560 Hazeldean Road - Double Deck

Environmental Impact Statement

Submitted to Regional Group
1737 Woodward Dr, Second Floor, Ottawa, ON K2C 0P9

Prepared by Arcadis Professional Services (Canada) Inc.
333 Preston Street, Suite 500, Ottawa ON, K1S 5N4

Project Number: 30282688
Submission Date: August 2025

DRAFT

Environmental Impact Study

560 Hazeldean Road, City of Ottawa

Prepared for Double Deck Regional Inc (c/o Regional Group)
by Arcadis Professional Services (Canada) Inc.
August 2025

Environmental Impact Study

560 Hazeldean Road, City of Ottawa

August 2025

Prepared By:
Casey Little and Alex Zeller
Arcadis Professional Services (Canada) Inc.
333 Preston Street, Suite 500
Ottawa, K1S 5N4

Prepared For:
Stefanie Kaminski
Double Deck Regional Inc (c/o Regional Group)
1737 Woodward Drive, 2nd Floor
Ottawa, ON K2C 0P9

Our Ref:
30282688

Casey Little

Casey Little, DipEM
Senior Ecologist

Erin M. Hellinga, BSc
Senior Ecologist

Alex Zeller, MSc
Manager, Natural Systems

Document Control Page

CLIENT:	Double Deck Regional Inc (c/o Regional Group)
PROJECT NAME:	560 Hazelden Road
REPORT TITLE:	Environmental Impact Study
ARCADIS REFERENCE:	30282688
VERSION:	Rev01
ORIGINATOR:	Casey Little, Sr. Ecologist
REVIEWER:	Erin Hellinga, Sr. Ecologist
AUTHORIZATION:	Alex Zeller, Discipline Lead
CIRCULATION LIST:	Double Deck Regional Inc (c/o Regional Group) City of Ottawa

Executive Summary

Arcadis Professional Services (Canada) Inc. (Arcadis, formerly IBI Group) was retained by the Double Deck Regional Inc (c/o Regional Group) (the Client) to complete an Environmental Impact Statement (EIS) for the proposed low-rise residential development of the Double Deck Lands located at 560 Hazeldean Road in Stittsville, Lot 29, Concession 11, City of Ottawa, Ontario (the “Subject Site”).

The City of Ottawa requires that an EIS 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 EIS evaluates the potential for environmental impacts associated with the proposed development and recommends avoidance and mitigation measures to protect natural heritage features and compensation measures (as required) to offset impacts. The findings in this draft report are based on desktop screening results, and eleven Arcadis site visits conducted in 2025.

The Subject Site is approximately 8.65 ha and generally irregular in shape. The property is located south of Hazeldean Road, approximately 0.5 km west of Terry Fox Drive, and is situated adjacent to the Carp River (**Figure 1**). The Subject Site is currently operated as a commercial business called Kevin Haime Golf Centre consisting of a golf school and driving range.

The Subject Site property is within the City of Ottawa’s Existing Urban Boundary, outside of the Greenbelt, designated as Evolving Neighbourhood Overlay (Schedule B5) in the City’s *Official Plan*. The eastern extents are located within the City’s Flood Plain Overlay, and Mississippi Valley Conservation Authority’s (MVCA) Regulation Limit and is designated as 1:100 Floodplain Limits due to proximity of the Carp River (located approximately 20 m east of the Subject Site).

Based on a desktop review of site-specific background documents and online resources, the largest constraint to development is the location of the Subject Site within a MVCA floodplain hazard area, designated as 1:100 Floodplain Limits. Due to the servicing requirements the Subject Site will require an elevation increase of approximately 1.5 m to 2 m. Furthermore, work within the regulated area will require permitting under the *Conservation Authorities Act*.

Arcadis field investigations in 2025 did not confirm the presence of any Species at Risk (SAR) within the Study Area but did confirm the presence of the suitable habitat for Blanding’s Turtle, and SAR bat roost habitat.

Due to the disturbed nature of the property currently being operated as a golf driving range, and low ecological value, from an environmental perspective, the Subject Site is an excellent candidate for the proposed development.

Contents

List of Tables

List of Figures

List of Appendices

Table of Abbreviations and Acronyms

Term	Meaning
Arcadis	Arcadis Professional Services (Canada) Inc. (Formerly IBI Group Professional Services (Canada) Inc.)
ANSI	Area of Natural and Scientific Interest
CC	Coefficient of conservatism
City OP	City of Ottawa *Official Plan*
City, the	The City of Ottawa
DFO	Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
EIS	*Environmental Impact Study*
ELC	Ecological Land Classification
ESA	*Endangered Species Act, 2007*
FWCA	*Fish and Wildlife Conservation Act, 1997*
GEO	Geospatial Ontario (formerly, Land Information Ontario)
HDF	Headwater Drainage Feature
MBCA	*Migratory Birds Convention Act, 1994*
MBR	*Migratory Birds Regulations, 2022*
MNR	Ministry of Natural Resources (Formerly the Ministry of Natural Resources and Forestry)
MVCA	Mississippi Valley Conservation Authority
NHIC	Natural Heritage Information Centre
NHS	Natural Heritage System
OWES	Ontario Wetland Evaluation System
PPS	*Provincial Planning Statement, 2024*
PSW	Provincially Significant Wetland
SAR	Species at Risk
SARA	*Species at Risk Act, 2002*
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

1 Introduction

Arcadis Professional Services (Canada) Inc. (Arcadis; Formerly IBI Group) was retained by the Double Deck Regional Inc (c/o Regional Group) to complete this *Environmental Impact Study* (EIS) for the proposed development of the Double Deck Lands (the Project) located at 560 Hazeldean Road in Stittsville, Lot 29, Concession 11, City of Ottawa, Ontario (the Subject Site).

The Subject Site is approximately 8.65 ha and generally irregular in shape. The property is located south of Hazeldean Road, approximately 0.5 km west of Terry Fox Drive, and is situated adjacent to the Carp River (**Figure 1**). The Subject Site is currently operated as a commercial business called Kevin Haime Golf Centre consisting of a golf school and driving range.

The Subject Site property is within the City of Ottawa's Existing Urban Boundary, outside of the Greenbelt, designated as Evolving Neighbourhood Overlay (Schedule B5) as designated in the City's *Official Plan* (City OP). The eastern extents are located within the Mississippi Valley Conservation Authority (MVCA) Regulation Limit and is designated as 1:100 Floodplain Limits due to proximity of the Carp River (located approximately 20 m east of the Subject Site).

1.1 Study Area

This report describes the natural heritage features within the Subject Site (560 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 and Purpose

Since 1958, Double Deck Regional Inc (c/o Regional Group) has been shaping real estate throughout Canada's National Capital Region and has been recognized as one of the top real estate companies in Ottawa. As land developers, they create innovative and highly livable communities, rewarding to investors, owners and residents. Their Land Team identifies and acquires exceptional properties, moving them through concept, planning, zoning, approval and servicing.

The Double Deck Regional Inc (c/o Regional Group) has proposed the construction of low-rise residential dwellings with associated asphalt-paved local roads, driveways, and landscaped areas within the central and southern portions of the Site. The northern portion of the Site, along Hazeldean Road, is currently listed as a "Future Residential Block" with no specific development plans currently. From preliminary discussions with the civil engineer, it is understood that proposed grade raises at the Site will be in the approximate range of 1.5 m to 2.0 m.

In line with Regional Group'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 Study Area (i.e., Subject Site + 120 m). Furthermore, this report has been prepared to support land-use planning for the development of Double Deck 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.

Finally, this report provides a summary of the available information from the review of background resources and eleven site visits conducted by Arcadis Ecologists (between April 24 and June 16, 2025). Using this data, the functions and values of the natural heritage features within the 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, and compensation measures to help restore what is lost.

1.3 Property Information

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

Table 1: Subject Site Property Information

Owner(s):	Double Deck Regional Inc (c/o Regional Group)
Address:	560 Hazeldean Road, Stittsville, City of Ottawa, Ontario, Canada
Lot and Concession:	Lot 29, Concession 11
Zoning:	AG - Agricultural Zone
Official Plan designation:	Evolving Neighbourhood Overlay (Schedule B5)
Existing Land Uses:	Golf Centre / Driving Range
Traditional Territory:	Anishinabewaki and Omàmìwininìwag (Algonquin)

1.4 First Nations Land Acknowledgement

Arcadis would like to acknowledge that the Subject Site in Stittsville, City of Ottawa, Ontario is located on the traditional lands / territories of the Anishinabewaki and Omàmìwininìwag (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 Boundary
- Study Area (120m)

0 25 50 100 150 200 Meters

Scale: 1:3,000

Project:

Double Deck - 560 Hazeldean Road

Title:

Site and Study Area

Prepared By:

ARCADIS Design & Consultancy for natural and built assets

Project: 30282688

Date: 7/14/2025

Figure: 1

1.5 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, provides avoidance and mitigation measures to lessen or negate those impacts, and recommends compensation measures when appropriate.

Throughout this EIS, common names of species are used and binomial nomenclature (i.e., scientific names) are provided in the species lists in **Appendix D**. Both names of species (i.e., common and scientific) follow those used by the Ministry of Natural Resources (MNR) in the Natural Heritage Information Centre (NHIC; 2025) Ontario Species Tables with the exception of scientific binomials of plant species which generally follow 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).

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 / Background Review:	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 ecologists.
Summary of Natural Features:	This section summarizes the natural heritage features confirmed present with respect to the relevant policies and legislation.
Description of the Development Proposal:	This section provides a summary of the Project, including the activities which may impact the natural environment.
Development Constraints and Opportunities Analysis	This section identifies areas or features that are ecologically sensitive, protected, or otherwise unsuitable for development, and portions of the site where low-impact development or restoration may be appropriate.
Impact Assessment and Mitigation Measures:	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. 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.
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)** - *Migratory Birds Regulations, 2022* - *Guidelines to Avoid Harm to Migratory Birds* (ECCC 2023a) - *Fact sheet: Nest Protection under the Migratory Birds Regulations, 2022* (ECCC 2023b) - *Nesting Calendars* (ECCC 2023c)
Species at Risk Act, 2002 (S.C. 2002, c. 29) **(SARA)**	**Environment and Climate Change Canada (ECCC)** - *Federal Species at Risk Public Registry* - 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** - *Projects Near Water* online resources (DFO 2022) - *The Fish and Fish Habitat Protection Program (FFHPP) Regulatory Review Process Map* (DFO 2020)
Provincial Government of Ontario	
Fish and Wildlife Conservation Act, 1997 (S.O. 1997, c. 41) **(FWCA)**	**Ministry of Natural Resources (MNR)** - Wildlife Schedules (*O. Reg. 669/98*)
Conservation Authorities Act, 1990 (R.S.O. 1990, c. C.27)	**Mississippi Valley Conservation Authority (MVCA)** - *Prohibited Activities, Exemptions and Permits (O. Reg. 41/24)* - MVCA Regulation Public Mapping Browser (MVCA 2024) - *Ontario Stream Assessment Protocol* (Stanfield 2017)
Endangered Species Act, 2007 (S.O. 2007, c. 6) **(ESA)**	**Ministry of the Environment, Conservation and Parks (MECP)** - *Species at Risk in Ontario List* (*O. Reg. 230.08*)
Planning Act, R.S.O. 1990, c. P.13	**Ministry of Municipal Affairs and Housing** - *Provincial Planning Statement, 2024* (PPS)
	MNR Natural Heritage Information Centre (NHIC) Database (MNR 2025): - 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** - *Official Plan 2022,* adopted by *By-law 2021-386* (City of Ottawa 2022a) - geoOttawa mapping resource - Neighbourhood and Evolving Neighbourhood (*Official Plan* Schedule B5) - Urban Area – Natural Heritage System (West) (*Official Plan* Schedule C11A) - *Bird-Safe Design Guidelines* (City of Ottawa 2022b) - *Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment* (SWG; City of Ottawa 2022c) - *Environmental Impact Statement Guidelines* (City of Ottawa 2023)
Zoning By-law 2008-250	**City of Ottawa** - *Zoning By-law 2008-250*, 2023 consolidation (City of Ottawa 2023) - Section 69: Setback from watercourses and waterbodies
Tree Protection By-Law 2020-340	**City of Ottawa** - *By-law 2020-340* (City of Ottawa 2021)

2.1 Federal Policies and Legislation

2.1.1 *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. As such, SARA only applies to the protection of federal SAR critical habitat, as per Section 58 of SARA. listed bird or fish species (DFO 2022a, ECCC 2022).

2.1.2 *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 the 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.

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 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.

2.1.3 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 Study Area where watercourses / drainage features provide fish habitat.

2.2 Provincial Policies and Legislation

2.2.1 *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 comply with and be conducted under the appropriate permit(s) of, the *Planning Act*.

2.2.1.1 *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 (MMAH), applies across the province to all projects outside of federal land.

2.2.2 *Endangered Species Act, 2007* (ESA)

The Ontario ESA first came into effect on June 30, 2007, 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.

In June 2025, interim amendments to the ESA came into effect through the introduction and Royal Assent of Bill 5, known as the *Protect Ontario by Unleashing Our Economy Act, 2025*. These interim changes were implemented on June 5, 2025, while the proposed *Species Conservation Act, 2025* (SCA) is expected to be implemented sometime in early 2026 and will repeal the ESA. The Environmental Registry of Ontario identifies amendments to the ESA that have taken effect since the Royal Assent of Bill 5. It further identifies that once the enabling regulations are ready and the SCA is proclaimed into force, further changes will apply. The compliance and enforcement model in the SCA will be the same as in the amended ESA (including the mitigation and compliance orders).

At the time of preparation of this report, 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 habitat (as defined by Bill 5) is unlawful, regardless of intent. As such, the ESA applies to the entire Study Area. Therefore, if a protected species or their critical habitat is encountered during Project activities, the Project must comply with the prohibitions of the ESA.

2.2.3 *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.

The *Conservation Authorities Act* defines watercourses as:

> *"Watercourse (means a) defined channel, having a bed and banks or sides, in which a flow of water regularly or continuously occurs."*

The *Conservation Authorities Act* defines wetlands as:

> *"Wetland means land that, (a) is seasonally or permanently covered by shallow water or has a water table close to or at its surface, (b) directly contributes to the hydrological function of a watershed through connection with a surface watercourse, (c) has hydric soils, the formation of which have been caused by the presence of abundant water, and (d) has vegetation dominated by hydrophytic plants or water tolerant plants, the dominance of which have been favoured by the presence of abundant water."*

Conservation Authorities Act - Applicability to the Project

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

2.2.4 *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 active wildlife 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.

2.3 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 Subject Site; however, there is an Urban Natural Feature polygon identified directly south of the Subject Site, within the Study Area. This area encompasses the Carp River and the area adjacent. A review of aerial photos suggests that the narrow forest strip at the southernmost extents of the Study Area may provide a functional ecological linkage. The function of the Urban Natural Feature is likely limited to the general movement of wildlife throughout this local woodland. The mapping indicates that there is limited connectivity adjacent to these areas due to the establishment of residential and institutional development.

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.

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 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 diameter at breast height 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 diameter at breast height on private properties within the urban area that are 1 hectare or less in size.

2.3.3 New Zoning By-law No. 2026-50

The City's *Zoning By-law* is a land-use regulation tool that shapes the way Ottawa grows. It sets rules about what can be built without having to seek specific permission from the City. Ottawa's new Zoning By-law implements Official Plan policies that aim to build healthy, equitable communities and a more affordable city.

The City of Ottawa Flood Plain Overlay is a set of zoning provisions that regulate development within areas of potential flooding. To acknowledge reduced flood risk in areas with flood mitigation infrastructure or other similar features, there are two zoning overlay categories:

- Flood Plain: Development not permitted other than limited additions to existing buildings. Intensification is generally not supported.
- Area Specific Flood Plain: Limited development is permitted subject to flood proofing, protection works, and access standards. Intensification in these areas is not encouraged. Despite the underlying zoning, severances in these areas are not supported under Official Plan policies.

The Subject Property includes the Flood Plain limits within its zoning overlay.

By-law No. 2026-50 Applicability to the Project – Floodplain Overlay

Under the *Zoning By-law*, the purpose of the Flood Plain Overlay is to:

- Implement Official Plan policy that restricts development in the 1 in 100-year flood plain.
- Permit limited forms of development, such as small additions to existing buildings or changes of use, in areas subject to the Overlay.

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, 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:

Ontario wildlife atlases and observation records:

- Natural Heritage Information Centre (NHIC) Database (MNR 2025).
- 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 2025);
- eBird HotSpot species lists (eBird 2025);
- Bat Conservation International Inc. Bat Profiles (BCI 2025); and
- Atlas of the Mammals of Ontario (Dobbyn 1994).

Conservation Authority resources:

- Mississippi Valley Conservation Authority Regulation Public Mapping Browser (MVCA 2025).

City of Ottawa Resources:

- City of Ottawa *Official Plan* (City of Ottawa 2022b);
- geoOttawa interactive mapping tool (City of Ottawa 2025);
- City of Ottawa *Environmental Impact Statement Guidelines* (City of Ottawa 2023);
- *Zoning By-law 2026-50* (City of Ottawa 2025);
- *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.

The following sections outline 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 2025). From this review, the Site was used for agricultural purposes as displayed in the 1976 image in **Figure 2** below. By 2002, the Site had been developed into the golf range that it currently operates. The landscape around the Study Area is predominantly agricultural, with residential, and commercial properties interspersed.

Aerial imagery and background review of the Subject Site indicates that the property itself has experienced little change since at least 2002. As the Subject Site is designated mainly as 'Evolving Neighbourhood' on Schedule B5 of the City OP, the proposed residential development represents a suitable use of the property.

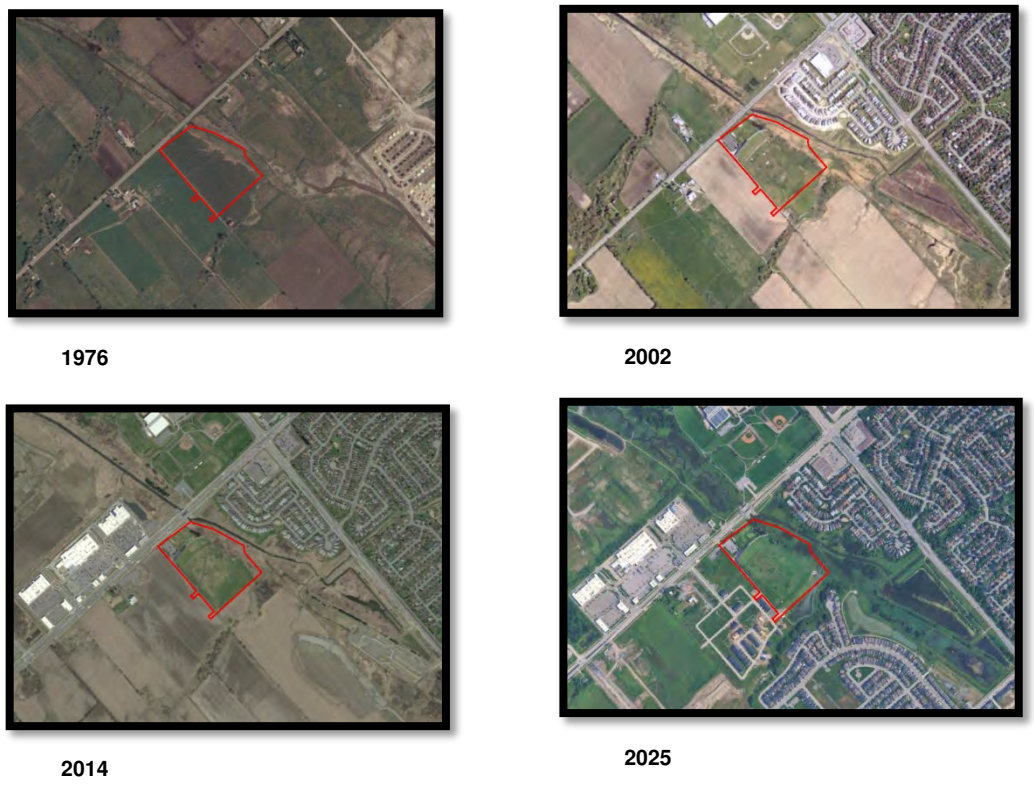


Figure 2: Aerial Imagery Showing Land Use Changes Over Time

3.2 Landform, Geology, and Soils

The following Ontario Geological Survey data has been obtained from the new Geology Ontario hub (Geology Ontario 2025):

The surficial geology of the Study Area contains Organic Deposits, composing of peat, muck, and marl, as well as "Massive too well laminated" fine-textured glaciomarine deposits mainly composed of silt and clay, with minor contributions of sand and gravel (OGS 2010). These two surficial geologies bisect the property.

