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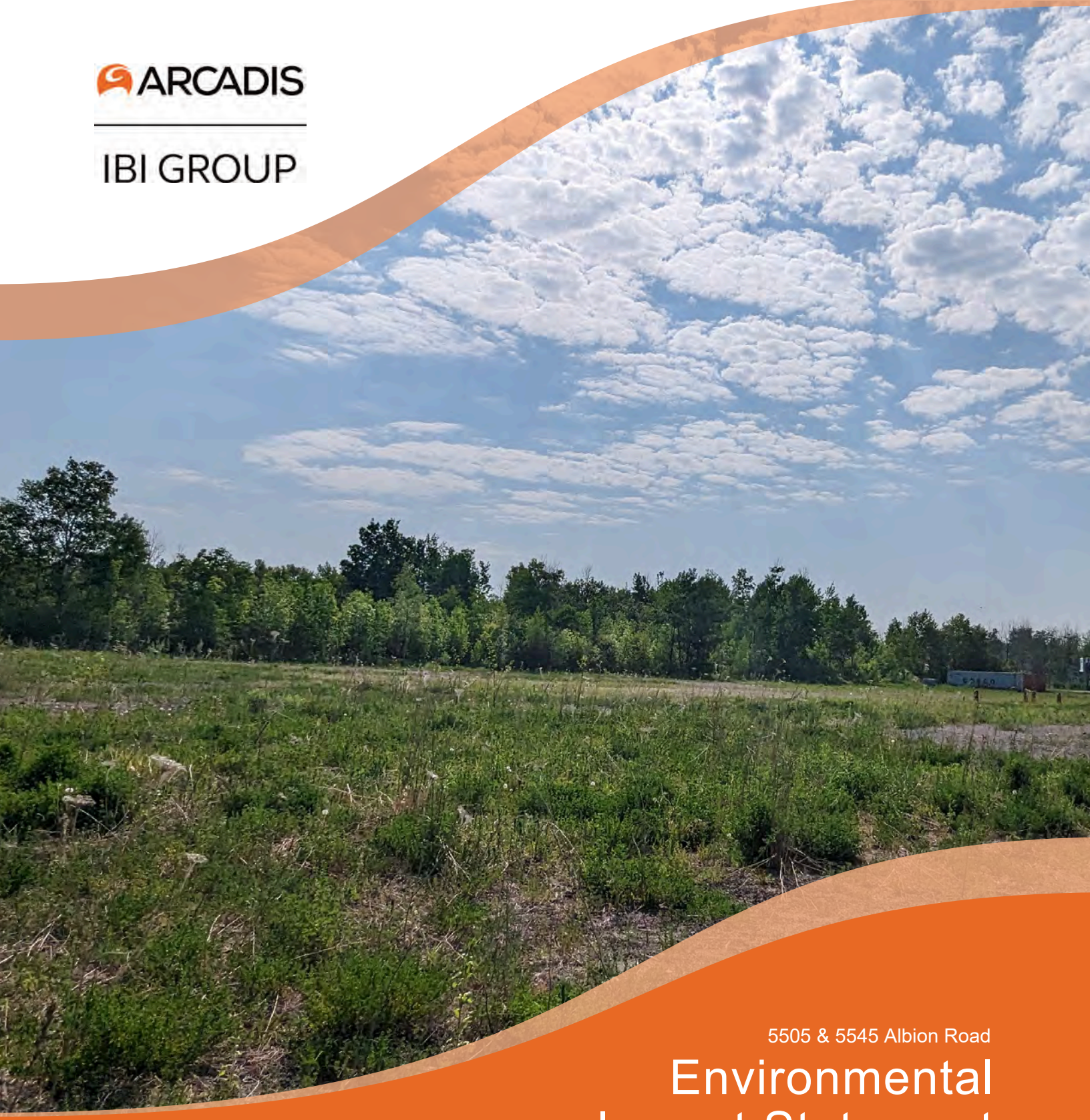

5505 & 5545 Albion Road

Environmental Impact Statement

Submitted to W.O. Stinson & Sons Limited
Prepared for John Armstrong, General Manager,
W.O. Stinson & Sons Limited,4728 Bank Street, Ottawa, ON, K1T 3W7

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Project Number: 142889
March 2024

5545 & 5505 Albion Road – Environmental Impact Statement

ARCADIS

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Prepared for W.O. Stinson & Sons Ltd.
by Arcadis IBI Group
March 12, 2024

Document Control Page

CLIENT:	W.O. Stinson & Sons Ltd.
PROJECT NAME:	5545 & 5505 Albion Road
REPORT TITLE:	5545 & 5505 Albion Road – Environmental Impact Statement
VERSION:	Draft
DIGITAL MASTER:	FINAL
ORIGINATOR:	Lindsay Jackson, HBSc.
REVIEWER:	Alex Zeller, MSc.
AUTHORIZATION:	Alex Zeller, MSc.

Table of Contents

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1 Introduction

1.1 Purpose

Arcadis IBI Group (Arcadis) was retained by W.O Stinson & Sons Ltd (Stinson) to complete an Environmental Impact Study (EIS) for the proposed development, located at 5545 and 5505 Albion Road, in the City of Ottawa. (**Figure 1**).

This EIS has been prepared to describe the natural heritage features within the Study Area and to evaluate the potential for environmental impacts associated with the proposed development and to recommend mitigation measures to offset those impacts. The findings in this report are based on field investigations and desktop screening results.

For this report, the Study Area includes the area within 120 metres (m) of the Project footprint to account for policy requirements and setback distances outlines in the Provincial Policy Statement (2020) and the accompanying Natural Heritage Reference Manual (MNRF, 2010) (see Figure 1). In addition, specific Species at Risk (SAR) and natural heritage features will be considered up to two kilometres (km) from the proposed development as it may relate to specific environmental policy or legislation.

1.2 Background

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 (NHS). Natural Heritage Feature within or adjacent to this site include an unevaluated wetland, and a watercourse that bisects the property. This report has been prepared to consider federal, provincial, and municipal policies and regulations that may pertain to the Project.

A pre-consultation meeting was held on February 23rd, 2022, where requirements of the EIS and TCR were discussed with the City of Ottawa. This meeting identified the requirements to complete the following surveys:

- Amphibian Breeding Surveys
- Butternut Search
- Headwater Drainage Feature Assessment

The EIS has been prepared to; ensure the development does not contravene the Endangered Species Act (ESA, 2007), support the retention of natural vegetation where possible, evaluate potential environmental impacts, and develop mitigation plans addressing potential impacts.

Legend

- Beaver Dam
- Headwater Drainage Feature (Aerial Imagery)
- Subject Property
- Study Area (120m)
- Existing Woodlands (Aerial Imagery)

60 30 0 60 120 180 240 Meters

Scale: 1:5,000

Client:

W.O. Stinson & Sons Ltd.
5505 & 5545 Albion Road

Title:

5505 & 5545 Albion Road:
Study Area and
Natural Heritage Features

Prepared By:

ARCADIS | IBI GROUP

Project: 143219

Date: 2024-03-12

Figure: 1

1.3 Property Information

Owner:	W.O Stinson & Sons Ltd
Address:	5545 and 5505 Albion Road, Ottawa, Ontario
Lot and concession:	Part Lot 30, Concession 4
Traditional Territories:	Unceded Territory of the Anishnaabe Algonquin Nation
Zoning:	RU – Rural Countryside Zone RH1 – Rural Heavy Industrial Zone
Official Plan designation (Schedule a):	Rural
Existing Land Uses:	Wasteland/Rural parcel

LOCATION

The Study Area for the proposed project is located on the unceded traditional territory of the Anishinaabe Algonquin Nation.

The Study Area is located in the community of South Gloucester, and is located at 5505 and 5545 Albion Road, in the City of Ottawa. It is situated at the northeast corner of the intersection of Albion Road and Mitch Owens Drive (**Figure 1**).

LAND USE AND ZONING

The Study Area falls within the Rural transect of the City of Ottawa's Official Plan (OP). The property is zoned as Rural Countryside Zone (RU) and Rural Heavy Industrial Zone (RH1).

1.4 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.

Policy Framework:	This section outlines the policies and legislation that apply to the protection of natural heritage features within the Study Area as it relates the Project.
Natural Heritage Screening:	This section provides the detailed background information collected from a variety of publicly accessible resource databases to describe the natural heritage features and significant features that may occur within the Study Area.
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.
Survey Results:	This section provides the results from the field surveys. This also includes any incidental observations or notable observations made by the field biologists.
Description of the Proposed Project:	This section provides a summary of the Project, including the construction activities and other activities which may have an impact on the natural environment.
Impact Assessment and Mitigation:	This section provides the assessment of potential environmental impacts associated with the Project on the natural heritage system, including the natural heritage features and species surveyed in 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. This section will also identify any future permitting or agency authorizations that may be required before the Project may proceed.
Summary and Conclusions:	This section provides a summary of the Study's findings, outlines ay notable provisions, and provides Arcadis' general recommendation on whether this project should proceed as planned.

2 Policy Framework

This study references the regulatory agencies and legislative authorities mandated to protect different elements of the NHS, features, and functions within the City of Ottawa, Ontario, and Canada. **Table 1** provides a list of the applicable policies and legislation for the protection of natural heritage features and SAR either municipally, provincially, and/or federally. The scope of this report evaluates the natural heritage features and SAR governed by the policies outlined in the table below.

Table 1: Relevant Policies

POLICY	GUIDELINES AND SUPPORTING DOCUMENTS
Federal Government of Canada	
Migratory Birds Convention Act (MBCA, 1994) (S.C. 1994, c. 22)	Environment and Climate Change Canada (ECCC) – online resources
Species at Risk Act (SARA, 2002) (S.C. 2002, c. 29)	Federal Species at Risk Public Registry: • Distribution of Aquatic Species at Risk mapping (Accessed: 08/2023)
Fisheries Act (1985) (R.S.C., 1985, c. F-14)	Fisheries and Oceans Canada – online resources
Province of Ontario	
Provincial Policy Statement (2020)	Ministry of Natural Resources and Forestry (MNRF) – Kemptville District
	MNRF Natural Heritage Information Centre (NHIC) • *Species at Risk occurrence records* • *Species of Conservation Concern* • *Natural Heritage Features*
	Significant Wildlife Habitat Technical Guide (MNRF, 2000): • Significant wildlife Habitat Eco-region 6E Criterion Schedule (MNRF, 2015).
	Ministry of the Environment, Conservation and Parks (MECP): • Species at Risk in Ontario (SARO) List (O.Reg. 230.08)
	Ecological Land Classification for Southern Ontario, First Approximation, and its Application (Lee, et al., 1998)
	Ontario Breeding Bird Atlas (OBBA) – Online (Accessed: 04/2022)
	Ontario Reptile and Amphibian Atlas (ORAA) – Online (Accessed: 04/2022)
	Ontario Butterfly Atlas (OBA) – Online
	iNaturalist Observation Records – Online
	Atlas of the Mammals of Ontario (AMO) (Dobbyn, 1994)
City of Ottawa	
City of Ottawa Official Plan (2022)	Official Plan
	Environmental Impact Statement Guidelines
	City of Ottawa Tree Conservation Report Guidelines – Online
	Site Alteration By-Law
	Protocol for Wildlife Protection During Construction
Rideau Valley Conservation Authority (RVCA)	
Rideau Valley Conservation Authority: Regulation of	• Floodplain mapping

Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (Ontario Regulation 174/06), under Conservation Authorities Act, (R.S.O. 1990, c. C.27)	• Evaluation, Classification and Management of Headwater Drainage Features Guidelines • Mosquito Creek Catchment – Lower Rideau River Subwatershed Report

3 Natural Heritage Screening

A desktop review of the existing natural environment features identified within the Study Area was completed prior to field investigations to inform the studies require for this study. This section outlines the relevant natural heritage background.

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 (City of Ottawa, 2023) (**Figure 2**). From this review, the landscape appeared to have been predominantly agricultural dating back to 1976, however appears to transition to aggregate extraction to the northeast of the Study Area. Smaller scale residential developments occur to the southeast appear to expand in the 1990's, as well as a golf course to the southwest.

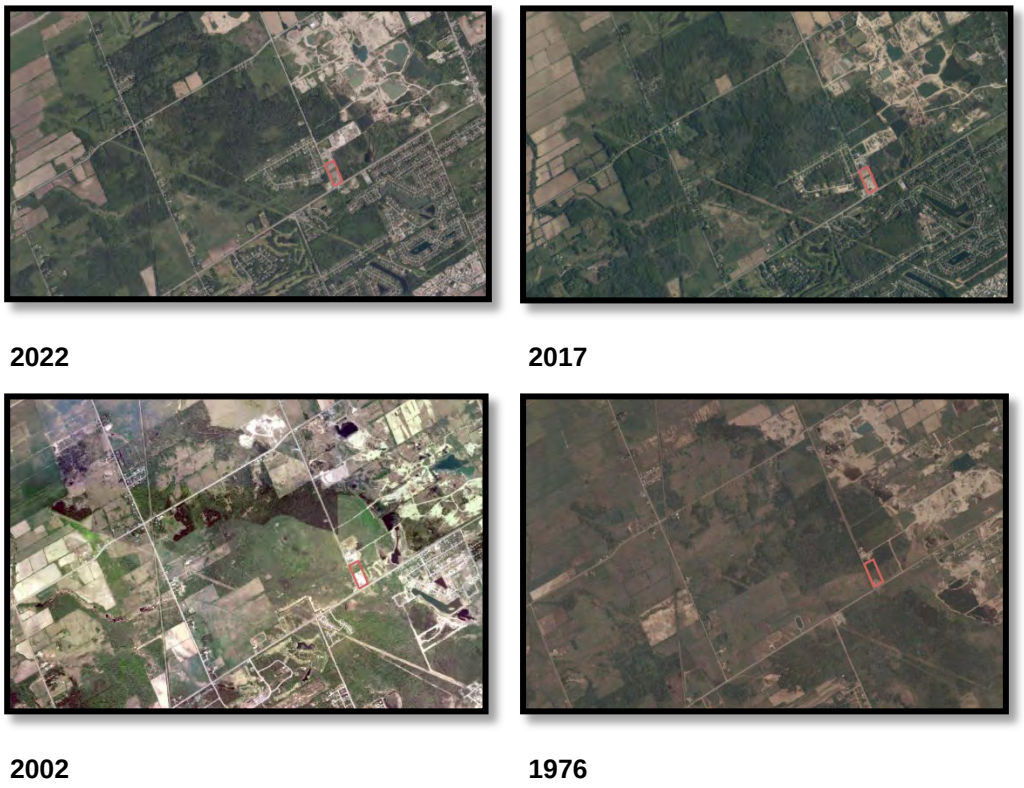


Figure 2: Land use change (geoOttawa, 2023).

Within the Property, aerial imagery from 1976 suggests the land use at 5545 Albion Road has historically been a storage facility for heavy equipment, as well as a sales centre, and refueling station. It was maintained as a storage yard with an outbuilding until some time between 2017 and 2019 when the buildings were demolished, and the equipment appears to be removed. Land use within 5505 Albion Road appears to be forested until approximately 2012, where aerial imagery review suggests that the property was graded and turned into a storage facility for school busses until approximately 2019. The property appears to have been abandoned since 2019.

3.2 Landforms, Soil and Geology

The Study Area is situated within the Sand Plains physiographic region.

The surface geology at 5505 Albion Road is composed primarily of organic deposits, including peat, muck and marl, this material generally provides low drainage. However, the surface geology at 5545 Albion Road differs, and is composed of coarse-textured glaciomarine deposits, that is generally imperfectly drained (Agriculture and Agri-Food Canada, 2013).

The underlying bedrock of the Study Area is part of the Oxford formation, consisting of dolostone, minor shale and sandstone (Natural Resources Canada, 2016).

It is likely that the soils with ‘low drainage’ in the northeastern extent of the Study Area results in a lower rate of infiltration with damp to wet soils affecting the vegetation communities and assocaited habitat. Whereas the soils in the southern extent of the Study Area are well sorted, providing imperfect drainage.

3.3 Aquatic Environment

3.3.1 Floodplain and Regulated Limit

The Study Area is located within Rideau Valley Conservation Authority’s (RVCA) watershed. The RVCA is the governing body that regulates zones with potential for flooding, protects associated natural features, and restores and enhances ecosystems within the Rideau Valley watershed. Development within these regulated areas is governed by *O. Reg. 174/06 Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses*. RVCA also maintains, monitors, and collects information related to water quality/quantity, fisheries resources, forestry, land use, and wetlands.

The RVCA floodplain mapping confirms that there is a non-evaluated wetland within Lot 4, Concession 30 which is located within the Study Area (Rideau Valley Conservation Authority, 2023).

