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**Environmental Impact Statement
Official Plan Amendment and Zoning By-law Amendment
39 and 53 Carss Street, Almonte
Municipality of Mississippi Mills
Lanark County, Ontario**





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Submitted to:
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Official Plan Amendment and Zoning By-law Amendment
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Municipality of Mississippi Mills
Lanark County, Ontario**

August 25, 2025
Project: 100011.097

EXECUTIVE SUMMARY

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by 2607129 Ontario Inc. to complete an Environmental Impact Statement (EIS) for the properties located on 39 and 53 Carss Street, Almonte, in the Municipality of Mississippi Mills, Lanark County, Ontario. This EIS has been completed in support of an Official Plan Amendment and Zoning By-law Amendment on existing 4.1 ha and 0.39 ha properties. The purpose of the proposed Official Plan and Zoning By-law Amendments is to establish the principle of development for the site based on the conceptual site plan. This EIS was completed in accordance with all provincial and municipal policies and guidelines, as applicable.

In support of this EIS a desktop review and numerous field investigations were completed to identify the presence or absence of natural heritage features and species at risk (SAR) on-site. Field investigations were completed throughout spring and summer 2024 and 2025. The focus of the field investigations was to describe, in general, the natural and physical setting of the subject property with a focus on confirming the presence or absence of natural heritage features and potential SAR or their habitat as identified in the desktop review.

Following completion of the desktop review and field investigations the following natural heritage features were identified on-site or within the study area: significant woodlands, significant wildlife habitat for bat maternity colonies (*confirmed*), reptile hibernaculum (*candidate*), turtle wintering area (*candidate*), concern and rare wildlife habitat (eastern wood-pewee, wood thrush, red-headed woodpecker, eastern musk turtle, northern map turtle, snapping turtle, and river herring), and fish habitat.

The following SAR and their habitat were identified as having a potential to occur on-site: eastern red bat, eastern small-foot myotis, hoary bat, little brown myotis, silver-haired bat, tri-colored bat, Blanding's turtle, American eel, rapids clubtail, butternut, and black ash. Two SAR species were identified during field investigations: butternut and black ash.

Potential impacts to the natural heritage features were primarily associated with the loss of woodland habitat, and indirect impacts to significant wildlife habitat and fish habitat. Impacts to significant wildlife habitat and fish habitat are primarily associated with alterations to water quality through increased nutrient and sediment loading, and loss of and encroachment onto significant woodlands. Impacts to Blanding's turtles are limited to transient turtles.

Potential impacts to natural heritage features and fish habitat on-site are likely to be mitigated through the implementation of a 30 m setback from the Mississippi River.

To provide additional protection to potential SAR and their habitat on-site, reptile and amphibian exclusion fencing should be installed around all future construction areas prior to any development or site alteration, to prevent the immigration of SAR turtles and other wildlife into the

construction area. Should any SAR be discovered throughout the course of any development on-site, operations should stop and the species at risk biologist with the local MECP district should be contacted immediately for further direction. Furthermore, to ensure compliance with applicable legislation, all best management practices and adherence to vegetation clearing for birds and bats, outlined in Section 7 should be followed to ensure no negative impacts occur to natural heritage features on-site.

The proposed plan of development complies with the natural heritage policies of the Provincial Planning Statement and the Lanark County Official Plan. No negative impacts to identified natural heritage features or their ecological functions are anticipated as a result of the proposed development as long as all mitigation measures in Section 7 are enacted and best management practices followed.

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by 2607129 Ontario Inc. to complete an Environmental Impact Statement (EIS) for the property located at 39 and 53 Carss Street, Almonte, in the Municipality of Mississippi Mills, Lanark County, Ontario, (hereafter referred to as “the subject property”). The general location of the subject property is illustrated on Figure A.1 in Appendix A.

1.1 Purpose

The proponent is seeking to develop the existing approximately 4.5-hectare (ha) subject property. Based on Section 5 of the Lanark County Official Plan (Lanark County, 2012), an EIS is required showing that the project will not negatively impact any potential natural heritage features that may be present within the study area. The study area is defined as the property boundary and the adjacent lands encompassing an area of 120 m beyond the property boundary. The subject project and the extents of the study area are illustrated on Figure A.2 in Appendix A.

1.2 Objective

The 2024 Provincial Planning Statement (MMAH, 2024) issued under Section 3 of the Planning Act states that “development and site alteration shall not be permitted in: habitats of species at risk, significant wetlands, significant woodlands and significant wildlife habitat unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.” Similarly, the 2024 Provincial Planning Statement dictates that ‘development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.”

The objective of the work presented herein is to identify and evaluate the significance of any natural heritage features, as defined in the Provincial Planning Statement (MMAH, 2024), on the subject property and within the broader study area and to assess the potential impacts from the proposed plan of development on any natural heritage features identified and to recommend appropriate and defensible mitigation measures to ensure the long-term protection of any natural heritage features identified.

To meet these objectives, the EIS presented herein has been completed in accordance with the following provincial and municipal regulations, policies and guidelines:

- Provincial Planning Statement (MMAH, 2024);
- Endangered Species Act (Ontario, 2007);
- Conservation Authorities Act (Ontario, 1990);
- Natural Heritage Reference Manual (OMNR, 2010);
- Lanark County Official Plan (Lanark County, 2012); and
- Municipality of Mississippi Mills Community Official Plan (Mississippi Mills, 2018).

1.3 Physical Setting

The subject property is located on part of Lot 16 and 17, Concession 9, in the Geographic Township of Mississippi Mills, Lanark County, municipally addressed as 39 and 53 Carss Street, in the town of Town of Almonte, Ontario. The property is comprised of open manicured lawns, deciduous and mixed-wooded forests, and a steep slope leading down to the waterfront along the Mississippi River.

The subject property is bound to the east by a gravel pedestrian foot path and to the west the site is bound by the Mississippi River. To the south the site is bound by the Mississippi River and a neighbouring property municipally addressed as 117 Carleton Street. To the north the site is bound by Carss Street and the rear yards of properties fronting to Carss Street on part of Lot 17 Concession 9.

1.4 Land Use Context

The subject property is situated within a larger residential area. The existing land use designation from the Lanark County OP is settlement area and floodplain. The land-use from the Mississippi Mills Official Plan is residential. The zoning by-law from the municipality for the majority of the property is development (D) while the shores of the property along the Mississippi River are zoned as environmental hazard (EH).

2.0 METHODOLOGY

2.1 Desktop Review

A desktop information gathering exercise was completed to aid in the scoping of field investigations and to gather information relating to natural heritage features which may be present on the subject project or within 1 km of the subject property. An additional component of the desktop review was to assess the potential presence of SAR to occur on the subject property or within the study boundary based on a review of publicly accessible occurrence records, and review of SAR habitat requirements and range maps.

Information regarding the potential presence of natural heritage features and SAR within the vicinity of the site was obtained from the following sources:

- Make A Map: Natural Heritage Areas (OMNRF, 2014a);
- Land Information Ontario (OMNR, 2011b);
- Lanark County Official Plan (Lanark, 2012);
- Lanark County Geoportal (County of Lanark Community Map, undated);
- Mississippi Valley Conservation Authority (MVCA Portal, Undated);
- Mississippi Mills Official Plan (Municipality of Mississippi Mills Community Map);
- Ontario Geological Survey (OGS, 2019);
- Fisheries and Oceans Canada SAR Maps (DFO, 2019);
- Natural Heritage Information Centre Biodiversity Explorer (OMNRF, 2013);
- Breeding Bird Atlas of Ontario (Cadman et al., 2007)
- Atlas of Mammals of Ontario (Dobbyn, 1994);
- Ontario Herpetofaunal Atlas (Oldham and Weller, 2000); and
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019).

