FOTENN



4850 Bank Street – Leitrim West Urban Expansion Area (S-4 Expansion Lands)

Environmental Impact Study & Tree Conservation Report

Submitted to: The Edge at Pathways Regional Inc.
Prepared for: Evan Garfinkel
1737 Woodward Drive, 2nd Floor, Ottawa, ON, K2C 0P9

November 2026

Prepared for The Edge at Pathways Regional Inc.

Prepared by Fotenn Planning + Design
420 O'Connor Street,
Ottawa, ON, K2P 1W4

November 2026

© Fotenn

The information contained in this document produced by Fotenn is solely for the use of the Client identified above for the purpose for which it has been prepared and Fotenn undertakes no duty to or accepts any responsibility to any third party who may rely upon this document.

November 11, 2026

Ms. Amy MacPherson
Natural Systems Planner
City of Ottawa
110 Laurier Avenue West
Ottawa, ON K1P 1J1

RE: Consolidated Environmental Impact Study – Leitrim West Urban Expansion Area (S-4 Lands), 4850 Bank Street

Dear Ms. MacPherson,

Fotenn is pleased to submit this consolidated Environmental Impact Study (EIS) on behalf of The Edge at Pathways Regional Inc. for the Leitrim West Urban Expansion Area (S-4 Lands). As required by the "Leitrim West of Bank" area-specific policy introduced through the City-initiated Official Plan Amendment, this report consolidates, refines and updates the Environmental Impact Study prepared by Arcadis (January 2026), the Addendum to the EIS (Fotenn, July 3, 2026) and Addendum #2 to the EIS (Fotenn, October 20, 2026), and reflects recent changes to provincial legislation, including the Species Conservation Act, 2025 and amendments to the Conservation Authorities Act. This report builds directly on the field investigations, results and findings of the Arcadis EIS, and we acknowledge the work of the Arcadis team on which it relies. Fotenn has reviewed and verified the impact assessment and mitigation measures and updated the report to reflect the Addenda.

The report addresses the outstanding comments from the City and South Nation Conservation, including the stormwater management strategy for the western catchment, the protection and enhancement of the Conveyance Channel, the water budget for the Leitrim Provincially Significant Wetland, the removal of the rock weir at INT-3, and the scope of the post-development monitoring plan, which will be prepared at detailed design. We trust that this report provides the necessary information to support the ongoing development review process. Should you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

Alex Zeller, M.Sc.
Principal – Natural Environment

FOTENN

Ottawa
420 O'Connor Street
Ottawa, ON K2P 1W4
613.730.5709

fotenn.com

Executive Summary

The Edge at Pathways Regional Inc. is proposing to develop the Leitrim West Urban Expansion Area – S4 Lands located at 4850 Bank Street (Concession 4, Part Lot 22), in the City of Ottawa (the Project). A City-initiated Official Plan Amendment (OPA) proposes to lift the Future Neighbourhood Overlay on the lands at 4848, 4852, 4856 and 4860 Bank Street and a part of 4850 Bank Street, and to add the "Leitrim West of Bank" area-specific policy, to facilitate a residential subdivision with park uses, new roads and stormwater management facilities.

This consolidated Environmental Impact Study (EIS) has been prepared by Fotenn to satisfy Policy l of the area-specific policy, which requires the Council-approved EIS (Arcadis) and Addendum (Fotenn) to be consolidated, refined and updated to support future Plans of Subdivision. It integrates the original EIS (Arcadis, January 2026), the Addendum (Fotenn, July 2026) and Addendum #2 (Fotenn, October 2026), and reflects the *Species Conservation Act, 2025* and recent amendments to the *Conservation Authorities Act*. This report is a continuation of the Arcadis EIS: the field investigations (completed by Arcadis in 2024), existing conditions and findings are drawn from the Arcadis EIS, while the impact assessment and mitigation measures have been reviewed and verified by Fotenn and updated to reflect the Addenda (see Section 1).

Natural Heritage Features and Existing Conditions

The following natural heritage features were identified within the Study Area:

- Six headwater drainage features were assessed within the Study Area, two of which (S4-D and S4-E) are situated in the Urban Expansion Area Limits and received a management recommendation of "No Management Required". The Conveyance Channel (S4-A) and Scratch Ditch (S4-F) received a "Mitigation" recommendation, and S4-B (INT-3) and S4-C a "Protection" recommendation.
- The Leitrim Provincially Significant Wetland (PSW), including the Casino Wetland, and the Leitrim Area of Natural and Scientific Interest occur approximately 50 m west of the Subject Site, approximately 500 m from the western edge of the Urban Expansion Area Limits.
- One small (0.12 ha) wetland inclusion within the eastern extent of the Urban Expansion Area Limits was evaluated as not significant.
- Habitat for Species of Conservation Concern (Eastern Wood-pewee and Wood Thrush) was identified within the Study Area. Wood Thrush is also listed as Threatened under SARA, and its individuals and nests are protected under SARA and the MBCA on all lands.
- Two Endangered Species at Risk plants (Butternut and Black Ash) were confirmed, and candidate SAR bat day-roost habitat is present.

Stormwater Management and the Leitrim PSW

The western catchment will be serviced by a dry linear stormwater management facility providing Enhanced (80% TSS removal) treatment, with discharge to the Conveyance Channel controlled to the channel's 100-year design flow of 0.66 m^3/s. The facility will be constructed outside the Urban Expansion Area Limits and will require additional clearing of predominantly Buckthorn Deciduous Shrub Thicket, part of which was previously cleared under City permit for borehole drilling; the limits of clearing and grading will be staked and fenced before any further clearing occurs. Clean flows from INT-3 and the Scratch Ditch will continue to enter the Conveyance Channel directly. The water budget predicts a decrease in on-site infiltration but a net increase in total flows to the wetland, which is expected to provide the more permanent flow that the Conveyance Channel was designed to convey. As the western catchment represents roughly 3% of the lands tributary to the wetland, no measurable change to the water balance or hydroperiod of the Leitrim PSW is anticipated. The informal rock weir at INT-3 is recommended for removal to restore fish passage, subject to pre-removal documentation of upstream wetland water levels.

Mitigation, Monitoring and Next Steps

Mitigation measures have been developed following the mitigation hierarchy (avoid, minimize, mitigate, compensate). Key commitments include:

- A hydrologic impact assessment and a five-year post-development monitoring plan, to be prepared at detailed design, for the Conveyance Channel, its outlet and the receiving portion of the Leitrim PSW, to be submitted with the South Nation Conservation permit application under O. Reg. 41/24;
- Butternut Health Assessments, Black Ash assessments and registration under the *Species Conservation Act, 2025*, including a Conservation Plan, where these species are affected. As health assessments are valid for a maximum of two years, these assessments will be completed closer to the time of tree removal, in advance of detailed design;
- Vegetation clearing outside the breeding bird period (April 1 to August 15) unless a nest search confirms no active nests, consistent with the MBCA and SARA;
- Construction dewatering controls, clay trench plugs, and erosion and sediment control measures to protect the Leitrim PSW; and
- Coordination of grading, tree protection, Species at Risk approvals and drainage with the City's planned Earl Armstrong Road extension, which is proposed to bisect the southern portion of the Subject Site (Section 8.4).

Conclusion

With the implementation of the recommended mitigation measures, monitoring and regulatory approvals, the proposed development can proceed without causing long-term negative impacts to the significant natural heritage features and ecological functions of the Study Area and is consistent with the Remer-Idone Environmental Management Plan (Golder 2016a) and the environmental policies of the "Leitrim West of Bank" area-specific policy.

1.0 Introduction 7

1.1 Study Area 8
1.2 Background and Purpose 8
1.3 Property Information 9
1.4 Details of Proposed Amendment(s) 9
1.5 First Nations Land Acknowledgement 11
1.6 Environmental Impact Study Approach 11

2.0 Policy and Legislative Framework 14

2.1 Federal Policies and Legislation 14
2.1.1 Migratory Birds Convention Act, 1994 (MBCA) 14
2.1.2 Species at Risk Act, 2002 (SARA) 15
2.1.3 Fisheries Act, 1985 16
2.2 Provincial Policies and Legislation 16
2.2.1 Fish and Wildlife Conservation Act, 1997 (FWCA) 16
2.2.2 Species Conservation Act, 2025 (SCA) 17
2.2.3 Planning Act, 1990 18
2.2.4 Conservation Authorities Act, 1990 19
2.3 Municipal Policies and Legislation 20
2.3.1 City of Ottawa Official Plan 20
2.3.2 Tree Protection By-law No. 2020-340 21

3.0 Background Review 22

3.1 Historic Land Use 23
3.2 Landform, Geology, and Soils 24
3.2.1 General Physical Setting 24
3.3 Aquatic Environment and Fish Habitat 25
3.3.1 Surface Water 25
3.3.2 Groundwater 27
3.3.3 Floodplain and Regulated Limit 29
3.3.4 Fishes and Fish Habitat 29
3.3.5 Stormwater Management 30
3.4 Terrestrial Environment 31
3.4.1 Wetlands 31
3.4.2 Woodlands 32
3.4.3 Valleylands 32
3.4.4 Area of Natural and Scientific Interest (ANSI) 32
3.4.5 Significant Wildlife Habitat (SWH) 33
3.4.6 Wildlife and Wildlife Habitat 33
3.5 Species at Risk and Species at Risk Habitat 34
3.5.1 Endangered and Threatened Species and Their Habitat 34
3.6 Summary of Natural Heritage Features as per the Provincial Planning Statement 35

4.0 Methodology 38

4.1 Aquatic Environment 38
4.1.1 Surface Water Assessment 38
4.1.2 Groundwater Assessment 39
4.1.3 Fishes and Fish Habitat Assessment 39

4.2 Terrestrial Environment 39
4.2.1 Vegetation Communities / Ecological Land Classification (ELC) 39
4.2.2 Wetland Verification / Delineation 40
4.2.3 Botanical Inventory 40
4.2.4 Amphibian Surveys 41
4.2.5 Breeding Bird Surveys 41
4.3 Species at Risk 42
4.3.1 Butternut and Black Ash Inventory 42
4.4 Incidental Wildlife 42
4.5 Natural Heritage Features Assessment 42
4.5.1 Significant Woodlands – Urban Criteria 43
4.5.2 Areas of Natural and Scientific Interest 43
4.5.3 Significant Wildlife Habitat 43

5.0 Field Investigation Results 45

5.1 Site Visit Dates and Purpose 45
5.2 Aquatic Environment 45
5.2.1 Headwater Drainage Feature Assessment 45
5.2.2 Groundwater Assessment 54
5.2.3 Fishes and Fish Habitat 54
5.3 Terrestrial Environment 54
5.3.1 Ecological Land Classification (ELC) 54
5.3.2 Botanical Inventory 61
5.3.3 Amphibian Call Surveys 61
5.3.4 Breeding Bird Surveys 62
5.4 Species at Risk and Species at Risk Habitat 63
5.5 Incidental Wildlife 64

6.0 Evaluation of Significance of Existing Natural Heritage Features 65

6.1 Wetlands 65
6.2 Significant Woodlands 65
6.3 Significant Areas of Natural and Scientific Interest 67
6.4 Significant Wildlife Habitat 67
6.5 Habitat of Endangered and Threatened Species 68
6.6 Fish Habitat 68
6.7 Summary of Natural Heritage Features 68
6.8 Ecological Functions 68

7.0 Description of Development Proposal 72

7.1 Construction Activities 72
7.2 Water Distribution, Wastewater Collection, and Stormwater Management 73

8.0 Impact Assessment and Mitigation 77

8.1 Aquatic Environment 78
8.1.1 Watercourses / Drainage Features 78
8.1.2 Groundwater and Hydrologic / Hydrogeologic 80
8.1.3 Fishes and Fish Habitat 84
8.2 Terrestrial Environment 85
8.2.1 Wetlands 85
8.2.2 Woodlands 87

8.2.3 Vegetation Communities 88
8.2.4 Significant Wildlife Habitat 90
8.2.5 Wildlife and Wildlife Habitat 92
8.2.6 Species at Risk 93
8.3 Indirect Impacts 96
8.4 Cumulative Impacts 96

9.0 Summary and Conclusion 99

9.1 Professional Opinion 106
9.2 Policy Conformity and Next Steps 106
9.3 Standard of Care and Limitations 109

10.0 References 110

11.0 Species at Risk Screening 19

12.0 Résumés of Contributors 19

Table of Figures

Figure 1: Leitrim West Urban Expansion Area (S4) Site and Study Area 11
Figure 2: Aerial Imagery Showing Land Use Changes Over Time 24
Figure 3: Ranges for Buffer Widths to Natural Environment Features based on the Current Science (Golder 2016a) 32
Figure 4: Natural Heritage Background Information 37
Figure 5: Field Survey Locations 44
Figure 6: Headwater Drainage Feature Management Assessment 53
Figure 7: Ecological Land Classification 60
Figure 8: Potential Hazardous Forest Types for Wildland Fire within the Subject Site (City of Ottawa, geoOttawa) 67
Figure 9: Field Survey Results 70
Figure 10: Concept Plan (Novatech 2025) 76
Figure 11: Mitigation Hierarchy for Natural Environment Impacts 77
Figure 12: Impact Assessment 98

Appendices

Appendix A – Tree Conservation Report
Appendix B – Aquatic Background Data
Appendix C – Terrestrial Background Data
Appendix D – Species at Risk Screening
Appendix E – Headwater Drainage Feature Assessment Raw Data
Appendix F – Species Lists
Appendix G – Significant Wildlife Habitat Assessment
Appendix H – Site Photos
Appendix I – Résumés of Contributors

Acronyms and Abbreviations

ANSI	Area of Natural and Scientific Interest
Arcadis	Arcadis Professional Services (Canada) Inc. (formerly IBI Group)
CA Act	Conservation Authorities Act, 1990
City	The City of Ottawa
DBH	Diameter at breast height
DFO	*The Department of Fisheries and Oceans Canada*
EASR	Environmental Activity and Sector Registry
ECCC	*Environment and Climate Change Canada*
ECR	*Existing Conditions Report*
ELC	Ecological Land Classification
EMP	Environmental Management Plan for the Remer and Idone Lands (Golder 2016a)
ESA	Endangered Species Act, 2007
FWCA	*Fish and Wildlife Conservation Act, 1997*
Fotenn	*Fotenn Planning + Design*
Golder	Golder Associates Ltd.
HDF	Headwater Drainage Feature
HIA	*Hydrologic Impact Assessment*
ISA	International Society of Arboriculture
J.L. Richards	*J.L. Richards & Associates Limited*
LID	Low Impact Development
MBCA	Migratory Birds Convention Act, 1994
MBR	Migratory Birds Regulations, 2022
MECP	*Ministry of the Environment, Conservation and Parks*
MNR	Ministry of Natural Resources
MNRF	Ministry of Natural Resources and Forestry
NHIC	Natural Heritage Information Centre
NHRM	Natural Heritage Reference Manual (MNR 2010)
NHS	Natural Heritage System
OPA	Official Plan Amendment
PPS	Provincial Planning Statement, 2024
PSW	Provincially Significant Wetland

PTTW	Permit to Take Water
SAR	Species at Risk
SARA	Species at Risk Act, 2002
SARO	Species at Risk in Ontario
SCA	Species Conservation Act, 2025
SNC	South Nation Conservation
SWG	“Significant Woodlands Guidelines” (City of Ottawa 2022d)
SWH	Significant Wildlife Habitat
SWMF	Stormwater Management Facility
SWMP	Stormwater Management Pond
Study Area	The Site and the area within 120 m of the Subject Site
TCR	Tree Conservation Report
TSS	Total Suspended Solids
UEA	Urban Expansion Area

1.0 Introduction

Fotenn was retained by The Edge at Pathways Regional Inc. to prepare this consolidated Environmental Impact Study (EIS) for the proposed Leitrim West Urban Expansion Area – S4 development (the "Project"), located at 4850 Bank Street (Concession 4, Part Lot 22), in the City of Ottawa (the "Subject Site"). The Subject Site is approximately 21.9 ha (54.2 acres) total and generally rectangular in shape. The property is situated west of Bank Street and south of the existing Pathways South at Findlay Creek Development, with the future Earl Armstrong Road extension proposed to bisect the southern portion of the Subject Site. The centreline of the realigned road is located roughly along the southern property boundary.

This EIS consolidates, refines, and updates the original *Leitrim West Urban Expansion Area – S4 Environmental Impact Study* prepared by Arcadis Professional Services (Canada) Inc. (Arcadis; formerly IBI Group) (Arcadis, January 2026), the *Addendum to the Environmental Impact Study (S-4 Expansion Lands)* prepared by Fotenn (July 3, 2026), and *Addendum #2 to the Environmental Impact Study (S-4 Expansion Lands) – Response to Outstanding Comments* prepared by Fotenn (October 20, 2026). Where the Addenda corrected, clarified, or superseded information presented in the original EIS, the corrected information has been carried forward into this report. This report also reflects changes to provincial legislation since the original EIS was prepared, including the *Species Conservation Act, 2025* and recent amendments to the *Conservation Authorities Act*.

Acknowledgement of Previous Work

This report is a continuation of the original EIS prepared by Arcadis (Arcadis 2026a) and is not a new or independent field study. All field investigations that inform this report – including the headwater drainage feature assessments, Ecological Land Classification, botanical inventory, amphibian and breeding bird surveys, Butternut and Black Ash inventories, bat habitat assessment and incidental wildlife observations – were completed by Arcadis in 2024 and are documented in the Natural Heritage Existing Conditions Report (Arcadis 2025a) and the original EIS (Arcadis 2026a). The descriptions of existing conditions, field methods and field results presented in Sections 3 through 6, together with the associated tables, photographs and appendices, have been carried forward from the Arcadis reports, with updates made only where required to reflect the Addenda, current legislation and species status. Fotenn gratefully acknowledges the work of the Arcadis project team, upon which this report relies.

Fotenn's role has been to consolidate and update the Arcadis EIS as required by Policy l of the "Leitrim West of Bank" area-specific policy. Fotenn has reviewed and verified the impact assessment and associated mitigation measures presented in Sections 7 and 8, and has updated the report to incorporate the refinements described in the July 2026 Addendum and Addendum #2 (Fotenn 2026a, 2026b), which were informed by the revised Serviceability Report (Arcadis 2026b) and the updated Hydrogeological Study (Paterson Group 2026b). Fotenn did not complete additional field investigations for this report.

The original EIS (January 2026) was prepared by Arcadis. The Addendum (July 3, 2026), Addendum #2 (October 20, 2026) and this consolidated EIS (November 2026) were prepared by Fotenn.

Urban Expansion Area

The Site is currently zoned as RU – Rural Countryside Zone, with the eastern majority of the Subject Site mapped on Schedule C17 - Urban Expansion Areas (Category 1 – Future Neighbourhood Overlay), as designated in the City of Ottawa *Official Plan* (City OP; **Figure 1**).

The Urban Expansion Area Limits represent the developable area of the Subject Site where Project activities are proposed. Approximately 13.6 ha (33.7 acres) of the Subject Site occurs within the Urban Expansion Area Limits and is proposed for development.

Through a City-initiated Official Plan Amendment (OPA), the Future Neighbourhood Overlay is proposed to be lifted on the lands located at 4848, 4852, 4856 and 4860 Bank Street, and a part of 4850 Bank Street. The OPA describes these lands as approximately 15 ha of land west of Bank Street and north of the future Earl Armstrong

Road extension, to be developed as a residential subdivision of approximately 350 residential units with park uses, new roads, and stormwater management facilities (City of Ottawa 2026a).

A *Zoning By-law Amendment* application is required to rezone the Subject Site to permit the future low-rise residential development, public park, and stormwater management facility.

1.1 Study Area

This report describes the natural heritage features within the Subject Site (4850 Bank Street) and the area within 120 m of the Subject Site (collectively referred to as the Study Area), to account for policy requirements and setback distances outlined in the *Provincial Planning Statement* (2024) and the accompanying *Natural Heritage Reference Manual* (MNR 2010). As necessary, consideration has been given to wildlife occurrences (including SAR) reported up to 10 km away, due to the nature of desktop resources (i.e., online databases and atlases) with data presented in a 10 km x 10 km grid.

1.2 Background and Purpose

The Edge at Pathways Regional Inc. has proposed the construction of low-rise residential dwellings with associated asphalt-paved local roads, driveways, a park, and stormwater management pond within the Urban Expansion Area Limits at the eastern end of the Subject Site.

In line with Edge at Pathways Regional Inc.'s commitment to sustainability, the purpose of this EIS is to collect and evaluate all the appropriate and necessary information to develop an understanding of the boundaries, attributes, connectivity, and functions of relevant environmental features within the Study Area (i.e., Subject Site + 120 m). This EIS provides a summary of the available information from review of background documents and site visits conducted by Arcadis Ecologists in 2024. Using this data, the functions and values of the natural heritage features within the Urban Expansion Area Limits, Site boundary, and adjacent lands, as well as an evaluation of their significance as per applicable guidelines (i.e., City OP, provincial and/or federal policies) will be documented. This report will conclude with general recommendations on avoidance and mitigation measures to protect natural heritage features from impacts. This report is also supporting the concurrent Draft Plan of Subdivision and Zoning By-law Amendment.

Consolidated EIS

This consolidated EIS amalgamates the original Environmental Impact Study prepared by Arcadis (January 2026) with the Addendum (Fotenn, July 2026) and Addendum #2 (Fotenn, October 2026), as required by the "Leitrim West of Bank" area-specific policy of the Official Plan. It incorporates the refinements to the stormwater management strategy and the water budget described in the revised Serviceability Report (Arcadis, October 2026) and the updated Hydrogeological Study (Paterson Group, October 2026), and reflects recent changes to provincial legislation.

In addition to the original EIS, this consolidated EIS relies on the following supporting technical documents:

- *Environmental Impact Study – Leitrim West Urban Expansion Area – S4*, prepared by Arcadis (January 2026; previous drafts issued August and October 2025)
- Natural Heritage Existing Conditions Report, prepared by Arcadis (March 2025)
- Environmental Management Plan for the Remer and Idone Lands, prepared by Golder Associates Ltd. (February 2016)
- Hydrogeological Assessment for the Remer and Idone Lands, prepared by Golder Associates Ltd. (January 2016; Golder 2016b)
- *Serviceability Report* (revised), prepared by Arcadis (October 20, 2026)
- *Hydrogeological Study* (PH5087-REP.01.R6), prepared by Paterson Group (October 20, 2026)

- *Geotechnical Investigation Report* (PG6912-1 Revision 7), prepared by Paterson Group (June 2, 2026)
- Year 5 Constructed Channel Monitoring Report, prepared by Cambium Inc. (October 2024)
- Constructed Channel Design Brief for the Pathways at Findlay Creek Development, prepared by IBI Group (2018)

Environmental Management Plan (EMP; Golder 2016a)

At the request of the City, Golder Associates Ltd. (Golder) prepared the Golder (2016a) EMP as background for a required EIS for the lands located immediately adjacent (north) of the Subject Site, including the identification of significant natural heritage features that are to be subject to evaluation in the EIS (Golder 2016a). The Golder (2016a) EMP will be referenced throughout this EIS to characterize the current Site to the south of the existing Pathways South at Findlay Creek Development, where appropriate.

Furthermore, this EIS has been prepared to support land-use planning for the development of the Leitrim West Urban Expansion Area – S4 development to make an informed decision as to whether the proposed Project will have a negative impact on any significant natural heritage features and/or ecological functions that are present within the Study Area.

1.3 Property Information

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

Table 1: Site Property Information

Item	Description
Owner(s):	The Edge at Pathways Regional Inc.
Lot and Concession:	4850 Bank Street (Concession 4, Part Lot 22), City of Ottawa, Ontario
Lands Subject to OPA:	4848, 4852, 4856 and 4860 Bank Street, and a part of 4850 Bank Street
Zoning:	RU – Rural Countryside Zone (proposed R3YY [2989], R4Z and O1)
Official Plan Designation:	Urban Expansion Area (Category 1 – Future Neighbourhood Overlay) on Schedule C17; the OPA proposes to lift the Future Neighbourhood Overlay on Schedule B7 – Suburban (Southeast) Transect and add the "Leitrim West of Bank" area-specific policy
Existing Land Uses:	Rural
Conservation Authority:	South Nation Conservation (SNC)
Traditional Territory:	Unceded Territory of the Anishnaabe Algonquin Nation

1.4 Details of Proposed Amendment(s)

A City-initiated Official Plan Amendment (OPA) is proposed to lift the Future Neighbourhood Overlay and enable urban development of the Subject Lands. Based on the Details of the Recommended Official Plan Amendment (City of Ottawa 2026a), the purpose of the OPA is to:

- Amend Schedule B7 of the Official Plan to lift the Future Neighbourhood Overlay on the lands located at 4848, 4852, 4856 and 4860 Bank Street, and a part of 4850 Bank Street;
- Amend Schedule B7 of the Official Plan to extend the Mainstreet designation on Bank Street southward to the future Earl Armstrong Road intersection;
- Amend Volume 2C of the Official Plan to add new area-specific policies for the Subject Lands (Policy "Leitrim West of Bank"); and
- Amend Annex 5 of the Official Plan to show the Subject Lands as a new area subject to an area-specific policy.

The area-specific policy includes provisions specific to the natural environment, including direction that the western stormwater management facility be designed to avoid adverse impacts on the Leitrim Provincially Significant Wetland (PSW), that the City-owned conveyance channel and its corridor be protected and enhanced, that a monitoring plan be developed to meet City and Conservation Authority requirements, and that a stormwater management facility servicing the lands may be located outside of the urban boundary on 4850 Bank Street.

The landowner proposes to rezone the Subject Site from Rural Countryside – RU to Residential Third Density, Subzone YY, Urban Exception 2989 – R3YY [2989], Residential Fourth Density, Subzone Z – R4Z, and Parks and Open Space – O1. A Zoning By-law Amendment application is required to rezone the Subject Site as the existing zone does not permit a range of residential land uses. The suggested zoning provisions for the proposed development will be subject to further discussions with City of Ottawa staff (Novatech, 2025).

Most of the proposed residential development on the Subject Site is suggested to be rezoned to *Residential Third Density, Subzone YY, Urban Exception 2989 – R3YY [2989]* which permits a range of residential typologies including detached and townhouse dwellings. The purpose of the *Residential Third Density – R3* zone is to:

- Allow a mix of residential building forms ranging from detached to townhouse dwellings in areas designated as General Urban Area in the Official Plan;
- Allow a number of other residential uses to provide additional housing choices within the third density residential areas;
- Allow ancillary uses to the principal residential use to allow residents to work at home;
- Regulate development in a manner that is compatible with existing land use patterns so that the mixed dwelling, residential character of a neighbourhood is maintained or enhanced; and
- Permit different development standards, identified in the Z subzone, primarily for areas designated as Developing Communities, which promote efficient land use and compact form while showcasing newer design approaches.

The multi-unit residential block that will be subject to a future *Site Plan Control* application is suggested to be rezoned to *Residential Fourth Density, Subzone 4 – R4Z* which permits a broader range of residential typologies including “missing middle housing”. The purpose of the *Residential Fourth Density – R4* zone is to:

- Allow a wide mix of residential building forms ranging from detached to low rise apartment dwellings, in some cases limited to four units, and in no case more than four storeys, in areas designated as General Urban Area in the Official Plan;
- Allow a number of other residential uses to provide additional housing choices within the fourth density residential areas;
- Permit ancillary uses to the principal residential use to allow residents to work at home;
- Regulate development in a manner that is compatible with existing land use patterns so that the mixed building form, residential character of a neighbourhood is maintained or enhanced: and
- Permit different development standards, identified in the Z subzone, primarily for areas designated as Developing Communities, which promote efficient land use and compact form while showcasing newer design approaches.

The future stormwater management facility and public park are suggested to be rezoned to *Parks and Open Space – O1*. The suggested *Parks and Open Space – O1* will reflect the current zoning in force and in effect for other stormwater management facilities as well as public parks in the City of Ottawa including those north of the Subject Site in the Pathways community. The purpose of the *Parks and Open Space – O1* zone is to:

- Permit parks, open space and related and compatible uses to locate in areas designated as General Urban Area, General Rural Area, Major Open Space, Mixed Use Centre, Village, Greenbelt Rural and

Central Area as well as in Major Recreational Pathway areas and along River Corridors as identified in the Official Plan, and

- Ensure that the range of permitted uses and applicable regulations is in keeping with the low scale, low intensity open space nature of these lands.

1.5 First Nations Land Acknowledgement

Fotenn would like to acknowledge that the Subject Site located at 4850 Bank Street in the City of Ottawa, Ontario is located on the traditional lands / territories of the Anishinabewaki and Omàmìwininìwag (Algonquin) (NLD 2024).

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

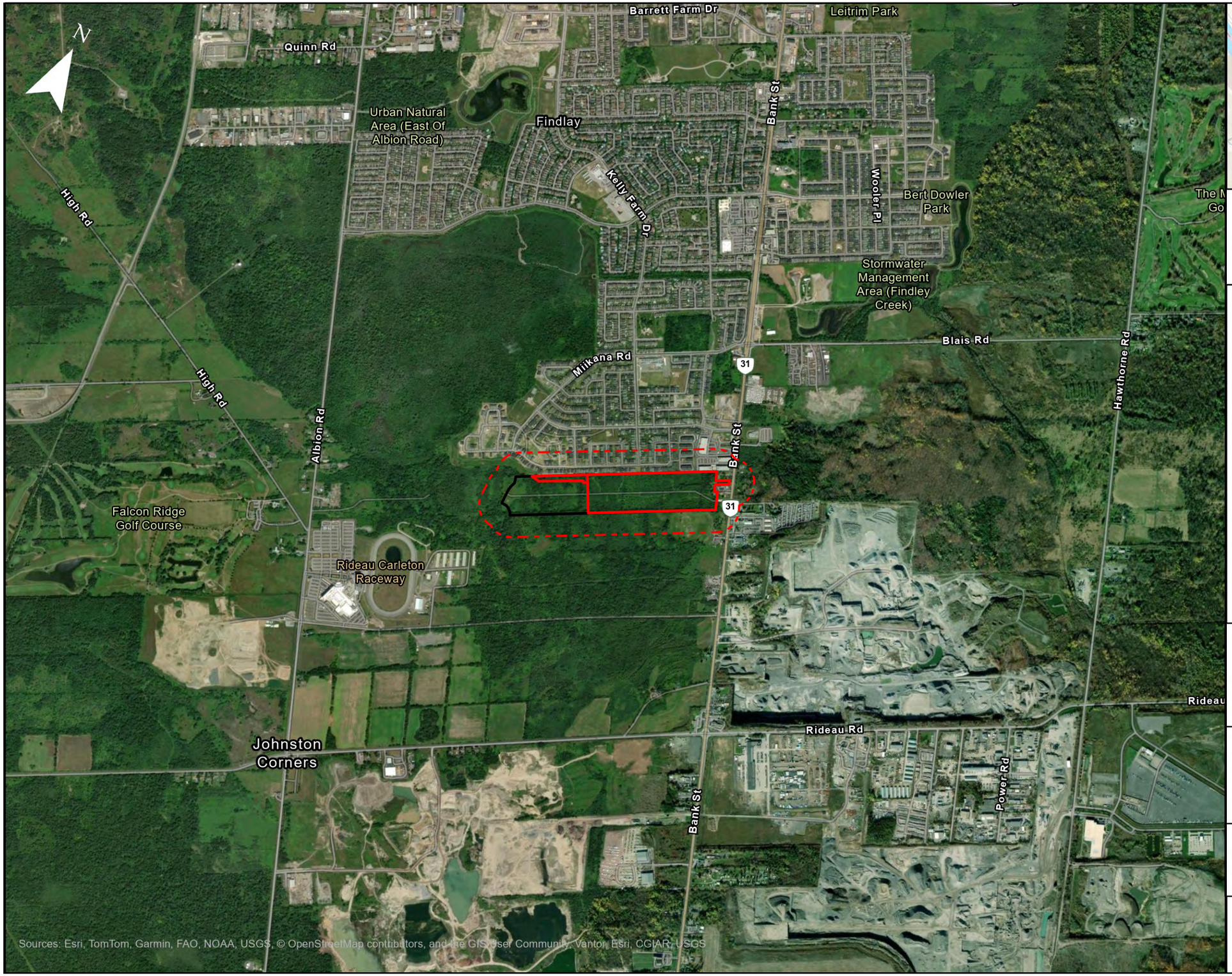
1.6 Environmental Impact Study Approach

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

Throughout this EIS, common names of species are used and binomial nomenclature (i.e., scientific names) are provided in the species lists in **Appendix F**. Both names of species (i.e., common and scientific) follow those used by the Ministry of Natural Resources (MNR) in the Natural Heritage Information Centre (NHIC 2025) Ontario Species Tables with the exception of scientific binomials of plant species which generally follow Newmaster et al. (2005) with updates taken from published volumes of the Flora of North America Editorial Committee (2000+ accessed 2015) and Michigan Flora Online (2015).

Table 2: Study Approach

Relevant Policy and Legislative Framework:	This section outlines the policies and legislation that apply to the protection of natural heritage features within the Study Area as it relates to the Project, updated to reflect legislative changes since the original EIS.
Natural Heritage Screening / Background Review:	This section provides detailed background information collected from a variety of publicly accessible resource databases to describe the natural heritage features and significant features that may occur within the Study Area.
Field Methodology:	This section provides a summary of the specific protocols and methods used to evaluate potential natural heritage features and species identified within the natural heritage screening.
Field Survey Results:	This section provides the results from the field surveys, including incidental or notable observations made by the field ecologists.
Summary of Natural Features:	This section summarizes the natural heritage features confirmed present with respect to the relevant policies and legislation.
Description of the Development Proposal:	This section provides a summary of the Project, including the stormwater management strategy and the activities which may impact the natural environment.
Development Constraints and Opportunities Analysis:	This section identifies areas or features that are ecologically sensitive, protected, or otherwise unsuitable for development, and portions of the Subject Site where low-impact development or restoration may be appropriate.
Impact Assessment and Mitigation Measures:	This section provides the assessment of the Project's potential impacts on the natural heritage system, including the natural heritage features and species confirmed present through this study. Mitigation measures follow the mitigation hierarchy and are aimed at avoiding, reducing or eliminating potential impacts. Where mitigation may not be possible, compensation may be proposed.
Monitoring:	This section describes the general scope of the post-development monitoring plan, to be prepared at detailed design, for the Conveyance Channel, its outlet, and the receiving portion of the Leitrim PSW.
Summary and Conclusions:	This section provides a summary of the Study's findings, outlines general recommendations, and identifies future permitting or agency authorizations that may be required before the Project may proceed.





Scale: 1:20,000

0 150 300 600 900 1,200 Meters

Legend

- Proposed Development Area (Nov 2026)
- Study Area (120 m)
- Property Boundary

Project:

4850 Bank Street EIS & TCR
The Edge at Pathways [S-4 Lands]

Title:

Site and Study Area

Prepared By:

FOTENN

Date:

11/11/2026

Figure: 1

2.0
Policy and Legislative Framework

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

Table 3: Relevant Environmental Policies and Legislation

Policy / Legislation	Governing Body, Guidelines, and Resources
Federal Government of Canada	
Migratory Birds Convention Act, 1994 (MBCA)	Environment and Climate Change Canada (ECCC) / Guidelines to Avoid Harm to Migratory Birds (ECCC 2023a) / Migratory Birds Regulations, 2022 / Nest Protection under the Migratory Birds Regulations, 2022 (ECCC 2023b) / Nesting Calendars (ECCC 2023c)
Species at Risk Act, 2002 (SARA)	ECCC / Federal Species at Risk Public Registry / Distribution of aquatic Species at Risk mapping (DFO 2024)
Fisheries Act, 1985	Fisheries and Oceans Canada (DFO) / Projects Near Water online resources (DFO 2022)
Provincial Government of Ontario	
Fish and Wildlife Conservation Act, 1997 (FWCA)	Ministry of Natural Resources (MNR)
Species Conservation Act, 2025 (SCA)	Ministry of the Environment, Conservation and Parks (MECP) / Protected Species in Ontario List (O. Reg. 60/26) and associated regulations
Planning Act, 1990 and Provincial Planning Statement, 2024 (PPS)	Ministry of Municipal Affairs and Housing (MMAH) / Natural Heritage Reference Manual (MNR 2010) / Significant Wildlife Habitat Technical Guide and Criteria Schedules for Ecoregion 6E
Conservation Authorities Act, 1990	South Nation Conservation (SNC) / O. Reg. 41/24 (Prohibited Activities, Exemptions and Permits) / O. Reg. 686/21 (Mandatory Programs and Services) / SNC Board-approved Regulation Policies
Municipal – City of Ottawa	
City of Ottawa Official Plan (2022), including the "Leitrim West of Bank" area-specific policy (OPA)	City of Ottawa / Environmental Impact Study Guidelines / Significant Woodlands Guidelines (City of Ottawa 2022d)
Tree Protection By-law No. 2020-340	City of Ottawa

2.1 Federal Policies and Legislation

2.1.1 Migratory Birds Convention Act, 1994 (MBCA)

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

Under the MBCA, protected species are listed under Article I. In general, birds not falling under federal jurisdiction within Canada include grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, falcons, cormorants, pelicans, crows, jays, kingfishers, and some species of blackbirds. However, if the species identified is protected under Ontario's *Species Conservation Act, 2025* or Canada's *Species at Risk Act, 2002*, additional restrictions may apply.

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

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

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

MBCA - Applicability to the Project

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

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

2.1.2 Species at Risk Act, 2002 (SARA)

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

- Species of migratory birds protected by the MBCA that fall under Schedule 1 of SARA; and
- Aquatic species that fall under Schedule 1 of SARA.

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

SARA – Applicability to the Project

The Study Area is not on federal land. SARA's habitat protections generally apply on federal lands; however, its prohibitions on killing, harming, harassing, capturing or taking individuals, and on damaging or destroying their residences (for birds, nests), apply to listed Endangered and Threatened migratory birds on all lands, including private lands. Section 58 of SARA also affords protection to the critical habitat of aquatic species and of migratory birds listed on Schedule 1 of SARA.

Under the Species Conservation Act, 2025, migratory birds and aquatic species listed under SARA are no longer protected provincially, and their protection now relies on SARA. Based on recent discussions with the City, SARA protections are therefore expected to apply within the Study Area where no protection is provided under the SCA.

2.1.3 Fisheries Act, 1985

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

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

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

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

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

Fisheries Act - Applicability to the Project

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

2.2 Provincial Policies and Legislation

2.2.1 Fish and Wildlife Conservation Act, 1997 (FWCA)

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

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

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

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

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

FWCA – Applicability to the Project

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

2.2.2 Species Conservation Act, 2025 (SCA)

The *Species Conservation Act, 2025* (SCA) came into force on March 30, 2026 and is administered by the Ministry of the Environment, Conservation and Parks (MECP), replacing the *Endangered Species Act, 2007* (ESA) that was in effect at the time the original EIS was prepared. The SCA was introduced through Bill 5, the *Protect Ontario by Unleashing Our Economy Act, 2025*, which also implemented interim amendments to the ESA on June 5, 2025.

Under the SCA, the killing or harming of a species listed as Endangered or Threatened on the Protected Species in Ontario List (O. Reg. 60/26), or the damage or destruction of its habitat, is prohibited regardless of intent. Where a protected species or its habitat is expected to be affected by Project activities, registration under the Registrable Activities regulation (O. Reg. 75/26) will be required where the activity is eligible; otherwise, a permit must be obtained from MECP under the Permit Activities regulation (O. Reg. 74/26). Through the registration process, a Conservation Plan will be prepared to establish specific mitigation requirements and outline the prescribed conservation measures (e.g., offsetting or compensation). The SCA regulations include species-specific exemptions and conditions for certain species, including Butternut and Black Ash (for example, related to tree health).

Unlike the ESA, the SCA does not provide provincial protection for migratory birds and aquatic species listed under SARA; protection of these species now relies on SARA (Section 2.1.2).

The SCA also changed the definition of protected habitat. For protected animal species, habitat is now defined as a dwelling place, such as a den, nest or other similar place, that is occupied or habitually occupied by one or more members of a species for the purposes of breeding, rearing, staging, wintering or hibernating, together with the area immediately around that dwelling place that is essential for those purposes. For protected plant species (e.g., Butternut and Black Ash), protected habitat is the critical root zone surrounding a member of the species. For all other species, protected habitat is an area on which any member of the species directly depends to carry on its life processes.

SCA – Applicability to the Project

Within Ontario, the SCA applies to activities conducted by the public and all levels of government. As such, the SCA applies to the entire Study Area. Two SAR plants listed as Endangered, Butternut and Black Ash, were identified within the Study Area. Their presence will be confirmed through a Butternut Health Assessment and Black Ash assessment completed by qualified professionals before site alteration, and registration under

the SCA (or a permit from MECP, where registration is not available) will be completed where these species or their habitat are expected to be affected by Project activities.

2.2.3 Planning Act, 1990

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

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

Planning Act - Applicability to the Project

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

Provincial Planning Statement, 2024 (PPS)

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

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

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

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

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

PPS – Applicability to the Project

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

The PPS 2024 continues to encourage municipalities to undertake watershed planning, especially in large, fast-growing areas, to manage water and wastewater services more effectively.

2.2.4 Conservation Authorities Act, 1990

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

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

The *Conservation Authorities Act* defines watercourses as:

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

The *Conservation Authorities Act* defines wetlands as:

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

Furthermore, *O. Reg. 686/21 (Mandatory Programs and Services)* identifies the mandatory programs and services relating to the management of natural hazards (including flooding and erosion) that is to be provided by the Conservation Authority having jurisdiction (i.e., SNC), with the following objectives:

- Developing an awareness of the areas that are important for the management of the natural hazards (e.g., wetlands);
- Understanding the risks related to natural hazards, including how these risks may be affected by climate change;
- Managing the risks related to natural hazards, including preventing or mitigating those risks; and

- Promoting public awareness of the risks related to natural hazards.

Recent amendments to the *Conservation Authorities Act* through Bill 97, the *Plan to Protect Ontario Act (Budget Measures)* (Royal Assent April 24, 2026), provide for the consolidation of Ontario's 36 conservation authorities into nine regional conservation authorities. South Nation Conservation is to be amalgamated with the Rideau Valley, Mississippi Valley and Raisin Region conservation authorities to form the St. Lawrence River Regional Conservation Authority, with a transition date of February 1, 2027 or a later date set by regulation. Until the transition, SNC remains the permitting authority, and applications in progress at the time of transition are to be continued by the successor authority. As a result of the amalgamation, the prevailing regulatory policies and procedures may be subject to change, and the applicable requirements will be confirmed at the time of permit application.

Conservation Authorities Act - Applicability to the Project

The Study Area is under the jurisdiction of South Nation Conservation (SNC) under which the Conservation Authorities Act is applied through O. Reg. 41/24 (Prohibited Activities, Exemptions and Permits) and O. Reg. 686/21 (Mandatory Programs and Services).

Proposed Project activities within a wetland, a watercourse or their associated Regulated Areas will require a permit from SNC (or its successor authority). For this Project, this includes:

- *Any interference with a watercourse, including the Conveyance Channel and INT-3 (including removal of the rock weir and the stormwater management facility outlet works); and*
- *Any development within the Leitrim PSW or within 30 m of the PSW.*

The permit application will include the hydrologic impact assessment demonstrating that the proposed works are not likely to affect the control of flooding and erosion and will have no negative hydrological impacts on the wetland, together with the post-development monitoring plan (Section 8.1.2).

Additionally, SNC's review of the City's Official Plan Amendment determines permit requirements under O. Reg. 41/24, issued in accordance with SNC's Board-approved Regulation Policies.

2.3 Municipal Policies and Legislation

2.3.1 City of Ottawa Official Plan

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

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

It is important to note that, as per Subsection 5.6.4.1 Policy 2, the edge of the NHS boundary would need to be verified on-site, as the City OP only displays to a certain level of detail. Where identified, the boundaries of any significant natural heritage features are to be noted and the potential for the proposed development to cause negative impacts is assessed.

Official Plan Amendment – Leitrim West of Bank Area-Specific Policy

The City-initiated Official Plan Amendment (OPA) adds a new area-specific policy for the Subject Lands ("Leitrim West of Bank") to Volume 2C of the Official Plan. In general, the policy requires development to implement the Council-approved Land Use Plan in coordination with the supporting servicing, transportation, environmental and hydrogeological studies. With respect to the natural environment, the stormwater management system is to be designed to protect the Leitrim PSW and the City-owned Conveyance Channel and to maintain their hydrologic functions, supported by a monitoring plan, and future EIS submissions are to demonstrate consistency with the Remer-Idone EMP (Golder 2016a). These policies are addressed throughout this consolidated EIS.

City of Ottawa Official Plan – Applicability to the Project

The City's OP requires assessment of multiple natural heritage features, some of which may be present within or adjacent to the Subject Site and may be potentially impacted by this proposed development.

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

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

2.3.2 Tree Protection By-law No. 2020-340

This City of Ottawa *Tree Protection By-law* is a by-law that is set out to respect the protection of municipal trees and municipal natural areas in the City of Ottawa and trees on private property in the urban area of the City of Ottawa. City approval is required to permit the injury or destruction of any tree protected under the by-law.

Tree Protection Bi-Law - Applicability to the Project

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

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

3.0
Background Review

A desktop review of the existing natural heritage features identified within the Study Area was completed during preparation of this EIS (as well as the previous ECR – Arcadis 2025a) to inform the studies required. Natural heritage features identified to require consideration in the City OP (as designated in City OP Schedules) were the primary focus. Further information collected from external sources was used to help inform of the functions of these features and to identify those not depicted on the City OP Schedules (e.g., endangered, and threatened species habitat).

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

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

Reports pertaining to the Study Area and immediate surroundings:

- *Environmental Management Plan* (EMP) for the Remer and Idone Lands (Golder 2016a) – adjacent lands;
- Planning Rationale and Public Consultation Strategy (Novatech 2025);
- Geotechnical Investigation Report (PG6912-1 Revision 7) (Paterson Group 2026a);
- Hydrogeological Study (PH5087-REP.01.R6) (Paterson Group 2026b);
- Pathways at Findlay Creek – Constructed Channel Monitoring (Year 5) (Cambium 2024);
- Leitrim Development Area – Area S4 Future Neighbourhood July 25, 2025, Field Notes and Observations (SNC 2025a); and
- *Natural Heritage Existing Conditions Report* (ECR; Arcadis 2025a) – recently provided for this Project.
- *Tree Conservation Report* (Arcadis 2025b) – recently provided for this Project.
- S4 Leitrim Urban Expansion Area Serviceability Report (Arcadis 2026b, revised October 20, 2026);
- Addendum to the Environmental Impact Study (S-4 Expansion Lands) (Fotenn 2026a); and
- Addendum #2 to the Environmental Impact Study (S-4 Expansion Lands) – Response to Outstanding Comments (Fotenn 2026b).

Ontario wildlife atlases and observation records:

- Natural Heritage Information Centre (NHIC) Database (MNRF 2024);
- Ontario Breeding Bird Atlas (BSC et al. 2006);
- Ontario Reptile and Amphibian Atlas (Ontario Nature 2019);
- Ontario Butterfly Atlas (TEA 2023);
- iNaturalist observation records (iNaturalist 2025);
- eBird HotSpot species lists (eBird 2024);
- Bat Conservation International Inc. Bat Profiles (BCI 2025); and
- Atlas of the Mammals of Ontario (Dobbyn 1994).

Conservation Authority resources:

- South Nation Conservation Public GeoPortal mapping (SNC 2025b).

City of Ottawa Resources:

- Environmental Impact Study Guidelines (City of Ottawa 2026b)
- Bird-Safe Design Guidelines (City of Ottawa 2022a);
- City of Ottawa Official Plan (City of Ottawa 2022b);
- Protocol for Wildlife Protection during Construction (City of Ottawa 2022c);
- Significant Woodlands Guidelines (City of Ottawa 2022d); and
- Tree Protection By-law No. 2020-340 (City of Ottawa 2021).

Other provincial resources:

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

This section outlines the relevant natural heritage background from the recent ECR (Arcadis 2025a) that was based on field surveys conducted by Arcadis in 2024, as well as the previous EMP (Golder 2016a) produced for the development of the lands immediately adjacent (north) of the Subject Site.

3.1 Historic Land Use

A desktop review of recent and historic aerial imagery highlights the land uses within and adjacent to the Subject Site (GeoOttawa 2024; **Figure 2**). From this review, the landscape around the Study Area has been predominantly agricultural fields separated by natural wooded hedgerows dating back to at least 1976. The Study Area for the proposed Leitrim West Urban Expansion Area – S4 development indicates that the property has experienced little change since at least 1976, likely due to it historically being located outside of the City's Urban Boundary (City of Ottawa 2022b; Google 2024).

A recent residential development Project by Edge at Pathways Regional Inc. (i.e., Pathways at Findlay Creek Development) started construction around early 2019 and is located directly north of the Subject Site.



1976



2005



2014



2025

Figure 2: Aerial Imagery Showing Land Use Changes Over Time

3.2 Landform, Geology, and Soils

The following Ontario Geological Survey (OGS) data has been obtained from Geology Ontario:

Portions of the Study Area are situated within a 17.9 ha Sand Plain Physiographic Landform, and a 3.6 ha Limestone Plains Physiographic Landform (OGS 2007).

The surficial geology of the Study Area is made up of “stone-poor, sandy silt to silty sand-textured till” on Paleozoic terrain (OGS 2010).