The Study Area lies within the Mosquito Creek subwatershed, with waters flowing west towards Albion Road, and eventually discharging into Mosquito Creek (RVCA, 2023).

3.3.2 Fish Habitat

The Study Area includes a headwater drainage feature that bisects 5505 and 5545 Albion Road. The feature drains towards the western edge of the property, where it then drains northward toward a culvert that crosses under Albion Road. The drain originates from an open water area to the east of the Study Area which is likely associated with the open quarry occurring to the northeast. Therefore, the drainage features within the property may provide fish habitat.

3.3.3 Headwater Drainage Feature

Mapping by the RVCA and the City of Ottawa indicate the presence of watercourses within and adjacent to the Study Area. A headwater drainage features bisects the Study Area, draining to the northwest, and eventually discharge into McKinnon's Creek.

3.4 Natural Heritage Features

Several specific natural heritage features require consideration for protection under the Ontario PPS (Ministry of Municipal Affairs and Housing, 2020). The protection of these features is generally administered by the City of Ottawa, consistent with relevant provincial and federal legislation. These features are:

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

The section below provides a review of available background records to determine the potential presence of these natural heritage features within the Study Area. Where possible, natural heritage features have been illustrated in **Figure 1**.

3.4.1 Wetlands

A review of the City of Ottawa online mapping services (geoOttawa), provincial natural heritage mapping (NHIC), and Land Information Ontario (LIO) mapping indicate the presence of a swamp type wetland within 5505 Albion Road, and in the northeastern extent of the Study Area. There are also mapped wetlands occurring downstream, west of Albion Road, outside of the Subject Property.

3.4.2 Woodlands

A review of the City of Ottawa online mapping services (geoOttawa) and provincial natural heritage mapping (NHIC) indicate the presence of mature tree canopy throughout the Study Area.

3.4.3 Valleylands

A review of the City of Ottawa's Official Plan Schedule C-15 – Environmental Constraints indicates that there are no significant valleylands within or adjacent to the Study Area.

3.4.4 Areas of Natural and Scientific Interest

A review of the provincial natural heritage mapping (NHIC) indicated that there are no ANSIs are present within or adjacent to the Study Area.

3.4.5 Significant Wildlife Habitat

Four categories of Significant Wildlife Habitat (SWH) exist within the eastern Ontario ecoregion 6E (MNRF, 2015). These include:

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

The potential for the presence of habitats matching the description of these SWH within and adjacent to the Study Area was reviews 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

Based on the criteria established for Candidate SWH, the following seasonal concentration areas of animals may be found within or adjacent to the Study Area:

- Bat Maternity Colonies: The presence of mature woodlands with large cavity trees may provide suitable conditions for maternity colonies of SAR and non-SAR bats.

SPECIALIZED HABITAT FOR WILDLIFE

Based on the criteria established for Candidate SWH, the following specialized habitat for wildlife may be found within the Study Area:

- Amphibian Breeding Habitat: the presence of wet forest community and headwater drainage features that may be ephemeral in nature may provide habitat for amphibian breeding.

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 1-5. S2 represents a species that is considered imperiled within Ontario. S3 represents a species considered as vulnerable within Ontario. Species of Conservation Concern does not include SAR (listed as Endangered or Threatened under the ESA, 2007). A review of background data suggests that candidate SWH for breeding birds, reptiles, insects, and fish may occur within or adjacent to the Study Area. Those species identified have potential to be associated with the forested communities outside of the Subject Property. **Table A1** in **Appendix A** provides a list of Species of Conservation Concern with occurrence records within and/or adjacent to the Study Area.

3.5 Species at Risk and Species at Risk Habitat

A desktop review identified the potential for several Species at Risk (SAR) to occur within and adjacent to the Study Area. Under the ESA, all species listed as Threatened or Endangered in Ontario receive immediate ‘general habitat protection’. This includes places that are used as dens, nests, hibernacula, or other residences. For some species, agencies have defined general habitat descriptions that provide science-based criteria for the habitat to be protected for some SAR species.
A review of aerial imagery was used to identify general candidate habitat for SAR based on the description of habitat provided. **Table A2** in **Appendix A** provides a list of species identified as having potential to occur within the vicinity of the Study Area, and an assessment of habitat

potential based on the MNRF's habitat description. Based on the habitat requirements described in the table, the following species may be present within the Study Area:

- Black Ash (*Fraxinus nigra*),
- Butternut (*Juglans cinerea*),
- Little Brown Bat (Myotis lucifugus),
- Northern Myotis (Myotis septentrionalis), and
- Tri-colored Bat (Perimyotis subflavus).

The species identified above have potential to be associated with the forested communities outside the Subject Property.

3.6 Trees

A review of aerial imagery suggest that the Study Area contains forested areas to the east and the west of the Subject Property, as well as vegetation along the drainage feature. There also appears to be the presences of ornamental tree species at the intersection of Albion Road and Mitch Owens Drive.

3.7 Wildlife Habitat

In addition to the SAR noted above, 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 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**: Coyote (*Canis latrans*), Beaver (*Castor canadensis*), Muskrat (*Ondatra zibethicus*), Raccoon (*Procyon lotor*), White-tailed deer (*Odocoileus virginianus*), Eastern Gray Squirrel (*Sciurus carolinensis*), Eastern Cottontail (*Sylvilagus floridanus*), among others.
- **Reptiles & Amphibians**: Eastern Garter Snake (Thamnophis sirtalis), American Toad (*Anaxyrus americanus*), Spring Peeper (*Pseudacris crucifer*), Gray Tree Frog (*Hyla versicolor*), Blue Spotted Salamander (*Ambystoma laterale*), and Eastern Red-backed Salamander (*Plethodon cinereus*) among others.
- **Birds**: American Crow (*Corvus brachyrhynchos*), American Goldfinch (*Spinus trtitis*), Black-capped Chickadee (*Poecile atricapillus*), Blue Jay (*Cyanocitta cristata*), Cedar Waxwing (*Bombycilla cedrorum*), Downy Woodpecker (*Picoides pubescens*), Veery (*Catharus fuscescens*), Killdeer (*Charadrius vociferus*), Song Sparrow (*Melospiza melodia*), among others.

3.8 Ecological Linkages

A review of aerial photos suggests that the forested areas within the Study Area may provide a functional ecological linkage. However, as this linkage does not connect any established core natural areas, the function is likely limited to the general movement of wildlife throughout the landscape. Additionally, this property is not identified within an ecological linkage by the City of Ottawa (City of Ottawa, 2013).

4 Methodology

Based on the description of the existing natural environment outlined above, the natural heritage surveys outlined below have been scoped to assess the impacts of the proposed development on the natural environment. These surveys followed industry standard protocols and are intended to establish baseline conditions.

These surveys are used to evaluate the potential for negative impacts which may occur as a result from the proposed development project. Surveys were undertaken only within the subject property. If possible, natural features within the larger Study Area were evaluated from a distance or via air-photo interpretation.

AQUATIC ENVIRONMENT

- Headwater Drainage Feature Assessment

NATURAL HERITAGE FEATURES

- Ecological Land Classification (ELC), including:
    - Vegetation survey
    - Wetland identification
    - Woodland delineation and evaluation
- Identification of potential SWH, including:
    - Breeding Bird Surveys
    - Amphibian Breeding Surveys
    - General habitat assessment for Species of Conservation Concern
    - Incidental SWH observations

SPECIES AT RISK

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

4.2 Aquatic Environment

The Headwater Drainage Features (HDF) assessment was based on the Toronto and Region Conservation Authority and Credit Valley Conservation protocol, 'Evaluation, Classification and Management of Headwater Drainage Features Guidelines' (Toronto and Region Conservation Authority and Credit Valley Conservation, 2014). Two site visits were conducted as part of this field survey. This survey was 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). Additional observations of HDF's were undertaken in conjunction with other field surveys.

It is understood based on discussions with the City of Ottawa and the RVCA that this EIS is being written with the assumption that a treed buffer exists along the headwater drainage feature. Assumptions have been made when evaluating the aquatic environment within the Subject Property.

4.3 Natural Heritage Features

4.3.1 Vegetation Communities

Vegetation communities within the Study Area were characterized and mapped using the ELC system for Southern Ontario (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. 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 exiting 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 MNRF 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.

Vegetation Survey

Vegetation was inventoried in tandem with ELC surveys and a corresponding vascular plant list was compiled. All other plant species identified from other survey results are also included in the list. In addition, the vascular plants observed at the time of survey have been used to screen for any provincially rare species or SAR 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 (2005) and Michigan Flora Online (2015).

4.3.2 Wetlands

The delineation of wetland features within the Study Area was conducted by using ELC to map wetland attributes and vegetation if required.

4.3.3 Woodlands

The woodlands within the Study Area were assessed for significant following the updates guidelines provided by the City of Ottawa in the Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment. If the following criteria is met, the woodland is considered significant:

1. *Any treed area meeting the definition of woodlands in the Forestry Act, R.S.O 1990, c.F.26 or forest in Ecological Land Classification for Southern Ontario; and*
2. *In the rural area, meeting any one of the criteria in the Natural Heritage Reference Manual, as assessed in a subwatershed planning context and applied in accordance with Council-approved guidelines, where such guidelines exist; or*
3. *In the urban area, any contiguous area 0.8 hectares in size or larger, supporting woodland 60 years of age and older at the time of evaluation.*
4. *In the peri-urban area, any contiguous area 0.8 hectares in size or larger, supporting woodland 60 years of age and older at the time of evaluation.*

4.3.4 Significant Wildlife Habitat

Breeding bird, amphibian breeding, and bat echolocation surveys were conducted to establish baseline conditions within the Study Area.

4.3.5 Breeding Bird Survey

Diurnal breeding bird surveys conducted within the Study Area followed the methods outlined in the *Ontario Breeding Bird Atlas Guide for Participants* (Cadman et al 2007) and were completed between late May and early July (two surveys). Specifically, breeding bird surveys consisted of three-minute point counts that were used to establish quantitative estimates of bird abundance in habitat types within the Study Area. To supplement the surveys, area searches of the habitat were completed using binoculars to observe species presence and breeding activity. Area searches involved noting all individual bird species and their corresponding breeding evidence while traversing the habitat on foot.

4.3.6 Amphibian Breeding Survey

Amphibian monitoring will follow *the Marsh Monitoring Program Participant's Handbook for Surveying Amphibians protocol* (Bird Studies Canada, 2009 Edition). In accordance with the survey protocol, three different surveys will be conducted between April 15th and June 30th, with at least two weeks between each visit. Surveys begin at least one-half hour after sunset during evenings with a minimum night temperature of 5ºC, 10ºC, and 17ºC for each of the three respective surveys.
Each amphibian survey generally involves standing at a predetermined station for three minutes and listening for frog calls. The calling activity of individuals estimated to be within 100 m of the observation point is documented. All individuals beyond 100 m are recorded as outside the count circle and calling activity was not recorded. Calling activity is then ranked using one of the three abundance code categories:

- Code 1: Calls not simultaneous, number of individuals can be accurately counted.
- Code 2: Some calls simultaneous, number of individuals can be reliably estimated.
- Code 3: Calls continuous and overlapping, number of individuals cannot be estimated.

In areas where candidate amphibian habitat exists, vernal pools will be visually examined for egg masses and amphibian larvae in conjunction with other field surveys. These searches will occur between April and June when amphibians were concentrated around suitable breeding habitat.

4.3.7 Bat Acoustic Monitoring

An acoustic survey for bats will be conducted using a Wildlife Acoustic's Echo Meter Touch 2 Pro ultrasonic module. The survey will involve listening for bat calls in conjunction with amphibian breeding surveys at determined locations within the Study Area. The survey will be conducted a half-hour after sunset when bats typically emerge from roosts to forage.
The results of the acoustic surveys were used to identify bat species present within the Survey Area.

4.3.8 Habitat for Species of Conservation Concern

In addition to the targeted wildlife and vegetation community surveys described above, general habitat observations will be noted as it relates to the habitat requirements for Species of Conservation Concern identified in **Table 2**.

4.3.9 Incidental Observations of Significant Wildlife Habitat

Any incidental observations of other candidate SWH features will be documented during all site visits. Specifically, observations associated with Seasonal Concentrations of Wildlife Habitat and Specialized Habitat for Wildlife will be made during all site visits.

4.3.10 Species at Risk and Species at Risk Habitat

Targeted SAR surveys and SAR habitat surveys for Black Ash, Butternut, and SAR bats were completed. The surveys also included general breeding bird surveys to record any potential SAR birds.

5 Survey Results

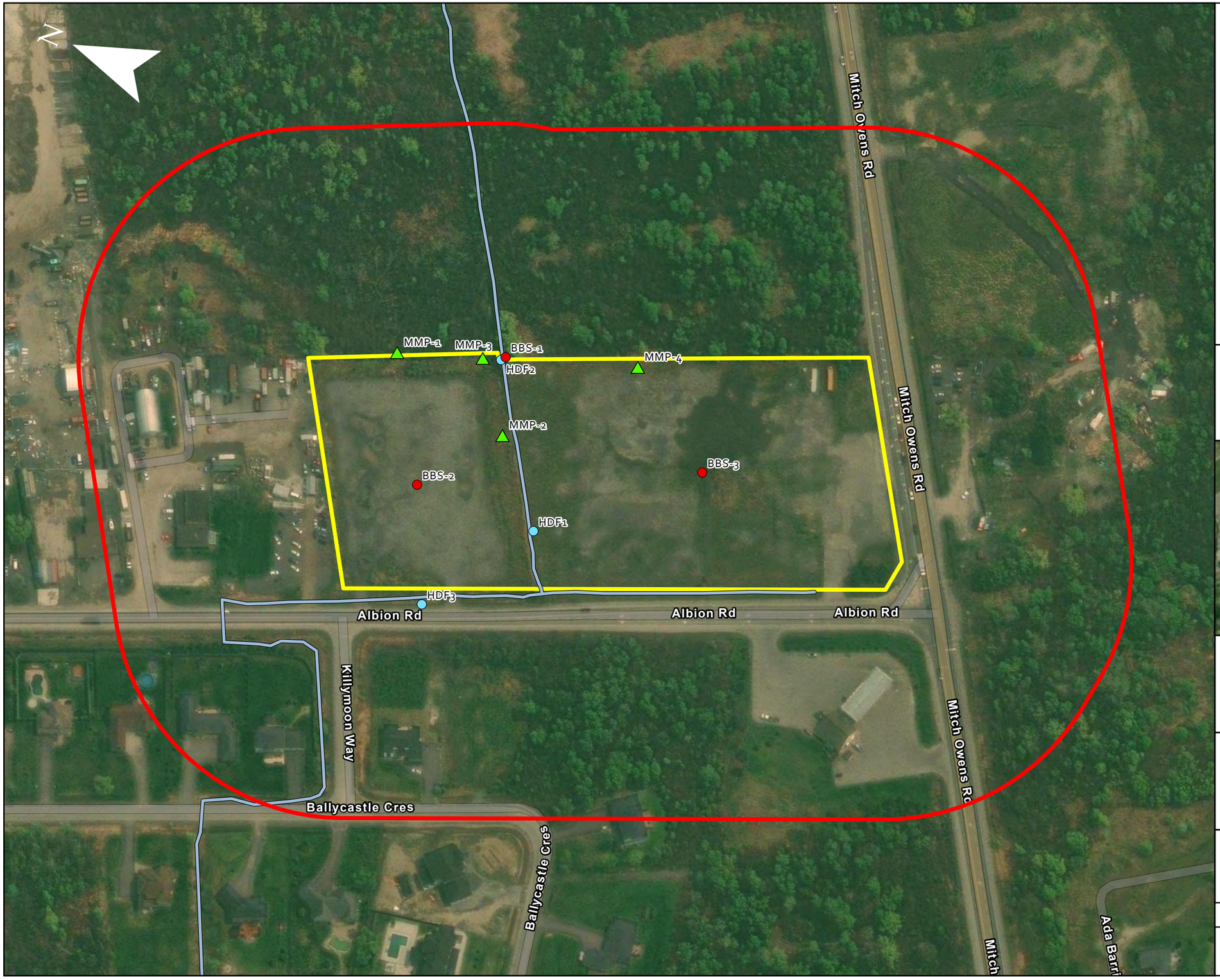
The following sections outline the findings from the field surveys and characterize the existing conditions within the Study Area. **Figure 3** includes all survey point locations.

Table 2: Summary of survey conditions.