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

3.3 Aquatic Environment

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 MVCA jurisdiction and associated watersheds (MVCA 2025).

Mapping by MVCA and the City indicate the presence of three “streams” or headwater drainage features (HDFs) and one pond that occur within the Subject Site, as described below. All three Features are mapped to contribute to the Carp River which is located approximately 20 m northeast of the property.

Feature-1

One watercourse (“Feature-1”) is located along the southwestern edge of the property where it follows a constructed pathway near the southern boundary of the Site. Land development borders the southwestern side of the feature, while the Kevin Haime Driving Range lies to the northeast.

Feature-2

The second watercourse (“Feature-2”) is a roadside drainage ditch that flows northwest along Hazeldean Road before ultimately joining the Carp River approximately 20 m northeast of the site boundary. While this reach has existed as a roadside ditch since at least 1976, it was significantly altered in the early 2000s to accommodate the construction of the Hazeldean Bridge.

Feature-3

Finally, a third watercourse (“Feature-3”) was identified using GEO mapping services and runs parallel along the west side of the Carp River.

Pond

Located between the Carp River and the Kevin Haime Golf Centre, a 0.15-acre pond is situated at the northeastern extent of the Site. A review of aerial imagery suggests that the pond was constructed alongside the Golf Centre in the early 2000s and has remained unaltered since.

Carp River

The Carp River is a 42-kilometre tributary that flows northwest into the Ottawa River and provides direct fish habitat. Approximately 0.6 km of the river lies within the Study Area and is regulated by the MVCA.

These surface water features are displayed in **Figure 3** below.

3.3.2 Subsoil and Groundwater Conditions

The subsoil and groundwater conditions of the Subject Site have been assessed by Paterson Group (2025). That report includes details of the approach and methods used to complete the Geotechnical Investigation. This report will be included under separate cover and not discussed within this EIS.

3.3.3 Floodplain and Regulated Limit

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 the property is within the MVCA's 1:100-year Floodplain Limits, as well as within its Regulated Limits (MVCA 2025).

3.3.4 Fishes and Fish Habitat

Pond

The pond is located within the Subject Site but does not show up on either the ArcGIS Aquatic Resource Area or DFO aquatic SAR mapping resources, likely because it is man-made and occurs on private property. Therefore, no fisheries data is available for this feature from these resources.

Since this pond is not a natural waterbody, it is not regulated by Fisheries and Oceans Canada (DFO); however, any fish and/or wildlife in the pond are protected under the *Fish and Wildlife Conservation Act* (FWCA; see **Section 2.2.4**).

Carp River (Direct Fish Habitat)

According to the ArcGIS Aquatic Resource Area feature layers provided by Geospatial Ontario (GEO; formerly, Land Information Ontario), the reach of Carp River that occurs within the Study Area provides direct fish habitat and is regulated by DFO. The following fishes are documented to occur in the Carp River, based on Aquatic Resource Area data dated 2013:

- Banded Killifish
- Blackchin Shiner
- Blacknose Dace
- Blacknose Shiner
- Bluntnose Minnow
- Brassy Minnow
- Brook Stickleback
- Brown Bullhead
- Burbot
- Carps and Minnows (Cyprinidae)
- Central Mudminnow
- Common Shiner
- Creek Chub
- Emerald Shiner
- Etheostoma sp.
- Fathead Minnow
- Finescale Dace
- Golden Shiner
- Iowa Darter
- Johnny Darter
- Johnny Darter x Tesselated Darter
- Logperch
- Longnose Dace
- Mimic Shiner
- Mottled Sculpin
- Moxostoma sp.
- Muskellunge
- Northern Hog Sucker
- Northern Pearl Dace
- Northern Pike
- Northern Redbelly Dace
- Notropis sp.
- Pumpkinseed
- Rhinichthys sp.
- Rock Bass
- Smallmouth Bass
- Tessellated Darter
- Trout-Perch
- White Sucker
- Yellow Perch

Additionally, iNaturalist (2025) documents observations of European Carp (i.e., Common Carp; naturalized invasive) and Largemouth Bass (gamefish) in the Carp River within the vicinity of the Study Area.

Consistent with the above list, the DFO aquatic SAR mapping resource also indicates no aquatic SAR or critical habitat are found (or potentially found) within proximity of the Study Area, including the Carp River in this area (DFO 2025).

3.4 Terrestrial Environment

The Subject Site is mostly comprised of maintained lawn, with scattered trees and shrubs situated along the western and eastern sides, and northern edge of the property. In the northern portion of the property there is a large, paved parking area, as well as a commercial building, currently operating as the Kevin Haime Golf Centre. The ground surface of the property is relatively flat, sloping gently to the east. Natural heritage features in the Study Area include the natural riparian limits along the western shoreline of the Carp River.

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, apart from Fish Habitat which is discussed above in **Section 3.3.4**. 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 (GEO, 2025) indicates that there are no Provincially Significant Wetlands (PSWs) within the Study Area (**Figure 3**).

The MVCA Regulation Public Mapping Browser has an unevaluated wetland mapped directly south of the Subject Site, within the larger Study Area. Provincial mapping does not include this unevaluated wetland in their data set (GEO 2025).

3.4.2 Woodlands

Based on review of background documents and provincial mapping, there are no wooded areas mapped within the Subject Site. The only trees present are the scattered planted trees and shrubs situated along the western and eastern sides, and northern edge of the property (Google 2025). A review of aerial photos displays a narrow-wooded strip at the southernmost extents of the Study Area that may provide a functional ecological linkage for local wildlife movement.

3.4.3 Valleylands

No Significant Valleylands were identified present within the 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 (MNRF 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.

The potential for the presence of habitats matching the description of these SWHs within and adjacent to the Study Area was reviewed using available background information and aerial imagery. It was determined that there may be presence of “Seasonal Concentration Areas of Animals”, “Specialized Habitat of Wildlife”, and “Habitat for Species of Conservation Concern”. The following sections describe the candidate SWH categories that may be present.

Seasonal Concentration Areas of Animals

Review of aerial imagery suggests that the Carp River and the pond may be suitable as a “Turtle Wintering Area”.

Specialized Habitat for Wildlife

Based on the criteria established for Candidate SWH, there is potential for “Turtle Nesting Areas” and “Amphibian Breeding Habitat – Wetlands” found within the Study Area.

Habitat for Species of Conservation Concern

The Significant Wildlife Habitat Technical Guide (MNR 2000) defines Species of Conservation Concern as globally, nationally, provincially, regionally, or locally rare (S-Rank of S2 or S3). S-Ranks are an indicator of commonness within the province of Ontario, on a scale of 1 to 5. S2 represents a species that is considered imperilled within Ontario. S3 represents a species considered as vulnerable within Ontario. The classification of Species of Conservation Concern does not include SAR listed as Endangered or Threatened under the ESA or SARA but does include SAR listed as Special Concern as they do not receive protection under the ESA.

A review of background data (e.g., Ontario wildlife atlases and online databases) suggests that Barn Swallow, Common Nighthawk, Eastern Whip-poor-will, Eastern Wood-pewee, Wood Thrush, Monarch, and Snapping Turtle have been reported within the Study Area.

There is also potential for “Marsh Bird Breeding Habitat” within the Study Area.

There are no SWH features included in the City OP schedules. Updated Arcadis field surveys will confirm and/or determine whether appropriate habitat for these species remain within the Study Area.

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 Toad, Midland Painted Turtle, among others.

- **Birds**: American Crow, American Goldfinch, American Robin, Northern Cardinal, 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 14 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.

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 MNR's habitat description. This resulted in the larger list of SAR for the Study Area being reduced to only ten potential SAR based on a moderate to high probability of occurrence – described in **Appendix C** (**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
BIRDS				
Least Bittern	*Ixobrychus exilis*	SB4	THR	THR
HERPETOFAUNA				
Blanding's Turtle	*Emydoidea blandingii*	S3	THR	THR
MAMMALS				
Little Brown Myotis	*Myotis lucifugus*	S4	END	END
Northern Myotis	*Myotis septentrionalis*	S3	END	END
Eastern Red Bat	*Lasiurus borealis*	S4	END	END
Hoary Bat	*Lasiurus cinereus*	S4	END	END
Silver-haired Bat	*Lasionycteris noctivagans*	S4	END	END
Tri-colored Bat	*Perimyotis subflavus*	S3?	END	END
TREES				
Black Ash	*Fraxinus nigra*	S4	END	No Status
Butternut	*Juglans cinerea*	S2?	END	END

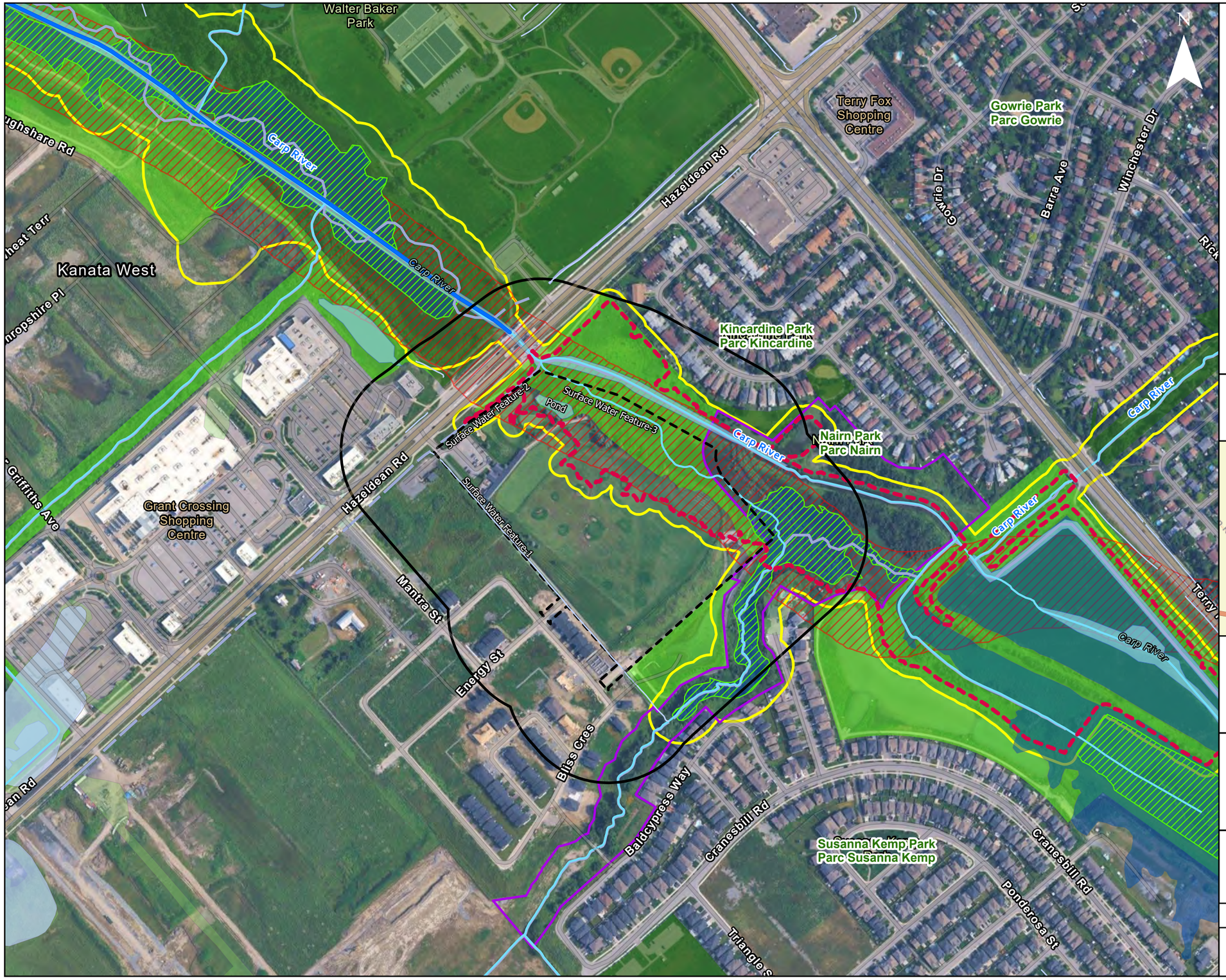
Notes:
S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common. B: identifies status on breeding habitat; ?: suggests a level of uncertainty.
ESA = *Endangered Species Act, 2007* Status, SARA = *Species at Risk Act, 2002* Status, END: Endangered, THR: Threatened.

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 open maintained lawn, with scattered trees and shrubs planted along the perimeter. There are three surface water Features present within the property, none of which contain direct fish habitat. The Carp River is situated along the eastern extents of the Study Area and contains direct fish habitat. 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** and **Appendix B**.

Table 5: Known Natural Heritage Features within the Study Area

Natural Heritage Feature	Present within Study Area	Comments	Further Assessment Required
Provincially Significant Wetlands (PSWs)	None	No PSWs identified during background review.	No
Significant Woodlands	None	No woodlands identified during review of satellite imagery.	No
Significant Valleylands	None	No valleylands identified during review of satellite imagery/MVCA.	No
Areas of Natural and Scientific Interest (ANSIs)	None	No ANSIs identified during background review.	No
Significant Wildlife Habitat (SWH)	**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 5.4.2
Species at Risk (SAR) Habitat	**None identified in OP schedules**		**Yes** Discussed in Section 5.3.5.
Fish Habitat	**Feature-1 Feature-2 Feature-3 Pond Carp River**	**Feature-1: None Feature-2: None Feature-3: None Pond: Potential Carp River: Direct Fish Habitat**	**Yes** Discussed in Section 5.2.2
Unevaluated Wetlands	**Yes**	**One unevaluated wetland mapped south of the Subject Site**	**Yes** Discussed in Section 5.4.1
Core Natural Areas	No	None identified in OP schedules	No
Natural Linkage Areas	No	None identified in OP schedules	No
Urban Natural Feature	**Yes**	**Identified in OP schedule C11A**	**Yes** Discussed in Section 5.4.3



Legend

- Site Boundary
- Study Area (120m)

Watercourses

- Constructed Drain (GEO, 2025)
- Watercourse (GEO, 2025)
- Watercourse (geoOttawa, 2025)
- Ditches (geoOttawa, 2025)

Wetlands - GEO

- Unevaluated Wetland (GEO, 2025)
- Waterbody (GEO, 2025)

Wetlands - geoOttawa/MVCA

- Unevaluated Wetlands 2011 (geoOttawa, 2025)
- Non Evaluated Wetlands (MVCA, 2025)
- 1:100 Year Carp River Flood Plane Limit (MVCA, 2025)
- Regulation Limit (MVCA, 2025)

Natural Features

- Wooded Area (GEO, 2025)
- Park (geoOttawa, 2025)
- Open Space (geoOttawa, 2025)
- Urban Natural Feature (geoOttawa, 2025)
- Unstable Slopes (geoOttawa, 2025)

0 40 80 160 240 320 Meters

Scale: 1:5,000

Project:

Double Deck - 560 Hazeldean Road

Title:

Natural Heritage Background Information

Prepared By:

ARCADIS Design & Consultancy for natural and built assets

Project: 30282688

Date: 7/14/2025

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 eleven site visits were conducted by Arcadis Ecologists in 2025 (between April 24 and June 16) for purposes of ground-truthing and characterizing the natural heritage features on the property. 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 significance of features and 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.
- Amphibian breeding surveys.
- Turtle Visual Encounter surveys.
- Breeding bird surveys.
    - Targeted Least Bittern surveys.

Species at Risk

- Identification of potential Species at Risk and Species at Risk habitat.

Incidental Wildlife

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

Natural Heritage Features

- Significant Wildlife Habitat Assessment.
- Urban Natural Feature 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 Surface Water Features, of which assessments were conducted by Arcadis Ecologists in 2025.

Headwater Drainage Feature Assessment

HDF assessments were based on the Toronto and Region Conservation Authority and Credit Valley Conservation protocol, outlined in the *Evaluation, Classification and Management of Headwater Drainage Features Guidelines*

("*HDF Guidelines*"; TRCA and CVC 2014). Two 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 2025. 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

The subsoil and groundwater conditions of the Subject Site have been assessed by Paterson Group (2025). That report includes details of the approach and methods used to complete the Geotechnical Investigation.

4.1.3 Fishes and Fish Habitat Assessment

Although the pond is not a natural waterbody and is not regulated by DFO, a habitat assessment of the pond was conducted to investigate the presence of fishes and fish habitat. A short reach of Carp River is also present within the Study Area; however, due to data available from secondary sources field investigations were not required. The HDF assessments completed on Site (as described above in **Section 4.1.1**) determined fish presence within the three surface water Features identified in the background data review (**Figure 3**).

Pond

A single minnow trap was deployed in the pond on the Subject Site, baited with dry dog food, on May 14, 2025, at 11 pm. This trap was fished approximately 16.5 hours later, at 3:45 pm on May 15, 2025.

Fishes captured were identified to species, representative identification photos were taken of each species, and total numbers of individuals were counted. Any notes regarding health (e.g., lesions, tumours, blackspot, etc.) were also recorded. Fishes were promptly released close to the area where they were fished.

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) (MNRF 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 2025 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 24, May 14, and June 16, 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 ºC and 24 ºC for each of the three respective surveys. Two survey locations were situated within the Site boundaries.

Each amphibian survey involved standing at a predetermined station for three 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 Turtle Visual Encounter Surveys

A reduced scope was completed to search for general turtle use of the Carp River and the pond located on Site. Three visual surveys of potential overwintering habitat were completed at the pond on Site, as well as general search of turtle presence during all other surveys completed on Site. The survey period began following ice-melt and ended on June 16. Surveys were spaced to cover a minimum period of 3 weeks. Basking surveys were completed between 8 am and 5 pm during sunny periods and when air temperature is at least 5°C (or partially cloudy when air temperature was above 15°C and was warmer than the water temperature). When possible, surveys targeted days immediately following inclement weather, when turtles would be more prone to basking.

Information collected included: date of survey, start and stop time, weather conditions, number and species of turtles observed, and their location.

4.2.6 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) with a minor increase in the survey duration from 5 minutes, up to 6 minutes. Two surveys were completed during the bird breeding season: June 3 and June 16, 2025.

Each survey consisted of visiting two 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.

4.2.7 Species at Risk and Species at Risk Habitat

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 ten SAR (Least Bittern, Blanding's Turtle, Little Brown Myotis, Eastern Red Bat, Hoary Bat, Silver-haired Bat, 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.

