July 11	July 27	1981	2009
101	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
102	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
103	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
104	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
105	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
106	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
107	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
108	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
109	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
110	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
111	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
112	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
113	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
114	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
115	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
116	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
117	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
118	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
119	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
120	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
121	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
122	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
123	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
124	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
125	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
126	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
127	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
128	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
129	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
130	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
131	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
132	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
133	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
134	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
135	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
136	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
137	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
138	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
139	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
140	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
141	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
142	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
143	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
144	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
145	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
146	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
147	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
148	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
149	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
150	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009
151	Black-bellied Plover	Suburban Blue	1	July 11	July 27	1981	2009

Appendix C

Preliminary Screening for Species at Risk

Table C1: Threatened or Endangered Species with records of occurrence within the Study Area.

Common Name	Scientific Name	Habitat Description ¹	Conservation Status ²				Source of Occurrence Record ³	Habitat within Study Area?	Rationale for Determination of Habitat Presence
			Federal SARA	Federal COSEWIC	Provincial ESA	Provincial S-Rank			
Birds									
Bank Swallow	<i>Riparia riparia</i>	Near water; fields, marshes, streams, lakes. Typically seen feeding in flight over (or near) water at all seasons, even in migration. Nests in colonies in vertical banks of dirt or sand, usually along rivers or ponds, seldom away from water.	THR	THR	THR	S4B	eBird	No	Insufficient vertical banks exist on the property, including the stream banks that cut through the east end of property.
Barn Swallow	<i>Hirundo rustica</i>	Open or semi-open land, farms, fields, marshes, lakes. May occur in any kind of open or partly open terrain, especially near water, generally avoiding very dry country and unbroken forest. Often breeds around farms, buildings, towns, and forages over fields or ponds.	THR	SC	SC	S4B	iNaturalist, eBird	No	Although the site is open farmland there are no barns or other large buildings on the property for breeding.
Bobolink	<i>Dolichonyx oryzivorus</i>	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 ha.	THR	THR	THR	S4B	NHIC, OBBA	No	No large tracts of grasslands, hayfields, meadows, or fallow fields are present within the Subject Site resulting in poor habitat potential for Bobolink.
Chimney Swift	<i>Chaetura pelagica</i>	Open sky, especially over cities and towns. Forages in the sky over any kind of terrain, wherever there are flying insects. Now most common over towns and cities; within its range, few forests remain with hollow trees large enough to serve as nest sites.	THR	THR	THR	S3B	eBird	No	Property does not contain hollow trees large enough to serve as a nest site, nor are there tall towers or chimneys on site.
Eastern Meadowlark	<i>Sturnella magna</i>	Open fields and pastures, meadows, prairies. Breeds in natural grasslands, meadows, weedy pastures, also in hayfields and sometimes in fields of other crops. Winters in many kinds of natural and cultivated fields. In the Midwest, tends to prefer taller and lushier grass than Western Meadowlark, but in the Southwest it lives in very arid desert grasslands.	THR	THR	THR	S4B,S3N	eBird	No	No large tracts of grasslands, hayfields, meadows, or fallow fields are present within the Subject Site resulting in poor habitat potential for Eastern Meadowlark.

Common Name	Scientific Name	Habitat Description ¹	Conservation Status ²				Source of Occurrence Record ³	Habitat within Study Area?	Rationale for Determination of Habitat Presence
			Federal SARA	Federal COSEWIC	Provincial ESA	Provincial S-Rank			
Least Bittern	<i>Ixobrychus exilis</i>	Fresh marshes, reedy ponds. Mostly freshwater marsh but also brackish marsh, in areas with tall, dense vegetation standing in water. May be over fairly deep water, because it mostly climbs in reeds rather than wading. Sometimes in salt marsh or in mangroves.	THR	THR	THR	S4B	iNaturalist, eBird	No	Property does not contain marsh or pond habitat with tall, dense vegetation.
Lesser Yellowlegs	<i>Tringa flavipes</i>	Marshes, mudflats, shores, ponds; in summer, open boreal woods. Occurs widely in migration, including coastal estuaries, salt and fresh marshes, edges of lakes and ponds; typically more common on freshwater habitats. Often in same places as Greater Yellowlegs, but may be less frequent on tidal flats. Breeds in large clearings, such as burned areas, near ponds in northern forest.	n/a	THR	THR	S3S4B, S5M	iNaturalist, eBird	No	Breeds in northern boreal forests. May be on site during migration if large mudflats, puddles exist, but only temporarily.
Short-eared Owl	<i>Asio flammeus</i>	Prairies, marshes, dunes, tundra. Found in open country supporting high numbers of small rodents. Nests most commonly on tundra, inland and coastal prairies, extensive marshes, farmland. In winter also found in stubble fields, small meadows, coastal dunes, shrubby areas.	SC	THR	THR	S4?B, S2S3N	eBird	No	Lack of extensive meadow habitat and grasslands on property make it unsuitable habitat for the short-eared owl.
Herpetozoa									
Western Chorus Frog	<i>Pseudacris trieriata</i>	In Ontario, this amphibian species' habitat typically consists of marshes or wooded wetlands, with dense shrub layers and grasses. They will breed in almost any fishless pond including roadside ditches, gravel pits and flooded swales in meadows. This species hibernates in terrestrial habitats under rocks, dead trees or leaves, in loose soil or in animal burrows. During hibernation, this species is tolerant of flooding.	END	END	NA	S3	NHIC, ORAA	No	No open water marshes, wooded swamps, or wetland thickets are present within the Study Area resulting in unsuitable habitat for the Western Chorus Frog.
Blanding's Turtle	<i>Emydoidea blandingii</i>	Shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft, muddy bottoms and aquatic vegetation; basks on logs, stumps, or banks; surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats.		END	THR	S3	ORAA	No	The study site does not contain sufficient marshes, bogs, ponds, or swamps for Blanding's to inhabit.