The underlying bedrock of the Study Area is part of the “dolostone, sandstone: Beekmantown Group (Unit 53)” dating back to the Lower Ordovician geologic period, approximately 485.4 to 470 million years ago (OGS 2011).

3.2.1 General Physical Setting

The Site is in the Mixedwood Plains Ecozone, which is underlain by limestone, sandstone and shale bedrock. A variety of landforms and surface deposits such as moraines and glaciofluvial deposits occur in this ecozone. Mixed and deciduous forests, alvars and tall-grass prairies comprise the main plant communities that grow here. Much of the wetland areas that historically occurred in this ecozone have been converted to urban, agricultural and industry land uses. This area is diverse in both plant and animal species and provides potential habitat for many Species at Risk (SAR) in the province (Golder 2016a).

The Site is in Ecoregion 6E, where the majority of land use is cropland or pasture (57%) and 30% is forested. Dominant tree species include Sugar Maple, American Beech, White Ash, Red Maple, Eastern White Cedar and Green Ash (Golder 2016a).

The Site is in the Ottawa Valley Clay Plains Physiographic Region (Chapman and Putnam 1984). This physiographic region is characterized by clay plains interrupted by ridges of rock or sand. The plains are present in a wide valley bottom, bounded by rocky Laurentian uplands. Although the topography is generally level, wetlands are somewhat scarce (Golder 2016a).

3.3 Aquatic Environment and Fish Habitat

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

3.3.1 Surface Water

The Study Area is located within the South Nation Conservation (SNC) jurisdiction and associated watersheds (SNC 2025b). Surface water features are displayed in **Figure 4**.

Setbacks

Setbacks and vegetated buffers are essential for the protection of surface water features and their ecological functions. Section 4.9.3 of the City OP provides policy direction to restrict / limit development and site alteration near surface water features by establishing minimum setbacks. Section 404 (Setback from Surface Water Features) of the City of Ottawa Zoning By-law No. 2026-50 also establishes minimum setbacks from surface water features and restricts development, site alteration, and associated grading or structures within the setback area. Appendix 10 (Setbacks to Surface Water Features) of the City's EIS Guidelines (City of Ottawa 2026b) indicates that, where Council-approved subwatershed studies or similar have not identified a setback, the minimum setback shall be the *greater* of the following:

- Conservation Authority hazard limit, which includes the regulatory flood line, geotechnical hazard limit and meander belt;
- Geotechnical hazard limit identified using the City's Slope Stability Guidelines for Development Applications;
- 30 metres from the top of bank, or the maximum point to which water can rise within the channel before spilling across the adjacent land (bank full flow); and
- 15 metres from the existing stable top of slope, where there is a defined valley slope / ravine.

Mapping by SNC and the City indicated the presence of surface water features within the Study Area (i.e., watercourses / drainage features), described below:

Conveyance Channel (Feature-1)

This watercourse ("Feature-1") occurs along the northwestern edge of the Subject Site before transitioning into the upstream Scratch Ditch ("Feature-2"), bordering both the northern property boundary and the new development to the north. Historically, this feature may have functioned as a hedged agricultural ditch, present since at least 1976. Planned residential development associated with the ongoing Pathways South at Findlay Creek Development to the north resulted in the construction of this feature in 2019. This Conveyance Channel has since been accepted by the City of Ottawa following a five-year monitoring program as part of a previous, separate, development. This feature is mapped by the province as a Watercourse (GEO 2025).

Environmental Management Plan (Golder 2016a)

Feature-1 in this EIS represents the 'Conveyance Channel' constructed to the northwest of the Subject Site based on the Golder (2016a) EMP. This feature was constructed in a general southeast to northwest direction to convey clean surface water from this upstream catchment area toward the nearby wetland areas (i.e., Leitrim Core Wetland) while also providing compensatory habitat to replace water features removed during the Pathways at Findlay Creek Development to the north. This Conveyance Channel eventually orients in a south to north direction further downstream (northwest of the Casino Wetlands).

The EMP further recommended the following functionality of this constructed Conveyance Channel:

- Maintain and improve the surface water conveyance function of surface drainage from rural lands off-site to the south by providing more permanent flow; and
- Provide habitat for wildlife, including amphibians, which will be at least comparable to existing conditions.

Constructed Channel Monitoring (Year 5) (Cambium 2024)

Cambium Inc. (Cambium) undertook the final year of annual natural environment monitoring of the constructed channel (i.e., Conveyance Channel) at the Pathways at Findlay Creek development located immediately north.

Throughout the monitoring period (2020-2022 and 2024), this channel was seen to be receiving inputs from the 'drainage swale' (i.e., Scratch Ditch collecting flows from lands to the south, including the Subject Site; see **Scratch Ditch (Feature-2)** below). Additional inputs of surface and groundwater from the adjacent wetland areas was also observed, and the channel was seen conveying these flows northwards, eventually outletting at very low velocities into the Leitrim Core Wetland Buffer.

Overall, this monitoring confirmed that the Conveyance Channel has successfully established and is functioning as designed.

July 25, 2025, Field Observations (SNC 2025a)

The following observations regarding the Conveyance Channel / Feature-1 were made by SNC on July 25, 2025:

- It is not apparent where HDF S4-B enters into the channel, the outlet is now obstructed with the rock weir and not functioning – needs maintenance / removal (see **Sections 8.1.1** and **8.1.3**).
- Conveyance Channel input from the Scratch Ditch was observed to be very dry.

These observations indicated that the Conveyance Channel making up the downstream portions of the Scratch Ditch was functioning as intended with respect to water conveyance, and the inputs from the south (including the Subject Site) appear to be part of the natural south-to-north flow of water in the Leitrim Wetland system that existed prior to the construction of the on-site linear Scratch Ditch and the off-site downstream portions of this feature (Cambium 2024).

Scratch Ditch (Feature-2)

The Scratch Ditch (also known as "Feature-2") is a historical drain identified through SNC background mapping occurring along the northern property line, located outside of the Urban Expansion Area Limits. Historically, it functioned as an agricultural hedgerow drain dating back to at least 1976, prior to the land being left fallow sometime thereafter. In the late 2010s, development of the Pathways at Findlay Creek neighbourhood north of the Subject Site resulted in modifications to this watercourse to facilitate the development. As of 2025, GeoOttawa classifies this reach as a Drainage Ditch.

Environmental Management Plan (Golder 2016a)

This feature represents the linear 'Scratch Ditch' constructed along the northern Site boundary to permanently convey runoff / sheet flow from the south and direct it to the Conveyance Channel designed to protect future developments from flooding (i.e., 100-year storm event).

July 25, 2025, Field Observations (SNC 2025a)

SNC observed that the Scratch Ditch (Feature-2) was constructed entirely within the private lands to the north (i.e., within the backyards of houses on the south side of Paakanaak Avenue) which was an unintended deviation from the *Remer Site Serviceability Plan*. At the time of the Pathways development, the area now designated as the S4 Urban Expansion Area had no allowance for construction within the property lines, resulting in the dual swale design within the rear yards of the private properties (Arcadis 2026b).

Minimal vegetation and erosion activity was also evident in the area where the Scratch Ditch transitions into the downstream Conveyance Channel.

External Drainage Area A2 (Fotenn 2026b)

Area A2 is an external, undeveloped drainage area located south of the future Earl Armstrong Road; no development lands are located south of the future Earl Armstrong Road (this corrects the description provided in the July 2026 Addendum). Area A2 forms part of external drainage Area A identified in the EMP (Golder 2016a), which was later subdivided into Areas A1, A2 and A in the Constructed Channel Design Brief for the Pathways at Findlay Creek development (IBI Group 2018). Under existing conditions, runoff from Area A2 drains north through watercourse INT-2 to the Scratch Ditch and the Conveyance Channel. The Scratch Ditch was designed to convey a 100-year peak flow of 0.66 m^3/s from Areas A1 and A2.

Rock Weir at INT-3

An informal rock weir is present at the junction of INT-3 (HDF S4-B), the Scratch Ditch (Reach S4-F) and the Conveyance Channel (Reach S4-A). The weir was reportedly built to accommodate ATV use and has no documented surface water control function. It is a barrier to fish passage between the Conveyance Channel and INT-3. The recommendation to remove the weir originates from SNC's July 25, 2025 field observations (SNC 2025a) and the original EIS, and is addressed in Section 7.2 of the revised Serviceability Report (Arcadis 2026b).

Feature-3

The third watercourse ("Feature-3") is located past the eastern edge of the Subject Site and has historically functioned as a hedged agricultural drainage ditch and roadside ditch as early as 1976, before the surrounding land was left fallow in subsequent years. Flow from this feature has historically travelled under Bank Street before continuing northeast. In the late 1990s, construction of a driving range to the south required modifications to the feature to accommodate the development. This watercourse remains more than 25 metres from the Subject Site boundaries.

Environmental Management Plan (Golder 2016a)

This feature is not discussed in the Golder (2016a) EMP as it occurs outside the Pathways at Findlay Creek Development Study Area to the north.

3.3.2 Groundwater

Geotechnical Investigation (Paterson Group 2026a)

The groundwater conditions of the Subject Site have been provided by Paterson Group, as reported in the PG6912-1 *Geotechnical Investigation Proposed Residential Development 4850 Bank Street Ottawa, Ontario,* prepared on December 20, 2023, and Rev 03 dated October 9, 2025 (Paterson Group 2025). The report's purpose was to analyze the subsoil and groundwater conditions and to provide geotechnical recommendations related to the proposed residential development at the Subject Site, including stormwater management facilities.

Overall, from a geotechnical perspective, Paterson Group (2025) determined that the Subject Site and associated subsurface conditions were considered suitable for the proposed development and the topographic plans for the Subject Site indicate that there are no significant slopes present.

See **Section 4.1.2** and **Section 5.2.2** below for more details on methodology and results, respectively.

The Geotechnical Investigation has since been updated (PG6912-1 Revision 7, June 2, 2026), and confirms that the design of the northeast stormwater pond accounts for the Subject Site's specific subsurface and high groundwater conditions.

Hydrogeological Study (Paterson Group 2026b)

The updated Hydrogeological Study (PH5087-REP.01.R6, October 20, 2026) confirms that groundwater flow within the S4 lands follows local topography and is characterized by two catchment areas (Paterson Drawing PH5087-6). Under pre-development conditions, shallow groundwater in the western catchment flows west toward the Leitrim PSW. Section 6.3 of the updated Hydrogeological Study references the EIS Addenda and the results of the western catchment water budget assessment (see Section 8.1.2).

Environmental Management Plan (Golder 2016a)

Recharge of Leitrim Core Wetland The Leitrim Core Wetland is a groundwater discharge zone for recharge that infiltrates the sand and gravel ridge deposits present to the west / southwest of the Subject Site (directly southwest of the Leitrim Core Wetland). The wetlands in this area exist as a direct result of the pinching out of the water-bearing sand and gravel outwash deposits; as the groundwater discharging from the sand and gravel towards the northeast encounters the lower permeability fine grained silty soils and glacial till, it is forced to surface in the area to the northeast of the ridge (i.e., Leitrim Core Wetland).

Additionally, the rise in elevation of the glacial till and bedrock surfaces in a general west to east direction (i.e., heading eastward from Albion Road towards Bank Street) provides a natural hydrogeological control and contributes to the near-surface water table conditions in the Leitrim Core Wetland.

Recharge of Casino Wetland Similar to above, groundwater flow from the Pathways at Findlay Creek development lands to the north does not recharge the Casino Wetland, which is recharged by discharging groundwater and overland drainage originating south (upgradient) of these lands.

Hydrogeology As mentioned, recharge of both the Leitrim Core Wetland and the Casino Wetland originates from the sand and gravel ridge present west / southwest of the Subject Site.

Golder (2016a) identified that development activities that have the potential to alter wetland recharge and water levels in this area may include:

- Alterations to Site drainage;
- Temporary trench dewatering during installation of Site services; and
- Permanent lowering of groundwater levels on Site if groundwater is allowed to drain through the service trenching along the permeable pipe bedding and backfill or associated with basement perimeter drains.

Groundwater lowering during installation of Site services would be temporary and is not expected to permanently alter the existing groundwater flow pattern. Groundwater recharge from the sand and gravel ridge is the main mechanism and reason for the presence of the Leitrim Core Wetland and Casino Wetland, as well as a contribution from surface drainage. Recharge to the ridge will be unaffected by temporary groundwater level lowering during installation of Site services (Golder 2016b).

Constructed Channel Monitoring (Year 5) (Cambium 2024)

Based on detailed studies conducted by Golder, the area between the northern fringe of the Casino Wetland and the constructed channel (i.e., off-site downstream portions of the linear Scratch Ditch / Feature-2) have experienced a permanent drawdown due to the construction of this channel associated with the Pathways at Findlay Creek development to the north. The maximum permanent water drawdown was identified as 0.1 to 0.5 m near the north limit of the Casino Wetland; however, any permanent drawdown was being mitigated by precipitation events and recharge from off-site locations to the south (including the Subject Site).

The Leitrim Core Wetland has experienced no permanent drawdown due to the past construction of this channel located just northwest of the Subject Site.

Water Wells, Seeps and Springs

No seeps, springs or sinkholes were observed by Arcadis biologists within the Subject Site during the 2024 field program. The Leitrim Core Wetland, west of the Subject Site, is a groundwater discharge area supplied primarily by groundwater moving through the sand and gravel ridge southwest of the Subject Site (Golder 2016b); the S-4 lands are underlain by glacial till and are not a significant recharge area for the wetland.

A review of the MECP Water Well Records is provided in the Hydrogeological Study (Paterson Group 2026b; Drawing PH5087-2 and Appendix 5). A number of wells are recorded within 500 m of the Subject Site; however, most are expected to be no longer in use or to be monitoring installations, as the surrounding area is largely serviced by municipal water. Any supply wells still in use are expected to draw from the deeper bedrock aquifer and are cased well below the anticipated excavation depths. The overburden aquifer is not considered an adequate water supply source. Paterson concluded that construction dewatering is not expected to interfere with the water supply of surrounding properties, and that any wells remaining on the Subject Site should be decommissioned in accordance with O. Reg. 903. If the rural residences along the eastern Site boundary do not connect to municipal services, a baseline water quality sampling program may be required at detailed design. Readers are referred to the Hydrogeological Study for well locations and details.

3.3.3 Floodplain and Regulated Limit

SNC is the governing body that regulates zones with potential for flooding, protects associated natural features, and restores and enhances ecosystems within portions of the South Nation watershed (location of the Subject Site). SNC also maintains, monitors, and collects information related to water quality / quantity, fisheries resources, forestry, land use, and wetlands. It is also important to note that, under *O. Reg. 41/24 (Prohibited Activities, Exemptions, and Permits),* SNC regulates any alteration to a watercourse that meets the definition under the *Conservation Authorities Act*, including constructed features (refer to **Section 2.2.4** above).

The SNC Public GeoPortal mapping shows that the property rests within the SNC jurisdiction, specifically the North Castor River subwatershed (Golder 2016a). The Leitrim PSW / ANSI is situated approximately 50 m west of the Subject Site, and approximately 500 m from the western edge of the Urban Expansion Area Limits.

No portion of the Leitrim PSW / ANSI or the SNC Regulated Area occurs within the Subject Site boundaries, though the SNC Regulated Area (i.e., 30 m buffer) for the Leitrim PSW / ANSI is situated approximately 20 m from the northern property line in the northwest corner (**Figure 4**).

3.3.4 Fishes and Fish Habitat

As shown in **Figure 4**, the Conveyance Channel / Feature-1 is a recently constructed, permanent watercourse that flows northwest from the northwestern extent of the Study Area, while the upstream Scratch Ditch flows west / southwest along the northern property line (see **Section 3.3.1**). The Aquatic Resource Area Survey Point feature layer (GEO 2025) has no fish community data associated with either of these features within the Study Area but does have fish community data along these features further upstream and downstream.

Golder (2016a) provided further evidence for the identification of reaches downstream / at the general location of what is now the Conveyance Channel / Feature-1 as direct fish habitat through the observation of small-bodied fishes during a summer terrestrial site visit. However, eventual electrofishing (327 seconds) by Golder in October 2013 yielded no catch.

Despite the lack of fish-catch in the historic watercourse located in the area of what is now the constructed Conveyance Channel / Feature-1 by Golder (2016a), small-bodied fishes were observed at several locations, and this feature was also identified to contribute surface flows to downstream fish habitat (including the Leitrim Core Wetland and Findlay Creek to the north). Therefore, the Scratch Ditch / Feature-2 represents indirect fish habitat as it conveys flows downstream to direct fish habitat but does not represent direct fish habitat itself at this time as the rock weir currently obstructs fish migration.

Based on extensive work done by Golder further north of the Subject Site, a table of known fish species comprising a warmwater fish community within the Leitrim Core Wetland and adjacent Findlay Creek has been derived (see **Table 4** below). Further downstream, east of Bank Street, Findlay Creek is known to exhibit coldwater conditions (Golder 2016a).

Table 4: Fish Species Previously Captured in Findlay Creek (Golder 2016a)

Common Name	Scientific Name
Bluntnose Minnow	Pimephales notatus
Brook Stickleback	Culea inconstans
Brassy Minnow	Hybognathus hankinsoni
Central Mudminnow	Umbra limi
Common Shiner	Luxilus cornutus
Creek Chub	Semotilus atromaculatus
Fathead Minnow	Pimephales promelas
Finescale Dace	Phoxinus neogaeus
Longnose Dace	Rhinichthys cataractae
Northern Redbelly Dace	Phoxinus eos
Pearl Dace	Margariscus margarita
Pumpkinseed	Lepomis gibbosus
White Sucker	Catostomus commersonii

Additional fish species associated with Findlay Creek were identified in the background review and through previous fieldwork by Golder (2016a). See **Table 5** below.

Table 5: Fish Species Previously Captured by Golder in Findlay Creek (Golder 2016a)

Common Name	Scientific Name
Blacknose Shiner	Notropis heterolepis
Brown Trout	Salmo trutta
Etheostoma sp.	Etheostoma sp.
Phoxinus sp.	Phoxinus sp.

Overall, the fish community detailed above is made up of common species to southern Ontario (S-Rank of S5). Based on the DFO Aquatic SAR and NHIC mapping resources, no aquatic SAR, Species of Conservation Concern, and/or their habitat have been reported within the Subject Site or surrounding Study Area (DFO 2024; MNRF 2024).

3.3.5 Stormwater Management

Environmental Management Plan (Golder 2016a)

The EMP provides the following criteria for stormwater management quantity and quality:

Water Quantity

The Golder (2016a) EMP provides the following summary table of water quantity control targets (**Table 6**).

Table 6: Water Quantity Control Targets (Golder 2016a)

Storm Event	Water Quantity Control Target at Point C (cms)
25 mm 4 hour Chicago	3.42
2 year 24 hour SCS Type II (48 mm)	7.61
5 year 24 hour SCS Type II (62.4 mm)	11.17
100 year 24 hour SCS Type II (103.2 mm)	23.46

Water Quality

With respect to total suspended solids (TSS), it was established that SWM facilities servicing the Leitrim Development Area will provide an Enhanced Level of Protection, which corresponds to 80% TSS removal as per the *Stormwater Management Planning and Design Manual* (Ontario Ministry of the Environment, March 2003).

This is consistent with the request from the Conservation Partners that SWM facilities servicing this area be designed for 80% TSS removal.

These water quality control targets were originally established in the 1995 ESR and July 2005 Addendum and are still applicable at this time (Golder 2016a).

3.4 Terrestrial Environment

The Site is mostly comprised of undeveloped, former agricultural lands that are generally divided by mature hedgerows. The ground surface of the property is relatively flat, sloping gently from south to north (approximately 107 m to 99 m elevation, respectively). The entire Site has been regenerating since the 1970's from agricultural lands into scrublands comprised of deciduous thickets and areas of open meadow.

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

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

The subsections below provide a review of available background records to determine the potential presence of these natural heritage features within the Study Area. Where possible, natural heritage features have been illustrated in **Figure 4.**

3.4.1 Wetlands

A review of the SNC Public GeoPortal and provincial natural heritage mapping (NHIC) indicates that no wetland features are mapped within the Subject Site or surrounding Study Area.

Majority of the Leitrim Provincially Significant Wetland (PSW) is situated approximately 50 m west of the Subject Site boundary, and approximately 500 m from the western edge of the Urban Expansion Area Limits (**Figure 4**). Most of the mapped 30 m buffer occurs 20 m outside the property line within the Study Area.

It should be noted that, at this time of writing, provincial background mapping has yet to update the PSW limits since the construction of the Pathways at Findlay Creek development lands to the north. Refer to **Figure 12** for a more accurate representation of the current PSW limits in relation to the Subject Site.

Environmental Management Plan (Golder 2016a)

A study was prepared by Beacon Environmental (2007) to review the Casino Wetland for the purpose of identifying an appropriate site-specific "no-touch" buffer width for the previous Pathways at Findlay Creek development and provided recommendations with respect to appropriate buffer widths for this feature. For the south, west and east sides of the Casino Wetland, the report recommended a 50 m no-touch buffer, with an additional 70 m adjacent lands zone in which only sensitive development should be allowed (e.g., stormwater management, recreation; Figure 7.1, Golder 2016a).

A second document was prepared by Beacon Environmental (2012) which reviewed scientific literature and current practices in Ontario relating to ecological buffering. For wetlands, the study identified the following key functions of buffers:

- Providing protection of water quality;
- Providing protection of water quantity;
- Screening direct human disturbances;
- Protecting a hazard mitigation zone; and
- Protection of core habitat.

The following figure was also provided, identifying ranges for wetland buffer widths, and the corresponding risk of not achieving the desired buffer function for each identified range of widths (Figure 3).

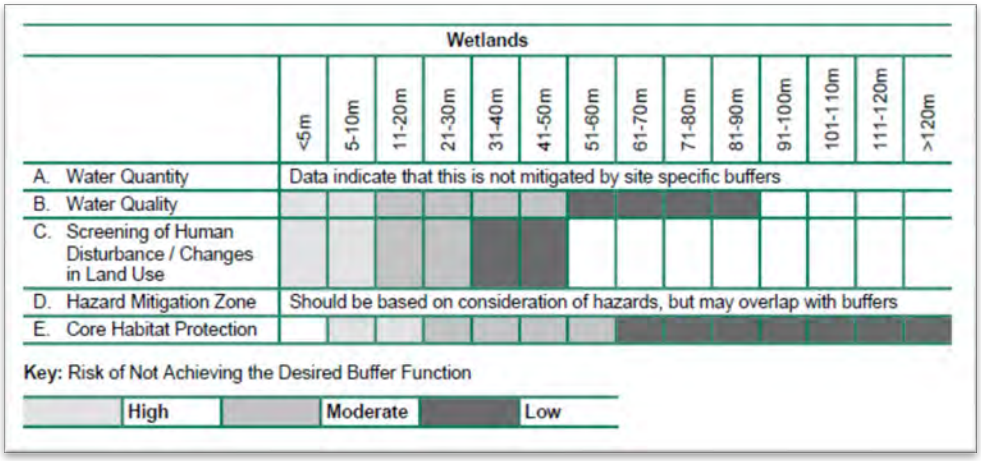


Figure 3: Ranges for Buffer Widths to Natural Environment Features based on the Current Science (Golder 2016a)

Based on the information presented by Beacon (2007; 2012) above, the **Golder (2016a) EMP recommended a no-touch buffer zone of 50 m adjoining the Casino Wetland, with an additional 50 m limited-use zone.**

3.4.2 Woodlands

Based on review of NHIC mapping, there is a small, wooded area (0.5 ha) in the northeastern portion of the Subject Site that extends north onto the adjacent property at 4840 Bank Street, as well as a narrow hedgerow along the southern perimeter of the Subject Site boundary.

The oldest available historic aerial imagery of the area (1976; GeoOttawa) was used to estimate the age and measure historic extent of these wooded areas.

3.4.3 Valleylands

The Site is flat and there are no Significant Valleylands present within the Study Area.

3.4.4 Area of Natural and Scientific Interest (ANSI)

No Areas of Natural and Scientific Interest (ANSIs) are present within the Subject Site boundary; however, the extents of the Leitrim ANSI are approximately 50 m west of the Subject Site boundary, and approximately 500 m from the western edge of the Urban Expansion Area Limits (**Figure 4**).

3.4.5 Significant Wildlife Habitat (SWH)

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

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

The potential for the presence of habitats matching the description of these SWHs within the Study Area was reviewed using available background information and aerial imagery, and it was determined that there may be presence of "Habitat for Species of Conservation Concern":

Habitat for Species of Conservation Concern

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

A review of background data (e.g., Ontario wildlife atlases and online databases; **Appendix C**) suggests that Barn Swallow, Grasshopper Sparrow, Eastern Wood-pewee, Olive-sided Flycatcher, Wood Thrush, Monarch, and Snapping Turtle have been reported within the Study Area. Additionally, screening by Golder (2016a) identified Eastern Milksnake and Eastern Ribbonsnake as having moderate to high potential for occurrence within the vicinity of the Study Area.

Eastern Whip-poor-will

Arcadis' 2025 ECR for this Project identified a moderate to high probability of occurrence of Eastern Whip-poor-will on-site, included under **Section 3.4.6 Species at Risk and Species at Risk Habitat** in the report (Arcadis 2025a). Eastern Whip-poor-will was recently downlisted to Special Concern status as of January 27, 2025; therefore, this species is now evaluated appropriately as a Species of Conservation Concern in this EIS (see **Section 5.3.4.1**).

There are no SWH features included in the City OP schedules. The results of the field surveys completed by Arcadis to confirm whether appropriate habitat for these species occurs within the Study Area are presented in Section 5.

3.4.6 Wildlife and Wildlife Habitat

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

- **Mammals:** Northern Raccoon, White-tailed Deer, Coyote, Eastern Grey Squirrel, Eastern Cottontail, among others.
- **Reptiles & Amphibians:** Eastern Gartersnake, American Toad, among others.
- **Birds:** American Crow, American Robin, Northern Cardinal, American Goldfinch, Black-capped Chickadee, Blue Jay, Song Sparrow, among others.

3.5 Species at Risk and Species at Risk Habitat

Throughout this report, all references to SAR pertain specifically to species listed as Endangered or Threatened on the Protected Species in Ontario List (O. Reg. 60/26) and protected under the provincial *Species Conservation Act, 2025* (SCA), which replaced the ESA on March 30, 2026. Species listed as Special Concern are addressed in the context of their potential contribution to SWH.

As the Study Area is located on non-federal land, SARA's habitat protections generally do not apply; however, its prohibitions on harming individuals and damaging or destroying their residences apply to listed Endangered and Threatened migratory birds on all lands, and Section 58 protects the critical habitat of Schedule 1 aquatic species and migratory birds. As migratory birds and aquatic species listed under SARA are no longer protected provincially under the SCA, SARA protections are expected to apply within the Study Area where no protection is provided under the SCA (Section 2.1.2).

A desktop review was performed to search for potential SAR within or adjacent to the Study Area. A review of aerial imagery was used to identify general candidate habitat for these species based on the description of habitat provided species assessed to have a moderate to high potential for occurrence within our Study Area are discussed in the following sections. This desktop review identified 14 SAR occurring within proximity to the Study Area, listed in **Appendix D**.

The City of Ottawa Species at Risk in Ottawa list (April 15, 2026), the Protected Species in Ontario List (O. Reg. 60/26) and Schedule 1 of SARA were compared against the species lists compiled for this EIS (Appendix F). Species at risk are highlighted in the species lists with their current status. All eight SAR identified in Table 7 are listed as Endangered on O. Reg. 60/26. As migratory birds, Wood Thrush, Eastern Whip-poor-will and Barn Swallow are not included on O. Reg. 60/26; however, these species remain listed as Threatened under SARA and are protected as described above. Observations of Butternut and Black Ash will be reported to the Natural Heritage Information Centre upon application of permit.

3.5.1 Endangered and Threatened Species and Their Habitat

Under the former ESA, all species listed as Threatened or Endangered in Ontario received immediate 'general habitat protection'. This included 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.

At the time the original EIS was prepared, interim amendments to the ESA introduced through the *Protect Ontario by Unleashing Our Economy Act* (Bill 5) on June 5, 2025 had narrowed the definition of what is considered "habitat". The SCA came into force on March 30, 2026 and replaced the ESA. The requirements of the SCA, including registration and Conservation Plan requirements, are summarized in Section 2.2.2.

Beyond the limits of the Study Area, described above, wildlife and SAR occurrences are considered up to 10 km from the proposed development due to the nature of desktop resources (i.e., online databases and atlases) with data presented in a 10 km x 10 km grid.

Eight (8) Endangered or Threatened species have been reported in the area and have a moderate to high potential for occurrence within the Study Area (**Table 7**). Refer to the SAR Screening table in **Appendix D**.

Table 7: Species at Risk with Occurrence Records and Suitable Habitat within the Study Area

Common Name	Scientific Name	S-Rank	Protected Species in Ontario Status	SARA Status
Mammals				
Little Brown Myotis	Myotis lucifugus	S3	END	END
Northern Myotis	Myotis septentrionalis	S3	END	END
Eastern Red Bat	Lasiurus borealis	S4	END	Under consideration

Common Name	Scientific Name	S-Rank	Protected Species in Ontario Status	SARA Status
Hoary Bat	Lasiurus cinereus	S4	END	Under consideration
Silver-haired Bat	Lasionycteris noctivagans	S4	END	Under consideration
Tri-coloured Bat	Perimyotis subflavus	S3?	END	END
Trees				
Black Ash	Fraxinus nigra	S4	END	Under consideration
Butternut	Juglans cinerea	S2?	END	END

Notes: S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common. Protected Species in Ontario Status = status on the Protected Species in Ontario List (O. Reg. 60/26) under the SCA; SARA = Species at Risk Act, 2002, Schedule 1 status (Under consideration = under consideration for addition to Schedule 1), END: Endangered

Bat Species at Risk

Three bat species (Eastern Red Bat, Hoary Bat, and Silver-haired Bat) were uplisted to Endangered status on the former Species at Risk in Ontario (SARO) List on January 27, 2025. As such, these species have been added as SAR having moderate to high probability of occurrence on the Subject Site since Arcadis' previous ECR for this Project (Arcadis 2025a).

Bat habitat searches conducted by Golder for purposes of the EMP found that large cavity trees or trees with large pieces of loose bark were absent from the majority of the Subject Site to the north (i.e., Pathways development), but some larger trees to the west may provide suitable habitat for bats. Therefore, suitable bat habitat occurs within the Study Area (Golder 2016a).

Eastern Whip-poor-will

This species was recently downlisted to a Species of Conservation Concern with Special Concern status as of January 27, 2025. Refer to **Section 3.4.5** above for more details.

3.6 Summary of Natural Heritage Features as per the Provincial Planning Statement

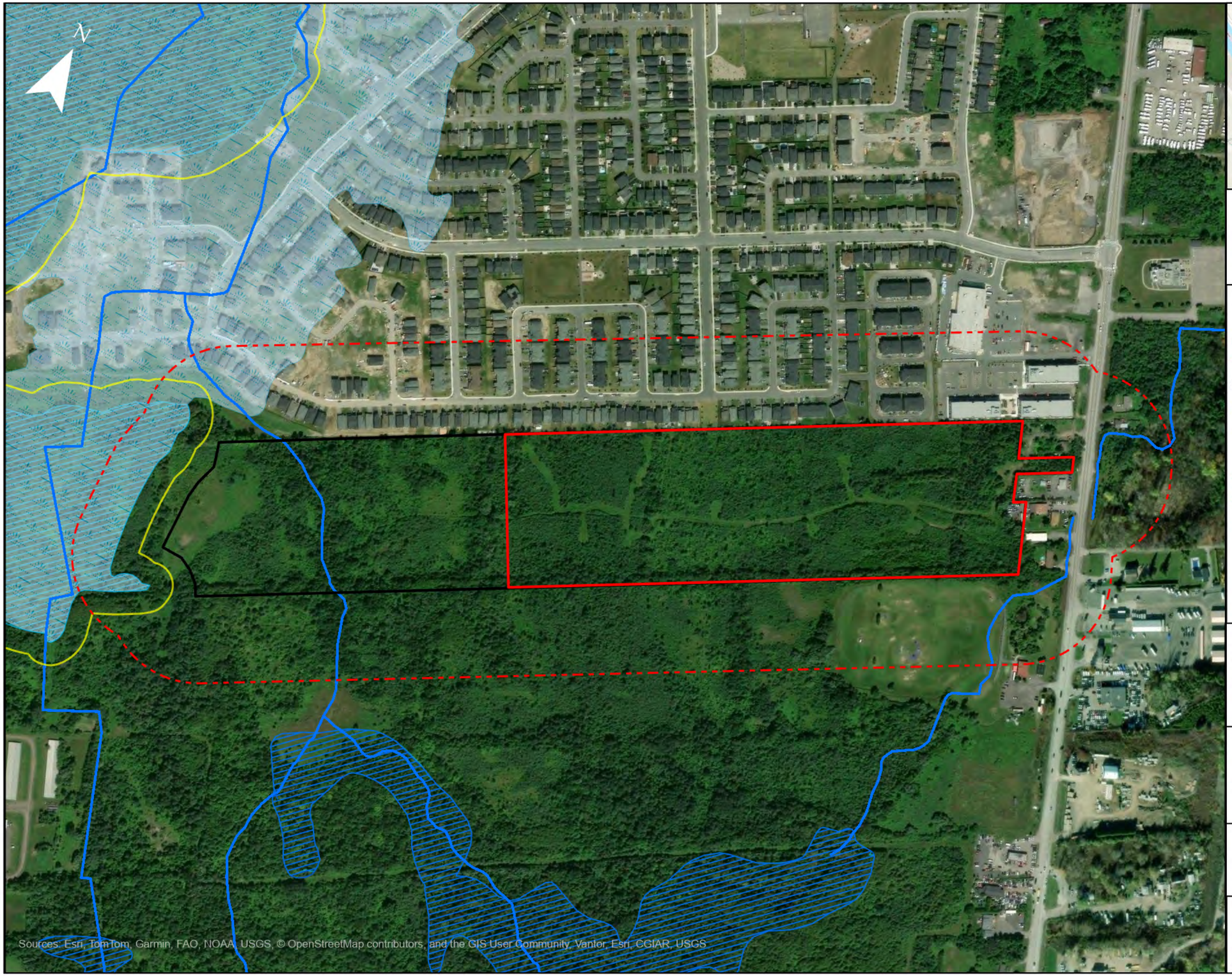
Based on a review of background resources and aerial imagery, most of the Subject Site is comprised of undeveloped, regenerating lands, with one small woodland in the eastern extents. Mapping by SNC and the City indicate the presence of two watercourses: one at the western extent of the Subject Site which flows northwest from the southern extents of the Subject Site, and another watercourse east of the Study Area that flows northeast from the wetlands south of the Subject Site, travels along the eastern extents of the Subject Site and crosses under Bank Street eastwards.

A summary of the known natural heritage features identified within the Subject Site boundaries during the background review are summarized below in **Table 8** and are presented in **Figure 4**. Further background data is presented in **Appendix B** and **Appendix C.**

Table 8: Known Natural Heritage Features within the Subject Site

Natural Heritage Feature	Present within Study Area	Comments	Further Assessment Required
Provincially Significant Wetlands (PSWs)	Yes	Leitrim PSW approximately 50 m from the Subject Site boundary.	**Yes – Section 4.2.2**
Significant Woodlands	Yes	One small woodland identified on Site during review of satellite imagery.	**Yes – Section 4.5.1**
Significant Valleylands	No	No Valleylands identified during review of satellite imagery.	No
Areas of Natural and Scientific Interest (ANSIs)	Yes	Leitrim ANSI approximately 50 m from the Subject Site boundary.	**Yes – Section 4.5.2**

Natural Heritage Feature	Present within Study Area	Comments	Further Assessment Required
Significant Wildlife Habitat	None identified in OP schedules	Potential for SWH needs to be determined following assessment of the suitable habitats on Site.	**Yes – Section 4.5.3**
Species at Risk Habitat	Yes	Arcadis (2025a) ECR: Butternut and Black Ash present within Urban Expansion Area Limits; potential bat day-roosting habitat.	**Yes – Section 4.3**
Fish Habitat / Surface Water	Yes	Conveyance Channel / Feature-1, Scratch Ditch / Feature-2 and Feature-3. Reaches upstream and downstream of the Subject Site contain known fish habitat.	**Yes – Sections 4.1 and 5.2**





Scale: 1:5,000

0 37.5 75 150 225 300 Meters

Legend

- Proposed Development Area (Nov 2026)
- Study Area (120 m)
- Property Boundary
- SNC Regulation Limit (30 m)
- Watercourse / Cours d'eau
- Waterbody / Plan d'eau
- Evaluated Wetland - Other (GEO, 2025)
- Unevaluated Wetland (GEO, 2025)
- Provincially Significant Wetland (GEO, 2025)

Project:

4850 Bank Street EIS & TCR
The Edge at Pathways [S-4 Lands]

Title:

Natural Heritage Background Information

Prepared By:

FOTENN

Date:

11/10/2026

Figure: 4

4.0
Methodology

Based on the description of the existing natural environment outlined above, the natural heritage surveys outlined below have been completed by Arcadis Ecologists in 2024 to assess the impacts of the proposed development on the natural environment. These surveys follow industry standard protocols and are intended to establish baseline conditions. Surveys were undertaken within the Subject Site and natural features within the larger Study Area were evaluated from a distance (when possible) or via air-photo interpretation.

The following studies have been completed to date:

Aquatic Environment:

- Headwater Drainage Feature (HDF) Assessment

Terrestrial Environment:

- Ecological Land Classification
- Wetland Verification / Delineation
- Amphibian Breeding Surveys
- Breeding Bird Surveys
- Point counts
  - Eastern Whip-poor-will surveys
  - Raptor nest searches
  - Pileated Woodpecker habitat searches

Species at Risk:

- Identification of potential SAR and SAR habitat
- Butternut and Black Ash Inventory

Incidental Wildlife:

- Visual and auditory observations of wildlife during all field studies

Natural Heritage Features Assessment:

- Significant Woodlands Assessments
- Areas of Natural and Scientific Interest (ANSIs) Assessment
- Significant Wildlife Habitat Assessment

Where applicable a depiction of field survey locations is included at the end of this section in **Figure 5.**

4.1 Aquatic Environment

4.1.1 Surface Water Assessment

For purposes of this EIS, surface water associated with the aquatic environment within the Study Area is confined to the three Surface Water Features identified during the background data search (**Figure 4**) and any other

features with defined channels observed on-site. In-situ assessments of each feature were conducted by Arcadis Ecologists in 2024.

Headwater Drainage Feature Assessment

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

This assessment included a description of the channel morphology, channel width, wetted width, bankfull depth, water depth, substrate, and in-stream cover.

4.1.2 Groundwater Assessment

The field program for the Paterson Group (2025) *Geotechnical Investigation* was carried out on June 18 and 20, and July 7, 2025. At that time, a total of 10 boreholes were advanced to a maximum depth of 8.5 m below existing grade. The previous geotechnical investigation (carried out on December 11, 12 and 14, 2023) consisted of advancing a total of 15 boreholes to a maximum depth of 5.9 m below the existing ground surface.

Borehole locations were distributed in a manner to provide general coverage of the Subject Site and the proposed service connection along Bank Street, taking into consideration underground utilities and site features.

The boreholes were advanced using a track-mounted auger drill rig operated by a two-person crew. The drilling procedure consisted of augering and rock coring to the required depths at the selected borehole locations, and sampling and testing the soil and bedrock.

Groundwater monitoring wells were installed in six of the boreholes (BH 1-23, BH 2A-23, BH 6C-23, BH 10-23, BH 1-25, and BH 3-25) to permit long-term groundwater measurement subsequent to the field investigation.

For further details regarding the geotechnical investigation approach and methods, see Paterson Group (2025). The Geotechnical Investigation has since been updated (PG6912-1 Revision 7, June 2, 2026; Paterson Group 2026a).

4.1.3 Fishes and Fish Habitat Assessment

Assessments for fishes and fish habitat were completed as part of the HDF evaluations conducted for all reaches and wetlands during on-site field investigations. Important habitat characteristics including flow, substrate size, substrate type, connectivity to adjacent habitats, and obstructions for fish passage / migration were measured, documented, and carried forward for evaluation.

4.2 Terrestrial Environment

4.2.1 Vegetation Communities / Ecological Land Classification (ELC)

Vegetation communities within the Study Area were characterized and mapped using the *Ecological Land Classification for Southern Ontario* (ELC) (Lee et al. 1998). The ecological community boundaries were determined through the review of aerial photography and then further refined through on-site vegetation surveys as specified by the protocol. Field studies were completed by systematically walking the Subject Site. For areas where access was not granted, observations were conducted from either the road right-of-way or the property edge to the extent visible.

The ELC protocol recommends that a vegetation community be a minimum of 0.5 ha in size before they are defined as a discrete community. Unique communities less than 0.5 ha or disturbed/planted vegetation have been described to the community level only or have been described as an inclusion or complex to an existing

vegetation community. In some instances, where an ecosite is less than 0.5 ha but appears relatively undisturbed and clearly fits within an ELC vegetation type, the more refined classification was used.

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

4.2.2 Wetland Verification / Delineation

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

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

Water Balance

A catchment-specific annual water budget assessment was completed by Paterson Group and is included in Appendix 2 of the Hydrogeological Study (Paterson Group 2026b). The water budget evaluates the potential for the Project to cause impacts to the adjacent Leitrim PSW due to on-site changes to infiltration, runoff and dewatering, and compares pre- and post-development groundwater recharge and surface runoff volumes for the western catchment draining to the Leitrim PSW. The results are presented in Section 8.1.2.

Hydrologic Impact Assessment

A hydrologic impact assessment will be prepared by Arcadis, with input from Paterson Group and Fotenn, and submitted with the SNC permit application. The assessment will:

- Compare pre- and post-development hydrographs at the western outlet for a range of storm events (25 mm to 100-year, including the climate change stress test);
- Separate stormwater management facility discharge from clean flows from INT-3 and the Scratch Ditch;
- Evaluate changes in the volume, frequency, timing and duration of flows, and the erosion threshold of the Conveyance Channel and its outlet; and
- Evaluate the resulting changes in wetland water levels and hydroperiod during the growing season.

Based on the results, an appropriate flow regime for the receiving features will be established and the stormwater management facility outlet design adjusted as required (Section 8.1.2).

4.2.3 Botanical Inventory

A botanical / vegetation inventory was compiled by Arcadis Ecologists from the 2025 field investigations. Vegetation was inventoried in conjunction with ELC surveys, and a list of vascular plant species was compiled. This inventory was also used to screen for any SAR and/or provincially rare species not previously identified within the Study Area.

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

4.2.4 Amphibian Surveys

Amphibian breeding surveys were conducted and followed the *Marsh Monitoring Program - Participant's Handbook for Surveying Amphibians* (Bird Studies Canada 2009). Three survey visits were conducted between April and June 2024, with at least two weeks between each visit to target detection of all species that may be present at various times of the spring / summer. Surveys began at least one half-hour after sunset during evenings with a minimum night temperature greater than 5 0C on the first survey, 10 0C for the second survey, and 17 0C for the last survey. Several survey locations were situated within the woodland and/or wetland features within the Study Area to target breeding individuals.

Each amphibian survey involved standing at a predetermined station for three minutes and listening for amphibian calls. The location of calling individuals was estimated to be within 50 m, 50 m to 100 m, or greater than 100 m away. When possible, the number of individuals was counted. Calling activity was then ranked using one of the three abundance code categories:

- **Code 1:** The number of individuals can be accurately counted.
- **Code 2:** Calls are distinguishable and some calls simultaneous, the number of individuals can be reliably estimated.
- **Code 3:** Full chorus; calls continuous and overlapping, the number of individuals cannot be estimated.

In areas where candidate amphibian habitat existed, vernal pools were visually examined for egg masses and amphibian larvae in conjunction with other field surveys.

4.2.5 Breeding Bird Surveys

Point Counts

Diurnal breeding bird surveys were conducted by Arcadis Ecologists within the Study Area and followed point count methods outlined in the *Ontario Breeding Bird Atlas Guide for Participants* (Bird Studies Canada 2001) with a minor increase in the survey duration from 5 minutes, up to 6 minutes. Two surveys were completed during the bird breeding season in 2024.

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

Raptor Nest Survey

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

Pileated Woodpecker Nest Surveys

Surveys for Pileated Woodpecker nests were completed within the Subject Site. Transects spaced 15 m apart were walked in suitable habitat. Trees larger than 25 cm dbh were scanned with binoculars for cavities. Nests are those which are dome shaped 10-13 cm high and 7-10 cm wide (ECCC 2022). If more than one such hole is present in a decaying tree it will be considered a roosting cavity and is therefore not afforded protection under the MBR. If a candidate nest cavity was observed a photograph was taken along with notes on cavity size, tree species, and tree health.

Eastern Whip-poor-will Surveys

Surveys for Eastern Whip-poor-will were completed in 2024 for purposes of Arcadis' (2025) ECR prior to this species being downlisted to Special Concern on the former SARO List as of January 27, 2025. Refer to Arcadis'

ECR (2025) for details on the survey protocol used to determine presence / absence of this species within the Study Area.

4.3 Species at Risk

Preliminary screening for SAR was conducted and a list of potential SAR was compiled for the Subject Site through review of various resources. The desktop review identified the potential for eight SAR (Little Brown Myotis, Eastern Red Bat, Hoary Bat, Silver-haired Bat, Northern Myotis, Tri-coloured Bat, Butternut, Black Ash) to occur within the Study Area based on suitable habitat conditions (**Appendix D**).

Site visits recorded the location for all observed plant and animal species that are listed provincially as Threatened and Endangered (Appendix D). Should any SAR or SAR habitat be identified within the Study Area during field surveys, appropriate measures will be proposed to reduce or eliminate the impact of the proposed development on the observed species or habitat. This may include further consultation with the Ministry of the Environment, Conservation and Parks (MECP), registration under the SCA, and/or additional species-specific surveys.

4.3.1 Butternut and Black Ash Inventory

Specific attention was paid to locating SAR plants within the Study Area, specifically Butternut and Black Ash. If these species were observed, they were photographed, and their coordinates recorded. Each individual tree was assigned a number and flagged (e.g., flagging tape).

For this survey, the inventory included all treed areas on site and the 50 m surrounding area. Where the 50 m extended to neighbouring lands, inventory was assessed from a distance / over the fence.

4.4 Incidental Wildlife

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

Incidental sightings are documented in **Appendix F.**

4.5 Natural Heritage Features Assessment

The *Natural Heritage Reference Manual* (MNR 2010) is the technical document used to define and set out the criteria for the determination and designation of provincially significant natural heritage features, as summarized in **Table 8** above. Some of these significant natural heritage features have been designated by MNR (e.g., ANSIs), while others may be designated as regionally significant by the municipality having jurisdiction. For features that have not been identified as significant, site-specific findings are used for evaluation against criteria detailed by MNR.

Regionally significant features may provide important features to the local community and local environment but may not meet the threshold of significance at the provincial scale. These features are still important features to preserve on the landscape as they provide important benefits locally. If a feature is provincially significant then it will also be regionally significant, but not all regionally significant features will be provincially significant.

When projects are proposed, the identification of these features is essential to promote protection through the applicable guidelines, regulations, and policies. Referring to provincial and municipal resources, the following subsections evaluate the significance of the features present within the Study Area.

The natural heritage features identified as candidate features based on background review or confirmed present by others based on previous field investigations are brought forward for evaluation, as per the applicable

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

4.5.1 Significant Woodlands – Urban Criteria

This report makes use of the City of Ottawa's S*ignificant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment* (SWG; City of Ottawa 2022d) which notes that within the Urban Area, Ottawa defines all urban woodlands meeting minimum size and age thresholds (i.e., 0.8 ha and 60 years old, respectively) as significant under the *Natural Heritage Reference Manual* (NHRM) *Criterion 4 – Economic and Social Functional Values* (MNR 2010). This policy does not preclude the possibility that urban woodlands may also qualify as Significant under other NHRM criteria (City of Ottawa 2022d).

Section 4.3 of the guidelines notes that within Urban Expansion Areas, special policies exist for significant woodlands and other natural heritage features under City OP policies in Section 3.1 and 12.2. In these areas, development proponents are required to identify and to convey the natural heritage system and natural heritage features to the city at no cost. Significant woodlands, however, will be subject to further evaluation using these guidelines to determine if retention of the woodlot provides the greatest community benefit, or if modification or reduction of the woodlot is warranted prior to conveyance (City of Ottawa 2022d).

4.5.2 Areas of Natural and Scientific Interest

No ANSIs are present within the Subject Site; however, the extents of the Leitrim ANSI are approximately 50 m west of the Subject Site boundary, and approximately 500 m from the western edge of the Urban Expansion Area Limits (refer to **Figure 4**).