4.2.7.1 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 areas and the 50 m surrounding area. Where the 50 m extended to neighbouring lands, inventory was assessed from a distance / over the fence.

4.2.7.2 Least Bittern Survey

The Least Bittern surveys follow the protocols described in the *National Least Bittern Survey Protocol* (Jobin et al. 2010) and require three visits. Visits can take place between early May and mid-July and must be spaced at least 10 days apart. Since this species' calling decreases after nesting, it is recommended that the first visit be in early May in this part of Ontario. The surveys are to begin no earlier than 30 minutes before dawn and must be completed by 10 am. They are to take place on days with suitable weather avoiding days with rain, extreme heat (>30°C) or winds exceeding 19 km/h). The station is surveyed for 15 minutes as follows: 5 minutes passive, 5 minutes active (playing call response broadcast), and 5 minutes passive. Two Least Bittern survey points were established (these were only surveyed following this protocol for the two visits, after which the general breeding bird protocol was followed).

4.2.8 Incidental Wildlife / Wildlife Trail Camera

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. A wildlife trail camera was deployed at the pond on May 23, 2025, which recorded wildlife activity for 20 days. Such observations help validate our conclusions regarding the ecological function and wildlife use of the Study Area.

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 municipal, provincial and/or federal guidelines for that feature. These methods are described in the sections below.

4.3.1 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".*

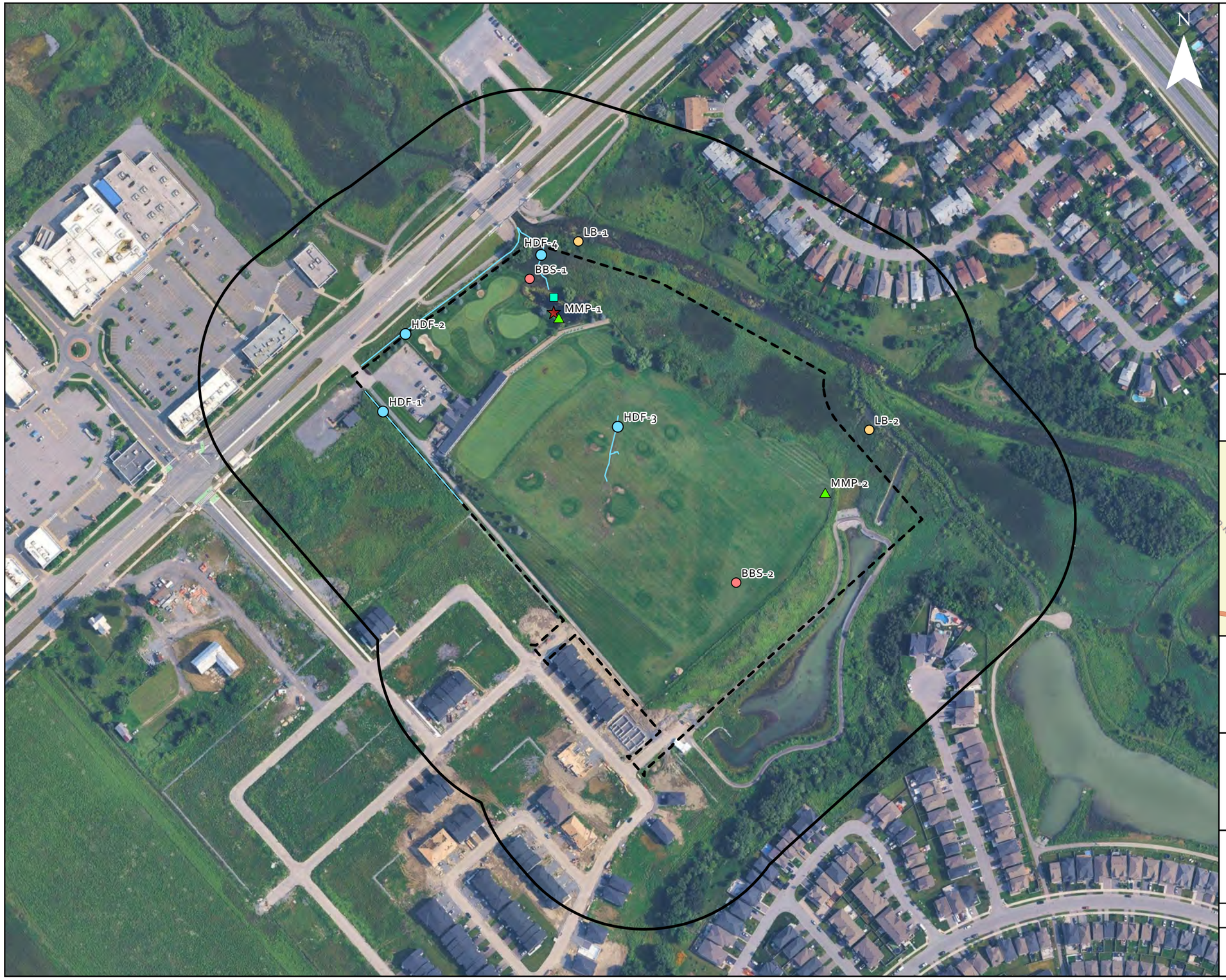
The ELC communities were compared to the MNR's *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (2015) and those that were deemed candidate SWH are discussed in **Section 5.4.2** below.

4.3.2 Urban Natural Feature

Included on Schedule C11 of the City OP is an Urban Natural Feature polygon identified directly south of the Subject Site, within the Study Area. This area encompasses the Carp River and the area adjacent. The City identifies these areas as:

> *"Features such as woodlands, wetlands and vegetated ravines throughout the urban area, protected and managed primarily for their environmental values. These features may occur on City, federal, provincial and privately-owned lands".*

The ELC communities were reviewed to determine what features make up this designation in this location and are discussed in **Section 5.6.3** below.

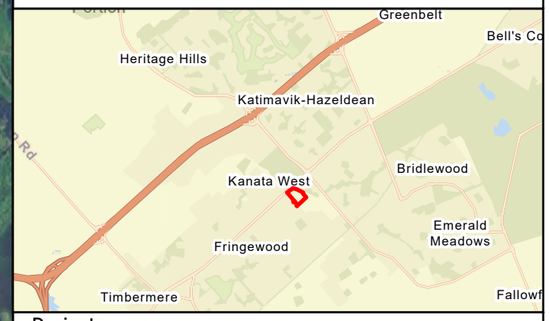


Legend

- Site Boundary
- Study Area (120m)
- Headwater Drainage Feature
- HDF - Constrained Headwater Sampling
- Minnow Trap Location
- Breeding Bird - Survey Location
- Least Bittern MMP - Survey Location
- Marsh Monitoring Protocol - Survey Location
- Trail Camera

0 25 50 100 150 200 Meters

Scale: 1:3,000



Project:

Double Deck - 560 Hazeldean Road

Title:

Field Survey Locations

Prepared By:

ARCADIS Design & Consultancy for natural and built assets

Project: 30282688

Date: 7/9/2025

Figure: 4

5 Field Survey Results

Fieldwork conducted for the Abbott's Run (Phases 2 and 3)took place between April 24 and June 16, 2025 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, Turtle Basking	2025-04-24	7:00 am - 7:30 am	B.Semmler, D.Shaw	Overcast, light wind	18
MMP#1	2025-04-24	10:15 pm - 11:00 pm	B.Semmler, D.Shaw	Overcast, moderate wind	17
MMP#2, Set Minnow Trap	2025-05-14	11:15 pm - 11:45 pm	B.Semmler, D.Shaw, M.Czura	Light cloud cover, light wind	21
Minnow Trap Retrieval, Turtle Basking	2025-05-15	3:30 pm - 4:15 pm	D.Shaw, M.Mandrak	Overcast, moderate breeze	35
Trail Camera Setup, Turtle Basking	2025-05-23	7:30 am - 7:45 am	B.Semmler	Overcast, little to no wind	11
BBS#1, Turtle Basking	2025-06-03	5:00 am - 05:40 am	D.Shaw	Clear, light air	9
Trail Camera. Turtle Basking	2025-06-04	8:30 am - 9:00 am	D.Shaw	Mostly cloudy, moderate breeze	17
LEBI, Trail Camera retrieval	2025-06-11	5:00 am - 6:00 am	D.Shaw	Gentle breeze, mainly clear	12
LEBI, BBS#2, Turtle Basking	2025-06-16	4:45 am - 6:00 am	D.Shaw	Light air, clear	11
HDF#2, Tree Inventory, ELC, Turtle Basking	2025-06-16	7:30 am - 1:30 pm	B.Semmler, D.Shaw	Mainly clear, gentle breeze	19
MMP#3	2025-06-16	9:00 pm - 22:00 pm	B.Semmler, D.Shaw	Mainly clear, gentle breeze	21

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)
LEBI – Least Bittern survey

5.2 Aquatic Environment

5.2.1 Headwater Drainage Feature Assessment

Arcadis ecologists conducted field investigations of surface water Features 1 through 3, which led to the identification of an additional Feature near the center of the Site and a revision to the delineation of Feature 3.

In total, four HDF features were identified within the Study Area. 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 HDF-1

Based on the background review, HDF-1 (initially “Feature-1”) has historically flanked an agricultural road as of 1976, prior to the development of the driving range in the early 2000s. Water flow within this reach originates from the adjacent pathway, sheet flow from the western extent of the site, and runoff from the active construction site to the west. Flow is directed into Reach HDF-2, which ultimately discharges into the Carp River to the northeast.

Surface flow within HDF-1 is ephemeral, with spring flow depths measured at approximately 8 mm. The reach was dry during the second field survey conducted in summer 2025. Riparian habitat along HDF-1 is limited due to surrounding land use, which includes managed lawn, cultural meadow, and ongoing construction activities.

No fish were observed within this reach during field evaluations. Amphibian breeding surveys conducted in 2025 found no evidence of suitable breeding habitat within or adjacent to the reach, and no substantial hydrologic function was identified. **Given these characteristics and the presence of Valued Riparian habitat, the proposed management recommendation for Reach HDF-1 is “No Management Required”.**

HDF-1, April 24, 2025

HDF-1, June 16, 2025

Reach HDF-2

Historical aerial imagery indicates that the highly channelized feature (HDF-2) (initially “Feature-2”) has provided roadside drainage for Hazeldean Road since at least 1976, and likely earlier. The reach was significantly modified in the early 2010s to accommodate the construction of the Hazeldean Bridge, located northeast of the site boundary. Water flow within this reach primarily originates from runoff associated with spring freshet and major rainfall events along Hazeldean Road. Additional contributions come from sheet flow originating from the Subject Site (HDF-1) and surrounding properties. Flow is directed northeast toward the Carp River.

During spring surveys, standing water with a depth of approximately 5 mm was observed in HDF-2; however, the reach was dry during the summer assessment. Terrestrial habitat is limited, as the surrounding conditions are dominated by managed lawn, cultural meadow, and paved roadways. No fish or suitable fish habitat was observed within the feature.

This reach provided limited terrestrial habitat as site conditions were associated with managed lawn, meadow, and paved roadways. No fishes or suitable fish habitat was observed within this feature. Amphibian breeding surveys conducted in 2025 revealed that no suitable breeding amphibian habitat was present within this reach, nor was there any substantial hydrologic function. **Given these characteristics, the proposed management recommendation for Reach HDF-2 is “No Management Required”.**

HDF-2, April 24, 2025

HDF-2, June 16, 2025

Reach HDF-3

This reach was originally identified using air photo interpretation; however, field investigations identified no defined banks or channel, and as a result, the feature does not meet the criteria for a watercourse under the *Conservation Authorities Act* (*O.Reg.41/24*). The waterflow of this remnant natural feature is managed through tile drainage systems that direct runoff toward the pond at the northern extent of the property and ultimately to the Carp River.

No fishes or suitable fish habitat was observed within the feature. Amphibian breeding surveys conducted in 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 HDF-3 is “No Management Required”.**

HDF-3, April 24, 2025

HDF-3, June 16, 2025

Reach HDF-4 (Wetland Feature)

HDF-4 (wetland feature) (initially “Feature-3”) is located within a floodplain and was not initially observed during spring surveys due to elevated water levels resulting from the spring freshet of the Carp River. Background research suggests that this reach was historically more defined but now functioned as part of a broader wetland system associated with the Carp River. It is possible that the recent construction of the SWMP south of the Subject Site has altered the local hydrology and has led to the minimalization of this feature. Field investigations revealed that HDF-4 is now closely associated with the pond located in the northeastern corner of the developed property. Several French drains and tile drainage pipes were observed contributing water to the pond during site visits. This continuous water input is maintained by the irrigation schedule of the adjacent driving range, contributing flow into HDF-4 and ultimately into the Carp River. These alterations have significantly modified the original hydrologic function of the reach.

Summer surveys identified perennial standing water within HDF-4 at a depth of 9 mm. This reach provides Important Riparian habitat, characterized by the presence of a Narrow-leaved Sedge Graminoid Mineral Meadow Marsh (MAMM1-9) community, as well as Important Terrestrial habitat, offering ecological connectivity between the Carp River and the pond.

Seasonal flooding of this reach may facilitate fish passage between the Carp River and the pond. Surveys confirmed suitable fish habitat conditions within the pond and presence of a Brook Stickleback. Although breeding amphibian call activity in 2025 was minimal, a significant number of tadpoles and adult frogs were observed in and around the pond, indicating high level of amphibian use. **Given these characteristics, the proposed management recommendation for Reach HDF-4 is “Protection”.**

HDF-4, June 16, 2025

HDF-4, June 16, 2025

A summary of the management recommendations for each feature is provided below in **Table 7** and displayed in **Figure 6**. Summary of data collected during the HDF assessments is in **Appendix D**.

Table 7: Headwater drainage Features Assessment and Management Recommendations

Drainage Feature Segment	Step 1		Step 2	Step 3	Step 4	Meets *Conservation Authorities Act* (*O.Reg.41/24*) Definition of Watercourse	CVC / TRCA Management Classification	Study Area Management Recommendations
	Hydrology	Modifiers	Riparian Habitat	Fish Habitat	Terrestrial Habitat			
HDF-1	**Limited Function:** Standing water was observed during spring surveys. Feature was surface dry by end of May.	This feature is a constructed ditch located along a recreational trail, which also provides drainage for construction activities occurring southwest of the property.	**Contributing Function:** The adjacent riparian area is primarily characterized by lawn and constructed land. The meadow community west of the reach contains regenerating vegetation. However, it has only recently become established on previously graded terrain.	**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. No breeding amphibians were recorded in this reach.	**Yes**	**No Management Required**	**No Management Required**
HDF-2	**Limited Function:** Standing water was observed during spring surveys. Feature was surface dry by end of May.	This feature is a constructed roadside ditch located adjacent to Hazeldean Road.	**Contributing Function:** Riparian conditions are associated with roadside lawn and cultural meadow adjacent to Hazeldean Road.	**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. No breeding amphibians were recorded in this reach.	**Yes**	**No Management Required**	**No Management Required**
HDF-3	**Limited Function:** This feature does not meet the requirements of a watercourse as outlined in the *Conservation Authorities Act* (*O.Reg.41/24*).	Remnant natural feature from pre-development. No defined banks or channel are present. The feature has since been tiled and conveys flow underground.	**Limited Function:** This area consists of lawn associated with the existing driving range.	**Contributing Function:** This feature provides minimal allochthonous transport to downstream habitats. No fish were observed within reach	**Limited Function:** There are no upstream or downstream features associated with this reach. No breeding amphibians were recorded in this reach.	**No** Field investigations identified no defined banks or channels.	**No Management Required**	**No Management Required**
HDF-4	**Important Function:** This wetland feature maintains standing surface water throughout the spring and summer seasons.	Several tile drains discharge infiltrated water from the Kevin Haime Golf Centre into the pond at the mouth of the feature. These drains provide continual flow into the reach. This feature was not assessed during the spring survey due to high levels of spring freshet overflowing from the Carp River.	**Important Function:** Wetland dominates the Riparian Habitat.	**Important Function:** Fish were observed within the pond upstream of the reach. It is assumed that this reach facilitates the passage of fish to the pond.	**Important Function:** This feature provides hydrologic connectivity between the Carp River and the pond. Evidence of breeding amphibians has been recorded within this feature.	**No (Wetland)**	**Protection**	**Protection**

Notes: CVC = Credit Valley Conservation; TRCA = Toronto and Region Conservation Authority

5.2.2 Fishes and Fish Habitat Assessment

Pond

The pond on the Subject Site was assessed for the presence of fishes and fish habitat via deployment of a minnow trap. Only a single fish was captured – an adult Brook Stickleback, suggesting the pond provides fish habitat and supports a fish community to some extent. Since the pond is a man-made feature, it is not regulated by DFO; however, wildlife inhabiting the pond are protected under the *Fish and Wildlife Conservation Act* (FWCA; see **Section 2.2.4**).

Carp River

The reach of Carp River that occurs within the Study Area provides direct fish habitat and is regulated by DFO.

5.3 Terrestrial Environment

The subsections below provide the results of surveys related to the terrestrial environment of the Study Area.

5.3.1 Ecological Land Classification

The ELC survey identified a total of 17 vegetation communities (minimum size 0.5 ha as per ELC, unless a significant smaller community is identified), representing six wetland communities, three upland communities, one aquatic system, and seven cultural communities within the Study Area.

The wetland environment includes:

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

The upland environment includes:

- Mixed Meadow (dominated by herbaceous species with no more than 25% cover provided by either shrub or tree species); and
- Deciduous Forest (deciduous tree species > 75% of canopy cover).

The aquatic system includes shallow or deep standing or flowing waters with little or no emergent vegetation. The depth of the water from the substrate surface, along with its influence on light penetration, represents the primary influence on such communities. Typically, aquatic communities are in water greater than 2 m deep. The aquatic environment within the Study Area includes:

- Open Water.

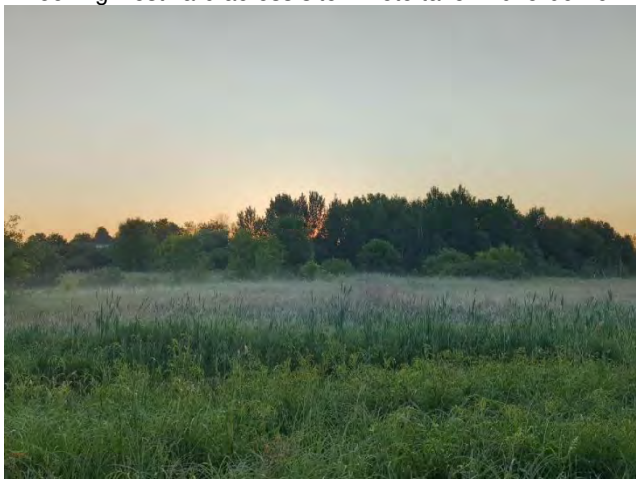
The cultural environment is characterized by ≤ 60% tree cover, often having a large proportion of non-native plant species with variable site conditions and substrate types. These communities result from, or are maintained by, cultural or anthropogenic-based disturbances. The cultural environment within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

- Golf Course;
- Recreational;
- Transportation;
- Business Sector;
- Stormwater Management Pond;

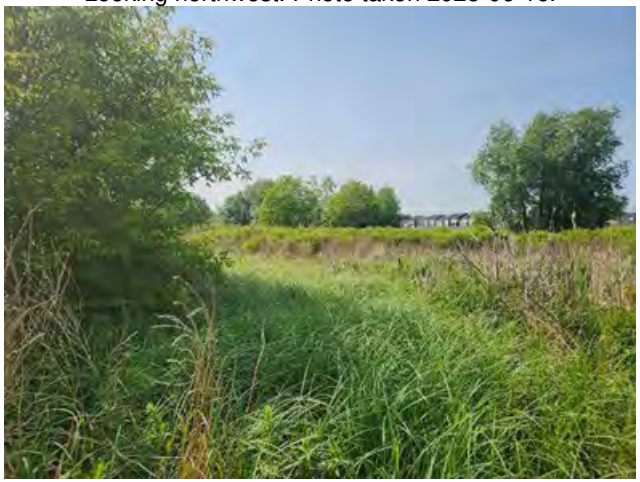
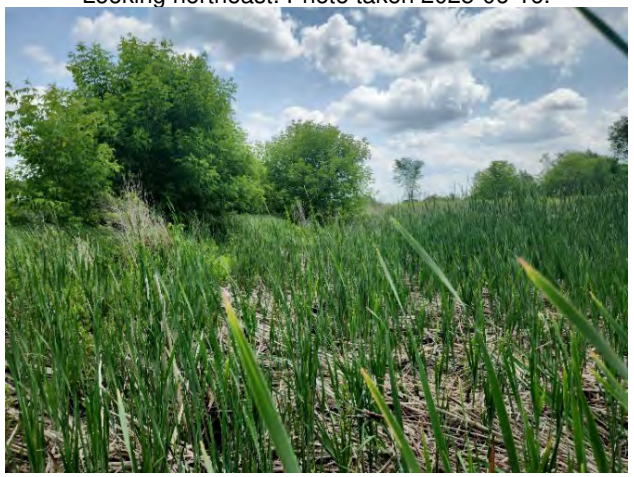
- Low Density Residential; and
- Constructed.