Common Name	Scientific Name	Habitat Description ¹	Conservation Status ²				Source of Occurrence Record ³	Habitat within Study Area?	Rationale for Determination of Habitat Presence
			Federal SARA	Federal COSEWIC	Provincial ESA	Provincial S-Rank			
Mammals									
Little Brown Myotis	<i>Myotis lucifugus</i>	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, forest edges.	END	END	END	S3	AMO	Yes	Study Area contains deciduous and coniferous woodlands with that could provide cavities and loose bark suitable for roosting.
Northern Myotis	<i>Myotis septentrionalis</i>	Hibernates during winter in mines or caves; during summer males roost alone and females form maternity colonies of up to 60 adults; roosts in houses, manmade structures but prefers hollow trees or under loose bark; hunts within forests, below canopy.	END	END	END	S3	AMO	Yes	Study Area contains deciduous and coniferous woodlands that could provide cavities and loose bark suitable for roosting.
Tricolored Bat	<i>Perimyotis subflavus</i>	Generally solitary, females may form small colonies (< 35 individuals) during pup-rearing season. Roosts include tree cavities, caves, rock crevices, culverts, and buildings. Across most of their range, they hibernate primarily in caves and culverts. Some northern populations might migrate to southern hibernating locations (BCI 2023).	END	END	END	S3?	AMO	Yes	Study Area contains deciduous and coniferous woodlands that could provide cavities and loose bark suitable for roosting.
Plants									
Butternut	<i>Juglans cinerea</i>	In Ontario, Butternut usually grows alone or in small groups in deciduous forests. It prefers moist, well-drained soil and is often found along streams. It is also found on well-drained gravel sites and rarely on dry rocky soil. This species does not do well in the shade, and often grows in sunny openings and near forest edges.	END	END	END	S2	NHIC	Yes	Sunny openings near forest edges with moist soils are present within the Study Area.
Black Ash	<i>Fraxinus nigra</i>	Predominantly a wetland species of swamps, floodplains and fens. It has an intermediate light requirement and a tendency toward greater abundance in more alkaline sites. Most sites in which it is dominant are flood prone, where its high tolerance of seasonal flooding appears to offer a competitive advantage. Black Ash also occurs widely in moist upland forests, but generally at lower densities than in wet areas.	THR	THR	END	S4	???	Yes	Wetland habitat and drainage features may provide suitable habitat for Black Ash within the Subject Site.

Orange highlighted species are protected and/or have protected critical habitat within the Study Area (i.e., the species is Threatened, Endangered under the ESA, and/or the Threatened or Endangered species' critical habitat is present – including ferally listed migratory birds and fish)

¹ Conservation Status:
SC = Special Concern; THR = Threatened; END = Endangered; NA = Not at Risk
Federal SARA = *Species at Risk Act, 2002* Schedule 1 unless otherwise noted. The protection and/or conservation measures afforded by SARA apply only to species listed under Schedule 1.
Federal COSEWIC = In the case that a species is not listed under Schedule 1 of SARA, but has a status recommended by the Committee on the Status of Endangered Wildlife in Canada, the uplisting of the species to Schedule 1 of SARA may be imminent.
Provincial ESA = *Endangered Species Act, 2007*.
Provincial (or Subnational) S-Rank: Subnational ranks are assigned and maintained by state or provincial NatureServe network programs.
S1 – Critically Imperiled; S2 – Imperiled; S3 - Vulnerable; S4 - Apparently Secure; S5 - Secure; B - Breeding; N - Non-breeding; ? - Uncertainty,