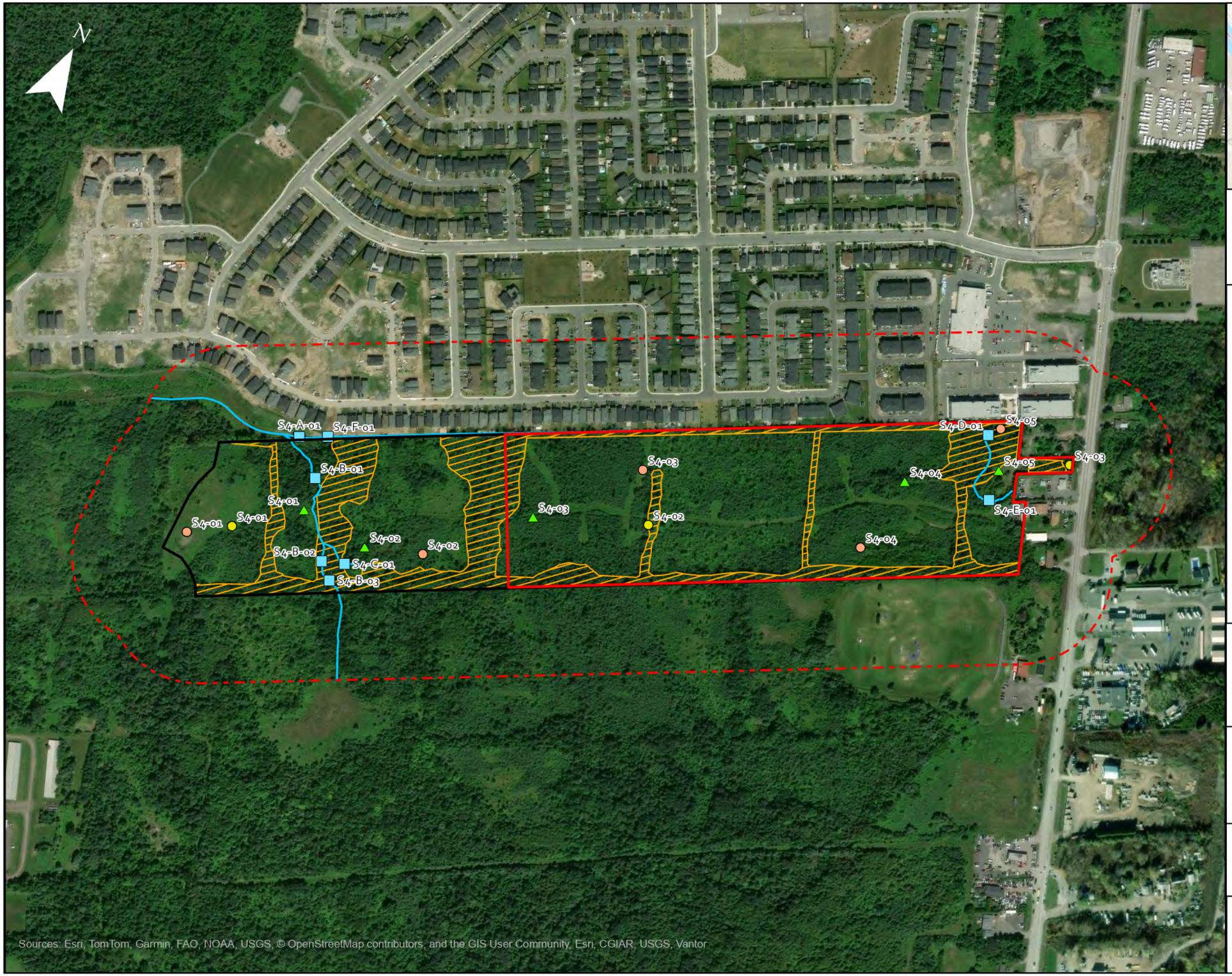
As this feature is not within the Subject Site or Urban Expansion Area Limits where development is proposed, a full assessment was not completed as part of this EIS. However, due to the proximity of this feature to the Subject Site, the Leitrim ANSI is being carried forward to evaluation.

4.5.3 Significant Wildlife Habitat

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

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

The ELC communities were compared to the MNR's Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (2015) and those that were deemed candidate SWH are discussed in **Section 6.4** below. The full SWH assessment is in **Appendix G**.





Scale: 1:5,000

0 37.5 75 150 225 300 Meters

Legend

- Proposed Development Area (Nov 2026)
- Study Area (120 m)
- Property Boundary
- HDF Survey Station (Arcadis 2024)
- Breeding Bird Survey Station (Arcadis 2024)
- Breeding Bird Survey Station (Arcadis 2024)
- Amphibian Survey Station (Arcadis 2024)
- Surveyed HDF (Arcadis 2024)
- SAR Plant, PIWO, & Stick NestSurvey (Arcadis 2026)

Project:

4850 Bank Street EIS & TCR
The Edge at Pathways [S-4 Lands]

Title:

Field Survey Locations

Prepared By:

FOTENN

Date:

11/10/2026

Figure: 5

5.0
Field Investigation Results

The following field investigation results were documented from fieldwork conducted by Arcadis Ecologists for the Leitrim West Urban Expansion Area – S4 development between April and August 2024. Field investigations were conducted when weather conditions and timing were deemed suitable based on the survey protocols being implemented. The following sections outline the findings from the field surveys and characterize the existing conditions within the Study Area.

Refer to **Appendix H** for Site Photos.

5.1 Site Visit Dates and Purpose

A summary of the dates, times, ambient conditions, and purpose for the site visits are provided in **Table 9** below.

Table 9: Summary of Survey Dates and Weather Conditions

Purpose of Visit	Date (dd-mm-yyyy)	Time	Staff	Weather Conditions	Air Temp (°C)
Initial Site Visit, HDF1, MMP1	06-05-2024	2:24 PM – 10:15 PM	B. Semmler, C. Haines	Clear, Moderate Breeze	20
SAR, Client Visit	16-05-2024	8:30 AM – 4:00 PM	B. Semmler, C. Little, A. Zeller	Sunny, Gentle Breeze	23
BBS1	31-05-2024	5:30 AM – 9:00 AM	B. Semmler, D. Shaw	Sunny, Light Breeze	21
BBS2	11-06-2024	5:30 AM – 8:30 AM	D. Shaw	Cloudy, Light Breeze	9
MMP2	25-06-2024	11:30 PM – 1:00 AM	B. Semmler, D. Shaw	Cloudy/Overcast, Light Breeze	19
HDF2, SAR Plants	17-07-2024	8:00 AM – 12:00 PM	D. Shaw	Mostly to Partly Cloudy, Gentle Breeze	16
ELC, SAR Plants	07-08-2024	10:30 AM – 5:00 PM	B. Semmler, D. Shaw	Mainly Sunny, Gentle Breeze	22
ELC, SAR Plants	08-08-2024	8:00 AM – 3:30 PM	B. Semmler, D. Shaw	Mostly Cloudy, Light Air	19

Notes: BBS – Breeding Bird Survey; ELC – Ecological Land Classification; HDF – Headwater Drainage Feature (HDF1 = spring assessment, HDF2 = summer assessment); MMP – Marsh Monitoring Protocol (i.e., amphibian breeding / call surveys).

5.2 Aquatic Environment

5.2.1 Headwater Drainage Feature Assessment

Arcadis ecologists conducted field investigations of surface water features (Features 1 through 3; see **Section 3.3.1** above), which led to the identification of three additional features (one at the western extent and two at the eastern extent of the Subject Site), as well as the ultimate exclusion of Feature-3 from assessment. Although Feature-3 exhibited characteristics of both a watercourse and an HDF, it was not influenced by on-site surface water hydrology, nor did it exert any influence on Site hydrology.

Through field investigations, a total of six drainage features were identified within the Study Area:

- Two drainage features are located within the Urban Expansion Area Limits,
- Two drainage features are located within the Subject Site boundaries, and
- Two additional drainage features are located northwest of the Subject Site, within the Study Area.

Water flow was observed in all features during the first spring freshet visit. Subsequent visits revealed varying flow conditions. Of these six features, reaches S4-B and S4-C resulted in a 'Protection' recommendation, reach S4-A (i.e., Conveyance Channel) and S4-F (i.e., Scratch Ditch) resulted in a 'Mitigation' recommendation, and S4-D and S4-E (within Urban Expansion Area Limits) resulted in a 'No Management Required' recommendation.

A summary of the management recommendations for each feature is provided below in **Table 10** and displayed in **Figure 6**. This detailed assessment highlights the management classification proposed by the HDF Guidelines (TRCA and CVC 2014) and the revised management recommendations carried forward in this study based on the specific landscape context of these features. Summary of data collected during the HDF assessments can be found in **Appendix E.**

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

- **Protection:** Protect and/or enhance the existing feature and its riparian corridor in-situ.
- **Conservation:** Maintain, relocate, and/or enhance drainage feature and its riparian zone corridor.
- **Mitigation:** Replicate or enhance functions through enhanced conveyance measures. Flows should be conveyed to the appropriate downstream receiver.
- **Maintain Recharge:** Maintain overall water balance by through measures to infiltrate clean stormwater.
- **Maintain/Replicate Terrestrial Linkage:** Maintain or replicate the terrestrial corridor between features.
- **No Management Required:** Incorporate flow conveyance into standard stormwater solutions.

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

Reach S4-A (Conveyance Channel)

This feature (Surface Water "Feature-1") is located outside the Urban Expansion Area Limits, within the northwestern extent of the Study Area (refer to **Figure 6**). Review of background resources for feature S4-A indicated that it was constructed around 2019 prior to urban development directly adjacent / north of the Subject Site within the southwestern extent of the adjacent Pathways Subdivision. The Conveyance Channel was designed to maintain more consistent hydrologic conditions within the reach prior to discharge to the Leitrim PSW to the northwest. In-channel habitat features for amphibians, fishes, and invertebrates were either maintained or enhanced as outlined within Golder's Headwater Feature Management Recommendation (Golder 2016a). The feature is now owned and managed by the City following a five-year monitoring program (Cambium 2024) as part of the previous development to the north.

Minimal water flow was observed within feature S4-A during Arcadis' spring and summer assessments, and the presence of a constructed rock weir (described below) was observed, located at the upstream end of the Conveyance Channel / intersection of S4-A, S4-B, and S4-F (Scratch Ditch). While this area does provide important riparian habitat (Ash Mineral Deciduous Swamp [SWDM2]), no fishes or breeding amphibians were observed during field investigations.

Given these characteristics, the retention of this feature in-situ is not warranted; however, because this feature is an engineered drain and stormwater management feature which conveys stormwater from the adjacent development to the Leitrim PSW in the northwest. the proposed management recommendation for Reach S4-A is "Mitigation".

Rock Weir

A constructed Rock Weir at the upstream end of the Conveyance Channel was observed extending approximately 20 m along the intersection of S4-A, S4-B, and S4-F and consists of large limestone boulders (approximately 35 cm in length and width) on a steep slope that borders the Subject Site and the adjacent Pathways Subdivision within the northwestern extent of the Study Area. Refer to the photos below.

Removal of the rock weir is recommended to restore fish passage and hydraulic connectivity between the Conveyance Channel and INT-3 (S4-B), subject to pre-removal documentation of upstream water levels in the Ash Mineral Deciduous Swamp (SWDM2) and an SNC permit (Sections 7.2 and 8.1.1).



S4-A, May 6, 2024



S4-A, July 16, 2024



Rock Weir, Sept 26, 2025



Rock Weir, Sept 26, 2025

Reach S4-B

This feature (also referred to as “INT-3” in the Golder (2016a) EMP) is located outside the Urban Expansion Area Limits, within the western extent of the Subject Site (refer to **Figure 6**). S4-B facilitates flow from an unevaluated marsh (GEO 2025; **Figure 4**) located approximately 70 m south of the Study Area through the on-site Ash Mineral Deciduous Swamp (SWDM2) inclusion, where ultimately the flow drains into reach S4-A (after first needing to traverse the rock weir) and towards the Leitrim PSW to the northwest.

The presence of several Black Ash trees within the Ash Mineral Deciduous Swamp inclusion suggests that this reach provides habitat for this endangered species. Additionally, this reach contributes valuable terrestrial habitat, connecting both upstream and downstream areas and including an on-line wetland that serves as a movement corridor for low-mobility wildlife. There is low potential for upstream fish passage onto S4-B from downstream Feature S4-A due to the presence of the rock weir (described above), however ephemeral flooding during the high-water season may provide an opportunity for some fish species to migrate onto the Subject Site. During the survey, minimal evidence of breeding amphibians was noted, with only one American Toad call recorded.

Given these characteristics, the retention of this feature is essential, and the proposed management recommendation for Reach S4-B is “Protection”. Refer to the photos below.



S4-B, May 6, 2024



S4-B July 14, 2024

Reach S4-C

This feature is located outside the Urban Expansion Area Limits, within the western extent of the Subject Site (refer to **Figure 6**). This reach provides minimal surface flow toward the northwestern reaches (S4-A, S4-B), conveying water from the easternmost Mixed Willow Mineral Deciduous Thicket Swamp (SWTM3-6) inclusion to reach S4-B, then S4-A (Conveyance Channel) before draining into the Leitrim PSW.

At the intersection of reach S4-B and S4-C, a low-lying pond has formed, likely due to a natural depression and the continuous use of an ATV trail. Glossy Buckthorn thickets line the banks, creating riparian habitat. This reach also offers valuable terrestrial habitat by connecting the Mixed Willow Mineral Deciduous Thicket Swamp and the Ash Mineral Deciduous Swamp (SWDM2) inclusions. Additionally, S4-C serves as a movement corridor for breeding amphibians, with several recorded at the head of this reach.

Given these characteristics, the retention of this feature is essential, and the proposed management recommendation for Reach S4-C is "Protection". Refer to the photos below.



S4-C, May 6, 2024



S4-C, July 14, 2024

Reaches S4-D and S4-E

Both Reach S4-D and S4-E are located within the eastern extent of the Urban Expansion Area Limits. These features are isolated and no longer connect to any upstream or downstream features (refer to **Figure 6**). Aerial imagery suggests that these reaches once received flow from the northern property prior to the construction of a residential complex.

S4-D currently exists as a disconnected reach that is situated along a clay basin with low permeability that allows for water accumulation and aids in sustaining the Poplar Mineral Deciduous Swamp (SWDM4-5) inclusion in this area. Although minimal amphibian breeding habitat was recorded along S4-D during targeted surveys (American Toad Call Code:1, Spring Peeper Call Code:1), the lack of connecting habitat indicates that this reach provides limited terrestrial habitat for low mobility species and does not contain habitat suitable for fishes.

Similarly disconnected, S4-E allows for water from S4-D to overflow further east on the property through Glossy Buckthorn thicket riparian habitat. This reach terminates at the eastern property line, thereby limiting its capacity for habitat mobility and fish passage. Water accumulates along this reach due to the presence of clay substrate.

Given these characteristics, these isolated ditches (S4-D and S4-E) receive a management recommendation of "No Management Required". Refer to the photos below.



S4-D, May 6, 2024



S4-D, July 14, 2024



S4-E, May 6, 2024



S4-E, July 14, 2024

Reach S4-F (Scratch Ditch)

This feature (previously identified as "Feature-2") is located outside the Urban Expansion Area Limits, along the northwestern boundary of the Subject Site and adjacent to the northern development area (refer to **Figure 6**). Constructed as a "Scratch Ditch", it was designed to accommodate runoff from the Subject Site area and backyards associated with the ongoing Pathways at Findlay Creek development. This feature was observed to have been constructed entirely within the private lands to the north (i.e., within the backyards of houses on the south side of Paakanaak Avenue) which was an unintended deviation from the *Remer Site Serviceability Plan*, as indicated by SNC in their *July 25, 2025, Field Observations* (SNC 2025a). At the time of the Pathways development, the area now designated as the S4 Urban Expansion Area had no allowance for construction within the property lines, resulting in the dual swale design within the rear yards of the private properties (Arcadis 2026b).

Additional on-site surface flow contributes to water accumulation in S4-F to the north, which then conveys flows to S4-A (first needing to traverse the rock weir) toward the Leitrim PSW. Erosion and minimal vegetation was observed in the area where S4-F joins S4-A, also documented by SNC during their July 25, 2025, field investigations (SNC 2025a). Flow from this reach was observed during all site visits; however, no fishes were observed within this reach at the time of survey.

Given these characteristics, the proposed management recommendation for the Scratch Ditch (Reach S4-F) is "Mitigation". The retention of this feature is recommended, otherwise the feature could be

incorporated into the stormwater solution ensuring it maintains its existing hydrologic functions and is in line with SNC requirements for control of stormwater associated with this Project. Refer to the photos below.



S4-F, May 6, 2024



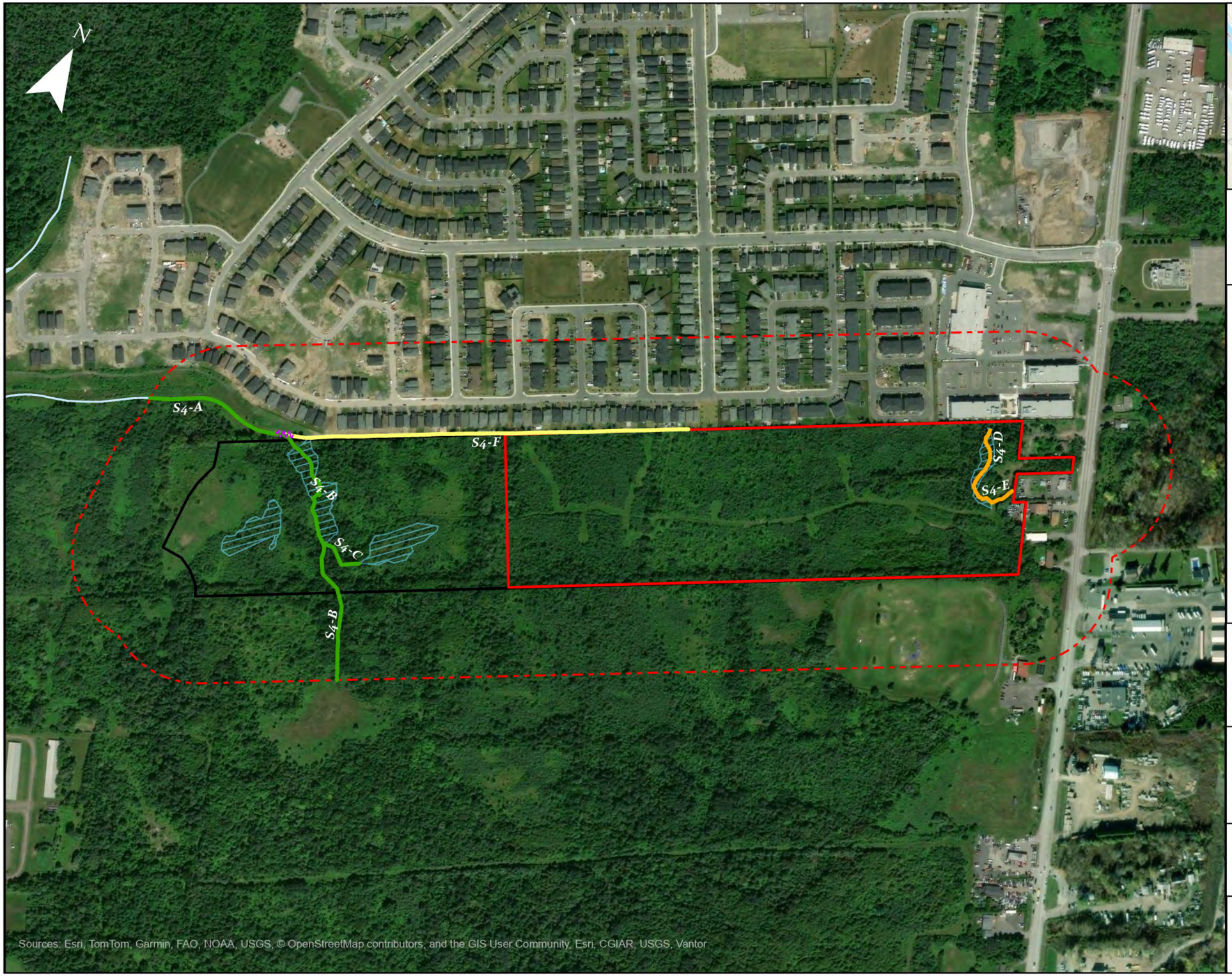
S4-F, July 14, 2024

Table 10, below, summarizes the results of the HDF assessment for the six drainage features identified within the Study Area (Reaches S4-A to S4-F). For each reach, the table identifies its location relative to the Urban Expansion Area Limits, a summary of its hydrologic and ecological functions (e.g., flow conveyance, fish and amphibian habitat, Black Ash habitat and terrestrial linkage) and the resulting management recommendation based on the HDF Guidelines (TRCA and CVC 2014). The location and management recommendation for each reach are also shown on Figure 6.

Table 10: Headwater Drainage Feature Management Recommendations (Arcadis 2026a)

Drainage Feature Segment	Step 1		Step 2	Step 3	Step 4	Meets Conservation Authorities Act (O. Reg. 41/24) Definition of Watercourse	CVC / TRCA Management Classification	Study Area Management Recommendations
	Hydrology	Modifiers	Riparian Habitat	Fish Habitat	Terrestrial Habitat			
S4-A (Conveyance Channel)	**Important Function:** Minimal surface flow was observed in this reach during all HDF assessments.	*This feature functions as an engineered drain and SWM feature. It is located adjacent to the active construction site, where construction activities in this area are ongoing.*	**Important Function:** Riparian function is linked to an Ash Mineral Deciduous Swamp (SWDM2) located within a 30 m distance from the reach.	**Contributing Function:** This feature provides minimal allochthonous transport to downstream habitats. No fish were observed within reach.	**Contributing Function:** This feature may provide some function as a movement corridor between the Ash Mineral Deciduous Swamp (SWDM2) and the Leitrim PSW and ANSI. No breeding amphibians were observed.	**Yes**	Protection	**Mitigation** This feature is an approved engineered drain and stormwater management feature which conveys stormwater from the adjacent development to the Leitrim PSW in the northwest. Fish passage at the head of this reach is currently impeded by a rock weir. Aerial imagery suggests the reach was constructed around 2019. This feature provides minimal habitat for breeding amphibians and fish species. Addendum #2 update: Clean flows from S4-B and S4-F will continue to discharge directly to this reach, together with treated SWMF discharge controlled to the 100-year design flow of 0.66 m^3/s. Removal of the rock weir is recommended, subject to an SNC permit (Fotenn 2026b).
S4-B	**Important Function:** This reach is associated with a wetland feature with minimal surface flow at all times of year.	*An old ATV trail interrupts water flow and creates a low-lying permanent pond.*	**Important Function:** Riparian function is located within an Ash Mineral Deciduous Swamp (SWDM2).	**Contributing Function**: This feature provides minimal allochthonous transport to downstream habitats. No fish were observed within reach.	**Valued Function:** Wetland habitat associated with this reach is connected to other wetland features upstream. Although there was minimal evidence of breeding amphibians within this reach (American Toad Call Count: 1), this feature likely acts as a movement corridor for low mobility wildlife.	**Yes**	Protection	**Protection** Addendum #2 update: Clean flows will continue to discharge directly to S4-A and will not be redirected to the SWMF. Upstream SWDM2 water levels will be documented before rock weir removal, and a naturalized grade-control feature will be installed if the weir is found to support wetland water levels (Fotenn 2026b).
S4-C	**Important Function:** Minimal surface flow was observed in this reach during all HDF assessments.	*An old ATV trail interrupts water flow and creates a low-lying permanent pond.*	**Important Function:** The adjacent riparian conditions are dominated by glossy buckthorn thicket communities.	**Contributing Function:** This feature provides minimal allochthonous transport to downstream habitats. No fish were observed within reach.	**Limited Function:** Breeding amphibians were recorded in the Mixed Willow Mineral Deciduous Thicket Swamp (SWTM3-6) at the head of this reach. This reach additionally connects to the Ash Mineral Deciduous Swamp (SWDM2).	Yes	Protection	**Protection**

Drainage Feature Segment	Step 1		Step 2	Step 3	Step 4	Meets Conservation Authorities Act (O. Reg. 41/24) Definition of Watercourse	CVC / TRCA Management Classification	Study Area Management Recommendations
	Hydrology	Modifiers	Riparian Habitat	Fish Habitat	Terrestrial Habitat			
S4-D	**Not Applicable:** This feature is isolated and not connected upstream or downstream. Minimal amounts of surface flow were present year-round.	*Historical imagery indicates that this feature has been disconnected from upstream areas due to the recent construction of development to the north. Similarly, the downstream reach (S4-C) is disconnected and ends at the property line between the Subject Site and the automotive business at 4856 Bank Street.* *It is also expected that this feature would be normally dry in years with more typical summer rainfall amounts.*	**Valued Function:** Riparian conditions are dominated by Poplar Mineral Deciduous Swamp (SWDM4-5) and forest communities.	**Not Applicable:** Since this feature is not connected, no fish were observed within reach.	**Important Function:** This disconnected reach is situated along a clay basin with low permeability that allows for water accumulation to occur. Minimal amphibian breeding activity (Spring Peeper and American Toad Call Code: 1) was observed within this reach.	No	No Management Required	**No Management Required** This feature is no longer connected to upstream or downstream watercourses and does not convey flow. As such, it does not actually meet the definition of a headwater feature.
S4-E	**Not Applicable:** This feature is isolated and not connected upstream or downstream. Minimal surface flow was observed during spring surveys, while standing water was observed during the summer months.	*Several, disused, ATV trails intersect this feature. In addition, several abandoned vehicles were also observed throughout this area.* *It is expected that this feature would be dry in years with more typical summer rainfall amounts and only conveying flow following heavy rainfall amounts.*	**Valued Function:** Glossy Buckthorn Deciduous Thickets associated with the rural property that line this reach.	**Not Applicable:** Since this feature is not connected, no fish were observed within reach.	**Limited Function:** This disconnected reach is situated along a clay basin with low permeability that allows for water accumulation to occur. No breeding amphibians were observed within this reach. No movement corridors are present.	No	No Management Required	**No Management Required** This feature is no longer connected to upstream or downstream watercourses and does not convey flow. As such, it does not actually meet the definition of a headwater feature.
S4-F (Scratch Ditch)	**Important Function:** Minimal surface flow was observed in this reach during all HDF assessments.	*This feature functions as a scratch drain, engineered to transport surface water flow from the existing development north of the Subject Site towards the Leitrim PSW.*	**Valued Function:** Glossy Buckthorn Deciduous Thickets associated with the Subject Site border the southern extent of this reach, while residential development borders the northern extent.	**Contributing Function:** This feature provides minimal allochthonous transport to downstream habitats. No fish were observed within reach.	**Limited Function:** This scratch ditch has no upstream features and does not provide corridor movement for breeding amphibians or fish.	**Yes**	Mitigation	**Mitigation** This feature is an approved engineered scratch drain which conveys stormwater from the adjacent development to the Leitrim PSW in the northwest. Aerial imagery suggests the reach was constructed around 2019. This feature provides minimal habitat for breeding amphibians and fish species. Addendum #2 update: The Scratch Ditch will no longer receive runoff from the S-4 lands; clean flows will continue to discharge directly to S4-A (Fotenn 2026b).





Scale: 1:5,000

0 37.5 75 150 225 300 Meters

Legend

- Rock Weir

HDF Management Recomendations

- Mitigation
- No Management Required
- Protection
- Drainage Feature (Unassessed)
- Wetland Inclusion (<0.5 ha)
- Proposed Development Area (Nov 2026)
- Study Area (120 m)
- Property Boundary

Project:

4850 Bank Street EIS & TCR
The Edge at Pathways [S-4 Lands]

Title:

Headwater Drainage Feature Management Assessment

Prepared By:

FOTENN

Date:

11/10/2026

Figure: 6

5.2.2 Groundwater Assessment

Groundwater conditions within the Subject Site were characterized by Paterson Group through the Geotechnical Investigation (PG6912-1 Revision 7; Paterson Group 2026a) and the Hydrogeological Study (PH5087-REP.01.R6; Paterson Group 2026b), including groundwater levels measured in monitoring wells installed across the Subject Site. These studies confirm that the water table is shallow, with long-term groundwater levels generally expected within approximately 1 to 2 m of the ground surface, subject to seasonal fluctuation. Because of the shallow water table, infiltration-based Low Impact Development (LID) measures are not recommended (Section 8.1.2). Refer to the Paterson Group reports for the groundwater level data, monitoring results and related geotechnical recommendations.

5.2.3 Fishes and Fish Habitat

All HDFs were assessed for the presence of fishes and fish habitat; however, no fishes were observed during the survey period. Field investigations also revealed that the northeastern-most reaches (S4-D, S4-E) are not connected to any upstream or downstream features.

Rock Weir

Although the westernmost HDFs (S4-A, S4-B, S4-C and S4-F) do connect to higher quality fish habitat downstream within the Leitrim PSW and ANSI, rapid changes in grade at the Subject Site property line (Rock Weir) presents a barrier for fish passage / migration into on-site features from downstream areas. This Rock Weir represents an approximate 5 to 6-foot drop in elevation over approximately 4 metres located at the intersection of S4-A (Conveyance Channel), S4-B, and S4-F (Scratch Ditch), and is composed of large limestone boulders, each measuring approximately 35 cm in both length and width.

Due to the presence of the Rock Weir and associated impediment to fish migration from downstream confirmed direct fish habitat (i.e., Leitrim Core Wetland / PSW and Conveyance Channel; Golder 2016a), all reaches upstream of the barrier (i.e., S4-B, S4-C, and S4-F / Scratch Ditch) provide indirect / contributing fish habitat as they convey flows downstream to areas containing fish communities.

As mentioned, HDFs S4-D and S4-E have been determined to not represent fish habitat as no fishes were observed, and they are no longer connected to any upstream or downstream features.

5.3 Terrestrial Environment

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

5.3.1 Ecological Land Classification (ELC)

The ELC survey identified a total of four upland vegetation communities, and two wetland vegetation communities (minimum size 0.5 ha, as per ELC protocol, unless a significant smaller community is identified).

The upland natural environment includes:

- **Mixed Meadow** (dominated by herbaceous species with no more than 25% cover provided by either shrub or tree species)
- **Thicket** (communities with >25% shrub cover and <25% tree cover)
- **Coniferous Forest** (communities with >60% canopy cover composed of >75% coniferous trees)
- **Deciduous Forest** (communities with >60% canopy cover composed of >75% deciduous trees)

The wetland natural environment includes:

- **Deciduous Swamps** (communities with >25% canopy cover > 5m in height and >75% deciduous species)
- **Thicket Swamps** (communities with >25% hydrophytic shrub cover)

The surrounding Study Area is mostly Low Density Residential (CVR_1) to the northwest and Buckthorn Deciduous Shrub Thicket (THDM2-6) and Business Sector (CVC_1) to the east / southeast.

All meadow communities surveyed within the Subject Site are impacted by land use activities occurring within the past 30 years. The native vegetation communities present are considered common within Ontario.

Overall, the ELC survey divided the Study Area into a total of 11 ELC ecosites, plus an additional 7 ecosites associated with constructed lands (i.e., transportation and/or residential development).

The communities documented during ELC surveys, the dominant vegetation cover, and a description of each vegetation community on the Subject Site are summarized below in **Table 11** and displayed in **Figure 7**.

Table 11: Summary of Ecological Land Classification for the Study Area (Arcadis 2026a)

ELC Type	Community	Total Area in Study Area (ha)	Total Area in Urban Expansion Area Limits (ha)	Community Description
Upland – Mixed Meadow (MEM)				
MEMM3	Dry-Fresh Mixed Meadow	1.4	0	This community exists in the western extents of the Subject Site. A naturalized meadow inclusive of drought tolerant broadleaf and graminoid species such as various Goldenrods, Common Vetch, Clover, Sulphur Cinquefoil, Wild Carrot, Hawkweed, Hoary False-alyssum, Common Yarrow, Common Viper's Bugloss, Common Mullein, Black-eyed Susan, and various graminoids dominate this area.
MEMM4	Fresh-Moist Mixed Meadow	2.0	0.5	Much of this fresh-moist mixed meadow can be found in the western extent of the Subject Site where it occupies open areas within the Buckthorn Thicket. Additionally, there is a smaller area close to the eastern edge of the Subject Site. This meadow community features broadleaf graminoid species that have preference for moister soil regimes. This includes Reed Canary Grass, Goldenrod, Asters, Common Dandelion, and Canada Anemone. *Note: Four Butternut were located on the edge of this community in the western extent of the Subject Site.*
Upland – Thicket (TH)				
THCM2-1	Fresh-Moist White Cedar Coniferous Thicket	2.5	0.7	There are two ecosites in the eastern extent of the Subject Site, with two more ecosites to the south and west of the Subject Site in the Study Area. These areas feature many young Eastern White Cedar that are scattered and patchy in places but continuous in others. The canopy itself is less than 25% coverage, 10-15m tall, and primarily comprised of Eastern White Cedar. The sub-canopy, 20% coverage and 7-10m tall, had a similar composition to the canopy. Much of the understory is dominated by buckthorn species, with more than 50% coverage (0.5-2m tall), with Red-osier Dogwood, Willow spp., Riverbank Grape, and Green Ash. In places where the cedar is dense, the ground cover is sparse, and in places where the buckthorn is dense, the ground cover was greater on average there was 40% coverage. Ground layer vegetation included Purple Loosestrife, Goldenrod, graminoids, and Riverbank Grape.
THDM2-6	Buckthorn Deciduous Shrub Thicket	22.2	8.6	This community occupies most of the Subject Site and is dominated by Glossy Buckthorn. Canopy coverage is 20% and 15-20m tall, and comprised of scattered Green Ash, White Ash, and White Elm. The sub-canopy had similar species (20% cover, 5-8m tall). The understory (80% coverage, 0.5-2m tall) was comprised mainly of Glossy Buckthorn with willow and Ash species. This densely covered area had a mix of graminoid, and broadleaf species found in other areas of the Subject Site, such as Goldenrod and Purple Loosestrife, for ground vegetation (30% coverage). This community can also be found south and east of the Subject Site.

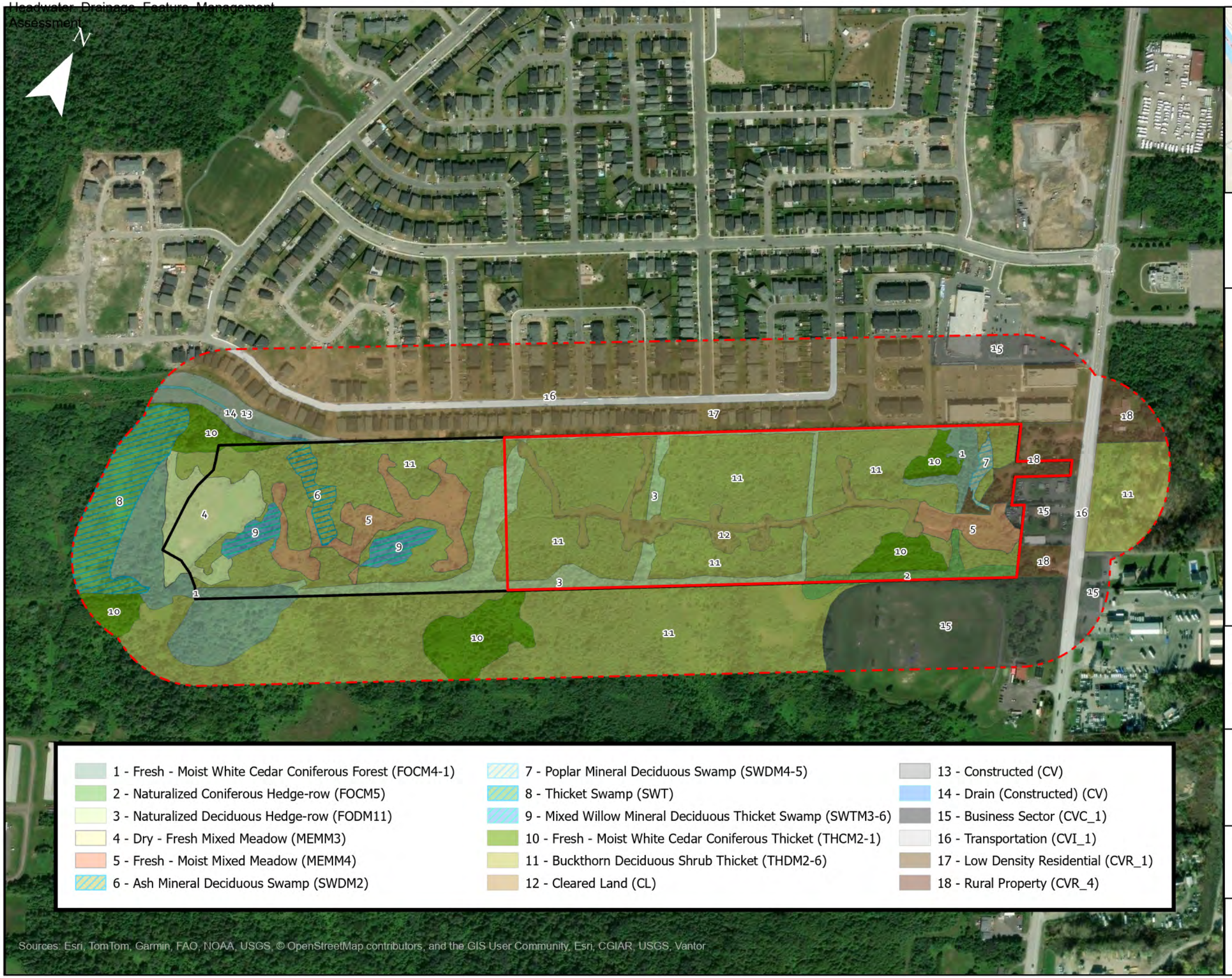
ELC Type	Community	Total Area in Study Area (ha)	Total Area in Urban Expansion Area Limits (ha)	Community Description
Upland – Coniferous Forest (FOC)				
FOCM4-1	Fresh-Moist White Cedar Coniferous Forest	2.5	0.4	This community borders the southwest corner of the Subject Site and additionally includes a small section to the northeast. The canopy (10-15m tall, 85% coverage) and is dominated by Eastern White Cedar, with small occurrences of White Birch and White Elm. The Subcanopy (5-10m tall, 75% coverage) and understory (0.5-5m tall, 50% coverage) is dominated by Eastern White Cedar, Green Ash, White Ash, and Buckthorn. Ground layer (25% coverage) had Wood Fern, Purple Loosestrife, and small Ash and Buckthorn species scattered throughout. Four Butternuts were located within this community with one outside of the Subject Site, and one outside of the Urban Expansion Area Limits.
FOCM5	Naturalized Coniferous Hedgerow	1.42	0.8	This area borders the southeastern extent of the Subject Site. Part of the hedgerow contains an old agricultural access road that runs between the Subject Site and the Target Golf Centre (driving range). The canopy (12-15m tall, 80% coverage) was largely composed of Eastern White Cedar, with some White Birch and White Elm. The subcanopy (5-8m tall, 85% coverage) including the above species but also included White Pine, Green Ash and White Ash, and Buckthorn. The understory (25% cover, 0.5-2m tall) included younger Red Pine and Riverbank Grape with the above noted species. Ground vegetation (35% cover) had Wood Fern species along with Goldenrod and Purple Loosestrife, but also young Buckthorn and Ash species. *Note: Nine Butternut (part of canopy and subcanopy) were located within this ecosite along with eleven Black Ash (subcanopy and understory).*
Upland – Deciduous Forest (FOD)				
FODM11	Naturalized Deciduous Hedgerow	2.3	0.8	The hedgerow community covers most of the southern border of the Subject Site and intersects the property in three areas. Two of those areas connect with the coniferous hedge-row community. This ecosite largely contains American Basswood in the canopy (10-25m tall, 80% coverage), with White Ash, American Elm, and Manitoba Maple. These noted species accompanied Green Ash, and Common Buckthorn in the subcanopy (5-8m tall, 70% coverage) and the understory (0.5-3m tall, 45% coverage), which also included Red-osier Dogwood. Ground vegetation included Virginia Creeper, Wild Carrot, Purple Loosestrife, Thin-leaved Goldenrod, Early Goldenrod, Joe-Pye Weed, Common Yarrow, and Red Raspberry. *Note: Seven Butternut were located within this community as well as a bat cavity.*

ELC Type	Community	Total Area in Study Area (ha)	Total Area in Urban Expansion Area Limits (ha)	Community Description
Wetland – Deciduous Swamp (SWD)				
SWDM2 (Inclusion)	Ash Mineral Deciduous Swamp	0.35	0	This wetland community inclusion, located in the western extent of the Subject Site, had concentrations of Black Ash and Butternut, with a headwater drainage feature coursing through. The canopy (10-20m tall, 75% coverage) was mainly composed of Green Ash and Red Maple, with some Butternut and Black Ash. The subcanopy (5-10m tall, 60% coverage) contained the above species along with Crack Willow and Bebb's Willow. Much of the Black Ash in this location could be found in the understory (0.5m-5m tall, 40% coverage) along with the noted willow species, buckthorn, and Riverbank Grape. Ground vegetation (70% coverage) consisted of Joe-Pye Weed, Purple Loosestrife, Water Plantain, Common Boneset, Sensitive Fern, Virginia Creeper, and nettle. *Note: Six Butternut observed along with areas of high concentrations of Black Ash with many small stems (<8cm dbh).*
SWDM4-5 (Inclusion)	Poplar Mineral Deciduous Swamp	0.12	0.1	This inclusion wetland community, located in the northeast corner of the Subject Site, contained a headwater drainage feature. The canopy (10-15m tall, 35% coverage) primarily surrounded the community and was composed of Trembling Aspen, Green Ash, and White Elm. The subcanopy (5-10m tall, 30% coverage) contained the above species including Willow species and Buckthorn, which was also true for the understory (0.5-4m tall, 25% coverage). Ground vegetation (70% coverage) contained Reed Canary Grass, Tussock Sedge, Joe-Pye Weed, Purple Loosestrife, Marsh Horsetail, and some Narrow-leaved Cattail. *Note: One Black Ash was observed in this community.*
Wetland – Thicket Swamp (SWT)				
SWT	Thicket Swamp (within Leitrim Wetland, outside Site)	1.6	0	This community is within the Leitrim Wetland within the Study Area and not within the Subject Site.
SWTM3-6	Mixed Willow Mineral Deciduous Thicket Swamp	0.54	0	This community exists in two locations in the western extent of the Subject Site. The canopy (10-12m tall, 35% coverage) contained Green Ash and White Elm but was largely composed of Willow species. The subcanopy (5-8m tall, 40% coverage) was primarily Bebb's Willow, Crack Willow, and Slender Willow, which was also true for the understory (0.5m-3m tall, 75% coverage). Ground vegetation (60% coverage) was composed of Joe-Pye Weed, Water Plantain, Sensitive Fern, Common Boneset, Purple Loosestrife, Riverbank Grape, and Virginia Creeper. *Note: One Black Ash was located within the eastern area of this community.*
Cultural – Constructed (CV)				
CL	Cleared Lands	1.26	1.26	This area runs through the middle of the Subject Site, appears to have been cleared for prior survey work.

ELC Type	Community	Total Area in Study Area (ha)	Total Area in Urban Expansion Area Limits (ha)	Community Description
CV	Constructed Lands	0.76	0	These areas within the Study Area are comprised of active construction lands and construction access roads, including a drain to the northeast of Site.
CVC_1	Commercial and Business Sector	5.38	0.7	There are few business areas off Bank Street including Target Golf Centre (a driving range) to the southeast, Bridgeport Motor Dealers along the eastern boundary, and Home Hardware to the northeast.
CVI_1	Transportation and Utilities	1.56	0.2	These areas consist of major roads, right of ways, and hydro corridors.
CVR_1	Low Density Residential	11.72	0	These areas consist of single-family homes north of the Subject Site.
CVR_4	Rural Property	1.61	1.1	These areas consist of rural homes along Bank Street.

Representative photographs for each ELC community are provided in the original EIS (Arcadis 2026a) and in **Appendix H**.

Headwater Drainage Feature Management Assessment





Scale: 1:5,000

0 37.5 75 150 225 300 Meters

Legend

- Proposed Development Area (Nov 2026)
- Study Area (120 m)
- Property Boundary

Project:

4850 Bank Street EIS & TCR
The Edge at Pathways [S-4 Lands]

Title:

Ecological Land Classification

Prepared By:

FOTENN

Date:

11/10/2026

Figure: 7

5.3.2 Botanical Inventory

The botanical inventory identified 99 vegetation species within the Subject Site (**Appendix F**). Majority of the vascular plants inventoried are considered common throughout Ontario and are native species.

Floristic Quality Assessment

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

Seven vascular plants had coefficient of conservatism values ranging from 7-10 (high to highest sensitivity), including Twinleaf, Marsh Horsetail, Northern Maidenhair Fern, Spring Avens, Black Ash, and White Wood Aster; however, the average coefficient of conservatism value was three, indicating that majority of the vascular plants within the Study Area have a moderate tolerance to disturbance and, if given the opportunity, could recover in adjacent suitable habitat.

Two SAR plants were encountered during field surveys: Black Ash and Butternut. Refer to **Section 5.4** for further details on these observations.

Constructed Channel Monitoring (Year 5) (Cambium 2024)

Monitoring of the constructed Conveyance Channel (i.e., off-site downstream portions of the Scratch Ditch to the northwest) resulted in observations of an increase in density, cover, and diversity of native species in 2024 compared to previous years (i.e., since 2020), with native species being dominant overall.

Native herbaceous plants are expected to continue to colonize over time, and Willows continue to become increasingly dominant in the wet meadow areas. Portions of these areas may become thicket swamp in future years with the emergence of woody species, which may also aid in reducing the colonization of invasive species such as Glossy Buckthorn (abundant in the adjacent Leitrim Wetland; Cambium 2024).

5.3.3 Amphibian Call Surveys

Two marsh monitoring surveys were completed in 2024 to determine amphibian breeding presence within the Subject Site. Survey stations were 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.

Five stations were monitored for calling frogs. Three species were confirmed within the Subject Site during the surveys: Spring Peeper, American Toad, and Green Frog. All species observed are common to the Ottawa area. A summary of the amphibian species identified within 100 m of the survey stations are presented in **Table 12** below.

Table 12: Amphibian Survey Results

Common Name	Scientific Name	Number of Observations	Station Number	Meets SWH Criteria
Spring Peeper	Pseudacris crucifer	1 (Call Code 3) 1 (Call Code 1)	S4-02 S4-05	No
American Toad	Anaxyrus americanus	1 (Call Code 1) 1 (Call Code 2) 1 (Call Code 1)	S4-01 S4-02 S4-03	No
Green Frog	Rana clamitans	1 (Call Code 1) 1 (Call Code 1)	S4-02 S4-05	No

Vernal pools were observed during the first round of surveys completed in the spring within the wetland inclusions on Site.

Though breeding amphibians were observed during surveys, they do not meet the quantity or species diversity requirements to support Candidate Amphibian Breeding Habitat (Woodland) SWH.

Constructed Channel Monitoring (Year 5) (Cambium 2024)

Monitoring of the constructed channel (i.e., Conveyance Channel) resulted in observations of increased amphibian breeding activity in 2024 compared with 2020, indicating the presence of high-quality amphibian breeding habitat and establishment of a thriving amphibian community associated with the wetland system just north of the northwest corner of the property.

The following species were observed during amphibian breeding surveys conducted over the monitoring period (Cambium 2024; **Table 13**).

Table 13: Summary of Amphibian Breeding Results (All Years) for the Pathways at Findlay Creek Constructed Channel

Year	April	May	June
2020	None	American Toad (Code 1)	Green Frog (Code 1)
2021	Spring Peeper (Code 3) Wood Frog (Code 1) Northern Leopard Frog (Code 1) American Toad (Code 2)	Green Frog (Code 1) Spring Peeper (Code 2)	Green Frog (Code 1)
2022	Spring Peeper (Code 3) Wood Frog (Code 1) Northern Leopard Frog (Code 1) American Toad (Code 2)	Spring Peeper (Code 3) American Toad (Code 2)	Green Frog (Code 2)
2024	Spring Peeper (Code 3) Northern Leopard Frog (Code 2) American Toad (Code 1)	Spring Peeper (Code 3) American Toad (Code 2)	Green Frog (Code 2)

5.3.4 Breeding Bird Surveys

A total of 28 bird species were recorded during the breeding bird surveys (refer to survey methodology in **Section 4.2.5**). Evidence of breeding birds occurred as the following:

- Singing males being present within suitable nesting habitat [**Possible Breeders**];
- Pairs of a species and territorial behaviour observed in suitable nesting habitat [**Probable Breeders**]; and/or
- Active / used nests and fledged young observed in suitable nesting habitat [**Confirmed Breeders**].

Majority of the birds recorded are common within the City of Ottawa and generally have secure populations within Ontario. No Endangered or Threatened species were observed during field surveys. A record of the bird species observed within the Study Area, including their conservation status, can be found in **Appendix F.**

Based on surveys conducted by Arcadis, the Study Area contains suitable habitat conditions to support breeding birds common to Ottawa and Eastern Ontario. However, the results indicate that the Study Area is not considered SWH for breeding birds.

Eastern Whip-poor-will

This species was surveyed for purposes of Arcadis' (2025) ECR prior to this species being downlisted on the former SARO List as of January 27, 2025.

No Eastern Whip-poor-will or other crepuscular bird species were observed during the 2024 field surveys.

Raptor Nest Surveys

No raptor nests were observed during the 2024 field surveys. Additionally, there were no signs of individuals or evidence of active nesting (e.g., food caches, whitewashing of branches and foliage, accumulation of feathers / fur, or prey remains on the ground or in shrubs) observed during the 2024 field surveys.

Pileated Woodpecker Nest Surveys

There were no observations of suitable nesting habitat for Pileated Woodpecker observed within the Subject Site boundaries, and no individuals were observed during the two breeding bird surveys, or incidentally during any other survey completed in 2024.

5.4 Species at Risk and Species at Risk Habitat

SAR Bats

Little Brown Myotis, Eastern Red Bat, Hoary Bat, Silver-haired Bat, Northern Myotis, Tri-coloured Bat, are all listed as Endangered species provincially signifying that they are at risk of becoming extinct or extirpated in Ontario. There are three types of habitats required by bats: hibernation, maternity sites, and day-roost sites. The latter is not considered significant habitat.