The communities documented during ELC surveys, including reference photos, as well as the dominant vegetation cover is summarized below in **Table 8** and displayed in **Figure 5**.

Table 8: Summary of Ecological Land Classification

ELC TYPE	TOTAL AREA (HA)	COMMUNITY DESCRIPTION	PHOTO RECORD
UPLAND – Mixed Meadow (MEM)			
MEMM Mixed Meadow	0.8	This mix of grass-like, broadleaf community exists within the north-eastern extents of the Study Area. This mixed meadow consists of native and invasive plants and has an unofficial recreational path (portion of CGL_4) cut throughout. East of this area is residential (CVR_1), west is the open water of Carp River (OA) of which this mixed meadow runs southwards. The strip, essentially, is what remains after mowing. East of this strip is a cattail meadow marsh (MAMM1-2) associated with the river. There is a poplar tree that comprises the extent of the canopy (8-12m tall, <5% coverage) for this area. The subcanopy (<5% coverage) and understory (<5% coverage) primarily consisted of Green Ash, Glossy Buckthorn, and Riverbank Grape. Groundcover (90% coverage) was a mix of goldenrods, asters, Reed Canary Grass, Timothy Grass, Common Bedstraw, and Tussock Sedge.	Looking south from the north-eastern extents of the Study Area. Photo taken 2025-06-16. 
MEMM4 Fresh-Moist Mixed Meadow	0.4	This area is a slightly elevated berm-like fresh-moist mixed meadow along the eastern boundary of the Site adjacent to the Carp River. The canopy (<5% coverage, 12-15m tall) consisted of an American Elm and a clump of Manitoba Maple. The subcanopy (5-8m tall, <5% coverage) and understory (2m tall, <5% coverage) had Manitoba Maple, Grey Dogwood, Tartarian Honeysuckle, and Meadowsweet. The groundcover (95% coverage) was a mix of grass and broadleaved species. There were some native species (e.g. Philadelphia Fleabane and Spotted Jewelweed) but the area was primarily invasive species like Reed Canary Grass, Purple Loosestrife, and Curled Dock, with indications of Wild Parsnip emerging.	Looking westward across site. Photo taken 2025-06-16. 

UPLANDS – Woodland (WO)			
WOD Deciduous Woodland	1.4	The area beyond the stormwater pond south-east of the property that buffers the residential area is comprised of deciduous trees, such as Manitoba Maple, Green Ash, and Trembling Aspen in the canopy (50% coverage). The subcanopy (40% coverage) consisted of the same species, which continued into the understory (30% coverage) with the addition of Grey Dogwood and Riverbank Grape.	From within WOD. Photo taken 2025-06-16 
WETLAND – Meadow Marsh (MAM)			
MAM Meadow Marsh	0.5	This community is adjacent to Hazeldean road and the stormwater management pond north of the Site but within the Study Area. As access to this land was not granted, no formal ELC species list was compiled. It is assumed that this feature will share a similar species composition to the Cattail Graminoid Mineral Meadow Marsh (MAMM1-2) and contain varying quantities of cattails, sedges, and rushes.	*No photo available*

MAMM1-9 Narrow-leaved Sedge Graminoid Mineral Meadow Marsh	1.8	This community extends from the northwest to the southeast of the Study Area, situated between the Carp River and the Site. The vegetation is dominated by a dense mat of Tussock Sedge (90% Coverage), with additional vascular plant species including Curled Dock, Purple Loosestrife, Narrow-leaved Cattail, Common Boneset, Sensitive Fern, Jewelweed, Marsh Horsetail, Ovate Spike Rush, and additional sedge species.	Looking northwest. Photo taken 2025-06-16. 
MAMM1-2 Cattail Graminoid Mineral Meadow Marsh	0.5	This Cattail Graminoid Mineral meadow marsh is located within the main channel of the Carp River, which is situated at the northwestern extent of the Study Area. The ground layer is densely colonized by Narrow-leaved Cattails, but additionally contains Canada Rush, Ovate Spike Rush and Reed Canary Grass.	Looking northeast. Photo taken 2025-06-16. 

WETLAND - Thicket Swamp (SWT)			
SWT Thicket Swamp	0.1	Although only 0.1 ha of this ecosite fall within the eastern extent of the Study Area, the ecosite itself is larger and therefore considered in its entirety for classification purposes. As access to this land was not granted, no formal ELC species list was compiled. However, it is assumed that the thicket is representative of a Willow Mineral Deciduous Thicket Swamp (SWTM3), likely containing an understory of Crack Willow, Black Willow, Heart-leaved Willow, Glossy Buckthorn, and Green Ash, similar to other areas within the Study Area. The ground layer may support species such as Sensitive Fern, Common Boneset, and Stinging Nettle.	Looking southeast towards the SWT Community. Photo taken 2025-06-16. 
SWTM3 Willow Mineral Deciduous Thicket Swamp	0.2	A small 0.2 ha inclusion of this ecosite falls within the eastern extent of the Study Area. The understory of this community consisted of Heart-leaved Willow, Black Willow, White Meadowsweet, Crack Willow, and Glossy Buckthorn. The ground layer contains Marsh Horsetail, Sensitive Fern, Common Bedstraw, and Stinging Nettle.	Looking west. Photo taken 2025-06-16. 

SWTM5-7 Meadowsweet Mineral Deciduous Thicket Swamp	0.3	This inclusion community primarily contains dense thickets of White Meadowsweet. The canopy consists of American Elm, Manitoba Maple, and Black Willow. The understory contains a high percentage of White Meadowsweet (80%), Grey Dogwood, young Black Willow, young Green Ash, and Swamp Red Currant. Ground level species such as Early Goldenrod, Purple Loosestrife, Tussock Sedge, and Blue Flag Iris.	Looking east at the SWTM5-7 Community. 2025-06-16. 
Wetland – Deciduous Swamp (SWD)			
SWD Deciduous Swamp	1.9	This community was delineated by the MVCA as an unevaluated 'Swamp' wetland community. It is located south of the Carp River, within an Urban Natural Feature designated in Schedule C11 of the City OP. This ecosite lies between the Site, the stormwater management pond, and the residential community to the southwest. Historical aerial imagery from geoOttawa suggests that the wetland has existed since at least 1978, when the surrounding area was primarily agricultural. It was retained during the development of the nearby driving range in the early 2000s and continues to persist today. The canopy and understory are composed of Red Maple, Sugar Maple, Manitoba Maple, and Green Ash. The sub-canopy includes species such as Swamp Red Currant, Glossy Buckthorn, Black Willow, Grey Dogwood, and River Grape. At the ground level, Marsh Horsetail, Common Bedstraw, and Reed Canary Grass were observed.	SWD Community. 2025-06-16. 

Open Water (OA)			
OA Open Water	0.3	Areas associated with open water ecosites within the Carp River and the pond.	Looking north at the pond featuring an Open Water Community. 2025-06-16. 
CULTURAL – Constructed (CV)			
CGL_1 Golf Course	6.4	Area associated with the Kevin Haime Golf Centre Driving Range.	*No photo available*
CGL_4 Recreational	2.2	Areas of multi-use pathways, trails, and recreational greenspace.	*No photo available*
CV Constructed Lands	6.4	Areas within the Study Area are comprised of active construction lands and construction access roads. Construction activities are located to the southwest and southeast of the Site.	*No photo available*
CVC_1 Commercial and Institutional	0.9	Commercial structures are situated within the northwestern tip of the Study Area.	*No photo available*
CVI_1 Transportation	2.4	These areas consist of roads within the Study Area.	*No photo available*
CVR_1 Low Density Residential	1.8	These areas consist of residential homes northeast of the Site.	*No photo available*
SWMP Stormwater Management Pond	1.2	These areas consist of two constructed stormwater management ponds within the Study Area: one located to the northwest, across Hazeldean Road, and another bordering the southeastern extent of the Site.	*No photo available*

Legend

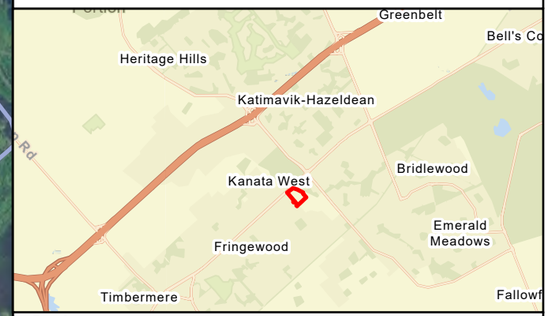
- Site Boundary
- Study Area (120m)
- Watercourse (geoOttawa, 2025)

Figure Lable

- 1 - Cattail Graminoid Mineral Meadow Marsh (MAMM1-2)
- 2 - Narrow-leaved Sedge Graminoid Mineral Meadow Marsh (MAMM1-9)
- 3 - Mixed Meadow (MEMM)
- 4 - Fresh Moist Mixed Meadow (MEMM4)
- 5 - Open Water (OA)
- 6 - Thicket Swamp (SWT)
- 7 - Willow Mineral Deciduous Thicket Swamp (SWTM3)
- 8 - Meadowsweet Mineral Deciduous Thicket Swamp (SWTM5-7)
- 9 - Deciduous Swamp (SWD)
- 10 - Deciduous Woodland (WOD)
- 11 - Meadow Marsh (MAM)
- 12 - Stormwater Management Pond (SWMP)
- 13 - Golf Course (CGL_1)
- 14 - Recreational (CGL_4)
- 15 - Constructed (CV)
- 16 - Business Sector (CVC_1)
- 17 - Transportation (CVI_1)
- 18 - Low Density Residential (CVR_1)

0 25 50 100 150 200 Meters

Scale: 1:3,000



Project:

Double Deck - 560 Hazeldean Road

Title:

Ecological Land Classification

Prepared By:

ARCADIS Design & Consultancy for natural and built assets

Project: 30282688

Date: 7/14/2025

Figure: 5

5.3.2 Botanical Inventory

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

A Floristic Quality Assessment 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.

Five vascular plants had CC values ranging from 7-10 (high to highest sensitivity). These included Giant Solomon's Seal (a garden escapee), Heart-leaved Willow (ornamental landscaping), as well as Large-leaved Avens, Marsh Horsetail, and Ovate Spikerush along the Carp River. However, the average CC value was 2.5, 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 three amphibian species were observed within the Study Area during the 2025 field program, outlined in **Table 9** below.

Table 9: Amphibian Survey Results

Common Name	Scientific Name	Station ID	Number of Observations	Meets SWH Criteria
American Toad	*Anaxyrus americanus*	MMP-01, MMP-02	5 (Call Code 1)	No
Green Frog	*Lithobates clamitans*	MMP-01, MMP-02	2 (Call Code 1)	No
Northern Leopard Frog	*Lithobates pipiens*	MMP-01	1 (Call Code 1)	No

Marsh Monitoring Protocols for amphibians were performed along the pond edge and at the southern extents of the Site; however, only individual breeding frogs were heard calling. Despite the minimal breeding activity within the Site during targeted surveys, amphibian egg clusters and large quantities of tadpoles and adult frogs were observed within the pond on several occasions. This suggests that this pond does create opportunity for amphibian breeding; however, does not meet the quantity or species diversity required to support *Candidate Amphibian Breeding SWH (Wetland)* within the developable property.

5.3.4 Breeding Bird Survey

A total of 16 bird species were recorded during the breeding bird surveys. Evidence of breeding birds occurred as the following:

- Multiple singing birds from one species; and pairs of a species and territorial behaviour observed in suitable nesting habitat or singing on territory on both visits. **[Probable Breeders]**; and
- Singing males present within suitable nesting habitat **[Possible Breeders]**.

One fledged Mourning Dove was observed incidentally to confirm breeding of that species.

Most of the birds recorded are common within the City of Ottawa and generally have secure populations within Ontario. No SAR birds were observed during these breeding surveys. Multiple breeding pairs of songbirds, (e.g. Red-winged Blackbird, Song Sparrow, and House Finch) were observed singing, with agitated behaviour on both visits to suggest breeding territory. Additionally, several singing males were observed on both visits (e.g. Common

Yellowthroat, Swamp Sparrow, and Yellow Warbler). Some species (e.g. Marsh Wren and Baltimore Oriole) were only heard singing on a single visit, therefore breeding on site is less likely for these species.

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

5.3.5 Species at Risk and Species at Risk Habitat

5.3.5.1 Least Bittern

Targeted surveys were conducted within the Subject Site; however, Least Bittern was not observed during field surveys completed in 2025. While Least Bitterns have been found to nest in small wetlands, the self-sustaining populations are limited to wetlands that are 100 ha or larger. A search of iNaturalist has a 2021 observation of a Least Bittern in a nearby stormwater pond 1.2 km south of the Site. No other observations have been recorded in the general area to date.

Based on the lack of observations after call-back surveys were completed, and since the habitat requirements for this species are not present within the Site (i.e., wetlands 100 ha or larger), this species was not confirmed present and is not being carried forward to impact assessment.

5.3.5.2 Blanding's Turtle

The pond and adjacent Carp River were surveyed for turtle presence in 2025. No observations or evidence of Blanding's Turtle was observed. A search of iNaturalist has a 2025 observation of a gravid female hit by a car approximately 750 m northeast of the Site. This observation has an obscure location setting of 27.19 km to prevent exact location information for this Threatened species. As such, it is not possible to determine exactly how close this observation was from the Study Area.

It has been determined that the pond on Site and the adjacent Carp River provides suitable habitat for turtle species, including Blanding's Turtle. For this reason, this species is being carried forward to evaluation.

5.3.5.3 SAR Bats

Although no targeted acoustic surveys were completed, suitable day roost habitat is present in the individual trees scattered throughout 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.

5.3.5.4 Butternut

Butternut was searched for within the Subject Site and surrounding Study Area. This species was not observed during field surveys completed in 2025.

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

5.3.5.5 Black Ash

Black Ash was searched for in tandem with Butternut searches. There were no observations of Black Ash 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.

5.3.6 Incidental Wildlife / Wildlife Trail Camera

Incidental wildlife species and general wildlife observations were documented during the field survey program, and included American Mink, Common Raccoon, and Muskrat, among others.

Midland Painted Turtle was observed in the pond on three occasions May 15 and June 4, 2025, during on-Site investigations, and on June 16, 2025, captured in trail camera footage.

Most species observed are common in Ontario and the City of Ottawa and appeared as residents of the Study Area. A complete list of observed incidental wildlife can be found in **Appendix D**.

5.4 Natural Heritage Features

5.4.1 Wetlands

Background data search indicated the presence of an unevaluated wetland directly south of the Site, within the Study Area. This feature was identified in the background review using MVCA and GEO databases as illustrated in **Figure 3** and is identified as an Urban Natural Feature by the City of Ottawa. The feature was verified during the ELC field visits and classified as a Deciduous Swamp (SWD). Six other wetland communities are situated adjacent to the river within its riparian zone (**Figure 5**; MAM, MAMM1-9, MAMM1-2, SWT, SWTM3, SWTM5-7). A detailed description of these wetland communities can be found in **Table 8** above.

Based on the ELC/wetland verification surveys completed in 2025, it has been determined that there are seven wetland ecosites within the Study Area boundaries. For this reason, these features are being carried forward to evaluation.

5.4.2 Significant Wildlife Habitat

The ELC communities within the Study Area, and on-Site observations 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 E**.

- Turtle Wintering Areas – Based on the results of the turtle basking surveys and general field observations, suitable overwintering habitat is present within the Carp River. However, no large concentrations of basking turtles were observed within the Carp River during surveys, which does not meet the quantity or species diversity requirements to support *Candidate Turtle Wintering Areas*.
- Turtle Nesting Areas – Based on the results of the turtle basking surveys and general field observations, suitable nesting habitat is present adjacent to the Carp River. However, no turtle nesting activity was observed within the Study Area during surveys, which does not meet the quantity or species diversity requirements to support *Candidate Turtle Nesting Areas*.
- Amphibian Breeding Habitat (wetlands) – Based on the results of the amphibian surveys and general field observations, suitable habitat is present within the pond and the marsh habitat adjacent the Carp River. However, minimal occurrences (Call Code 1) of Green Frog, Northern Leopard Frog, and American Toad were observed during surveys. Despite the minimal breeding activity within the Site during targeted surveys, amphibian egg clusters and large quantities of tadpoles and adult frogs were observed within the pond on several occasions. This suggests that this pond does create opportunity for amphibian breeding, however, does not meet the quantity or species diversity required to support *Candidate Amphibian Breeding SWH (Wetland)* within the developable property.
- Marsh Bird Breeding Habitat – Based on the results of the Least Bittern breeding surveys, and general field observations, suitable habitat is present within the marsh habitat adjacent the Carp River. However, no marsh

birds were recorded during the surveys, which does not meet the quantity or species diversity requirements to support *Candidate Marsh Bird Breeding Habitat.*

- Habitat for Species of Conservation Concern – One individual Barn Swallow was observed incidentally during the 2025 field investigations. There is no suitable breeding habitat for this species within the Study Area; therefore, habitat for this species is not anticipated to be impacted. Midland Painted Turtle was observed several times basking in the pond. As this species is listed as Special Concern federally and not protected under the ESA, it is not being carried forward to assessment. However, it should be noted that mitigations recommended to protect Blanding's Turtle included in **Section 8.3.5.1** will also provide protection for this species. There were no individuals or habitat observed on Site; as such, the Site does not meet the requirements to support Species of Conservation Concern.

Based on the results of the field surveys, Significant Wildlife Habitat was not identified within the Study Area. For this reason, SWH is not being carried forward to evaluation.

5.4.3 Urban Natural Feature

An Urban Natural Feature polygon is included in Schedule C11 of the City OP. This feature is identified directly south of the Subject Site, within the Study Area. This area encompasses portions of the Carp River and the area adjacent and is comprised of an unevaluated deciduous swamp wetland (**Figure 5**; SWD) and associated vegetated riparian zone.

Based on the results of the field surveys, an Urban Natural Feature is present within the Study Area. For this reason, this feature is being carried forward to evaluation.