PURPOSE OF VISIT	DATE	TIME	PERSONNEL	WEATHER CONDITIONS	AIR TEMP (C)
Headwater Drainage Feature Assessment #1	28/04/2023	8:00 AM – 11:30 AM	L.Jackson & B.Semmler	Sunny, light breeze	10
Amphibian Survey #1	01/05/2023	8:30 PM - 9:00 PM	L.Jackson & B.Semmler	Clear skies, calm winds	10
Amphibian Survey #2,	29/05/2023	9:30 PM -10:00 PM	L.Jackson & B.Semmler	Clear skies, calm winds	14
Breeding Bird Point Count Survey #1/ Headwater Drainage Feature Assessment #2	01/06/2023	8:30 AM -10:30 AM	L. Jackson	Sunny, light breeze	20
Breeding Bird Point Count Survey #2	16/06/2023	8:30 AM -9:30 AM	L.Jackson	Sunny, hazy from forest fire smoke, light breeze	20
Amphibian Survey #3,	19/06/2023	9:30 PM - 10:00 PM	L. Jackson & B.Semmler	Clear skies, calm winds	17

5.1 Site Investigations

Fieldwork conducted for the EIS and TCR took place between April 2023, and July 2023, when weather conditions and timing were deemed suitable based on the survey protocols being implemented. Fieldwork consisted of ELC of vegetation communities, HDF Assessment, breeding bird surveys, and amphibian breeding surveys. Any incidental wildlife observations made during the surveys were also documented. The dates, times, surveyor names, and weather conditions for all surveys are listed in **Table 2** above**.**



Legend

- Subject Property
- Study Area (120m)
- Existing Headwater Drainage Feature
- Headwater Drainage Feature Assessment Point (HDF)
- Breeding Bird Survey Location (BBS)
- Marsh Monitoring Protocol Location (MMP)

25 12.5 0 25 50 75 100 Meters

Scale: 1:2,000

Client:

W.O. Stinson & Sons Ltd.
5505 & 5545 Albion Road

Title:

5505 & 5545 Albion Road:
Survey Locations

Prepared By:

ARCADIS | IBI GROUP

Project: 143219

Date: 2024-03-12

Figure: 3

5.2 Aquatic Environment

A single drainage feature was identified within the Study Area during the Headwater Drainage Feature Assessment (HDFA). Survey data in included in **Table A3 in Appendix B**.

Fish Habitat

An unnamed tributary to the Spratt Drain drains from the east to the western edge of the property, where it extends northward in a roadside ditch, crossing under Albion Road. Dip nets were used within the reaches during headwater drainage feature assessments, no fish were observed or captured within the tributary during evaluations.

Headwater Drainage Feature Assessment

Headwater Drainage Feature Assessment surveys conducted in 2023 evaluated the three reaches within the Study Area to assess connectivity and contribution of surface water features to other natural heritage system features and functions, as well as the potential for amphibian and fish habitat.

The assessment determined that the headwater drainage feature is an important hydrological feature with contributing fish habitat function. However, the portion of the HDF that bisects the Subject Property provides low ecological value due to the lack of surface flows from the upstream reaches, as well as a lack of associated riparian and terrestrial habitat. The flows have been impeded by the presence of a beaver dam at the eastern edge of the subject Property. Water for this feature appears to originate from areas of open water to the east of the Study Area, which are likely associated with the operational gravel pit and quarry. Management recommendations are described in **Table A4 in Appendix B. Figure 4** illustrates the HDF's and associated constraints**.**

HAR-1

This reach is located within a forested wetland at the eastern extent of the Study Area. Access to this drainage feature was limited to the edge of the property line, therefore the assessment of the entirety of the reach has been supplemented by aerial imagery interpretation. Water is contributed to this feature from upstream open water features that appear to be associated with a pit quarry operation. The reach appears to slope gently through wetland habitat towards the Subject Property, where it is channelized into a vegetated swale that bisects the Study Area.

The reach has an approximate depth of 1500 mm and a bankfull width of approximately 7.1m, though the water levels are impacted by an active beaver dam that is located at the edge of the Subject Property. The reach runs within a forested swamp, with little observed in-stream vegetation. Substrate within the features is predominantly organics and silt as the subdominant substrate. Deposition within this reach is consistent with organics from leaf liter from broadleaf tree and shrub species within the forest This reach has a slight gradient to the west allowing for some water flow, but the water appeared to be standing at the time of evaluation in April 2023. The feature lacks any defined pools.

No fish or wildlife were observed within this reach at the time of surveys. **The management recommendation for this reach is 'Protection'.**

HAR-2

This reach is located within vegetated swale that runs from east to west between 5505 Albion Road and 5545 Albion Road. Water is contributed to this feature from upstream open water features that appear to be associated with a pit quarry operation. The reach appears to slope gently towards a roadside ditch that continues north along Albion Road, where it continues west through a culvert.

The reach has an approximate depth of 170 mm and a bankfull width of approximately 2.7 m, though the water levels are impacted by an active beaver dam that is located at the upstream edge of the Subject Property. At the time of evaluation, the reach runs within scrubland associated with the vegetated swale, with a high concentration of in-stream vegetation, including horsetail, pondweed, purple loosestrife, cattails and phragmites. However, it is our understanding that a 15 m (+/- 2 m) treed riparian buffer was present on the north side of the feature but was removed prior to the field investigation.

Substrate within the features is predominantly organics and silt as the subdominant substrate. Deposition within this reach is consistent with organics from leaf liter from broadleaf tree and shrub species, as well as sheet erosion from the abandoned industrial lots. This reach has a slight gradient to the west allowing for some water flow, but the water appeared to be standing at the time of evaluation in April 2023. The feature lacks any defined pools.

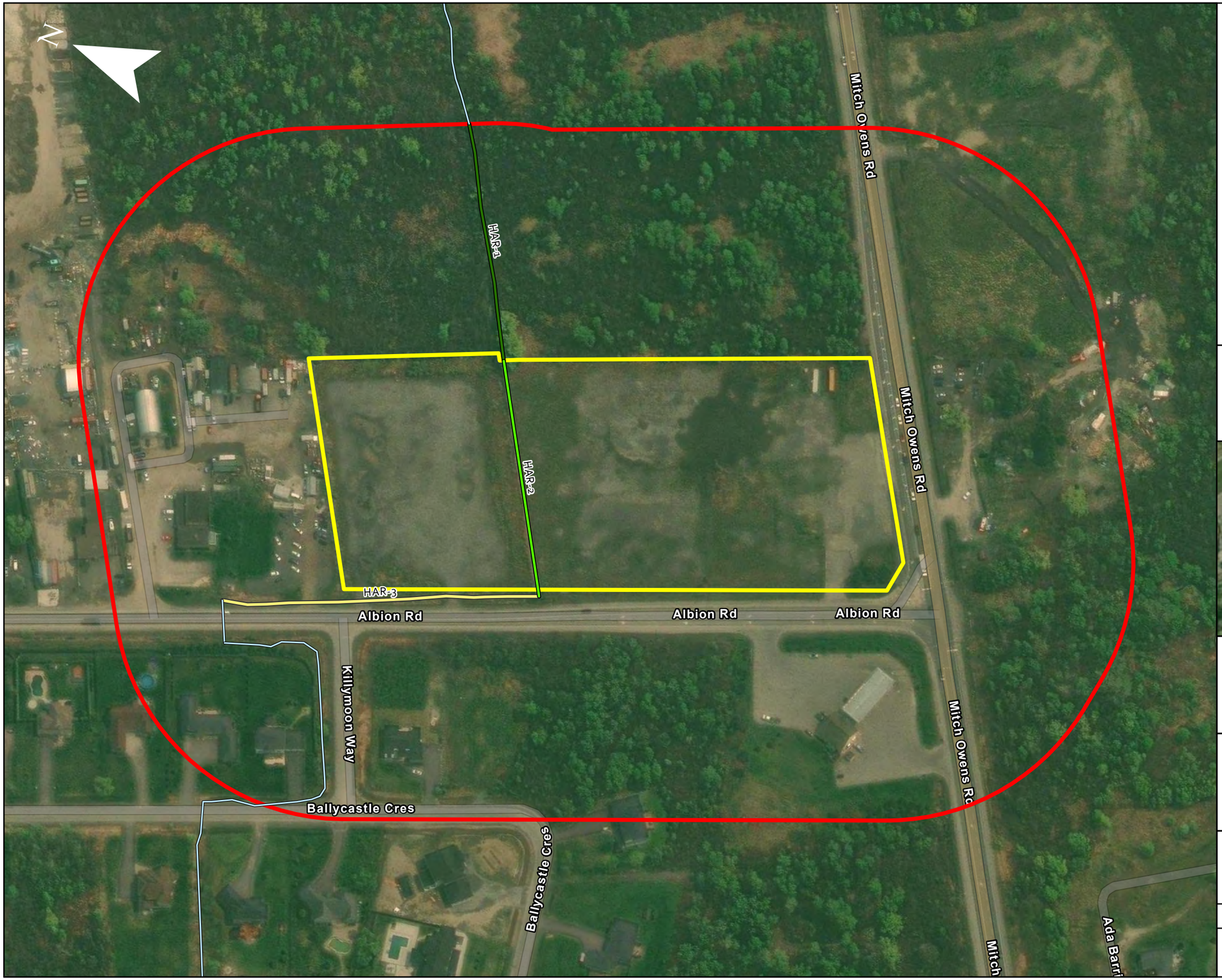
No fish or wildlife were observed within this reach at the time of surveys. The assessment of this feature assumed the presence of a 15-metre treed riparian buffer (+/- 2 m) on the northern side of HAR-2 at 5505 Albion Road. **The management recommendation for this reach is ‘Conservation' given the riparian buffer. Meaning this feature can be re-aligned but should remain open.**

HAR-3

This reach is located a roadside ditch along Albion Road that flows towards the north. Water is contributed to this feature from upstream open water features that appear to be associated with a pit quarry operation. The reach appears to slope gently towards a culvert that flows under Albion Road, where it discharges into the Spratt Drain.

The reach has an approximate depth of 260 mm and a bankfull width of approximately 3.0 m, though the water levels are impacted by an active beaver dam that is located at the upstream edge of the Subject Property. The reach runs within a vegetated roadside ditch with a high concentration of in-stream vegetation, including horsetail, purple loosestrife, cattails and phragmites. Substrate within the features is predominantly organics and silt as the subdominant substrate. Deposition within this reach is consistent with organics from broadleaved emergent vegetation, as well as sheet erosion from the abandoned industrial lots and Albion Road. This reach has a slight gradient to the north allowing for some water flow, but the water appeared to be standing at the time of evaluation in April 2023. The feature lacks any defined pools.

No fish or wildlife were observed within this reach at the time of surveys. **The management recommendation for this reach is ‘Mitigation’. Meaning this feature could be incorporated into the stormwater management of the site.**



Legend

- Subject Property
- Study Area (120m)

Headwater Drainage Feature Management Classification

- Protection
- Conservation
- Mitigation
- Watercourse

25 12.5 0 25 50 75 100 Meters

Scale: 1:2,000

Client:

W.O. Stinson & Sons Ltd.
5505 & 5545 Albion Road

Title:

5505 & 5545 Albion Road: Headwater Drainage Feature Assessment

Prepared By:

ARCADIS | IBI GROUP

Project: 143219

Date: 2024-03-12

Figure: 4

5.3 Natural Heritage Feature

5.3.1 Ecological Land Classification

The ELC survey identified a total of three vegetation communities within the Study Area, in addition to four communities that are associated with transportation, residential, or agricultural land use.

The prominent vegetation communities within the Survey Area is an abandoned commercial lot that is overgrown with wasteland, non-native vegetation. All vegetation communities surveyed within the Survey Area are considered common within Ontario. **Table 3** below outlines the communities documented during ELC surveys and summarizes the abundant vegetation cover. The location, type, and boundaries of vegetation communities are delineated in **Figure 5**. Reference photos for the vegetation communities are included in **Appendix E**.

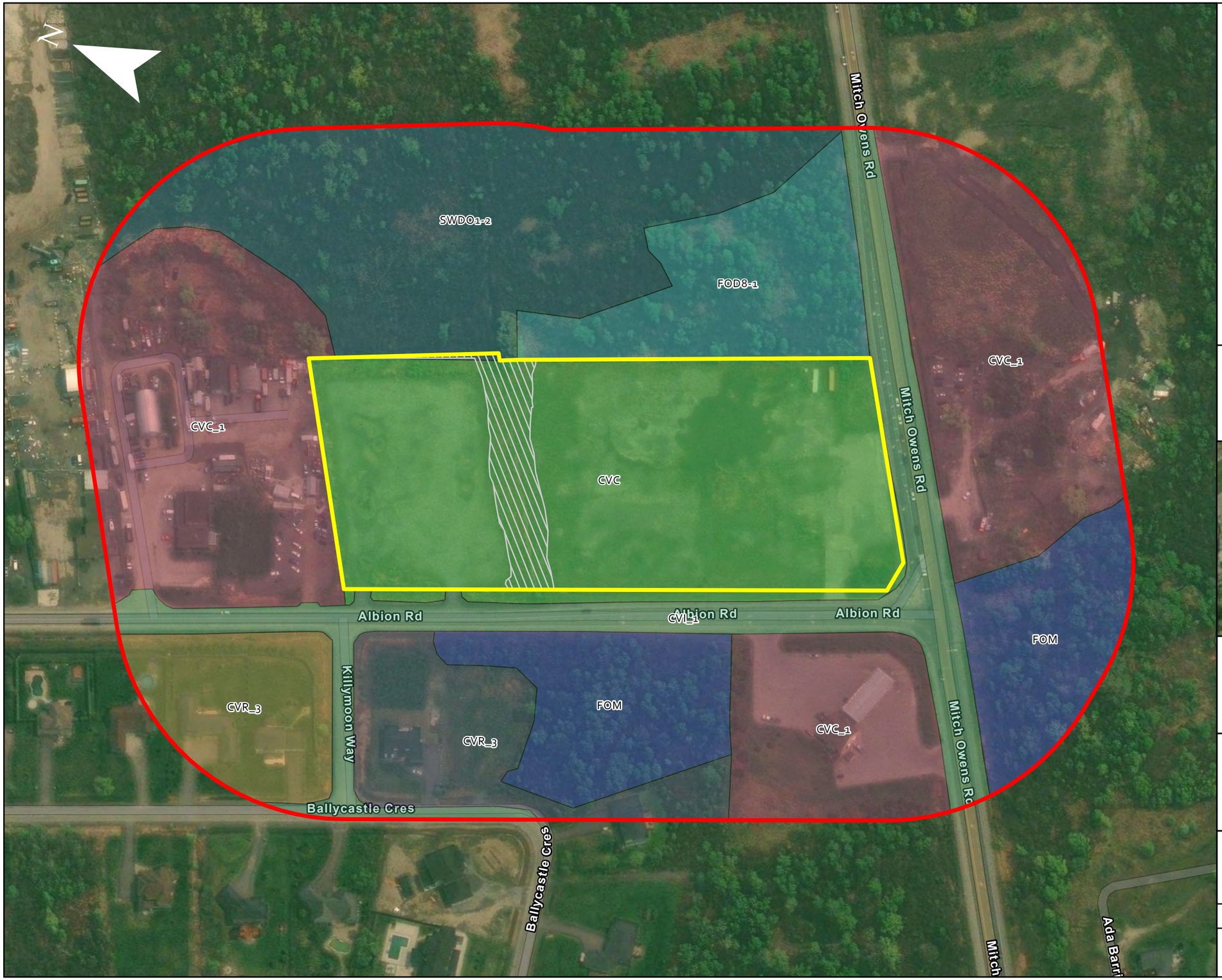
Vegetation Survey

The vegetation survey identified 74 vegetation species within the Survey Area. All native plant species identified within the Study Area were evaluated as being common within Ontario, having S-Ranks of S4 or S5. However, nearly 46% of the species identified are considered as non-native or invasive in Ontario. Vascular plant species observed within the Study Area are listed in **Appendix C.** No species at risk were encountered during field surveys.

Table 3: Summary of ELC communities within the Study Area.