These six bat species prefer to hibernate in caves or mines, and rarely hibernate in buildings (COSEWIC, 2013). Additionally, three of the six species (i.e., Eastern Red Bat, Hoary Bat, Silver-haired Bat) do not hibernate locally but instead migrate south for the winter. No caves or mines were present within the Study Area; as such, it is assumed that no suitable overwintering habitat will be impacted.

SAR bats can use tall, large cavity trees that are in the early to mid-stages of decay as maternity roosts, as well as loose/raised tree bark. These bat species occur in higher densities in mature deciduous and/or mixed forests due to increased opportunities for large snags. As there are no mature forests on Site, it is unlikely that suitable maternity roost habitat is present. However, there is suitable day-roost habitat on Site in the few, larger trees present along the edges of the Study Area (Arcadis 2025a; **Figure 9**).

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

Butternut

Butternut surveys were completed in 2024 within the Study Area, and 38 individuals were observed within these boundaries, 20 of which are in the Urban Expansion Area Limits (Figure 9). All Butternut trees observed varied in size and health condition and were generally located along the mature hedgerows present throughout the Study Area (Arcadis 2025a).

It has been determined that there are known Butternut trees present within the Study Area. For this reason, this species is being carried forward to evaluation.

Black Ash

Black Ash was searched for in tandem with Butternut searches. The riparian areas, poorly drained upland areas, and hedgerow communities within the Study Area provide suitable conditions for Black Ash. A total of 34 individuals were observed within the Subject Site boundaries. Additionally, four areas totalling 0.06 hectares were identified as Black Ash concentration areas featuring multiple saplings (**Figure 9**).

There were 15 individuals observed within the Urban Expansion Area Limits, including nine Black Ash trees with a diameter at breast height (dbh) greater than 8 cm (Arcadis 2025a).

Trees observed on-site varied in quality from healthy to poor and dead. It should be noted that several larger Green Ash and White Ash trees were observed on Site, some of which were in poor condition and/or dead because of emerald ash borer (Arcadis 2025a).

It has been determined that Black Ash trees, including suitable habitat, are present within the Study Area. For this reason, this species is being carried forward to evaluation.

Under the SCA, the presence, health and protection status of Butternut and Black Ash will be confirmed through a Butternut Health Assessment and Black Ash assessment completed by qualified professionals before site alteration (Section 8.2.6).

5.5 Incidental Wildlife

Incidental wildlife species and general wildlife observations were documented during field surveys and included: Eastern Chipmunk, Eastern Grey Squirrel, Red Squirrel, Northern Leopard Frog, Wood Frog, White-tailed Deer, American Woodcock, Chestnut-sided Warbler, Eastern Wood-pewee, Wood Thrush, and Eastern Tiger Swallowtail Butterfly.

Most species observed are common in Ontario and the City of Ottawa and appeared as residents of the Study Area, except for the Eastern Wood-pewee and Wood Thrush, both of which are listed as Special Concern by the province and were not observed breeding within the Subject Site boundaries.

Refer to **Appendix F** for a list of all species observations within the Subject Site.

6.0
Evaluation of Significance of Existing Natural Heritage Features

In conjunction with findings of the background review, field survey data was evaluated for significance with respect to the provincially designated significant natural heritage features, and the potential for negative impacts, which may occur as a result of the Project. The provincially designated significant natural heritage features listed under the *Provincial Planning Statement, 2024,* identified as candidate features based on background review or confirmed present based on field investigations are brought forward for evaluation, as per the applicable municipal, provincial and/or federal guidelines for that feature. The features identified within the Study Area are as follows:

- Significant Wetlands (including the Leitrim PSW);
- Significant Woodlands;
- Areas of Natural and Scientific Interest (ANSIs);
- Significant Wildlife Habitat (SWH);
- Habitat of Endangered and Threatened Species; and
- Fish Habitat

6.1 Wetlands

NHIC mapping indicated that there are no wetlands within the Study Area; however, during the ELC assessments completed on-site, it was observed that there are four small wetland inclusions present (i.e., SWDM2, SWDM4-5, SWT, and SWTM3-6). All four of these ecosites are <0.5 ha in size and have been described to the community level in **Table 11** above.

Majority of the Leitrim PSW is situated approximately 50 m west of the Subject Site, and the PSW boundary is approximately 500 m from the western edge of the Urban Expansion Area Limits (refer to **Figure 4**). As this feature is outside of the Urban Expansion Area Limits where development is proposed, it was not assessed under this Project.

For the purpose of this assessment, and consistent with the Addendum (Fotenn 2026a), the Casino Wetland is considered to be a component of the Leitrim PSW based on information included in the EMP completed for the adjacent Remer and Idone lands (Golder 2016a).

It has been determined through field surveys that there are four <0.5 ha wetland inclusions within the Subject Site, despite mapping resources suggesting otherwise. Additionally, the Leitrim PSW is situated approximately 50 m west of the Subject Site boundary, and the associated SNC Regulated Area is situated approximately 20 m west of the Subject Site. As such, wetlands are being brought forward to evaluation.

6.2 Significant Woodlands

The one woodland in the eastern extent of the Subject Site was evaluated for significance using both desktop (e.g., geoOttawa) and field components, in relation to the guidelines for ‘peri-urban woodlots’, as outlined in the City’s SWG (2022) document.

Peri-urban woodlands are described in the City’s SWG as being woodlands located within areas that have been identified for urban expansion demonstrated in the City’s OP Schedule C17 – Urban Expansion Areas. Woodlands within the peri-urban boundary are considered significant if they are a minimum of 60 years old and

0.8 ha or larger in area. Within larger woodlands, only portions that can be identified as older than 60 years old through aerial imagery interpretation count towards this 0.8 ha size threshold.

Based on review of historic imagery, a portion of the woodland on Site is >60 years old, however does not meet the size requirement (>0.8 ha) as it was only 0.5 ha dating back to 1974.

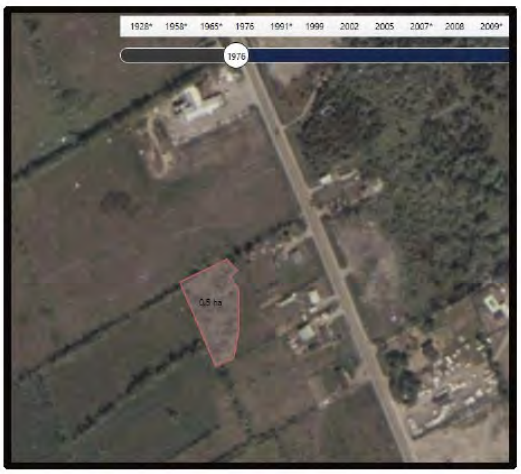


Photo of Aerial Image of Woodland in 1976 (0.5 ha)

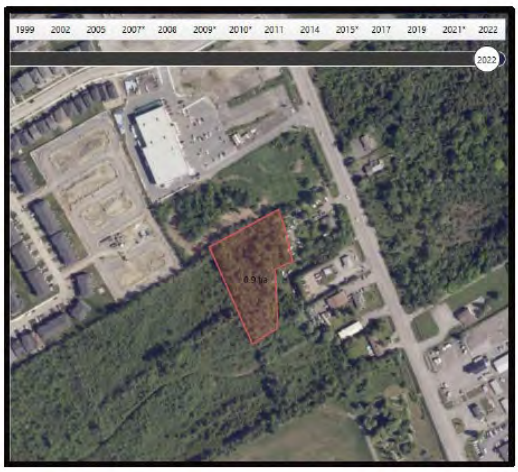


Photo of Aerial Image of Woodland in 2022 (0.9 ha)

Based on the evaluation of peri-urban criteria, this Woodland is not considered significant**,** as the entire 0.9 ha of the present-day woodland is not older than 60 years, and the portion that is >60 years does not meet the size requirement (i.e., 0.8 ha) for significance. Significant Woodlands are not being brought forward to evaluation.

Wildland Fire Hazard

In accordance with Section 3.2 of the City's EIS Guidelines, forest types associated with a high or extreme wildland fire hazard within 100 m of the project were screened using the provincial Potential Hazardous Forest Types for Wildland Fire mapping available on geoOttawa (Figure 8). Within the Subject Site, the mapped forest types are rated as Low hazard (deciduous forest, D1, and mixedwood with less than 25% conifer, M2 <25%) and Moderate hazard (mixedwood with 25% to 50% conifer, M2 25–50%). No forest types rated as high or extreme hazard are mapped within the Subject Site or within 100 m of the development area (**Figure 8**). As such, a wildland fire risk assessment under the provincial Wildland Fire Risk Assessment and Mitigation Reference Manual (MNRF 2017) is not required, and the wildland fire risk to the proposed development is considered low. The treed areas mapped as Moderate hazard correspond generally to the coniferous hedgerows and white cedar communities (FOCM4-1, FOCM5 and THCM2-1), which are small, fragmented and largely proposed for removal.

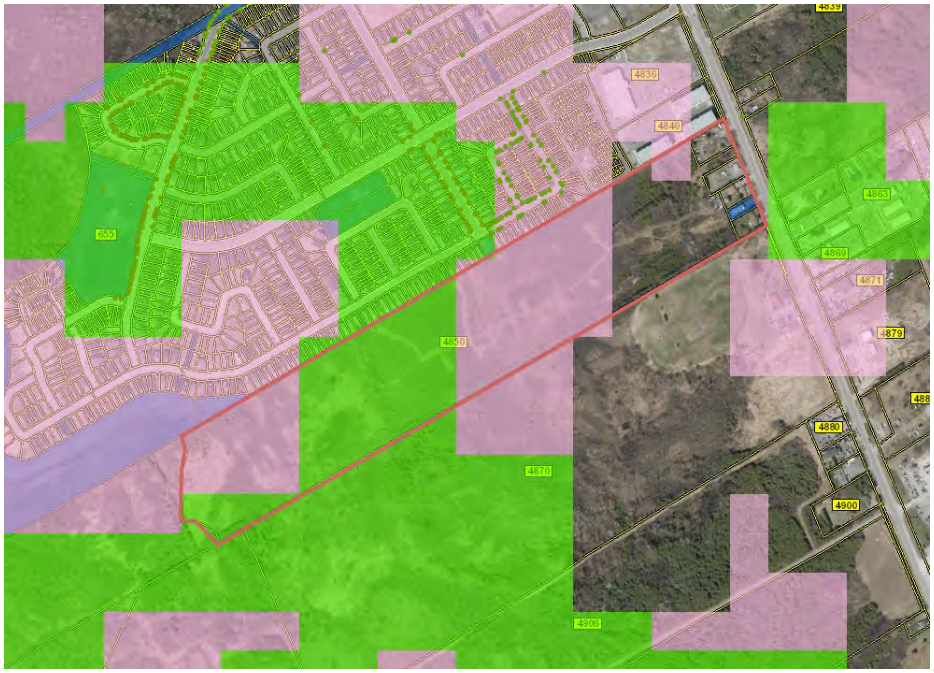


Figure 8: Potential Hazardous Forest Types for Wildland Fire within the Subject Site (City of Ottawa, geoOttawa)

6.3 Significant Areas of Natural and Scientific Interest

No ANSIs are present within the Subject Site; however, the extents of the Leitrim PSW / ANSI are approximately 50 m west of the Subject Site boundary, and approximately 500 m from the western edge of the Urban Expansion Area Limits (refer to **Figure 4)**.

As this feature is not within the Subject Site or Urban Expansion Area Limits where development is proposed, a full assessment was not completed as part of this EIS. However, due to the proximity of this feature to the Subject Site, the Leitrim ANSI is being carried forward to evaluation.

6.4 Significant Wildlife Habitat

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

The full SWH assessment can be found in **Appendix G.**

Habitat for Species of Conservation Concern

Eastern Wood-pewee and Wood Thrush were observed incidentally within the Study Area. As such, Special Concern species are confirmed within the Study Area.

Based on the results of the field surveys completed in 2024, Significant Wildlife Habitat is present within the Study Area because of the observations of Special Concern bird species and is being brought forward to evaluation.

6.5 Habitat of Endangered and Threatened Species

Two SAR were confirmed present within the Subject Site (Butternut and Black Ash), and suitable habitat is present for SAR Bats within the Study Area. Refer to **Section 5.4** for a full description of results from the 2024 targeted surveys in search of SAR.

Under the SCA, Butternut and Black Ash are listed as Endangered. Where these species or their habitat are expected to be affected by Project activities, registration under the SCA and preparation of a Conservation Plan will be required (Sections 2.2.2 and 8.2.6). SAR bats are carried forward with respect to candidate day-roost trees.

6.6 Fish Habitat

Direct fish habitat occurs just north of the northwestern property line, represented by the Conveyance Channel (S4-A). HDFs S4-B and S4-C do not contain direct fish habitat due to the Rock Weir that presents a topographical barrier at the Subject Site boundary (i.e., intersection of S4-A / Conveyance Channel, S4-B, and S4-F / Scratch Ditch) that impedes fish migration (**Figure 6**). These upstream reaches represent indirect fish habitat as they contribute flows downstream to direct fish habitat (i.e., Conveyance Channel, Leitrim PSW).

Importantly, no fish habitat occurs within the Urban Expansion Area Limits of the Subject Site where development is proposed as the surface water / drainage features in this area (i.e., S4-D and S4-E within northeastern corner of Site) was not observed to contain fishes and are not connected to any upstream / downstream features.

6.7 Summary of Natural Heritage Features

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

- Significant Woodlands; and
- Significant Valleylands.

Furthermore, the vegetation communities and landscape within and adjacent to the Subject Site have been *confirmed* to provide the following:

- Provincially Significant Wetlands;
- Areas of Natural and Scientific Interest;
- Significant Wildlife Habitat;
- Endangered or threatened species and their habitat; and
- Fish Habitat.

Although the majority of the Leitrim PSW / ANSI is situated approximately 50 m west of the Subject Site boundary (approximately 500 m from the western edge of the Urban Expansion Area Limits; **Figure 4**), its presence within 120 m of the Study Area requires this feature to be brought forward to evaluation.

6.8 Ecological Functions

In accordance with Section 3.2 of the City of Ottawa EIS Guidelines (City of Ottawa 2026b), the ecological functions provided by the Subject Site and adjacent lands, their significance and their sensitivity to the proposed development are summarized below:

- **Hydrologic function** – the Conveyance Channel (S4-A), Scratch Ditch (S4-F) and HDFs S4-B and S4-C convey surface water from the Subject Site and external Area A2 to the Leitrim PSW, and shallow groundwater in the western catchment flows west toward the PSW. This function contributes to the significance of the Leitrim PSW and is the function most sensitive to the proposed development (changes in runoff volume, timing, water quality and sediment loading). The western catchment represents approximately 3% (approximately 11 ha) of the approximately 388 ha tributary to the wetland (Golder 2016a).
- **Fish habitat** – the Conveyance Channel provides direct fish habitat connected to the Leitrim PSW and Findlay Creek, and the upstream reaches provide contributing (indirect) fish habitat. This function is sensitive to sedimentation, in-water works and changes in flow.
- **Wildlife habitat** – amphibian breeding habitat within the Conveyance Channel; habitat for Species of Conservation Concern (Eastern Wood-pewee and Wood Thrush); candidate day-roost habitat for SAR bats; and Butternut and Black Ash. Habitat within the Urban Expansion Area Limits is largely disturbed Buckthorn thicket and meadow of low sensitivity; the channel and swamp communities to the west are of higher sensitivity.
- **Linkage** – the Conveyance Channel corridor and the 50 m no-touch / 50 m limited-use zone adjoining the Casino Wetland provide a linkage between the Casino Wetland and the Leitrim Core Wetland (Golder 2016a).
- **Ecosystem services** – the hedgerows and small woodland provide local shade, cooling, stormwater interception and visual screening. These functions are common in the surrounding landscape.

Climate Change Considerations

The Climate Projections for the National Capital Region (City of Ottawa 2020) indicate warmer temperatures, a longer growing season, more frequent extreme heat days, increased annual and winter precipitation, and more frequent intense rainfall events. The implications of these changes for the natural heritage features and functions of the Subject Site, and for the proposed development, include:

- More intense rainfall increasing peak flows and erosion risk within the Conveyance Channel and at its outlet – addressed through the SWMF design (attenuation to 0.66 m^3/s and the 100-year climate change stress test), erosion protection at detailed design, and post-development monitoring (Sections 7.2 and 8.1);
- Warmer, drier summers potentially lowering baseflow in the Conveyance Channel and water levels in the receiving swamp communities during the growing season – the treated runoff from the western catchment is expected to provide more consistent flow to the channel (Section 8.1.2);
- Increased stress on ash species (including Black Ash) already affected by Emerald Ash Borer, and increased potential for the spread of invasive species such as Glossy Buckthorn, Reed Canary Grass and Common Reed – addressed through invasive species management and monitoring of vegetation in the receiving communities; and
- Increased urban heat – addressed through native tree planting in accordance with the Official Plan objective of 40% urban tree canopy cover.

Figure 9 below displays the notable results of the field surveys, and **Table 14** provides a summary of the work completed for this study and the existing conditions for the proposed Leitrim West Urban Expansion - S4 Area.





Scale: 1:5,000

0 37.5 75 150 225 300 Meters

Legend

SAR Species

- Black Ash (<8cm DBH)
- Black Ash (>8cm DBH)
- Butternut

Other Observations

- Candidate Bat Cavity Tree
- Black Ash Concentration Area (<8cm DBH)
- Proposed Development Area (Nov 2026)
- Study Area (120 m)
- Property Boundary

Project:

4850 Bank Street EIS & TCR
The Edge at Pathways [S-4 Lands]

Title:

Field Survey Results

Prepared By:

FOTENN

Date:

11/10/2026

Figure: 9

Table 14: Evaluation of Significance and Summary of Presence of Natural Heritage Features as per the Provincial Planning Statement

Designated Natural Heritage Feature	Criteria for Significance	Existing Conditions	Present within Study Area?	Regulatory Agency
Significant Wetlands	Wetlands are evaluated through the Ontario Wetland Evaluation System (OWES) (MNRF 2022).	Leitrim PSW (including the Casino Wetland) comes within 50 m of the western extent of the property, with the SNC Regulated Area extending approximately 20 m from the Subject Site. Results of the 2024 wetland verification surveys confirmed four wetland inclusions within the Subject Site boundaries.	**Yes**	SNC
Significant Woodlands	Woodlands assessed using the City's Significant Woodlands Guidelines for peri-urban woodlands (City of Ottawa 2022d).	A portion of the woodland on Site is >60 years old; however, it does not meet the size requirement (>0.8 ha) as it was only 0.5 ha dating back to 1974.	No	City of Ottawa
Significant Valleylands	Evaluated through the Natural Heritage Reference Manual (MNR 2010).	No significant valleylands occur within the Study Area.	No	–
Significant Areas of Natural and Scientific Interest	As identified by MNR's NHIC and available on Geospatial Ontario mapping.	The Leitrim ANSI comes within 50 m of the western extent of the property.	**Yes**	City of Ottawa; MNR
Significant Wildlife Habitat	In accordance with the Ecoregion 6E Criteria Schedule (MNRF 2015) for the four categories of SWH.	Habitat for Species of Conservation Concern: two Species of Conservation Concern observed on Site (Eastern Wood-pewee and Wood Thrush).	**Yes**	City of Ottawa
Habitat of Endangered and Threatened Species	Habitat necessary for the maintenance, survival, and/or recovery of naturally occurring or reintroduced populations of Endangered or Threatened species (MNR 2010) and DFO SAR mapping.	Butternut: 38 observed within the Study Area, 20 within the Urban Expansion Area Limits. Black Ash: 34 observed within the Subject Site, 15 within the Urban Expansion Area Limits. Bats: candidate SAR bat day-roost trees.	**Yes**	MECP (SCA); ECCC (SARA)
Fish Habitat	As defined by the *Fisheries Act* (Section 2.1.3).	Conveyance Channel (S4-A): confirmed direct fish habitat; the rock weir at the upstream end impedes access to S4-B, S4-C and S4-F. HDF S4-B, S4-C and Scratch Ditch (S4-F): no fishes observed; indirect fish habitat contributing flows to the Conveyance Channel and Leitrim PSW.	**Yes**	DFO

7.0
Description of Development Proposal

Edge at Pathways Regional Inc is proposing the low-rise residential development of the Leitrim West Urban Expansion Area – S4 lands located at 4850 Bank Street (Concession 4, Part Lot 22) within the City of Ottawa, Ontario, Canada. The residential subdivision will consist of three hundred and four (304) dwelling units including seventy-seven (77) detached lots, thirty (30) street townhouse blocks, and one (1) multi-unit residential development block as shown on the draft Concept Plan provided by Novatech (dated October 15, 2025; **Figure 10**).

The OPA describes the development as including approximately 350 residential units, park uses, new roads, and stormwater management facilities (City of Ottawa 2026a). The unit count and lotting pattern will be confirmed through the Draft Plan of Subdivision; minor changes to the Council-approved Land Use Plan (e.g., local street network, pathway blocks, parkland size and shape, and stormwater management pond size, location and shape) may be made through the development approvals process provided they are consistent with the general intent of the Land Use Plan (OPA Policy b).

7.1 Construction Activities

The Subject Site is currently proposed to be developed mainly for purposes of a new residential subdivision, including asphalt-paved local roads, driveways, a park, and stormwater management pond (SWMP) within the Urban Expansion Area Limits at the eastern end of the Subject Site. The western stormwater management facility (linear SWMF) and its outlet to the Conveyance Channel will be constructed outside the Urban Expansion Area Limits, on the western portion of 4850 Bank Street, and will require additional vegetation clearing beyond the core development area (Section 8.2.3).

Based on the most recent draft Concept Plan provided by Novatech (dated October 15, 2025; **Figure 10**), development of this property may include the following major Project components:

- Surveying and staking out the development.
- Clearing of vegetation / trees, excavation, and grading to accommodate construction, including within the western SWMF footprint outside the Urban Expansion Area Limits.
- Installation of stormwater drainage network and related infrastructure (i.e., SWMP).
- Excavation to accommodate underground utilities including water, sewer, gas, and hydro.
- Construction of a new, low-rise residential subdivision (approximately 13.6 ha within the Urban Expansion Area Limits), including single houses, 2-storey townhouses, and multi-residential block; and
- Landscaping and fencing.

Environmental Management Plan (Golder 2016a)

The Golder (2016a) EMP proposes the following site level, or source control, best management practices (BMPs):

- On individual lots:
  - Flat lot grading.
  - Split lot drainage.
  - Pre-installation of roof leader splash pads.
- Across the development:
  - Vegetative planting.

- Installation of low permeability clay barriers in the servicing trenches to assist in maintaining the existing groundwater levels.

Additionally, the EMP proposes the following conveyance control BMPs:

- Flat vegetated swales.
- Pervious rear yard drainage.
- Catch basin sumps.

7.2 Water Distribution, Wastewater Collection, and Stormwater Management

Water Distribution

The proximity of existing water distribution infrastructure provides an efficient servicing method for the Subject Lands with minimal impact on surrounding properties. Corridors have been included in the Concept Plan (**Figure 10**) to ensure connectivity with existing development lands.

Arcadis' Serviceability Report (2026b) identifies the ideal locations for future watermain connections to existing city infrastructure. The Subject Site is proposed to be serviced through a connection to Bank Street to the east and Kelly Farm Drive to the north. These locations are both feasible and pose the least impact on surrounding developments. With respect to the existing infrastructure at the proposed connection locations, there is sufficient capacity in the current water distribution system to withstand demands from the proposed development once the City's SUC pressure zone upgrades are completed.

Wastewater Collection

Existing municipal wastewater collection sewers have been constructed in adjacent development lands. Arcadis has demonstrated sufficient residual capacity in the existing system to support the Urban Expansion Area Limits. Corridors have been included in the concept plan to ensure connectivity with existing development lands.

Arcadis' Serviceability Report (2026b) identifies wastewater connections to Paakanaak Avenue and Labrador Crescent through an extension along Bank Street. These locations are both feasible and have minimal impact on the natural environment and surrounding developments.

Stormwater Management

The servicing strategy described below reflects the Serviceability Report (revised) prepared by Arcadis (October 20, 2026), as summarized in the Addendum (Fotenn 2026a) and Addendum #2 (Fotenn 2026b). The S-4 Leitrim Urban Expansion Area is divided into two distinct drainage catchments based on existing topography. The servicing strategy provides a conceptual design to achieve water quality and quantity control in accordance with pre-development conditions, while ensuring compliance with the City's Official Plan and detailed design requirements.

As part of the existing Pathways development to the north, a constructed channel (i.e., Conveyance Channel / downstream portions of the Scratch Ditch) and associated drainage swale (i.e., Scratch Ditch) were designed to collect and convey surface runoff from undeveloped areas south of the Pathways development limits (i.e., the Subject Site), directing it to the Leitrim Wetland Buffer. The existing drainage swale / Scratch Ditch (S4-F) was constructed parallel to the conventional rear-yard drainage swale within the rear yards of properties bordering the Subject Site to the north. A portion of the Scratch Ditch outlets to the constructed Conveyance Channel at the confluence with HDF S4-B.

The final Grading and Drainage Plan will be prepared in accordance with the City of Ottawa Sewer Design Guidelines, prioritizing the maintenance of existing flow paths and ensuring that all watercourses impacted by the development are explicitly identified and protected. The Sediment and Erosion Control Plan will be governed by the City of Ottawa's *Erosion and Sediment Control Guidelines for Urban Construction* (2006).

Eastern Catchment Facilities and Infrastructure

The eastern catchment will outlet to Dun Skipper Drive via a new storm sewer extension in Bank Street, utilizing the previously allocated 523 L/s capacity associated with the planned Earl Armstrong Extension. The municipal storm sewer network ultimately conveys flow to the existing Findlay Creek Stormwater Management Facility (SWMF), which provides final water quality and quantity control for a significant portion of the Leitrim development area (Section 7.3 of the Serviceability Report).

Additionally, a dry pond will be implemented on-site to provide major system retention for the eastern portion of the Subject Site. The design of this northeast stormwater pond has been evaluated and confirmed to function appropriately given the estimated groundwater levels observed on-site, as documented in the Paterson Group Geotechnical Investigation Report, which confirms that the design accounts for the Subject Site's specific subsurface and high groundwater conditions.

Western Catchment Facilities and Infrastructure

The western catchment discharges to a new linear stormwater management facility (linear wetland facility) designed to provide quality and quantity control in accordance with pre-development conditions. Consistent with airport safety requirements prohibiting permanent wet ponds in this vicinity, this facility is designated as a "dry" stormwater management feature and will not attract waterfowl. The facility will achieve "Enhanced" water quality treatment, corresponding to 80% Total Suspended Solids (TSS) removal. As permitted by OPA Policy f, this facility may be located outside of the urban boundary on 4850 Bank Street.

With development of the S-4 lands, the remaining external portion of Area A2 (Section 3.3.1) is approximately 5.5 ha. As shown in Figure 9-6 of the Serviceability Report (Arcadis 2026b), runoff from Area A2 will be conveyed north, together with runoff from development Area W1, to the western linear SWMF. Combined discharge from the SWMF to the Conveyance Channel will be controlled to the 100-year design flow of 0.66 m^3/s, and runoff from the 25 mm event will be released over approximately 24 hours. The facility is designed as a multi-stage system to manage both frequent and extreme events. The existing Scratch Ditch will no longer receive runoff from the S-4 lands.

The ownership and maintenance responsibility for the linear stormwater management feature will be finalized during the Draft Plan of Subdivision process, in accordance with City of Ottawa requirements regarding municipal easements or ownership.

Clean Water Routing

Clean surface flows from INT-3 (Reach S4-B) and the Scratch Ditch (Reach S4-F) will continue to flow directly into the Conveyance Channel (Reach S4-A), as they do under existing conditions. These flows will not be redirected into the linear SWMF. Only runoff from the development area will be directed to the SWMF. Site sumps may drain to the SWMF where required for grading or logistical reasons. This clarifies the description of overland flow routing provided in the July 2026 Addendum.

Conveyance Channel Optimization

The western catchment discharges into the existing constructed Conveyance Channel located along the western boundary of the Subject Site. This channel serves as the primary receiving body for the western catchment, directing flows toward the Leitrim Wetland Buffer. As part of channel optimization, the following works are proposed:

- Removal of the informal rock weir at the junction of INT-3, the Scratch Ditch and the Conveyance Channel to restore hydraulic connectivity and fish passage. Water levels upstream of the weir will be documented before removal. If the weir is found to support upstream wetland water levels, a naturalized grade-control feature will be installed at the existing controlling elevation. This recommendation originates from SNC's July 25, 2025 field observations and the original EIS, and is addressed in Section 7.2 of the revised Serviceability Report; and

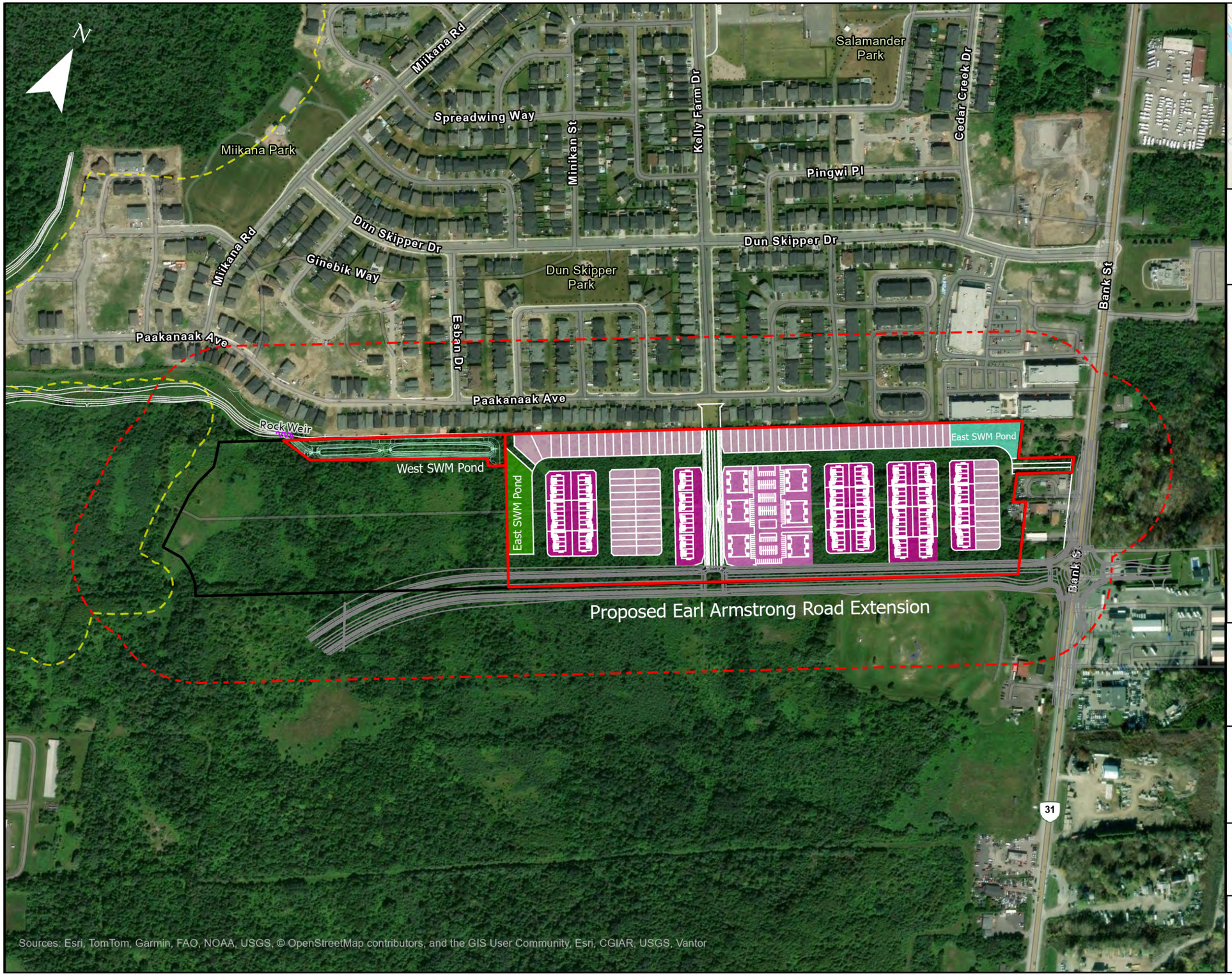
- Reinstatement of naturalized banks at the Scratch Ditch outlet to correct localized erosion and improve ecological connectivity.

The western SWMF outlet and the discharge to the Conveyance Channel have been designed by Arcadis with consideration of erosion potential. The performance of the Conveyance Channel and emergency overland flow route, including under the 100-year stress-test events, is addressed in Sections 7.6.4 and 7.6.5 of the updated Serviceability Report. Any additional erosion protection or energy dissipation required at detailed design will be designed to keep pooling and erosion within the channel corridor, away from the adjacent private properties.

Low Impact Development

Maintaining infiltration within the development area would be preferred. However, because of the shallow water table, infiltration-based Low Impact Development (LID) measures are not recommended, and evapotranspiration- and filtration-based measures will be considered by the civil design team (Paterson Group 2026b). Clay trench plugs (seals) will be installed within mainline servicing trenches to prevent groundwater drawdown and maintain the local water table.

Refer to Arcadis' Serviceability Report (2026b) for detailed information on the documentation of existing municipal infrastructure and an analysis of alternative servicing options for the Leitrim West Urban Expansion Area – S4 Lands.





Scale: 1:5,000

0 37.5 75 150 225 300 Meters

Legend

- Proposed Development Area (Nov 2026)
- Study Area (120 m)
- Property Boundary
- Rock Weir
- SNC Regulation Limit (30 m)
- West Stormwater Pond (Arcadis, 2025)
- Site Plan (Novatech, Sept 2026)
- Muncipal Road Extension (City of Ottawa)

Proposed Land Use

- Singles Family Home
- Back to Back Homes
- Townhomes
- Stormwater Management
- Park

Project:

4850 Bank Street EIS & TCR
The Edge at Pathways [S-4 Lands]

Title:

Proposed Concept Plan

Prepared By:

FOTENN

Date:

11/11/2026

Figure: 10

8.0
Impact Assessment and Mitigation

The following sections describe the anticipated environmental impacts associated with the proposed development and the mitigation measures that should be implemented.

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

The impact assessment builds on the natural heritage features confirmed within the Study Area (Section 6) and the development proposal (Section 7) to establish potential pathways of impact associated with clearing, grading, servicing, stormwater management and building. The assessment then applies a mitigation hierarchy that prioritizes avoidance first, followed by minimization, mitigation, and, where necessary, compensation / restoration, to identify measures appropriate to the Subject Site's features and functions (Figure 11). Mitigation measures are organized by project stage: Planning and Design, Construction Implementation, and Post-Construction.

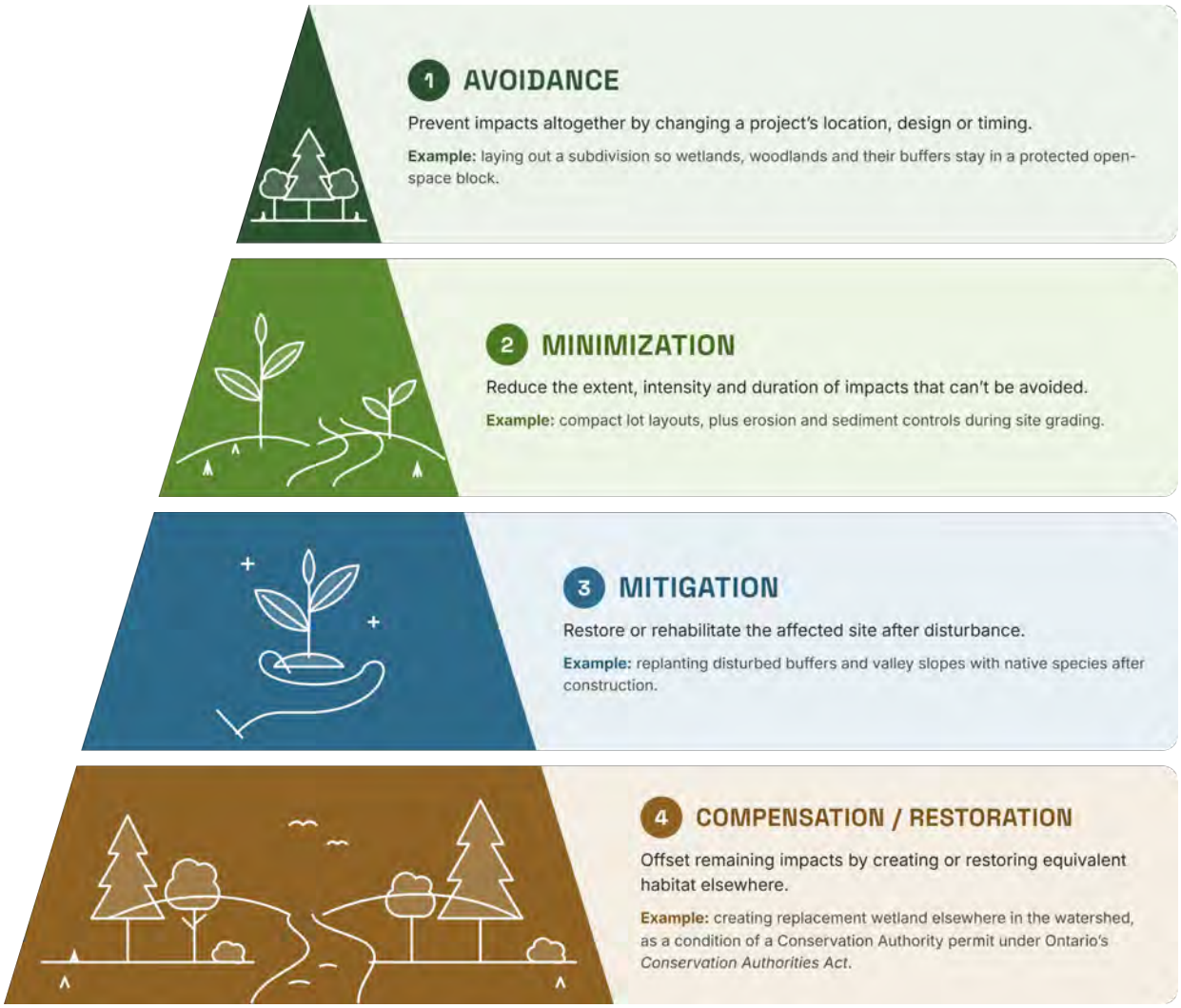


Figure 11: Mitigation Hierarchy for Natural Environment Impacts
(Created using Claude AI)

Consistent with Section 3.4 of the City's EIS Guidelines, each potential impact identified in the following sections has been characterized by its nature (direct or indirect), magnitude, geographic extent, duration and timing (temporary or permanent; seasonal), likelihood, and potential for cumulative effects, with consideration of future climate conditions. Impacts have been quantified where possible (e.g., area of vegetation removal by community in Table 15 and the change in the western catchment water budget in Section 8.1.2). Residual effects following mitigation are summarized in **Table 16**.

The Project is also expected to result in several positive environmental effects, including: more permanent, treated flow to the Conveyance Channel consistent with its design objectives (Golder 2016a); improved fish passage and hydraulic connectivity following removal of the rock weir; reinstatement of naturalized banks at the Scratch Ditch outlet; removal of invasive Glossy Buckthorn thicket; native landscaping and tree planting; and the installation of bat boxes.

8.1 Aquatic Environment

Due to proximity of aquatic features to the Subject Site, Project activities associated with the construction of the proposed low-rise residential development have the potential to impact these features if appropriate measures are not taken to avoid and mitigate against impacts.

The management recommendations for the Conveyance Channel (i.e., S4-A) from the Golder (2016a) EMP is as follows:

1. Maintain and improve the surface water conveyance function of surface drainage from rural lands off-Site to the south by providing more permanent flow; and
2. Provide habitat for wildlife, including amphibians, which will be at least comparable to existing conditions.

The Conveyance Channel was designed to maintain the hydrologic function of the Leitrim PSW by conveying flows from the south (including S4-B) around the Pathways Subdivision, and to provide amphibian habitat. These functions need to be preserved as part the master planning process. As such, the following recommendations are proposed to protect the surface water features within the Subject Site.

OPA Policies i and j further require that the western stormwater management facility be designed to avoid adverse impacts on the Leitrim PSW and associated natural heritage features, that the final release rate and stormwater management design maintain the hydrologic and hydraulic functions of the Conveyance Channel and downstream Leitrim Wetland, and that the City-owned Conveyance Channel and its corridor be protected and enhanced.

8.1.1 Watercourses / Drainage Features

As drainage features are identified to occur within the Urban Expansion Area Limits of the Subject Site, these features are expected to be removed / substantially impacted to accommodate the proposed residential development. According to the most recent draft Site Plan, a 0.5 ha SWMP is proposed to be constructed at the northeastern end of where these features currently rest. Impacts associated with Project activities are expected to include:

- The permanent loss of drainage features (HDFs S4-D and S4-E) and associated aquatic habitat.
- Permanent changes to drainage on the property; and
- Habitat loss, displacement, and/or injury / death for wildlife that were residing in the features or relying on them for life processes.

It is anticipated that with the implementation of the following mitigation measures no direct impacts to the drainage features identified within the western portion of the Subject Site (i.e., HDFs S4-B and S4-C) will occur.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Any in-water works in surface water features on-Site should be undertaken outside of the in-water works timing restriction period for warmwater fish habitats (i.e., March 15 to June 30; MNR In-water Work Timing Window Guidelines).
- ✓ A Fish and Wildlife Salvage should be conducted for these features within 48 hours of Project activities.
- ✓ Grading and drainage shall be designed to ensure proper management of drainage off the Subject Site during construction activities.
- ✓ Consistent with the EMP (Golder 2016a), a 15 m setback was recommended for the Conveyance Channel (S4-A) which should also be applied to S4-B, and S4-C.
- ✓ Stormwater management solutions should meet the criteria outlined in the Golder (2016a) EMP with respect to water quality and quantity flowing into the Leitrim PSW.
- ✓ Clean surface flows from INT-3 (S4-B) and the Scratch Ditch (S4-F) will continue to flow directly into the Conveyance Channel (S4-A) and will not be redirected into the linear SWMF.
- ✓ Habitat features integrated into the Conveyance Channel for ecological purposes will be excluded from sediment cleaning maintenance activities to preserve established aquatic habitat.

A permit will be required from SNC (or its successor authority) under O. Reg. 41/24 for the removal of HDFs S4-D and S4-E, the alteration of the Conveyance Channel / S4-A and INT-3 / S4-B (including removal of the rock weir and the stormwater management facility outlet works), and any development within the Leitrim PSW or within 30 m of the PSW. The permit application will include the hydrologic impact assessment and post-development monitoring plan.

Proposed Mitigation Measures – Construction Implementation

- ✓ Orange snow fencing or other suitable fencing should be used to delineate the construction limits from the drainage features.
  - This will prevent encroachment of construction activities into the features. This fencing should be monitored weekly to ensure it is functioning properly. Any deficiency in the fencing should be dealt with within 48 hours of notification.
- ✓ A site-specific erosion and sediment control plan should be implemented to prevent on-site erosion and sedimentation / siltation outside of work areas.
- ✓ The rock weir at the junction of INT-3 (S4-B), the Scratch Ditch (S4-F) and the Conveyance Channel (S4-A) should be removed to restore hydraulic connectivity and fish passage. Removal may change the timing of INT-3 flows and could lower water levels in the Ash Mineral Deciduous Swamp (SWDM2) upstream, which supports Black Ash. As such:
  - Water levels upstream of the weir will be documented before removal;
  - If the weir is found to support upstream wetland water levels, a naturalized grade-control feature will be installed at the existing controlling elevation; and
  - The removal method, timing, fish and wildlife protection, erosion and sediment control and restoration measures will be detailed in the SNC permit application.
- ✓ Naturalized banks will be reinstated at the Scratch Ditch outlet to correct localized erosion and improve ecological connectivity.

Conveyance Channel Outlet

The outlet of the Conveyance Channel is immediately adjacent to private properties, and SNC has identified the potential for pooling or erosion at this location. Discharge from the western SWMF will be controlled to the channel's 100-year design flow of 0.66 m³/s, and the performance of the Conveyance Channel and emergency overland flow route, including under the 100-year stress-test events, is addressed in Sections 7.6.4 and 7.6.5 of the updated Serviceability Report (Arcadis 2026b). Any additional erosion protection or energy dissipation required at detailed design will be designed to keep pooling and erosion within the channel corridor, away from the adjacent properties. The post-development monitoring plan will include monitoring of erosion and sediment deposition within the Conveyance Channel and at its outlet, so that any instability can be identified and corrected.

With the successful implementation of the mitigation measures outlined above, the two drainage features (i.e., S4-D and S4-E) within the northeastern corner of the Subject Site are expected to be infilled / removed with minimal impacts to surrounding natural features, and the hydraulic and ecological function of the Conveyance Channel is expected to be maintained and enhanced. The nature, magnitude, geographic extent, duration and likelihood of the potential impacts to watercourses and drainage features are summarized below.

Nature	Magnitude	Geographic Extent	Duration and Timing	Likelihood
Direct Removal of HDFs S4-D and S4-E; works in S4-A / S4-B	**Low** Two isolated features with no fish habitat	**Localized** Northeastern Urban Expansion Area Limits and channel junction; western features protected	**Permanent** Loss of S4-D / S4-E; construction effects temporary	**Certain** Removal required for the Concept Plan

Flag key: Higher concern Moderate Lower concern

8.1.2 Groundwater and Hydrologic / Hydrogeologic

The stormwater management solution for the S-4 Leitrim lands addresses the hydrologic and hydrogeologic requirements of the Leitrim PSW. For the purpose of this assessment, the Casino Wetland is considered to be a component of the Leitrim PSW (Golder 2016a). It is understood that the Leitrim PSW may be sensitive to changes in groundwater elevations, groundwater recharge and surface water runoff, as would be the case with most wetland features.

Water Budget

Groundwater within the S-4 lands follows local topography and is divided into two catchments, with shallow groundwater in the western catchment flowing west toward the Leitrim PSW (Paterson Group 2026b). Consistent with the Remer-Idone EMP (Golder 2016a), the primary source of recharge to the Leitrim Core Wetland and Casino Wetland is groundwater discharging from the sand and gravel ridge southwest of the Subject Site; local recharge from the adjacent glacial till lands is insignificant by comparison.

The western catchment water budget completed by Paterson Group (2026b) predicts that on-site infiltration will decrease from approximately 8.6 to 4.5 million L/year under post-development conditions, while runoff directed to the Conveyance Channel will increase from approximately 5.7 to 47.1 million L/year, resulting in a net increase in flows to the wetland from approximately 14.3 to 51.7 million L/year. Because of the shallow water table, infiltration-based LID measures are not recommended; however, the additional runoff will be treated in the linear SWMF (Enhanced, 80% TSS removal), attenuated to the channel's 100-year design flow of 0.66 m³/s, and discharged within the same subwatershed, maintaining the hydrogeological function of the area.

This more consistent flow supports the design objectives of the Conveyance Channel identified in the EMP (Golder 2016a), namely to provide more permanent flow and amphibian habitat, noting that SNC observed the input from the Scratch Ditch to be "very dry" under current conditions (SNC 2025a).

As the western catchment (approximately 11 ha, including external Area A2) represents roughly 3% of the approximately 388 ha tributary to the Leitrim Wetland Buffer, the change is not expected to measurably alter the water balance or hydroperiod of the Leitrim PSW. This will be confirmed through the hydrologic impact assessment (Section 4.2.2) and verified through post-development monitoring.

Receiving Plant Communities

Flows from the western outlet are received by the Conveyance Channel, the adjacent Ash Mineral Deciduous Swamp (SWDM2), and the Leitrim Wetland Buffer. These swamp communities tolerate seasonal spring flooding but can be sensitive to longer or deeper flooding during the growing season. Such flooding can cause tree stress and dieback (including Black Ash), a shift toward marsh vegetation, and the spread of invasive species such as Reed Canary Grass and Common Reed.

The linear SWMF will reduce this risk by attenuating runoff from heavy storm events and releasing it gradually to the Conveyance Channel. Peak flows will be controlled to the channel's 100-year design flow of 0.66 m^3/s, and runoff from the 25 mm event will be released over approximately 24 hours. As a result, the receiving features will not experience sudden peaks in flow or water level during the growing season. The Year 5 Constructed Channel Monitoring (Cambium 2024) found that the channel discharges to the Leitrim Wetland Buffer at very low velocities. The broad, well-vegetated swamp and buffer communities downstream of the outlet are expected to absorb and spread these controlled flows, accommodating the change in flow regime without a significant change in hydroperiod. The post-development monitoring plan will also track the effect of the outlet on these communities, including vegetation composition, Black Ash condition and invasive species, so that any unexpected change can be identified and addressed.

Construction Dewatering

The updated Hydrogeological Study identifies temporary construction dewatering from the western SWMF excavation (approximately 50,000 to 55,000 L/day) and servicing trenches, with an estimated radius of influence of up to 58 m (Paterson Group 2026b). Because these works are close to the Conveyance Channel and the PSW, source-specific dewatering calculations will be completed at detailed design, dewatering near the PSW will be kept as short as possible, and discharge water will be directed to vegetated areas within the western catchment in accordance with the Hydrogeological Study. No adverse effects from short-term or long-term dewatering are expected for surrounding structures or neighbouring properties.