5.5 Summary of Natural Features

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

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

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

- Indirect / contributing fish habitat.
- Habitat for Endangered or Threatened species (SAR Turtles and SAR Bats);
- Unevaluated wetlands/Urban Natural Feature; and

Table 10 provides a summary of the work completed and natural features identified within the 560 Hazeldean Road – Double Deck Study Area.

Table 10: Summary of on-Site Natural Features

Natural Heritage Feature	Field Surveys Completed	Confirmed within the Study Area	Existing Conditions	Regulatory Agency
Fish Habitat	▪ Fish Habitat Assessment ▪ HDF Assessments	✓	▪ Indirect / contributing fish habitat present as HDF-1 and HDF-2. ▪ Direct / facilitated fish movement habitat present as HDF-4 ▪ Although the on-site pond contains fish habitat, since the pond is a man-made feature, it is not regulated by DFO. ▪ Downstream receivers of flows from the Study Area likely contain direct fish habitat (e.g., Carp River).	▪ DFO ▪ MVCA
Wetlands	▪ ELC ▪ Wetland Delineation	✓	▪ Results of the 2025 wetland verification surveys confirmed two (2) wetlands within the Study Area, as identified in the background data, as well as several wetland communities associated with the Carp River.	▪ City of Ottawa ▪ MVCA
Significant Wildlife Habitat	▪ Amphibian Breeding Surveys ▪ Turtle Basking Surveys ▪ Breeding Bird Surveys ▪ Incidental Wildlife Observations ▪ Significant Wildlife Habitat Assessment	-	▪ Although suitable habitat is present, observations do not meet the quantity or species diversity requirements to support SWH. SWH was not confirmed present within the Subject Site during the 2025 field investigations.	▪ City of Ottawa
Species at Risk	▪ Breeding Bird Surveys ▪ Least Bittern Surveys ▪ Turtle Basking Surveys ▪ SAR Plant Searches ▪ Incidental Wildlife Observations	✓	▪ Suitable habitat for turtles and bats within the Study Area.	▪ MECP ▪ City of Ottawa

6 Description of the Development Proposal

According to the most recent Draft Plan of Subdivision (**Figure 6**), the Regional Group has proposed the construction of low-rise residential dwellings with associated asphalt-paved local roads, driveways, and landscaped areas within the central and southern portions of the Site. The northern portion of the Site, along Hazeldean Road, is currently listed as a “Future Residential Block” with no specific development plans currently.

Refer to **Figure 6** below for the proposed Site Plan.

6.1 Construction Activities

Based on the Draft Plan of Subdivision (**Figure 6**) the development of this property will include the following major Project components:

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

6.1.1 Site Elevation

From preliminary discussions with the civil engineer, it is understood that proposed grade raises at the Site will be in the approximate range of 1.5 m to 2.0 m. It should be noted that the proposed Draft Plan of Subdivision has incorporated retention of the majority of the 1:100-year Carp River flood plain limits in the eastern extents of the Site.

7 Development Constraints and Opportunities Analysis

The Subject Site has few constraints present. The Site is disturbed due to the current operation of a golf centre and driving range. The vegetation present is dominated by manicured lawn that provides low wildlife value. The primary constraints to development are the presence of the Carp River and the associated 1:100-year Carp River flood plain limits, wetland communities, four headwater drainage features, and the adjacent Urban Natural Feature. These constraints and opportunities are further explained below:

- This EIS recommends retention of the Carp River and minimal development within the associated 1:100-year Carp River flood plain limits.
- This EIS recommends retention of the wetland features in the eastern extents of the Site (City (**Figure 5**; MAM, MAMM1-9, MAMM1-2, SWT, SWTM3, SWTM5-7, SWD).
- The management recommendation for HDF-4 is “Protection”. As such, the existing feature and its riparian corridor should be protected and/or enhanced.
- It is recommended to retain the areas both east and south of the Site, within the Study Area, designated as an Urban Natural Feature by the City of Ottawa.
- Based on the proposed Draft Plan of Subdivision, the retention of the wetlands and associated setback to the Carp River provides the opportunity for a Multi-Use Pathway along the eastern extents of the development. This allows for public enjoyment of a local natural heritage feature.
- The proposed Draft Plan of Subdivision retains the pond located in the northeastern extents of the Site. This preserves the local biodiversity within this feature and an opportunity for the public to enjoy an existing natural heritage feature.

N

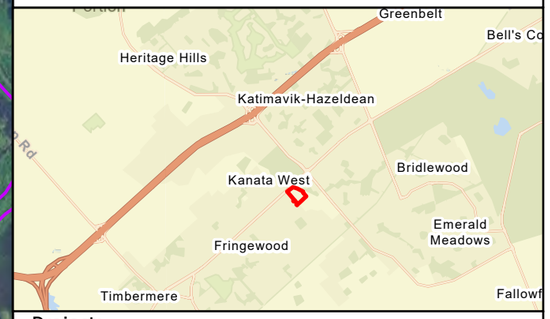
Legend

- Site Boundary
- Study Area (120m)
- Draft Plan of Subdivision (Annis O'Sulllivan. Aug, 2025)
- 100 Year Floodline (MVCA, 2025)

0 25 50 100 150 200

Meters

Scale: 1:3,000



Project:

Double Deck - 560 Hazeldean Road

Title:

Draft Plan of Subdivision

Prepared By:

ARCADIS Design & Consultancy for natural and built assets

Project: 30282688

Date: 8/11/2025

Figure: 6

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 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 Hydrologic and Hydrogeologic Description

The proposed development will alter on-site drainage due to an increase in impervious surfaces.

Potential Impacts – Construction Implementation

— Grading activities and vegetation / tree removals could lead to pooling of water on site.

Proposed Mitigation Measures – Design Phase

✓ Grading and drainage shall be designed to ensure proper management of drainage off the site during construction activities.

✓ Development shall be designed to maintain water input quantity and quality to adjacent wetland features and Carp River.

Proposed Mitigation Measures – Construction Implementation

The following general mitigation measures are recommended to address impacts on any headwater drainage features within the development area:

✓ A site-specific erosion and sediment control plan shall be implemented, with monitoring and maintenance, to prevent sedimentation outside of the Subject Site.

✓ Site grading should be avoided during wet periods with water flows through the site.

8.2 Aquatic Environment

8.2.1 Floodplain and Regulated Limit

Due to the location of the Subject Site within a floodplain hazard area (designated by MVCA as 1:100-year Floodplain), flood concerns are high and will require consultation and permit / authorization from MVCA. Furthermore, as the proposed residential development is not allowable within floodplain hazard under the PPS, proposed Project activities will include increasing the elevation of the site approximately 1.5 m to 2.0 m.

Potential Impacts – Construction Implementation

— Minor lot grading within the 1:100-year Floodplain limits.

— Development within the MVCA regulation limit.

— Decrease in permeable area within the MVCA regulation limit due to construction of a new residential development (e.g., parking lots, driveways, homes, condos).

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Design the development / structures with adequate floodproofing considerations and measures in place, such as site elevation and waterproof materials.
- ✓ Low Impact Development techniques and permeable surfaces (e.g., permeable pavement, green roofs) should be incorporated, wherever possible.
- ✓ Permitting / approval under *O. Reg. 41/24 (Prohibited Activities, Exemptions and Permits)* will be required.

Proposed Mitigation Measures – Construction Implementation

- ✓ A site-specific erosion and sediment control plan shall be implemented and will delineate the construction limits from the remaining area to prevent encroachment of construction activities outside the development zone.
- ✓ A site-specific erosion and sediment control plan should be implemented, with monitoring and maintenance, to prevent on-site erosion and sedimentation outside of work areas (i.e., in the floodplain).
- ✓ Machinery shall arrive on Site in a clean condition and will be free of fluid leaks, invasive species, and noxious weeds, as per the *Clean Equipment Protocol for Industry*.

Proposed Mitigation Measures – Post-Construction

- ✓ All excess construction material shall be removed from the Subject Site and disturbed areas shall be restored and receive stabilization materials to prevent erosion, if needed, in accordance with site-specific plans upon Project completion.
- ✓ Native plantings within the development footprint should be incorporated, where feasible.
    - ✓ Specifically, the portion of the current driving range that will be abandoned within the 1:100-year floodplain limits will include an appropriate native wetland seed mix interspersed with some potted or bare root shrub plantings to stabilize this area and encourage the adjacent wetland features return to a naturalized state. The soil containing the manicured grass will be reused on site as fill and re-seeded to prevent the grass from re-establishing and spreading.
    - ✓ Following completion of grading and topsoil application, disturbed areas will be re-seeded with a wetland native seed mixture as specified in *OPSS Prov 803 Vegetative Cover*.
    - ✓ Consider OSC Seeds and their associated "*Naturalized Wetland Native Seed Mixture 8180*", and "*Standard OBL Wetland Native Seed Mixture 8185*".
    - ✓ The Landscape Plan shall include details and specifications addressing vegetation removal, site preparation, invasive species management, and planting means and methods.

8.2.2 Headwater Drainage Features and Waterbodies

The proposed development of the Subject Site will necessitate the removal of a headwater drainage feature located near the center of the property (i.e., HDF-3). This feature currently does not meet the definition of a watercourse as per the *Conservation Authorities Act* (*O. Reg. 41/24)* and is currently managed through an existing system of tile and French drains which direct water to the pond situated at the northern boundary of the Site. HDF-1, HDF-2, and HDF-3 were all given a management recommendation of “No Management Required”.

HDF-4 provides Important Riparian habitat as well as Important Terrestrial habitat, offering ecological connectivity between the Carp River and the pond. As such this feature was given a management recommendation of “Protection”. As per the *HDF Guideline* (TRCA and CVC 2014), the “Protection” management recommendation requires retaining the key functions of the feature.

As the pond on the property is not a natural feature, it is not regulated by DFO. According to the most recent draft Site Plan, this pond is proposed to be retained. Impacts associated with Project activities are expected to include:

Potential Impacts – Construction Implementation

— The permanent loss HDF-3;

— Reduced flow contributions to downstream waterbodies / watercourses (i.e., Carp River); and

— Changes to drainage on the property.

Proposed Mitigation Measures – Planning and Design Stage

✓ A site-specific erosion and sediment control plan shall be implemented to prevent sedimentation outside of the Subject Site.

✓ Due to their classification as indirect fish habitat, any work below the high-water mark of HDF-1, HDF-2, or HDF-4 will require authorization from DFO through the submission of a Request for Review.

✓ Consultation with MVCA is recommended to ensure in compliance with the *Conservation Authorities Act*.

Proposed Mitigation Measures – Construction Implementation

✓ 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. (This timing restriction does not apply to HDF-3 due to the absence of fish habitat.)

✓ Features HDF-1, HDF-2 and HDF-3, with a "No Management Required" recommendation, can be removed and incorporated into the stormwater management system, once the necessary DFO authorization is acquired.

✓ Feature HDF-4, with a "Protection" recommendation, must be protected and/or enhanced. Construction near this feature should incorporate shallow groundwater and base flow protection techniques, as well as Low Impact Development construction practices. Flow within this feature must be maintained.

8.2.3 Fishes and Fish Habitat

Fish habitat was confirmed within the pond in the northern extent of the Subject Site (not regulated by DFO), and the Carp River present just north of the Subject Site (within the Study Area), flowing in a general northwestern direction. HDF-1, HDF-2, and HDF-4 are classified as indirect fish habitat. According to the most recent Site Plan (Draft Plan of Subdivision), these 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*, DFO *Projects Near Water*, and the *Fisheries Act*).

Potential Impacts – Construction Implementation

— Disturbance to fishes from noise and vibrations associated with construction activities; and

— Reduced flow contributions to downstream waterbodies / watercourses (i.e., Carp River).

Proposed Mitigation Measures – Planning and Design Stage

✓ A site-specific erosion and sediment control plan shall be implemented, with monitoring and maintenance, to prevent sedimentation outside of the Subject Site.

✓ Consultation with DFO through the Request for Review process is recommended to ensure compliance with the *Fisheries Act* if impacts to fishes and/or fish habitat are anticipated. Minimize the change in quality and quantity of flow going into the Carp River.

- ✓ Site instruction will be provided to contractor, by a fish and wildlife technician or biologist familiar with the species, to highlight that Carp River provides permanent fish habitat and, that any water that drains to this system could transport sediment-laden water to permanent fish habitat.

Proposed Mitigation Measures – Construction Implementation

- ✓ A detailed and site-specific erosion and sediment control plan should be implemented, with monitoring and maintenance, during construction to prevent impacts from all associated activities to the pond and the Carp River.
- ✓ Fish timing window (i.e., July 1 to March 14, inclusive) – no work within the highwater mark of watercourses / waterbodies outside of this period, and high risk of negative impacts if accidents or malfunctions affecting water quality occur outside of this period.

With the successful implementation of the mitigation measures outlined above, there is no anticipated impacts to fish habitat due to the proposed development. If impacts to fishes or fish habitat are anticipated, the potential for impacts will be confirmed through consultation with DFO.

8.3 Terrestrial Environment

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

8.3.1 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, specifically within the manicured lawn in the floodplain (if left unmaintained);
- — 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.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ A site-specific erosion and sediment control plan shall be developed and will delineate the construction limits from the remaining area to prevent encroachment of construction activities outside the development zone.
- ✓ Prior to construction activities, overhanging limbs and any exposed tree roots to be retained should be pruned in a manner that minimizes physical damage and promotes quick wound closure and regeneration. Maintenance of roots or limbs should be carried out by an International Society of Arboriculture Certified Arborist or a tree care specialist under the supervision of an International Society of Arboriculture Certified Arborist. *Refer to the 560 Hazeldean Road Tree Conservation Report (Arcadis 2025) for further information.*
- ✓ Landscaping plans shall incorporate native vegetation and plantings to increase the abundance of native vegetation species on the site and to offset any loss of species from vegetation removals.

- ✓ Replanting of trees on site to offset the loss of trees due to the development (or compensation plantings off site if appropriate).
- ✓ Incorporate permeable or light-coloured surfaces wherever possible to reduce heat retention.

Proposed Mitigation Measures – Construction Implementation

- ✓ The site-specific erosion and sediment control plan shall be implemented and will delineate the construction limits from the remaining area to prevent encroachment of construction activities outside the development zone.
- ✓ This will prevent encroachment of construction activities into the Urban Natural Feature and river outside the development zone. This fencing should be monitored weekly to ensure it is functioning properly. Any deficiency in the fencing should be dealt with within 48 hours of notification.
- ✓ *Refer to the 560 Hazeldean Road Tree Conservation Report (Arcadis 2025) for further information on tree protection fencing for all trees slated for retention.*
- ✓ A site-specific erosion and sediment control plan should be implemented, with monitoring and maintenance, to prevent on-site erosion and sedimentation outside of work areas.
- ✓ Machinery will arrive on site in a clean condition and will be free of fluid leaks, invasive species, and noxious weeds.

Proposed Mitigation Measures – Post-Construction

- ✓ All excess construction material shall be removed from the Subject Site and disturbed areas shall be restored in accordance with site-specific plans upon Project completion.
- ✓ Native plantings within the development footprint should be incorporated, where feasible.
    - ✓ Specifically, the portion of the current driving range that will be abandoned within the 1:100-year floodplain limits will include an appropriate native wetland seed mix interspersed with some potted or bare root shrub plantings to stabilize this area and encourage the adjacent wetland features return to a naturalized state. The soil containing the manicured grass will be reused on site as fill and re-seeded to prevent the grass from re-establishing and spreading.
    - ✓ Following completion of grading and topsoil application, disturbed areas will be re-seeded with a wetland native seed mixture as specified in *OPSS Prov 803 Vegetative Cover*.
    - ✓ Consider OSC Seeds and their associated "*Naturalized Wetland Native Seed Mixture 8180*", and "*Standard OBL Wetland Native Seed Mixture 8185*".
    - ✓ The Landscape Plan shall include details and specifications addressing vegetation removal, site preparation, invasive species management, and planting means and methods.

With the successful implementation of the mitigation measures outlined above, a decrease in manicured lawn and scattered trees is anticipated due to the proposed development.

8.3.2 Wetlands

Seven wetland communities were confirmed within the Study Area (**Figure 5**; MAM, MAMM1-9, MAMM1-2, SWT, SWTM3, SWTM5-7, SWD); and one unevaluated swamp wetland, directly south of the Site (Figure 5 polygon X), is identified as an Urban Natural Feature by the City of Ottawa. According to the most recent Site Plan (Draft Plan of Subdivision), these 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, MVCA).

Potential Impacts – Construction Implementation

— Changes in quantity and quality of stormwater runoff resulting in reduced input to adjacent wetlands.

Proposed Mitigation Measures – Planning and Design Stage

✓ 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.

✓ Minimize the change in quality and quantity of flow going into the wetland features.

✓ Landscaping plans shall incorporate native vegetation and should consider naturalized pollinator gardens and rain gardens adjacent to parking areas for infiltration of stormwater runoff to contribute to the Subject Site's water balance.

✓ Incorporate permeable, or light-coloured surfaces wherever possible to reduce heat retention and encourage natural infiltration of stormwater.

✓ Under the new OP, the City of Ottawa has adopted a 'no net loss' of wetland policy. If there is a Site Plan change that results in impacts to wetland features compensation, or another form of offset, may be required.

Proposed Mitigation Measures – Construction Implementation

✓ A detailed and site-specific erosion and sediment control plan should be implemented, with monitoring and maintenance, during construction to prevent impacts from all associated activities to the adjacent wetland features.

With the successful implementation of the mitigation measures outlined above, there is no anticipated impacts to adjacent wetland features due to the proposed development.

8.3.3 Urban Natural Feature

An Urban Natural Feature polygon is included in Schedule C11 of the City OP. This feature is identified directly south of the Subject Site, within the Study Area. This area encompasses portions of the Carp River and the area adjacent and is comprised of an unevaluated swamp wetland and associated vegetated riparian zone.

According to the most recent Site Plan (Draft Plan of Subdivision), this feature will be retained, and Project activities are expected to adhere to applicable environmental protection policies and guidelines (e.g., City of Ottawa Official Plan, MVCA).

Refer to mitigations proposed above under **Section 8.3.2 – Wetlands** for appropriate measures to protect this feature.

8.3.4 Wildlife and Wildlife Habitat

The loss of wildlife and/or wildlife habitat (such as nesting or foraging habitat) is expected to be limited to wildlife common to the area. However, the following direct and indirect impacts on wildlife (including breeding birds, amphibians, bats, and other mammals) are a possible result of the proposed development:

— The permanent loss of nesting and foraging habitat will likely result from any vegetation clearing within the property;

— Potential physical harm to wildlife (e.g., bird) nests during clearing and construction activities;

— 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 and vibrations associated with construction activities, particularly during breeding periods;

— Conflict between wildlife and humans following development, including mortality from vehicles; and

— The increased potential for fatal bird collisions associated with building windows following construction.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ "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.).
- ✓ A site-specific erosion and sediment control plan shall be designed to prevent sedimentation outside of the Subject Site and discourage wildlife entry into the Site.

Proposed Mitigation Measures – Construction Implementation

- ✓ Impacts to natural vegetation should be minimized to the extent possible.
- ✓ 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.
- ✓ 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).
- ✓ A permanent turtle exclusion fence is required to keep turtles out of the construction area (turtle active season is April 1 to October 31).
- ✓ Almost all reptiles are protected by the FWCA. If a turtle nest is suspected, a qualified profession should be contacted to flag a 10 m buffer to protect the nest. The qualified professional should then contact MECP (for Endangered or Threatened species) or MNR (all other species, including those listed as Special Concern).
- ✓ 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.