2.2 Field Investigations

Field investigations were undertaken to describe in general, the natural and physical setting of the subject property with a focus on natural heritage features and to identify any potential SAR or their habitat that may exist at the subject property.

Field investigations completed in support of this EIS are outlined in Table 2.2 below. Photographs of site features taken during field investigations are provided in Appendix B.

Table 2.1 Summary of Field Investigations

Date	Time	Weather	Purpose
April 18, 2024	22:30 – 23:30	9°C, ~100% cloud cover, Beaufort 0, light precipitation	Amphibian Breeding Survey
April 22, 2024	12:00 – 15:00	9°C, ~80% cloud cover, Beaufort 1, no precipitation	Bat Maternity Roost Survey
April 26, 2024	11:00 – 13:15	13°C, ~10% cloud cover, Beaufort 1, no precipitation	Bat Maternity Roost Survey, Turtle Basking Survey
May 6, 2024	14:15 – 15:30	21°C, ~15% cloud cover, Beaufort 2, no precipitation	Turtle Basking Survey
May 16, 2024	22:30 – 23:00	16°C, ~50% cloud cover, Beaufort 1, no precipitation	Amphibian Breeding Survey
May 30, 2024	09:00 – 10:45	14°C, ~0% cloud cover, Beaufort 2, no precipitation	Breeding Bird Survey, Turtle Basking Survey
June 12, 2024	12:30 – 13:30	19°C, ~70% cloud cover, Beaufort 2, no precipitation	Turtle Basking Survey
June 13, 2024	10:45 – 11:45	24°C, ~30% cloud cover, Beaufort 2, no precipitation	Turtle Basking Survey
June 25, 2024	21:00 – 22:00	19°C, ~100% cloud cover, Beaufort 3, no precipitation	Amphibian Breeding Survey
June 28, 2024	09:15 – 10:00	19°C, ~10% cloud cover, Beaufort 2, no precipitation	Breeding Bird Survey
July 5, 2024	06:30 – 07:15	19°C, ~80% cloud cover, Beaufort 1, no precipitation	Breeding Bird Survey
July 19, 2024	08:30 – 16:00	20°C, ~100% cloud cover, Beaufort 1, no precipitation	Tree Inventory
July 25, 2024	08:30 – 14:45	20°C, ~100% cloud cover, Beaufort 3, no precipitation	Tree Inventory
August 1, 2024	09:15 – 10:45	25°C, ~0% cloud cover, Beaufort 1, no precipitation	Tree Inventory
August 20, 2025	14:30-15:30	22°C, ~50% cloud cover, Beaufort 4, no precipitation	Ecological Land Classification

2.2.1 Ecological Land Classification

Vegetation communities on the subject property were delineated during the desktop review stage of this EIS using publicly available air photos and confirmed in the field during the field investigations, following the Ecological Land Classification System for Southern Ontario (Lee et al., 2008). Vegetation communities were confirmed in the field by employing the random meander methodology while documenting dominant vegetation species within the various vegetation community forms.

2.2.2 Breeding Bird Surveys

Breeding bird surveys were conducted on three occasions at two point count locations; breeding bird survey locations are provided on Figure A.2 in Appendix A. Breeding bird surveys followed protocols from the Canadian Breeding Bird Surveys (Downes and Collins, 2003) and the Ontario Breeding Bird Atlas (Cadman et al., 2007). Surveys were conducted no earlier than 30 minutes before sunrise and were completed within 5 hours of sunrise, to encompass peak song bird activity. Breeding bird surveys consisted of 5 minutes of passive listening in which all birds heard or seen within the survey period were recorded, including species, sex and breeding behaviour, if possible.

A list of all avian species identified on-site is provided in Table C.1 in Appendix C.

2.2.3 Basking Turtle Surveys

In order to address the potential for the site to provide turtle overwintering habitat and to assess the presence or absence of Blanding's turtle, a species at risk, a series of five turtle basking surveys were completed following the approved protocol for Blanding's turtles established by the MNRF (2015).

2.2.4 Amphibian Breeding Surveys

Amphibian breeding surveys were conducted on three occasions at two point count locations; breeding amphibian survey locations are provided on Figure A.2. Breeding amphibian surveys followed protocols from the Marsh Monitoring Program (Bird Studies Canada, 2008). Surveys were conducted no earlier than 30 minutes after sunset and were completed by midnight, to encompass peak amphibian calling activity. Breeding amphibian surveys consisted of 3 minutes of passive listening in which all amphibians calling during the survey period were recorded, along with their call code.

A list of all amphibian species identified on-site is provided in Table C.1 in Appendix C.

2.2.5 Bat Maternity Roost Surveys

Potential bat maternity roosting sites were surveyed for in each forested ecosite on-site on April 22 and April 26, 2024, following the protocol for identifying candidate maternity roosts outlined in the OMNR (2011a) Bats and Bat Habitats: Guidelines for Wind Power Projects.

2.3 Data Analysis

An evaluation of the significance of natural heritage features, the sensitivity of identified flora and fauna and the potential impacts posed by the proposed development was undertaken through an analysis of desktop and field investigation data using the approaches and criteria outlined in the following documents:

- Natural Heritage Reference Manual (OMNR, 2010);
- Significant Wildlife Habitat Technical Guide (OMNR, 2000);
- Significant Wildlife Habitat Ecoregion Criterion Schedules (OMNRF, 2015); and
- Significant Wildlife Habitat Mitigation Support Tool (OMNRF, 2014b).

3.0 EXISTING ENVIRONMENT

3.1 Ecoregion

The site is situated Ecoregion 6E-11 (Lake Simcoe-Rideau), which extends from Lake Huron in the west to the Ottawa River in the east. The climate of Ecoregion 6E is categorized as humid, high to moderate temperate ecoclimate with a mean annual temperature range between 4.9°C to 7.8°C and an annual precipitation ranging between 759 mm to 1,087 mm (Crins et al., 2009).

The eastern portion of the Ecoregion, which the subject property is located, is underlain by glaciomarine deposits as a result of the brief post-glacial incursion of salt water from the Champlain Sea along the St. Lawrence Valley. This Ecoregion falls with Rowe's (1972) Great Lakes-St. Lawrence Forest Region, including its Huron-Ontario and Upper St. Lawrence sections, and a small part of the Middle Ottawa Forest section (Crins et al., 2009).

3.2 Landforms, Soils and Bedrock Geology

The topography of the site slopes downward from east to west from a topographical high of 129 mASL to a topographical low of 104 mASL on the banks of the Mississippi River.

A single topographical landform, as mapped by Chapman and Putnam (1984) is described on the subject property, the clay plains of the Ottawa Valley Clay Plains physiographic region.

The Ontario Geological Survey (OGS, 2019) identifies two surficial soil units on the subject property, Paleozoic bedrock and fine-textured glaciomarine deposits. Located across the majority of the property, primarily within the southern half, is Paleozoic bedrock. The remainder of the property is comprised of fine-textured glaciomarine deposits, consisting of massive to well laminated silt and clay and minor sand and gravel.