Appendix D

On-Site Species Observations

Table D1: Breeding Bird list

COMMON NAME	SCIENTIFIC NAME	CONSERVATION STATUS ¹		
		FEDERAL (SARA, 2002)	PROVINCIAL (ESA, 2007)	S-RANK
American Crow	<i>Corvus brachyrhynchos</i>	-	-	S5
American Goldfinch	<i>Spinus tristis</i>	-	-	S5
American Robin	<i>Turdus migratorius</i>	-	-	S5
Black-capped Chickadee	<i>Poecile atricapillus</i>	-	-	S5
Brown Thrasher	<i>Toxostoma rufum</i>	-	-	S4B
Common Grackle	<i>Quiscalus quiscula</i>	-	-	S5
Common Yellowthroat	<i>Geothlypis trichas</i>	-	-	S5B,S3N
Downy Woodpecker	<i>Dryobates pubescens</i>	-	-	S5
Eastern Kingbird	<i>Tyrannus tyrannus</i>	-	-	S4B
Gray Catbird	<i>Dumetella carolinensis</i>	-	-	S5B,S3N
Hermit Thrush	<i>Catharus guttatus</i>	-	-	S5B,S4N
Killdeer	<i>Charadrius vociferus</i>	-	-	S4B
Mallard	<i>Anas platyrhynchos</i>	-	-	S5
Mourning Dove	<i>Zenaida macroura</i>	-	-	S5
Pine Siskin	<i>Spinus pinus</i>	-	-	S5
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	-	-	S5
Ring-billed Gull	<i>Larus delawarensis</i>	-	-	S5
Savannah Sparrow	<i>Passerculus sandwichensis</i>	-	-	S5B,S3N
Song Sparrow	<i>Melospiza melodia</i>	-	-	S5
Tree Swallow	<i>Tachycineta bicolor</i>	-	-	S4S5B
Wild Turkey	<i>Meleagris gallopavo</i>	-	-	S5
Yellow Warbler	<i>Setophaga petechia</i>	-	-	S5B

1 - Conservation Status:

SC = Special Concern; THR = Threatened; END = Endangered; NA = Not at Risk

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Provincial ESA = *Endangered Species Act, 2007*.

Provincial (or Subnational) S-Rank: Subnational ranks are assigned and maintained by state or provincial NatureServe network programs.

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Table D2: Incidental Bird List

COMMON NAME	SCIENTIFIC NAME	CONSERVATION STATUS ¹		
		FEDERAL (SARA, 2002)	PROVINCIAL (ESA, 2007)	S-RANK
Alder flycatcher	<i>Empidonax alnorum</i>	-	-	S5B
American crow	<i>Corvus brachyrhynchos</i>	-	-	S5
American woodcock	<i>Scolopax minor</i>	-	-	S4B
Canada goose	<i>Branta canadensis</i>	-	-	S5
Cedar Waxwing	<i>Bombycilla cedrorum</i>	-	-	S5
Chipping sparrow	<i>Spizella passerina</i>	-	-	S5B,S3N
Common grackle	<i>Quiscalus quiscula</i>	-	-	S5
Common yellowthroat	<i>Geothlypis trichas</i>	-	-	S5B,S3N
Great egret	<i>Ardea alba</i>	-	-	S2B,S3M
Killdeer	<i>Charadrius vociferus</i>	-	-	S4B
Mallard	<i>Anas platyrhynchos</i>	-	-	S5
Merlin	<i>Falco columbarius</i>	-	-	S5
Red-winged blackbird	<i>Agelaius phoeniceus</i>	-	-	S5
Ring-billed gull	<i>Larus delawarensis</i>	-	-	S5
Rock pigeon	<i>Columba livia</i>	-	-	SNA
Song sparrow	<i>Melospiza melodia</i>	-	-	S5
Spotted sandpiper	<i>Actitis macularius</i>	-	-	S5B
Wild turkey	<i>Meleagris gallopavo</i>	-	-	S5
Yellow warbler	<i>Setophaga petechia</i>	-	-	S5B

1 - Conservation Status:

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Federal SARA = *Species at Risk Act, 2002* Schedule 1 unless otherwise noted. The protection and/or conservation measures afforded by SARA apply only to species listed under Schedule 1.

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Table D3: Other Incidental List

COMMON NAME	SCIENTIFIC NAME	CONSERVATION STATUS ¹		
		FEDERAL (SARA, 2002)	PROVINCIAL (ESA, 2007)	S-RANK
Herpetofauna				
Green Frog	<i>Lithobates clamitans</i>	-	-	S5
Northern Leopard Frog	<i>Lithobates pipiens</i>	-	-	S5
Mammals				
Coyote	<i>Canis latrans</i>	-	-	S5
Northern Raccoon	<i>Procyon lotor</i>	-	-	S5
White-tailed Deer	<i>Odocoileus virginianus</i>	-	-	S5
Insects				
Asiatic Lady beetle	<i>Harmonia axyridis</i>	-	-	SNA
Black Swallowtail	<i>Papilio polyxenes</i>	-	-	S5
Fish				

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Provincial (or Subnational) S-Rank: Subnational ranks are assigned and maintained by state or provincial NatureServe network programs.