For more details on the potential constraints that groundwater may have on the Study Area and how these impacts can best be mitigated, please see the Geotechnical Investigation (Paterson Group 2026a) and Hydrogeological Study (Paterson Group 2026b).

Proposed Mitigation Measures – Planning and Design Stage

- ✓ The Golder (2016a) EMP provided for the development of the lands immediately north identified that excavations for basement construction and installation of some Site services could encounter problematic groundwater inflows as they extend below the groundwater level. From a geotechnical perspective, Golder (2016a) recommended to limit the depth of excavation for basement construction to no more than approximately 1 m below the existing ground surface.
- ✓ Clay trench plugs (seals) will be installed within mainline servicing trenches to prevent groundwater drawdown along pipe bedding and maintain the local water table, consistent with the low permeability clay barriers recommended in the EMP (Golder 2016a).
- ✓ A hydrologic impact assessment will be prepared and submitted with the SNC permit application (Section 4.2.2). Based on the results, an appropriate flow regime for the receiving features will be established and the SWMF outlet design adjusted as required.

- ✓ Golder (2016a) recommended that grading should ideally avoid or limit the amount of bedrock excavation. If blasting is required, it should be planned to limit the peak particle velocities at adjacent structures or services such that blast induced damage will be avoided.
- ✓ It is recommended that Low Impact Design alternatives include elements that would contribute to or enhance the natural heritage system.
- ✓ Precautions must be taken if winter construction is considered for this project as the subsoil conditions at this site consist of frost-susceptible materials. In the event of construction during below-zero temperatures, the base of the excavations should be insulated from sub-zero temperatures immediately upon exposure and until such time as heat is adequately supplied to the building and the footings are protected with sufficient soil cover to prevent freezing at founding level (Paterson Group 2025).
  - Trench excavations and pavement construction are also difficult activities to complete during freezing conditions without introducing frost into the subgrade or in the excavation walls and bottoms. Precautions should be taken if such activities are to be carried out during freezing conditions (Paterson Group 2025).
- ✓ Based on the boreholes completed within the vicinity of the proposed SWMP within the northeastern corner of the property, it is anticipated that the proposed structure will be founded within the glacial till. Given the glacial till anticipated on the bottom and lower sides of the SWMP, a liner is recommended. The pond liner may consist of one of the following:
  - A 500 mm thick layer of workable, brown silty clay which is compacted with several passes of a sheepsfoot roller, and placed directly over the glacial till; or
  - A 150 mm thick layer of 19 mm clear crushed stone placed over the glacial till subgrade, followed by a scrim-reinforced geosynthetic clay liner (such as the Bentofix Thermal Lock SRNWL Series Geosynthetic Clay Liner, or approved equivalent) which is capped with a 300 mm thick layer of OPSS Granular A material (Paterson Group 2025).

*****Registration on the Environmental Activity and Sector Registry (EASR) will be required under the current regulations enacted by MECP for any dewatering in excess of 50,000 L/day, so long as that dewatering is related to construction.***

- ***In the event that an EASR is required to facilitate dewatering of the proposed development, a minimum of three to four weeks should be allotted for completion of the EASR registration and the Water Taking and Discharge Plan, to be prepared by a Qualified Person as stipulated under O.Reg. 63/16.***
- ***Should a Permit to Take Water be required, a minimum of five to six months should be allotted for completion of the permit, due to the minimum review period imposed by the MECP (Paterson Group 2025).***

Proposed Mitigation Measures – Construction Implementation

- ✓ Source-specific dewatering calculations will be completed at detailed design; dewatering near the PSW will be kept as short as possible; and discharge water will be directed to vegetated areas within the western catchment.

*****Dewatering in excess of 50,000 L/day will be registered on the EASR, or authorized under a Permit to Take Water, as applicable (see above).***

Proposed Mitigation Measures – Post-Construction

- ✓ All excess soils must be handled as per O. Reg. 406/19: On-Site and Excess Soil Management (Paterson Group 2025).
- ✓ A post-development monitoring plan for the Conveyance Channel, its outlet and the receiving portion of the Leitrim PSW will be prepared at detailed design and implemented by the Owner (see below).

Post-Development Monitoring Plan

A post-development monitoring plan for the Conveyance Channel, its outlet and the receiving portion of the Leitrim PSW will be prepared at detailed design and submitted concurrently with the SNC permit application to alter the watercourse, consistent with OPA Policy j. The plan will confirm that these features continue to function as intended, both hydraulically and ecologically, and will identify any effects of the development (positive or negative). The monitoring period will be five years following construction of the western SWMF, with monitoring completed in Years 1, 2, 3 and 5. Baseline conditions will be documented before construction. The Owner will be responsible for implementing the plan, and a monitoring report will be submitted to the City and SNC following each monitoring year. At a high level, the plan will assess:

- / Flows at the SWMF outlet and the Conveyance Channel outlet;
- / Water levels and hydroperiod in the receiving portion of the Leitrim PSW;
- / Channel and outlet stability (erosion and sediment deposition);
- / Vegetation communities, including Black Ash condition and invasive species;
- / Water quality; and
- / Wildlife habitat function, including amphibian breeding and fish presence, consistent with the Year 5 Constructed Channel Monitoring (Cambium 2024).

The plan will include an adaptive management framework, with appropriate thresholds and corrective actions outlined as required. Thresholds will be established based on the baseline data and the flow regime defined through the hydrologic impact assessment. Potential corrective actions may include adjustment of the SWMF outlet control, additional erosion protection or energy dissipation within the channel corridor, invasive species management, and supplemental planting. The specific thresholds and corrective actions will be confirmed with the City and SNC through the permit application process.

With the successful implementation of the mitigation measures outlined above, the proposed stormwater management strategy is expected to maintain the overall hydrologic and hydrogeologic function of the Leitrim PSW, consistent with the drainage approach described in the Remer-Idone EMP (Golder 2016a) and OPA Policy k. These effects will be confirmed through the hydrologic impact assessment and verified through post-development monitoring. The nature, magnitude, geographic extent, duration and likelihood of the potential impacts to groundwater and hydrologic function of the Leitrim PSW are summarized below.

Nature	Magnitude	Geographic Extent	Duration and Timing	Likelihood
Indirect Changes to recharge, runoff and hydroperiod reaching the PSW via the Conveyance Channel	**Low** Western catchment is ~3% of the wetland's tributary area; net increase in flow	**Off-site** Western catchment, Conveyance Channel and receiving portion of the PSW	**Permanent** Long-term change in runoff regime; dewatering temporary	**Possible** To be confirmed by hydrologic impact assessment and monitoring

Flag key: Higher concern Moderate Lower concern

8.1.3 Fishes and Fish Habitat

No direct fish habitat was identified to occur within the Urban Expansion Area Limits where development is proposed; therefore, no impacts to fish habitat are anticipated within the Urban Expansion Area Limits. Indirect fish habitat occurs within the western portion of the Subject Site, particularly associated with HDFs S4-B and S4-C as they contribute flows to direct fish habitat present downstream. HDF S4-A (i.e., Conveyance Channel) contains direct fish habitat due to the confirmed presence of fishes (Cambium 2024); however, a rock weir at the Subject Site boundary (i.e., intersection of S4-A, S4-B, and S4-F) impedes upstream fish migration.

Impacts associated with Project activities are expected to include:

- Sedimentation or siltation into downstream fish habitat (e.g., Leitrim PSW / ANSI) from the Subject Site.
- Permanent alteration to, or destruction of, fish habitat (e.g., Conveyance Channel).

Proposed Mitigation Measures – Planning and Design Stage

- ✓ A Fish and Wildlife Salvage should be conducted for these features within 48 hours of Project activities.
- ✓ Works in or near water associated with the rock weir removal and SWMF outlet should be designed to avoid harmful alteration, disruption or destruction of fish habitat, following DFO's Codes of Practice and measures to protect fish and fish habitat where applicable.

*****DFO Request for Review submission to determine if the Project will result in serious harm to fishes or fish habitat.***

Proposed Mitigation Measures – Construction Implementation

- ✓ Orange snow fencing or other suitable fencing should be used to delineate the construction limits (e.g., Urban Expansion Area) from adjacent lands / areas (e.g., property outside Urban Expansion Area).
  - This will prevent encroachment of construction activities into the non-developable / more naturalized areas. This fencing should be monitored weekly to ensure it is functioning properly. Any deficiency in the fencing should be dealt with within 48 hours of notification.
- ✓ A site-specific erosion and sediment control plan should be implemented to prevent on-site erosion and sedimentation / siltation outside of work areas, particularly toward downstream fish habitat present to the west (e.g., Leitrim PSW / ANSI).
- ✓ Any in-water works in the surface water features on-Site (i.e., S4-A / Conveyance Channel) shall be undertaken outside of the in-water works timing restriction period for warmwater fish habitats (March 15 to June 30).
- ✓ Removal of the rock weir will facilitate the migration of fishes into upstream reaches (S4-B) and aid contributing flows to the Leitrim PSW, subject to the conditions described in Section 8.1.1.

With the successful implementation of the mitigation measures outlined above, minimal impacts to fishes and fish habitat are anticipated, and the removal of the rock weir is expected to improve fish passage between the Conveyance Channel and INT-3. The nature, magnitude, geographic extent, duration and likelihood of the potential impacts to fishes and fish habitat are summarized below.

Nature	Magnitude	Geographic Extent	Duration and Timing	Likelihood
Indirect Sedimentation and in-water works affecting downstream habitat	**Low** No fish habitat in the Urban Expansion Area Limits; weir removal improves fish passage	**Localized** Conveyance Channel / INT-3 junction and channel outlet	**Temporary** During in-water works, outside the warmwater timing window	**Unlikely** With ESC measures, timing windows and DFO measures

Flag key: Higher concern Moderate Lower concern

8.2 Terrestrial Environment

To accommodate construction, the removal of vegetation communities consisting of buckthorn / deciduous shrub thicket, meadow, and coniferous hedgerows and thickets are anticipated, with minor removal of deciduous swamp habitat.

8.2.1 Wetlands

Four small wetland inclusions (i.e., <0.5 ha) were delineated during the ELC assessments within the Study Area, only one of which is located within the Urban Expansion Area Limits (i.e., Poplar Mineral Deciduous Swamp - SWDM4-5). It is anticipated that the three wetland inclusions within the western Site limits will not be impacted by this Project as they are outside of the Urban Expansion Area Limits.

Poplar Mineral Deciduous Swamp (Inclusion)

The Poplar Mineral Deciduous Swamp inclusion will likely be cleared and graded to accommodate the proposed development of the Subject Site. The removal of this feature may reduce its ability to retain and release surface water at a controlled rate. The natural heritage constraints associated with the removal of the wetland inclusion from the Urban Expansion Area Limits has been evaluated based on the presence of native vegetation vs. invasive / non-native vegetation, as well as the value of habitat provided by the community. The following paragraph details the ecological constraints associated with this small wetland inclusion:

This 0.12 ha Poplar Mineral Deciduous Swamp (SWDM4-5) inclusion is situated within a low-lying depression and accumulates standing water during the spring melt. Water likely accumulates within this feature due to the presence of clay substrate. Field studies resulted in minimal activity from breeding amphibians (American toad Call Code:1, Spring Peeper Call Code:1), suggesting that this community provides little ecological value. The understory of this feature is relatively sparce but does contain dense patches of invasive glossy buckthorn which emphasises the non-significance of this feature. In general, this area should not pose a constraint to the proposed development of the Urban Expansion Area Limits as it is impacted by invasive species (i.e., glossy buckthorn) and provides little natural heritage value other than to retain surface water during spring melt.

Leitrim Provincially Significant Wetland (PSW)

The Leitrim PSW (including the Casino Wetland) occurs approximately 50 m from the western property boundary, with the SNC Regulated Area approximately 20 m away from the western property line. It is anticipated that this feature will not be directly impacted by this Project as it is approximately 500 m from the western edge of the Urban Expansion Area Limits. As recommended in the Golder EMP (2016) and required by OPA Policy i, the western stormwater management facility has been designed to avoid adverse impacts on the Leitrim PSW and outlets to the Conveyance Channel (S4-A). Treated and attenuated flows will maintain hydration to the PSW and are expected to provide the more permanent flow that the Conveyance Channel was designed to convey (Section 8.1.2). These effects will be confirmed through the hydrologic impact assessment and verified through post-development monitoring.

To accommodate the construction of the proposed development, the Subject Site will be cleared as necessary, and the property will be graded. The impacts associated with this clearing and grading will include:

- The permanent loss of the small 0.12 ha Poplar Mineral Deciduous Swamp (SWDM4-5) wetland Inclusion.
- Changes in natural drainage patterns; and
- Potential for on-site erosion and deposition of sediment into adjacent watercourses and wetlands.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Stormwater management solutions will meet the criteria outlined in the Golder (2016a) EMP with respect to water quality and quantity flowing into the Leitrim PSW, including Enhanced (80% TSS removal) water quality treatment and attenuation of the western SWMF discharge to the Conveyance Channel's 100-year design flow of 0.66 m^3/s.
- ✓ Based on previous studies by Beacon (2007; 2012) and the EMP (Golder 2016a), a 50 m no-touch buffer adjoining the Casino Wetland is to be maintained, with an additional 50 m limited-use zone. The limited-use zone will be occupied by the naturalized constructed Conveyance Channel, as well as a naturalized pedestrian trail, effectively increasing the wetland buffer to 100 m following construction. No other activities will be proposed in this limited-use zone.
  - The pedestrian trail is located between the Conveyance Channel and the development area. A 15 m setback is to be maintained between the top of channel bank and the trail or the top of channel bank and the area of development (Golder 2016a).
  - A 15 m setback was also recommended between the rear lot lines and the eastern bank of the Conveyance Channel (Golder 2016a).
- ✓ Consistent with the EMP (Golder 2016a), a 15 m setback was recommended for the Conveyance Channel (S4-A) which should also be applied to S4-B, and S4-C, and associated Ash Mineral Deciduous Swamp (SWDM2).

Proposed Mitigation Measures – Construction Implementation

- ✓ Impacts to natural vegetation should be minimized to the extent possible, particularly within the Casino wetland buffer (i.e., 50 m no-touch and 50 m limited-use).
- ✓ Orange snow fencing or other suitable fencing should be used to delineate the construction limits from the PSW area, as well as other wetland inclusion features within the Subject Site boundaries.
  - This will prevent encroachment of construction activities into the PSW to the west. This fencing should be monitored weekly to ensure it is functioning properly. Any deficiency in the fencing should be dealt with within 48 hours of notification.
- ✓ A site-specific erosion and sediment control plan should be implemented to prevent on-site erosion and sedimentation / siltation outside of work areas.

Proposed Mitigation Measures – Post-Construction

- ✓ The Golder (2016a) EMP recommends that a groundwater monitoring program be devised for portions of wetland (e.g., Casino Wetland) adjacent to the Subject Site that have the potential to be affected by temporary groundwater pumping from service trenches that extend into the upper bedrock zone.
- ✓ The post-development monitoring plan (Section 8.1.2) will monitor water levels and hydroperiod in the receiving portion of the Leitrim PSW, vegetation communities (including Black Ash condition and invasive species) and wildlife habitat function, with an adaptive management framework of thresholds and corrective actions.

With the successful implementation of the mitigation measures outlined above, impacts to wetlands are expected to be limited to the removal of the small (0.12 ha) unevaluated wetland inclusion. It is anticipated that the proposed stormwater solutions will maintain and/or improve the surface water conveyance function of surface drainage from the S4 lands by providing more permanent flow to the adjacent Leitrim PSW via the linear SWMF and Conveyance Channel. The nature, magnitude, geographic extent, duration and likelihood of the potential impacts to wetlands are summarized below.

Nature	Magnitude	Geographic Extent	Duration and Timing	Likelihood
Direct Removal of the 0.12 ha SWDM4-5 wetland inclusion	**Low** Small, non-significant inclusion dominated by invasive buckthorn	**Localized** Northeastern Urban Expansion Area Limits; Leitrim PSW and buffers avoided	**Permanent** Loss of inclusion; construction effects temporary	**Certain** Removal required for the Concept Plan

Flag key: Higher concern Moderate Lower concern

8.2.2 Woodlands

Consistent with the observations in Golder's EMP (2016), the on-Site portions of woodlands do not represent any unique or significant features that are not well-represented elsewhere in the surrounding region. Therefore, consistent with the original EIS (Arcadis 2026a), removal of the on-Site portions of woodlands is not expected to affect the form or overall function of the larger off-Site portions of the woodlands in the area.

To accommodate the construction of the proposed development, the Subject Site will be cleared as necessary, and the property will be graded. The impacts associated with this clearing will include:

- The permanent loss of or disturbance to vegetation / trees.
- Permanent loss of approximately 3.1 ha of forest and hedgerow communities.
- Increased heat retention due to replacement of vegetated areas with infrastructure; and
- Potential for accidental damage or loss of trees.

Based on the information it is unlikely that a significant opportunity for tree retention exists on-Site. As such, the following recommendations are proposed which largely focus on tree plantings as part of a future Landscape Plan to be implemented post-development.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Landscaping plans shall incorporate native vegetation and plantings in accordance with the City's Urban Forest Management Plan to increase the abundance of native vegetation species on the Subject Site and to offset any loss of species from vegetation removals.
- ✓ Replanting of trees on site to offset the loss of trees due to the development (or compensation plantings off site, if appropriate) should be considered at the Detail Design phase.

Proposed Mitigation Measures – Construction Implementation

- ✓ To protect the critical root zone of the outer trees of the new forest edge, no grading or other Site disturbances should occur within a distance of ten times the tree diameters or approximately three to four metres (Golder 2016a).
- ✓ Orange snow fencing or other suitable fencing should be used to delineate the construction limits (e.g., Urban Expansion Area) from adjacent lands / areas (e.g., property outside Urban Expansion Area).

- This will prevent encroachment of construction activities into non-developable / more naturalized areas. This fencing should be monitored weekly to ensure it is functioning properly. Any deficiency in the fencing should be dealt with within 48 hours of notification.

Proposed Mitigation Measures – Post-Construction

✓ Native trees should be incorporated into the landscape plantings.

With the successful implementation of the mitigation measures outlined above, an approximate 3.1 ha decrease in woodland and hedgerow cover is anticipated due to the proposed development. Tree conservation and replacement requirements are addressed in the Tree Conservation Report (Appendix A). The nature, magnitude, geographic extent, duration and likelihood of the potential impacts to woodlands are summarized below.

Nature	Magnitude	Geographic Extent	Duration and Timing	Likelihood
Direct Clearing of forest and hedgerow communities	**Moderate** Approximately 3.1 ha of non-significant woodland and hedgerow	**Site-wide** Hedgerows and small woodland across the Urban Expansion Area Limits	**Permanent** Partially offset by replanting over time	**Certain** Clearing required for the Concept Plan

Flag key: Higher concern Moderate Lower concern

8.2.3 Vegetation Communities

To accommodate the construction of the proposed development, the Subject Site will be further cleared as necessary, and the property will be graded.

Construction of the western SWMF will also require vegetation clearing outside the Urban Expansion Area Limits. The vast majority of the vegetation within the western SWMF footprint is Buckthorn Deciduous Shrub Thicket (THDM2-6), with small portions of Fresh-Moist Mixed Meadow (MEMM4) encroaching into the footprint in a few areas. Impacts to this area are partially mitigated by the previous clearing completed under permit from the City to facilitate borehole drilling for the geotechnical and hydrogeological investigations completed by Paterson Group (Paterson Group 2025, 2026b). Clearing for the western SWMF will be limited to the approved footprint, and the limits of clearing and grading will be staked and fenced before any further clearing occurs.

The approximate areas of vegetation communities proposed for removal are shown below in Table 15. These areas include the clearing required for the proposed subdivision within the Urban Expansion Area Limits, the western SWMF and the anticipated Earl Armstrong Road Extension corridor (see also Section 8.4). In total, approximately 3.1 ha of forest and hedgerow communities, 15.8 ha of thicket and meadow communities and 0.12 ha of swamp are anticipated to be removed.

Table 15: Vegetation Communities Impacted

ELC Type	Total Area Proposed for Removal (ha)
FOCM4-1 – Fresh-Moist White Cedar Coniferous Forest	0.35
FOCM5 – Naturalized Coniferous Hedgerow	0.5
FODM11 – Naturalized Deciduous Hedgerow	2.28
MEMM4 – Fresh-Moist Mixed Meadow	1.97
SWDM4-5 – Poplar Mineral Deciduous Swamp	0.12
THCM2-1 – Fresh-Moist White Cedar Coniferous Thicket	1.29
THDM2-6 – Buckthorn Deciduous Shrub Thicket	12.54
CL – Cleared Land	1.26

The impacts associated with this clearing are expected to include the following:

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

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Landscaping plans shall incorporate native vegetation and plantings to increase the abundance of native vegetation species on the Subject Site and to offset any loss of species from vegetation removals.
- ✓ Replanting of trees on site to offset the loss of trees due to the development (or compensation plantings off site, if appropriate) should be considered at the Detail Design phase.

Proposed Mitigation Measures – Construction Implementation

- ✓ Prior to any further clearing for the western SWMF, the limits of clearing and grading associated with its construction shall be staked in the field and delineated with fencing. Clearing shall be confined to the approved SWMF footprint and, where feasible, make use of areas previously cleared for borehole drilling.
- ✓ Orange snow fencing or other suitable fencing should be used to delineate the construction limits from adjacent areas.
  - This will prevent encroachment of construction activities into adjacent natural areas. This fencing should be monitored weekly to ensure it is functioning properly. Any deficiency in the fencing should be dealt with within 48 hours of notification.
- ✓ A site-specific erosion and sediment control plan should be implemented to prevent on-site erosion and sedimentation / siltation outside of work areas.
- ✓ Invasive species to be removed shall be done so using species-appropriate methods (following best management practices outlined on the Ontario Invasive Plant Council [OIPC 2024] website) to prevent further contamination.
- ✓ Machinery will arrive on site in a clean condition and will be free of fluid leaks, invasive species, and noxious weeds.

Proposed Mitigation Measures – Post-Construction

- ✓ All waste construction material shall be removed from the Subject Site and impacted areas shall be reinstated in accordance with the proposed landscape plans upon Project completion.

With the successful implementation of the mitigation measures outlined above, a decrease in native terrestrial vegetation is anticipated due to the proposed development. The nature, magnitude, geographic extent, duration and likelihood of the potential impacts to vegetation communities are summarized below.

Nature	Magnitude	Geographic Extent	Duration and Timing	Likelihood
Direct Clearing of thicket, meadow and forest communities	**Moderate** Approximately 18.9 ha of largely disturbed, buckthorn-dominated cover	**Site-wide** Entire Urban Expansion Area Limits development footprint	**Permanent** Native landscaping partially restores cover	**Certain** Clearing required for the Concept Plan

Flag key: Higher concern Moderate Lower concern

8.2.4 Significant Wildlife Habitat

Impacts associated with the proposed development have the potential to impact Species of Conservation Concern, if present on-site. The following potential impacts to SWH may include:

- The permanent loss / damage of or disturbance to vegetation / trees and associated loss of nesting and foraging habitat.
- Erosion or sedimentation / siltation into adjacent lands.
- Potential physical harm to wildlife (e.g., bird) nests and/or dens during clearing and construction activities.
- Displacement, injury, or death resulting from contact with heavy equipment during clearing and grading activities.
- Loss of general natural habitat suitable for the life processes of common urban and rural wildlife.
- Disturbance to wildlife resulting from noise and vibrations associated with construction activities, particularly during breeding periods.
- Conflict between wildlife and humans following development, including mortality from vehicles, particularly as the proposed development is urban in nature; and
- The increased potential for fatal bird collisions associated with building windows following construction.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Building and community design should consider the City of Ottawa's Bird-Safe Design Guidelines where practical (City of Ottawa, 2022a).

Proposed Mitigation Measures – Construction Implementation

- ✓ Orange snow fencing or other suitable fencing should be used to delineate the construction limits from adjacent naturalized areas.
  - This will prevent encroachment of construction activities into adjacent areas / habitats. This fencing should be monitored weekly to ensure it is functioning properly. Any deficiency in the fencing should be dealt with within 48 hours of notification.
- ✓ A site-specific erosion and sediment control plan should be implemented to prevent on-site erosion and sedimentation / siltation outside of work areas.
- ✓ Clearing of vegetation should be completed outside the breeding bird period (April 1 to August 15), consistent with the MBCA and SARA (Fotenn 2026b).
  - Should any clearing be required during the breeding bird period, a nest search should be completed by a qualified biologist within 48 hours before clearing to confirm that no active nests are present. If

nests are found, an appropriate setback will be established by the qualified professional, and no work will be permitted within this setback until the nest is no longer active, in accordance with the MBCA.

- If an active nest of a SARA-listed species is found, work in the area will stop and ECCC will be consulted before proceeding. Any species-specific timing windows for SARA-listed species identified at detailed design will also be applied.

✓ Mitigation measures outlined in the Protocol for Wildlife Protection during Construction (City of Ottawa 2022c) should be considered prior to construction of the proposed development.

Proposed Mitigation Measures – Post-Construction

✓ Native plants should be used in landscaping in order to provide hostplants and foraging for Species of Conservation Concern birds.

With the successful implementation of the mitigation measures outlined above, impacts to Significant Wildlife Habitat (i.e., Species of Conservation Concern) are not anticipated. The nature, magnitude, geographic extent, duration and likelihood of the potential impacts to significant wildlife habitat are summarized below.

Nature	Magnitude	Geographic Extent	Duration and Timing	Likelihood
Indirect Disturbance to habitat used by Species of Conservation Concern	**Low** Eastern Wood-pewee and Wood Thrush observed incidentally only	**Localized** Treed edges and hedgerows	**Temporary** Seasonal; clearing outside April 1 – August 15	**Unlikely** With timing windows and pre-clearing nest searches

Flag key: Higher concern Moderate Lower concern

8.2.5 Wildlife and Wildlife Habitat

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

- The permanent loss of nesting and foraging habitat will likely result from any vegetation clearing within the property;
- Potential physical harm to wildlife (e.g., bird) nests and/or dens during clearing and construction activities;
- Displacement, injury, or death resulting from contact with heavy equipment during clearing and grading activities;
- Loss of general natural habitat suitable for the life processes of common urban and rural wildlife;
- Disturbance to wildlife resulting from noise and vibrations associated with construction activities, particularly during breeding periods;
- Conflict between wildlife and humans following development, including mortality from vehicles, particularly as the proposed development is a residential subdivision; and
- The increased potential for fatal bird collisions associated with building / house windows following construction.

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Building and community design should consider the City of Ottawa's Bird-Safe Design Guidelines where practical (City of Ottawa, 2022a).
- ✓ Vegetation planting should consider bird breeding, wildlife shelter, and foraging habitat within the Subject Site when selecting plat materials. Collaboration with a qualified ecologist is recommended.
- ✓ Where possible, retain large, mature trees (including cavity trees) to maintain available roosting habitat. At the Detail Design stage, consideration should also be given to the retention of standing dead wildlife trees if they have been assessed as safe.
- ✓ Tree planting and landscape design trees should consider bat roosting opportunities upon reaching maturity, specifically surrounding aquatic features (Oak, Maple, Hickory, etc.).
- ✓ At the Detail Design stage, consideration for the installation of bat boxes (i.e., constructed roosting habitat), is recommended to offset habitat loss. Boxes should be in association with parkland or within the edges of stormwater management facility blocks, meeting the design criteria provided by Bat Conservation International (BCI 2025).
- ✓ Natural habitats should be maintained to the extent possible, and naturalized habitats should be included whenever appropriate and permissible (Golder 2016a).

Proposed Mitigation Measures – Construction Implementation

- ✓ Impacts to natural vegetation should be minimized to the extent possible, particularly within the Casino Wetland buffer (i.e., 50 m no-touch and 50 m limited-use; Golder 2016a).
- ✓ Clearing of trees / snags that have potential to provide bat roosting habitat should be avoided during the active bat season, i.e., March 15 to November 30, inclusive.
- ✓ Clearing of vegetation should be completed outside the breeding bird period (April 1 to August 15), consistent with the MBCA and SARA (Fotenn 2026b).
  - Should any clearing be required during the breeding bird period, a nest search should be completed by a qualified biologist within 48 hours before clearing to confirm that no active nests are present. If nests are found, an appropriate setback will be established by the qualified professional, and no work will be permitted within this setback until the nest is no longer active, in accordance with the MBCA.
  - If an active nest of a SARA-listed species is found, work in the area will stop and ECCC will be consulted before proceeding. Any species-specific timing windows for SARA-listed species identified at detailed design will also be applied.
- ✓ Idling of construction machinery should be limited to reduce disturbance to resident wildlife.
- ✓ Should wildlife enter the work area, activities in that area shall cease and the wildlife shall be allowed to vacate the Subject Site under its own power.
- ✓ A qualified wildlife rehabilitation centre should be contacted if any wildlife is injured or found injured during construction. Injured wildlife should be transported to a qualified facility for care with a small donation of money to help pay for their care.

Proposed Mitigation Measures – Post-Construction

- ✓ The 50 m no-touch buffer and additional 50 m limited-use buffer recommended for the Casino Wetland in the EMP will also serve as a linkage between the Casino Wetland and Leitrim Core Wetland. Golder (2016a) indicated that this linkage feature can be expanded and/or enhanced through the design of future developments in the surrounding landscape (e.g., current S4 development).

With the successful implementation of the recommended mitigation, a site-wide decrease of wildlife habitat is expected due to the proposed development. The nature, magnitude, geographic extent, duration and likelihood of the potential impacts to wildlife and wildlife habitat are summarized below.

Nature	Magnitude	Geographic Extent	Duration and Timing	Likelihood
Direct Loss of nesting and foraging habitat; collision and vehicle risk	**Moderate** Habitat for common urban and rural species	**Site-wide** Entire Urban Expansion Area Limits development footprint	**Permanent** Construction disturbance temporary and seasonal	**Likely** Habitat loss certain; harm avoided through timing windows

Flag key: Higher concern Moderate Lower concern

8.2.6 Species at Risk

According to background resources and Arcadis' field investigations, eight SAR (provincially Endangered or Threatened) have been reported in the area of the Subject Site and have a moderate to high potential of occurrence: Black Ash, Butternut, Eastern Red Bat, Hoary Bat, Little Brown Myotis, Northern Myotis, Tri-coloured Bat, and Silver-haired Bat. Black Ash and Butternut have been confirmed present on-site.

Butternut and Black Ash

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

General searches of the Study Area were completed to determine SAR plant presence; 20 Butternut and 15 Black Ash were identified within the Urban Expansion Area Limits. Butternut and Black Ash are listed as Endangered and are protected under the *Species Conservation Act, 2025*. The SCA regulations include species-specific exemptions and conditions for Butternut and Black Ash (for example, related to tree health), which will be confirmed through a Butternut Health Assessment and Black Ash assessment completed by qualified professionals before site alteration. Where these species or their habitat are expected to be affected by Project activities, registration will be required under the SCA, and a Conservation Plan will be prepared to establish specific mitigation requirements and outline the prescribed conservation measures (e.g., offsetting or compensation).

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Species-specific surveys in search of Black Ash will need to be conducted prior to vegetation clearing, and proper health assessments as per provincial guidelines will be required.
- ✓ The shelf-life of Butternut surveys is 2 years; as such, species-specific surveys will need to be completed prior to construction to identify all Butternut trees within 50 m of the Subject Site.
- ✓ A Butternut Health Assessment completed by a qualified professional following the applicable provincial guidance (e.g., Butternut Assessment Guidelines: Assessment of Butternut Tree Health, MECP 2021, or updated guidance issued under the SCA) will be required prior to site alteration.

Where Butternut or Black Ash, or their habitat, are expected to be affected by Project activities, registration under the SCA and preparation of a Conservation Plan will be completed, including any offsetting or compensation measures, prior to site alteration. Consultation with MECP will be undertaken as required.

Proposed Mitigation Measures – Construction Implementation

- ✓ Do not place any material or equipment within tree protection fencing.
- ✓ Do not attach any signs, notices, or posters to a SAR.
- ✓ Project activities should avoid damage to the root system, trunk / stem, and branches / leaves of any SAR to be preserved.
- ✓ Exhaust fumes from all heavy machinery, vehicles, generators, and other equipment shall not be directed towards any SAR for prolonged periods of time.

Proposed Mitigation Measures – Post-Construction

- ✓ Post-construction tree maintenance methods should be used to repair any damage caused to SAR plants / trees by construction activities. These may include but are not limited to: treating trunk and crown injuries, irrigation and drainage, mulching, and aeration of root zone.
- ✓ Within 12 months of completion of construction, an assessment of preserved SAR plants / trees should be conducted. Trees that are dead, in poor health, or hazardous should be removed or pruned, as determined

by an ISA Certified Arborist. Tree removal, if necessary, should occur promptly to avoid foreseeable risk of trees falling and causing damage or harm to people and/or property.

SAR Bats

The mature trees located within the hedgerows likely provide suitable day roosting bat habitat. It's generally understood that within the Ottawa area, this roosting habitat is not a limiting factor contributing to the decline of SAR bats.

The following is a list of potential impacts to SAR from the proposed development activities:

- / Removal / destruction to Black Ash and Butternut individuals that are confirmed present on the property and proposed for removal;
- / Accidental harm or injury to SAR Bats if present on-site during construction activities;
- / Permanent removal of suitable SAR Bat foraging habitat, if present on site, due to construction activities;
- / An opportunity for the encroachment and spread of non-native species.

The following mitigation measures have been proposed for SAR Bats:

Proposed Mitigation Measures – Planning and Design Stage

- ✓ Tree planting and landscape design should include tree species that will provide suitable roosting habitat upon reaching maturity specifically surrounding aquatic features (Oak, Maple, Hickory, etc.).
- ✓ Where possible, retain large mature trees (including cavity trees) to maintain available roosting habitat, specifically within parkland dedication and/or along the southern hedgerow.
- ✓ At the Detail Design stage, consideration for the installation of bat boxes (i.e., constructed roosting habitat), is recommended to offset habitat loss. Boxes should be in association with parkland or within the edges of stormwater management facility blocks, meeting the design criteria provided by Bat Conservation International (BCI 2025).

Proposed Mitigation Measures – Construction Implementation

- ✓ Tree removal should be avoided during the general active period for bats (i.e., March 15 to November 30, inclusive).
  - If this is not possible, conduct exit survey prior to cutting them down. If the exit survey identifies bats, contact MECP or biologist for additional guidance.

With the successful implementation of the mitigation measures outlined above, it is anticipated that there will be a site-wide decrease in nesting and foraging habitat for SAR bats, as well as the removal of multiple Black Ash and Butternut trees, which will be addressed through the SCA registration and Conservation Plan process. The nature, magnitude, geographic extent, duration and likelihood of the potential impacts to species at risk are summarized below.

Nature	Magnitude	Geographic Extent	Duration and Timing	Likelihood
Direct Removal of Butternut and Black Ash; candidate bat day-roost trees	**Moderate** 20 Butternut and 15 Black Ash in the Urban Expansion Area Limits; roost habitat not limiting	**Localized** Hedgerows and treed areas within the Urban Expansion Area Limits	**Permanent** Addressed through SCA registration and Conservation Plan	**Likely** Subject to Butternut Health and Black Ash assessments

Flag key: Higher concern Moderate Lower concern

8.3 Indirect Impacts

Indirect impacts from the proposed development may include an increase in air and light pollution into areas immediately adjacent to the development. A decrease in forest habitat and increase in forest edge area which may allow more light and wind penetration into the forest. There may also be an increase of invasive species spread into the property from development / construction and future residential community.

8.4 Cumulative Impacts

The proposed development is within the City of Ottawa and cumulative impacts must be considered in the context of the local and regional environment in which the Subject Site is situated. Much of the land surrounding the Study Area is a mix of residential, business, and core natural areas, with most of the impacts to the larger natural heritage system occurring prior to at least 2019 (Google 2024). The Subject Site itself had previously been used for agricultural land-use.

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

- General loss of biodiversity and available habitat;
- Loss of urban tree canopy cover;
- Increase in impervious surfaces increasing runoff potential; and
- Loss of hedgerow and woodland cover and wildlife connectivity along the southern Site boundary, in combination with the planned Earl Armstrong Road extension.

Development within the surrounding area over the past 10 to 20 years includes the Findlay Creek and Pathways at Findlay Creek communities north of the Subject Site (construction of the latter beginning around 2019), and additional urban expansion is anticipated within the Leitrim area. Consistent with Section 3.4.4 of the City's EIS Guidelines, future climate conditions (more intense rainfall and warmer summers) may compound the effects of increased impervious surfaces within the subwatershed by increasing peak runoff, erosion and thermal loading to receiving features. These risks are addressed through Enhanced stormwater treatment, attenuation of the western outlet to 0.66 m^3/s (including the climate change stress test), the post-development monitoring and adaptive management program (Section 8.1.2), and native tree planting.

Earl Armstrong Road Extension

The City's planned Earl Armstrong Road extension is proposed to bisect the southern portion of the Subject Site, with the centreline of the realigned road located roughly along the southern property boundary. The road corridor is therefore expected to remove vegetation along the southern edge of the Subject Site, including portions of the Naturalized Deciduous and Coniferous Hedgerows (FODM11 and FOCM5) and the Fresh-Moist White Cedar

Coniferous Forest (FOCM4-1), communities in which Butternut and Black Ash were recorded, as well as the adjoining woodland and thicket communities south of the Subject Site.

The road extension is a separate City undertaking. The Earl Armstrong Road Extension Environmental Assessment (EA) Study was completed by the City as a Schedule C project under the Municipal Class EA process to establish the future right-of-way requirements, protect the corridor from encroaching development, and guide the planning of adjacent lands. The EA identified the need for the extension of Earl Armstrong Road from Albion Road to Hawthorne Road, as set out in the City's 2013 Transportation Master Plan, with construction timing planned beyond 2031. The study recommendations were presented to Transportation Committee on June 5, 2019 and approved by City Council on June 12, 2019 (City of Ottawa 2019). The potential environmental effects of the road and the associated mitigation measures were assessed through the EA and documented in the Environmental Study Report; detailed design and construction of the road will remain subject to the City's own approvals, including SNC and SCA requirements.

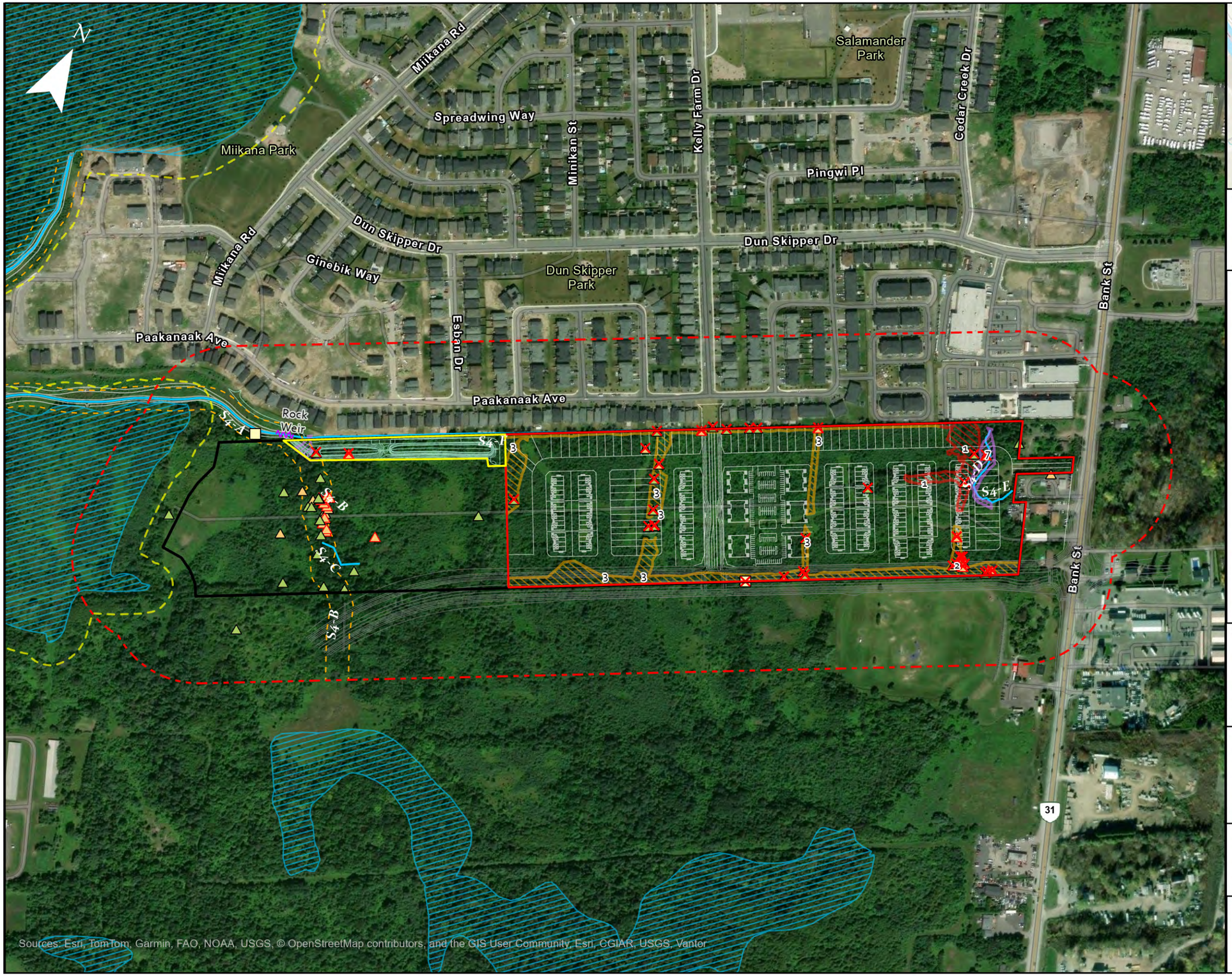
Because the approved corridor overlaps the southern Site boundary, the combined footprint of the road and the proposed development should be considered at detailed design so that grading, tree removal, Species at Risk approvals and drainage are coordinated, and so that the southern limit of development and the location of tree protection fencing reflect the protected right-of-way.

Proposed Mitigation Measures – Planning and Design Stage

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

- ✓ Landscaping plans should intend to compensate for the removal of trees and vegetation;
- ✓ Landscaping plans should include tree plantings to replace canopy cover in accordance with City Official Plan policies and associated guidelines;
- ✓ Project design should promote the use of permeable landscaping materials and rain capture systems like rain gardens and permeable pavers, where compatible with the shallow groundwater conditions on Site; and
- ✓ Grading limits, tree protection, Butternut and Black Ash approvals under the SCA, and the drainage crossing for external Area A2 should be coordinated with the City's design of the Earl Armstrong Road extension along the southern Site boundary, including consideration of wildlife passage across the road corridor.

Figure 12 below illustrates the impact assessment for the Subject Site.





Scale: 1:5,000

0 37.5 75 150 225 300 Meters

Legend

- Subject Property Cleared Area
- Western Pond Cleared Area
- Study Area (120 m)
- Property Boundary
- Removed Butternut/Black Ash
- Black Ash (<8cm DBH)
- Black Ash (>8cm DBH)
- Butternut
- Candidate Bat Cavity Tree
- Rock Weir to be Removed
- SNC Regulation Limit (30 m)
- HDF Protection Buffer (15m)
- Retained HDF Feature
- Removed HDF Feature
- Removed Forest Habiat
- Removed Treed Hedge-Row
- Removed Wetland (Swamp) Inclusion (<0.5 ha)

Project:

4850 Bank Street EIS & TCR
The Edge at Pathways [S-4 Lands]

Title:

Impact Assessment

Prepared By:

FOTENN

Date:

11/11/2026

Figure: 12

9.0
Summary and Conclusion

Fotenn Planning + Design (Fotenn) was retained by The Edge at Pathways Regional Inc. to prepare this consolidated Environmental Impact Study (EIS) to provide an analysis of the potential impacts to the natural heritage features that may result from the proposed development of the Leitrim West Urban Expansion Area – S4, located at 4850 Bank Street (Concession 4, Part Lot 22), in the City of Ottawa, Ontario. This report consolidates, refines and updates the original EIS (Arcadis 2026a), the July 2026 Addendum (Fotenn 2026a) and Addendum #2 (Fotenn 2026b), as required by Policy l of the "Leitrim West of Bank" area-specific policy, and reflects recent changes to provincial legislation, including the *Species Conservation Act, 2025* and amendments to the *Conservation Authorities Act*.

The lands north of the Study Area are currently fully developed residential lands (i.e., Pathways South at Findlay Creek Development), with the Leitrim Provincially Significant Wetland and Area of Natural and Scientific Interest situated west of the Subject Site, within the surrounding Study Area. Project activities for the proposed residential development would require the clearing and grading of the eastern portion of the Subject Site located within the Urban Expansion Area Limits, resulting in the removal of vegetation corresponding with a general loss of natural wildlife habitat. The future Earl Armstrong Road extension is proposed to bisect the southern portion of the Subject Site, with the centreline of the realigned road located roughly along the southern property boundary. The combined effects of the road corridor and the proposed development on the southern hedgerows, Species at Risk trees and wildlife movement are addressed in Section 8.4.

Two HDFs (i.e., S4-D and S4-E) are located within the eastern extents of the Urban Expansion Area Limits. These features do not represent fish habitat as they are isolated and no longer connect to any upstream or downstream features. These isolated ditches receive a management recommendation of "No Management Required" and should pose no impacts to development of the Subject Site. Consistent with the EMP (Golder 2016a), a 15 m setback is recommended for the Conveyance Channel (HDF S4-A) which should also be applied to S4-B, and S4-C, and associated Ash Mineral Deciduous Swamp (SWDM2).

Based on the most recent draft Concept Plan provided by Novatech (dated October 15, 2025; **Figure 10**), a total of five unique vegetation communities are expected to be impacted: Mixed Meadow, Deciduous and Coniferous Thickets, Coniferous Forest, Deciduous Swamp, and Hedgerow communities. Construction of the western SWMF will require additional clearing outside the Urban Expansion Area Limits, predominantly within Buckthorn Deciduous Shrub Thicket with minor areas of Mixed Meadow; these impacts are partially mitigated by the previous clearing completed under City permit for geotechnical and hydrogeological borehole drilling.

The Leitrim Provincially Significant Wetland (including the Casino Wetland) and Area of Natural and Scientific Interest are situated approximately 50 m west of the Subject Site boundary, with the SNC Regulated Area coming within approximately 20 m of the Subject Site. It is anticipated that this feature will not be directly impacted by this Project as it is located approximately 500 m from the western edge of the Urban Expansion Area Limits. The western catchment will be serviced by a dry linear stormwater management facility providing Enhanced (80% TSS removal) treatment, with discharge to the Conveyance Channel attenuated to the channel's 100-year design flow of 0.66 m^3/s. Clean flows from INT-3 and the Scratch Ditch will continue to enter the Conveyance Channel directly. The water budget indicates a net increase in flows to the wetland (from approximately 14.3 to 51.7 million L/year), which is expected to provide the more permanent flow the Conveyance Channel was designed to convey. As the western catchment represents roughly 3% of the lands tributary to the wetland, the change is not expected to measurably alter the water balance or hydroperiod of the Leitrim PSW. These conclusions will be confirmed through a hydrologic impact assessment and verified through a five-year post-development monitoring plan to be prepared at detailed design, both of which will be submitted with the SNC permit application.

Removal of the informal rock weir at the junction of INT-3, the Scratch Ditch and the Conveyance Channel is recommended to restore fish passage and hydraulic connectivity, subject to pre-removal documentation of

upstream wetland water levels and installation of a naturalized grade-control feature where the weir is found to support those levels.

There will also be a permanent loss of a small 0.12 ha Poplar Mineral Deciduous Swamp (SWDM4-5) wetland inclusion in the eastern extent of the Urban Expansion Area. The removal of this wetland inclusion should not pose a constraint to the proposed development of the Urban Expansion Area Limits as it is impacted by invasive species (i.e., Glossy Buckthorn) and provides little natural heritage value.

Two Species at Risk were observed within the Urban Expansion Area Limits: Black Ash and Butternut (provincially Endangered tree species), as well as the potential occurrence of Species at Risk bat habitat trees (e.g., snags). Butternut Health Assessments and Black Ash assessments will be completed by qualified professionals closer to the time of tree removal, in advance of detailed design, as health assessments are valid for a maximum of two years, and registration under the *Species Conservation Act, 2025*, including a Conservation Plan, will be required where these species or their habitat are expected to be affected. Wood Thrush, observed incidentally within the Study Area, is listed as Threatened under SARA; vegetation clearing timing windows will protect its individuals and nests.

This EIS provides an evaluation of the anticipated environmental impacts associated with the construction and long-term occupation of the proposed residential development. Mitigation and compensation measures have been recommended (as required) following the mitigation hierarchy to protect natural heritage features and offset impacts, respectively. The findings in this report are based on desktop screening results, site-specific background documents completed by others (i.e., Environmental Management Plan (EMP; Golder 2016a)), the eight site visits conducted by Arcadis in 2024, and the updated engineering, hydrogeological and geotechnical studies prepared in 2026. In accordance with Sections 3.5 and 3.7 of the City of Ottawa Environmental Impact Study Guidelines, a summary of potential impacts, recommended mitigation measures, monitoring requirements, and residual effects is provided by project phase in Table 16. Detailed descriptions of each measure are provided in Section 8 (Impact Assessment and Mitigation) of this report.