Bedrock at the site, is described by OGS (2019) the Beekmantown Group comprised of dolostone and sandstone.

3.3 Surface Water, Groundwater and Fish Habitat

Surface water features on the subject property consisted of a single ephemeral watercourse and the Mississippi River.

The ephemeral watercourse occurs within the east-central portion of the property, within the on-site forest. The watercourse originates from a pipe in the ground and meanders southeast along the slight slope in the forest. The watercourse continues along the pathway and abruptly ends within the small meadow inclusion. The ephemeral watercourse was observed to be flowing in the early spring but was surface damp during the field investigation conducted on July 25, 2024. No fish were observed in the ephemeral watercourse.

A fisheries assessment was not conducted as part of this EIS; however, due in part to the lack of suitable water depth, habitat availability and seasonality availability of surface flows, the ephemeral watercourse is not considered to provide fish habitat.

A review of the Ontario Aquatic Resource Area Line Segment database indicates the presence of the following fish species within the Mississippi River; American eel (*Anguilla rostrata*), black crappie (*Pomoxis nigromaculatus*), blackchin shiner (*Notropis heterodon*), blacknose shiner (*Notropis heterodon*), bluegill (*Lepomis macrochirus*), bluntnose minnow (*Pimephales notatus*), brown bullhead (*Ameiurus nebulosus*), common shiner (*Luxilus cornutus*), emerald shiner (*Notropis atherinoides*), fallfish (*Semotilus corporalis*), golden shiner (*Notemigonus crysoleucas*), largemouth bass (*Micropterus salmoides*), logperch (*Percina caprodes*), mooneye (*Hiodon* sp.), northern pike (*Esox lucius*), pumpkinseed (*Lepomis gibbosus*), river redhorse (*Moxostoma carinatum*), rock bass (*Ambloplites rupestris*), rosyface shiner (*Notropis rubellus*), shorthead redhorse (*Moxostoma macrolepidotum*), silver redhorse (*Moxostoma anisurum*), smallmouth bass (*Micropterus dolomieu*), spottail shiner (*Notropis hudsonius*), walleye (*Sander vitreus*), white sucker (*Catostomus commersonii*), and yellow perch (*Perca flavescens*). Additionally, the SAR DFO mapping tool indicates river redhorse, and the NHIC database indicates American eel and river redhorse within 1km of the project area. Based on the noted fish diversity, the Mississippi River provides habitat for a variety of small and large bodied species of fish.

Groundwater investigations were not completed in support of this EIS.

3.4 Vegetation Communities

Vegetation communities on-site were confirmed by GEMTEC, following protocols utilized in the Southern Ontario Ecological Land Classification System (Lee et al., 2008). Vegetation at the site represents a mosaic of mixed forests, cultural thickets, and cultural meadows. Table 3.1 below provides a summary of the various vegetation communities identified on-site while Figure A.3 in Appendix A provides an illustration of the various vegetation communities.

Table 3.1 Vegetation Communities On-site

ELC Type	Description	Size (ha)
Dry – Fresh Sugar Maple Deciduous Forest (FODM5-1)	A deciduous forest, dominated almost entirely by sugar maple (<i>Acer saccharum</i>), occurs along the southeast property boundary. Other species included black cherry (<i>Prunus serotina</i>), red pine (<i>Pinus resinosa</i>), black walnut (<i>Juglans nigra</i>), basswood (<i>Tilia americana</i>), American elm (<i>Ulmus americana</i>), green ash (<i>Fraxinus pennsylvanica</i>), and eastern white pine (<i>Pinus strobus</i>). Herbaceous vegetation includes lesser periwinkle (<i>Vinca minor</i>), Siberian squill (<i>Scilla siberica</i>), trout lily (<i>Erythronium americanum</i>), sugar maple saplings, dame's rocket (<i>Hesperis</i>	0.99

ELC Type	Description	Size (ha)
	<i>matronalis</i>), poison ivy (<i>Toxicodendron radicans</i>), and Enchanter's nightshade (<i>Circaea lutetiana</i>).	
Dry – Fresh Sugar Maple – Hardwood Deciduous Forest (FODM5-9)	This community is located along the southern property boundary, adjacent to the Mississippi River, and was dominated by sugar maple and basswood. Other common constituents included American elm, eastern white cedar, white ash (<i>Fraxinus americana</i>), green ash, bur oak (<i>Quercus macrocarpa</i>), eastern white pine, and balsam fir (<i>Abies balsamea</i>). The shrub layer was comprised of prickly ash (<i>Zanthoxylum americanum</i>) and common buckthorn (<i>Rhamnus cathartica</i>). Herbaceous vegetation included grass, poison ivy, thicket creeper (<i>Parthenocissus inserta</i>), and large-leaved aster (<i>Eurybia macrophylla</i>). Located in the western portion of this community is a small coniferous forest inclusion. This community is comprised of eastern white cedar, eastern white pine, eastern hemlock (<i>Tsuga canadensis</i>), red pine, and bur oak. One butternut and one black ash, both plant SAR, were identified within this community on-site. Individual butternut and black ash occurrences are illustrated on Figure A.5 in Appendix A.	0.61
Dry – Fresh White Pine – Sugar Maple Mixed Forest (FOMM2-2)	A mixed forest, co-dominated by sugar maple and eastern white pine, is located in two patches along the northern property boundary. This community was similar to the FODM5-1 in composition, however, included a higher percentage of other species. Other common constituents included green ash, red pine, eastern white cedar (<i>Thuja occidentalis</i>), black cherry, black walnut. Ground cover was minimal and consisted of sugar maple saplings. Four butternuts were identified in this community. Individual butternut occurrences are illustrated on Figure A.5 in Appendix A. As per the guidelines set out in the Ecological Land Classification System (Lee et al., 2008), vegetation communities must meet the minimum size requirements of 0.5 ha to be considered its own community. As such, one inclusion, approximately 0.30 ha was identified on-site within the mixed forest: a residential property. The inclusion was dominated by manicured lawns, associated with a residential property, municipally addressed as 53 Carss Street. Tree species were sparse and consisted of Manitoba maple (<i>Acer negundo</i>) and Norway spruce (<i>Picea abies</i>).	1.54

ELC Type	Description	Size (ha)
Residential (CVR)	Located within the central portion of the property is a residential community, dominated by manicured lawns. Few scattered trees are located throughout the community and consisted of basswood, black walnut, sugar maple, green ash, and American elm. A small meadow inclusion is located within the western extent of this community. Common constituents included tall grasses, Dame's rocket, Enchanter's nightshade, prickly ash, Siberian squill, lesser periwinkle, and wild parsnip (<i>Pastinaca sativa</i>). Few scattered trees occur within this community, consisting of black walnut.	1.36

3.5 Wildlife

Wildlife observed on-site and within the study area during field investigations completed in 2024 are summarized in Table C.1 in Appendix C.

4.0 NATURAL HERITAGE FEATURES

Natural heritage features are defined in the PPS as “features and area, including *significant wetlands*, *significant coastal wetlands*, *fish habitat*, *significant woodlands* south and east of the Canadian Shield, *significant valleylands* south and east of the Canadian shield, *significant habitats of endangered species and threatened species*, *significant wildlife habitat* and *significant areas of natural and scientific interest*, which are important for their environmental and social values as a legacy of the natural landscape of an area”.