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Table D4: Plant list

COMMON NAME	SCIENTIFIC NAME	CONSERVATION STATUS ¹			Coefficient of Conservation	Coefficient of Wetness
		FEDERAL (SARA, 2002)	PROVINCIAL (ESA, 2007)	S-RANK		
Bebb's Willow	<i>Salix bebbiana</i>	-	-	S5	4	-3
Black Willow	<i>Salix nigra</i>	-	-	S4	6	-5
Bladder Campion	<i>Silene vulgaris</i>	-	-	SNA	0	5
Blue Vervain	<i>Verbena hastata</i>	-	-	S5	4	-3
Bull Thistle	<i>Cirsium vulgare</i>	-	-	SNA	0	3
Bur Oak	<i>Quercus macrocarpa</i>	-	-	S5	5	3
Canada Goldenrod	<i>Solidago canadensis</i>	-	-	S5	1	3
Canada Horseweed	<i>Erigeron canadensis</i>	-	-	S5	0	3
Canada Thistle	<i>Cirsium arvense</i>	-	-	SNA	0	3
Common Apple	<i>Malus pumila</i>	-	-	SNA	0	5
Common Boneset	<i>Eupatorium perfoliatum</i>	-	-	S5	2	-3
Common Buttercup	<i>Ranunculus acris</i>	-	-	SNA	0	0
Common Elderberry	<i>Sambucus canadensis</i>	-	-	S5	5	-3
Common Lamb's-quarters	<i>Chenopodium album</i>	-	-	SNA	0	3
Common Milkweed	<i>Asclepias syriaca</i>	-	-	S5	0	5
Common Mullein	<i>Verbascum thapsus</i>	-	-	SNA	0	5
Common Ragweed	<i>Ambrosia artemisiifolia</i>	-	-	S5	0	3
Common Scouring-rush	<i>Equisetum hyemale</i>	-	-	S5	2	0
Common Self-heal	<i>Prunella vulgaris</i>	-	-	S5	0	0
Common Timothy	<i>Phleum pratense</i>	-	-	SNA	0	3
Common Viper's Bugloss	<i>Echium vulgare</i>	-	-	SNA	0	5
Common Woolly Bulrush	<i>Scirpus cyperinus</i>	-	-	S5	4	-5
Crack Willow	<i>Salix euxina</i>	-	-	SNA	0	0
Creeping Bellflower	<i>Campanula rapunculoides</i>	-	-	SNA	0	5
Dark-green Bulrush	<i>Scirpus atrovirens</i>	-	-	S5	3	-5
Early Goldenrod	<i>Solidago juncea</i>	-	-	S5	3	5
Elecampane	<i>Inula helenium</i>	-	-	SNA	0	3
European Buckthorn	<i>Rhamnus cathartica</i>	-	-	SNA	0	0
Field Sow-thistle	<i>Sonchus arvensis</i>	-	-	SNA	0	3
Flat-top White Aster	<i>Doellingeria umbellata</i>	-	-	S5	6	-3
Foxtail barley	<i>Hordeum jubatum</i>	-	-	S5?	0	0
Garden Bird's-foot Trefoil	<i>Lotus corniculatus</i>	-	-	SNA	0	3
Garlic Mustard	<i>Alliaria petiolata</i>	-	-	SNA	0	0
Glossy Buckthorn	<i>Frangula alnus</i>	-	-	SNA	0	0
Grass-leaved Goldenrod	<i>Euthamia graminifolia</i>	-	-	S5	2	0
Great Burdock	<i>Arctium lappa</i>	-	-	SNA	0	3

COMMON NAME	SCIENTIFIC NAME	CONSERVATION STATUS ¹			Coefficient of Conservation	Coefficient of Wetness
		FEDERAL (SARA, 2002)	PROVINCIAL (ESA, 2007)	S-RANK		
Green Ash	<i>Fraxinus pennsylvanica</i>	-	-	S4	3	-3
Hairy Crabgrass	<i>Digitaria sanguinalis</i>	-	-	SNA	0	3
Hard-stemmed Bulrush	<i>Schoenoplectus acutus</i> var. <i>acutus</i>	-	-	S5	5	-5
Heart-leaved Aster	<i>Symphyotrichum cordifolium</i>	-	-	S5	5	5
Japanese Knotweed	<i>Reynoutria japonica</i>	-	-	SNA	0	3
Large Barnyard Grass	<i>Echinochloa crus-galli</i>	-	-	SNA	0	-3
Manitoba Maple	<i>Acer negundo</i>	-	-	S5	0	0
Meadow Evening-primrose	<i>Oenothera pilosella</i>	-	-	S2	8	0
Meadow Goatsbeard	<i>Tragopogon pratensis</i>	-	-	SNA	0	5
Meadow Willow	<i>Salix petiolaris</i>	-	-	S5	3	-3
Nannyberry	<i>Viburnum lentago</i>	-	-	S5	4	0
Narrow-leaved Cattail	<i>Typha angustifolia</i>	-	-	SNA	0	-5
New England Aster	<i>Symphyotrichum novae-angliae</i>	-	-	S5	2	-3
Northern Water-plantain	<i>Alisma triviale</i>	-	-	S5	1	-5
Northern Willowherb	<i>Epilobium ciliatum</i>	-	-	S5	3	-3
Oxeye Daisy	<i>Leucanthemum vulgare</i>	-	-	SNA	0	5
Pale Smartweed	<i>Persicaria lapathifolia</i>	-	-	S5	2	-3
Philadelphia Fleabane	<i>Erigeron philadelphicus</i>	-	-	S5	1	-3
Purple Crown-vetch	<i>Securigera varia</i>	-	-	SNA	0	5
Purple Loosestrife	<i>Lythrum salicaria</i>	-	-	SNA	0	-5
Purple-flowering Raspberry	<i>Rubus odoratus</i>	-	-	S5	3	5
Queen-of-the-meadow	<i>Filipendula ulmaria</i>	-	-	SNA	0	0
Red Clover	<i>Trifolium pratense</i>	-	-	SNA	0	3
Red Maple	<i>Acer rubrum</i>	-	-	S5	4	0
Red Raspberry	<i>Rubus idaeus</i>	-	-	S5	2	3
Reed Canarygrass	<i>Phalaris arundinacea</i>	-	-	S5	0	-3
Riverbank Grape	<i>Vitis riparia</i>	-	-	S5	0	0
Rough Cinquefoil	<i>Potentilla norvegica</i>	-	-	S5	0	0
Rough-stemmed Goldenrod	<i>Solidago rugosa</i>	-	-	S5	4	0
Smooth Bedstraw	<i>Galium mollugo</i>	-	-	SNA	0	5
Smooth Brome	<i>Bromus inermis</i>	-	-	SNA	0	5
Spotted Jewelweed	<i>Impatiens capensis</i>	-	-	S5	4	-3
Spotted Joe Pye Weed	<i>Eutrochium maculatum</i>	-	-	S5	3	-5
Tall Goldenrod	<i>Solidago altissima</i>	-	-	S5	1	3
Tall Meadow-rue	<i>Thalictrum pubescens</i>	-	-	S5	5	-3
Trembling Aspen	<i>Populus tremuloides</i>	-	-	S5	2	0
Tufted Vetch	<i>Vicia cracca</i>	-	-	SNA	0	5