ELC TYPE	TOTAL AREA WITHIN STUDY LIMITS	GENERAL COMMUNITY DESCRIPTION
Forest		
FOD8-1 Fresh-Moist Poplar Deciduous Forest	1.1	This area is at the south-eastern extent of the Study Area and is predominantly composed of species such as Trembling Aspen (*Populus tremuloides*), Crack Willow (*Salix euxina*), Green Ash (*Fraxinus Pensylvanica*), and Manitoba Maple (*Acer negundo*). Understory was composed of young Trembling Aspen's, Bebb's Willow (*Salix bebbiana*), Green Ash, Black Locust (*Robinia pseudoacacia*), Staghorn Sumac (R*hus typina*), with inclusions of Wild Red Raspberry (*Rubusidaeus spp. Strigosus*), and other cultural ground cover species.
FOD Deciduous Forest	1.8	This area to the west of Albion Road is composed mostly of Trembling Aspen, and Green Ash.
Swamp		
SWM4-1 Green Ash Organic Deciduous Swamp	2.7	This area is at the north-eastern extent of the Study Area, outside of the Subject Property and has areas with permanent water. The tree cover consists of mostly

		larger dead Green Ash and American Elm (*Ulmus americana*), as well as Silver Maple (*Acer saccharinum*), and Trembling Aspen. Understory was composed of Green Ash, Red-osier Dogwood (*Cornus sericea*), Speckled Alder (*Alnus incana*), with most of the wetland being permanently flooded, with inclusions of Sensitive Ferns (*Onoclea sensibilis*), Swamp Red Current (*Ribes triste*), Water Plantain (*Alisima triviale*) and Spotted Jewelweed (*Impatiens capensis*).
Cultural		
CVR_3 Single Family Residential	1.7	This area consists of single-family homes.
CVC Commercial Institutional **Inclusion of 0.2 ha of non-native hedge-row along HAR-2*	3.7	This area consists of an auto-body shop to the north of the Subject Property. It also includes the abandoned lots located at 5505 and 5545 Albion Road. Both lots have been cleared and graded with gravel. Re-vegetation of the lots has occurred, with the majority of the vegetation being non-native, cultural species such as Bladder Campion (*Silene vulgaris*), Common Burdock (*Arctium minus*), Common Dandelion (*Taraxacum officinale*), and Common Yarrow (*Achillea millefolium*). **An inclusion of a 0.2 ha riparian buffer associated with HAR-2 bisects the property, and is composed of young Black Locust, Green Ash, Manitoba Maple, and Staghorn Sumac.*
CVI_1 Roads	1.6	This area consists of residential streets, as well as Albion Road and Mitch Owens Drive.
CVC_1 Business Sector	5.2	This area consists of a gas station to the west of Albion Road, and a farm stand/chip truck to the south of Mitch Owens Drive.



Legend

- Subject Property
- Study Area (120m)

Ecological Land Classification

- Business Sector - CVC_1
- Commercial and Institutional - CVC
- Fresh Moist Poplar Deciduous Forest - FOD8-1
- Green Ash Organic Deciduous Swamp - SWDO1-2
- Mixed Forest - FOM
- Single Family Residential
- Single Family Residential - CVR_3
- Transportation - CVI_1
- White Cedar Organic Mixed Swamp - SWM4-1
- Non-native Hedgerow Inclusion (0.2 ha)

25 12.5 0 25 50 75 100 Meters

Scale: 1:2,000

Client:

W.O. Stinson & Sons Ltd.
5505 & 5545 Albion Road

Title:

5505 & 5545 Albion Road:
Ecological Land Classification

Prepared By:

ARCADIS | IBI GROUP

Project: 143219

Date: 2024-03-12

Figure: 5

5.3.2 Wetlands

The ELC survey summarized above was used to determine the extent and type of wetland based on the plant assemblage within limits of the Study Area. One wetland community was identified within the Study Area (**Figure 5**).

A detailed description of the vegetation communities can be found in **Table 3** above.

5.3.3 Woodlands

The Green Ash Deciduous Organic Mixed Swamp, and the Fresh-Moist Poplar Deciduous Forest meets the prerequisite woodland designation as set out in the Forestry Act, R.S.O 1990, c.F.26.

In reviewing aerial imagery on geoOttawa of the Study Area, the wooded community appears to be approximately 6.3 hectares in size in 1976, spanning into 5505 Albion Road. The imagery suggests the woodland, now referred to as the Green Ash Organic Deciduous Swamp, was present in a mature state. This suggests it likely over 60 years in age, and therefore are meets the minimum age and size criteria to be considered significant.

Based on the criteria above, the **Green Ash Organic Deciduous Swamp located within the Study Area is considered significant according to the City of Ottawa Significant Woodland Guidelines.**

5.3.4 Valleylands

No significant Valleylands were identified within the Study Area during surveys.

5.3.5 Significant Wildlife Habitat

Breeding bird, amphibian breeding, and bat echolocation surveys were conducted to establish baseline conditions within the Study Area.

Breeding Bird Survey

A total of 45 species were recorded during the surveys. A record of the bird species observed within the Study Area, and their conservation status can be found in **Appendix D.** Of the species recorded, the majority exhibited probable or confirmed breeding evidence. Most birds observed on-site are common in Ottawa and have generally secure populations within Ontario.

Based on surveys conducted by Arcadis, the Study Area contains suitable habitat conditions to support breeding birds common to Ottawa and eastern Ontario.

Amphibian Breeding Survey

In accordance with the Ecoregion 6E Criterion Schedule (MNRF, 2015b), three amphibian breeding surveys were completed to determine the presence of Amphibian Breeding Habitat for woodlands and wetlands within the Study Area. Woodland and wetland Amphibian Breeding Surveys were conducted in forest features with lowland depressions, as well as adjacent to shallow aquatic features that occurred within or in proximity to the 120 m Study Area.
Four stations were monitored on three separate occasions for frog calls, no amphibians were heard vocalizing at two of the monitoring stations. A summary of the calls can be found in **Table 4** below.

Table 4: Summary of breeding amphibian call surveys.

STATION ID #	SURVEY #	SPECIES	CALL LEVEL
AM-1	1	Spring Peeper	3
	2	Grey Tree Frog	1
		Green Frog	1
	3	Bull Frog	1
AM-2	1	None	N/A
	2	None	N/A
	3	None	N/A
AM-3	1	Spring Peeper	3
	2	Spring Peeper	1
		Green Frog	1
	3	Bull Frog	1
		Green Frog	1
AM-4	1	None	N/A
	2	None	N/A
	3	None	N/A

The wetland habitat at the northeastern extent of the Study Area, within the Green Ash Organic Deciduous Swamp Community, is associated with monitoring points AM-1 and AM-3. Based on the results of the amphibian surveys and general field observations in 2023, suitable woodland amphibian breeding habitat is present within the Green Ash Organic Deciduous Swamp Community. **Though breeding amphibians were observed during surveys, they do not meet the quantity or species diversity requirements for the habitat to be considered 'significant'.**

Candidate Maternity Bat Habitat and Acoustic Monitoring

Potential suitable maternity colony habitat was found to be located within the wooded area to the east of the Study Area. The habitat was outside of the Subject Property, and no formal habitat survey was conducted. Supplementary acoustic monitoring was conducted to confirm species present within the Study Area. The acoustic monitoring detected a total of two species within the Study Area these included Eastern Red Bat (*Lasiurus borealis*), and one SAR bat, the Northern Myotis (*Myotis septentionalis*).

Based on the results of the acoustic surveys, it is likely that the Green Ash Organic Deciduous Swamp within the Study Area provides some suitable maternity colony habitat and foraging habitat.

Habitat for Species of Conservation Concern

Potential habitat for four SCC were confirmed during the ELC assessment. Results of suitable habitat and the presence/absence of SCC within the Study Area include:

Midland Painted Turtle: no Midland Painted Turtles were observed directly during field surveys; however, the adjacent wetland may provide general habitat.

Monarch: no Monarchs were observed directly during field surveys, however the abandoned commercial lot contained Milkweed. It is likely that the Study Area contains limited breeding and feeding habitat for Monarch.

Snapping Turtle: no Snapping Turtles were observed directly during field surveys; however, the adjacent wetland may provide general habitat.

Wood Thrush: no Wood Thrush were observed directly during field surveys; however, the adjacent forests may provide general habitat.

Incidental Observations of Significant Wildlife Habitat

No incidental significant wildlife habitat was found within the Study Area.

5.4 Species at Risk

The following summarizes the Species at Risk results from the 2023 field investigations:

- **Black Ash -** A search for Black Ash trees was completed during field studies. No Black Ash trees were located within the Study Area.
- **Butternut -** A search for Butternut trees was completed during field studies. No Butternut trees were located within the Study Area.
- **SAR Bats -** One SAR bat species (Northern Myotis) was identified during an acoustic monitoring survey. Some marginal roosting habitat for SAR bats was observed in the Green Ash Organic Deciduous Swamp community found in the Study Area. **No SAR bat habitat was observed within the Subject Property.**

5.5 Trees

Overall, 13 tree species were noted within the Study Area, and are listed below. Tree species marked with an asterisk (*) are non-native or invasive.

- **American Elm** (*Ulmus americana*)
- **Amur Maple** (*Acer tataricum ssp. ginnala*)*
- **Balsam Poplar** (*Populus balsamifera*)
- **Bebb's Willow** (*Salix bebbiana*)
- **Black Locust** (*Robinia pseudoacacia*)*
- **Crack Willow** (*Salix euxina*)
- **Green Ash** (*Fraxinus pensylvanica*)
- **Glossy Buckthorn** (*Frangula alnus*)*
- **Manitoba Maple** (*Acer negundo*)
- **Silver Maple** (*Acer saccharinum*)
- **Trembling Aspen** (*Populus tremuloides*)
- **Weeping Willow** (*Salix babylonica*)
- **White Birch** (*Betula papyrifera*)

Though woodlots are present within the Study Area, they are not located within the Subject Property at the time of evaluation. It is noted that there was approximately 0.2 ha of trees that have been removed from 5505 Albion Road.

5.6 Incidental Wildlife

In addition to incidental bird observations listed in Section 6.3.5, the following incidental wildlife observations were made during site visits:

- Evidence of beaver dams and damage to trees.

6 Description of the Proposed Project

Stinson is proposing to undertake the development of a commercial development, consisting of an administrative building, and a vehicle service station, within would include a lubricant storage area at the southern edge of 5545 Albion Road. The development is limited to the property mapped as 5545 Albion Road. The site plan is illustrated in **Figure 6.**

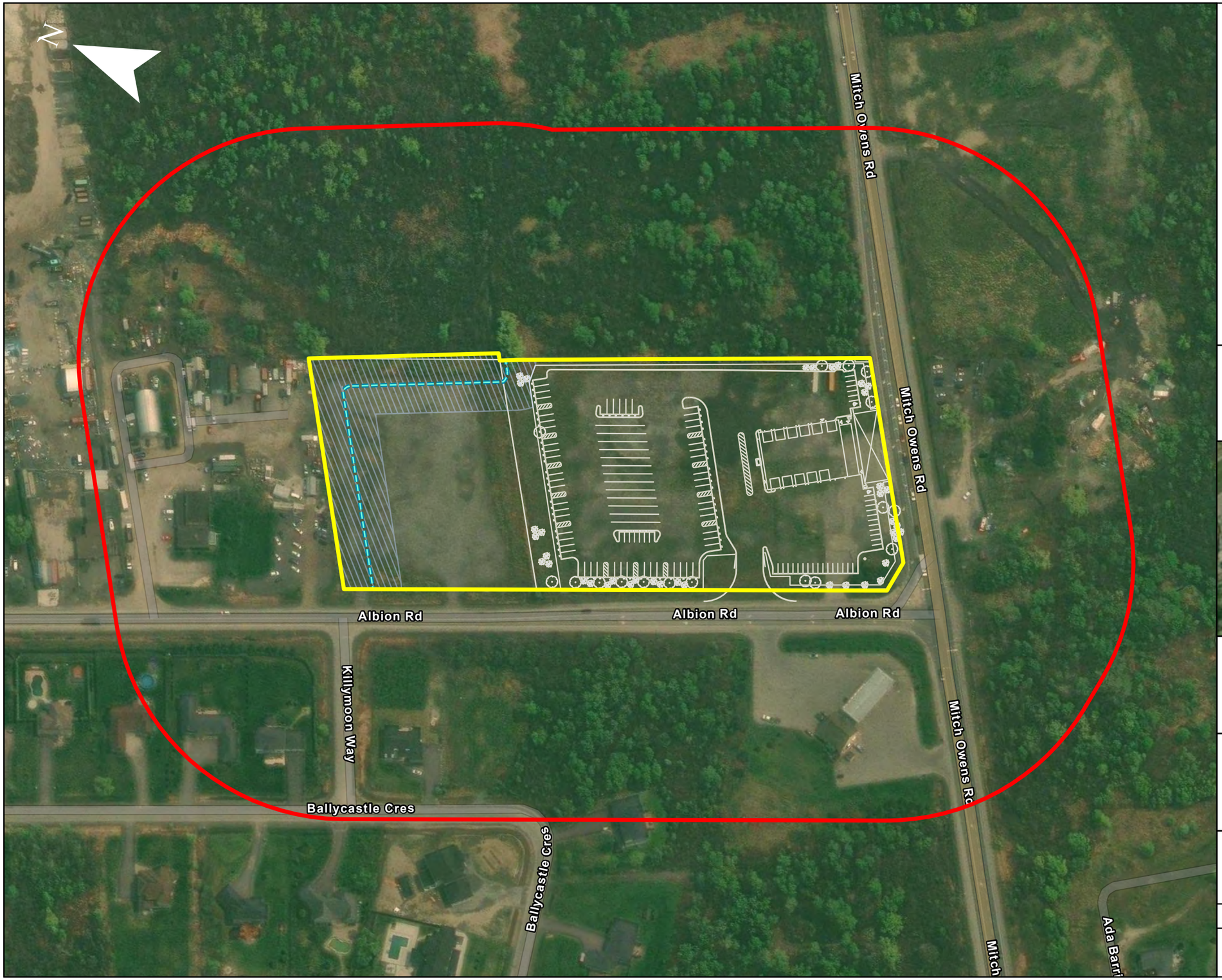
The proposed re-development of the property located at 5545 Albion Road includes the re-alignment of the channel that currently bisects 5505 Albion Road and 5545 Albion Road. The re-alignment would see the channel extending along the eastern property line towards the northern limits of the property, where it would then drain west into the existing roadside ditch (**Figure 4**).

It is understood based on discussions with the City of Ottawa and the RVCA that this EIS is being written with the assumption that a treed buffer exists along the headwater drainage feature bisecting the Subject Property. Assumptions have been made when evaluating the impacts on the aquatic environment within the Subject Property.

6.1 Construction Activities

It is assumed the development of this property will include the following major project components:

- Surveying and staking out the development
- Clearing, excavation and grading property to accommodate construction
- Installation of infrastructure related to on-site stormwater measures
- Re-alignment of channel along the eastern and northern property lines
- Excavation to accommodate underground utilities including water, wastewater, sewer, gas, and hydro
- Construction of buildings, driveways and access roads
- Paving parking areas and access roads
- Landscaping
- On-going usage and maintenance



Legend

- Subject Property
- Study Area (120m)
- Realigned Naturalized Watercourse (February 15, 2024)
- Habitat Restoration Corridor (30 m)
- Site Plan (September 11, 2023)

25 12.5 0 25 50 75 100 Meters

Scale: 1:2,000

Client:

W.O. Stinson & Sons Ltd.
5505 & 5545 Albion Road

Title:

5505 & 5545 Albion Road:
Site Plan and Proposed Channel

Prepared By:

ARCADIS | IBI GROUP

Project: 143219

Date: 2024-03-12

Figure: 6

7 Impact Assessment and Mitigation

The following section describes the anticipated environmental impacts associated with the proposed development and the general measures that should be considered to mitigate the associated impacts on natural heritage features within and abutting the developable property.

The impact assessment and associated mitigations consider both short-term, or temporary impacts (i.e., construction activities) as well as permanent impacts associated with the re-development of the commercial and industrial amenities. Anticipated impacts have been illustrated in **Figure 7**.

As noted, anticipated impacts assume that the mapped wetland and forest within 5505 Albion Road are still present at the time of the evaluation.

7.1 Aquatic Habitat and Headwater Drainage Features

Based on the proposed Draft Plan of Development and expected construction activities, approximately **120 m of HAR-2 and 85 m of HAR-3 will be re-aligned within a 30m corridor** to accommodate the proposed development. The new channel will run north and west, parallel to the property line, discharging into the roadside ditch along Albion Road (See **Figure 7**).

The permanent realignment of the feature would allow for the creation of approximately 205 m of natural channel and an associated vegetated corridor. This realignment of HR-2 will include native vegetation plantings, natural habitat structures, and some sinuosity within a 30 m corridor to enhance the overall ecological function of this reach. HAR-3 will no longer receive upstream flows but may be retained as a roadside ditch. The proposed 30 m corridor, along with other mitigation requirements, provides this feature with a suitable setback to protect the ecological functions within. Including amphibian breeding and habitat for small littoral fish.