Proposed Mitigation Measures – Occupation and Maintenance

- ✓ A homeowner environmental awareness package shall be prepared and distributed to ensure long-term protection of wildlife through monitoring and maintenance of the wildlife exclusion fencing.

With the successful implementation of the recommended mitigation, a site-wide decrease of breeding and foraging habitat for birds, bats, and turtles is expected due to the proposed development.

8.3.5 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 provided that the mitigation measures recommended below are adhered to.

8.3.5.1 Species at Risk Turtles

The proposed activities will not affect the Carp River or its associated wetland habitat (no temporary or permanent impact to any turtle's ability to use the river or wetlands, and no anticipated impacts to the wetlands form or function). The nature of the Project is such, that the use of these areas will not be hampered post construction, as the water quality and quantity will not change, and the turtles will continue to be able to migrate through these areas following construction. While the timing of the construction could include the turtle active season, avoidance and mitigation measures can minimize the risk of potential interactions (i.e., indirect impact through accidents).

A search of iNaturalist has a 2025 observation of a gravid female hit by a car approximately 750 m northeast of the Site. This observation has an obscure location setting of 27.19 km to prevent exact location information for this Threatened species. As such, it is difficult to determine exactly how close this observation was from the Study Area. Based on the 2025 iNaturalist observation, there is a moderate potential for Blanding's Turtles to occur within the Site.

The following direct and indirect impacts on turtles are a possible result of the proposed development:

— Potential physical harm to turtles during clearing and construction activities;

— Displacement, injury, or death resulting from contact with heavy equipment during clearing and grading activities;

— Accidental release of deleterious substances that affect water quality in their potential habitat downstream (i.e., Carp River);

— Disturbance resulting from noise and vibrations associated with construction activities, particularly during nesting periods; and

— Conflict between turtles and humans following development, including mortality from vehicles.

Proposed Mitigation Measures – Planning and Design Stage

✓ Landscape design should include permanent wildlife exclusion fencing along the property limits as shown in **Figure 7**. The fencing should have the following general specifications:

  ✓ be at least 60 cm high and buried at least 10cm into the ground,

  ✓ have a mesh size of no more than ½ inches, and

  ✓ be affixed to the existing fencing with wire ties or secured to a sturdy post.

  ✓ The final design of the exclusion fencing should be approved by a qualified biologist.

✓ A site-specific erosion and sediment control plan shall be designed to prevent sedimentation outside of the Subject Site and discourage wildlife entry into the Site.

Proposed Mitigation Measures – Construction Implementation

- ✓ Implement a strict speed limit of <15 km/h during construction.
- ✓ Clearing of vegetation should take place during the turtle inactive season when they are hibernating which typically occurs between October 31 - April 1 (weather dependent). Otherwise, additional surveys (sweeps for turtles by fish and wildlife technician or biologist familiar with the species) are needed.
- ✓ If works cannot take place during the inactive turtle season (October 31 – April 1), sediment fencing along the edge of the area to be cleared can be used for temporary exclusion during construction. These will be properly countersunk and maintained to ensure that any turtles cannot get into the Site. This sediment fencing is, at a minimum, to include the eastern edge of the Site closest to the river. *Reptile and Amphibian Exclusion Fencing: Best Practices* (OMNRF, 2013) should be followed for exclusion fence design and installation and will include the j-hook turn-arounds.
- ✓ If working during turtle active season (April 1-October 31) then stockpiles that might provide suitable nesting substrate (i.e., gravel, soil) will be provided with additional sediment fencing to prevent turtles from nesting in the work area. Note that should turtles nest on-site, then all work would be stopped until the appropriate process is followed.
- ✓ Contractor is to perform daily sweeps during the active season (approximately April 1 to October 31, subject to weather conditions). Not required if under freeze-up conditions.
- ✓ If an individual is found:
    - ✓ Work that puts the individual in danger will cease (i.e., moving machinery), and the individual will be watched from afar to document where and when it leaves the Site for a minimum of 2 hours. If it does not leave, then it may need to be relocated. Contact a biologist experienced with this species to contact the appropriate authorities (based on the species) and relocate the individual.
- ✓ A permanent turtle exclusion fence is required to keep turtles out of the construction area (turtle active season is April 1 to October 31) and will remain upon project completion to avoid impacts to turtles.
- ✓ If a turtle nest is suspected, a qualified profession should be contacted to flag a 10 m buffer to protect the nest. The qualified professional should then contact MECP (for Endangered or Threatened species) or MNR (all other species, including those listed as Special Concern).
- ✓ Erosion and sediment control measures to be implemented, monitored and maintained to prevent impacts to water quality downstream of the work area.

8.3.5.2 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. SAR bats are also known to use foliage in trees and shrubs for day roosting.

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

Proposed Mitigation Measures – Construction Implementation

- ✓ 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.).
- ✓ Clearing of vegetation should be avoided during the general active periods for bats (April 1 to September 30).

- ✓ If this is not possible, contact MECP through the submission of an Information Gathering Form for guidance.

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 provided that the mitigation measures recommended are implemented. If these mitigation measures cannot be adhered to, consultation with MECP is required to ensure that contravention of the ESA does not take place because of this planned development.

8.4 Indirect Impacts

Indirect impacts from the proposed development may include the following:

- Increased pollution due to construction activities and proposed addition of a new residential development. This may include pollution in the form of sediment, chemicals, debris, noise, or light, among others.
- Potential introduction / increase of invasive species through the use of heavy machinery (i.e., construction equipment) and increased human occupancy of the property (i.e., residential development).
- Increase of invasive species spread into the Carp River and adjacent wetlands.
- Altered hydrology due to reduced catchment area and/or drainage changes resulting from the construction and long-term occupation of the proposed residential development.

8.5 Cumulative Impacts

The proposed development is within the City OP area and cumulative impacts must be considered in the context of the local and regional environment in which the Site is situated. Much of the land surrounding the Study Area is a mix of residential, commercial / employment areas, with most of the impacts to the larger natural heritage system occurring prior to at least 2002 (GeoOttawa 2025). The Subject Site itself is currently being used for commercial use, represented by the Kevin Haime Golf Centre, which consists of a golf school and driving range.

Based on field assessments and available information, the removal of the natural heritage features within the Subject Site will have a negligible negative impact on the existing natural heritage system. Potential cumulative impacts to the natural heritage system resulting from the proposed development include the following:

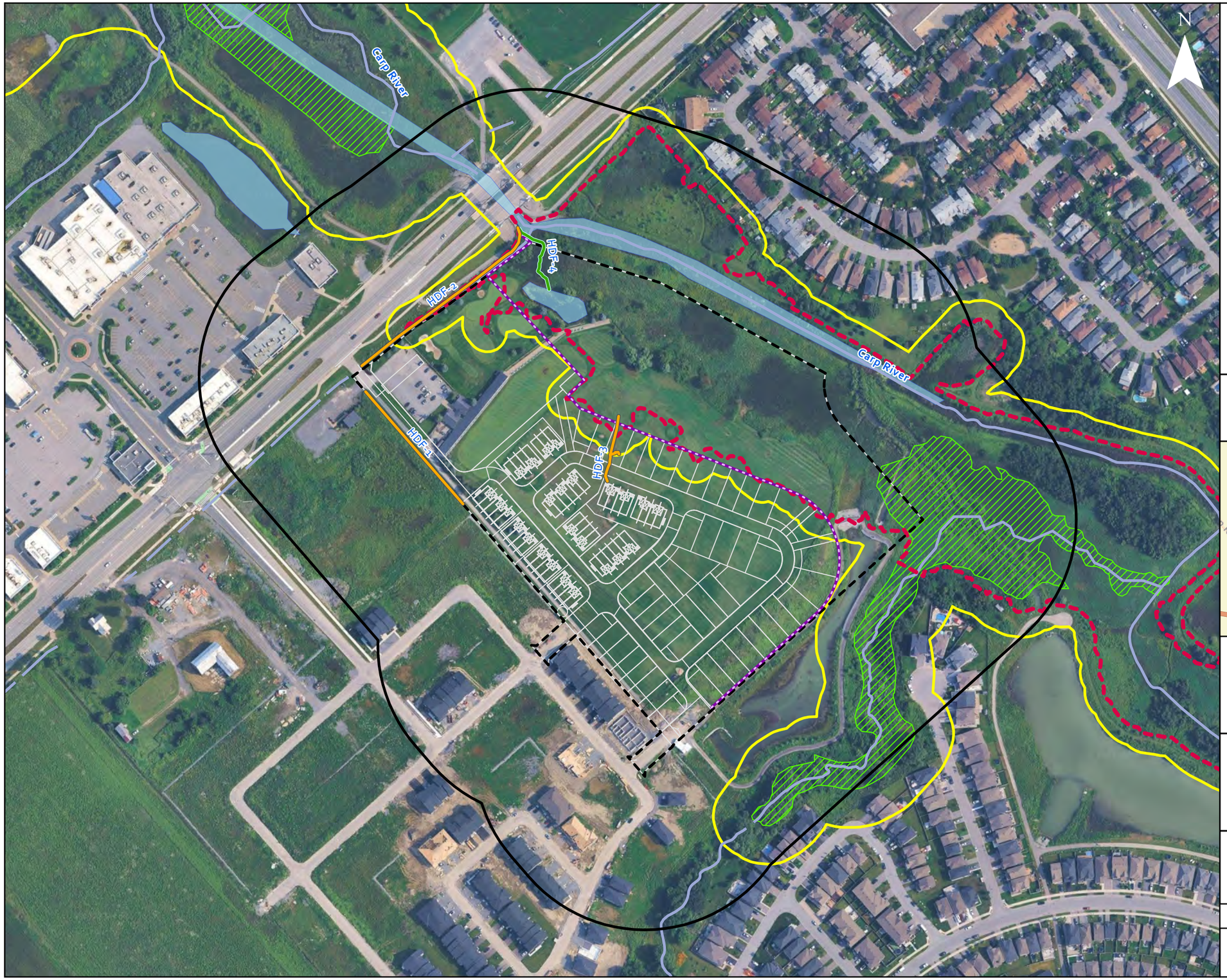
- Loss of urban tree canopy cover; and
- Increase in impervious surfaces increasing runoff potential.

Proposed Mitigation Measures – Planning and Design Stage

In addition to the mitigation measures listed above, the following mitigation should be considered to address the cumulative impacts resulting from the proposed development:

- ✓ Landscaping plans should intend to compensate for the removal of trees and vegetation;
- ✓ Landscaping plans should include compensation plantings to replace lost tree cover; and
- ✓ Project design should promote the use of permeable landscaping materials and rain capture systems like rain gardens and permeable pavers.

Figure 7 below displays the opportunities and constraints of the Subject Site.



Legend

- Site Boundary
- Study Area (120m)
- Permanent Turtle Fencing
- Draft Plan of Subdivision (Annis O'Sullivan. Aug, 2025)

Aquatics

- Watercourse (geoOttawa, 2025)
- Waterbody (GEO, 2025)

Wetlands - MVCA

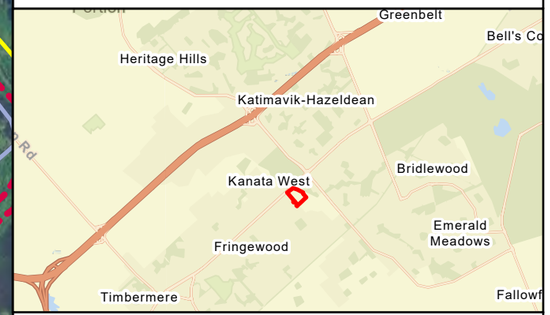
- 1:100 Year Carp River Flood Plane Limit (MVCA, 2025)
- Regulation Limit (MVCA, 2025)
- Non Evaluated Wetlands (MVCA, 2025)

HDF Management Recommendation

- Protection
- No Management Required

0 25 50 100 150 200 Meters

Scale: 1:3,000



Project:

Double Deck - 560 Hazeldean Road

Title:

Constraints and Opportunities

Prepared By:

ARCADIS Design & Consultancy for natural and built assets

Project: 30282688

Date: 8/11/2025

Figure: 7

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 residential development of Double Deck (the Project), located at 560 Hazeldean Road in Stittsville, City of Ottawa, Ontario (the Subject Site). This Project is owned by the Client, Double Deck Regional Inc (c/o Regional Group), of which Arcadis was retained to support the development.

This EIS provides an evaluation of the anticipated environmental impacts associated with the construction and long-term occupation of the proposed development. 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, and eleven Arcadis site visit conducted in 2025.

Based on the background review, the primary constraint to development for this Project is the location of half of the Subject Site within the MVCA Regulated Area and the 1:100-year Floodplain. At this time, it is understood that proposed grade raises at the Site will be in the approximate range of 1.5 m to 2.0 m. Further consultations with the City and MVCA may be required to address this hazard and to determine permitting / authorization implications as small portions of lot grading will occur within this setback.

Four headwater drainage features were identified within the Subject Site. HDF-1, HDF-2, and HDF-3 were provided with management recommendations of “No Management Required”. HDF-4 was classified as “Protection”; however, this feature is not anticipated to be impacted by the proposed development. Due to their classification as indirect fish habitat, any work below the high-water mark of HDF-1, HDF-2, or HDF-4 will require authorization from DFO through the submission of a Request for Review.

Seven wetland communities were identified within the Study Area associated with the Carp River and the Urban Natural Feature as identified by the City (**Figure 5**; MAM, MAMM1-9, MAMM1-2, SWT, SWTM3, SWTM5-7, SWD). According to the most recent Site Plan (Draft Plan of Subdivision), these 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 suitable habitat for SAR turtles, and day roosting habitat for SAR bats. 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., Double Deck) located at 560 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, and eleven Arcadis site visits conducted to date.

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.

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:

- ✓ *Conservation Authorities Act, 1990* – Permitting / approval under *O. Reg. 41/24* will be required due to portions of the planned development situated within the MVCA Regulated Limits and the 1:100-year Floodplain Limits.
- ✓ *Fisheries Act, 1985* - DFO to be contacted through the Request for Review process to seek advice if impacts to fish habitat (direct or indirect) are anticipated. No development should occur within 30 m of the Carp River or within the high-water mark of HDF-1, HDF-2 or HDF-4 without authorization from DFO.
- ✓ *Endangered Species Act, 2007* – If a turtle nest is suspected, a qualified professional should be contacted to flag a 10 m buffer to protect the nest. The qualified professional should then contact MECP (for Endangered or Threatened species) or MNR (all other species, including those listed as Special Concern).
- ✓ *Endangered Species Act, 2007* – Clearing of vegetation should be avoided during the general active periods for bats (April 1 to September 30).
- ✓ *Endangered Species Act, 2007* – If the mitigation measures proposed in this EIS cannot be adhered to, consultation with MECP is required to ensure that contravention of the ESA does not take place because of this planned development.
- ✓ *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 MNR would be required to obtain the necessary permits and approvals under the FWCA - except for relocation for emergency and protection from imminent harm.
- ✓ *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.

10 References

Arcadis. 2025. 560 Hazeldean Road, Ottawa, ON – Double Deck, Tree Conservation Report.

Bat Conservation International Inc. (BCI). 2024. Bat Profiles. Retrieved from https://www.batcon.org/about-bats/bat-profiles/?fwp_location=ontario. Last accessed April 2025.

Bird Studies Canada (BSC), Environment Canada's Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources. 2006. Ontario Breeding Bird Atlas (Atlas 2, 2001-2005). Retrieved from https://www.birdsontario.org/. Last accessed April 2025.

Bird Studies Canada (BSC). 2001. Ontario Breeding Bird Atlas: Guide for Participants. Guelph: University of Guelph. Retrieved from https://www.birdsontario.org/jsp/download/obba_guide_en.pdf. Last accessed April 2025.

Bird Studies Canada (BSC). 2009. Marsh Monitoring Program Participant's Handbook for Surveying (2009 Edition). Bird Studies Canada in cooperation with Environment Canada and the U.S. Environmental Protection Agency.

City of Ottawa. 2021. Tree Protection By-law 2020-340. Retrieved from https://ottawa.ca/en/living-ottawa/laws-licences-and-permits/laws/laws-z/tree-protection-law-no-2020-340#. Last accessed April 2025.

City of Ottawa. 2022a. Bird-Safe Guidelines. https://ottawa.ca/en/planning-development-and-construction/community-design/design-and-planning-guidelines/completed-guidelines/bird-safe-design-guidelines#section-dc9cb259-ab3c-434f-b974-6d7b140ab161. Last accessed April 2025.

City of Ottawa. 2022b. City of Ottawa Official Plan. Retrieved from https://ottawa.ca/en/planning-development-and-construction/official-plan-and-master-plans/official-plan. Last accessed April 2025.

City of Ottawa. 2022c. Protocol for Wildlife Protection during Construction. Retrieved from https://documents.ottawa.ca/sites/default/files/documents/construction_en.pdf. Last accessed April 2025.

City of Ottawa. 2023. Zoning By-law 2008-250. Retrieved from https://ottawa.ca/en/living-ottawa/laws-licences-and-permits/laws/laws-z/zoning-law-no-2008-250/zoning-law-2008-250-consolidation#section-51c4b8c9-cef3-42d3-a63e-3777c828f15c. Last accessed April 2025.

City of Ottawa. 2024. geoOttawa. Retrieved from https://maps.ottawa.ca/geoottawa/. Last accessed April 2025.

Dobbyn, J. S. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists.

eBird. 2024. eBird: An online database of bird distribution and abundance. Retrieved from https://ebird.org/hotspots. Last accessed April 2025.

Environment and Climate Change Canada (ECCC). 2022. Open Data. Retrieved from https://open.canada.ca/en/open-data. Last accessed April 2025.

Environment and Climate Change Canada (ECCC). 2023a. Guidelines to Avoid Harm to Migratory Birds. Retrieved from https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html. Last accessed April 2025.

Environment and Climate Change Canada (ECCC). 2023b. Fact sheet: Nest Protection under the *Migratory Birds Regulations, 2022*. Retrieved from https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/fact-sheet-nest-protection-under-mbr-2022.html. Last accessed April 2025.

Environment and Climate Change Canada (ECCC). 2023c. Nesting Calendars. Retrieved from https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html#toc1. Last accessed April 2025.

Environment Canada (EC). 2013. How Much Habitat is Enough? Third Edition. Environment Canada, Toronto, Ontario

Fisheries and Oceans Canada (DFO). 2013. Ontario Restricted Activity Timing Windows for the Protection of Fish and Fish Habitat. Retrieved from: https://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/on-eng.html. Last accessed April 2025.

Fisheries and Oceans Canada (DFO). 2020. FFHPP Regulatory Review Process Map. Retrieved from https://www.dfo-mpo.gc.ca/pnw-ppe/reviews-revues/docs/process-map-plan-processus-eng.pdf. Last accessed April 2025.

Fisheries and Oceans Canada (DFO). 2022a. Project Near Water. Retrieved from https://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html. Last accessed April 2025.

Fisheries and Oceans Canada (DFO). 2025. Aquatic Species at Risk Map. Retrieved from https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html. Last accessed April 2025.

GeologyOntario. 2024. GeologyOntario hub. Retrieved from https://www.hub.geologyontario.mines.gov.on.ca/. Last accessed April 2025.

Geospatial Ontario (GEO). 2025. Aquatic Resource Area Survey Point. Retrieved from https://arcadis.maps.arcgis.com/home/item.html?id=0558f6ccea08410790a9182e568195c0. Last accessed April 2025.

Google. 2024. Aerial imagery centred around 45°13'55.47"N 75°44'42.28"W. Retrieved from Google Earth Pro software. Last accessed April 2025.

iNaturalist. 2024. iNaturalist Observations. Retrieved from https://www.inaturalist.org/. Last accessed April 2025.