COMMON NAME	SCIENTIFIC NAME	CONSERVATION STATUS ¹			Coefficient of Conservation	Coefficient of Wetness
		FEDERAL (SARA, 2002)	PROVINCIAL (ESA, 2007)	S-RANK		
Upland White Goldenrod	<i>Solidago ptarmicoides</i>	-	-	S5	9	3
Virginia Clematis	<i>Clematis virginiana</i>	-	-	S5	3	0
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	-	-	S4?	6	3
White Clover	<i>Trifolium repens</i>	-	-	SNA	0	3
White Elm	<i>Ulmus americana</i>	-	-	S5	3	-3
White Goldenrod	<i>Solidago bicolor</i>	-	-	S4?	8	5
White Meadowsweet	<i>Spiraea alba</i>	-	-	S5	3	-3
White Snakeroot	<i>Ageratina altissima</i>	-	-	S5	5	3
Wild Carrot	<i>Daucus carota</i>	-	-	SNA	0	5
Wild Parsnip	<i>Pastinaca sativa</i>	-	-	SNA	0	5

1 - Conservation Status:

SC = Special Concern; THR = Threatened; END = Endangered; NA = Not at Risk

Federal SARA = *Species at Risk Act, 2002* Schedule 1 unless otherwise noted. The protection and/or conservation measures afforded by SARA apply only to species listed under Schedule 1.

Federal COSEWIC = In the case that a species is not listed under Schedule 1 of SARA, but has a status recommended by the Committee on the Status of Endangered Wildlife in Canada, the uplisting of the species to Schedule 1 of SARA may be imminent.

Provincial ESA = *Endangered Species Act, 2007*.

Provincial (or Subnational) S-Rank: Subnational ranks are assigned and maintained by state or provincial NatureServe network programs.

S1 – Critically Imperiled; S2 – Imperiled; S3 – Vulnerable; S4 – Apparently Secure; S5 – Secure; B – Breeding; N – Non-breeding; ? – Uncertainty

Appendix E

Significant Wildlife Habitat Assessment – Ecoregion 6E

CANDIDATE SWH ASSESSMENT (Ecoregion 6E) - ABBOTT’S RUN (PHASES 2 AND 3)				
Significant Wildlife	Candidate SWH		Confirmed SWH	
Habitat	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands
Seasonal Concentration Areas of Animals				
Waterfowl Stopover and Staging Areas (terrestrial)	Certain cultural meadow or thicket <u>Plus</u> , evidence of annual spring flooding	Fields flooded from mid-March to May	No spring flooding observed. No large flocks of waterfowl observed during surveys.	Not discussed further.
Waterfowl Stopover and Staging Areas (aquatic)	Specific aquatic habitat types (marsh, swamps)	Ponds, marshes, lakes, bays, coastal inlets, and watercourses used for migration. Stormwater and sewage management facilities are not included.	No suitable habitat features present. No large flocks of waterfowl observed during surveys.	Not Present; Not discussed further.
Shorebird Migratory Stopover Area	Beach/Bar Sand Dunes Meadow marsh	Shorelines used in May to mid-June and early July to October. Stormwater and sewage management facilities are not included.	No shallow shorelines, beaches, bars, dunes, or meadow marshes. No shorebirds observed during surveys.	Not Present; Not discussed further.
Raptor Wintering Area	Requires combination of forest (deciduous, mixed, or coniferous) and upland (cultural meadow, cultural thickets, cultural savannahs, or cultural woodlands)	Combination of habitats must >20 ha and the field portion must be wind swept with little accumulation of snow. Where site is for eagles, open water and large trees and snags must be available.	The woodland stands on Site are unlikely to be large enough. No large trees suitable for eagles were noted.	Not Present; Not discussed further.
Bat Hibernacula	Crevices and caves	Active mines are not to be included. Buildings are not included.	No crevices or caves present.	Not Present; Not discussed further
Bat Maternity Colonies	Deciduous, or mixed forests Deciduous or mixed Swamps (>5m tall)	>10/ha large diameter (>25 cm diameter at breast height) Snag trees in the decay classes 1-3 are preferred.	No suitable habitat features present.	Not discussed further.
Turtle Wintering Areas	Swamps, marshes, open water, shallow water, open fen, or open bog	Water that is deep enough not to freeze solid with soft bottoms.	No suitable habitat features present.	Not discussed further.