Given that the original channel associated with HAR-2 provided 2,040 square meters of riparian habitat (assuming a conservative 17 m of riparian vegetation and trees on the north side of the feature). And HAR-3 was functionally a roadside ditch conveying flows from HAR-2 with a HDF management recommendation of “Mitigation”, allowing for it to be entombed within a stormwater system. **The proposed creation of 6,150 square meters of habitat through this 205 m watercourse realignment provides a 3:1 net increase in habitat within the site and on the landscape.**

Based on this, the realignment of the channel is expected to significantly improve the ecological functions of the aquatic habitat and terrestrial habitat within the Study Area. **It is important to note that a beaver dam is located within the channel at the eastern property line, and the removal of the beaver dam could have potential impacts on the wetlands, and HAR-1 upstream of the property**.

Due to the nature of the proposed land use, potential impacts on the watercourses may include a moderate risk of spills which can release hydrocarbons and other contaminants associated with fleet vehicles, and minor fleet vehicle maintenance into the adjacent aquatic habitat. Any spills can have a significant and long-lasting negative impact on aquatic life. Furthermore, there is potential for contamination of groundwater where stormwater/grey water is allowed to infiltrate into the water table via permeable surfaces throughout the development.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ The re-alignment of reach HAR-2 shall be within a 30 m Habitat Restoration Corridor (See **Figure 7**). A habitat restoration and landscape plan shall be completed for the realigned watercourse. This plan should include;
    - o a natural channel design including instream habitat features,

- detailed planting plans for native species,
- invasive species management recommendations,
- measures of success, and associated post construction monitoring requirements.

This plan should be completed as part of detailed design by a qualified Landscape Architect, in collaboration with a qualified Ecologist.

- ✓ A post construction monitoring plan shall be developed to evaluate modifications to HAR-2 and HAR-3. The monitoring plan shall assess the modified/enhanced channel three times over a five-year period (12 months post completion, 3 years post completion, and 5 years post completion).
- ✓ Due to the nature of the proposed development, stormwater management, site grading, and quality/quantity control measures should be designed and implemented to ensure that no hydrocarbons or other contaminants enter the re-aligned watercourses (i.e., Oil Grit Separators or equivalent will be required).
- ✓ All stormwater draining from the property shall be isolated from the adjacent aquatic systems. To ensure that no hydrocarbons or contaminants enter the adjacent aquatic system, or can infiltrate into the ground water table, all surfaces within the development shall be made of impermeable materials. Stormwater systems shall use curbs, and all surface stormwater associated with the impermeable surfaces should be treated as noted above.
- ✓ A permit from the RVCA under On. Reg 174/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses will be required in relation to the works involving HAR-2 and HAR-3. An application shall be submitted once a detailed plan has been confirmed to address channel modifications and stormwater management.

Proposed Mitigation Measures – Construction Implementation

The following general mitigation measures are recommended to address impacts on the aquatic habitat adjacent to the development area:

- ✓ Heavy-duty silt fencing (OPSD 219.110) and / or other equivalent erosion and sediment control measures shall be installed around the perimeter along the edge of the work area to clearly demarcate the development area and prevent erosion and sedimentation into adjacent habitats, specifically near the wetland. Erosion and sediment control measures should be monitored weekly to ensure they are functioning properly and if issues are identified shall be dealt with within 48 hours of notification.
- ✓ Detailed Erosion and Sediment Control (ESC) Plans shall be developed during detailed design, specifically for any channel works.
    - The ESC plan associated with HAR-2 and HAR-3 shall specifically address dewatering requirements and other measures to prevent sedimentation and deleterious substances from entering the watercourse, or the wetland.
    - Silt fencing shall be installed around the perimeter of all natural heritage features including woodlands and HDF features to demarcate the development area and prevent erosion and sedimentation.
    - It is recommended that any de-watering occurring throughout active construction of the channel shall be directed to a sediment bag in a vegetated area at least 30 m from an active watercourse to allow for overland sheet flow.

- Channels shall be stabilized and vegetated prior to the re-instatement of a watercourse.
- Monitoring of all ESC measures shall be done on a weekly basis by a qualified professional. Or after all significant precipitation events. Damage to these measures shall be repaired immediately.

- ✓ No machinery shall enter the watercourses at any time.
- ✓ No in-water works shall occur within the warm-water timing window (March 15 – May 31).
- ✓ Re-fueling of machinery (i.e., chainsaws, heavy machinery, etc.) shall be conducted at approved locations within the Site, at least 30 m from any waterbodies.
- ✓ Stockpiling of excavated material should not occur outside the delineated work area. If stockpiling is to occur outside of this area, double-row silt fencing, and straw bales shall be used to contain any spoil piles to prevent sedimentation into adjacent areas.
- ✓ A spill response plan shall be developed by the contractor and implemented as required.

Proposed Mitigation Measures – Post-Construction

Monitoring shall occur as prescribed in the developed monitoring plan at the following intervals post-construction: 12 months, 3 years and 5 years.

With the successful implementation of the mitigation measures outlined above, impacts from the proposed development on the aquatic environment is expected to be permanent, but negligible in the context of the greater watershed due to the limited function and connectivity of aquatic habitat features of the impacted drainage features.

7.2 Natural Heritage Features

7.2.1 Vegetation Communities

To accommodate the construction of the proposed industrial and commercial development, including parking and access roads, and re-aligned channel, portions of the Study Area and associated vegetation communities will be cleared and graded. It is to be noted that at the time of evaluation by Arcadis, that approximately 0.2 ha of what is assumed to be Poplar Deciduous Forest has been cleared and graded. The following section assumes the impacts of these removals.

The impacts associated with this clearing will include:

— The permanent loss of or disturbance to vegetation is approximately 2.4 ha of cultural-type vegetation within 5545 Albion Road, as well as approximately 1.1 ha of cultural-type vegetation, and approximately 0.2 ha of Poplar Deciduous Forest within 5505 Albion Road to facilitate the re-alignment of the headwater drainage feature. This disturbance is directly associated with the clearing required to accommodate the Project.

— Accidental damage or loss of trees and other vegetation features because of site alteration or construction activities.

— The permanent loss of habitat for wildlife.

— Changes in natural drainage.

— Decreased biodiversity, reduced number of species, or abundance of species.

— Erosion and sedimentation into adjacent vegetation communities.

— Permanent loss of native vegetation due to increased potential for non-native and invasive vegetation species.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Landscaping plans shall incorporate naturalized features with native vegetation seeding and plantings, specifically in relation to the re-alignment of the headwater drainage feature. For example, native wetland species should be planted within the setback of the realigned channels to enhance wetland habitat.
- ✓ Where development abuts a naturalized feature 'Forest Edge Management Plan' shall be developed during detailed design to protect adjacent natural heritage features. This shall include a monitoring plan to monitor the establishment of non-native and invasive species.
- ✓ Development and implementation of invasive species management plan for vegetation removals and landscaping, specifically to address abundant species such as Buckthorn.
    - o Management plan should be consistent with federal standards under the federal Invasive alien species strategy (Environment Canada, 2004)
- ✓ The impact on native vegetation should be considered when determining the precise location of the proposed re-alignment of the headwater drainage feature in advance of detailed design.

Proposed Mitigation Measures – Construction Implementation

The following general mitigation measures are recommended to address impacts on the terrestrial environment adjacent to the development area:

- ✓ Orange snow fencing or other suitable security fencing shall be used to delineate the construction limits from the adjacent habitat of the existing Natural Heritage Feature. This will prevent encroachment of construction activities into the adjacent natural feature. This fencing should be monitored weekly to ensure it is functioning properly. Any deficiency in the fencing shall be dealt with within 48 hours of notification.
- ✓ Erosion and sediment control plan shall be implemented to prevent sedimentation outside of work areas, specifically within the adjacent natural heritage features.
- ✓ Landscaping plans shall make use of appropriate native species to offset the loss of species and biodiversity from vegetation removals.
- ✓ Invasive species to be removed shall be done so using species-appropriate methods to prevent further contamination and comply with invasive species legislation.
- ✓ Machinery will arrive on site in a clean condition and will be free of fluid leaks, invasive species, and noxious weeds.
- ✓ Machinery shall remain within the limit of development and shall be stored in an area that is isolated from the Natural Heritage Feature to ensure that no deleterious substances enter the adjacent waterbodies.
- ✓ All excess construction material will be removed from site and the area restored with seeding of native species upon project completion as required.

Proposed Mitigation Measures – Post-Construction

- ✓ Naturalized features such as plantings associated with the re-aligned headwater drainage feature, and native tree and shrub planting shall be monitored according to the developed monitoring plans.

With the successful implementation of the mitigation measures outlined above, impacts from the proposed development on vegetation communities is expected to be permanent, but negligible in the context of the greater watershed due to the limited function and quality of the impacted vegetation.

7.2.2 Wetlands

To accommodate the construction of the proposed industrial and commercial development, including re-aligned channel, portions of the Study Area and associated vegetation communities will be cleared and graded. A Green Ash Organic Deciduous Swamp is present to the east of 5505 Albion Road, adjacent to the proposed new channel.

A beaver dam is located within the headwater drainage feature at the eastern property limit. The removal of the beaver dam could have potential impacts on the wetlands upstream of the property, potentially draining them. This may also have impacts on wetlands, as well as properties downstream through an increase in flows and sedimentation.

Section 4.8 of the City of Ottawa's Official Plan establishes a target of *no net loss of forest cover and wetlands in its rural area*; therefore, it is recommended that the beaver dam remain in-situ.

Impacts to the wetlands by removing the beaver dam include:

- The permanent loss of, or disturbance to approximately 2.7 ha of wetland upstream of the Subject Property
- Decreased biodiversity, reduced number of species, or abundance of species.
- Erosion and sedimentation of downstream waterbodies due to increase in flows.
- Property damage to properties downstream due to increase in flows.
- Permanent loss of habitat for wildlife dependent upon this wetland.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ The re-alignment of reach HAR-2 will include a 30 m Habitat Restoration Corridor. This corridor will buffer the wetland features on the adjacent property from impacts associated with he proposed development.
- ✓ The design should plan to incorporate the retention of the beaver dam. If the retention is not feasible, an alternative method to control water flow (i.e. a weir system) shall be implemented to maintain water levels within the adjacent wetland.
- ✓ Due to the nature of the proposed development, stormwater management, site grading, and quality control measures should be designed to ensure that no contaminants enter the re-aligned watercourses.
- ✓ A permit from the RVCA under On. Reg 174/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses will be required in relation to the works involving HAR-2 and HAR-3. An application shall be submitted once a detailed plan has been confirmed to address channel modifications and stormwater management.
- ✓ A post construction monitoring plan shall be developed to evaluate impacts on the adjacent wetland. The monitoring plan shall assess the modified/enhanced channel, as well as the wetland three times over a five-year period (12 months post completion, 3 years post completion, and 5 years post completion).
- ✓ Landscaping plans for the re-aligned drainage feature shall incorporate naturalized features with native vegetation seeding and plantings. For example, native wetland species should be planted within the setback of the realigned channels to enhance wetland habitat.
- ✓ Where development abuts a naturalized feature 'Forest Edge Management Plan' shall be developed during detailed design to protect adjacent natural heritage features. This

shall include a monitoring plan to monitor the establishment of non-native and invasive species.

- ✓ Development and implementation of invasive species management plan for vegetation removals and landscaping, specifically to address abundant species such as Buckthorn.
    - Management plan should be consistent with federal standards under the federal Invasive alien species strategy (Environment Canada, 2004)

Proposed Mitigation Measures – Construction Implementation

The following general mitigation measures are recommended to address impacts on the terrestrial environment adjacent to the development area:

- ✓ Heavy-duty silt fencing (OPSD 219.110) and / or other equivalent erosion and sediment control measures shall be installed around the perimeter along the edge of the work area to clearly demarcate the development area and prevent erosion and sedimentation into adjacent habitats, specifically near the wetland. Erosion and sediment control measures should be monitored weekly to ensure they are functioning properly and if issues are identified shall be dealt with within 48 hours of notification.
- ✓ Detailed Erosion and Sediment Control (ESC) Plans shall be developed during detailed design, specifically for any channel works.
    - The ESC plan associated with HAR-2 and HAR-3 shall specifically address dewatering requirements and other measures to prevent sedimentation and deleterious substances from entering the wetland.
    - It is recommended that any de-watering occurring throughout active construction of the channel shall be directed to a sediment bag in a vegetated area downstream of the wetland.
    - Monitoring of all ESC measures shall be done on a weekly basis by a qualified professional. Or after all significant precipitation events. Damage to these measures shall be repaired immediately.
- ✓ No machinery shall enter the watercourses at any time.
- ✓ No in-water works shall occur within the warm-water timing window (March 15 – May 31).
- ✓ Re-fueling of machinery (i.e., chainsaws, heavy machinery, etc.) shall be conducted at approved locations within the Site, at least 30 m from any waterbodies.
- ✓ Stockpiling of excavated material should not occur outside the delineated work area. If stockpiling is to occur outside of this area, double-row silt fencing, and straw bales shall be used to contain any spoil piles to prevent sedimentation into adjacent areas.
- ✓ A spill response plan shall be developed by the contractor and implemented as required.
- ✓ Orange snow fencing or other suitable security fencing shall be used to delineate the construction limits from the adjacent habitat of the existing Natural Heritage Feature. This will prevent encroachment of construction activities into the adjacent natural feature. This fencing should be monitored weekly to ensure it is functioning properly. Any deficiency in the fencing shall be dealt with within 48 hours of notification.
- ✓ Erosion and sediment control plan shall be implemented to prevent sedimentation outside of work areas, specifically within the adjacent natural heritage features.
- ✓ Landscaping plans shall make use of appropriate native species to offset the loss of species and biodiversity from vegetation removals.

- ✓ Invasive species to be removed shall be done so using species-appropriate methods to prevent further contamination and comply with invasive species legislation.
- ✓ Machinery will arrive on site in a clean condition and will be free of fluid leaks, invasive species, and noxious weeds.
- ✓ Machinery shall remain within the limit of development and shall be stored in an area that is isolated from the Natural Heritage Feature to ensure that no deleterious substances enter the adjacent waterbodies.
- ✓ All excess construction material will be removed from site and the area restored with seeding of native species upon project completion as required.

Proposed Mitigation Measures – Post-Construction

Naturalized features such as plantings associated with the re-aligned headwater drainage feature, and native tree and shrub plantings adjacent to the wetland shall be monitored according to the developed monitoring plans.

With the successful implementation of the recommendations and mitigation measures outlined above, impacts from the proposed development on the adjacent wetland is expected to be temporary and are expected to have negligeable impact.

7.2.3 Woodlands

Construction activities for site facilities are not anticipated to directly impact Significant Woodlands within the Study Area. However, there may be negligible impacts associated with the re-alignment of the headwater drainage channel. The re-alignment of reach HAR-2 will include a 30 m Habitat Restoration Corridor. This corridor will buffer the woodland on the adjacent property from impacts associated with he proposed development. No direct impacts are anticipated.

The impacts to woodlands include:

- The permanent loss of, or disturbance to approximately 0.2 ha of riparian woodland habitat associated with **HAR-2**.
- Decreased biodiversity, reduced number of species, or abundance of species.
- Erosion and sedimentation of wetland.
- Increased risk of invasive species establishment along edges of disturbed woodlands

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Landscaping plans shall incorporate naturalized features with native vegetation seeding and plantings, specifically in relation to the re-alignment of the headwater drainage feature. For example, native wetland species should be planted within the setback of the realigned channels to enhance wetland habitat.
- ✓ 'Forest Edge Management Plan' shall be developed during detailed design to protect adjacent natural heritage features. This shall include a monitoring plan to monitor the establishment of non-native and invasive species.
- ✓ Development and implementation of invasive species management plan for vegetation removals and landscaping, specifically to address abundant species such as Buckthorn.
    - o Management plan should be consistent with federal standards under the federal Invasive alien species strategy (Environment Canada, 2004)
- ✓ The impact on native vegetation should be considered when determining the precise location of the proposed re-alignment of the headwater drainage feature in advance of detailed design.

Proposed Mitigation Measures - Construction Stage

The following general mitigation measures are recommended to address impacts on the woodlands within the proposed development blocks:

- ✓ General project landscaping plans should consider use of appropriate native species to offset loss of species, biodiversity, and canopy cover from vegetation removals; and,
- ✓ General mitigation for vegetation removals as described in Section 8.2.1.

Proposed Mitigation Measures – Post-Construction

Naturalized features such as tree plantings associated with the re-aligned headwater drainage feature, and native tree and shrub plantings adjacent to the wetland shall be monitored according to the developed monitoring plans.

It is anticipated that the clearing of woodlands within the subject property will result in a marginal reduction of woodland habitat within the property, although this will be offset by the creation of approximately 0.6 ha of riparian buffer. This will in turn increase native plant diversity and a reduction in non-native vegetation.