4.1 Significant Wetlands

As described in the Natural Heritage Reference Manual (OMNR, 2010), wetlands are “lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface.” While *significant* in regard to wetlands means “an area identified as provincially significant by the Ontario Ministry of Natural Resources and Forestry using evaluation procedures established by the Province, as amended from time to time.”

No significant wetlands were identified on-site or within the study area during the desktop review or any of the field investigations. As no significant wetlands occur on-site or within the study area, significant wetlands are not evaluated or discussed further in this EIS.

4.2 Significant Woodlands

Significant woodlands are defined in the natural heritage reference manual (OMNR, 2010) as “an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history.”

At the local scale, significant woodlands are defined and designated by the local planning authority. Generally, most planning authorities have defined significant woodlands as any woodland that contains any of the four criteria listed in Section 7.2 of the natural heritage reference manual (OMNR, 2010), including: woodland size, ecological functions, uncommon characteristics and economic and social functional values.

Table C.2 in Appendix C, presents the screening rationale for significant woodlands applied in this EIS. For comparison of woodland criteria used in Table C.2, the woodland coverage within the planning area is between less than about 5% of the land area, therefore the minimum woodland size for determining significance is 2 ha or greater, based on the guidance outlined in the natural heritage reference manual (OMNR, 2010).

Based on the results of the significant woodland screening presented in Table C.2, significant woodlands are present on-site due to their size, proximity and protection to fish habitat. Furthermore, the on-site woodlands have been designated as significant by the Township of

Mississippi Mills as per the Municipality of Mississippi Mills Community Map (undated). Significant woodlands are illustrated on Figure A.4 in relation to other site features. Impacts to significant woodlands from the proposed development are discussed in Section 6.

4.3 Significant Valleylands

Valleylands are defined in the natural heritage reference manual (OMNR, 2010) as ‘a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of time’. The identification and evaluation of significant valleys lands in Ontario is based on the recommended criteria from the MNRF and is the responsibility of local planning authorities.

In Southern Ontario, conservation authorities have identified valleylands as part of their regulation mapping (i.e., floodplain mapping); however, where valleys lands have not been defined, their physical boundaries are generally determined as the ‘top-of-bank’ or ‘top-of-slope’ associated with a watercourse. For less well-defined valleys, the physical boundary may be defined by riparian vegetation, flooding hazard limits, ordinary high water marks or the width of the stream meander belt (OMNR, 2010).

As discussed in Section 3.2, the site is relatively flat, however mapping from the MVCA and Lanark County Official Plan identify that portions of the property occur within the 1:100-year floodplain. In accordance with MVCA and Lanark County Official Plan policies, no development is permitted within the 1:100-year floodplain. The 100-year floodplain is illustrated on Figure A.2 in Appendix A.

Impacts to significant valleylands associated with the 1:100-year floodplain are discussed in Section 6.

4.4 Significant Areas of Natural and Scientific Interest

The MNRF identifies two types of areas of natural and scientific interest (ANSI) in Ontario: life sciences ANSIs typically represent significant segments of Ontario’s biodiversity and natural landscapes, while earth science ANSIs typically represent significant examples of bedrock, fossils or landforms in Ontario (OMNR, 2010).

No ANSI have been identified on-site or adjacent to the site during the desktop review or during field investigations.

4.5 Significant Wildlife Habitat

The natural heritage reference manual (OMNR, 2010), in combination with the significant wildlife habitat technical guide (OMNR, 2000) and the significant wildlife habitat ecoregion criterion schedules (OMNRF, 2015) were used to identify and evaluated potential significant wildlife habitat on-site. The significant wildlife habitat is broadly categorized as habitats of seasonal concentration

of animals, rare vegetation communities, specialized habitats for wildlife, habitats of species of conservation concern and animal movement corridors. With the exception of rare vegetation communities, Tables C.3, C.4, C.5 and C.6 in Appendix C, provide the screening rationale for each category of significant wildlife habitat, respectively.

4.5.1 Habitats of Seasonal Concentrations of Animals

Seasonal concentration areas are habitats where large numbers of species congregate at one particular time of the year. The significant wildlife habitat technical guides (OMNR, 2000) and significant wildlife habitat ecoregion criterion schedules (OMNRF, 2015) identify 12 types of seasonal concentration habitats that may be considered significant wildlife habitat. These 12 types of seasonal habitat are presented in Table C.3 in Appendix C, including a brief description of the rationale as to why or why they are not assessed further in this EIS.

Following review of Table C.3 in Appendix C, three *candidate* habitats of seasonal concentration of animals is present on-site, bat maternity colonies, turtle wintering areas, and reptile hibernaculum. The *candidate* SWH are discussed in detail in the subsections below.

4.5.1.1 *Candidate* Bat Maternity Colonies

Candidate bat maternity colony areas have been identified within all woodlands on-site (ELC codes: FODM5-1, FODM5-9, and FOMM2-2). Bat maternity roost surveys were completed within forested communities on-site.

While there is no minimum threshold for the number of snags per hectare for an area to provide SAR bat habitat, an ELC ecosite with at least 10 snags/ha is considered to provide *candidate significant wildlife habitat* for bat maternity roosts.

Table 4.1 below provides the results of the snag density survey and the density of snags per hectare in each ecosite surveyed.

Table 4.1 Summary of Snag Survey Results for Bat Maternity Colony SWH

Ecosite	Survey Location #	On-Site Area (ha)	Number of Plots Surveyed	Number of Snags > 25 cm DBH	Snags/ha	Candidate SWH for Bat Maternity Colonies
FOMM2-2	1, 2, 4	0.60	3	10	66	Yes
FODM5-1	3, 5-10	0.99	7	8	23	Yes
FODM5-9	11-15	0.61	5	3	12	Yes
FOMM2-2	16-20	0.64	6	8	32	Yes

Following completion of the snag density survey, *confirmed* SWH for bat maternity habitat was identified for all forest communities on-site.

Impacts to *candidate* bat maternity colony SWH from the proposed development are discussed in Section 6.

4.5.1.2 *Candidate* Turtle Wintering Area

Candidate turtle wintering areas SWH was identified within the study area within the Mississippi River.

To evaluate the potential for the Mississippi River to provide turtle wintering area SWH, a series of turtle basking surveys were conducted. Turtle wintering areas provide protection for turtle species from winter element and typically consist of permanent water bodies, large wetlands, bogs or fens, with adequate dissolved oxygen, soft substrates and deep water. The defining criteria for confirmed turtle wintering area SWH is the presence of 5 over-wintering midland painted turtles, one or more northern map turtle or one or more snapping turtle within a wetland (OMNRF, 2015a).

Wintering areas may be identified by searching basking areas for congregations of turtles on warm, sunny days during the spring or fall (OMNRF, 2015a). A total of five basking turtle surveys were conducted for the subject property. Table 4.2 below provides a summary of the basking turtle survey results.

Table 4.2 Summary of Turtle Basking Surveys

Location	Species / Highest Number Observed / Date	Confirmed SWH
Mississippi River	No turtles observed / April 26, 2024	No
	Eastern musk turtle / 1 / May 6, 2024	
	No turtles observed / May 30, 2024	
	No turtles observed / June 12, 2024	
	Midland painted turtle / 1 / June 13, 2024	

Impacts to *candidate* turtle overwintering area SWH from the proposed development are discussed in Section 6.