Significant Wildlife		Candidate SWH	Confirmed SWH	Comments
Habitat	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands
		Must be permanent waterbody (or wetlands with adequate dissolved oxygen)		
Reptile Hibernaculum	Any habitat except very wetlands Talus, rock barren, cave and alvar	For snakes – needs to be below frost lines.	No rocky outcroppings present. No snakes encountered during the site investigations.	Not Present; Not discussed further.
Colonially – Nesting Bird Breeding Habitat (Bank and Cliff Swallow)	Exposed sandy slopes of banks or piles. Cliff faces or structures (bridges, silos etc....)	Does not include licensed aggregate areas. Does not include man-made structures or recently (within 2 years) disturbed soil	No suitable habitat features present. No bank or cliff swallows observed during surveys.	Not Present; Not discussed further.
Colonially – Nesting Bird Breeding Habitat (Trees/Shrubs)	Swamps – deciduous or mixed (trees >5m) Treed fen	Typically requires tall trees as nests are usually 11-15m from ground but shrubs and emergent vegetation could be used.	Breeding bird surveys were completed, and no colonial nesting species were observed.	Not Present; Not discussed further.
Colonially – Nesting Bird Breeding Habitat (Ground)	Any rocky island or peninsula on lake or large river. For Brewer’s Blackbird – near watercourses in open fields, pastures		No rocky islands, or peninsulas were present. Breeding bird surveys were completed, and no colonial nesting species were observed.	Not Present; Not discussed further.
Migratory Butterfly Stopover Area				
Landbird Migratory Stopover Area		Not applicable to Ottawa Area – must be within 5 km of Lake Ontario for 6E.		
Deer Yarding Areas	Mixed or coniferous forests or swamps (>5m tall trees) Can include plantations, cultural thickets, or dry-fresh poplar-white birch deciduous forest	These are mapped by OMNRF.	None mapped by OMNRF for this area.	Not Present; Not discussed further.

Significant Wildlife		Candidate SWH	Confirmed SWH		Comments
Habitat	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	
Deer Winter Congregation Area	All forest and wetland habitats and small conifer plantations	These are mapped by OMNRF (typically, >100ha in size).	None mapped by OMNRF for this area.		Not Present; Not discussed further.
Rare Vegetation Communities or Specialized Habitat for Wildlife					
Cliffs and Talus Slopes	Near vertical face that is >3m in height (cliff or talus)	Typically, in Niagara Escarpment.	Cliffs and talus slope habitat were not present.		Not Present; Not discussed further.
Sand Barren	Sand barrens various types but tree cover is always ≤ 60%	Must be >0.5ha	Sand barrens not present		Not Present; Not discussed further.
Alvar	Alvar, Coniferous Forest, cultural meadow, cultural savannah, cultural thickets, and cultural woodlands	Must have at least 4 indicator species with substantial cover (must not have large amounts of exotic or introduced species)	Alvar habitat is typically flat and mostly unfractured calcareous bedrock. Not present.		Not Present; Not discussed further.
		Must be >0.5ha			
Old Growth Forest	Any forest or treed (>5 m) swamp	Must be at least 30 ha with at least 10 ha of interior habitat (edge considered 100 m)	Woodlands on Site did not meet the requirements for old growth.		Not Present; Not discussed further.
		Have specific characteristics (snags, mosaic of gaps, multi-layered canopy)			
Savannah	Tallgrass prairie savannah and cultural savannah	Must have indicator species	No savannah present		Not Present; Not discussed further.
Tallgrass Prairie	Tallgrass prairie (open prairie - <25% tree cover)	No minimum size	No tallgrass prairie was present.		Not Present; Not discussed further.

Significant Wildlife	Candidate SWH		Confirmed SWH		Comments
Habitat	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	
Other Rare Vegetation Communities	Provincially rare S1-S3 communities as described in Appendix M of the SWHTG		None of the communities listed for the Ottawa-Carleton Area in Appendix M were present.		Not Present; Not discussed further.
Specialized Habitat for Wildlife					
Waterfowl Nesting Area	Shallow marsh, meadow marsh, thicket swamp or deciduous (treed >5 m tall) swamps	Wetland must be 0.5 ha or consist of up to 3 smaller wetlands within 120 m of each other if known nesting is occurring.	No suitable habitat present on Site.		Not Present; Not discussed further.
Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat	Any forest or swamp (trees >5m) type of habitat that is immediately next to rivers, lakes, ponds, or wetlands	Nests on man-made structures are not included.	Some active in general area but none observed during survey, no nests present on or near site.		Not Present; Not discussed further.
Woodland Raptor Nesting Habitat	Any forest habitat or treed swamp (>5m tall) or coniferous plantation	Stand must be > 30 ha with >10 ha of interior habitat (edge is 200 m)	Minimum habitat requirements not present; no nesting raptors noted during surveys.		Not Present; Not discussed further.
Turtle Nesting Areas	Shallow marsh, shallow water, open bog	Close to water but away from roads.	No suitable habitat on Site.		Not Present; Not discussed further.
		It must provide sand and gravel that turtles can dig through and be in open sunny areas.			
		Areas on the sides of municipal or provincial roads are not included.			
Seeps and Springs	Any forested community could have a seep/spring	Forest area with <25% meadow/pasture in the headwaters of a stream.	Candidate habitat not on Site.		Not Present; Not discussed further.
Amphibian Breeding Habitat (woodland)	Any forest or treed swamp (>5m tall trees)	Wetland, pond, or vernal pool must be > 500 m ² Those with water until mid-July (during most years) are better candidates.	Woodland breeding habitat is present. However, the vernal pools do not meet size requirement, and the amphibian breeding quantity or species diversity do not meet the requirements.		Not discussed further.