7.2.4 Significant Wildlife Habitat

BREEDING BIRDS

It is expected that the removal and disturbance to forests, thickets, and cultural meadow within the proposed development area will result in a loss of potential nesting and foraging habitat for birds. The following direct and indirect impacts on breeding birds are a possible result of the proposed development:

- — The permanent loss of nesting and foraging habitat will likely result from the clearing of vegetation within the property.
- — Potential physical harm to birds or birds' nests during clearing and construction activities.
- — Reduced composition, distribution, and abundance of a bird species within the area.
- — 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. Potential measures may include the following:

- ✓ General building design should incorporate the City of Ottawa's bird-friendly design guidelines where possible (City of Ottawa, 2022).

Proposed Mitigation Measures – Construction Implementation

The following mitigation measures are intended to address potential impacts to breeding birds resulting from the proposed development:

- ✓ Clearing of vegetation should be avoided during the breeding bird season, between April 15th and August 15th. Should any clearing be required during the breeding bird season, nest searches shall be conducted by a qualified person must be completed 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 in accordance with the federal Migratory Birds Convention Act (MBCA) (Government of Canada, 1994).

- ✓ A qualified bird rehabilitation centre should be contacted if any birds are injured or found injured during construction activity. Injured birds should be transported to a qualified for care with a small donation of money to help pay for the care (a local facility is the *Ottawa Valley Wild Bird Care Centre*).*Ottawa Valley Wild Bird Care Centre*).
- ✓ The construction area should be pre-stressed prior to any vegetation clearing within the proposed development area.
- ✓ Other mitigation measures outlined in the *Protocol for Wildlife Protection during Construction* (City of Ottawa, 2022) should be considered prior to construction of the proposed development.

With the successful implementation of the recommended mitigation, a temporary site-wide loss of marginal breeding and foraging habitat for birds is expected. This will be offset by planting native trees, shrubs, and application of native seed mix within the proposed channel realignment.

BAT MATERNITY COLONY SWH

Based on the extent of grading, it is anticipated that **no bat maternity habitat will be impacted.**

The following impacts on bat maternity roost habitat are possible:

- — Temporary loss of candidate foraging area within headwater drainage channels and open habitat from vegetation removals and construction activities.
- — Accidental displacement, injury, or death of bats which may be using woodlands as temporary roosting habitat during roosting period.

Proposed Mitigation Measures – Construction Implementation

- ✓ Enhanced tree planting measures should be implemented into the landscape design. Planted trees may provide suitable roosting habitat upon reaching maturity.
- ✓ Clearing of vegetation should be avoided during the general active and maternity roosting periods for bats (May 1st to October 15th).

With the successful implementation of the mitigation measures outlined above, it is anticipated that the proposed development will not have an impact to bats and bat habitat within the Study Area.

HABITAT FOR SPECIES OF CONSERVATION CONCERN

No Species of Conservation Concern were encountered on-site during field investigations and candidate habitat for four other Species of Conservation Concern was identified within the Study Area.

No candidate habitat for Species of Conservation Concern were identified within the Subject Property.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Development and implementation of invasive species management plan, specifically addressing dog strangling vine (*Cynanchum rossicum*), should be implemented to limit risk of harmful plants to Monarch and Species of Conservation Concern birds.

Proposed Mitigation Measures – Construction Implementation

- ✓ Clearing of vegetation should be avoided between April 15th and September 15th, to avoid potential physical harm to Monarch and Species of Conservation Concern birds during breeding and foraging seasons; and,

- ✓ Construction areas should be pre-stressed during clearing to allow Species of Conservation Concern to safely leave the area.

Proposed Mitigation Measures – Post-Construction

- ✓ Pesticide use should be limited or avoided, when possible, in landscape maintenance to reduce risk of exposure to Monarch.

With the successful implementation of the mitigation measures outlined above, it is anticipated that there will be no impacts to Species of Conservation Concern.

7.2.5 Species at Risk

SAR BATS

It is expected that the proposed development will have limited negative impact to SAR bats within the Study Area. No cavity trees will be impacted by the development, and disturbance to cultural meadow habitat will remove marginal foraging habitat, and the impacts will be non-limiting.

- — Temporary loss of candidate foraging area within headwater drainage channels and open habitat from vegetation removals and construction activities.
- — Accidental displacement, injury, or death of bats which may be using woodlands as temporary roosting habitat during roosting period.

Proposed Mitigation Measures – Construction Implementation

- ✓ Tree planting should be implemented into the landscape design. Planted trees may provide suitable roosting habitat upon reaching maturity.
- ✓ Clearing of vegetation should be avoided during the general active and maternity roosting periods for bats (May 1st to October 15th).

With the successful implementation of the mitigation measures outlined above, it is anticipated that the proposed development will result in a negligible impact to SAR bats and SAR bat habitat within the Study Area.

7.3 Incidental Wildlife

The proposed development is expected to have limited negative impact on local wildlife due to the general loss of natural habitat and direct impacts related to construction activities. Potential impacts to wildlife resulting from the proposed development include the following:

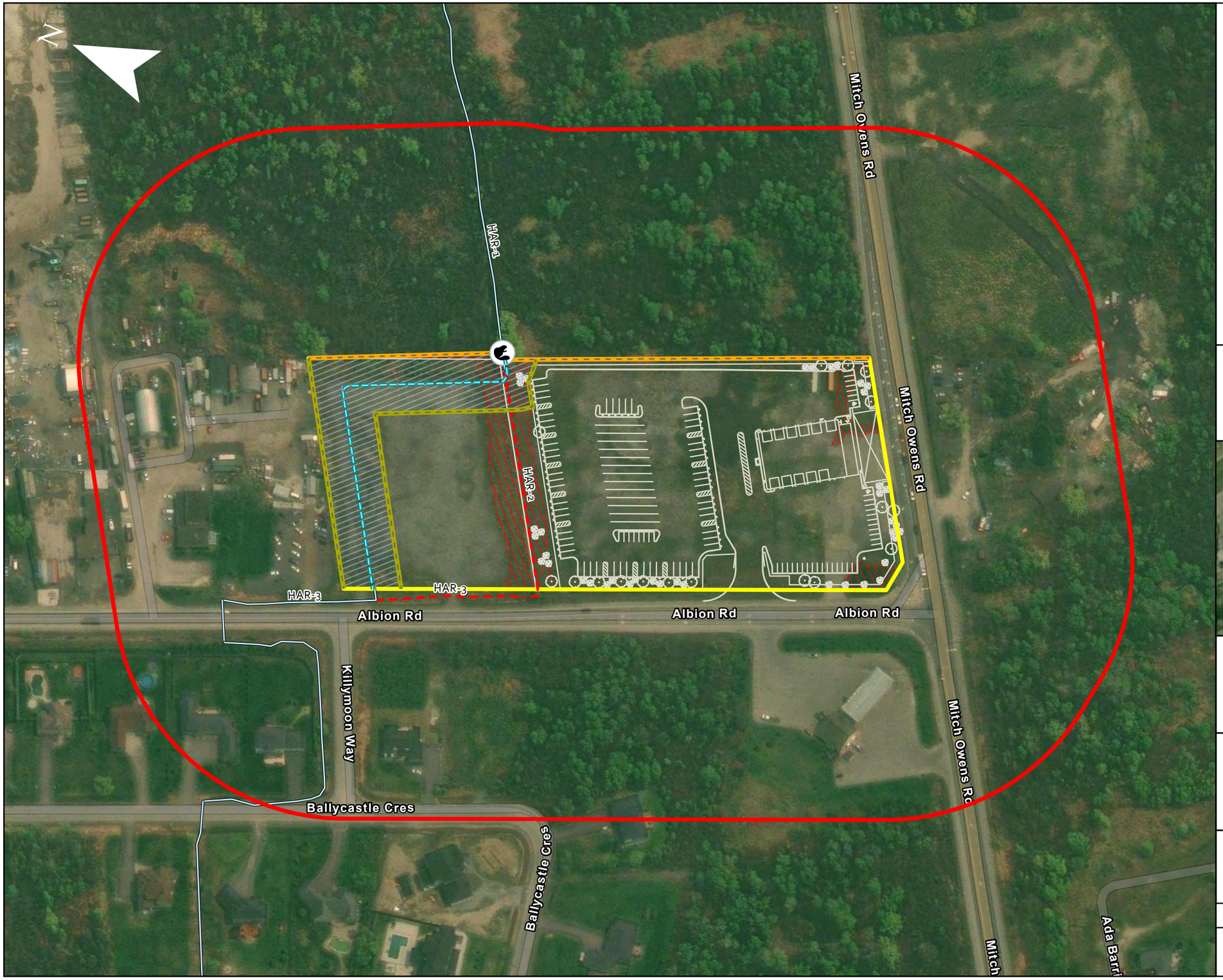
- — Potential loss of wetland habitat associated with the removal of a beaver dam to accommodate the re-alignment of headwater drainage features.
- — Displacement, injury, or death resulting from contact with heavy equipment during clearing and grading activities.
- — Loss of general natural habitat suitable for the life processes of common urban and rural wildlife.
- — Disturbance to wildlife resulting from noise associated with construction activities, particularly during breeding periods.
- — Conflict between wildlife and humans following development, including mortality from vehicles.

Proposed Mitigation Measures – Planning and Design Stage

The best practices outlined in the *Protocol for Wildlife Protection during Construction* (City of Ottawa, 2022) should be followed during all construction activities associated with the development. The following measures are consistent with the protocol:

- ✓ Pre-stress the area on a regular basis leading up to construction to encourage wildlife to leave the area before construction starts. Other recommendations for pre-stressing are outlined in the *Protocol for Wildlife Protection during Construction* (City of Ottawa, 2022);
- ✓ Orange snow fencing should be installed around the perimeter of the work area to clearly demarcate the development area and prevent wildlife from entering the construction zone. Fencing should be monitored regularly to ensure they are functioning properly and if issues are identified should be dealt with promptly.
- ✓ Perimeter fencing should not prevent wildlife from leaving the site during clearing activities by clearing the area prior to installing the fence.
- ✓ Wildlife located within the construction area will be relocated to an area outside of the development into an area of appropriate habitat by a qualified professional, as necessary.
- ✓ Avoid vegetation clearing during sensitive times of year for local wildlife (e.g. spring and early summer);
- ✓ Construction crews working on site should be educated on local wildlife and take appropriate measures for avoiding wildlife.
- ✓ A qualified wildlife rehabilitation centre should be contacted if any animals are injured or found injured during construction. Injured animals should be transported to an appropriate wildlife rehabilitation centre for care with a small donation of money to help pay for the care (a local facility is the Rideau Valley Wildlife Sanctuary).

With the mitigation measures outlined above, it is anticipated that the proposed development will result in negligeable loss to wildlife habitat.



Legend

- Beaver Dam
- Subject Property
- Study Area (120m)
- Tree Protection Fencing
- Sediment Erosion Control Fencing
- Site Plan (September 11, 2023)
- Realigned Naturalized Watercourse (February 15, 2024)
- Anticipated Headwater Drainage Feature Removal
- Watercourse
- Anticipated Vegetation Removal
- Habitat Restoration Corridor (30 m)

25 12.5 0 25 50 75 100 Meters

Scale: 1:2,000

Client:

W.O. Stinson & Sons Ltd.
5505 & 5545 Albion Road

Title:

5505 & 5545 Albion Road:
Anticipated Impacts
and Mitigation

Prepared By:

ARCADIS | IBI GROUP

Project: 143219

Date: 2024-03-12

Figure: 7

8 Cumulative Impacts

The proposed development is in rural Ottawa 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, industrial, and resource extraction land uses, with most of the impacts to the larger natural heritage system occurring during area development within the last 30 years. The Subject Property itself had previously been used for commercial and industrial use, which has been discontinued – allowing for the regeneration of cultural vegetation.

Based on field assessments and available information, the removal of the natural heritage features within the subject property will have a negligible negative impact on the natural heritage system should mitigation measure be implemented. Potential cumulative impacts to the natural heritage system resulting from the proposed development include the following:

- Potential loss of upstream wetland habitat associated with the removal of a beaver dam. Therefore, decreasing available habitat for wildlife dependent upon this wetland.
- Increase in impervious surfaces increasing runoff and watercourse contamination potential.
- Increase in biodiversity and habitat quality through the implementation of a landscape plan that includes native vegetation, specifically as it relates to channel re-alignment.

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:

- ✓ The design should plan to incorporate the retention of the beaver dam. If the retention is not feasible, an alternative method to control water flow (i.e., a weir system) shall be implemented to maintain water levels within the adjacent wetland.
- ✓ Landscaping plans should intend to compensate for the removal of natural heritage features and vegetation.

9 Summary and Conclusions

This report provides an evaluation of the anticipated impacts associated with the construction and long-term occupation of the proposed commercial development located at 5545 and 5505 Albion Road (**Figure 1**). The environmental impacts and mitigation are based off field investigations completed in 2023, and a review of available desktop and background information.

Notable observations during Arcadis' field investigations include the presence of significant woodlands within the eastern extent of the Study Area and are associated with the headwater drainage features. Additionally, HDFs were noted bisecting the Study Area from east, to west, as well as along the western edge of the Subject Property. The significant woodland, as well as HAR-1 and HAR-2 are protected according to the City of Ottawa's Official Plan (2022).

The SAR study found confirmed presence of one SAR (Northern Myotis). The Northern Myotis was recorded along the edge of the forested community adjacent to the wetland, although there was only one (1) recording of this species during the acoustic surveys.

Green Ash Deciduous Organic Swamp woodlands are present within the Study Area and are considered to be significant based on size and age criteria, however these sections of woodland are not predicted to be impacted by construction activities. The poplar forest is not considered to be significant due to the size and age and are therefore exempt from the significant woodlands policy. The woodlands within the Study Area show signs of disturbance due to the presence of invasive Buckthorn, as well as an abundance of non-native, cultural type vegetation such a Black Locust. Furthermore, there is widespread evidence of Emerald Ash Borer throughout the woodlands.

The ELC survey noted ten vegetation communities, plus an additional two that are associated with urban and cultural uses. All the ELC communities identified are common within Ottawa. The vegetation survey results indicate an abundance of non-native species within the property in concentrated areas, invasive and non-native species comprise approximately 16 percent of the vegetation species recorded.

Twenty-three species of trees were recorded in the Study Area. Trees that are predicted to be impacted are generally young to mid-aged (average DBH <10 cm). The most abundant species are primarily Buckthorn, Trembling Aspen, and Manitoba Maple.

Evidence of tree pests (Emerald Ash Borer) are evident throughout the Study Area. Three (3) distinctive trees were recorded during the tree survey, all of which are predicted to be removed.

The field evaluation suggests that natural features provide some connectivity to adjacent natural features, however the linkage does not have any significant function, likely serving as general movement corridors for urban wildlife.

Based on this evaluation, there are opportunities for habitat compensation and enhancement, particularly along the edge of forest, and within parking lots for employment lands. This includes the following:

— Enhanced tree planting and reforestation along the forest edge of the Green Ash Swamp. Additional tree planting will increase diversity and canopy cover, reduce invasive species abundance, and provide habitat for urban wildlife associated with the re-aligned headwater drainage feature.

The mitigation and compensation measures described in this report have been developed to avoid or limit negative environmental impacts associated with the proposed development. Based on the information available, it is our opinion that this proposed development, on what is functionally an infill lot on disturbed land, makes sound use of land which provides only marginal ecological value. This study was completed by Lindsay Jackson, HBSc., with technical and field assistance provided by; Alex Zeller, MSc., and Brittany Semmler. HBSc. Resumes of key staff are included in **Appendix F**. The results and findings of this study have been reported without bias or prejudice. The conclusions of this study are based on our own professional opinion, substantiated by the findings of this study, and have not been influenced in any way.

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APPENDIX A

Species of Conservation Concern and Species at Risk Table

Table A1 Species of Conservation Concern with potential to occur within the Study Area.