Table 16: Summary of Potential Impacts, Mitigation, Monitoring, and Residual Effects

Project Phase	Natural Heritage Feature / Function	Potential Effect	Proposed Mitigation	Monitoring	Residual Effect	EIS Section
Planning and Design	**Headwater Drainage Features (S4-D and S4-E)**	Removal of two isolated drainage features within the Urban Expansion Area Limits; changes to site drainage	/ Incorporate flows into the stormwater management design / Grading and Drainage Plan per City Sewer Design Guidelines / SNC permit under O. Reg. 41/24	/ SNC permit conditions	**Low Impact** Features isolated; no fish habitat (No Management Required)	*5.2.1 / 8.1.1*
	Conveyance Channel (S4-A), INT-3 (S4-B), S4-C and Scratch Ditch (S4-F)	Altered flow regime; erosion or pooling at the channel outlet adjacent to private properties	/ 15 m setback to S4-A, S4-B, S4-C and SWDM2 / Clean flows from INT-3 and Scratch Ditch routed directly to the channel / SWMF discharge controlled to 0.66 m^3/s; 25 mm event released over ~24 hrs / Erosion protection / energy dissipation kept within channel corridor / Hydrologic impact assessment with SNC permit	/ Post-development monitoring (Years 1, 2, 3 and 5)	**Low Impact** More permanent flow supports the channel's conveyance and habitat functions	*7.2 / 8.1.1*
	Leitrim PSW (incl. Casino Wetland) and Leitrim ANSI	Changes to groundwater recharge, runoff volume and hydroperiod	/ Dry linear SWMF with Enhanced (80% TSS) treatment / Enlarged western catchment maintains contributions to the wetland / 50 m no-touch buffer and 50 m limited-use zone / Clay trench plugs in servicing trenches / Infiltration LID not recommended (shallow water table); evapotranspiration / filtration measures considered	/ Hydrologic impact assessment / Five-year post-development monitoring plan (prepared at detailed design)	**Low Impact** Net increase in flows to the wetland (~14.3 to 51.7 million L/yr); no measurable change to hydroperiod anticipated	*8.1.2 / 8.2.1*

Project Phase	Natural Heritage Feature / Function	Potential Effect	Proposed Mitigation	Monitoring	Residual Effect	EIS Section
	Woodlands (non-significant), vegetation communities and trees	Permanent loss of ~3.1 ha of forest / hedgerow and ~15.8 ha of thicket and meadow (subdivision, western SWMF and Earl Armstrong Road Extension); additional clearing of Buckthorn Deciduous Shrub Thicket and minor Mixed Meadow within the western SWMF footprint (partly cleared previously for boreholes)	/ Tree Conservation Report (Appendix A) / Native landscaping per the Urban Forest Management Plan / Replacement or compensation planting at detailed design	/ Tree protection inspections per TCR	**Moderate Impact** Permanent loss of non-significant woodland, partially offset by plantings	*6.2 / 8.2.2 / 8.2.3*
	Butternut and Black Ash	Removal of SAR trees within the Urban Expansion Area Limits (20 Butternut and 15 Black Ash observed)	/ Butternut Health Assessment and Black Ash assessment by qualified professionals / SCA registration and Conservation Plan where affected / Retain trees where feasible	/ Updated pre-construction SAR tree surveys	**TBD** To be confirmed through SCA registration and Conservation Plan *(Likely Moderate)*	*5.4 / 8.2.6*
	Wildlife, birds and bats	Bird collisions; loss of roosting and foraging habitat	/ Bird-Safe Design Guidelines / Native planting for breeding, shelter and foraging / Retain large, mature trees in parkland where possible / Bat boxes considered at detailed design	/ None required	**Low Impact** Minor loss of common wildlife habitat	*8.2.4 / 8.2.5*

Project Phase	Natural Heritage Feature / Function	Potential Effect	Proposed Mitigation	Monitoring	Residual Effect	EIS Section
Site Preparation (clearing and grubbing)	**Breeding birds (incl. Eastern Wood-pewee and Wood Thrush) and SAR bats**	Harm to nests, birds and roosting bats during clearing	/ No vegetation clearing April 1 to August 15 unless a nest search is completed within 48 hrs / Tree removal outside March 15 to November 30, or exit surveys / Stop work and consult ECCC if an active SARA-listed nest is found	/ Pre-clearing nest searches / bat exit surveys by a qualified biologist	**Low Impact** Manageable risk to breeding birds, bats and associated habitat	*2.1.1 / 8.2.4 / 8.2.6*
	Amphibians, fish and general wildlife	Injury or mortality during clearing, grading and removal of S4-D / S4-E	/ Fish and wildlife salvage within 48 hrs of works / City Protocol for Wildlife Protection during Construction / Allow wildlife to leave the work area	/ Environmental monitor during clearing	**Low Impact** Manageable risk to amphibians and wildlife	*8.1.1 / 8.2.5*
Construction	**Conveyance Channel, Leitrim PSW and downstream fish habitat**	Erosion, sedimentation and spills	/ ESC Plan per City guidelines (2006); perimeter controls before disturbance / Construction-limit fencing inspected weekly; repairs within 48 hrs / In-channel habitat features excluded from sediment cleaning	/ Weekly ESC inspections and after rain events	**Low Impact** Manageable risk to drainage features, wetland and fish habitat	*7.2 / 8.1.1 / 8.1.3 / 8.2.1*
	Rock weir removal and SWMF outlet works (INT-3 / S4-A junction)	Lowered water levels in SWDM2 (Black Ash); turbidity; disturbance to fish habitat	/ Document upstream water levels before removal / Naturalized grade-control feature at existing controlling elevation if required / In-water works outside March 15 to June 30 / Reinstate naturalized banks at Scratch Ditch outlet / SNC permit and DFO measures	/ Environmental monitor during in-water works / Post-development monitoring	**Low Impact** Improved fish passage and hydraulic connectivity	*7.2 / 8.1.1 / 8.1.3*

Project Phase	Natural Heritage Feature / Function	Potential Effect	Proposed Mitigation	Monitoring	Residual Effect	EIS Section
	Groundwater, Conveyance Channel and Leitrim PSW	Temporary drawdown from SWMF and trench dewatering (~50,000 to 55,000 L/day; radius of influence up to 58 m)	/ Source-specific dewatering calculations at detailed design / Keep dewatering near the PSW as short as possible / Discharge to vegetated areas within the western catchment / EASR / PTTW as applicable	/ Dewatering monitoring per Hydrogeological Study	**Low Impact** Temporary, localized effect	*8.1.2*
	Natural areas and trees adjacent to work limits	Encroachment; root zone damage; spread of invasive species	/ Fencing at construction limits and critical root zones / Clean equipment; invasive species BMPs (OIPC) / No materials or equipment within tree protection zones	/ Regular fence inspections; repairs within 48 hrs	**Low Impact** Manageable risk to adjacent natural areas	*8.2.2 / 8.2.3*
Post-Construction / Operation	**Conveyance Channel, outlet and receiving portion of the Leitrim PSW**	Changes to flows, water levels, channel stability and vegetation (Black Ash, invasive species)	/ Implement the post-development monitoring plan / Adaptive management thresholds and corrective actions / Monitoring report to City and SNC after each monitoring year	/ Five years after SWMF construction (Years 1, 2, 3 and 5); baseline before construction	**Low Impact** Function confirmed through monitoring; corrective actions if required	*8.1.2*
	Downstream receiving features	Changes to runoff quality and quantity	/ Enhanced (80% TSS) treatment in western SWMF / Eastern catchment treated at Findlay Creek SWMF; NE dry pond for major system / SWMF ownership and maintenance confirmed at Draft Plan	/ SWM inspections per servicing approvals	**Low Impact** Change in runoff quality and quantity expected to be minor and well managed	*7.2 / 8.1.2*

Project Phase	Natural Heritage Feature / Function	Potential Effect	Proposed Mitigation	Monitoring	Residual Effect	EIS Section
	Bats, birds and vegetation	Loss of roosting and nesting habitat; reduced canopy	/ Bat boxes in parkland or SWMF blocks / Native tree and shrub planting / Bird-friendly building design	/ Landscape plan inspections	**Low Impact** Roosting habitat not limiting; offset by plantings and bat boxes	*8.2.5 / 8.2.6 / 8.4*

Overall, despite the development constraints outlined within this document, the Urban Expansion Area Limits has been identified as an excellent location for the proposed residential land development from a natural heritage and geotechnical perspective.

9.1 Professional Opinion

In response to Section 3.7 of the City's EIS Guidelines, it is our professional opinion that:

- **Residual negative impacts** – Provided that the recommended mitigation measures are implemented as planned, no residual negative impacts are anticipated on the Leitrim PSW (including the Casino Wetland), the Leitrim ANSI, fish habitat or significant wildlife habitat. Residual effects are limited to the loss of approximately 3.1 ha of non-significant forest and hedgerow communities, the 0.12 ha non-significant SWDM4-5 wetland inclusion, common wildlife habitat, and Butternut and Black Ash within the Urban Expansion Area Limits, which will be addressed through the SCA.

- **Significance** – These residual effects are not significant to the natural heritage features or ecological functions for which the area is identified, as the affected communities are common, disturbed and dominated by invasive Glossy Buckthorn, and the hydrologic function of the Leitrim PSW will be maintained, as will be confirmed through the hydrologic impact assessment and verified through post-development monitoring.

- **Acceptance** – The proposed project can proceed as planned, subject to implementation of the mitigation measures in this report, completion of the hydrologic impact assessment, an SNC permit, SCA registration where required, the detailed tree inventory, and implementation of the post-development monitoring plan. No changes to the draft Concept Plan are recommended at this stage.

9.2 Policy Conformity and Next Steps

This consolidated EIS has been prepared in support of the Draft Plan of Subdivision and Zoning By-law Amendment for the S-4 lands, as required by Policy l of the Leitrim West of Bank area-specific policy. Final mitigation details will be confirmed at detailed design, including the hydrologic impact assessment, the post-development monitoring plan, Butternut and Black Ash assessments, and the updated Tree Conservation Report.

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

Migratory Birds Convention Act, 1994 and Species at Risk Act, 2002

- ✓ No vegetation removal should occur between April 1 and August 15, to reduce the potential for incidental take of active bird nests, unless a qualified biologist completes a nest search within 48 hours before clearing and confirms that no active nests are present.

- ✓ If an active nest of a SARA-listed species is found, work in the area will stop and ECCC will be consulted before proceeding.

Fisheries Act, 1985

- ✓ Works in or near water (rock weir removal and SWMF outlet) will be designed to avoid harmful alteration, disruption or destruction of fish habitat, following DFO's Codes of Practice and measures to protect fish and fish habitat. A DFO Request for Review will be submitted if required.

Fish and Wildlife Conservation Act, 1997

- ✓ In the case that wildlife is observed within the work area, all work in the area shall stop until the animal has left the area on its own. In the case that wildlife relocation is required, consultation with MNR would be required to obtain the necessary permits and approvals under the FWCA.

Conservation Authorities Act, 1990

- ✓ A permit will be required from SNC (or its successor, the St. Lawrence River Regional Conservation Authority) under O. Reg. 41/24 for the removal of HDFs S4-D and S4-E, any interference with the Conveyance Channel and INT-3 (including removal of the rock weir and the SWMF outlet works), and any development within the Leitrim PSW or within 30 m of the PSW.
- ✓ The permit application will include the hydrologic impact assessment and the post-development monitoring plan.
- ✓ As a result of the amalgamation of conservation authorities under Bill 97 (transition date of February 1, 2027 or a later date set by regulation), the applicable requirements will be confirmed at the time of permit application.

Species Conservation Act, 2025

Butternut

- ✓ Species-specific surveys will need to be completed prior to construction to identify all Butternut within 50 m of the Subject Site (Butternut survey results are valid for two years).
- ✓ A Butternut Health Assessment will be completed by a qualified professional prior to site alteration.
- ✓ Where Butternut or its habitat is expected to be affected, registration under the SCA and preparation of a Conservation Plan will be required.

Black Ash

- ✓ Species-specific surveys and a Black Ash assessment will be completed by a qualified professional prior to vegetation clearing.
- ✓ Where Black Ash or its habitat is expected to be affected, registration under the SCA and preparation of a Conservation Plan will be required.

SAR Bats

- ✓ Tree removal should be avoided during the general active period for bats (i.e., March 15 to November 30, inclusive).

City of Ottawa Official Plan and Leitrim West of Bank Area-Specific Policy

- ✓ This consolidated EIS fulfills OPA Policy l and demonstrates consistency with the Remer-Idone EMP (Golder 2016a) as required by Policy k.
- ✓ The western stormwater management facility has been designed to avoid adverse impacts on the Leitrim PSW and maintain the hydrologic and hydraulic functions of the Conveyance Channel and downstream wetland (Policy i); final release rates will be confirmed through detailed design and the hydrologic impact assessment.
- ✓ The Conveyance Channel and its corridor will be protected and enhanced, and a monitoring plan meeting City and Conservation Authority requirements will be implemented (Policy j; Section 8.1.2).

Tree Protection By-law No. 2020-340

- ✓ Tree removals and other activities prohibited under By-law 2020-340 will require prior review and approval by the City, which can be achieved through the development application process and/or a permit under the by-law.

Next Steps

- ✓ Prepare the hydrologic impact assessment (Arcadis, with input from Paterson Group and Fotenn) and finalize the SWMF outlet design;
- ✓ Prepare the post-development monitoring plan at detailed design, including baseline monitoring prior to construction;
- ✓ Document water levels upstream of the rock weir prior to removal;
- ✓ Complete source-specific dewatering calculations at detailed design;
- ✓ Complete Butternut Health Assessments and Black Ash assessments, and SCA registration(s) as required;
- ✓ Submit the SNC permit application; and
- ✓ Update the Tree Conservation Report (Appendix A) to reflect the Draft Plan of Subdivision.

9.3 Standard of Care and Limitations

In 2024, field investigations were carried out using investigation techniques and ecological methods consistent with those ordinarily exercised by Arcadis and other scientific practitioners, working under similar conditions and subject to the time, financial, and physical constraints applicable to these investigations. The field investigation results presented in this report are based on work undertaken by trained professionals and technical staff and the reasonable and professional interpretation using acceptable scientific practices current at the time the work was performed.

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

This consolidated EIS has been prepared by Fotenn based on the field investigations completed by Arcadis in 2024, the original EIS (Arcadis 2026a), and the supporting technical studies referenced herein. Fotenn has relied on the accuracy of information provided by others. Where field data are more than two years old at the time of site alteration (e.g., Butternut surveys), updated surveys may be required.

All contributors to this report, including the Tree Conservation Report provided in Appendix A, have read the entire report and have integrated relevant information into the recommendations for their subject area.

The information contained within this Environmental Impact Study is accurate and complete to the best of the assessors' knowledge.

Prepared by:



Alex Zeller, M.Sc.
Principal -- Natural Environment
Fotenn Planning + Design

10.0
References

Arcadis Professional Services (Canada) Inc. (Arcadis). 2025a. Leitrim West Urban Expansion Area – S4, Natural Heritage Existing Conditions Report.

Arcadis Professional Services (Canada) Inc. (Arcadis). 2025b. Tree Conservation Report.

Arcadis Professional Services (Canada) Inc. (Arcadis). 2026a. Leitrim West Urban Expansion Area – S4 Environmental Impact Study. Draft, January 2026. Prepared for Edge at Pathways Regional Inc.

Arcadis Professional Services (Canada) Inc. (Arcadis). 2026b. S4 Leitrim Urban Expansion Area Serviceability Report (revised). October 20, 2026.

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

Bird Studies Canada (BSC), Environment Canada's Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources. 2006. Ontario Breeding Bird Atlas (Atlas 2, 2001-2005). Retrieved from https://www.birdsontario.org/. Last accessed April 2023.

Bird Studies Canada (BSC). 2001. Ontario Breeding Bird Atlas: Guide for Participants. Guelph: University of Guelph. Retrieved from https://www.birdsontario.org/jsp/download/obba_guide_en.pdf. Last accessed April 2023.

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

Cambium. 2024. Pathways at Findlay Creek – Constructed Channel Monitoring (Year 5).

Chapman, L.J. and D.F. Putnam. 1984. The Physiography of Southern Ontario. Third Edition. Ontario Geological Survey, Special Volume 2.

City of Ottawa. 2006. Erosion and Sediment Control Guidelines for Urban Construction.

City of Ottawa. 2019. Earl Armstrong Road Extension Environmental Assessment – Overview. Retrieved from https://ottawa.ca/en/parking-roads-and-travel/transportation-planning/environmental-assessment-completed-projects/earl-armstrong-road-extension-environmental-assessment/overview. Last accessed November 10, 2026.

City of Ottawa. 2020. Climate Projections for the National Capital Region. Volume 1: Results Summary.

City of Ottawa. 2021. Tree Protection By-law 2020-340. Retrieved from https://ottawa.ca/en/living-ottawa/laws-licences-and-permits/laws/laws-z/tree-protection-law-no-2020-340#. Last accessed September 2024.

City of Ottawa. 2022a. Bird-Safe Guidelines. https://ottawa.ca/en/planning-development-and-construction/community-design/design-and-planning-guidelines/completed-guidelines/bird-safe-design-guidelines#section-dc9cb259-ab3c-434f-b974-6d7b140ab161. Last accessed September 2024.

City of Ottawa. 2022b. City of Ottawa Official Plan. Retrieved from https://ottawa.ca/en/planning-development-and-construction/official-plan-and-master-plans/official-plan. Last accessed September 2024.

City of Ottawa. 2022c. Protocol for Wildlife Protection during Construction. Retrieved from https://documents.ottawa.ca/sites/default/files/documents/construction_en.pdf. Last accessed September 2024.

City of Ottawa. 2022d. Significant Woodlands: Guidelines for Identification, Evaluation, and Impact Assessment. Retrieved from https://documents.ottawa.ca/sites/default/files/significant_woodlands_en.pdf. Last accessed October 2025.

City of Ottawa. 2024. Urban Expansion in Future Neighbourhoods. Retrieved from https://engage.ottawa.ca/urban-expansion-in-future-neighbourhoods. Last accessed September 2024.

City of Ottawa. 2026a. Document 2 – Details of Recommended Official Plan Amendment XX (Leitrim West of Bank). Draft for review, August 5, 2026.

City of Ottawa. 2026b. Environmental Impact Study Guidelines. Retrieved from https://documents.ottawa.ca/sites/default/files/eis_guidelines_tor_en.pdf. Last accessed October 2025.

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

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

Environment and Climate Change Canada (ECCC). 2022. Open Data. Retrieved from https://open.canada.ca/en/open-data. Last accessed July 2024.

Environment and Climate Change Canada (ECCC). 2023a. Guidelines to Avoid Harm to Migratory Birds. Retrieved from https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html. Last accessed July 2024.

Environment and Climate Change Canada (ECCC). 2023b. Fact sheet: Nest Protection under the Migratory Birds Regulations, 2022. Retrieved from https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/fact-sheet-nest-protection-under-mbr-2022.html. Last accessed July 2024.

Environment and Climate Change Canada (ECCC). 2023c. Nesting Calendars. Retrieved from https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html#toc1. Last accessed July 2024.

Fisheries and Oceans Canada (DFO). 2013. Ontario Restricted Activity Timing Windows for the Protection of Fish and Fish Habitat. Retrieved from: https://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/on-eng.html. Last accessed July 2024.

Fisheries and Oceans Canada (DFO). 2022. Project Near Water. Retrieved from https://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html. Last accessed July 2024.

Fisheries and Oceans Canada (DFO). 2024. Aquatic Species at Risk Map. Retrieved from https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html. Last accessed August 2024.

Flora of North America Editorial Committee (eds.). 2000+. Flora of North America North of Mexico. Oxford University Press, New York and Oxford. Last accessed 2015.

Fotenn Planning + Design (Fotenn). 2026a. Addendum to the Environmental Impact Study (S-4 Expansion Lands). Memo to the City of Ottawa, July 3, 2026.

Fotenn Planning + Design (Fotenn). 2026b. Addendum #2 to the Environmental Impact Study (S-4 Expansion Lands) – Response to Outstanding Comments. Memo to the City of Ottawa, October 20, 2026.

GeoOttawa. 2024. City of Ottawa Interactive Mapping. Retrieved from https://maps.ottawa.ca/geoottawa/. Last accessed 2024.

Geospatial Ontario (GEO; formerly, Land Information Ontario (LIO)). 2025. Aquatic Resource Area Polygon Segment. Retrieved from https://arcadis.maps.arcgis.com/home/item.html?id=0558f6ccea08410790a9182e568195c0. Last accessed July 2025.

Golder Associates Ltd. (Golder). 2016a. Environmental Management Plan (EMP) for the Remer and Idone Lands.

Golder Associates Ltd. (Golder). 2016b. Hydrogeological Assessment for the Remer and Idone Lands, Ottawa, Ontario. January 2016.

Google. 2024. Aerial imagery centred around 45°13'55.47"N 75°44'42.28"W. Retrieved from Google Earth Pro software. Last accessed September 2024. iNaturalist. 2024. iNaturalist Observations. Retrieved from https://www.inaturalist.org/. Last accessed September 2024.

Government of Ontario. 2024. Conservation Authorities Act, R.S.O. 1990, c. C.27. Retrieved from https://www.ontario.ca/laws/statute/90c27.

Government of Ontario. 2025. Species Conservation Act, 2025. Enacted through the Protect Ontario by Unleashing Our Economy Act, 2025 (Bill 5); in force March 30, 2026.

Government of Ontario. 2026. Plan to Protect Ontario Act (Budget Measures), 2026 (Bill 97). Royal Assent April 24, 2026.

IBI Group. 2018. Constructed Channel Design Brief for the Pathways at Findlay Creek Development.

iNaturalist. 2025. iNaturalist observation records. Retrieved from https://www.inaturalist.org. Last accessed 2025.

Lee, H. 2008. Southern Ontario Ecological Land Classification Vegetation Type List.

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

Michigan Flora Online. 2015. A.A. Reznicek, E.G. Voss and B.S. Walters. University of Michigan. Retrieved from https://michiganflora.net.

Ministry of Natural Resources and Forestry (MNRF). 2017. Wildland Fire Risk Assessment and Mitigation: A Guidebook in Support of the Provincial Policy Statement, 2014. Queen's Printer for Ontario.

Ministry of Natural Resources (MNR). 2000. Significant Wildlife Habitat Technical Guide. Retrieved from https://www.ontario.ca/page/significant-wildlife-habitat-guide. Last accessed July 2024.

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

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

Ministry of Natural Resources and Forestry (MNRF). 2022. Ontario Wetland Evaluation System (OWES). Retrieved from mnrf-pd-rpdpb-ontario-wetlands-evaluation-system-southern-manual-2022-en-2023-02-02.pdf. Last accessed September 2024.

Ministry of Natural Resources and Forestry (MNRF). 2024. Natural Heritage Information Centre Database. Retrieved from https://www.ontario.ca/page/natural-heritage-information-centre. Last accessed September 2024.

Ministry of the Environment, Conservation and Parks (MECP). 2021. Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the Endangered Species Act, 2007.

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

Natural Heritage Information Centre (NHIC). 2025. Ontario Species Lists. Ministry of Natural Resources. Retrieved from https://www.ontario.ca/page/get-natural-heritage-information.

Newmaster, S.G., A. Lehela, P.W.C. Uhlig, S. McMurray and M.J. Oldham. 2005. Ontario Plant List. Ontario Forest Research Institute, Forest Research Information Paper No. 123.

Novatech. 2025. 4850 Bank Street Planning Rationale and Public Consultation Strategy.

Ontario Geologic Survey (OGS). 2007. Physiography. Retrieved from https://www.hub.geologyontario.mines.gov.on.ca/. Last accessed September 2024.

Ontario Geologic Survey (OGS). 2010. Surficial Geology. Retrieved from https://www.hub.geologyontario.mines.gov.on.ca/. Last accessed September 2024.

Ontario Geologic Survey (OGS). 2011. 1:250 000 Scale Bedrock Geology of Ontario. Retrieved from https://www.hub.geologyontario.mines.gov.on.ca/. Last accessed September 2024.

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

Ontario Nature. 2019. Ontario Reptile and Amphibian Atlas. Toronto Entomologists' Association. Retrieved from https://www.ontarioinsects.org/herp/. Last accessed September 2024.

Paterson Group. 2025. PG6912-1 Geotechnical Investigation, Proposed Residential Development, 4850 Bank Street, Ottawa, Ontario. Revision 03, October 9, 2025.

Paterson Group. 2026a. Geotechnical Investigation Report, Proposed Residential Development, 4850 Bank Street, Ottawa, Ontario (PG6912-1 Revision 7). June 2, 2026.

Paterson Group. 2026b. Hydrogeological Study, Proposed Residential Development, 4850 Bank Street, Ottawa, Ontario (PH5087-REP.01.R6). October 20, 2026.

South Nation Conservation (SNC). 2025a. Leitrim Development Area – Area S4 Future Neighbourhood July 25, 2025, Field Notes and Observations.

South Nation Conservation (SNC). 2025b. SNC Public GeoPortal. Retrieved from https://gis.snc.ca/geoportal/. Last accessed September 2024.

Stanfield, L. 2017. Ontario Stream Assessment Protocol (OSAP). Retrieved from https://trcaca.s3.ca-central-1.amazonaws.com/app/uploads/2019/06/05112225/osap-master-version-10-july1-accessibility-compliant_editfootnoteS1M4.pdf. Last accessed September 2024.

Toronto Entomologists' Association (TEA). 2023. Ontario Butterfly Atlas. Retrieved from https://www.ontarioinsects.org/atlas/. Last accessed September 2024.

Toronto and Region Conservation Authority and Credit Valley Conservation (TRCA and CVC). 2014. Evaluation, Classification and Management of Headwater Drainage Features Guideline. TRCA Approval July 2013 (Finalized January 2014). Retrieved from https://trca.ca/conservation/aquatic-ecosystems/headwater-drainage-features/. Last Accessed March 2024.

Appendix A

Tree Conservation Report

MEMO

Date: November 2026

To: Ms. Amy MacPherson, Natural Systems Planner, City of Ottawa

CC: The Edge at Pathways Regional Inc.

From: Fotenn Planning + Design, 420 O'Connor Street, Ottawa, ON K2P 1W4

RE: **Tree Conservation Report – Leitrim West Urban Expansion Area (S-4 Lands), 4850 Bank Street, City of Ottawa**

This memo constitutes the Tree Conservation Report (TCR) for the Leitrim West Urban Expansion Area (S-4 Lands) at 4850 Bank Street and is provided as Appendix A to the consolidated Environmental Impact Study. It describes the existing treed vegetation within the Urban Expansion Area, the anticipated tree and vegetation removals associated with the draft Concept Plan, and the tree protection, mitigation and compensation measures to be implemented. The memo is organized into the following sections: Introduction (1.0); Methodology (2.0); Results (3.0); Tree and Vegetation Removal (4.0); Mitigation and Compensation Measures (5.0); Closure (6.0); and References (7.0). Supporting figures, Butternut and Black Ash assessments, representative photographs and the City of Ottawa Tree Protection Specifications are provided in Attachments A-1 to A-3.

1.0 Introduction

Fotenn Planning + Design (Fotenn) was retained by The Edge at Pathways Regional Inc. (the Proponent) to prepare a Tree Conservation Report (TCR) to support the Draft Plan of Subdivision and Zoning By-law Amendment applications for the Leitrim West Urban Expansion Area – S4 lands, municipally addressed as 4850 Bank Street (Concession 4, Part Lot 22) in the City of Ottawa, Ontario (the Subject Site). The Site is approximately 21.9 ha in size, of which approximately 13.6 ha is located within the Urban Expansion Area Limits and is proposed for development. The Site location is provided in Figure A-1 in Attachment A-1.

This TCR updates and supersedes the Tree Conservation Report prepared by Arcadis (October 2025) and has been prepared as a companion document to the consolidated Environmental Impact Study (EIS) for the Subject Site, to which it is appended.

1.1 Purpose

The purpose of this report is to identify the trees and treed communities that will be impacted by the proposed subdivision development of the Subject Site and to identify opportunities to retain or protect trees where practical. The contents of this TCR have been prepared in accordance with the requirements of the City of Ottawa Tree Protection By-law (By-law No. 2020-340) and the City's Tree Conservation Report Guidelines. This TCR has been prepared at the Draft Plan of Subdivision stage and characterizes trees at the vegetation community level. A detailed tree inventory has not yet been completed; it will be completed in advance of, and concurrent with, detailed design and coordinated with the grading plan, and this TCR will be updated accordingly. Natural heritage features, including woodlands, wetlands, Species at Risk and their habitat, are assessed in the accompanying EIS.

1.2 Definitions

Terms and abbreviations used throughout the remainder of this report are summarized below.

- **Diameter at Breast Height (DBH)** is defined as the diameter of the tree trunk measured at a height of 1.2 metres (m) above ground surface for trees of 10 centimetres (cm) in diameter and greater.
- **Critical Root Zone (CRZ)** is defined as the ground area within a circumference around the tree trunk calculated as 10 cm from the trunk of the tree for every one centimetre of tree trunk DBH.

- **Distinctive Tree** within the City of Ottawa is defined as any tree with a DBH of 30 cm or greater within the inner urban area and with a DBH of 50 cm or greater within the suburban and rural areas. For the purposes of this report, a distinctive tree is a tree with a DBH of 30 cm or greater, as the Urban Expansion Area Limits are located within the urban boundary.

2.0 Methodology

At the Draft Plan of Subdivision stage, the primary tree consideration is the extent of treed vegetation that will be removed to accommodate the proposed development and the opportunities available to retain trees. This TCR characterizes the trees on the Urban Expansion Area Limits using the Ecological Land Classification (ELC) mapping, incidental observations of trees, and canopy cover data collected by Arcadis biologists concurrent with the EIS field program, together with the targeted Butternut and Black Ash searches. The extent of treed vegetation was compared to the draft Concept Plan to identify areas of removal and retention. Individual trees will be assessed through a detailed tree inventory at detailed design.

2.1 Desktop Review

The contents of the TCR have been prepared in accordance with the requirements set out by the City of Ottawa Tree Protection By-law and are meant to be applied in coordination with other City of Ottawa policies, including those that protect natural heritage features, Species at Risk and migratory birds. The following criteria were considered in the compilation of the TCR:

- The characteristics of trees growing on-site, including species composition, size, form, and health;
- The social and ecological functions of the trees identified; and
- The sensitivity of these trees to disturbance (including changes to grade and drainage, sun and wind exposure, and proximity to construction activities).

To assist in the preparation of this TCR, a review of available background information was completed, including the Natural Heritage Existing Conditions Report (Arcadis 2025a), the original Tree Conservation Report (Arcadis 2025b), the EIS (Arcadis 2026a) and its addenda (Fotenn 2026a, 2026b). Historical aerial imagery available from GeoOttawa (1976 to 2024) was also reviewed to identify the age and extent of treed features on the Subject Site and in the surrounding area.

2.1.1 Tree Protection By-law

The Urban Expansion Area Limits are identified as Urban Area under the Tree Protection By-law (City of Ottawa 2021) and are subject to the general regulations of the by-law. Under the Tree Protection By-law, the following protected trees cannot be injured or removed without a permit from the City:

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

The protected tree criteria applicable to the Subject Site have been underlined above.

2.1.2 Species Conservation Act

The *Species Conservation Act, 2025* (SCA) came into force on March 30, 2026, replacing the *Endangered Species Act, 2007*. Within Ontario, the SCA applies to activities conducted by the public and all levels of government. The killing or harming of a species listed as Endangered or Threatened on the Protected Species in Ontario List (O. Reg. 60/26), or the damage or destruction of its protected habitat, is prohibited regardless of intent. For protected plant species, protected habitat is the critical root zone surrounding a member of the species. As such, if a protected species is encountered during Project activities, the Project must comply with the prohibitions of the SCA, including registration (O. Reg. 75/26) or permitting (O. Reg. 74/26), as applicable.

2.2 Tree Data Collection Methods

Tree information for this TCR was collected by Arcadis biologists during the 2024 EIS field program (May to August 2024), concurrent with the ELC, botanical and Species at Risk surveys (Arcadis 2025a). Vegetation communities were delineated using the ELC protocol, and dominant tree species, canopy height and canopy cover were recorded for each community. Notable trees (e.g., large or mature trees, cavity trees and dead or declining ash) were recorded incidentally. Butternut and Black Ash were located through targeted searches of all treed areas on the Subject Site and within 50 m, and each tree was recorded with a GPS location and flagged.

The detailed tree inventory to be completed at detailed design will use meandering transects to document each tree ≥10 cm DBH within the development footprint and within 30 m of the grading limits, including species, DBH (measured with a calibrated diameter tape), condition, location (handheld GPS) and CRZ. Homogeneous groupings of trees (e.g., hedgerows and thickets) will be assessed using survey plots to estimate stem density. The inventory will be coordinated with the grading plan to confirm individual tree retention and removal.

3.0 Results

3.1 Existing Conditions

Based on a review of historical aerial imagery, the landscape surrounding the Subject Site has been predominantly agricultural since at least 1976, and the Subject Site itself has been regenerating from former agricultural fields into scrubland since the 1970s. The lands immediately north of the Subject Site have since been developed as the Pathways at Findlay Creek residential community (construction beginning around 2019).

The Urban Expansion Area Limits are dominated by Buckthorn Deciduous Shrub Thicket (THDM2-6), with areas of Fresh-Moist Mixed Meadow (MEMM4) and cleared lands. Treed vegetation within the Urban Expansion Area Limits is generally limited to the following features, which are summarized in Table A-1:

- **Naturalized hedgerows** – a Naturalized Coniferous Hedgerow (FOCM5) along the southeastern extent of the Subject Site and a Naturalized Deciduous Hedgerow (FODM11) along the southern property boundary, dominated by Eastern White Cedar, White Birch, American Basswood and White Ash;
- **Coniferous forest and thicket** – Fresh-Moist White Cedar Coniferous Forest (FOCM4-1) at the southwest corner of the Urban Expansion Area Limits and Fresh-Moist White Cedar Coniferous Thicket (THCM2-1) in the eastern extent of the Subject Site;
- **Small woodland** – an approximately 0.9 ha woodland in the northeastern portion of the Subject Site, extending onto the adjacent property at 4840 Bank Street. This woodland was evaluated in the EIS and does not meet the City's criteria for a significant woodland (the portion older than 60 years is only approximately 0.5 ha); and
- **Wetland inclusion** – a 0.12 ha Poplar Mineral Deciduous Swamp (SWDM4-5) inclusion in the northeastern corner of the Urban Expansion Area Limits.

Outside the Urban Expansion Area Limits, the western portion of the Subject Site supports an Ash Mineral Deciduous Swamp (SWDM2) inclusion associated with HDF S4-B (INT-3) that contains concentrations of Black Ash, as well as the Conveyance Channel corridor. These features are outside the development footprint and are to be retained, subject to the western stormwater management facility and outlet works described in the EIS.

Table A-1: Treed Vegetation Communities within the Urban Expansion Area Limits (Arcadis 2025a)

ELC Code	Community	Area within Urban Expansion Area Limits (ha)	Dominant Tree Species
FOCM5	Naturalized Coniferous Hedgerow	0.50	Eastern White Cedar, with White Birch and White Elm (subcanopy: White Pine, Green Ash, White Ash)
FODM11	Naturalized Deciduous Hedgerow	2.28	American Basswood, with White Ash, American Elm and Manitoba Maple (subcanopy: Green Ash)
FOCM4-1	Fresh-Moist White Cedar Coniferous Forest	0.35	Eastern White Cedar, with White Birch and White Elm (subcanopy: Green Ash, White Ash)
THCM2-1	Fresh-Moist White Cedar Coniferous Thicket	1.29	Eastern White Cedar (understory: Green Ash)
THDM2-6	Buckthorn Deciduous Shrub Thicket	12.54	Scattered Green Ash, White Ash and White Elm (understory dominated by Glossy Buckthorn)
SWDM4-5	Poplar Mineral Deciduous Swamp (inclusion)	0.1	Trembling Aspen, Green Ash and White Elm
SWDM2	Ash Mineral Deciduous Swamp	0.35	Green Ash and Red Maple

3.2 Tree Characterization Summary

Based on the ELC mapping and incidental observations (Arcadis 2025a), trees within the Urban Expansion Area Limits are concentrated within the naturalized hedgerows, the white cedar forest and thicket communities, and the small woodland in the northeastern portion of the Subject Site. The remainder of the Urban Expansion Area Limits are dominated by Buckthorn Deciduous Shrub Thicket and meadow with scattered trees. Canopy cover by community is summarized in Table A-1.

Distinctive trees (DBH ≥30 cm) have not yet been individually identified. Incidental observations indicate that the Urban Expansion Area Limits contain few large, mature trees, which are generally located within the hedgerows along the southern property boundary and within the northeastern woodland. Distinctive trees will be identified and mapped through the detailed tree inventory.

In general, the tree community across the Urban Expansion Area Limits consists of young to mid-aged trees within hedgerows and thickets, with few large, mature trees. Dominant species include Eastern White Cedar, White Birch, American Basswood and White Ash. Several larger Green Ash and White Ash trees were observed in poor condition or dead as a result of Emerald Ash Borer (Arcadis 2025a).

3.2.1 Hedgerows and Treed Groupings

The hedgerows and cedar communities represent homogeneous groupings of trees. Stem density and species composition for these groupings will be confirmed through survey plots completed as part of the detailed tree inventory. Based on the ELC data, these groupings are dominated by Eastern White Cedar, with White Birch, American Basswood, White Ash and Green Ash.

3.3 Protected Species in Ontario

Butternut

Butternut (*Juglans cinerea*) surveys completed by Arcadis in 2024 identified 38 Butternut within the Study Area, 20 of which are within the Urban Expansion Area Limits (Arcadis 2025a). Butternut is listed as Endangered on the Protected Species in Ontario List (O. Reg. 60/26). Under Section 18 of O. Reg. 61/26 (Excepted Activities – No Permit or Registration), an activity that results, or is likely to result, in the killing, harming or taking of a Butternut that is affected by Butternut canker to such an advanced degree that retaining the tree would not support the protection or recovery of the species does not require a permit or registration under the SCA. This exception is predicated on the health of the Butternut being assessed by a qualified Butternut health assessor, and the tree being identified as Category 1 (non-retainable).

A Butternut Health Assessment has not yet been completed. Based on field observations, all Butternut appear to be affected by Butternut canker and are in declining health. As a Butternut Health Assessment is typically valid for a maximum of two years, the assessment will be completed closer to the time of clearing, in advance of detailed design, to support the necessary tree removal. The assessment will address each Butternut within the development footprint and within 50 m of the works and will be provided in Attachment A-2, including the information required under Schedule 3 of O. Reg. 61/26 (location and coordinates, date assessed, stem height and diameter at 1.37 m, rationale for the health determination, and supporting photographs). Butternut assessed as retainable (Category 2 or 3) that cannot be avoided will require registration under the SCA and a Conservation Plan.

Black Ash

A total of 34 Black Ash (*Fraxinus nigra*) were observed within the Subject Site boundaries, 15 of which are within the Urban Expansion Area Limits, including nine Black Ash with a DBH greater than 8 cm (Arcadis 2025a). Four Black Ash concentration areas totalling approximately 0.06 ha were also identified, primarily within the SWDM2 inclusion outside the Urban Expansion Area Limits. Black Ash is listed as Endangered on the Protected Species in Ontario List. A Black Ash assessment has not yet been completed. As with Butternut, the assessment will be completed by a qualified professional closer to the time of clearing and in advance of obtaining the required approval under the SCA to remove those Black Ash that cannot be retained. The results will be provided in Attachment A-3. Where Black Ash or its protected habitat is expected to be affected, registration under the SCA and preparation of a Conservation Plan will be required.

SAR Bats

No additional plant species listed under O. Reg. 60/26 were identified within the Urban Expansion Area Limits. The larger trees within the hedgerows and woodland provide candidate day-roost habitat for SAR bats; suitable maternity roost habitat is unlikely given the absence of mature forest on the Subject Site (Arcadis 2025a). Tree removal timing restrictions for bats are provided in Section 5.

4.0 Tree and Vegetation Removal

The Proponent is proposing a residential subdivision within the Urban Expansion Area Limits, consisting of low-rise residential dwellings (detached, townhouse and a multi-unit residential block), local roads, a park and stormwater management facilities, as shown on the draft Concept Plan (Novatech, October 15, 2025). The western stormwater management facility (linear SWMF) and its outlet to the Conveyance Channel are located outside the Urban Expansion Area Limits on 4850 Bank Street. The proposed development will require the removal of treed vegetation within the development footprint, while retaining as many trees as possible outside of the grading limits. Construction of the western SWMF will require additional clearing outside the Urban Expansion Area Limits, predominantly within Buckthorn Deciduous Shrub Thicket (THDM2-6) with minor areas of Fresh-Moist Mixed Meadow (MEMM4). Part of this area was previously cleared under permit from the City to facilitate borehole drilling by Paterson Group for the geotechnical and hydrogeological investigations.

Based on the ELC mapping (Arcadis 2025a), the removal of approximately 3.1 ha of forest and hedgerow communities and 15.8 ha of thicket and meadow communities is anticipated for the proposed subdivision within the Urban Expansion Area Limits, the western SWMF and the anticipated Earl Armstrong Road Extension corridor, as summarized in Table A-2.

Table A-2: Vegetation Communities Proposed for Removal for the Subdivision, Western SWMF and Earl Armstrong Road Extension

ELC Type	Area Proposed for Removal (ha)
FOCM4-1 – Fresh-Moist White Cedar Coniferous Forest	0.35
FOCM5 – Naturalized Coniferous Hedgerow	0.5
FODM11 – Naturalized Deciduous Hedgerow	2.28
MEMM4 – Fresh-Moist Mixed Meadow	1.97
SWDM4-5 – Poplar Mineral Deciduous Swamp	0.12
THCM2-1 – Fresh-Moist White Cedar Coniferous Thicket	1.29
THDM2-6 – Buckthorn Deciduous Shrub Thicket	12.54
CL – Cleared Land	1.26

As a detailed tree inventory has not yet been completed, tree removal at this stage has been quantified by vegetation community area (Table A-2) rather than by individual tree. Approximately 3.1 ha of forest and hedgerow communities and approximately 15.8 ha of thicket and meadow communities are anticipated to be removed for the proposed subdivision within the Urban Expansion Area Limits, the western SWMF and the anticipated Earl Armstrong Road Extension corridor. Opportunities for tree retention have been identified along the southern hedgerow and property boundaries, within the parkland block, and within the treed features outside the Urban Expansion Area Limits (including the SWDM2 swamp inclusion and the Conveyance Channel corridor), subject to grading.

The number of individual trees and distinctive trees to be removed and retained, together with the location of tree protection fencing, will be confirmed through the detailed tree inventory and grading plan at detailed design. Trees in poor condition (including ash affected by Emerald Ash Borer) will be identified at that time.

Removal of Butternut and Black Ash within the development footprint is subject to the Butternut Health Assessment, Black Ash assessment and SCA requirements described in Section 3.3.

5.0 Mitigation and Compensation Measures

The following mitigation, compensation and monitoring requirements have been developed in consideration of the City of Ottawa Tree Protection Specifications (Attachment A-5) and the mitigation measures in the EIS and are intended to manage the potential effects of tree removal and ensure that compensation is implemented to the standards expected by the City of Ottawa.

Compensation requirements for privately owned trees vary depending on the circumstances of removal and the size of the property. For private properties greater than 1 ha in size that are subject to a Planning Act application, compensation requirements are determined through the development review process (By-law No. 2020-340). The compensation ratio on private property within the urban area, regardless of size, for trees that are dead, hazardous, or are an ash species (*Fraxinus* sp.) is 1:1. The following tree protection and mitigation measures are recommended:

Proposed Mitigation Measures – Planning and Design Stage

- ✓ A Tree Compensation Plan with restoration objectives and compensation requirements shall be developed by a qualified landscape architect, arborist or other qualified professional at the detailed design stage to address the removal of trees within the development area and within the areas associated with the western stormwater management facility (SWMF). Compensation ratios and the applicability of cash-in-lieu will be confirmed through the City's review.

- ✓ Tree compensation should aim to maximize the planting of native urban trees where practical, recognizing constraints associated with soils, surface and underground infrastructure, and other factors that may limit tree planting. While it may not be feasible to achieve on the Subject Site, the objective is to contribute toward the City's 40% urban tree canopy cover objective, in accordance with the City's Urban Forest Management Plan.
- ✓ This TCR shall be coordinated with the Landscape Architect and the grading and servicing design to ensure tree retention and compensation reflect the requirements of this report, and that grading is refined to maximize feasible tree retention, particularly along the southern hedgerow, the parkland block and the property boundaries.
- ✓ Tree removals within the park blocks and stormwater management blocks shall be determined at the detailed design stage. The retention of healthy trees shall be prioritized where possible, and tree protection fencing shall be installed in a manner that protects the CRZ of retainable trees.
- ✓ Grading plans shall be designed to avoid damage to the CRZ of retained trees. Activities with the potential to damage the CRZ include, but are not limited to, excavation of soils, changes in grade, and stockpiling of equipment or construction materials within the CRZ.
- ✓ Butternut Health Assessments and a Black Ash assessment shall be completed by qualified professionals prior to site alteration. Where Butternut or Black Ash (or their critical root zone) will be affected and an exception does not apply, registration under the SCA and a Conservation Plan shall be completed prior to removal.
- ✓ Butternut surveys are valid for two years; surveys shall be updated where tree removal will occur more than two years after the 2024 surveys.

Proposed Mitigation Measures – Construction Implementation

- ✓ Vegetation clearing shall occur outside the breeding bird period (April 1 to August 15) in accordance with the *Migratory Birds Convention Act, 1994* and the *Species at Risk Act*. As this site would not constitute a 'simple habitat' under the Migratory Birds Convention Act definition, **screening for nesting birds is not recommended to facilitate clearing within above noted breeding bird season.**
- ✓ Removal of trees with potential to provide bat roosting habitat shall be avoided during the active bat season (March 15 to November 30, inclusive). Given the complexity of the habitat with the site, exit survey are not appropriate to establish the absence of SAR bats roosting and should not be used to accommodate vegetation clearing outside of the above noted season.
- ✓ All trees identified for retention shall be clearly marked and their CRZ delineated with tree protection fencing prior to construction. The limits of tree protection fencing are to be finalized at detailed design. The fencing shall be inspected by a qualified professional prior to the commencement of construction to confirm the tree protection measures are adequate, shall be monitored weekly, and shall remain in place until all construction activities have ceased. Any deficiencies shall be repaired by the contractor within 48 hours of notice. Within the fencing:
    - No placement of construction material, fill or equipment;
    - No construction activities (i.e., grading, machine operation) that may compact soil or injure the tree or its root system;
    - No refuelling or disposal of liquids;
    - No raising or lowering of the existing grade, and no tunnelling or boring, within the CRZ without approval; and

- No access beyond the limit of construction; all construction access shall be limited to the development side of the tree protection fencing.

✓ Where trees to be removed are within the CRZ of trees to be retained, roots shall be cut at the edge of the retained CRZ and stumps ground down rather than pulled. Roots 20 cm or larger shall be cut at right angles with clean, sharp horticultural tools, without tearing, crushing or pulling. Any roots encountered during construction shall also be clean cut using proper arboricultural practices to minimize root damage and impacts to tree health.

✓ The limit of all grading, including the limits of clearing and grading associated with the construction of the western SWMF, shall be staked in the field in advance of any further tree clearing, and a qualified professional shall mark all trees (dead and alive) to be removed relative to the staked grading limits and the tree inventory.

✓ A detailed tree inventory of trees along the boundary of the development area and grading limits shall be completed in advance of detailed design and coordinated with the grading plan, and this TCR shall be updated to identify individual trees to be retained and removed, distinctive trees, CRZs and the limits of tree protection fencing. An updated removals tally shall be provided to the City Forester for review to confirm general compliance with the tree permit.

  o A City Forester will review flagged trees and boundary trees in the field to confirm that trees posing a future liability are marked for removal and that border trees that can be retained are identified. Upon confirmation by the City Forester, within areas where trees are to be retained, all trees flagged for removal shall be painted with a highly visible “X” and a butt line in accordance with the Ontario guidelines for tree removal.

✓ All tree service activities (e.g., removal, branch and root pruning) shall be completed by or under the direction of an ISA Certified Arborist.

✓ Do not attach any signs, notices or posters to trees identified for retention, do not damage the root system, trunk or branches of retained trees, and direct equipment exhaust away from tree canopies.

Proposed Mitigation Measures – Post-Construction

✓ Within 12 months of the completion of construction, retained trees adjacent to the works (including any retained Butternut or Black Ash) shall be assessed by an ISA Certified Arborist, and trees that are dead, in poor health or hazardous shall be pruned or removed and replaced in accordance with the Tree Compensation Plan.

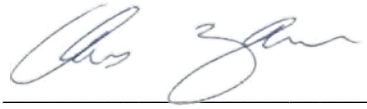
6.0 Closure

To accommodate the proposed development, tree removal will be required for the layout of the subdivision and associated infrastructure (streets, sidewalks, parkland and stormwater management facilities). Based on the ELC mapping, the proposed works are anticipated to result in the removal of approximately 3.1 ha of forest and hedgerow communities and approximately 15.8 ha of thicket and meadow communities for the proposed subdivision within the Urban Expansion Area Limits, the western SWMF and the anticipated Earl Armstrong Road Extension corridor. The number of individual trees to be removed will be confirmed through the detailed tree inventory at detailed design.