Significant Wildlife	Candidate SWH		Confirmed SWH	Comments
Habitat	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands
Amphibian Breeding Habitat (wetlands)	Swamps, marsh, fen, bog, open water, or shallow water	Unless it is a larger wetland, must be >120 m from woodlands. Must be > 500 m ²	Candidate habitat not present.	Not present; Not discussed further.
Woodland Area-Sensitive Bird Breeding Habitat	Any forest or treed swamp (>5 m tall)	Interior habitat (200 m edge used) in mature (>60 years) large (>30 ha) stand.	Candidate habitat not present.	Not present; Not discussed further.
Habitat for Species of Conservation Concern (not including Endangered or Threatened Species)				
Marsh Bird Breeding Habitat	Meadow marsh, shallow water, fen, or open bog		No suitable habitat on Site.	Not present; Not discussed further.
Open Country Bird Breeding Habitat	Cultural meadows	Must be large grasslands (>30 ha) Agricultural class 1 and 2 are not included. Agricultural lands planted in row crop or intensive hay, or pastures (within past 5 years) not included.	Candidate habitat not present.	Not present; Not discussed further.
Shrub/Early Successional Bird Breeding Habitat	Cultural thickets or woodlands	Must be > 10 ha. Agricultural class 1 and 2 are not included. Agricultural lands planted in row crop or intensive hay, or pastures (within past 5 years) not included.	Candidate habitat and species present. However, the thicket on Site does not meet the size requirement.	Not discussed further.
Terrestrial crayfish		Not present in Ottawa Area		
Special Concern and Rare Wildlife Species	All special concern or species ranked as S1-S3, SH (plants or animals)	Habitat depends on the species. Of those listed in SWHCS there is a potential for Snapping Turtle.	No species of concern or rare wildlife observed on Site.	Not discussed further.

Animal Movement Corridors			
Amphibian Movement Corridor	Any habitat but amphibian breeding <u>wetland</u> habitat must be identified.	The criterion indicates that amphibian movement corridors are to have a minimum of 15 m of native vegetation on both sides of the waterway. This is not present at this location.	Not Present; Not discussed further.
Deer Movement Corridor	All forests but project must be in Stratum II Deer Wintering Area and Deer Wintering Habitat must be confirmed.	Not applicable – no Deer Wintering Areas or Habitat identified by OMNRF for area.	Not Present; Not discussed further.

Appendix F

Photo Record

Table F1: Subject Site Photos

*Photo 1: A Northern
Leopard Frog
(*Lithobates pipiens*)
foraging in meadow
area.*



Photo 2: A White-tailed Deer (Odocoileus virginianus) grazing in NW corner of property.