COMMON NAME	SCIENTIFIC NAME	HABITAT DESCRIPTION	CONSERVATION STATUS			SOURCE	HABITAT PRESENT WITHIN STUDY AREA?	RATIONALE
			Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank			
Birds								
Grasshopper Sparrow	*Ammodramus savannarum*	Well-drained grassland or prairie with low cover of grasses, taller weeds on sandy soil; hayfields or weedy fallow fields; uplands with ground vegetation of various densities; perches for singing; requires tracts of grassland > 10 ha.	SC	SC	S5	OBBA	No	Study Area is largely forested or regenerating non-native cultural meadow within an abandoned commercial lot.
Eastern Wood-Peeee	*Contopus virens*	Open, deciduous, mixed or coniferous forest; predominated by oak with little understory; forest clearings, edges; farm woodlots, parks.	SC	SC	S5	OBBA	Yes	Open deciduous forest within the Study Area, However, this habitat is outside the limit of development therefore no impacts are anticipated.
Purple Martin	*Progne subis*	open, trees areas such as farmland, parks, yards, marshes; usually near large bodies of water; colonial; nests in tree cavities, cliff ledges; most common in nest boxes; requires open space for foraging; prefers trees>15 cm dbh.	NA	NA	S3S4	OBBA	No	No suitable open area for foraging, or suitable nesting habitat present within the Study Area.
Wood Thrush	*Hylocichla mustelina*	Carolinian and Great Lakes-St. Lawrence forest zones; undisturbed moist mature deciduous or mixed forest with deciduous sapling growth; near pond or swamp; hardwood forest edges; must have some trees higher than 12 m.	THR	SC	S4B	OBBA	Yes	Moist mature deciduous forest are within the Study Area. However, this habitat is outside the limit of development therefore no impacts are anticipated.
Herpetozoa								
Snapping Turtle	*Chelydra serpentina*	Permanent, semi-permanent freshwater; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites; may nest at some distance from water; often hibernate together in groups in mud under water; home range size ~28 ha.	SC	SC	S4	ON	**Yes**	Permanent freshwater occurs within the Study Area. However, this habitat is outside the limit of development therefore no impacts are anticipated. Gravel substrate within the Subject Property could provide adequate nesting habitat.
Insects								
Monarch	*Danaus plexippus*	The habitat is typically a combination of field and forest and provides the butterflies with a location to rest. Caterpillars eat exclusively milkweed and adults require the nectar of wildflowers to feed.	END	SC	S2	BA	**Yes**	Abandoned commercial lots may provide habitat for Monarch.

Table A2 Species at Risk with potential to occur within the Study Area.

COMMON NAME	SCIENTIFIC NAME	HABITAT DESCRIPTION	CONSERVATION STATUS			SOURCE	POTENTIAL FOR HABITAT WITHIN STUDY AREA	RATIONALE
			Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank			
Birds								
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	S3	OBBA	**No**	No grassland meadow habitat is present withing the Study Area.
Eastern Meadowlark	*Sturnella magna*	Open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas >10 ha in size	THR	THR	S5	OBBA	**No**	No grassland meadow habitat is present withing the Study Area.
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; they frequently move from aquatic habitat to terrestrial habitats; hibernates in bogs; not readily observed.	END	THR	S3	ON	No	Study Area does not provide connectivity to hibernating habitat. The Study Area does not contain shallow water marshes, bogs, ponds, or coves of larger lakes.
Vascular Plants								
Butternut	*Juglans cinerea*	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. Often grows in sunny openings and near forest edges.	END	END	S2	iNat	**Yes**	Moist, well-drained soils near streams may present candidate habitat for Butternut trees.
Mammals								
Little Brown	*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	S3	AMO	**Yes**	Study Area contains deciduous forests with large diameter trees with cavities suited for roosting, and forest edges for feeding habitat.
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	S3	AMO	**Yes**	Study Area contains deciduous forests with large diameter trees with cavities and loose bark, suited for roosting, and forests for feeding habitat.
Tri-colored Bat	*Perimyotis subflavus*	Open woods near water; roosts in trees, cliff crevices, buildings or caves; hibernates in damp, draft-free, warm caves, mines or rock crevices.	END	END	S3	AMO	**Yes**	Study Area contains open woods near water suited for roosting and foraging.

APPENDIX B

Headwater Drainage Feature Recommendations and Results Table

Table A3 Headwater Drainage Feature Assessment survey data.

DATE	REACH NAME	AIR TEMP (C)	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)
SURVEY 1																	
28/04/2023	HAR-1	10	Freshet	Defined Natural Channel	Surface Flow Minimal	Moderate	7.1	1500	10	Organics	Wetland	Wetland	Meadow	Wetland	Forest	Wetland	Forest
28/04/2023	HAR-2	10	Freshet	Defined Natural Channel	Standing Water	Moderate	2.7	170	3	Silt	Scrubland	None	Scrubland	None	None	None	None
28/04/2023	HAR-3	12	Freshet	Channelized or constrained	Standing Water	Substantial	3	260	1.9	Organics	None	None	None	None	None	None	None
SURVEY 2																	
01/06/2023	HAR-1	20	Baseflow	Defined Natural Channel	Surface Flow Minimal	Substantial	10	840	10	Organics	Wetland	Wetland	Forest	Wetland	Forest	Wetland	Forest
01/06/2023	HAR-2	20	Baseflow	Defined Natural Channel	Standing Water	Substantial	1.6	180	3	Organics	Scrubland	Scrubland	Scrubland	None	None	None	None
01/06/2023	HAR-3	20	Baseflow	Channelized or constrained	Standing Water	Substantial	3.2	180	1.9	Organics	None	Meadow	Meadow	Meadow	None	None	None

Table A4 Headwater Drainage Feature: Management recommendation results.

Drainage Feature Segment	Step 1		Step 2	Step 3	Step 4	HDFA Management Recommendation
	Hydrology	Modifiers	Riparian	Fish Habitat	Terrestrial Habitat	
HAR-1	**Important function:** Contains water throughout the year as standing surface water with minimal flows. This is a result of wetland presence upstream, excess water presence due to beaver dam that slows flows to downstream reach.	*Feature appears to collect flows from an area of open water upstream that may be associated with an active quarry operation. Flows are significantly higher than downstream reach due to the presence of a beaver dam.*	**Important function:** Riparian conditions are dominated by wetland and forest with important function to the north and south.	**Contributing function:** Open water upstream features are isolated and associated with active quarry operations and are not fish habitat.	**Important function:** Associated with wetland with breeding amphibians.	**Protection**
HAR-2	**Valued function:** Contains water throughout the year as standing surface water with minimal flows. This is a result of wetland presence upstream, limited water presence due to beaver dam that slows flows to downstream reach.	*Flows are significantly lower than upstream reach due to the presence of a beaver dam. Stream becomes channelized.*	**Important function:** Riparian conditions are dominated by wetland and forest with important function to the north and south. * To note that the Riparian conditions were to assume that the 15 m treed buffer to the north of the channel was still present.	**Contributing function:** Low connectivity to downstream habitat, multiple fish barriers present.	**Limited function:** Associated with a 15 m vegetated buffer, however it doesn't directly connect two habitats due to the presence of Albion Road to the west. *To note that the Terrestrial Habitat conditions were to assume that the 15 m treed buffer to the north of the channel was still present.	**Conservation**
HAR-3	**Valued function:** Contains water throughout the year as standing surface water with minimal flows fed by snowmelt, precipitation from adjacent lands, and minimal surface flow contributed from wetland upstream.	*Flows are significantly lower than upstream reach due to the presence of a beaver dam. Stream segment passes through culvert to the north in a channelized road ditch.*	**Limited function:** Riparian conditions are associated with roadside ditch, and limited vegetation.	**Contributing function:** Low connectivity to downstream habitat, multiple fish barriers present.	**Limited function:** No terrestrial habitat present.	**Mitigation**

APPENDIX C

Vegetation List

COMMON NAME	SCIENTIFIC NAME	CONSERVATION STATUS			COEFFICIENT OF CONSERVATISM	COEFFICIENT OF WETNESS
		Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank[1]		
Alsike Clover	*Trifolium hybridum*	---	---	SNA	---	3
American Elm	*Ulmus americana*	---	---	S5	3	-3
Amur Maple	*Acer tataricum ssp. ginnala*	---	---	SNA	---	5
Arctic Sweet Coltsfoot	*Petasites frigidus*	---	---	S5	8	-3
Balsam Poplar	*Populus balsamifera*	---	---	S5	4	-3
Bebb's Willow	*Salix bebbiana*	---	---	S5	4	-3
Black Locust	*Robinia pseudoacacia*	---	---	SNA	---	3
Bladder Campion	*Silene vulgaris*	---	---	SNA	---	5
Blue Vervain	*Verbena hastata*	---	---	S5	4	-3
Broad-leaved Cattail	*Typha latifolia*	---	---	S5	1	-5
Canada Violet	*Viola canadensis*	---	---	S5	6	3
Chinese Mustard	*Brassica juncea*	---	---	SNA	---	5
Common Burdock	*Arctium minus*	---	---	SNA	---	3
Common Dandelion	*Taraxacum officinale*	---	---	SNA	---	3
Common Milkweed	*Asclepias syriaca*	---	---	S5	0	5
Common Mullein	*Verbascum thapsus*	---	---	SNA	---	5
Common Plantain	*Plantago major*	---	---	SNA	---	3
Common Ragweed	*Ambrosia artemisiifolia*	---	---	S5	0	3
Common Reed	*Phragmites australis*	---	---	S4?	0	-3
Common Valerian	*Valeriana officinalis*	---	---	SNA	---	3
Common Vetch	*Vicia sativa*	---	---	SNA	---	3
Common Yarrow	*Achillea millefolium*	---	---	SNA	---	3
Crack Willow	*Salix euxina*	---	---	SNA	---	0
Field Bindweed	*Convolvulus arvensis*	---	---	SNA	---	5
Field Horsetail	*Equisetum arvense*	---	---	S5	0	0
Field Mustard	*Brassica rapa*	---	---	SNA	---	5
Field Sow-thistle	*Sonchus arvensis*	---	---	SNA	---	3
Fowl Bluegrass	*Poa palustris*	---	---	S5	5	-3
Garden Bird's-foot Trefoil	*Lotus corniculatus*	---	---	SNA	---	3
Glossy Buckthorn	*Frangula alnus*	---	---	SNA	---	0
Goldenrod spp	*Solidago spp.*	---	---	---	---	---

Gray Dogwood	*Cornus racemosa*	---	---	S5	2	0
Green Ash	*Fraxinus pennsylvanica*	---	---	S4	3	-3
Large Bird's-foot Trefoil	*Lotus uliginosus*	---	---	SNA	---	---
Lesser Duckweed	*Lemna minor*	---	---	S5?	5	-5
Manitoba Maple	*Acer negundo*	---	---	S5	0	0
Meadow Hawkweed	*Pilosella caespitosa*	---	---	SNA	---	5
Nannyberry	*Viburnum lentago*	---	---	S5	4	0
Narrow-leaved Cattail	*Typha angustifolia*	---	---	SNA	---	-5
Northern Bedstraw	*Galium boreale*	---	---	---	7	0
Northern Water-plantain	*Alisma triviale*	---	---	S5	1	-5
Orange Hawkweed	*Pilosella aurantiaca*	---	---	SNA	---	5
Ostrich Fern	*Matteuccia struthiopteris*	---	---	S5	5	0
Oxeye Daisy	*Leucanthemum vulgare*	---	---	SNA	---	5
Prickly Gooseberry	*Ribes cynosbati*	---	---	S5	4	3
Prickly Lettuce	*Lactuca serriola*	---	---	SNA	---	3
Prickly Russian Thistle	*Salsola tragus*	---	---	SNA	---	3
Purple Loosestrife	*Lythrum salicaria*	---	---	SNA	---	-5
Red Osier Dogwood	*Cornus sericea*	---	---	S5	---	---
Reed Canary Grass	*Phalaris arundinacea*	---	---	S5	0	-3
Riverbank Grape	*Vitis riparia*	---	---	S5	0	0
Rough Bedstraw	*Galium asprellum*	---	---	S5	6	-5
Rough Fleabane	*Erigeron strigosus*	---	---	S5	4	3
Rough Hawkweed	*Hieracium scabrum*	---	---	S4	7	5
Sensitive Fern	*Onoclea sensibilis*	---	---	S5	4	-3
Silver Maple	*Acer saccharinum*	---	---	S5	5	-3
Speckled Alder	*Alnus incana*	---	---	S5	6	-3
Spotted Jewelweed	*Impatiens capensis*	---	---	S5	4	-3
Staghorn Sumac	*Rhus typhina*	---	---	S5	1	3
Swamp Red Currant	*Ribes triste*	---	---	S5	6	-5
Trembling Aspen	*Populus tremuloides*	---	---	S5	2	0
Virginia Creeper	*Parthenocissus quinquefolia*	---	---	S4?	6	3

Water Horsetail	*Equisetum fluviatile*	---	---	S5	7	-5
Weeping Willow	*Salix babylonica*	---	---	SNA	---	---
White Birch	*Betula papyrifera*	---	---	S5	2	3
White Clover	*Trifolium repens*	---	---	SNA	---	3
White Meadowsweet	*Spiraea alba*	---	---	S5	3	-3
White Sweet-clover	*Melilotus albus*	---	---	SNA	---	3
Wild Carrot	*Daucus carota*	---	---	SNA	---	5
Wild Parsnip	*Pastinaca sativa*	---	---	SNA	---	5
Wild Red Raspberry	*Rubus idaeus ssp. strigosus*	---	---	S5	2	3
Woolly Blue Violet	*Viola sororia*	---	---	S5	4	0

[1]S-Rank (Provincial Status (NHIC))	S1:	Critically Imperiled – Critically imperiled in the province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
	S2:	Imperiled – Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
	S3:	Vulnerable – Vulnerable in the nation or sprovince due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
	S4:	Apparently Secure – Uncommon but not rare; some cause for longterm concern due to declines or other factors.
	S5:	Secure – Common, widespread, and abundant in the province.
	SU:	Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
	SNA:	Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
[2]Coefficient of Conservatism *Oldham, M. J., W. D. Bakowsky and D. A. Sutherland. 1995. Floristic Quality Assessment System for Southern Ontario. Natural Heritage Information Centre, Ministry of Natural Resources. Peterborough, Ontario.*	Coefficient of Conservatism. Rank of 0 to 10 based on plants degree of fidelity to a range of synecological parameters: (0-3) Taxa found in a variety of plant communities; (4-6) Taxa typically associated with a specific plant community but tolerate moderate disturbance; (7-8) Taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance; (9-10) Taxa with a high fidelity to a narrow range of synecological parameters.	
[3]Coefficient of Wetness *Oldham, M. J., W. D. Bakowsky and D. A. Sutherland. 1995. Floristic Quality Assessment System for Southern Ontario. Natural Heritage Information Centre, Ministry of Natural Resources. Peterborough, Ontario.*	-5	Obligate Wetland - Occurs almost always in wetlands under natural conditions (99% probability)
	-4	Facultative Wetland - Usually occurs in wetlands, but occasionally found in non-wetlands (67-99%)
	-3	
	-2	
	-1	Facultative - Equally likely to occur in wetlands or non-wetlands (34-66%)
	0	
	1	
	2	Facultative Upland - Occasionally occurs in wetlands, but usually occurs in non-wetlands (1-33%)
	3	
	4	
	5	Upland - Occurs almost never in wetlands under natural conditions (<1%)

APPENDIX D

Bird List

COMMON NAME	SCIENTIFIC NAME	CONSERVATION STATUS		
		Federal (SARA, 2002)	Provincial (ESA, 2007)	S-Rank[1]
American Goldfinch	*Carduelis tristis*	N/A	N/A	S5B
American Redstart	*Setophaga ruticilla*	N/A	N/A	S5
American Robin	*Turdus migratorius*	N/A	N/A	S5B
Baltimore Oriole	Icterus galbula	N/A	N/A	S5B
Blue Jay	*Cyanocitta cristata*	N/A	N/A	S5
Common Yellowthroat	*Geothlypis trichas*	N/A	N/A	S5B
European Starling	*Sturnus vulgaris*	N/A	N/A	SNA
Great Blue Heron	*Ardea herodias*	N/A	N/A	S5
Gray Catbird	*Dumetella carolinensis*	N/A	N/A	S5B
Great-crested Flycatcher	*Myiarchus crinitus*	N/A	N/A	S5B
Hairy Woodpecker	*Picoides villosus*	N/A	N/A	S5
Killdeer	*Charadrius vociferus*	N/A	N/A	S5B
Mourning Dove	*Zenaida macroura*	N/A	N/A	S5
Northern Flicker	*Colaptes auratus*	N/A	N/A	S5B
Pileated Woodpecker	*Dryocopus pileatus*	N/A	N/A	S4S5
Purple Finch	*Carpodacus purpureus*	N/A	N/A	S5B
Red-winged Blackbird	*Agelaius phoeniceus*	N/A	N/A	S5B
Red-eyed Vireo	*Vireo olivaceus*	N/A	N/A	S5B
Song Sparrow	*Melospiza melodia*	N/A	N/A	S5B
Swamp Sparrow	*Tachycineta bicolor*	N/A	N/A	S5B
Veerry	*Sitta carolinensis*	N/A	N/A	S5
Yellow Warbler	*Setophaga petechia*	N/A	N/A	S5B

[1]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. SNA indicates species is not native to province.