4.5.1.3 *Candidate* Reptile Hibernaculum

Candidate reptile hibernacula SWH was identified on-site within fissured rock piles and exposed bedrock outcrops on the slopes within the wooded areas, adjacent to the Mississippi River.

Specific reptile hibernaculum investigations were not conducted as they were outside of the scope of this EIS. However, a single indicator species, eastern gartersnake, was observed on-site during field investigations, outside of key emerging periods.

The defining criteria for confirmed reptile hibernaculum SWH is the presence of snake hibernacula used by or congregations of a minimum of five individuals of a snake species or; individuals of

two or more snake species near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct) (OMNRF, 2015a).

The subject property contains a mix of suitable reptile hibernaculum habitat including rock piles and slopes with crevices, areas of broken and fissured rock, and mixed forests with rock outcrops. As such, it is possible that subject site provides suitable reptile hibernacula habitat.

Impacts to *candidate* reptile hibernacula habitat from the proposed development are discussed in Section 6.

4.5.2 Rare Vegetation Communities

Rare vegetation communities in the province are described generally as those with an S1 to S3 ranking by the NHIC, and typically include communities such as sand barrens, alvars, old growth forests, savannahs and tallgrass prairies.

The vegetation communities identified on-site and described in Section 3.4 of this report are not ranked by the NHIC as S1, S2 or S3 and are therefore not considered to be rare vegetation communities.

4.5.3 Specialized Habitats for Wildlife

Specialized wildlife habitats are microhabitats that provide a critical resource to some groups of wildlife. The significant wildlife habitat technical guide (OMNR, 2000), defines eight specialized habitats that may constitute significant wildlife habitat, these eight types of specialized wild habitat are evaluated in Table C.4 in Appendix C.

Following review of Table C.4 in Appendix C, one *candidate* specialized habitat for wildlife is present on-site: woodland amphibian breeding habitat. The *candidate* SWH is discussed in detail in the subsection below.

4.5.3.1 *Candidate* Woodland Amphibian Breeding SWH

Candidate woodland amphibian breeding habitat was identified on-site within the woodlands adjacent to the Mississippi River. To evaluate the potential for the habitats on-site to provide amphibian breeding habitat, a series of amphibian breeding surveys were conducted.

Woodland amphibian breeding habitat provides critically important breeding habitat for the following wildlife species: eastern newt, blue-spotted salamander, spotted salamander, gray treefrog, spring peeper, western chorus frog and wood frog. Woodland amphibian breeding habitat can be located in all forested ecosites. Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians (OMNRF, 2015a).

The defining use criteria for confirmed woodland amphibian breeding SWH is the presence of breeding populations of one or more listed newt/salamander species, two or more of the listed frog/toad species with at least 20 individuals, or two or more of the listed frog/toad species with a call level code 3.

Table 4.3 below summarizes the results of the amphibian breeding surveys described in Section 2 of this report. Figure A.2 in Appendix A illustrates the survey locations.

Table 4.3 Summary of Amphibian Breeding Call Surveys

Survey Location	Breeding Habitat	Species / Highest Call Code / Date	Confirmed SWH
1	Woodland	SPPE / 1-3 / April 18, 2024 SPPE / 3* / May 16, 2024	No
2	Woodland	SPPE / 2-10 / May 16, 2024 AMTO / 1-1 / May 16, 2024 GRTR / 1-1 / May 16, 2024	No

Notes: SPPE = Spring Peeper, GRTR = Gray Treefrog, GRFR = Green Frog, NLFR = Northern Leopard Frog, AMTO = American Toad, WCF = Western Chorus Frog. Call Codes: the first number indicates the call code where: (1) number of individuals can be accurately counted, (2) individuals can be readily estimated, (3) calls are continuous and overlapping, such that estimates of individuals are not reliable. The second number identifies the number of individuals calling. Call codes of 3 do not have a second number, as individual estimates are not possible.

*Species abundance number was not recorded during the survey.

Based on the results from Table 4.3, woodland habitat on-site does not meet the defining use criteria for *confirmed* woodland amphibian breeding SWH. As such, woodland amphibian breeding habitat has not been *confirmed* on-site.

4.5.4 Habitats of Species of Conservation Concern

Provincial rankings are used by the Natural Heritage Information Centre to set protection priorities for rare species, similar to those described in Section 4.5.2 above for vegetation communities. Provincial rankings (S-ranks), are not legal designations such as those used to define the various protection statuses of species at risk, they are only intended to consider factors within the political boundaries of Ontario that might influence a particular species abundance, distribution or population trend.

Based on the guidance provided in the Significant Wildlife Habitat Ecoregion Criterion Schedules (MNRF, 2015), when a plant or animal element occurrence is recorded for any species with an S-rank of S1 (extremely rare), S2 (very rare), S3 (rare to uncommon) or SH (historically present), the corresponding vegetation ecosite is considered to provide *candidate* habitat for species of conservation concern and further consideration within the EIS is warranted.

The Significant Wildlife Habitat Ecoregion Criterion Schedules (OMNRF, 2015) provides five general habitat types known to support a wide range of species of conservation concern in

Ontario. The five general habitat types for Ecoregion 6E-11 are provided in Table C.5 in Appendix C, including a brief rationale as to why they are or are not considered further in this EIS.

Following review of Table C.5 in Appendix C, confirmed and candidate SWH for species of conservation concern have been identified within the study area.

The *candidate* and *confirmed* SWH are discussed in detail in the subsections below.

4.5.4.1 Special Concern and Rare Wildlife Species SWH

Based on observation data from the field investigations, two species of special concern has been identified on-site or within the broader study area; eastern wood-pewee and eastern musk turtle. Based on research from the desktop search discussed in Section 2.1, four additional species of special concern have been identified as potentially being found on-site or within the broader study area; wood thrush, northern map turtle, snapping turtle, and river redhorse. No other species of special concern or rare wildlife species were identified on-site or within the broader study area. Potential impacts to all *candidate* and *confirmed* species at risk from the proposed development are discussed in Section 6.

The eastern wood-pewee is a small flycatcher bird with an S-rank of S4 (uncommon but not rare) and is listed as a species of special concern in Ontario. Eastern wood-pewee is a woodland species that is often found near clearings and edges. The NHIC has identified eastern wood-pewee as occurring within 1km of the subject property. Additionally, the species was observed on-site during the field investigations. Given the mosaic of woodland and open habitat for eastern wood-pewee on-site, there is a high potential for eastern wood-pewee and their habitat to occur on-site.

The wood thrush is a medium-sized songbird with an S-rank of S4 (uncommon but not rare) and is listed as a species of special concern in Ontario. Wood thrush is a woodland species often found in moist, deciduous hardwood or mixed forests stands, with dense deciduous undergrowth and tall trees. The most recent Ontario Breeding Bird Atlas indicated that the wood thrush populations in Ontario have shown a significant annual increase of 4.4% between the first and second atlas (Cadman et al., 2007). The NHIC has identified wood thrush within 1km of the subject property; however, the species was not observed on-site during field investigations. Given the available forest habitat for wood thrush on-site, there is a moderate potential for wood thrush and their habitat to occur on-site.