The success of this plan is dependent upon the execution of clearing and construction activities in a manner that minimizes impacts while meeting the planned objectives. This TCR is to be reviewed by the City of Ottawa to confirm that the plan adequately mitigates the anticipated impacts of tree removal. This TCR guides the tree removal process; its success also requires the implementation of a Tree Compensation Plan, which is not included within this report.

The results and findings of this study have been reported without bias or prejudice. Conclusions are based on our professional opinion, substantiated by the results of this study, and have not been influenced in any way. Should you have any questions regarding the findings or recommendations in this report, please do not hesitate to contact us.

Prepared by:



Alex Zeller, M.Sc.
Principal -- Natural Environment
Fotenn Planning + Design

7.0 References

Arcadis Professional Services (Canada) Inc. (Arcadis). 2025a. Natural Heritage Existing Conditions Report – Leitrim West Urban Expansion Area (S4).

Arcadis Professional Services (Canada) Inc. (Arcadis). 2025b. Tree Conservation Report – Leitrim West Urban Expansion Area (S4). October 2025.

Arcadis Professional Services (Canada) Inc. (Arcadis). 2026. Leitrim West Urban Expansion Area – S4 Environmental Impact Statement. January 2026.

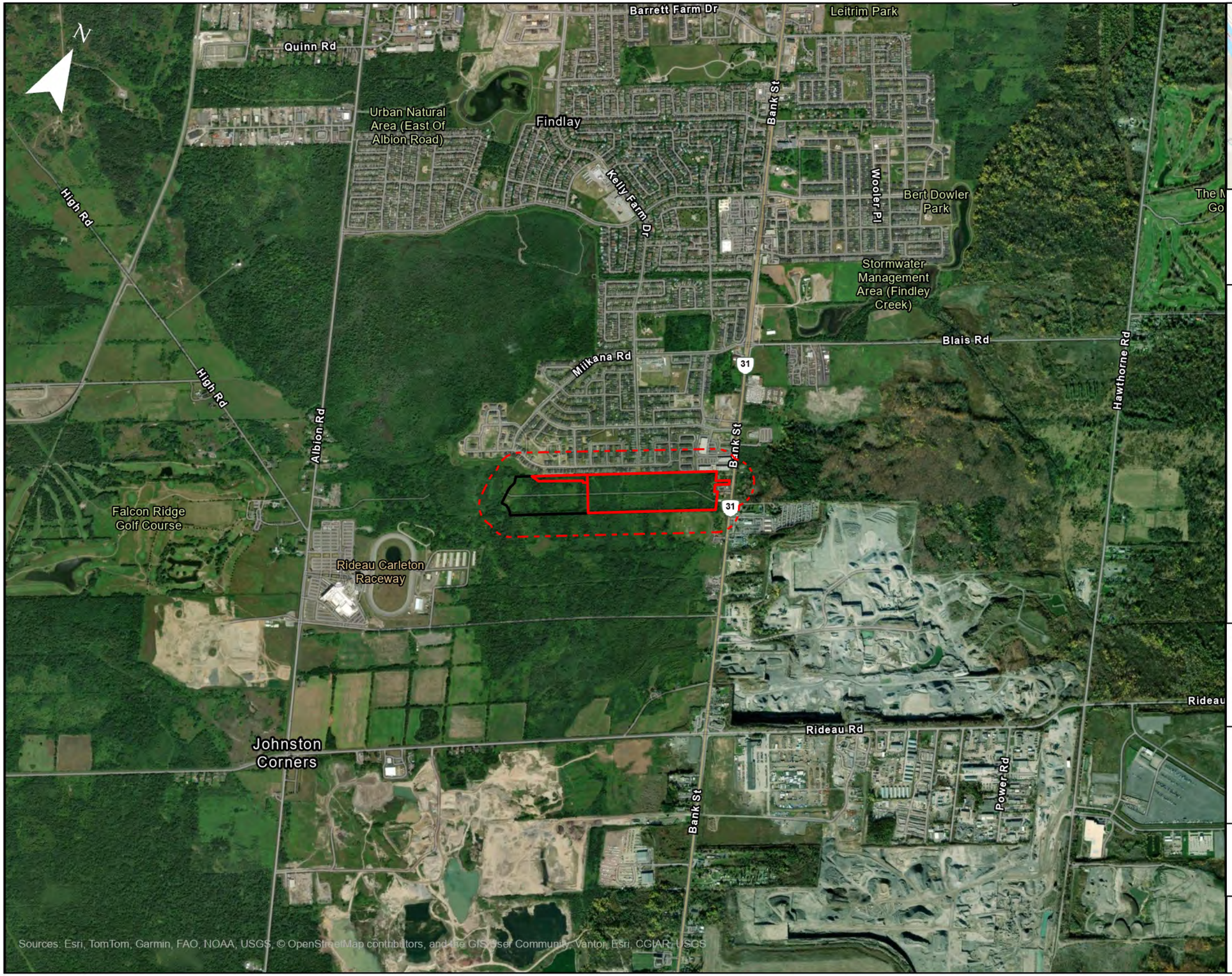
City of Ottawa. 2021. By-law No. 2020-340, Tree Protection By-law.

City of Ottawa. 2022. City of Ottawa Official Plan.

Fotenn Planning + Design (Fotenn). 2026. Consolidated Environmental Impact Study – Leitrim West Urban Expansion Area (S-4 Lands), 4850 Bank Street.

Government of Ontario. 2025. Species Conservation Act, 2025, S.O. 2025, c. 4, Sched. 10; O. Reg. 60/26, 61/26, 74/26 and 75/26.

Novatech. 2025. Draft Concept Plan – Leitrim West Urban Expansion Area (S4). October 15, 2025.





Scale: 1:20,000

0 150 300 600 900 1,200 Meters

Legend

- Proposed Development Area (Nov 2026)
- Study Area (120 m)
- Property Boundary

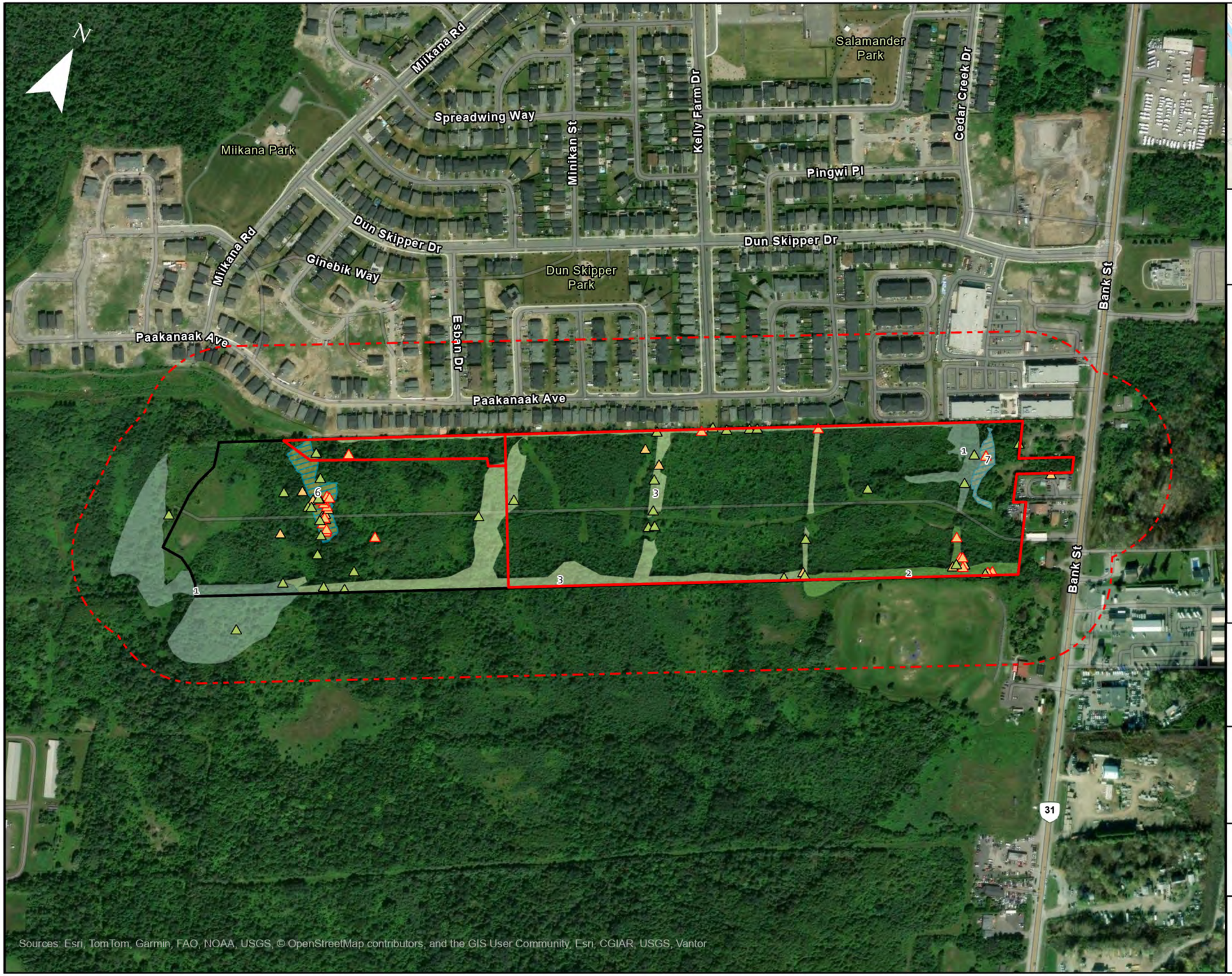
Project:
4850 Bank Street EIS & TCR
The Edge at Pathways [S-4 Lands]

Title:
Site Location

Prepared By:
FOTENN

Date:
11/11/2026

Figure: A-1





Scale: 1:5,000

0 37.5 75 150 225 300 Meters

Legend

- Proposed Development Area (Nov 2026)
- Study Area (120 m)
- Property Boundary

SAR Tree Species

- Black Ash (<8cm DBH)
- Black Ash (>8cm DBH)
- Butternut

Treed Vegetation Communities

- 1 - Fresh - Moist White Cedar Coniferous Forest (FOCM4-1)
- 2 - Naturalized Coniferous Hedge-row (FOCM5)
- 3 - Naturalized Deciduous Hedge-row (FODM11)
- 6 - Ash Mineral Deciduous Swamp (SWDM2)
- 7 - Poplar Mineral Deciduous Swamp (SWDM4-5)

Project:

4850 Bank Street EIS & TCR
The Edge at Pathways [S-4 Lands]

Title:

Treed Vegetation Communities
and
Canopy Cover

Prepared By:

FOTENN

Date:

11/11/2026

Figure: A-2





Scale: 1:5,000

0 37.5 75 150 225 300 Meters

Legend

- Proposed Development Area (Nov 2026)
- Study Area (120 m)
- Property Boundary
- Removed Black Ash / Butternut

SAR Species

- Black Ash (<8cm DBH)
- Black Ash (>8cm DBH)
- Butternut

Tree Removal Areas

- Removal of Forest Habitat
- Removal of Treed Hedge-Row
- Removal of Treed Wetland (Swamp)

Project:

4850 Bank Street EIS & TCR
The Edge at Pathways [S-4 Lands]

Title:

Tree Removal
and
Retention Areas

Prepared By:

FOTENN

Date:

11/11/2026

Figure: A-3

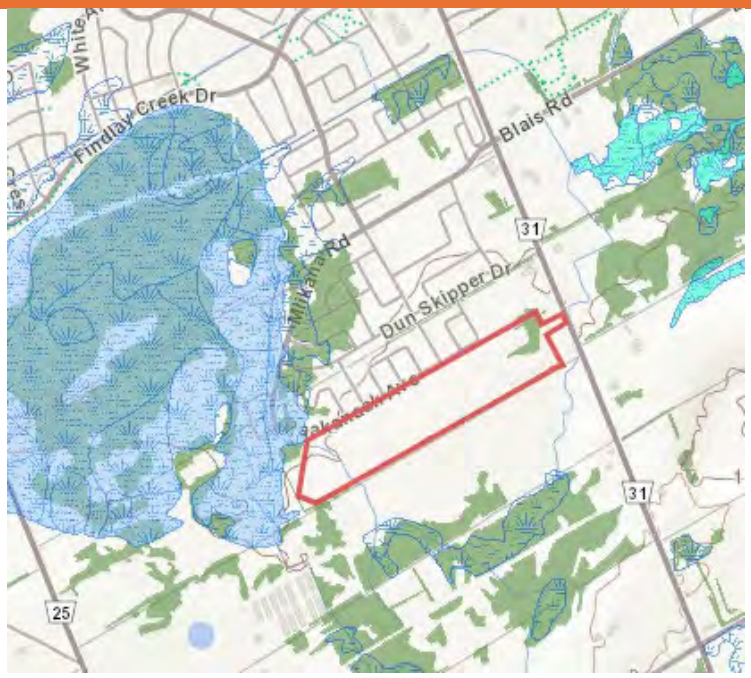
Appendix B

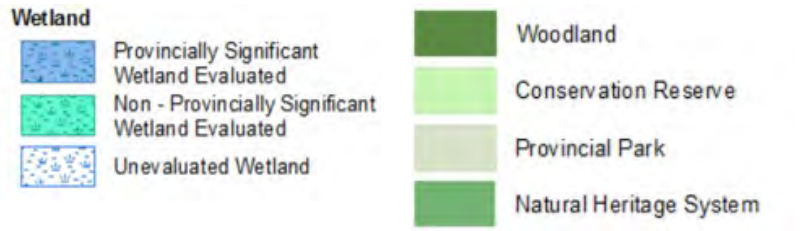
Aquatic Background Data

Table A1: Summary of Aquatic Background Data Collection

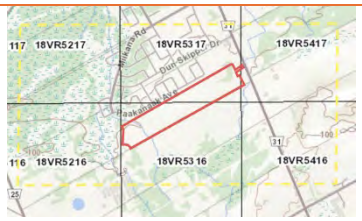
Aquatic Resources Background Information

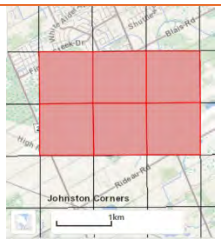
General NHIC map showing PSW west and north of the Site and non-PSW east of Bank St.



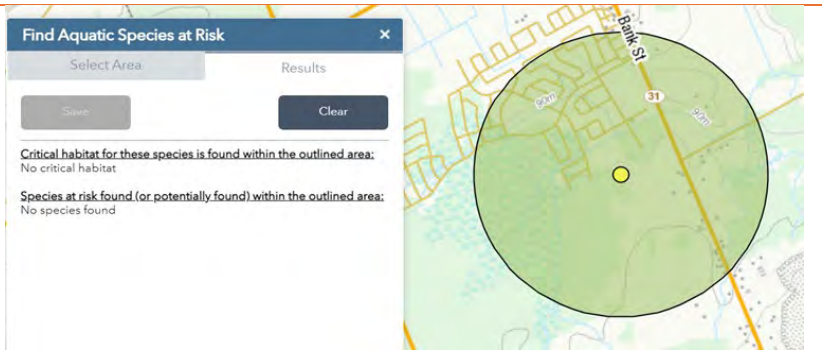


NHIC Species map does not indicate any aquatic species for the highlighted squares: 18VR5417, 18VR5416, 18VR5317, 18VR5316, 18VR5217, 18VR5216

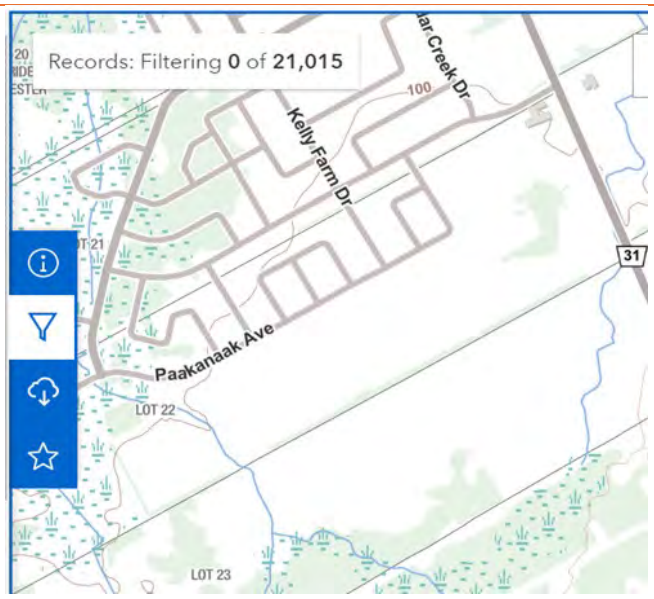




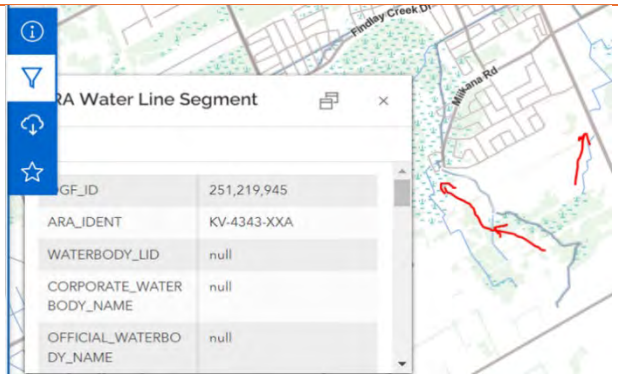
The DFO species at risk map does not indicate species or critical habitat present within the study area.



No fish activity is reported within the study area as indicated through Ontario GeoHub.



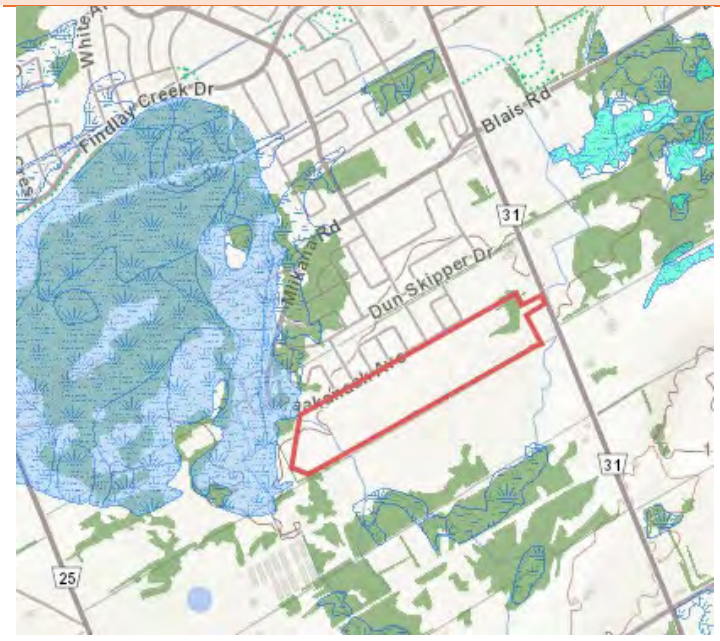
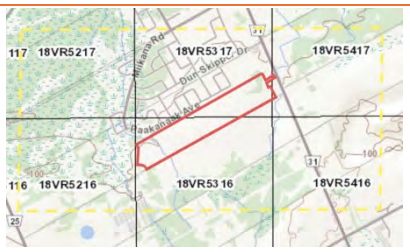
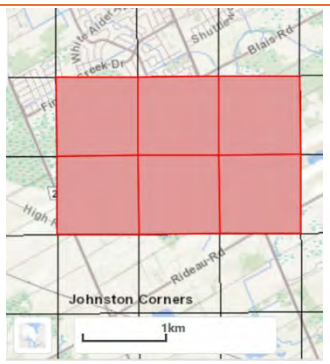
An unnamed tributary passes through the west end of the Site as indicated in Ontario GeoHub Aquatic Resources.



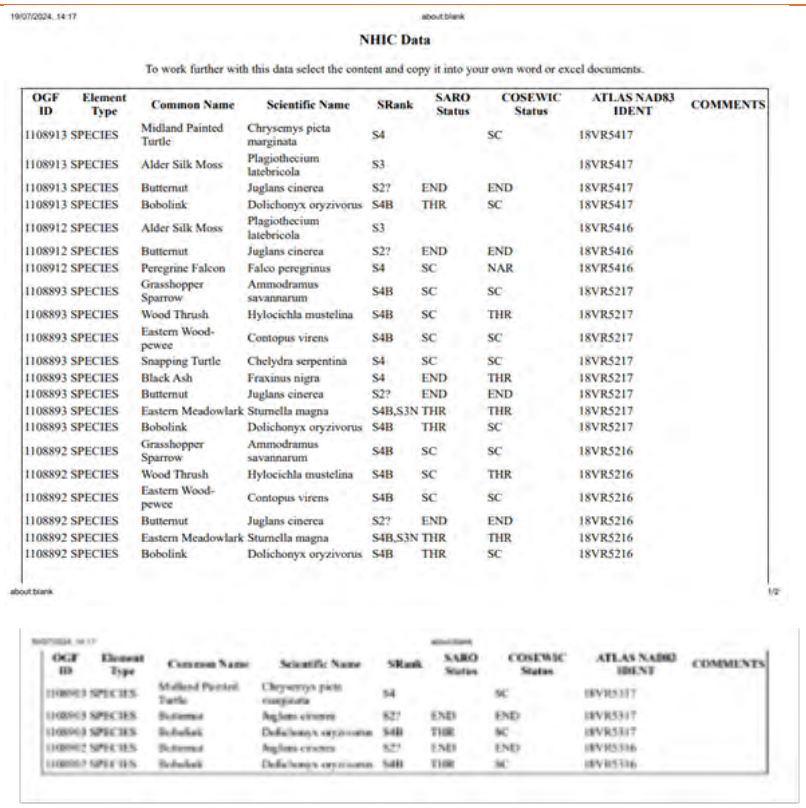
Appendix C

Terrestrial Background Data

Table B1: Summary of Terrestrial Background Data Collection

Terrestrial Resources Background Information	
Comments	Resource Material
General NHIC map showing woodlands associated with the PSW as well as to the east and south of the Site.	
NHIC Species map indicates SAR, including black ash, bobolink, butternut, eastern meadowlark, and wood thrush within the highlighted squares: 18VR4210, 18VR4209, 18VR4310, 18VR4309, 18VR4410, 18VR4409	 

NHIC data for the corresponding squares noted above.



19/07/2024, 14:17 about:blank

NHIC Data

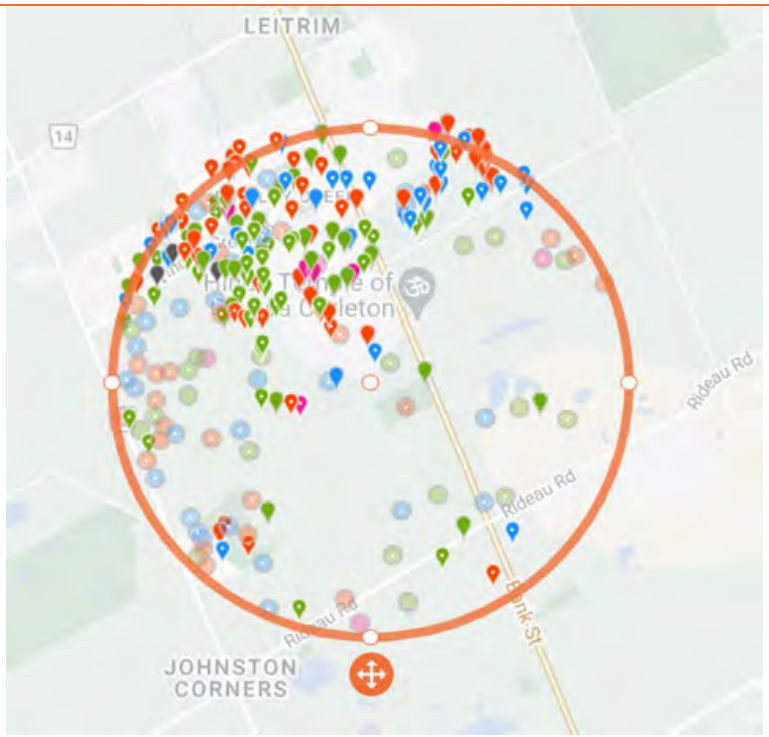
To work further with this data select the content and copy it into your own word or excel documents.

OGF ID	Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	ATLAS NAD83 IDENT	COMMENTS
1108913	SPECIES	Midland Painted Turtle	Chrysemys picta marginata	S4		SC	18VR5417	
1108913	SPECIES	Alder Silk Moss	Plagiothecium latebricola	S3			18VR5417	
1108913	SPECIES	Butternut	Juglans cinerea	S2?	END	END	18VR5417	
1108913	SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	SC	18VR5417	
1108912	SPECIES	Alder Silk Moss	Plagiothecium latebricola	S3			18VR5416	
1108912	SPECIES	Butternut	Juglans cinerea	S2?	END	END	18VR5416	
1108912	SPECIES	Peregrine Falcon	Falco peregrinus	S4	SC	NAR	18VR5416	
1108893	SPECIES	Grasshopper Sparrow	Ammodramus savannarum	S4B	SC	SC	18VR5217	
1108893	SPECIES	Wood Thrush	Hylocichla mustelina	S4B	SC	THR	18VR5217	
1108893	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	18VR5217	
1108893	SPECIES	Snapping Turtle	Chelydra serpentina	S4	SC	SC	18VR5217	
1108893	SPECIES	Black Ash	Fraxinus nigra	S4	END	THR	18VR5217	
1108893	SPECIES	Butternut	Juglans cinerea	S2?	END	END	18VR5217	
1108893	SPECIES	Eastern Meadowlark	Sturnella magna	S4B,S3N	THR	THR	18VR5217	
1108893	SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	SC	18VR5217	
1108892	SPECIES	Grasshopper Sparrow	Ammodramus savannarum	S4B	SC	SC	18VR5216	
1108892	SPECIES	Wood Thrush	Hylocichla mustelina	S4B	SC	THR	18VR5216	
1108892	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	18VR5216	
1108892	SPECIES	Butternut	Juglans cinerea	S2?	END	END	18VR5216	
1108892	SPECIES	Eastern Meadowlark	Sturnella magna	S4B,S3N	THR	THR	18VR5216	
1108892	SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	SC	18VR5216	

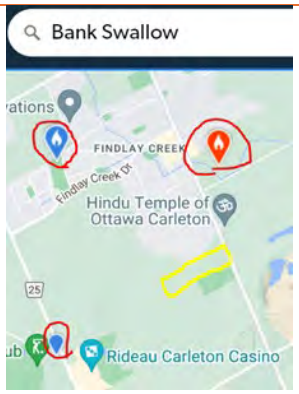
about:blank 1/2

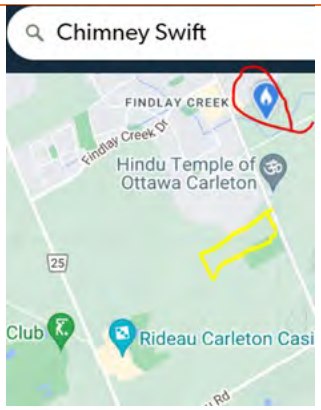
An iNaturalist search for research grade observations with an approximate 2km buffer from the center of the study area shows 1037 species have been observed and identified.

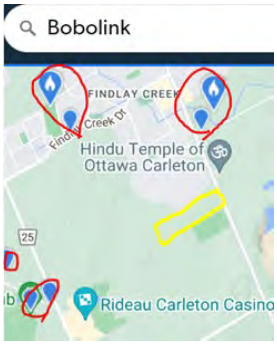
Notable SAR: bobolink, wood thrush, lesser yellowlegs, least bittern, eastern meadowlark, Blanding's turtle

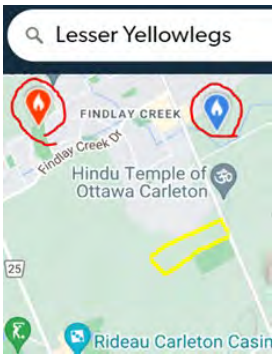


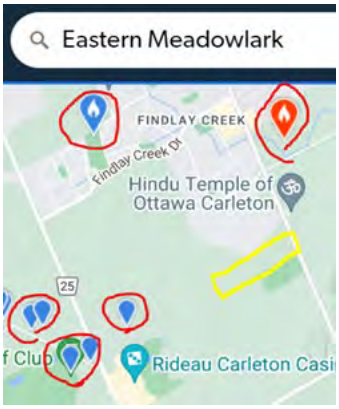
Exploring nearby eBird reports for SAR shows 6 notable species reported: bank swallow, bobolink, chimney swift, eastern meadowlark, lesser yellowlegs, and wood thrush.

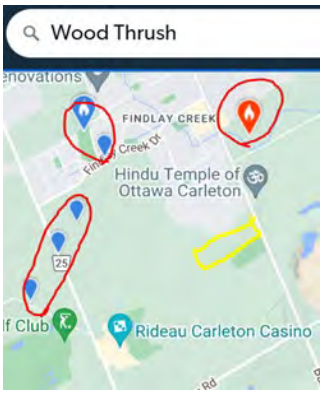












The study area falls within square 18VR51 of the OBBA and has 103 birds listed with breeding evidence

Notable SAR: Bank swallow, wood thrush, bobolink, eastern meadowlark, and wood thrush.

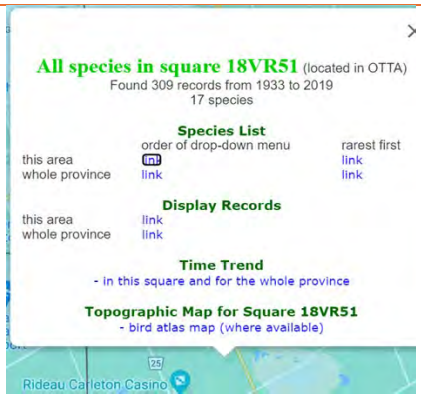


Square Summary (18TVR51) [change]

	#species			#hours		#pc done	
	poss	prob	conf	total	total	peak	road	offrd
Curr.	23	37	43	103	79.3	58.2	20	6
Prev.	21	17	66	104	66.3	—	28	

The ORAA showed property in square 18VR51.

Notable SAR: Blanding's turtle



Number of rows of data displayed below: 17.

Species #	Common Name	# of Records	Earliest Yr	Latest Yr
1	Blanding's Turtle	1	2018	2018
3	Midland Painted Turtle	8	1986	2018
6	Snapping Turtle	11	1997	2013
12	Eastern Gartersnake	11	1970	2018
20	Northern Watersnake	1	1970	1970
25	American Bullfrog	1	1965	1965
28	Gray Treefrog	40	1981	2018
29	Green Frog	51	1965	2016
31	Northern Leopard Frog	37	1982	2014
33	Spring Peeper	76	1964	2015
35	Wood Frog	21	1981	2015
36	American Toad	45	1961	2018
40	Blue-spotted Salamander	1	2017	2017
44	Eastern Red-backed Salamander	1	1933	1933
48	Mudpuppy	1	1982	1982
50	Northern Two-lined Salamander	2	1965	2002
53	Spotted Salamander	1	2004	2004

The OBA showed property in square 18VR51.

Monarch (sp of concern) observed in both squares.



Appendix D

Species at Risk Screening

Species at Risk Screening

The species at risk (SAR) screening completed for the original EIS (Arcadis 2026a) is reproduced in Table D-1. The screening has been updated to reflect the Protected Species in Ontario List (O. Reg. 60/26) under the Species Conservation Act, 2025 (SCA), which replaced the Endangered Species Act, 2007 on March 30, 2026, the current Schedule 1 of the Species at Risk Act (SARA), and the City of Ottawa Species at Risk in Ottawa list (April 15, 2026). The results of the 2024 Butternut and Black Ash surveys (Arcadis 2025a) have also been incorporated. The legend for the table is provided following Table D-1.

Table D-1: Threatened or Endangered Species with Records of Occurrence within the S4 Study Area (Arcadis 2026a)

Common Name	Scientific Name	Habitat Description[1]	Federal SARA[2]	Federal COSEWIC[2]	Provincial SCA[2]	Provincial S-Rank[2]	Source of Occurrence Record[3]	Habitat within Study Area?	Rationale for Determination of Habitat Presence
Birds									
Bank Swallow	*Riparia riparia*	This species nests within vertical banks, with a preference for sand-silt substrate. Nesting sites more likely near open upland habitats. (COSEWIC 2013). Provincially, the species protected habitat is the 50 m in front of a breeding colony's bank face and all suitable foraging habitat within 500 m (MECP, 2015).	THR	THR	THR†	S4B	eBird	**No**	Insufficient vertical banks exist on the property, including the stream banks that cut through the west end of property.
Bobolink	*Dolichonyx oryzivorus*	Primarily in forage crops, and grassland habitat. It is sensitive to edge effects, size of habitat and areas with dense shrub vegetation or a litter layer deeper than a few centimeters (COSEWIC, 2010). Provincially, this species' protected habitat is the area extending 60 m from the nest as well as the 300 m of suitable habitat around the nest (MECP, 2013).	THR*	THR	THR†	S4B	NHIC, eBird, OBBA	**No**	No large tracts of grasslands, hayfields, meadows, or fallow fields are present within the Subject Site resulting in poor habitat potential for Bobolink.
Chimney Swift	*Chaetura pelagica*	Cities, towns, villages, rural, and wooded areas. This species rarely utilizes trees; they prefer trees greater than 50 cm in diameter and that are within 1 km of waterbodies (COSEWIC 2007). Provincially, this species' protected habitat consists of Category 1 habitat, which is a human-made nesting/roosting feature or natural nesting/roosting tree cavity, as well as the area within 90 m of the natural tree cavity (MECP, 2017). No Category 2 or 3 habitats are outlined for this species (MECP, 2017).	THR	THR	THR†	S3B	eBird	**No**	Property does not contain wooded areas with large trees to serve as a nest sites, and there are no large waterbodies within 1 km.
Eastern Meadowlark	*Sturnella magna*	Open fields and pastures, meadows, prairies. Breeds in natural grasslands, meadows, weedy pastures, also in hayfields and sometimes in fields of other crops. Winters in many kinds of natural and cultivated fields. In the Midwest, it tends to prefer taller and lusher grass than Western Meadowlark, but in the Southwest, it lives in very arid desert grasslands.	THR	THR	THR†	S4B, S3N	NHIC, eBird, OBBA	**No**	No large tracts of grasslands, hayfields, meadows, or fallow fields are present within the Subject Site resulting in poor habitat potential for Eastern Meadowlark.

Common Name	Scientific Name	Habitat Description[1]	Federal SARA[2]	Federal COSEWIC[2]	Provincial SCA[2]	Provincial S-Rank[2]	Source of Occurrence Record[3]	Habitat within Study Area?	Rationale for Determination of Habitat Presence
Lesser Yellowlegs	*Tringa flavipes*	Marshes, mudflats, shores, ponds; in summer, open boreal woods. Occurs widely in migration, including coastal estuaries, salt and fresh marshes, edges of lakes and ponds, typically more common on freshwater habitats. Often in same places as Greater Yellowlegs but may be less frequent on tidal flats. Breeds in large clearings, such as burned areas, near ponds in northern forest.	-	THR	THR	S3S4B, S5M	eBird, iNaturalist	**No**	Breeds in northern boreal forests. May be on site during migration if large mudflats, puddles exist, but only temporarily.
Herpetozoa									
Blanding's Turtle	*Emydoidea blandingii*	Shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft, muddy bottoms and aquatic vegetation; basks on logs, stumps, or banks; surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats.	END	END	THR	S3	iNaturalist, ORAA	**No**	The study site does not contain sufficient marshes, bogs, ponds, or swamps for Blanding's to inhabit.
Mammals									
Little Brown Myotis	*Myotis lucifugus*	Females establish summer maternity colonies, often in buildings or large-diameter trees. Foraging occurs over water, along waterways, and forest edges. Overwinter in cold and humid hibernacula (caves/mines) (COSEWIC 2013).	END	END	END	S3	AMO	**Yes**	Study Area contains deciduous woodlands that could provide cavities and loose bark suitable for roosting.
Northern Myotis	*Myotis septentrionalis*	Older (late successional or primary forests) with large interior habitat and snags that are in the mid-stage of decay. They prefer intact interior habitat and are sensitive to edge habitats (Menzel et al., 2002; Broders et al., 2006; SWH 6E Ecoregion Criterion Schedule). Critical habitat has not yet been defined by the province.	END	END	END	S3	AMO	**Yes**	Study Area contains deciduous woodlands that could provide cavities and loose bark suitable for roosting.

Common Name	Scientific Name	Habitat Description[1]	Federal SARA[2]	Federal COSEWIC[2]	Provincial SCA[2]	Provincial S-Rank[2]	Source of Occurrence Record[3]	Habitat within Study Area?	Rationale for Determination of Habitat Presence
Eastern Red Bat	*Lasiurus borealis*	Roosts among the foliage of both deciduous and coniferous trees, of any age class, and occasionally shrubs. Maternity roosts tend to be large in diameter and tall, reaching or exceeding the height of the surrounding canopy. Forage in both forested and non-forested habitats, in both open and semi-cluttered habitats, both above and below forest canopies, and in both early and later stage forests. They overwinter in the southern United States.	Under consideration	END	END	S4	AMO	**Yes**	Study Area contains deciduous and coniferous trees that could provide cavities and loose bark suitable for roosting.
Hoary Bat	*Lasiurus cinereus*	Roosts among the foliage of both deciduous and coniferous trees, of any age class, and occasionally shrubs. Maternity roosts tend to be large in diameter and tall, reaching or exceeding the height of the surrounding canopy. Forage in the open, including wetlands, grasslands and open fields with patchily distributed trees. They overwinter in the southern United States.	Under consideration	END	END	S4	AMO	**Yes**	Study Area contains deciduous and coniferous trees that could provide cavities and loose bark suitable for roosting.
Silver-haired Bat	*Lasionycteris noctivagans*	Roosting by Silver-haired Bats occurs primarily under bark and in the cavities of large, decaying, coniferous and deciduous trees. They may occasionally roost in or on buildings, especially during migration when natural roosting sites may be scarce. Forage in young and old forests, as well as forest openings (canopy gaps), but are concentrated along forest edges. Overwinter in the United States, southeastern British Columbia, and sometimes the Great Lakes region in mines, rock crevices, trees, and snags.	Under consideration	END	END	S4	AMO	**Yes**	Study Area contains deciduous and coniferous trees that could provide cavities and loose bark suitable for roosting.
Tri-coloured Bat	*Perimyotis subflavus*	Females establish summer maternity colonies, often in buildings or large-diameter trees. Foraging occurs over water, along waterways, and forest edges. Overwinter in cold and humid hibernacula (caves/mines) (COSEWIC, 2013). Critical habitat has not yet been defined by the province.	END	END	END	S3?	AMO	**Yes**	Study Area contains deciduous woodlands that could provide cavities and loose bark suitable for roosting.
Plants									

Common Name	Scientific Name	Habitat Description[1]	Federal SARA[2]	Federal COSEWIC[2]	Provincial SCA[2]	Provincial S-Rank[2]	Source of Occurrence Record[3]	Habitat within Study Area?	Rationale for Determination of Habitat Presence
Butternut	*Juglans cinerea*	Found in a variety of habitat types but grows best on well-drained fertile soils in shallow valleys and on gradual slopes (COSEWIC, 2017). Provincially, butternuts are assessed and categorized based on the amount of canker. These categories are 1-3 with Category 1 trees as those that are heavily infected to the point that they are not expected to survive.	END	END	END	S2?	NHIC, Arcadis 2024 field surveys	**Yes**	Sunny openings near forest edges with moist soils are present within the Study Area. Confirmed present (38 individuals within the Study Area).
Black Ash	*Fraxinus nigra*	Predominantly a wetland species of swamps, floodplains, and fens. It has an intermediate light requirement and a tendency toward greater abundance in more alkaline sites. Most sites in which it is dominant are flood prone, where its high tolerance of seasonal flooding appears to offer a competitive advantage. Black Ash also occurs widely in moist upland forests, but generally at lower densities than in wet areas.	Under consideration	THR	END	S4	Arcadis 2024 field surveys	**Yes**	Wetland habitat and drainage features may provide suitable habitat for Black Ash within the Subject Site. Confirmed present (34 individuals within the Subject Site).

Legend

For the Species at Risk Screening Table above

Blue Shaded species are protected and/or have protected critical habitat within the Study Area and the species is confirmed present or has a Moderate to High probability of occurrence in the Study Area (i.e., the species is listed as Threatened or Endangered on the Protected Species in Ontario List (O. Reg. 60/26) under the SCA, and/or the Threatened or Endangered species' critical habitat is present – including federally listed migratory birds and fish).

Grey shaded SAR that are confirmed present or have a Moderate to High probability of occurrence in the Study Area but do not receive individual or habitat protection under the Species Conservation Act, 2025. These species may be protected in conjunction with significant wildlife habitat.

Only those SAR protected in the Study Area have been included in this table. Fish and molluscs have been excluded from this table as fish habitat is not present in the Study Area. No amphibian SAR occurrences have been reported in the vicinity of the Study Area.

Unshaded species are not expected to occur in the Study Area.

* Under consideration for status change (Bobolink: in consultation for downlisting to Special Concern). "Under consideration" = under consideration for addition to SARA Schedule 1 following COSEWIC assessment.

† Classified as Threatened by COSSARO but not included on the Protected Species in Ontario List (O. Reg. 60/26), as migratory birds protected under the Migratory Birds Convention Act, 1994 are excluded from the SCA. Individuals and nests of SARA-listed migratory birds remain protected under SARA and the MBCA on all lands.

[1] Habitat description is sourced from the OMNR (2000) Significant Wildlife Habitat Technical Guide or from the species at risk habitat descriptions published by the province, unless otherwise cited.

[2] Conservation Status:

SC = Special Concern; THR = Threatened; END = Endangered; NAR = Not at Risk; Extirpated species have been excluded from the table.

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

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

Provincial SCA = Species Conservation Act, 2025; status as listed on the Protected Species in Ontario List (O. Reg. 60/26), in force March 30, 2026.

Provincial (or Subnational) S-Rank: Subnational ranks are assigned and maintained by state or provincial NatureServe network programs. S1 – Critically Imperiled; S2 – Imperiled; S3 – Vulnerable; S4 – Apparently Secure; S5 – Secure; B – Breeding; N – Non-breeding; M – Migrant; ? – Uncertainty.

[3] Sources:

AMO = Atlas of the Mammals of Ontario
eBird = eBird (Cornell Lab of Ornithology)
iNat = iNaturalist observations
OBA = Ontario Butterfly Atlas
ECCC = Environment and Climate Change Canada Open Data
ORAA = Ontario Reptile and Amphibian Atlas
OBBA = Ontario Breeding Bird Atlas
NHIC = Natural Heritage Information Centre Database
BCI = Bat Conservation International Inc. 2025. Bat Profiles.

Probability of Occurrence in the Study Area:

Confirmed: Species and/or preferred habitat has been observed in the Study Area (i.e., confirmed by recent field investigations, consultation with MECP, or reliable secondary source).

High: Species has been reported in the vicinity of the Study Area during field investigations by others or within 10 km atlas square. The species' preferred habitat is abundant within the Study Area. Species with a high probability of occurrence would be expected to breed within or frequently use the habitats available within the Study Area and would be known to have a high relative abundance within the region (i.e., compared to other regions in Ontario).

Moderate: Species' preferred habitat is present but limited or uncommon in the Study Area and breeding in the area is rare. Species with Moderate probability of occurrence may intermittently use the area for foraging, migration, or movement to other parts of their home range and therefore may have been documented in secondary sources or field investigations.

Low: Species has been recorded in the vicinity of the Study Area during field investigations by others or within 10 km atlas square. The species' preferred habitat does not occur or is extremely limited within the Study Area. These species may intermittently move through the Study Area but are unlikely to become permanent residents. Reports of this species may be historical records.

None: Preferred habitat of the species is absent from the Study Area. Records of occurrence are expected to be historical or vagrant records (e.g., a species that is currently outside their wintering and breeding area) may exist.

Appendix E

Headwater Drainage Feature Assessment Raw Data

Headwater Drainage Feature Assessment Raw Data

The headwater drainage feature (HDF) field data collected by Arcadis during the spring freshet (May 6, 2024) and summer baseflow (July 17, 2024) assessments are summarized in Table E-1 (Arcadis 2026a). The assessments followed the Evaluation, Classification and Management of Headwater Drainage Features Guidelines (TRCA and CVC 2014) and the Ontario Stream Assessment Protocol (Stanfield 2017). Reach S4-F (Scratch Ditch) was assessed visually and is described in Section 5.2.1. The field data are unchanged by the July 2026 Addendum and Addendum #2 (Fotenn 2026a, 2026b); the management recommendations carried forward for each reach, including updates from the addenda, are provided in Table 10.

Table E-1: Summary of Headwater Drainage Feature Data Collection (Arcadis 2026a)

Date (yyyy-mm-dd)	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 Veg. Category	Veg. Left Bank (0-1.5m)	Veg. Right Bank (0-1.5m)	Veg. Left Bank (1.5-10m)	Veg. Right Bank (1.5-10m)	Veg. Left Bank (10-30m)	Veg. Right Bank (10-30m)
2024-05-06	S4-A-01	21	Freshet	Channelized or Constrained	Surface Flow Minimal	Moderate	1.7	165	2.7	Sand-silt	Meadow	Meadow	Meadow	Meadow	Wetland	Meadow	Wetland
2024-05-06	S4-B-01	22	Freshet	Defined Natural Channel	Surface Flow Minimal	Moderate	1.0	195	4.4	Sand-silt	Wetland	Wetland	Wetland	Meadow	Wetland	Forest	Wetland
2024-05-06	S4-B-02	22	Freshet	Defined Natural Channel	Surface Flow Minimal	Moderate	2.1	175	3.9	Sand	Forest	Forest	Forest	Scrubland	Scrubland	Scrubland	Scrubland
2024-05-06	S4-B-03	22	Freshet	Defined Natural Channel	Surface Flow Minimal	Minimal	1.5	180	2.1	Stone-sand	Forest	Forest	Forest	Scrubland	Forest	Scrubland	Forest
2024-05-06	S4-C-01	22	Freshet	Defined Natural Channel	Surface Flow Minimal	Minimal	0.9	40	1.9	Sand-silt	Scrubland	Scrubland	Scrubland	Scrubland	Scrubland	Scrubland	Forest
2024-05-06	S4-D-01	21	Freshet	Wetland	Interstitial Flow	Minimal	5.0	120	6.5	Organics	Wetland	Forest	Forest	Forest	Forest	Forest	Forest
2024-05-06	S4-E-01	22	Freshet	Defined Natural Channel	Interstitial Flow	Minimal	0.4	40	1.7	Silt	Scrubland	Scrubland	Scrubland	Scrubland	Scrubland	Scrubland	Scrubland
2024-07-17	S4-A-01	23	Baseflow	Channelized or Constrained	Surface Flow Minimal	Moderate	0.7	187	3.5	Sand-silt	Meadow	Meadow	Meadow	Meadow	Wetland	Meadow	Wetland
2024-07-17	S4-B-01	24	Baseflow	Defined Natural Channel	Interstitial Flow	None	0.8	245	1.9	Sand-silt	Wetland	Wetland	Wetland	Meadow	Wetland	Forest	Wetland
2024-07-17	S4-B-02	23	Baseflow	Defined Natural Channel	Surface Flow Minimal	Minimal	2.7	155	4.3	Sand	Forest	Forest	Forest	Scrubland	Scrubland	Scrubland	Scrubland
2024-07-17	S4-B-03	23	Baseflow	Defined Natural Channel	Surface Flow Minimal	Minimal	1.2	145	3.9	Stone-sand	Forest	Forest	Forest	Scrubland	Forest	Scrubland	Forest
2024-07-17	S4-C-01	23	Baseflow	Defined Natural Channel	Surface Flow Minimal	Minimal	0.8	57	3.2	Sand-silt	Scrubland	Scrubland	Scrubland	Scrubland	Scrubland	Scrubland	Forest
2024-07-17	S4-D-01	21	Baseflow	Wetland	Interstitial Flow	Minimal	0.9	35	4.4	Organics	Wetland	Forest	Forest	Forest	Forest	Forest	Forest
2024-07-17	S4-E-01	21	Baseflow	Defined Natural Channel	Standing Water	None	0.2	32	2.1	Silt	Scrubland	Scrubland	Scrubland	Scrubland	Scrubland	Scrubland	Scrubland

Appendix F

Species Lists

Species Lists

The species lists compiled from the 2024 field investigations completed by Arcadis (Arcadis 2026a) are provided below. Conservation status has been updated to reflect the Protected Species in Ontario List (O. Reg. 60/26) under the Species Conservation Act, 2025 and the current Schedule 1 of the Species at Risk Act. Additional columns have been added to address the species list requirements of Sections 3.2.4 to 3.2.6 of the City's EIS Guidelines.