Jobin, B., R. Bazin, L. Maynard, A. McConnell and J. Stewart. 2011. National Least Bittern Survey Protocol. Technical Report Series No. 519, Environment Canada, Canadian Wildlife Service, Quebec Region, Quebec, 26 p. Lee, H. 2008. Southern Ontario Ecological Land Classification Vegetation Type List.

Lee, H., Bakowsky, W., Riley, J., Puddister, M., Uhlig, P., & McMurray, S. 1998. Ecological Land Classification for Southern Ontario: First Approximation and its Application. North Bay, Ontario, Canada: Ontario Ministry of Natural Resources.

Ministry of Natural Resources (MNR). 2000. Significant Wildlife Habitat Technical Guide. Retrieved from https://www.ontario.ca/page/significant-wildlife-habitat-guide. Last accessed April 2025.

Ministry of Natural Resources (MNR). 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp.

Ministry of Natural Resources (MNR). 2011. Bats and Bat Habitats: Guidelines for Wind Power Projects. Retrieved from https://www.ontario.ca/page/bats-and-bat-habitats-guidelines-wind-power-projects. Last accessed April 2025.

Ministry of Natural Resources and Forestry (MNRF). 2015. Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E. Ontario MNRF Regional Operations Division: Southern Region Resources Section. Retrieved from https://docs.ontario.ca/documents/4776/schedule-7e-jan-2015-access-vers-final-s.pdf. Last accessed August 2024.

Ministry of Natural Resources and Forestry (MNRF). 2022. Ontario Wetland Evaluation System (OWES). Retrieved from mnrf-pd-rpdpb-ontario-wetlands-evaluation-system-southern-manual-2022-en-2023-02-02.pdf. Last accessed April 2025.

Ministry of Natural Resources and Forestry (MNRF). 2023. Ontario Watershed Information Tool (OWIT). Retrieved from https://www.lioapplications.lrc.gov.on.ca/OWIT/index.html?viewer=OWIT.OWIT&locale=en-CA. Last accessed April 2025.

Ministry of Natural Resources (MNR). 2025. Natural Heritage Information Centre Database. Retrieved from https://www.ontario.ca/page/natural-heritage-information-centre. Last accessed April 2025.

Ministry of the Environment, Conservation and Parks (MECP). 2023a. Policy Guidance on Harm and Harass under the Endangered Species Act. Retrieved from https://www.ontario.ca/page/policy-guidance-harm-and-harass-under-endangered-species-act. Last accessed April 2025.

Mississippi Valley Conservation Authority (MVCA). 2024. MVCA Regulation Public Mapping Browser. Retrieved from https://camaps.maps.arcgis.com/apps/webappviewer/index.html?id=70831905961e470988262c7a703a56af. Last accessed April 2025.

Native Land Digital (NLD). 2024. Native Land Digital map. Retrieved from https://native-land.ca/. Last accessed April 2025.

Ontario Breeding Bird Atlas (OBBA). 2001. Guide for Participants. Atlas Management Board, Federation of Ontario Naturalists, Don Mills. Retrieved from https://www.birdsontario.org/jsp/download/obba_guide_en.pdf. Last accessed April 2025.

Ontario Geologic Survey (OGS). 2007. Physiography. Retrieved from https://www.hub.geologyontario.mines.gov.on.ca/. Last accessed April 2025.

Ontario Geologic Survey (OGS). 2010. Surficial Geology. Retrieved from https://www.hub.geologyontario.mines.gov.on.ca/. Last accessed April 2025.

Ontario Geologic Survey (OGS). 2011. 1:250 000 Scale Bedrock Geology of Ontario. Retrieved from https://www.hub.geologyontario.mines.gov.on.ca/. Last accessed April 2025.

Ontario Invasive Plant Council (OIPC). 2024. Best Management Practices. Retrieved from https://www.ontarioinvasiveplants.ca/resources/best-management-practices/. Last accessed April 2025.

Ontario Nature. 2019. Ontario Reptile and Amphibian Atlas. Toronto Entomologists' Association. Retrieved from https://www.ontarioinsects.org/herp/. Last accessed April 2025.

Paterson Group. 2025. Geotechnical Investigation, Double Deck, 560 Hazeldean Road, Ottawa, Ontario

Stanfield, L. 2017. Ontario Stream Assessment Protocol (OSAP). Retrieved from https://trcaca.s3.ca-central-1.amazonaws.com/app/uploads/2019/06/05112225/osap-master-version-10-july1-accessibility-compliant_editfootnoteS1M4.pdf. Last accessed April 2025.

Toronto and Region Conservation Authority and Credit Valley Conservation (TRCA and CVC). 2014. Evaluation, Classification and Management of Headwater Drainage Features Guideline. TRCA Approval July 2013 (Finalized January 2014). Retrieved from https://trca.ca/conservation/aquatic-ecosystems/headwater-drainage-features/. Last Accessed April 2025.

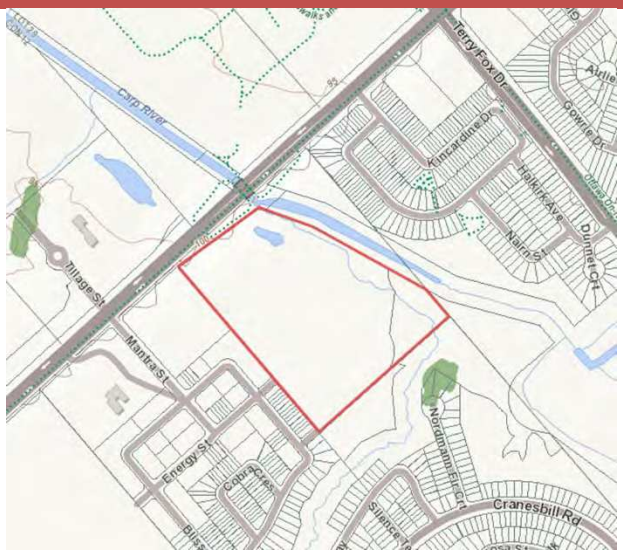
Toronto Entomologists' Association (TEA). 2023. Ontario Butterfly Atlas. Retrieved from https://www.ontarioinsects.org/atlas/. Last accessed April 2025.

Appendix A

Aquatic Environment Background Screening

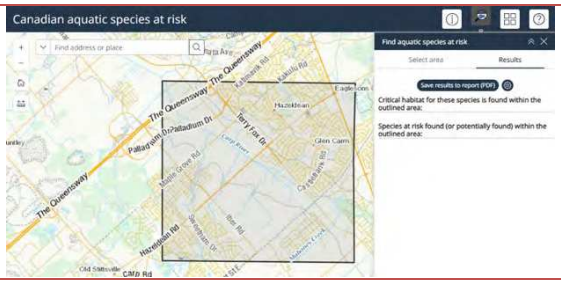
Aquatic Resources Background Information

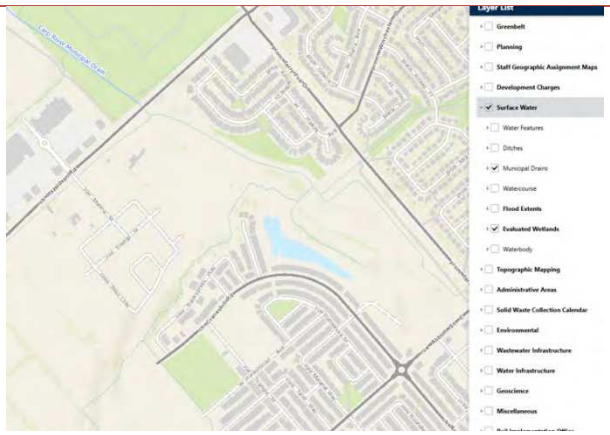
General NHIC map showing PSW south of property along unevaluated wetlands on site.



NHIC Species map does not indicate any aquatic species for the highlighted squares.

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

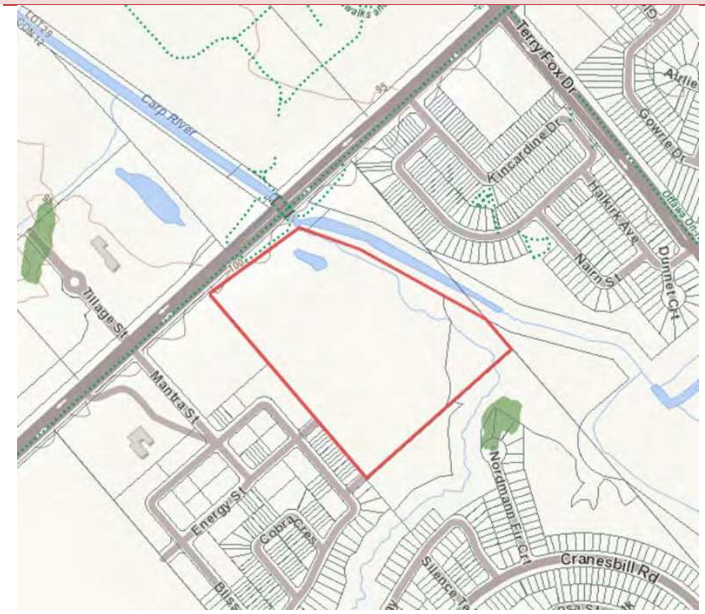


No fish activity noted.	
The property falls within the MVCA, with regulated wetlands along Carp River extending onto property.	
The Hazeldean municipal drain flows from west of the property to south of the property in the PSW.	

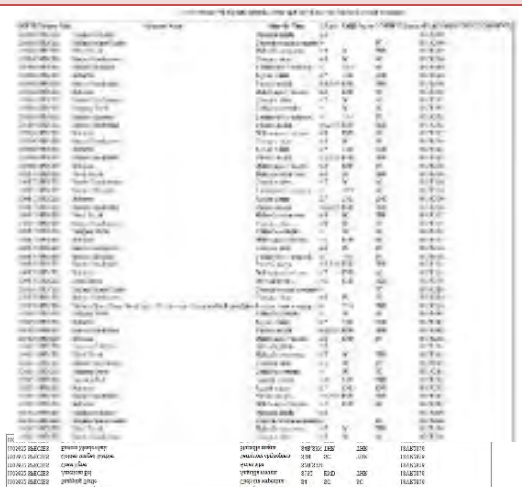
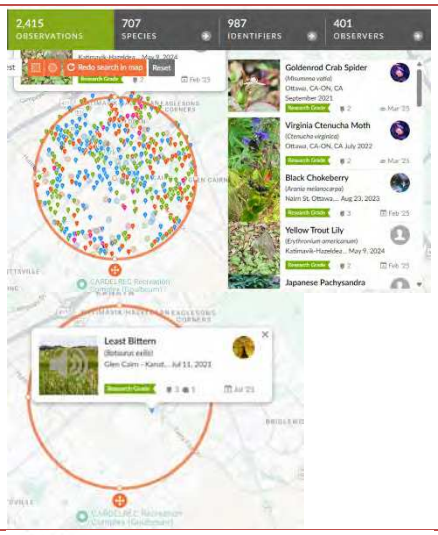
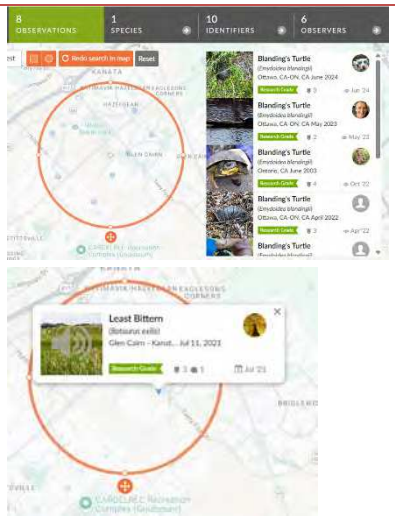
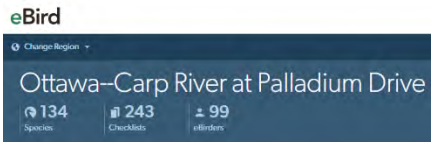
Appendix B

Terrestrial Environment Background Screening

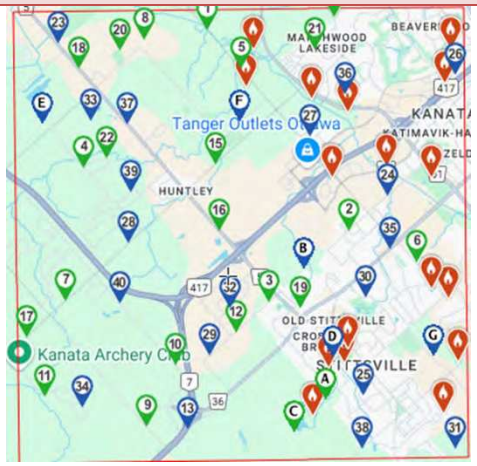
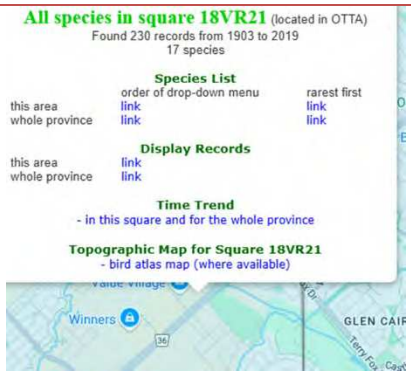
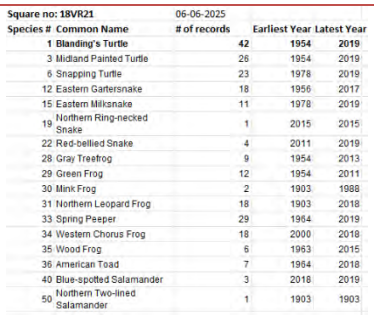
Terrestrial Resources Background Information

Comments	Resource Material
General NHIC map showing no woodlands or wetlands on the property.	
NHIC Species map indicates SAR, including Blanding's Turtle, Eastern Meadowlark, Least Bittern, and Butternut within the highlighted squares.	 

Terrestrial Resources Background Information

Comments	Resource Material
NHIC data for the corresponding squares noted above.	
An iNaturalist search for research grade observations with an approximate 2km buffer from the center of the study area shows 707 species have been observed and identified. Notable SAR: 8 Blanding's Turtle observations, Least Bittern, and Butternut	 
Exploring eBird hotspots shows 5 notable species: Bank Swallow, Bobolink, Eastern Meadowlark, Least Bittern, and Hudsonian Godwit.	 

Terrestrial Resources Background Information

Comments	Resource Material
The study area falls within square 18TVR21 has 122 species. Notable SAR: Bank Swallow, Least Bittern, Bobolink, Eastern Meadowlark.	 
The ORAA for square 18vr21 showed 17 species, including Blanding's Turtle.	 
The OBA showed monarch (sp of concern) observed.	

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?	Probability of SAR / Protected Habitat Occurrence in the Study Area[4]
			Federal SARA	Federal COSEWIC	Provincial ESA	Provincial S-Rank			
Birds									
Bank Swallow	*Riparia riparia*	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	OBBA, eBird	No	Low - Insufficient vertical banks exist on the property, including the stream banks that cut through the east end of property. This species is considered absent.
Bobolink	*Dolichonyx oryzivorus*	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, eBird	No	Low - No large tracts of grasslands, hayfields, meadows, or fallow fields are present within the Subject Site. This species is considered absent.
Eastern Meadowlark	*Sturnella magna*	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	THR	THR	THR	S4B, S3N	NHIC, OBBA, eBird	No	Low - No large tracts of grasslands, hayfields, meadows, or fallow fields are present within the Subject Site. This species is considered absent.
Least Bittern	*Ixobrychus exilis*	Freshwater marsh habitat with dense vegetation. Nests are typically in cattail marshes, near edge or openings but they have been found in other emergents and occasionally in willow. Recovery strategy states that the species must have permanent marsh/shrub swamps and a mosaic of tall and robust herbaceous or woody vegetated with open water areas and natural regime water levels. The open water areas can be shallow (10-50cm). Movements within this suitable habitat can extend within a 500m radius of the nest and are usually found in those that are larger than 5 ha. The province does not currently have any guidance on the general habitat requirements of this species.	THR	THR	THR	S4B	NHIC, OBBA, iNaturalist, eBird	Yes	**Moderate** - Though low probability, property contains marsh area off Carp River and pond habitat with tall, dense vegetation.

Common Name	Scientific Name	Habitat Description[1]	Conservation Status[2]				Source of Occurrence Record[3]	Habitat within Study Area?	Probability of SAR / Protected Habitat Occurrence in the Study Area[4]
			Federal SARA	Federal COSEWIC	Provincial ESA	Provincial S-Rank			
Hudsonian Godwit	*Limosa haemastica*	Breeds on grassy tundra in Canada and Alaska, winters in southern South America. In migration, found in flooded fields, beaches, mudflats, and shallow marshy pools, sometimes in mixed flocks with Willet or yellowlegs.	Not listed	THR	THR	S3B, S4M	eBird	No	Low - Breeds in arctic tundra - may stop over along Carp River during migration. This species is considered absent.
Herpetozoa									
Blanding's Turtle	*Emydoidea blandingii*	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.	THR	THR	THR	S3	ORAA, iNaturalist	**Yes**	**High** - The Carp River provides suitable habitat for Blanding's Turtle.
Mammals									
Little Brown Myotis	*Myotis lucifugus*	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**	**Moderate** - Study Area contains deciduous and coniferous trees that could provide cavities and loose bark suitable for roosting.
Northern Myotis	*Myotis septentrionalis*	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**	**Moderate** - Study Area contains deciduous and coniferous trees that could provide cavities and loose bark suitable for roosting.
Eastern Red Bat	*Lasiurus borealis*	Roosts among the foliage of both deciduous and coniferous trees, of any age class, and occasionally shrubs. Maternity roosts tend to be large in diameter and tall, reaching or exceeding the height of the surrounding canopy. Forage in both forested and non-forested habitats, in both open and semi-cluttered habitats, both above and below forest canopies, and in both early and later stage forests. They overwinter in the southern United States.	Not listed	END	END	S4	AMO	**Yes**	**Moderate** - Study Area contains deciduous and coniferous trees that could provide cavities and loose bark suitable for roosting.
Hoary Bat	*Lasiurus cinereus*	Roosts among the foliage of both deciduous and coniferous trees, of any age class, and occasionally shrubs. Maternity	Not listed	END	END	S4	AMO	**Yes**	**Moderate** - Study Area contains deciduous and coniferous trees

Common Name	Scientific Name	Habitat Description[1]	Conservation Status[2]				Source of Occurrence Record[3]	Habitat within Study Area?	Probability of SAR / Protected Habitat Occurrence in the Study Area[4]
			Federal SARA	Federal COSEWIC	Provincial ESA	Provincial S-Rank			
		roosts tend to be large in diameter and tall, reaching or exceeding the height of the surrounding canopy. Forage in the open, including wetlands, grasslands and open fields with patchily distributed trees. They overwinter in the southern United States.							that could provide cavities and loose bark suitable for roosting.
Silver-haired Bat	*Lasionycteris noctivagans*	Roosting by Silver-haired Bats occurs primarily under bark and in the cavities of large, decaying, coniferous and deciduous trees. They may occasionally roost in or on buildings, especially during migration when natural roosting sites may be scarce. Forage in young and old forests, as well as forest openings (canopy gaps), but are concentrated along forest edges. Overwinter in the United States, southeastern British Columbia, and sometimes the Great Lakes region in mines, rock crevices, trees, and snags.	Not listed	END	END	S4	AMO	**Yes**	**Moderate** - Study Area contains deciduous and coniferous trees that could provide cavities and loose bark suitable for roosting.
Tricolored Bat	*Perimyotis subflavus*	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**	**Moderate** - Study Area contains deciduous and coniferous woodlands that could provide cavities and loose bark suitable for roosting.