Eastern musk turtle is a highly aquatic turtle species with an S-rank of S3 (rare to uncommon) and is listed as a species of special concern in Ontario. Eastern musk turtle prefers permanent ponds, lake, marshes and rivers. The NHIC identified eastern musk turtle as having occurred within 1 km of the site, likely associated with the Mississippi River. The species was also observed during field investigations. Given the availability of potentially suitable aquatic on-site and confirmed sighting, there is a high potential for eastern musk turtle and its habitat to occur on-site.

The northern map turtle is ranked as S3 (rare to uncommon) and is listed as a species of special concern in Ontario. The northern map turtle inhabits rivers and lakeshores where it basks on emergent rocks and fallen trees. In winter, the turtles hibernate on the bottom of deep, slow-moving sections of river. The NHIC identified northern map turtle as having occurred within 2 km of the site, likely associated with the Mississippi River. Given the availability of potentially suitable aquatic on-site, there is a moderate potential for northern map turtle and its habitat to occur on-site.

The snapping turtle is a highly aquatic turtle species with an S-rank of S3 (rare to uncommon) and is listed as a species of special concern in Ontario. Snapping turtles are aquatic generalists, found in a variety of wetlands, water bodies and watercourses. The NHIC identified snapping turtle as having occurred within 2 km of the site, likely associated with the Mississippi River. The species was not observed on-site during the field investigations. Given the availability of potentially suitable aquatic habitat on-site and observation within the water, there is a moderate potential for snapping turtle and its habitat to occur on-site.

The river herring inhabits medium to large-size rivers that have substantial flows. In May and June, adults migrate from deeper, slower moving pools and run habitats to shallow riffle-run habitats having coarse substrate and moderate to swift flow. The river herring is of special concern and ranked as S2 (very rare) in Ontario. Data occurrence through the NHIC shows the species occurring within 1km of the site, while data from the Fisheries and Oceans Canada SAR Maps (DFO, 2019) indicates the species to be present with the Mississippi River adjacent to the subject property. Given the presence of suitable aquatic habitat and historical occurrence records, it is possible that the study may provide habitat for river herring.

4.5.5 Animal Movement Corridors

Animal movement corridors are elongated areas used by wildlife to move from one habitat to another and allow for the seasonal migration of animals (OMNRF, 2015). The Significant Wildlife Habitat Ecoregion Criterion Schedules for Ecoregion 6E-11 (OMNRF, 2015), identifies two types of animal movement corridor: amphibian movement corridors and deer movement corridors. As per guidance presented in MNRF, 2015, animal movement corridors should only be identified as significant wildlife habitat when a *confirmed or candidate* significant wildlife habitat has been identified by the MNRF district office or by the regional planning authority.

Following review of Table C.6 in Appendix C, no animal movement corridors have been identified on-site. Furthermore, the MNRF has not identified any animal movement corridors on the publicly available data sets for wildlife values area (OMNRF, 2020a) or wildlife values site (OMNRF, 2020b).

4.6 Fish Habitat

The protection of fish and fish habitat is a federal responsibility and is administered by the Department of Fisheries and Oceans Canada (DFO). Fish habitat as defined in the Fisheries Act (Canada, 1985) means, “spawning grounds and nursery, rearing food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes.”

When development is unable to avoid resulting in the harmful alteration, disturbance or destruction of fish habitat from typical project impacts such as temperature change, sedimentation, infilling, reduction of nutrient and food supply, etc., an authorization under the Fisheries Act is required for the project to proceed.

A fisheries assessment was not conducted as part of this EIS, until such time that a fisheries assessment is completed, the Mississippi River along the western property boundary is assumed to provide fish habitat for small and large bodied fish species.

Aquatic SAR, as described in Section 4.5.4 and Table C.7, have the potential to occur within the Mississippi River.

4.7 Species at Risk

The probability of occurrence for species at risk to occur on-site and within the broader study area was determined through the desktop review stage of this EIS, as described in Section 2.1, and through the site specific surveys conducted as part of this EIS, outlined in Section 2.2.

Table C.7 in Appendix C, provides a summary of all species at risk which were determined to have the potential to occur on-site or within the broader study area, their protection status under the provincial Endangered Species Act (Ontario, 2007), their probability of occurrence and a brief rationale of that probability. Impacts to endangered or threatened SAR determined to have a moderate or high potential to occur on-site or within the broader study area are discussed further in Section 6.

5.0 PROPOSED PROJECT

The proposed project assessed for potential impacts on the natural heritage features determined to be present within the broader study area is a plan of development for part of Lots 16 and 17, Concession 9, in the Geographic Township of Mississippi Mills, Lanark County, municipally addressed as 39 and 53 Carss Street, in the town of Town of Almonte, Ontario.

Future components of the proposed project considered in the impact assessment presented in Section 6 include: tree clearing and vegetation grubbing, fill placement and elevation grading, road construction, excavation and pouring of a foundation, expansion on the existing dwelling, general landscaping activities, and the construction of an apartment building, hotel and spa, spa grounds, private cabins, a parking lot, and internal road. The expansion on the existing dwelling is proposed to include a banquet hall and restaurant. The spa grounds are proposed to include pools, sauna, steam room, and an indoor-outdoor relaxation area.

It is understood that the exact placement and number of private cabins on-site is conceptual in nature and subject to potential change.

At the time of report writing, it is understood that the existing barn structure on 39 Carss Street and all buildings on 53 Carss Street will be demolished. Additionally, it is understood that the existing carriage house, located on 39 Carss Street, will be renovated. No other demolition will occur on the subject property.

6.0 IMPACT ASSESSMENT

Potential impacts to natural heritage features on-site and within the broader study area are assessed for direct, indirect and cumulative effects based on the proposed project outlined in Section 5. Natural heritage features identified in Section 4 of this report as present or likely to be present are discussed in the subsections below.

Potential effects to the natural environment from the proposed development outlined in Section 5 include: vegetation removal, disturbance of the native soil mantle, increased noise generation, increased human disturbance, increase storm water generation and potentially increased nutrient loading to adjacent surface water features.

6.1 Significant Woodlands

As discussed in Section 4.2, woodlands on-site are considered significant due to their size, proximity to surface water features and protection of fish habitat.

Based on the current conceptual site plan, the proposed plan of development is anticipated to result in a loss of approximately 0.94 ha of the existing 2.80 ha (34%) of significant woodland cover on-site.

Potential impacts to significant woodlands on-site include a loss of forest habitat and increased human disturbance. The largest potential loss of woodlands is associated with the vegetation removal required for the development of the road, parking lot, and buildings on-site. While the development of the cabins and trails on-site will require vegetation removal, the intention is to maintain the tree canopy and preserve the natural qualities of the forest as much as possible. As such, it is proposed that once the forested areas have been cleared of dead trees, the cabins will be sited to maintain healthy trees as much as possible. Thus, the development plan illustrated on Figure A,4 in conceptual in nature.

As such, the vegetation removal is not anticipated to impact the defining features, function, or integrity of the significant woodlands on-site. However, given the loss of anticipated woodlands and the abundance of woodlands on the retained lands and within the greater study area and beyond, it is unlikely that the loss of vegetation from the proposed development will increase habitat fragmentation or pose a large impact to avian species. Further to this, given the nature of the proposed development and existing residential study area, impacts from increased human presence and disturbance are anticipated to be minimal.

Potential indirect impacts may include encroachment, increased disturbance and increased human-wildlife interactions.

Mitigation measures to reduce impacts to significant woodlands are outlined in Section 7.