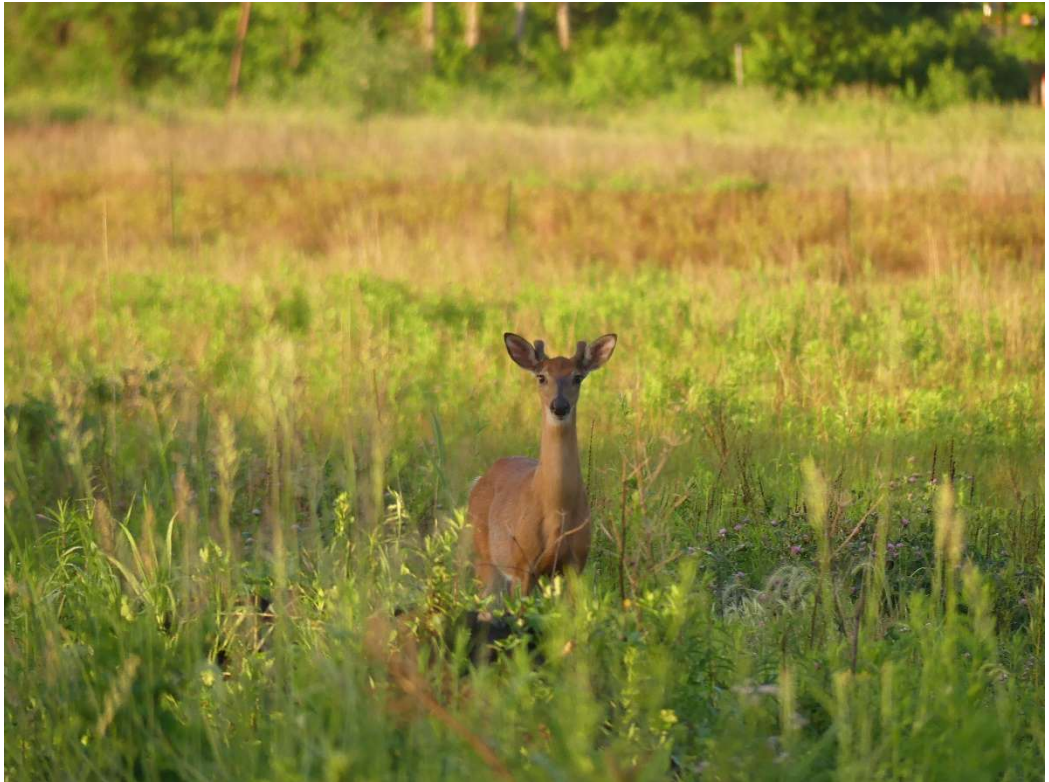


Photo 3: A Brown Thrasher (Toxostoma rufum) sings adjacent the mixed deciduous area in western portion of study site.



*Photo 4: Wild Turkeys
(Meleagris gallopavo)
forage in the mixed
meadow of the NW
area of study site.*



*Photo 5: A Common
Yellowthroat Warbler
(Geothlypis trichas)
atop wild parsnip
(Pastinaca sativa) long
eastern portion of
property boundary.*



Photo 6: A Killdeer (Charadrius vociferus) foraging the scarped area in the eastern portion of the study site.



Photo 7: A Savannah Sparrow (Passerculus sandwichensis) hunts for insects in the wildflowers of the eastern side of the property.



*Photo 8: A Song Sparrow (*Melospiza melodia*) carries food for its offspring in a mixed meadow area in eastern portion of study site.*



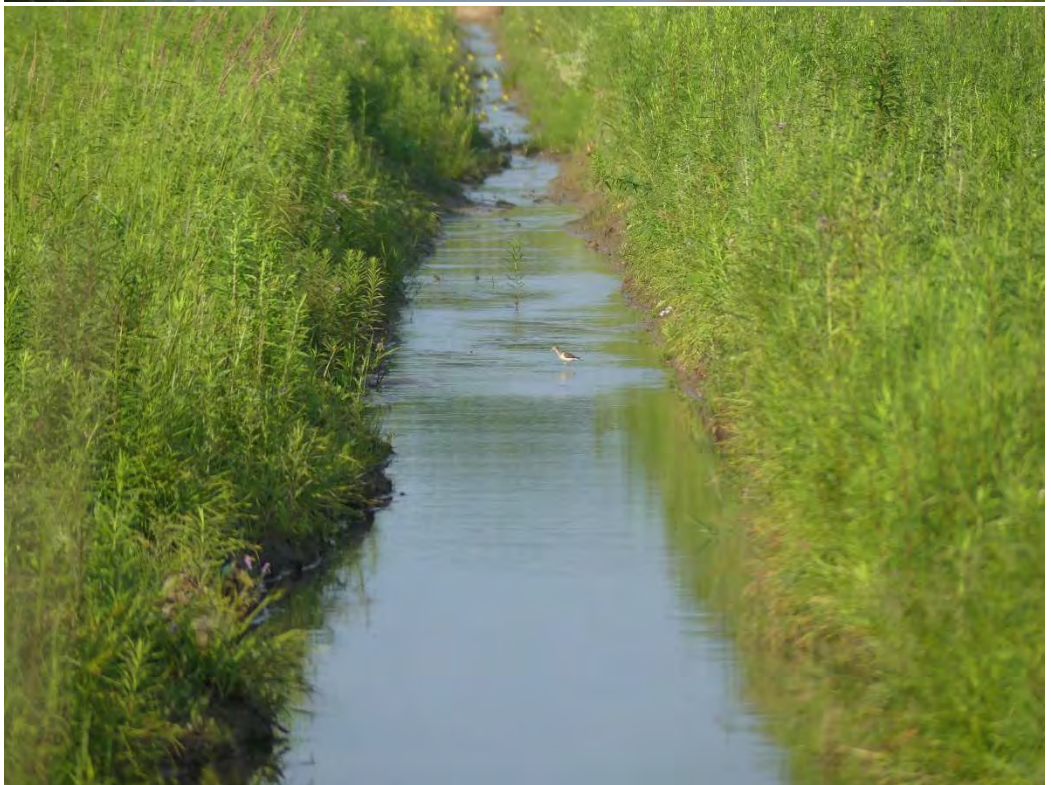
*Photo 9: A Green Frog (*Lithobates clamitans*) hides in water collected by a trench made by heavy machinery in western portion of property.*



*Photo 10: A pair of Mallards (*Anas platyrhynchos*) swimming in drainage feature near survey point Ar-d-01.*



*Photo 11: A Spotted Sandpiper (*Actitis macularius*) forages along drainage feature near HDF Ar-d-01.*



*Photo 12: An American Goldfinch (*Spinus tristis*) perched along the eastern extent of the property line.*



*Photo 13: A Great Egret (*Ardea alba*) wades the drainage feature flowing through the western side of the property.*



Photo 13: A male Yellow Warbler (Setophaga petechia) singing in the foliage found in the NW corner of the study area.



Photo 14: A male Common Yellowthroat (Geothlypis trichas) stands guard, appearing agitated and indicating a nearby nest in a meadow in the western extent of the study site.