Common Name	Scientific Name	Habitat Description[1]	Conservation Status[2]				Source of Occurrence Record[3]	Habitat within Study Area?	Probability of SAR / Protected Habitat Occurrence in the Study Area[4]
			Federal SARA	Federal COSEWIC	Provincial ESA	Provincial S-Rank			
Plants									
Butternut	*Juglans cineara*	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, iNaturalist	**Yes**	**Moderate** - Sunny openings near wooded edges with moist soils are present within the Study Area.
Black Ash	*Fraxinus nigra*	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**	**Moderate** - Wetland habitat and drainage features may provide suitable habitat for Black Ash within the Subject Site.

Notes
Orange highlighted species are protected and/or have protected habitat within the Study Area (i.e., the species is Threated, Endangered under the ESA, and/or the Threatened or Endangered species' critical habitat is present – including ferally listed migratory birds and fish)
[1] Habitat description is sourced from the OMNR (2000) Significant Wildlife Habitat Technical Guide or from the Species at Risk in Ontario list provided in O. Reg. 230/08, unless otherwise cited.
[2]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.
3 Sources:
AMO = Atlas of the Mammals of Ontario
iNat = iNaturalist observations
ECCC = Environment and Climate Change Canada Open Data
ORAA = Ontario Reptile and Amphibian Atlas
OBBA = Ontario Breeding Bird Atlas
NHIC = Natural Heritage Information Centre Database.
4 Probability of Occurrence in the Study Area:
Confirmed: Species and/or preferred habitat has been observed in the Study Area (i.e., confirmed by recent field investigations, consultation with MECP, or reliable secondary source).
High: Species has been reported in the vicinity of the Study Area during field investigations by others or within 10 km atlas square. The species' preferred habitat is abundant within the Study Area. Species with a high probability of occurrence would be expected to breed within or frequently use the habitats available within the Study Area and would be known to have a high relative abundance within the region (i.e., compared to other regions in Ontario).
Moderate: Species' preferred habitat is present but limited or uncommon in the Study Area and breeding in the area is rare. Species with Moderate probability of occurrence may intermittently use the area for foraging, migration, or movement to other parts of their home range and therefore may have been documented in secondary sources or field investigations.
Low: Species has been recorded in the vicinity of the Study Area during field investigations by others or within 10 km atlas square. The species' preferred habitat does not occur or is extremely limited within the Study Area. These species may intermittently move through the Study Area but are unlikely to become permanent residents. Reports of this species may be historical records.
None: Preferred habitat of the species is absent from the Study Area. Records of occurrence are expected to be historical or vagrant records (e.g., a species that is currently outside their wintering and breeding area) may exist.

Appendix D

On-Site Species Observations

Table D1: Breeding Bird list

Common Name	Scientific Name	Highest Breeding Evidence	Conservation Status[1]		
			Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank[1]
American Goldfinch	*Spinus tristis*	Singing - Possible	0	0	S5
American Robin	*Turdus migratorius*	Habitat - Possible	0	0	S5
Baltimore Oriole	*Icterus galbula*	Singing - Possible	0	0	S4B
Canada Goose	*Branta canadensis*	Habitat - Possible	0	0	S5
Cedar Waxwing	*Bombycilla cedrorum*	Observed	0	0	S5
Common Grackle	*Quiscalus quiscula*	Singing - Possible	0	0	S5
Common Yellowthroat	*Geothlypis trichas*	Territory - Probable	0	0	S5B,S3N
Great Egret	*Ardea alba*	Observed	0	0	S2B,S3M
House Finch	*Haemorhous mexicanus*	Multiple Singing - Probable	0	0	SNA
Marsh Wren	*Cistothorus palustris*	Singing - Possible	0	0	S4B,S3N
Mourning Dove	*Zenaida macroura*	Fledged Young	0	0	S5
Red-winged Blackbird	*Agelaius phoeniceus*	Multiple Singing - Probable	0	0	S5
Ring-billed Gull	*Larus delawarensis*	Observed	0	0	S5
Song Sparrow	*Melospiza melodia*	Multiple Singing - Probable	0	0	S5
Swamp Sparrow	*Melospiza georgiana*	Territory - Probable	0	0	S5B,S4N
Yellow Warbler	*Setophaga petechia*	Territory - Probable	0	0	S5B

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.

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

Table D2: Incidental Bird List

COMMON NAME	SCIENTIFIC NAME	CONSERVATION STATUS[1]		
		Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank[1]
Barn Swallow	*Hirundo rustica*	THR	SC	S4B
Black-crowned Night-heron	*Nycticorax nycticorax*	0	0	S3B,S2N,S4M
Canada Goose	*Branta canadensis*	0	0	S5
Cedar Waxwing	*Bombycilla cedrorum*	0	0	S5
Common Yellowthroat	*Geothlypis trichas*	0	0	S5B,S3N
European Starling	*Sturnus vulgaris*	0	0	SNA
Great Egret	*Ardea alba*	0	0	S2B,S3M
Green Heron	*Butorides virescens*	0	0	S4B
Mallard	*Anas platyrhynchos*	0	0	S5
Song Sparrow	*Melospiza melodia*	0	0	S5
Spotted Sandpiper	*Actitis macularius*	0	0	S5B
Tree Swallow	*Tachycineta bicolor*	0	0	S4S5B
Yellow Warbler	*Setophaga petechia*	0	0	S5B
American Robin	*Turdus migratorius*	0	0	S5
Ring-billed GUll	*Larus delawarensis*	0	0	S5
Mourning Dove	*Zenaida macroura*	0	0	S5
House Finch	*Haemorhous mexicanus*	0	0	SNA
House Sparrow	*Passer domesticus*	0	0	SNA
American Crow	*Corvus brachyrhynchos*	0	0	S5
Belted Kingfisher	*Megaceryle alcyon*	0	0	S5B,S4N
Red-winged Blackbird	*Agelaius phoeniceus*	0	0	S5
Common Grackle	*Quiscalus quiscula*	0	0	S5
American Goldfinch	*Spinus tristis*	0	0	S5

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.

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

Table D3: Other Incidental List

COMMON NAME	SCIENTIFIC NAME	CONSERVATION STATUS[1]		
		Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank
Herpetofauna				
Green Frog	*Lithobates clamitans*	-	-	S5
Northern Leopard Frog	*Lithobates pipiens*	-	-	S5
Midland Painted Turtle	*chrysemys picta marginata*	SC	-	S4
Mammals				
Muskrat	*Ondatra zibethicus*	-	-	S5
Northern Raccoon	*Procyon lotor*	-	-	S5
American Mink	*Neogale Vison*	-	-	S4
Red Squirrel	*Tamiasciurus hudsonicus*	-	-	S5
American Mink	*Neogale Vison*	-	-	S4
Red Squirrel	*Tamiasciurus hudsonicus*	-	-	S5
Fish				
Brook Stickleback	*Culaea inconstans*	-	-	S5

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.

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

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		
Arrow-leaved Smartweed	*Persicaria sagittata*	0	0	S4S5	5	-5
Aster Spp.	*Aster spp.*	---	---	---	---	---
Bittersweet Nightshade	*Solanum dulcamara*	0	0	SNA	0	0
Black Willow	*Salix nigra*	0	0	S4	6	-5
Blue Spruce	*Picea pungens*	0	0	SNA	0	3
Canada Rush	*Juncus canadensis*	0	0	S5	6	-5
Coltsfoot	*Tussilago farfara*	0	0	SNA	0	3
Common Bedstraw	*Galium aparine*	0	0	S5	4	3
Common Boneset	*Eupatorium perfoliatum*	0	0	S5	2	-3
Common Burdock	*Arctium minus*	0	0	SNA	0	3
Common Dog Mustard	*Erucastrum gallicum*	0	0	SNA	0	5
Common Lamb's-quarters	*Chenopodium album*	0	0	SNA	0	3
Common Lilac	*Syringa vulgaris*	0	0	SNA	0	5
Common Milkweed	*Asclepias syriaca*	0	0	S5	0	5
Common Plantain	*Plantago major*	0	0	SNA	0	3
Common Sow-thistle	*Sonchus oleraceus*	0	0	SNA	0	3
Crack Willow	*Salix euxina*	0	0	SNA	0	0
Creeping Wood-sorrel	*Oxalis corniculata*	0	0	SNA	0	3
Curled Dock	*Rumex crispus*	0	0	SNA	0	0
Dog Violet	*Viola adunca*	0	0	S5?	5	3
Early Goldenrod	*Solidago juncea*	0	0	S5	3	5
Eastern Cottonwood	*Populus deltoides*	0	0	S5	4	0
Garlic Mustard	*Alliaria petiolata*	0	0	SNA	0	0
Giant Solomon's Seal	*Polygonatum biflorum*	0	0	S4	8	3
Glossy Buckthorn	*Frangula alnus*	0	0	SNA	0	0
Green Ash	*Fraxinus pennsylvanica*	0	0	S4	3	-3
Grey Dogwood	*Cornus racemosa*	0	0	S5	2	0
Hairy Crabgrass	*Digitaria sanguinalis*	0	0	SNA	0	3
Heart-leaved Willow	*Salix cordata*	0	0	S4	9	0
Kentucky Bluegrass	*Poa pratensis*	0	0	S5	0	3
Lake Sedge	*Carex lacustris*	0	0	S5	5	-5
Large-leaved Avens	*Geum macrophyllum*	0	0	S5	9	-3
Manitoba Maple	*Acer negundo*	0	0	S5	0	0
Maple-leaved Viburnum	*Viburnum acerifolium*	0	0	S5	6	5
Marsh Horsetail	*Equisetum palustre*	0	0	S5	10	-3
Narrow-leaved Cattail	*Typha angustifolia*	0	0	SNA	0	-5

		CONSERVATION STATUS[1]				
COMMON NAME	SCIENTIFIC NAME	FEDERAL (SARA, 2002)	PROVINCIAL (ESA, 2007)	S-RANK	Coefficient of Conservation	Coefficient of Wetness
Northern Blue Flag	*Iris versicolor*	0	0	S5	5	-5
Norway Maple	*Acer platanoides*	0	0	SNA	0	5
Orange Daylily	*Hemerocallis fulva*	0	0	SNA	0	5
Ovate Spikerush	*Eleocharis ovata*	0	0	S4S5	8	-5
Oxeye Daisy	*Leucanthemum vulgare*	0	0	SNA	0	5
Philadelphia Fleabane	*Erigeron philadelphicus*	0	0	S5	1	-3
Purple Leaf Sand Cherry	*Prunus x cistena*	0	0	SNA	0	0
Purple Loosestrife	*Lythrum salicaria*	0	0	SNA	0	-5
Red Raspberry	*Rubus idaeus*	0	0	S5	2	3
Reed Canarygrass	*Phalaris arundinacea*	0	0	S5	0	-3
Riverbank Grape	*Vitis riparia*	0	0	S5	0	0
Rough Bedstraw	*Galium asprellum*	0	0	S5	6	-5
Rush spp.	*Eleocharis spp.*	---	---	---	---	---
Sedge Spp.	*Carex spp.*	---	---	---	---	---
Sensitive Fern	*Onoclea sensibilis*	0	0	S5	4	-3
Smooth Crabgrass	*Digitaria ischaemum*	0	0	SNA	0	3
Spotted Jewelweed	*Impatiens capensis*	0	0	S5	4	-3
Spotted Joe Pye Weed	*Eutrochium maculatum*	0	0	S5	3	-5
Stinging Nettle	*Urtica dioica*	0	0	SNA	0	0
Sun Artichoke	*Helianthus tuberosus*	0	0	SU	1	0
Swamp Red Currant	*Ribes triste*	0	0	S5	6	-5
Tall Meadow-rue	*Thalictrum pubescens*	0	0	S5	5	-3
Tatarian Honeysuckle	*Lonicera tatarica*	0	0	SNA	0	3
Tufted Vetch	*Vicia cracca*	0	0	SNA	0	5
Tussock Sedge	*Carex stricta*	0	0	S5	4	-5
Violet Spp.	*Viola spp.*	---	---	---	---	---
Virginia Creeper	*Parthenocissus quinquefolia*	0	0	S4?	6	3
Weeping Birch	*Betula pendula*	0	0	SNA	0	0
White Elm	*Ulmus americana*	0	0	S5	3	-3
White Meadowsweet	*Spiraea alba*	0	0	S5	3	-3
White Spruce	*Picea glauca*	0	0	S5	6	3
Wild Cucumber	*Echinocystis lobata*	0	0	S5	3	-3
Wild Parsnip	*Pastinaca sativa*	0	0	SNA	0	5

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
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

Table D5: Headwater Drainage Feature Data Summary

Date (yyyy-mm-dd)	Reach Name	Air Temp (ºC)	Discharge Type	Upstream Feature Type	Flow Conditions	Sediment Deposition	Feature Width (m)	Feature Depth (mm)	Bankfull Width (m)	Sediment Type	Feature Vegetation Category	Vegetation Left Bank (0-1.5m)	Vegetation Right Bank (0-1.5m)	Vegetation Left Bank (1.5-10m)	Vegetation Right Bank (1.5-10m)	Vegetation Left Bank (10-30m)	Vegetation Right Bank (10-30m)
4/24/2025	HDF-1	5	Freshet	Roadside Ditch	Standing Water	Minimal	1.23	8	3.4	Silt	None	Meadow	Lawn	Meadow	None	None	None
4/24/2025	HDF-2	5	Freshet	Roadside Ditch	Standing Water	Minimal	2.16	5	6.5	Silt	Lawn	Lawn	Lawn	Lawn	Lawn	None	None
4/24/2025	HDF-3	5	Freshet	Channelized or Constrained	Standing Water	Minimal	0.43	4	1.1	Silt	Lawn	Lawn	Lawn	Lawn	Lawn	Lawn	Lawn
6/16/2025	HDF-4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
6/16/2025	HDF-1	24	Baseflow	Channelized or Constrained	No Surface Water	None	0	0	0	Sand-silt	Meadow	Meadow	None	Meadow	Lawn	Meadow	None
6/16/2025	HDF-2	24	Baseflow	Roadside Ditch	No Surface Water	None	0	0	0	Sand-silt	Meadow	Lawn	Meadow	Lawn	Lawn	Lawn	Meadow
6/16/2025	HDF-3	14	Baseflow	Channelized or Constrained	No Surface Water	None	0	0	4.4	Stone-sand	Lawn	Lawn	Lawn	Lawn	Lawn	Lawn	Lawn
6/16/2025	HDF-4	19	Baseflow	Defined Natural Channel	Standing Water	Minimal	1.4	9	3.1	Organics	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland

Appendix E

Significant Wildlife Habitat Assessment – Ecoregion 6E

APPENDIX E1: CANDIDIATE SWH ASSESSMENT (Ecoregion 6E) – 560 Hazledean Road - Double Deck

Significant Wildlife Habitat	Candidate SWH		Confirmed SWH		Comments
	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 Plus, evidence of annual spring flooding	Fields flooded from mid-March to May	Minimal spring flooding observed. Small numbers, but no large flocks of waterfowl observed during surveys. Golf course and not cultural meadow on property.		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.	Protected marsh and river habitat features present adjacent property. No large flocks and lack of diversity 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, or dunes. Meadow marsh habitat present, however 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.	No suitable habitat features present. 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.	The Carp River may have suitable habitat features for overwintering. Man-made ponds such as the pond on Site		**Discussed further in Section 5.6.2.**

Significant Wildlife Habitat	Candidate SWH		Confirmed SWH		Comments
	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	
		Must be permanent waterbody (or wetlands with adequate dissolved oxygen)	should not be considered SWH.		
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	Not applicable to Ottawa Area – must be within 5 km of Lake Ontario for 6E.				
Landbird Migratory Stopover Area					
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 MNR.	None mapped by MNR for this area.		Not Present; Not discussed further.

Significant Wildlife Habitat	Candidate SWH		Confirmed SWH		Comments
	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 MNR (typically, >100ha in size).	None mapped by MNR 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) Must be >0.5ha	Alvar habitat is typically flat and mostly unfractured calcareous bedrock. Not present.		Not Present; Not discussed further.
Old Growth Forest	Any forest or treed (>5 m) swamp	Must be at least 30 ha with at least 10 ha of interior habitat (edge considered 100 m) Have specific characteristics (snags, mosaic of gaps, multi-layered canopy)	No old growth forest present.		Not Present; Not discussed further.
Savannah	Tallgrass prairie savannah and cultural savannah	Must have indicator species	No savannah present		Not Present; Not discussed further.
Tallgrass Prairie	Tallgrass prairie (open prairie - <25% tree cover)	No minimum size	No tallgrass prairie was present.		Not Present; Not discussed further.

Significant Wildlife Habitat	Candidate SWH		Confirmed SWH		Comments
	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. 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.	Suitable habitat on Site for turtle nesting.		**Discussed further in Section 5.6.2.**
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)	Unless it is a larger wetland, must be >120 m from woodlands. Must be > 500 m²	Woodland breeding habitat not present.		Not discussed further.
Amphibian Breeding Habitat (wetlands)	Swamps, marsh, fen, bog, open water, or shallow water	Wetland, pond, or vernal pool must be >500 m²	Suitable wetland breeding habitat present on Site.		**Discussed further in Section 5.6.2.**

Significant Wildlife Habitat	Candidate SWH		Confirmed SWH		Comments
	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	
		Those with water until mid-July (during most years) are better candidates.			
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		Suitable marsh habitat present.		**Discussed further in Section 5.6.2.**
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.	Indicator species not present.		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 wetland 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. Significant amphibian		Not Present; Not discussed further.

Significant Wildlife Habitat	Candidate SWH		Confirmed SWH		Comments
	ELC Codes	Additional Criteria Summary	In Site	In Adjacent Lands	
				breeding habitat not present.	
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 MNR for area.		Not Present; Not discussed further.

Appendix F

Photo Record

Table F1: Subject Site Photos

Photo 1: View of driving range from southern edge of property (June 16, 2025).	
Photo 2: Looking south across pond in NE area of Site (June 16, 2025).	

Photo 3: View of practise greens between the driving range area and Hazeldean Rd (June 16, 2025).

Photo 4: Area at back of property showing elevation before stormwater pond further south, with the edge of MAMM1-9 in the forefront (April 4, 2025).

Photo 5: Looking south across meadow marshes between the Carp River and the property (June 11, 2025).

Photo 6: Looking east across Carp River with edge willow thicket on left of photo and the recreational to the east (June 16, 2025).

Photo 7: Drain from stormwater management pond leading to Carp River 9June 16, 2025).

Photo 8: Open water of the split in Carp River SE of property, showing cattails and willows (June 16, 2025).

Photo 9: The Carp River adjacent the NE corner of the property, looking east with Hazeldean Rd to left of photo (June 11, 2025).

Photo 10: Tadpole in pond (June 16, 2025).

Photo 11: A fledgling mourning dove (June 16, 2025).

Photo 12: A green heron along edge of pond on property (June 16, 2025).

Photo 13: A black-crowned night heron inspects the trail camera at the pond on the property (June 9, 2025).

Photo 13: A tadpole in the pond on the property, likely a Green Frog based on observations (June 16, 2025).

Photo 14: A painted turtle basking on the vegetation within the pond on property (June 16, 2025).

Arcadis Canada Inc.
333 Preston Street, Suite 500
Ottawa, Ontario K1S 5N4
Canada
Phone: 613 225 1311
Fax:
www.arcadis.com