6.2 Significant Valleylands - Floodplain

As discussed in Section 4.3, significant valleylands are present on-site in conjunction with MVCA and Lanark County Official Plan mapping for the 1:100-year floodplain.

In accordance with MVCA and Lanark County Official Plan policies, no development is permitted within the 1:100-year floodplain.

No development is proposed to occur within the 1:100-year floodplain. As such no negative impacts to significant valleylands – floodplain are anticipated as a result of the proposed development.

6.3 Significant Wildlife Habitat

The potential presence of significant wildlife habitat on-site and within the study area was evaluated in Section 4.5, as a result of this assessment four types of significant wildlife habitat were determined to be present on-site or within the study area: *candidate* bat maternity colonies, *candidate* reptile hibernaculum, *candidate* turtle wintering area SWH, and habitats of special concern and rare wildlife species.

Potential impacts to significant wildlife habitats are discussed in greater detail in the following subsections, while mitigation measures indented to prevent such impacts are presented in Section 7.

6.3.1 Confirmed Bat Maternity Colonies

Confirmed bat maternity colony habitat has been identified within all forested communities on-site (ELC codes: FOMM2-2, FODM5-1, and FODM5-9).

Potential direct impacts may include a loss of forest habitat, encroachment and increased human-wildlife interactions. However, if total buildout of the proposed development within the significant woodlands were to occur, approximately 0.94 ha (34%) of on-site woodlands would be removed. Although when considering the amount of suitable woodland habitat available within the greater study area, impacts to *confirmed* bat maternity colonies are anticipated to be minimal. Additionally, while tree removal will be required as part of the project, there will be a strong effort to retain larger, healthier trees that are more likely to provide bat maternity roost habitat.

6.3.2 Candidate Reptile Hibernaculum

Candidate reptile hibernaculum habitat can be found within the sugar maple - hardwood deciduous forest (ELC code: FODM5-9) on the subject property as it contains a mix of suitable reptile hibernaculum habitat including rock piles and slopes with crevices, areas of broken and fissured rock, and forest cover.

Given the location of the candidate reptile hibernaculum and that the proposed development is to occur outside of the sugar maple – hardwood deciduous forest on-site, the direct loss of reptile hibernaculum is not anticipated. However, potential direct impacts to *candidate* reptile hibernaculum habitat are associated with habitat disturbances resulting in changes to the thermal regime and microclimates. Potential indirect impacts to *candidate* reptile hibernaculum include habitat fragmentation, increased human presence, increased human and wildlife interaction and disturbances, and increased noise levels.

Given the nature of the proposed project, and that no reptile hibernaculum were confirmed through the NHIC database or field visits, impacts to *candidate* reptile hibernaculum habitat are not anticipated. However, mitigation measures intended to protect potential hibernaculum sites are provided in Section 7.

6.3.3 Candidate Turtle Wintering Habitat

Candidate turtle wintering habitat can be found within the Mississippi River as it contains open water with sufficient depths and substrate ideal for turtle overwintering.

As no in-water work is proposed for the development, the greatest potential impacts to turtle overwintering areas are alterations to water quality. Potential indirect impacts to surface water features resulting from construction activities and from increased runoff following construction may include alterations to water quality, increased storm water runoff, overland flow and concomitant sediment transport caused by an increase in impervious surface area and vegetation loss, as well as increased nutrient loading through both overland and subsurface pathways, and landscaping practices.

Mitigation measures to protect the turtle overwintering areas within the Mississippi River are provided in Section 7.

6.3.4 Habitats of Special Concern and Rare Wildlife Species SWH

6.3.4.1 Eastern Wood-Pewee

Eastern wood-pewee (*Contopus virens*) is a small, avian insectivore that lives in a variety of deciduous, mixed, and to a lesser extent, coniferous woodland habitat (COSEWIC, 2012b). Adult eastern wood-pewee are grey-olive with pale wing-bars, the breast and sides are slightly darker green than the wings. It is best identified by its three-phrased song, often paraphrased as a whistled ‘pee-ah-wee’ (COSEWIC, 2012b). In Ontario, the eastern wood-pewee is listed as a species of special concern.

Threats to eastern wood-pewee are not well understood however, loss of suitable forest habitat does not appear to be a significant issue across their Canadian breeding range (COSEWIC, 2012a). Furthermore, research indicates that the species is not very sensitive to forest fragmentation effects or forest size (COSEWIC, 2012b). Eastern wood-pewee may be sensitive

to human habitation, in Ontario they occur less frequently in woods with surrounding development than those without houses (COSEWIC, 2012b). Other threats to eastern wood-pewee may include changes in the availability of aerial insects, mortality during migration and/or wintering, nest predation and habitat changes due to white-tailed deer browsing (COSEWIC, 2012b).

The NHIC has identified historic observations within 1km of the subject property. Additionally, eastern wood-pewee were identified on-site during the field investigations.

Impacts to eastern wood-pewee and their habitat on-site from the proposed development is limited to the forested habitat on-site (ELC Codes FODM5-1, FODM5-9 and FOMM2-2 on Figure A.3 in Appendix A), which may provide suitable nesting and foraging habitat. Impacts to eastern wood-pewee habitat may include loss of forest habitat and increased human presence and disturbance.

The proposed development is anticipated to result in the loss of potentially suitable woodland habitat on-site, however, when considering the abundance of woodlands available within the retained lands on-site and within the greater study area, this reduction in woodlands is not expected to negatively impact eastern wood-pewee habitat. As such, impacts to eastern wood-pewee are anticipated to be minimal.

Impacts from increased human presence are anticipated to be negligible given the existing residential development use in the immediate area, as well as the availability of suitable habitat within the retained lands.

Mitigation measures to protect wood thrush and their habitat on-site are discussed in Section 7.

6.3.4.2 Wood Thrush

The wood thrush (*Hylocichla mustelina*) is a medium-sized songbird, similar in shape to an American robin, but slightly smaller. Generally wood thrush plumage is distinct from other thrush species, with rusty-brown upper parts, white underparts and large blackish spots on the breast and sides. The wood thrush is listed as a species of special concern in Ontario.

During the breeding season, the wood thrush is found in moist, deciduous hardwood or mixed forest stands, often in previously disturbed sites with dense, deciduous undergrowth and tall trees that are used as singing perches (COSEWIC, 2012c). For wood thrush, habitat selection is based more on the structure of the forest, preferring sites with lower elevations, trees taller than 16 m, closed canopy (>70%), with a high variety of deciduous species, moist soil and decaying leaf litter (COSEWIC, 2012c).

Wood thrush were not identified to be on-site during the breeding bird surveys; however, historical occurrence data from the NHIC database indicate the species within 1km of the site.

Impacts to eastern wood thrush and their habitat on-site from the proposed development is limited to the forested habitat on-site (ELC Codes FODM5-1, FODM5-9 and FOMM2-2 on Figure A.3 in Appendix A), which may provide suitable nesting and foraging habitat. Impacts to wood thrush habitat may include loss of forest habitat and increased human presence and disturbance.

The proposed development is anticipated to result in the loss of potentially suitable woodland habitat on-site, however, when considering the abundance of woodlands available within the retained lands on-site and within the study area, this reduction in woodlands is not expected to negatively impact wood thrush habitat. As such, impacts to wood thrush are anticipated to be minimal.