APPENDIX E

Photo Record

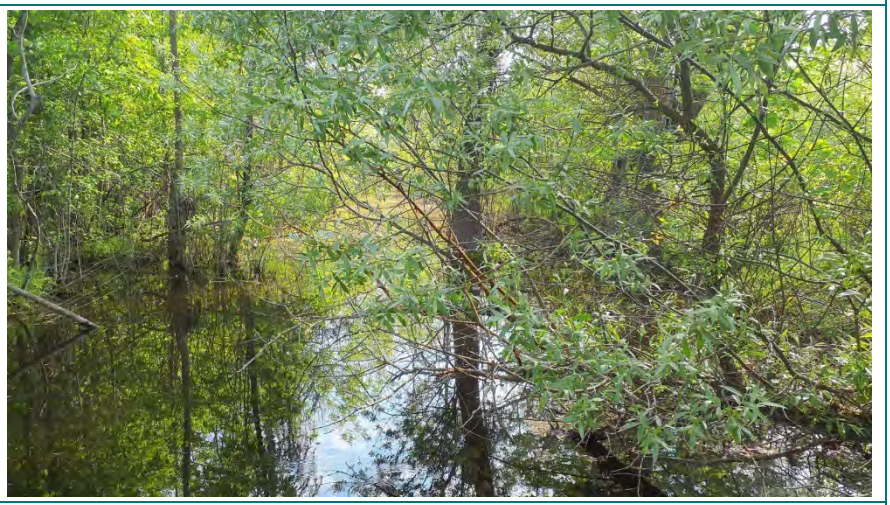
Photo 1: ***April 28, 2023*** Notes: Headwater Drainage Feature Segment HAR-1, facing upstream of the beaver dam.	
Photo 2: ***June 1, 2023*** Notes: Headwater Drainage Feature Segment HAR-1, facing upstream of the beaver dam.	
Photo 3: ***April 28, 2023*** Notes: Headwater Drainage Feature Segment HAR-2, facing downstream	

Photo 4: ***June 1, 2023*** Notes: Headwater Drainage Feature Segment HAR-2, facing downstream.	
Photo 5: ***April 28, 2023*** Notes: Headwater Drainage Feature Segment HAR-3, facing downstream.	
Photo 6: ***June 1, 2023*** Notes: Headwater Drainage Feature Segment HAR-3, facing upstream.	

Photo 7: ***April 28, 2023*** Notes: Green-Ash Deciduous Organic Swamp	
Photo 8: ***June 1, 2023*** Notes: Green-Ash Deciduous Organic Swamp	
Photo 9: ***June 1, 2023*** Notes: Beaver dam located at the eastern property limit	

Photo 10: ***June 1, 2023*** Notes: Subject Property facing southeast (5545 Albion Road)	
Photo 11: ***June 1, 2023*** Notes: Subject Property facing northeast (5505 Albion Road)	

APPENDIX F

Curriculum Vitae

Alex Zeller M.SC

Associate | Manager, Natural Systems

Alexander is a Project Manager and Senior Ecologist with 21 years of experience in terrestrial and aquatic ecology, open space planning, and natural heritage authorizations. With a broad experience in both Aquatic and Terrestrial ecology, Alex has led, managed, and supported many natural heritage studies within the City of Ottawa and across Canada. These studies have included; Environmental Impact Studies, Municipal and Federal Environmental Assessments, Species at Risk permitting, wetland evaluations, post – construction monitoring, Community Design Plans, and other natural heritage projects associated with land development, transportation and other sectors.

Key Information

Education & Qualifications

- Master of Science in Biology, Lakehead University, Thunder Bay, ON/CA, 2007
- Honours Bachelor Environmental Science, Lakehead University, Thunder Bay, ON/CA, 2003

Experience

- **2021–Present**
  IBI Group Professional (Canada) Inc., Ottawa, ON/CA, Natural System, Associate – Manager
- **2018–2021**
  WSP, Ottawa ON/CA, Senior Ecologist, Environment
- **2013–2018**
  Dillion Consulting Limited, Ottawa, ON/CA, Associate
- **2006-2013**
- Dillion Consulting Limited, Ottawa, ON/CA, Ecologist

Years of experience

21

Project Experience

Land Development

East Expansion Lands Natural Heritage Screening

Minto Communities (2022-Present)

Project manager and lead biologist for a natural heritage screening of a 260-ha parcel of land in east Ottawa. These lands were brought into the urban boundary for the purposes of residential land development. Field surveys included ELC and botanical survey, breeding birds, amphibians call survey, SAR bat acoustic screening, Snake visual encounter survey, Bobolink and eastern Meadowlark Survey, headwater drainage feature assessment, butternut search, and incidental wildlife. An opportunities and constraints report were prepared to assist in the master planning of this new subdivision.

Brown Lands Environmental Impact Statement

Regional Group (2022 – Present)

Project Manager and Lead Ecologist. An Environmental Impact statement and an Environmental Impact Statement and Tree Conservation Report for a 23-ha development in Almonte, Ontario. This study was completed in support of plan of subdivision for a residential development. Species at Risk, headwater drains, and wetlands were managed through this process. Wetland enhancement and aquatic habitat design is ongoing.

Phases 12, 13.2, 14, 15, 16, 17, and 18; Environmental Impact Statement

Riverside South Development Corporation (2014 – Present)

Project Manager and Lead Biologist. A series of Environmental Impact Statements and Tree Conservation Reports for a several primarily residential developments in south Ottawa. Terrestrial and aquatic environments were evaluated, and impacts assessed for each development. Species at Risk and DFO fisheries permitting was required for a several of the development phases. Mitigation measures and management recommendations were developed to address the identified environmental impacts associated with the proposed development.

Project Experience Continued

Tunney's Pasture

Canada Lands Company (2023 – Present)

Lead Ecologist responsible for the preparation of an Environmental Impact Statement for a re-development site in Ottawa. This project involved both CLC and Public Services and Procurement Canada (PSPC) working together to develop a mixed used development while managing the ecological and landscape constraints, and opportunities. Species at Risk were the primary consideration managed during this study.

EIS Peer Review Services

Township of Addington Highlands (2023 – Present)

Ecologist responsible for ongoing peer review services for Environmental Impact Studies (EIS) and EIS Terms of References submitted to the township in support of planning and development applications. EIS's were reviewed to ensure compliance with prevailing policy and legislation, to confirm adherence to industry best-practices, and confirm established survey protocols were followed.

Wateridge Village EIS & TCR; Phase 6, 7, & 8

Canada Lands Company (2022 – Present)

Lead Ecologist responsible for the preparation of an Environmental Impact Statement and Tree Conservation Report for the re-development of Wateridge Village in Ottawa. Retaining natural heritage features and functions was a priority for this project. This included significant tree retention, LID measures, and the inclusion of habitat features (e.g., bat roosts, pollinator habitat, etc.) throughout the design of the community. Our ecology team collaborated with landscape architecture, stormwater design engineers, planners, civil engineering, to promote ecologically responsible design.

Phase 7, 8, & 9 – SAR Permit Implementation and Environmental Monitoring

KNL Developments (2017 – Present)

Project Manager and Lead Biologist. Responsible for the management and implementation of one of the most complex Species at Risk (SAR) permits issued in Ontario as well as the general natural heritage monitoring, and consultation associated with this 145-ha residential development in west Ottawa. Tasks for this project have included establishing habitat creation plans, coordinating the installation of turtle exclusion fences and turtle nests habitat areas, coordination of environmental monitoring and species surveys, facilitating DFO fisheries authorizations, design of habitat compensation features, preparing tree protection plans, consultation with relevant agencies and stakeholders, and all associated reporting and documentation.

470 Tremblay Road, Ottawa

Canada Lands Company (2019 – 2021)

Lead Ecologist responsible for the preparation of an Environmental Impact Statement and Tree Conservation Report for a brownfield re-development in Ottawa. This project involved both CLC and Public Services and Procurement Canada (PSPC) working together to develop a mixed used development while managing the ecological constraints and opportunities. Species at Risk and wetland constraints were the primary features managed during this study.

3252 Navan Road, Ontario

Claridge Homes (2020)

Project Manager and Lead Ecologist. An Environmental Impact statement and Tree Conservation Report for a development in Ottawa. This study was completed in support of plan of subdivision for a residential development. Species at Risk, headwater drains, and wetlands were managed through this process.

291 Carling Avenue, Ottawa

Canada Lands Company (2018)

Project Manager and Lead Ecologist. An Environmental Impact Statement and Tree Conservation Report for a development in downtown Ottawa. Urban trees, invasive species were addressed in this study.

760 River Road, Ottawa

Claridge Homes Group of Companies (2019)

Project Manager and Lead Ecologist. An Environmental Impact statement and an Environmental Impact Statement and Tree Conservation Reports for a development in south Ottawa. This study was completed in support of plan of subdivision for a residential development. Species at Risk habitat and constraints associated with a watercourse were the key features managed through these studies.

Quinns Pointe Screening, Ottawa

Minto Communities (2021)

Lead Ecologist. Responsible for natural heritage approvals associated with a residential subdivision. Scope of work included SAR surveys, vegetation survey, tree survey, significant wildlife habitat assessment, avoidance and mitigation recommendations, reporting, and general agency consultation.

Avalon Isgar EIS & TCR, Ottawa

Minto Communities (2018 – 2021)

Lead Ecologist. Responsible for natural heritage approvals associated with a residential subdivision.

Scope of work included SAR surveys, vegetation survey, tree survey, significant wildlife habitat assessment, avoidance and mitigation recommendations, reporting, and general agency consultation.

323 Jockvaile Road EIS & TCR, Ottawa

Minto Communities (2018)

Manager and Lead Ecologist. An Environmental Impact statement and a tree conservation report for a proposed residential development in the south Orleans community. These reports were completed following the City of Ottawa guidelines.

Barrhaven South Community Design Plan

Minto Communities (2015 – 2017)

Project Manager and Lead Biologist. Multi – disciplined consulting team undertaking the Barrhaven South Community Design Plan. Responsible for managing the natural heritage related studies, reports, and public consultation contributions. Also responsible for consulting with stakeholders to ensure the community design plan meets their expectations and requirements.

Potter's Key Development, Environmental Impact Statement

Minto Communities (2013 – 2021)

Project Manager and Lead Biologist. An Environmental Impact Statement, Tree Conservation Report, Species at Risk Permitting (Blandings Turtle), DFO Fisheries approvals, and on – going environmental monitoring for a development. The study was completed as part of an application for residential development.

800 Eagleson Road EIS and TCR

Ironclad Developments (2018)

Project Manager and Lead Ecologist. Responsible for completing an Environmental Impact Statement and Tree Conservation Study for a development in Ottawa West. The proposed project will consist of a six – story rental apartment building with approximately 150 units with access from Eagleson Road.

Infrastructure

Standing Agreement Offer (SOA)

Infrastructure Ontario (2022 – Present)

In September 2022, Arcadis was awarded a five-year Standing Agreement Offer (SOA) to provide planning and supporting services to Infrastructure Ontario (IO), on an as-needed basis. As part of a multi-disciplinary development feasibility study issued under the SOA. Provided senior guidance and technical review for the ecology team responsible for field investigations, acquiring necessary authorizations, approvals and permits, and providing environmental awareness training and environmental monitoring services.

Energy Services Acquisition Program (ESAP)

Public Services and Procurement Canada (PSPC) (2019 – 2021)

Lead Project Ecologist. Responsible for overseeing all ecological studies, reporting requirements, agency consultation, and associated permitting and authorizations required to facilitate the design and construction of 14 km of district heating/cooling pipeline and associated plants.

Centre Block Rehabilitation Project

Public Services and Procurement Canada (PSPC) (2018 – 2021)

Lead Project Ecologist. Responsible for all ecological studies, development and management mitigation and compensation measures, reporting requirements, and agency consultation required to facilitate the project on Parliament Hill in Ottawa.

Restoration and stabilization of the Parliament Hill escarpment

National Capital Commission (2021)

Lead Ecologist responsible for assessing the ecological impacts of slope stability interventions and working within the multi-disciplinary team to develop the restoration plan for the base of the escarpment. This included the assessment and management of SAR Butternut trees.

Confederation Line Extension Light Rail Transit

City of Ottawa in Public / Private Partnership (2019 – 2021)

Lead Ecologist. Responsible for the implementing the established management recommendations and facilitating the outstanding permitting requirements to accommodate detail design phase of the project.

West Transitway Extension, Phase 11

City of Ottawa (2018)

Project Manager and Lead Ecologist. Post – construction monitoring for the realignment of Stillwater Creek required to accommodate the West Transitway Extension. This project included; a species at risk screening, amphibian breeding surveys, breeding bird surveys, vegetation community inventories, fish community sampling, aquatic habitat assessment, water quality parameters, fluvial geomorphology studies.

Riverview to Overbrook – transmission line upgrade

Hydro One (2016)

Lead Ecologist. Class Environmental Assessment in support of a transmission line upgrade between Overbrook and Riverview facilities. Alexander was responsible for coordinating and undertaking field surveys, participating in public consultation, reporting writing, impact assessment, and developing mitigation and avoidance measures.

Innes Road Reinforcement Pipeline Project – Environmental Monitoring and Environmental Awareness Training

Enbridge Gas Distribution Inc., (2014 – 2016)

Project Manager and Lead Biologist. Environmental monitoring and environmental awareness in support of the 2.8 km pipeline installation along Innes Road. This installation included 580m of horizontal directional drilling of NPS12 steel pipe under Highway 417. The project included the development and delivery of a bespoke environmental awareness training program and the ongoing environmental monitoring during construction.

Innes Road Reinforcement Pipeline Project – Environmental Assessment

Enbridge Gas Distribution Inc., (2014)

Lead Biologist. Class environmental assessment for the 2.8 km gas distribution pipeline installation. Alexander was responsible for coordinating and undertaking biophysical field surveys, reporting writing, impact assessment, and developing mitigation and avoidance measures.

Ottawa West Reinforcement Pipeline Environmental Assessment

Enbridge Gas Distribution Inc., (2011 – 2013)

The lead biologist for a multidisciplinary team of biologists, planners and engineers working on environmental and cumulative effects assessment for the installation of 20 km of 24-inch natural gas pipeline in Western Ottawa. Took over project management role for the construction phase. This phase included the more detailed biophysical surveys to support environmental authorizations, pre- and post-construction water well monitoring, and development of a detailed mitigation strategy. These mitigation measures included; physical mitigation measures, environmental awareness training, daily on-site environmental monitoring, environmental compensation; and an assessment of agricultural crop loss and associated compensation.

Natural Resource Studies

Kingston Inner Harbour Rehabilitation

Public Services and Procurement Canada (PSPC) (2023 – Present)

Species-at-Risk Turtle Specialist responsible for evaluating the effectiveness of established mitigation recommendations, managing radio telemetry and habitat suitability research, providing mitigation/ avoidance guidance, supporting habitat restoration and compensation recommendations, and supporting associated permitting requirements.

Synthesis of Practice for Management and Enhancement of Terrestrial Roadway Ecology

Transportation Association of Canada (TAC) (2020 – 2021)

Project Manager and co-author. This project developed a synthesis of Beneficial Management Practices to manage terrestrial road ecology concerns across Canada, such as wildlife crossings and invasive species control, to emerging topics like roadside naturalization and ice road concerns. Drawing on literature and expert input from within Canada and around the world; the synthesis identified practices applicable to the diverse ecosystems, climates and rural to urban transportation systems across Canada.

Kizell Wetland Trail – SAR Authorizations

City of Ottawa (2019)

Project Manager and Lead Ecologist for the Species at Risk authorizations required for the construction of a pedestrian trail network within the conservation forest around the Kizell wetland in Kanata. Authorizations included IGF and AAF forms required to manage project impacts on Local Blanding's Turtle populations.

Goulbourn Wetland Re – delineation

City of Ottawa (2015 – 2016)

Project Manager. The objective was to undertake a boundary re – delineation of the provincially significant wetland (PSW) known as the Goulbourn Wetland Complex. Alexander was responsible for ensuring the quality of the re – delineation and associated report, consulting with landowners, and reviewing the approach and findings with the City and the Ontario Ministry of Natural resources.

2014 Species at Risk Screening

City of Ottawa (2014)

Manager and Lead Biologist. A Species at Risk screening study for the Infrastructure Branch with the objective to identify the potential threat that various planned infrastructure projects had to Species at Risk. In total 489 projects were evaluated over the course of the project. A new risk assessment approach and a series of management tools were developed to aid City Project Managers. Many of these tools continue to be used by the City for subsequent SAR Screenings. These tools included – standardized risk categories, a suite of standardized mitigation recommendations, a GIS database of the screening results, a document summarizing and illustrating the Species at Risk that may be found within the city, and a SAR screening process flowchart.