Table F-1: Breeding Bird List (Arcadis 2026a)

Common Name	Scientific Name	SARA	SCA	S-Rank	Evidence / Source
Alder Flycatcher	*Empidonax alnorum*	-	-	S5B	Breeding bird survey (Arcadis 2024)
American Crow	*Corvus brachyrhynchos*	-	-	S5	Breeding bird survey (Arcadis 2024)
American Goldfinch	*Spinus tristis*	-	-	S5	Breeding bird survey (Arcadis 2024)
American Redstart	*Setophaga ruticilla*	-	-	S5B	Breeding bird survey (Arcadis 2024)
American Robin	*Turdus migratorius*	-	-	S5	Breeding bird survey (Arcadis 2024)
Black-and-white Warbler	*Mniotilta varia*	-	-	S5B	Breeding bird survey (Arcadis 2024)
Black-capped Chickadee	*Poecile atricapillus*	-	-	S5	Breeding bird survey (Arcadis 2024)
Blue Jay	*Cyanocitta cristata*	-	-	S5	Breeding bird survey (Arcadis 2024)
Cedar Waxwing	*Bombycilla cedrorum*	-	-	S5	Breeding bird survey (Arcadis 2024)
Common Grackle	*Quiscalus quiscula*	-	-	S5	Breeding bird survey (Arcadis 2024)
Common Yellowthroat	*Geothlypis trichas*	-	-	S5B,S3N	Breeding bird survey (Arcadis 2024)
Downy Woodpecker	*Dryobates pubescens*	-	-	S5	Breeding bird survey (Arcadis 2024)
Eastern Kingbird	*Tyrannus tyrannus*	-	-	S4B	Breeding bird survey (Arcadis 2024)
Eastern Towhee	*Pipilo erythrophthalmus*	-	-	S4B,S3N	Breeding bird survey (Arcadis 2024)
Gray Catbird	*Dumetella carolinensis*	-	-	S5B,S3N	Breeding bird survey (Arcadis 2024)
Hairy Woodpecker	*Dryobates villosus*	-	-	S5	Breeding bird survey (Arcadis 2024)
House Wren	*Troglodytes aedon*	-	-	S5B	Breeding bird survey (Arcadis 2024)
Northern Cardinal	*Cardinalis cardinalis*	-	-	S5	Breeding bird survey (Arcadis 2024)
Northern Flicker	*Colaptes auratus*	-	-	S5	Breeding bird survey (Arcadis 2024)
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	-	-	S5B	Breeding bird survey (Arcadis 2024)
Red-eyed Vireo	*Vireo olivaceus*	-	-	S5B	Breeding bird survey (Arcadis 2024)
Red-winged Blackbird	*Agelaius phoeniceus*	-	-	S5	Breeding bird survey (Arcadis 2024)
Song Sparrow	*Melospiza melodia*	-	-	S5	Breeding bird survey (Arcadis 2024)
Swamp Sparrow	*Melospiza georgiana*	-	-	S5B,S4N	Breeding bird survey (Arcadis 2024)
Veery	*Catharus fuscescens*	-	-	S5B	Breeding bird survey (Arcadis 2024)
Willow Flycatcher	*Empidonax traillii*	-	-	S4B	Breeding bird survey (Arcadis 2024)
White-throated Sparrow	*Zonotrichia albicollis*	-	-	S5	Breeding bird survey (Arcadis 2024)
Yellow Warbler	*Setophaga petechia*	-	-	S5B	Breeding bird survey (Arcadis 2024)

Notes: SC = Special Concern; THR = Threatened; END = Endangered; NAR = Not at Risk; "-" = no status. SARA = Species at Risk Act, 2002, Schedule 1 (* = under consideration for addition to Schedule 1). SCA = Species Conservation Act, 2025 – status on the Protected Species in Ontario List (O. Reg. 60/26); ‡ = classified as Special Concern by COSSARO and not protected under the SCA. S-Rank: S1 – Critically Imperiled; S2 – Imperiled; S3 – Vulnerable; S4 – Apparently Secure; S5 – Secure; SNA – Not applicable (non-native); B – Breeding; N – Non-breeding; ? – Uncertainty. Species at risk are shown in bold.

Table F-2: Incidental Bird List (Arcadis 2026a)

Common Name	Scientific Name	SARA	SCA	S-Rank	Evidence / Source
Alder Flycatcher	*Empidonax alnorum*	-	-	S5B	Incidental observation (Arcadis 2024)
American Crow	*Corvus brachyrhynchos*	-	-	S5	Incidental observation (Arcadis 2024)
American Redstart	*Setophaga ruticilla*	-	-	S5B	Incidental observation (Arcadis 2024)
American Robin	*Turdus migratorius*	-	-	S5	Incidental observation (Arcadis 2024)

Common Name	Scientific Name	SARA	SCA	S-Rank	Evidence / Source
American Woodcock	*Scolopax minor*	-	-	S4B	Incidental observation (Arcadis 2024)
Black-and-white Warbler	*Mniotilta varia*	-	-	S5B	Incidental observation (Arcadis 2024)
Black-capped Chickadee	*Poecile atricapillus*	-	-	S5	Incidental observation (Arcadis 2024)
Cedar Waxwing	*Bombycilla cedrorum*	-	-	S5	Incidental observation (Arcadis 2024)
Chestnut-sided Warbler	*Setophaga pensylvanica*	-	-	S5B	Incidental observation (Arcadis 2024)
Common Yellowthroat	*Geothlypis trichas*	-	-	S5B,S3N	Incidental observation (Arcadis 2024)
Eastern Towhee	*Pipilo erythrophthalmus*	-	-	S4B,S3N	Incidental observation (Arcadis 2024)
Eastern Wood-pewee	*Contopus virens*	SC	SC‡	S4B	Incidental observation (Arcadis 2024)
Gray Catbird	*Dumetella carolinensis*	-	-	S5B,S3N	Incidental observation (Arcadis 2024)
Mourning Dove	*Zenaida macroura*	-	-	S5	Incidental observation (Arcadis 2024)
Red-eyed Vireo	*Vireo olivaceus*	-	-	S5B	Incidental observation (Arcadis 2024)
Red-winged Blackbird	*Agelaius phoeniceus*	-	-	S5	Incidental observation (Arcadis 2024)
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	-	-	S5B	Incidental observation (Arcadis 2024)
Song Sparrow	*Melospiza melodia*	-	-	S5	Incidental observation (Arcadis 2024)
Veery	*Catharus fuscescens*	-	-	S5B	Incidental observation (Arcadis 2024)
White-throated Sparrow	*Zonotrichia albicollis*	-	-	S5	Incidental observation (Arcadis 2024)
Wood Thrush	***Hylocichla mustelina***	**THR**	**SC‡**	**S4B**	**Incidental observation (Arcadis 2024)**
Yellow Warbler	*Setophaga petechia*	-	-	S5B	Incidental observation (Arcadis 2024)

Notes: SC = Special Concern; THR = Threatened; END = Endangered; NAR = Not at Risk; "-" = no status. SARA = Species at Risk Act, 2002, Schedule 1 (* = under consideration for addition to Schedule 1). SCA = Species Conservation Act, 2025 – status on the Protected Species in Ontario List (O. Reg. 60/26); ‡ = classified as Special Concern by COSSARO and not protected under the SCA. S-Rank: S1 – Critically Imperiled; S2 – Imperiled; S3 – Vulnerable; S4 – Apparently Secure; S5 – Secure; SNA – Not applicable (non-native); B – Breeding; N – Non-breeding; ? – Uncertainty. Species at risk are shown in bold.

Table F-3: Other Incidental Wildlife List (Arcadis 2026a)

Common Name	Scientific Name	SARA	SCA	S-Rank	Evidence / Source
Northern Leopard Frog	*Lithobates pipiens*	-	-	S5	Incidental observation (Arcadis 2024)
Wood Frog	*Lithobates sylvaticus*	-	-	S5	Incidental observation (Arcadis 2024)
Eastern Chipmunk	*Tamias striatus*	-	-	S5	Incidental observation (Arcadis 2024)
Eastern Gray Squirrel	*Sciurus carolinensis*	-	-	S5	Incidental observation (Arcadis 2024)
Red Squirrel	*Tamiasciurus hudsonicus*	-	-	S5	Incidental observation (Arcadis 2024)
White-tailed Deer	*Odocoileus virginianus*	-	-	S5	Incidental observation (Arcadis 2024)
American Carrion Beetle	*Necrophila americana*	-	-	S4S5	Incidental observation (Arcadis 2024)
American Lady Butterfly	*Vanessa virginiensis*	-	-	S5	Incidental observation (Arcadis 2024)
Eastern Tent Caterpillar Moth	*Malacosoma americana*	-	-	S5	Incidental observation (Arcadis 2024)
Eastern Tiger Swallowtail	*Papilio glaucus*	-	-	S5	Incidental observation (Arcadis 2024)

Common Name	Scientific Name	SARA	SCA	S-Rank	Evidence / Source
Snowberry Clearwing Moth	*Hemaris diffinis*	-	-	S4S5	Incidental observation (Arcadis 2024)
White Admiral	*Limenitis arthemis arthemis*	-	-	S5	Incidental observation (Arcadis 2024)

Notes: SC = Special Concern; THR = Threatened; END = Endangered; NAR = Not at Risk; "-" = no status. SARA = Species at Risk Act, 2002, Schedule 1 (* = under consideration for addition to Schedule 1). SCA = Species Conservation Act, 2025 – status on the Protected Species in Ontario List (O. Reg. 60/26); ‡ = classified as Special Concern by COSSARO and not protected under the SCA. S-Rank: S1 – Critically Imperiled; S2 – Imperiled; S3 – Vulnerable; S4 – Apparently Secure; S5 – Secure; SNA – Not applicable (non-native); B – Breeding; N – Non-breeding; ? – Uncertainty. Species at risk are shown in bold.

Table F-4: Vascular Plant List (Arcadis 2026a)

Common Name	Scientific Name	SARA	SCA	S-Rank	CC	CW	Observed / Reported
Alternate-leaved Dogwood	*Cornus alternifolia*	-	-	S5	6	3	Observed (Arcadis 2024)
Basswood	*Tilia americana*	-	-	S5	4	3	Observed (Arcadis 2024)
Bebb's Willow	*Salix bebbiana*	-	-	S5	4	-3	Observed (Arcadis 2024)
Bittersweet Nightshade	*Solanum dulcamara*	-	-	SNA	0	0	Observed (Arcadis 2024)
Black Ash	***Fraxinus nigra***	**-***	**END**	**S4**	**7**	**-3**	**Observed (Arcadis 2024)**
Bladder Campion	*Silene vulgaris*	-	-	SNA	0	5	Observed (Arcadis 2024)
Blue Vervain	*Verbena hastata*	-	-	S5	4	-3	Observed (Arcadis 2024)
Bur Oak	*Quercus macrocarpa*	-	-	S5	5	3	Observed (Arcadis 2024)
Butternut	***Juglans cinerea***	**END**	**END**	**S2?**	**6**	**3**	**Observed (Arcadis 2024)**
Canada Anemone	*Anemonastrum canadense*	-	-	S5	3	-3	Observed (Arcadis 2024)
Canada Goldenrod	*Solidago canadensis*	-	-	S5	1	3	Observed (Arcadis 2024)
Coltsfoot	*Tussilago farfara*	-	-	SNA	0	3	Observed (Arcadis 2024)
Common Boneset	*Eupatorium perfoliatum*	-	-	S5	2	-3	Observed (Arcadis 2024)
Common Hemp-nettle	*Galeopsis tetrahit*	-	-	SNA	0	3	Observed (Arcadis 2024)
Common Mullein	*Verbascum thapsus*	-	-	SNA	0	5	Observed (Arcadis 2024)
Common Plantain	*Plantago major*	-	-	SNA	0	3	Observed (Arcadis 2024)
Common Ragweed	*Ambrosia artemisiifolia*	-	-	S5	0	3	Observed (Arcadis 2024)
Common Self-heal	*Prunella vulgaris*	-	-	S5	0	0	Observed (Arcadis 2024)
Common Vetch	*Vicia sativa*	-	-	SNA	0	3	Observed (Arcadis 2024)
Common Water-parsnip	*Sium suave*	-	-	S5	4	-5	Observed (Arcadis 2024)
Common Yarrow	*Achillea millefolium*	-	-	SNA	0	3	Observed (Arcadis 2024)
Crack Willow	*Salix euxina*	-	-	SNA	0	0	Observed (Arcadis 2024)
Downy Serviceberry	*Amelanchier arborea*	-	-	S5	5	3	Observed (Arcadis 2024)
Dwarf Raspberry	*Rubus pubescens*	-	-	S5	4	-3	Observed (Arcadis 2024)
Dwarf St. John's-wort	*Hypericum mutilum*	-	-	S4	6	-3	Observed (Arcadis 2024)
Eastern Prickly Gooseberry	*Ribes cynosbati*	-	-	S5	4	3	Observed (Arcadis 2024)
Eastern White Cedar	*Thuja occidentalis*	-	-	S5	4	-3	Observed (Arcadis 2024)
Eastern White Pine	*Pinus strobus*	-	-	S5	4	3	Observed (Arcadis 2024)
European Buckthorn	*Rhamnus cathartica*	-	-	SNA	0	0	Observed (Arcadis 2024)
European Lily-of-the-valley	*Convallaria majalis*	-	-	SNA	0	5	Observed (Arcadis 2024)
Field Mustard	*Brassica rapa*	-	-	SNA	0	5	Observed (Arcadis 2024)
Flat-top White Aster	*Doellingeria umbellata*	-	-	S5	6	-3	Observed (Arcadis 2024)
Foxtail Sedge	*Carex alopecoidea*	-	-	S4	6	-3	Observed (Arcadis 2024)
Freeman's Maple	*Acer x freemanii*	-	-	SNA	6	-5	Observed (Arcadis 2024)
Garden Bird's-foot Trefoil	*Lotus corniculatus*	-	-	SNA	0	3	Observed (Arcadis 2024)
Garlic Mustard	*Alliaria petiolata*	-	-	SNA	0	0	Observed (Arcadis 2024)
Glossy Buckthorn	*Frangula alnus*	-	-	SNA	0	0	Observed (Arcadis 2024)

Common Name	Scientific Name	SARA	SCA	S-Rank	CC	CW	Observed / Reported
Green Ash	*Fraxinus pennsylvanica*	-	-	S4	3	-3	Observed (Arcadis 2024)
Grey Dogwood	*Cornus racemosa*	-	-	S5	2	0	Observed (Arcadis 2024)
Hybrid Cattail	*Typha x glauca*	-	-	SNA	0	-5	Observed (Arcadis 2024)
Jack-in-the-pulpit	*Arisaema triphyllum*	-	-	S5	5	-3	Observed (Arcadis 2024)
Japanese Sweet Coltsfoot	*Petasites japonicus*	-	-	SNA	0	-5	Observed (Arcadis 2024)
Large False Solomon's Seal	*Maianthemum racemosum*	-	-	S5	4	3	Observed (Arcadis 2024)
Large-flowered Bellwort	*Uvularia grandiflora*	-	-	S5	6	5	Observed (Arcadis 2024)
Large-leaved Aster	*Eurybia macrophylla*	-	-	S5	5	5	Observed (Arcadis 2024)
Large-leaved Pondweed	*Potamogeton amplifolius*	-	-	S5	5	-5	Observed (Arcadis 2024)
Marsh Horsetail	*Equisetum palustre*	-	-	S5	10	-3	Observed (Arcadis 2024)
Meadow Willow	*Salix petiolaris*	-	-	S5	3	-3	Observed (Arcadis 2024)
Narrow-leaved Cattail	*Typha angustifolia*	-	-	SNA	0	-5	Observed (Arcadis 2024)
Narrow-leaved Small Pondweed	*Potamogeton berchtoldii*	-	-	S5	4	-5	Observed (Arcadis 2024)
Northern Maidenhair Fern	*Adiantum pedatum*	-	-	S5	7	3	Observed (Arcadis 2024)
Northern Water-hemlock	*Cicuta virosa*	-	-	S4?	0	-5	Observed (Arcadis 2024)
Northern Water-plantain	*Alisma triviale*	-	-	S5	1	-5	Observed (Arcadis 2024)
Old-field Cinquefoil	*Potentilla simplex*	-	-	S5	3	3	Observed (Arcadis 2024)
Ostrich Fern	*Matteuccia struthiopteris*	-	-	S5	5	0	Observed (Arcadis 2024)
Oxeye Daisy	*Leucanthemum vulgare*	-	-	SNA	0	5	Observed (Arcadis 2024)
Paper Birch	*Betula papyrifera*	-	-	S5	2	3	Observed (Arcadis 2024)
Philadelphia Fleabane	*Erigeron philadelphicus*	-	-	S5	1	-3	Observed (Arcadis 2024)
Poison Ivy	*Toxicodendron radicans*	-	-	S5	2	0	Observed (Arcadis 2024)
Purple Loosestrife	*Lythrum salicaria*	-	-	SNA	0	-5	Observed (Arcadis 2024)
Red Clover	*Trifolium pratense*	-	-	SNA	0	3	Observed (Arcadis 2024)
Red Maple	*Acer rubrum*	-	-	S5	4	0	Observed (Arcadis 2024)
Red Raspberry	*Rubus idaeus*	-	-	S5	2	3	Observed (Arcadis 2024)
Red-osier Dogwood	*Cornus sericea*	-	-	S5	2	-3	Observed (Arcadis 2024)
Reed Canarygrass	*Phalaris arundinacea*	-	-	S5	0	-3	Observed (Arcadis 2024)
Riverbank Grape	*Vitis riparia*	-	-	S5	0	0	Observed (Arcadis 2024)
Sedge spp.	*Carex*	---	---	---	---	---	Observed (Arcadis 2024)
Sensitive Fern	*Onoclea sensibilis*	-	-	S5	4	-3	Observed (Arcadis 2024)
Siberian Crabapple	*Malus baccata*	-	-	SNA	0	5	Observed (Arcadis 2024)
Small Enchanter's Nightshade	*Circaea alpina*	-	-	S5	6	-3	Observed (Arcadis 2024)
Spinulose Wood Fern	*Dryopteris carthusiana*	-	-	S5	5	-3	Observed (Arcadis 2024)
Spotted Jewelweed	*Impatiens capensis*	-	-	S5	4	-3	Observed (Arcadis 2024)
Spotted Joe Pye Weed	*Eutrochium maculatum*	-	-	S5	3	-5	Observed (Arcadis 2024)
Spotted Knapweed	*Centaurea stoebe*	-	-	SNA	0	5	Observed (Arcadis 2024)
Spring Avens	*Geum vernum*	-	-	S4	7	3	Observed (Arcadis 2024)
Square-stemmed Monkeyflower	*Mimulus ringens*	-	-	S5	6	-5	Observed (Arcadis 2024)
Staghorn Sumac	*Rhus typhina*	-	-	S5	1	3	Observed (Arcadis 2024)
Sugar Maple	*Acer saccharum*	-	-	S5	4	3	Observed (Arcadis 2024)
Sulphur Cinquefoil	*Potentilla recta*	-	-	SNA	0	5	Observed (Arcadis 2024)
Sweet Crabapple	*Malus coronaria*	-	-	S4	5	5	Observed (Arcadis 2024)
Tall Goldenrod	*Solidago altissima*	-	-	S5	1	3	Observed (Arcadis 2024)
Trembling Aspen	*Populus tremuloides*	-	-	S5	2	0	Observed (Arcadis 2024)
Tussock Sedge	*Carex stricta*	-	-	S5	4	-5	Observed (Arcadis 2024)

Common Name	Scientific Name	SARA	SCA	S-Rank	CC	CW	Observed / Reported
Twinleaf	*Jeffersonia diphylla*	-	-	S4	10	3	Observed (Arcadis 2024)
Virginia Clematis	*Clematis virginiana*	-	-	S5	3	0	Observed (Arcadis 2024)
Virginia Creeper	*Parthenocissus quinquefolia*	-	-	S4?	6	3	Observed (Arcadis 2024)
White Ash	*Fraxinus americana*	-	-	S4	4	3	Observed (Arcadis 2024)
White Clover	*Trifolium repens*	-	-	SNA	0	3	Observed (Arcadis 2024)
White Elm	*Ulmus americana*	-	-	S5	3	-3	Observed (Arcadis 2024)
White Meadowsweet	*Spiraea alba*	-	-	S5	3	-3	Observed (Arcadis 2024)
White Oak	*Quercus alba*	-	-	S5	6	3	Observed (Arcadis 2024)
White Snakeroot	*Ageratina altissima*	-	-	S5	5	3	Observed (Arcadis 2024)
White Spruce	*Picea glauca*	-	-	S5	6	3	Observed (Arcadis 2024)
White Trillium	*Trillium grandiflorum*	-	-	S5	5	3	Observed (Arcadis 2024)
Wild Carrot	*Daucus carota*	-	-	SNA	0	5	Observed (Arcadis 2024)
Wild Cucumber	*Echinocystis lobata*	-	-	S5	3	-3	Observed (Arcadis 2024)
Wild Parsnip	*Pastinaca sativa*	-	-	SNA	0	5	Observed (Arcadis 2024)
Woodland Agrimony	*Agrimonia striata*	-	-	S4	3	3	Observed (Arcadis 2024)
Woodland Strawberry	*Fragaria vesca*	-	-	S5	4	3	Observed (Arcadis 2024)
Woolly Blue Violet	*Viola sororia*	-	-	S5	4	0	Observed (Arcadis 2024)

Notes: SC = Special Concern; THR = Threatened; END = Endangered; NAR = Not at Risk; "-" = no status. SARA = Species at Risk Act, 2002, Schedule 1 (* = under consideration for addition to Schedule 1). SCA = Species Conservation Act, 2025 – status on the Protected Species in Ontario List (O. Reg. 60/26); ‡ = classified as Special Concern by COSSARO and not protected under the SCA. S-Rank: S1 – Critically Imperiled; S2 – Imperiled; S3 – Vulnerable; S4 – Apparently Secure; S5 – Secure; SNA – Not applicable (non-native); B – Breeding; N – Non-breeding; ? – Uncertainty. Species at risk are shown in bold.

Appendix G

Significant Wildlife Habitat Assessment

Significant Wildlife Habitat Assessment

The Significant Wildlife Habitat (SWH) screening completed for the original EIS (Arcadis 2026a) in accordance with the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNRF 2015) and the Significant Wildlife Habitat Technical Guide (OMNR 2000) is reproduced below. The results of the screening are discussed in Section 6.4.

Table G-1: Candidate SWH Assessment (Ecoregion 6E) – S4 Leitrim Urban Expansion Area (Arcadis 2026a)

Significant Wildlife Habitat	Candidate SWH – ELC Codes	Candidate SWH – Additional Criteria Summary	Confirmed SWH (In Site / In Adjacent Lands)	Comments
Seasonal Concentration Areas of Animals				
Waterfowl Stopover and Staging Areas (terrestrial)	Certain cultural meadow or thicket Plus, evidence of annual spring flooding	Fields flooded from mid-March to May	No spring flooding observed. No large flocks of waterfowl observed during surveys.	Not discussed further
Waterfowl Stopover and Staging Areas (aquatic)	Specific aquatic habitat types (marsh, swamps)	Ponds, marshes, lakes, bays, coastal inlets, and watercourses used for migration. Stormwater and sewage management facilities are not included.	No suitable habitat features present. No large flocks of waterfowl observed during surveys.	Not Present; Not discussed further
Shorebird Migratory Stopover Area	Beach/Bar Sand Dunes Meadow marsh	Shorelines used in May to mid-June and early July to October. Stormwater and sewage management facilities are not included.	No shallow shorelines, beaches, bars, dunes, or meadow marshes. No shorebirds observed during surveys.	Not Present; Not discussed further
Raptor Wintering Area	Requires combination of forest (deciduous, mixed, or coniferous) and upland (cultural meadow, cultural thickets, cultural savannahs, or cultural woodlands)	Combination of habitats must >20 ha and the field portion must be wind swept with little accumulation of snow. Where site is for eagles, open water and large trees and snags must be available.	The woodland stands on Site are unlikely to be large enough. No large trees suitable for eagles were noted.	Not Present; Not discussed further
Bat Hibernacula	Crevices and caves	Active mines are not to be included. Buildings are not included.	No crevices or caves present	Not Present; Not discussed further
Bat Maternity Colonies	Deciduous, or mixed forests Deciduous or mixed Swamps (>5m tall)	>10/ha large diameter (>25 cm diameter at breast height). Snag trees in the decay classes 1-3 are preferred.	The woodland stands on Site are unlikely to be large enough. Timing windows for SAR bats will protect for general bats.	Not Present; Not discussed further
Turtle Wintering Areas	Swamps, marshes, open water, shallow water, open fen, or open bog	Water that is deep enough not to freeze solid with soft bottoms. Must be permanent waterbody (or wetlands with adequate dissolved oxygen)	The water on Site is not deep enough to provide habitat for turtles in winter.	Not present; Not discussed further
Reptile Hibernaculum	Any habitat except very wetlands Talus, rock barren, cave and alvar	For snakes – needs to be below frost lines.	No rocky outcroppings present. No snakes encountered during the Subject Site investigations.	Not Present; Not discussed further
Colonially – Nesting Bird Breeding	Exposed sandy slopes of banks or piles.	Does not include licensed aggregate areas. Does not include man-made	No suitable habitat features present. No bank or cliff	Not Present; Not discussed further

Significant Wildlife Habitat	Candidate SWH – ELC Codes	Candidate SWH – Additional Criteria Summary	Confirmed SWH (In Site / In Adjacent Lands)	Comments
Habitat (Bank and Cliff Swallow)	Cliff faces or structures (bridges, silos etc....)	structures or recently (within 2 years) disturbed soil	swallows observed during surveys.	
Colonially – Nesting Bird Breeding Habitat (Trees/Shrubs)	Swamps – deciduous or mixed (trees >5m) Treed fen	Typically requires tall trees as nests are usually 11-15m from ground but shrubs and emergent vegetation could be used.	Breeding bird surveys were completed, and no colonial nesting species were observed.	Not Present; Not discussed further
Colonially – Nesting Bird Breeding Habitat (Ground)	Any rocky island or peninsula on lake or large river.	For Brewer's Blackbird – near watercourses in open fields, pastures	No rocky islands, or peninsulas were present. Breeding bird surveys were completed, and no colonial nesting species were observed.	Not Present; Not discussed further
Migratory Butterfly Stopover Area	Not applicable to Ottawa Area – must be within 5 km of Lake Ontario			
Landbird Migratory Stopover Area	Not applicable to Ottawa Area – must be within 5 km of Lake Ontario			
Deer Yarding Areas	Mixed or coniferous forests or swamps (>5m tall trees) Can include plantations, cultural thickets, or dry-fresh poplar-white birch deciduous forest	These are mapped by OMNRF	None mapped by OMNRF for this area	Not Present; Not discussed further
Deer Winter Congregation Area	All forest and wetland habitats and small conifer plantations	These are mapped by OMNRF (typically, >100ha in size)	None mapped by OMNRF for this area	Not Present; Not discussed further
Rare Vegetation Communities or Specialized Habitat for Wildlife				
Cliffs and Talus Slopes	Near vertical face that is >3m in height (cliff or talus)	Typically, in Niagara Escarpment	Cliffs and talus slope habitat were not present	Not Present; Not discussed further
Sand Barren	Sand barrens various types but tree cover is always ≤ 60%	Must be >0.5ha	Sand barrens not present	Not Present; Not discussed further
Alvar	Alvar, Coniferous forest, cultural meadow, cultural savannah, cultural thickets, and cultural woodlands	Must have at least 4 indicator species with substantial cover (must not have large amounts of exotic or introduced species). Must be >0.5ha	Alvar habitat is typically flat and mostly unfractured calcareous bedrock. Not present	Not Present; Not discussed further
Old Growth Forest	Any forest or treed (>5 m) swamp	Must be at least 30 ha with at least 10 ha of interior habitat (edge considered 100 m). Have specific characteristics (snags, mosaic of gaps, multi-layered canopy)	Woodland does not meet the requirements for old growth.	Not Present; Not discussed further
Savannah	Tallgrass prairie savannah and cultural savannah	Must have indicator species	No savannah present	Not Present; Not discussed further
Tallgrass Prairie	Tallgrass prairie (open prairie - <25% tree cover)	No minimum size	No tallgrass prairie was present.	Not Present; Not discussed further

Significant Wildlife Habitat	Candidate SWH – ELC Codes	Candidate SWH – Additional Criteria Summary	Confirmed SWH (In Site / In Adjacent Lands)	Comments
Other Rare Vegetation Communities	Provincially rare S1-S3 communities as described in Appendix M of the SWHTG		None of the communities listed for the Ottawa-Carleton Area in Appendix M were present.	Not Present; Not discussed further
Specialized Habitat for Wildlife				
Waterfowl Nesting Area	Shallow marsh, meadow marsh, thicket swamp or deciduous (treed >5 m tall) swamps	Wetland must be 0.5 ha or consist of up to 3 smaller wetlands within 120 m of each other if known nesting is occurring.	Between the dedicated breeding bird surveys and the incidental observations, the Subject Site did not meet the minimum requirements of 3 or more nesting pairs of species (American Black Duck, Northern Pintail, Northern Shoveler, Gadwall, Blue-winged Teal, Green-winged Teal, Wood Duck, Hooded Merganser) or 10 or more pairs of Mallards.	Not Present; Not discussed further
Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat	Any forest or swamp (trees >5m) type of habitat that is immediately next to rivers, lakes, ponds, or wetlands	Nests on man-made structures are not included.	Some active in general area but none observed during survey, no nests present on or near site.	Not Present; Not discussed further
Woodland Raptor Nesting Habitat	Any forest habitat or treed swamp (>5m tall) or coniferous plantation	Stand must be > 30 ha with >10 ha of interior habitat (edge is 200 m)	Minimum habitat requirements not present; no nesting raptors noted during surveys.	Not Present; Not discussed further
Turtle Nesting Areas	Shallow marsh, shallow water, open bog	Close to water but away from roads. It must provide sand and gravel that turtles can dig through and be in open sunny areas. Areas on the sides of municipal or provincial roads are not included.	Limited nesting opportunities exist within the Study Area.	Not Present; Not discussed further
Seeps and Springs	Any forested community could have a seep/spring	Forest area with <25% meadow/pasture in the headwaters of a stream.	Candidate habitat not present	Not Present; Not discussed further
Amphibian Breeding Habitat (woodland)	Any forest or treed swamp (>5m tall trees)	Wetland, pond, or vernal pool must be > 500 m^2. Those with water until mid-July (during most years) are better candidates	Woodland breeding habitat is present. However, the vernal pools do not meet size requirement and the amphibian breeding quantity or species diversity do not meet the requirements.	Not discussed further
Amphibian Breeding Habitat (wetlands)	Swamps, marsh, fen, bog, open water, or shallow water	Unless it is a larger wetland, must be >120 m from woodlands. Must be > 500 m^2	Candidate habitat not present	Not Present; Not discussed further
Woodland Area-Sensitive Bird Breeding Habitat	Any forest or treed swamp (>5 m tall)	Interior habitat (200 m edge used) in mature (>60 years) large (>30 ha) stand	Candidate habitat not present.	Not Present; Not discussed further
Habitat for Species of Conservation Concern (not including Endangered or Threatened Species)				

Significant Wildlife Habitat	Candidate SWH – ELC Codes	Candidate SWH – Additional Criteria Summary	Confirmed SWH (In Site / In Adjacent Lands)	Comments
Marsh Bird Breeding Habitat	Meadow marsh, shallow water, fen, or open bog		Does not meet the minimum requirements.	Not Present; Not discussed further
Open Country Bird Breeding Habitat	Cultural meadows	Must be large grasslands (>30 ha). Agricultural class 1 and 2 are not included. Agricultural lands planted in row crop or intensive hay, or pastures (within past 5 years) not included.	Candidate habitat not present.	Not Present; Not discussed further
Shrub/Early Successional Bird Breeding Habitat	Cultural thickets or woodlands	Must be > 10 ha. Agricultural class 1 and 2 are not included. Agricultural lands planted in row crop or intensive hay, or pastures (within past 5 years) not included.	Candidate habitat and species present. However, the cultural thickets on Site do not meet the size requirements.	Not discussed further
Terrestrial Crayfish	Not present in Ottawa Area			
Special Concern and Rare Wildlife Species	All special concern or species ranked as S1-S3, SH (plants or animals)	Habitat depends on the species.	Eastern Wood-pewee and Wood Thrush were present on Site. Wood Thrush is listed as Threatened under SARA (Schedule 1); individuals and nests are protected under SARA and the MBCA on all lands.	**Discussed under SWH section (Section 6.4).**
Animal Movement Corridors				
Amphibian Movement Corridor	Any habitat but amphibian breeding wetland habitat must be identified		The criterion indicates that amphibian movement corridors are to have a minimum of 15 m of native vegetation on both sides of the waterway. This is not present at this location.	Not Present; Not discussed further
Deer Movement Corridor	All forests but project must be in Stratum II Deer Wintering Area and Deer Wintering Habitat must be confirmed.		Not applicable – no Deer Wintering Areas or Habitat identified by OMNRF for area.	Not Present; Not discussed further

Appendix H

Site Photos

Site Photos

Representative site photographs taken during the 2024 field investigations completed by Arcadis (Arcadis 2026a) are provided below. Photographs of the headwater drainage features and ELC communities are provided in Section 5.2.1 and in the original EIS.

Photo 1: Black Ash in western swamp inclusion (SWDM2)	
Photo 2: Butternut in western swamp inclusion (SWDM2)	

Photo 3: American Lady butterfly on the cleared swath in the middle of the Subject Site	
Photo 4: Male Common Yellowthroat	

Photo 5: Rose-breasted Grosbeak atop White Elm in thicket (THDM2-6)	
Photo 6: Yellow Warbler in Eastern White Cedar in hedgerow (FOCM5)	

Photo 7: White-tailed Deer track in cleared lands (CL)	
Photo 8: Eastern Towhee singing from hedgerow (FODM11)	

Photo 9: Mourning Dove in thicket (THDM2-6)	
Photo 10: Chestnut-sided Warbler (FODM11)	

Photo 11: Alder Flycatcher in a poplar (SWDM4-5)	
Photo 12: Veery singing in SWDM4-5	

Appendix I

Résumés of Contributors

ALEX ZELLER
M.SC.



Contact
613.730.5709 ext. 292
zeller@fotenn.com

Education
Master of Science (Biology),
Lakehead University, 2007

Honours Bachelor Environmental Science (Geography),
Lakehead University, 2003

Professional Experience
Fotenn
Principal, Natural Environment,
2025 - Present

Arcadis Canada *(formerly IBI Group)*
Associate Manager/Discipline Lead, Natural Systems
2021-2025

WSP Canada
Team Lead / Senior Ecologist,
2018-2021

Dillon Consulting Limited
Associate / Senior Ecologist,
2013-2018
Ecologist, 2006 - 2013

Languages
English

Principal, Natural Environment
Alex is the Principal of Fotenn's Natural Environment team, based in the Ottawa office. He brings over twenty years of professional experience as an Ecologist, with expertise in terrestrial and aquatic ecology, open space planning, natural heritage policy, impact assessment and mitigation, and ecological restoration. Alex has led multidisciplinary teams on a wide range of natural heritage projects, delivering context-sensitive solutions that enhance ecological function, protect sensitive features and species, and support the long-term sustainability of natural systems. His project experience includes environmental impact studies, municipal and federal environmental assessments, Species at Risk permitting, wetland delineation, wildlife and natural heritage assessments, construction and post-construction monitoring, community design plans, and other projects related to land development and infrastructure planning.

Project Experience

Public Infrastructure

Standing Agreement Offer (SOA) Projects, Infrastructure Ontario, 2022 – 2025

Provided senior ecological oversite and technical review for several confidential Infrastructure Ontario (IO) projects under a Standing Agreement Offer (SOA). Responsibilities included, providing guidance and oversite of natural heritage impact assessments, scoping and reviewing field investigations, guiding natural heritage approvals/permits, review and technical input on habitat compensation and offsetting plans, and senior support for other natural heritage services on an as needed basis.

Intermodal Drive Extension: Class EA and Detailed Design, City of Brampton, 2023 – 2024

Ecology Discipline Lead responsible for overseeing the ecological studies, field investigations, permitting and agency consultation, technical reporting requirements, and supporting the detailed design to ensure it addresses opportunities and constraints associated with natural heritage features.

Brock Road Detailed Design - Taunton Road to Alexander Knox Road, Region of Durham, 2023 – 2025

Ecology Discipline Lead responsible for overseeing ecological studies, field investigations, permitting and agency consultation, technical reporting requirements, and ensuring the detailed design addresses opportunities and constraints associated with natural heritage features. This road is located adjacent to Aquatic and Terrestrial SAR habitat, fish habitat, locally valued wetland features, and other locally important natural heritage features.

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 infrastructure and associated plants.

Centre Block Rehabilitation Project, Public Services and Procurement Canada (PSPC), 2018 – 2021
Ecologist Discipline Lead responsible for all ecological studies, internal coordination and collaboration, development and management of mitigation and compensation measures, reporting requirements, and agency consultation required to facilitate the restoration of the Centre Block 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 a restoration plan for the base of the escarpment that enhances the existing ecological function yet considers the important cultural heritage context of the site. This project also included the assessment and management of SAR Butternut trees.

Confederation Line Extension Light Rail Transit, City of Ottawa in Public / Private Partnership, 2019 – 2021
Ecology Lead responsible for managing the project risks associated with natural heritage permitting and compliance requirements. This included but was not limited to; developing and implementing impact mitigation recommendations, preparation of supporting reports and documents, supporting detailed design as it relates to the natural environment, and providing construction inspection support to ensure compliance with the Environmental Management Plan. Specific environmental approvals executed under this project include Fisheries Act, species at risk permits and registrations, conservation authority permitting, municipal tree cut permits, etc. In addition, Alex represented the natural environment discipline within the projects management team and supported regulatory compliance and risk management as it related to the natural environment.

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.

West Transitway Extension (Phase 11), City of Ottawa, 2018
Project Manager and Lead Ecologist for the post–construction monitoring of the realigned Stillwater Creek. The realignment was required to accommodate the West Transitway Extension. This monitoring 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.

Infrastructure Master Plan, Town of Perth, 2009 – 2010
Completed the ecological assessment and natural heritage inventory for an infrastructure master plan. This study involved a full vegetation survey of the

study area, identification of soils, observations of wildlife and detailed mapping of the existing ecosystems within the study area. Additional responsibilities included maintaining the GIS library, consulting with stakeholders and producing GIS figures for report.

Terry Fox Drive Environmental Construction Monitoring, City of Ottawa, 2010 – 2012

Assisted with the environmental monitoring of the Terry Fox Drive construction project, to ensure compliance of environmental mitigation. Duties included water quality monitoring, sediment and erosion control recommendations, wildlife observations, species at risk monitoring and environmental awareness training.

Terry Fox Drive Environmental Assessment, City of Ottawa, 2007 – 2010

Completed the assessment of natural features along the future Terry Fox Drive corridor in west Ottawa. This included the electrofishing of aquatic habitat, salamander survey and general ecological observations. In addition to the field assessments, also coordinated the GIS analysis and map production for various environmental assessment reports.

Truck Inspection Station Assessment, Ministry of Transportation, 2008

Completed the ecological assessment and resource inventories for nine different truck inspection stations throughout northern Ontario. This study involved a full vegetation survey of the study areas, identification of soils, observations of wildlife, detailed mapping of the existing ecosystems within the study areas and publishing all mapping for reports. Additional responsibilities included maintaining the GIS library, consulting with stakeholders and producing GIS figures for report.

Private infrastructure

Riverview to Overbrook – transmission line upgrade Hydro One, 2016

Lead Ecologist for a Class Environmental Assessment in support of a transmission line upgrade between Overbrook and Riverview facilities, in Ottawa, Ontairo. Alex was responsible for coordinating and undertaking field surveys, participating in public consultation, writing natural heritage existing conditions report, completing the natural heritage impact assessment, and developing mitigation and avoidance measures.

Innes Road Reinforcement Pipeline Project, Enbridge Gas Distribution Inc., 2014 – 2016

Project Manager and Lead Biologist for the environmental monitoring and environmental awareness program in support of the 2.8 km pipeline installation along Innes Road, in Ottawa. 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 for a 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. Alex took over the responsibility for the project management during the construction phase. The construction 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.

GTA Reinforcement Pipeline Environmental Assessment, Enbridge Gas Distribution Inc., 2011

Acting as both an ecologist and spatial analyst for a multidisciplinary team of biologists, planners, and engineers working on an environmental and cumulative effects assessment for the pipeline reinforcement in the Greater Toronto Area. Responsibilities include managing the GIS mapping pertaining to the three large study areas, conducting terrestrial biology surveys, and liaising with the client when required.

Natural Resource Studies

Kingston Inner Harbour Rehabilitation, Public Services and Procurement Canada (PSPC), 2023 – 2025

Turtle Specialist responsible for leading a team of ecologists to determine the potential impacts that the proposed in-water rehabilitation project will have on established turtle populations within the Kingston Inner Harbour (KIH). This project included assessing the effectiveness of established mitigation recommendations, managing radio telemetry and habitat suitability research to map candidate overwintering habitat, providing mitigation/ avoidance guidance to design teams, supporting habitat restoration and compensation recommendations, and undertaking an eDNA study to assess seasonal presence of SAR turtles within the Study Area.

Synthesis of Practice for Management and Enhancement of Terrestrial Roadway Ecology, Transportation Association of Canada (TAC), 2020 – 2021

Project Manager and co-author of publication that synthesizes the Beneficial Management Practices that support the effective management of terrestrial road ecology concerns across Canada. These include common concerns like wildlife crossings and invasive species control, to emerging concerns including 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.

Goulbourn Wetland Re – delineation, City of Ottawa, 2015 – 2016
Project Manager for the boundary re–delineation of the provincially significant wetland (PSW) known as the Goulbourn Wetland Complex. Alex was responsible for ensuring the quality of the wetland delineation and associated report, consulting with landowners, and reviewing the approach and findings with the City and the Ontario Ministry of Natural resources.

Feedmill Creek Species at Risk Screening, City of Ottawa, 2017
Project Manager and Lead Ecologist. A species at risk screening of Feedmill Creek in support of the proposed restoration efforts included specific surveys – bat habitat surveys, Blanding's turtle basking surveys, butternut Screening, and other incidental observations.

2014 Species at Risk Screening, City of Ottawa, 2014
Manager and Lead Biologist for a city-wide Species at Risk screening study for the City's infrastructure department. The objective of this project was to identify the potential risks that various planned infrastructure projects had to Species at Risk. A total of 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.

Ecological Land Classification, National Capital Commission, 2015
Project Manager and Lead Biologist responsible for mapping all ecotypes within the NCC's urban and greenbelt lands. Ecological mapping was done using Ontario Ecological Land Classification protocol and covered an area of approximately 62 sq.km. The mapping will be used to for various future ecological landscape management projects.

Species at Risk Survey, CFB Shilo Range Training Area, Defence Construction Canada (DCC), 2014
GIS analyst and ecologist responsible for developing a Species at Risk habitat suitability modelling (HSM) used in the Environmental Assessment Report for the CFB Shilo Range Training Area. This HSM modelling was used to establish the potential threats to SAR across the base during routine military training exercises and recommend best management practices for training in SAR habitat.

Natural Heritage Study, County of Frontenac, County of Frontenac, 2011 – 2012
Lead ecologist for the County of Frontenac's Natural Heritage Study which formed a major piece of the county's Official Plan (OP), providing policy and zoning recommendations for future OP schedules. Marxan and corridor

design modelling was undertaken to assist in the development of ecologically sound natural heritage zoning. Responsibilities include supporting public consultation, managing the GIS and spatial analysis, assisting with natural heritage policy development, and completing all GIS modelling.

Rideau Canal Landscape Strategy, Parks Canada, 2012
Lead Ecologist for the Rideau Canal Landscape Strategy undertaken to characterize the landscape and develop policy recommendations along the Rideau Canal in support on the UNESCO World Heritage Status. Personal responsibilities include public consultation, ecological habitat characterization and recommendations, geospatial analysis, field surveys, report writing, and communicating with the client.

Birds Creek Secondary Plan, Municipality of Hastings Highlands, 2011 – 2012
Lead Ecologist for the development of a secondary plan for the community of Birds Creek, north of Bancroft. The plan was intended to promote a healthy living philosophy and promote sustainable development practices. Responsibilities include consultation with public and client, assessing the existing natural resources, assisting in incorporating natural heritage features into the plan and developing GIS mapping for study area.

Yellowknife Smart Growth Plan – Ecological Preservation Study, City of Yellowknife, 2007 – 2010
Project Ecologist working with a team of planners to advance Yellowknife's existing Ecological Resource Inventory. This inventory will allow for better management of natural heritage assets in the City and more effective public engagement on the quality-of-life impacts for natural sites around the City. Personal duties include GPS data collection, GIS mapping, Remote Sensing Landcover Classification, and consultation with public and other stakeholders.

Tlicho Land Use Plan, Northwest Territories, Tlicho Government, 2006 – 2009
Lead Project Ecologist responsible for the development of the land use zoning to support the production of the final land use plan. This zoning emphasises traditional indigenous knowledge and ecological features with economic and social influences to identify suitable land use zones. The emphasis of the Tlicho Land Use Plan is on mitigating the cumulative effects of development on the natural and social environment while still promoting sustainable economic development.

Mathews Lake Habitat Restoration, Northwest Territories, Public Works Government Services, 2008
Assisted with the 2008 post–construction monitoring of the fish habitat enhancement in the Mathews Lake waterhead. This rehabilitation work was done to improve the fish habitat in the immediate vicinity of Salmita Mine and Tundra Mine. Duties included seine netting and fish identification, construction of new fish habitat structures, benthos and water quality assessments.

Land Development

Alex has extensive experience supporting land development projects through the preparation of Environmental Impact Assessments (EIS's), Community Design Plans (CDP's), due diligence and screening studies, and a variety of other ecological services. His work focuses on managing natural heritage features and functions to ensure responsible development, regulatory compliance, and the integration of ecological values into planning and design where practical.

Environmental Impact Assessments

The following outlines a selection of land development projects that demonstrate Alex's experience delivering Environmental Impact Assessments (EIS) in Ottawa and across Ontario. The components of these studies typically include Species at Risk surveys, Significant Wildlife Habitat assessments, wetland delineation, impact assessments, and the development of mitigation and impact avoidance strategies. Within the City of Ottawa, many greenfield development projects also require a Tree Conservation Reports (TCRs) as an integral component of the EIS process. In addition, many of the projects below have required regulatory components such as Species at Risk permitting, Fisheries Act approvals, and the design and implementation of habitat compensation and restoration measures.

Canada Lands Company

- Wateridge Village, Phase 6, 7, & 8, Ottawa ON, 2022-2025
- 470 Tremblay Road, Ottawa ON, 2019 – 2021
- 291 Carling Avenue, Ottawa, Ottawa ON, 2018

Claridge Homes

- 3252 Navan Road, Ottawa ON, 2020
- 760 River Road, Ottawa ON, 2019

Minto Communities

- Abbott's Run– Phase 2 & 3, Ottawa ON, 2024 – 2025
- Avalon Isgar, Ottawa ON, 2018 – 2021
- Potter's Key Development, Ottawa ON, 2013 – 2021
- Quinns Pointe EIS Amendment, Ottawa ON, 2021
- 323 Jockvale Road EIS & TCR, Ottawa ON, 2018
- Clark Lands Development, Ottawa ON, 2013 – 2017

Regional Group

- 560 Hazeldean Road – Double Deck, Ottawa ON, 2025
- The Edge at Pathways [S-4 Lands], Ottawa ON, 2025
- The Brown Lands EIS, Almonte ON, 2022 – 2024

Urbandale Corporation/ Urbandale Construction

- Riverside South – Phase 18, Ottawa ON, 2016-2024
- Riverside South – Phase 17.1-17.3 Ottawa ON, 2019-2023
- Riverview Lane, Kemptville ON, 2018 – 2023
- Riverside South – Phases 12, Ottawa ON, 2014-2016
- Riverside South – Phase 13.2, Ottawa ON, 2014-2016
- Riverside South – Phase 14, Ottawa ON, 2014-2016
- Riverside South – Phase 15, Ottawa ON, 2014-2016

- Riverside South – Phase 16, Ottawa ON, 2014-2016

Other Clients

- 800 Eagleson Road, Ironclad Developments, Ottawa ON, 2018
- McArthur Island Developments, Carleton Place, 2015
- Fernbank Lands, Richcraft Group, Ottawa ON, 2013 – 2017

Community Design Plans

The following outlines Alex's experience supporting Community Design Plan (CDP) processes from a natural heritage perspective. His contributions include managing the ecological field surveys and preparing key deliverables such as Existing Conditions Reports and Environmental Management Plans (EMP). These studies are intended to compliment the Master Servicing Study (MSS) and provide site-specific recommendations to guide the protection and integration of natural heritage features throughout the planning and development process.

- East Expansion Lands [E-1 Lands], multiple landowners, 2022-Ongoing.
- South Expansion Lands [S-2 Lands], multiple landowners, 2023-Ongoing.
- West Expansion Lands [W-2 Lands], multiple landowners, 2022-Ongoing
- The Edge at Pathways [S-4 Lands], Regional Group, 2023-2025
- South Expansion Lands [S-1 Lands], Minto Communities, 2022-2025
- East Expansion Lands [E-2 Lands], multiple landowners, 2022-2025
- Barrhaven South Community Design Plan, Minto Communities, 2015 – 2017

Other Land Development Studies and Services

EIS Peer Review Services, Township of Addington Highlands, 2023-2024

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.

Phase 7, 8, & 9 – SAR Permit Implementation and Environmental Monitoring, KNL Developments, 2017 – 2024

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.

Natural Heritage: Land Management Plan, Walton Developments, 2012 – 2014

Project Manager and Terrestrial Ecologist responsible for completing a Land Management Plan to support the responsible management of natural heritage features for a project aimed at identifying any natural heritage constraints that may affect the ability to develop several properties in southwest Ottawa. Responsibilities include project management, reporting, terrestrial field surveys, avian surveys and GIS mapping.