Mitigation measures intended to prevent negative impacts to nesting and foraging wood thrush are presented in Section 7.

6.3.4.3 Eastern Musk Turtle

Eastern musk turtle is a highly aquatic, small freshwater turtle and is listed as a species of special concern in Ontario. Eastern musk turtle typically inhabit littoral zones and shallow waterways such as rivers, lakes, bays, streams, ponds, canals and swamps with slow currents and soft bottoms. They prefer shallow water with abundant floating and submerged vegetation (COSEWIC, 2012a).

As no in-water work is proposed for the development, the greatest potential impacts to eastern musk turtle habitat are alterations to water quality. Potential indirect impacts to surface water features resulting from construction activities and from increased runoff following construction may include: alterations to water quality, increased storm water runoff, overland flow and concomitant sediment transport caused by an increase in impervious surface area and vegetation loss, as well as increased nutrient loading through both overland and subsurface pathways, and landscaping practices.

Mitigation measures to protect eastern musk turtle and their habitat from the proposed development are presented in Section 7.

6.3.4.4 Northern Map Turtle

The Northern map turtle gets its name from the lines on the upper shell, or carapace, that resemble contour lines on a map (Ontario, 2019c), and is listed as a species of special concern in Ontario.

Habitat loss and degradation due to shoreline development and decline in water quality threaten the northern map turtle in Ontario (Ontario, 2019c). The spread of invasive species such as zebra mussels also poses a potential threat to this species. It is also vulnerable to mortality on roadways and injury from boat propellers (Ontario, 2019c). Additionally, the female northern map turtles may take more than 10 years to reach maturity (Ontario, 2019c). The illegal pet trade may be contributing to declines of this species in the United States and Canada (Ontario, 2019c).

As no in-water work is proposed for the development, the greatest potential impacts to northern map turtle habitat are alterations to water quality. Potential indirect impacts to surface water features resulting from construction activities and from increased runoff following construction may include: alterations to water quality, increased storm water runoff, overland flow and concomitant sediment transport caused by an increase in impervious surface area and vegetation loss, as well as increased nutrient loading through both overland and subsurface pathways, and landscaping practices.

Mitigation measures intended to prevent negative impacts to northern map turtle are presented in Section 7.

6.3.4.5 Snapping Turtle

Snapping turtle is the largest freshwater turtle found in Canada; in central Ontario males average 32 cm in carapace length and have an average mass of 9.3 kg (COSEWIC, 2008). In Ontario the snapping turtle is listed as a species of special concern.

Threats to snapping turtle are primarily related to their life-history, their slow recruitment, late maturity, long lifespan and high adult survival make them extremely vulnerable to a variety of anthropogenic impacts (COSEWIC, 2008). Short, cool summers also reduce hatching success. In Canada, snapping turtles are most impacted by events that increase adult mortality, such as harvesting of adults, persecution and road mortality (COSEWIC, 2008). Other threats include loss of habitat, environmental contamination and nest predation (COSEWIC, 2008).

As no in-water work is proposed for the development, the greatest potential impacts to snapping turtle habitat are alterations to water quality. Potential indirect impacts to surface water features resulting from construction activities and from increased runoff following construction may include: alterations to water quality, increased storm water runoff, overland flow and concomitant sediment transport caused by an increase in impervious surface area and vegetation loss, as well as increased nutrient loading through both overland and subsurface pathways, and landscaping practices.

Mitigation measures to protect snapping turtle and their habitat from the proposed development are presented in Section 7.

6.3.4.6 River Redhorse

The river redhorse is a large, thick-bodied sucker, reaching a maximum length of 80 cm (2019e). River redhorse have a white belly, brown to olive back and sides that are brassy, yellowish-green or coppery (Ontario, 2019e). In Ontario, river redhorse is listed as a species of special concern.

River redhorse are found in medium to large-sized rivers with substantial flow. River redhorse are sensitive to degradation and require clear, unpolluted water. Activities that increase siltation and turbidity, such as agriculture and urban development are the main limiting factors (2019e).

As no in-water work is proposed for the development, the greatest potential impacts to river redhorse habitat are alterations to water quality. Potential indirect impacts to surface water features resulting from construction activities and from increased runoff following construction may include: alterations to water quality, increased storm water runoff, overland flow and concomitant sediment transport caused by an increase in impervious surface area and vegetation loss, as well as increased nutrient loading through both overland and subsurface pathways, and landscaping practices.

Mitigation measures intended to prevent negative impacts to river redhorse are presented in Section 7.

6.4 Fish Habitat

According to the Provincial Planning Statement (MMAH, 2024), “development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.” Fish habitat as defined in the Fisheries Act (Canada, 1985) means “spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes.”

In 2019, changes were made to the Fisheries Act, broadening the protection for fish and fish habitat. Under the new Fisheries At, protection is afforded to all fish and fish habitat, not just those that support either a recreational, commercial or Aboriginal fishery. Under the Fisheries Act, work that is conducted in or near waterbodies must avoid “the death of fish, other than by fishing” (Canada, 1985). Furthermore, the new Fisheries Act states that work must avoid “the harmful alteration, disruption or destruction (HADD) of fish habitat” (Canada, 1985).

When activities are unable to avoid or mitigate harm to fish or fish habitat from typical project impacts such as temperature change, sedimentation, infilling, reduction of nutrient and food supply, etc., an authorization under Subsection 35 (2) of the Fisheries Act is required for the project to proceed without contravening the Act.

As no in-water work is proposed for the development, the greatest potential impacts to fish and fish habitat are indirect alterations to water quality. Potential indirect impacts to surface water features resulting from construction activities and from increased runoff following construction may include: alterations to water quality, increased storm water runoff, overland flow and concomitant sediment transport caused by an increase in impervious surface area and vegetation loss, as well as increased nutrient loading through both overland and subsurface pathways, and landscaping practices.

Mitigation measures intended to protect fish and fish habitat from negative impacts are discussed in Section 7.

6.5 Species at Risk

As outlined in the Endangered Species Act (Ontario, 2007), only species listed as threatened or endangered and their general habitat receive automatic protection. Following enactment of Bill 5, species specific habitat regulations are no longer valid for species protection, this includes documents such as general habitat descriptions that outlined Category 1, Category 2 and Category 3 habitats for species. Presently, habitat protections refer to the definition outlined in Bill 5 as follows:

“‘habitat’ means:

- a) *In respect of an animal species:*
 - i. *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, and*
 - ii. *The area immediately around a dwelling place described in subclause (i) above that is essential for the purposes set out in that subclause*
- b) *In respect of a vascular plant species: the critical root zone surroundings a member of the species, and*
- c) *In respect of all other species: an area on which any member of a species directly depends in order to carry on its life processes”*

Under the ESA, species of special concern and their habitat do not receive protection under the ESA.

Potential impacts associated with the proposed project to threatened or endangered species identified as having a moderate or high potential to occur on-site in Section 4.7, are discussed on a species-by-species basis in subsections below.

6.5.1 Red-Headed Woodpecker

The red-headed woodpecker (*Melanerpes erythrocephalus*) is a medium-sized bird – about 20 centimetres long – easily recognized for its vivid red head, neck and breast. The rest of the bird is black and white, mostly white underneath and black on top (Ontario, 2021b). The red-headed woodpecker is listed as endangered in Ontario.

The main threats to red-headed woodpecker are habitat degradation and ecosystem modifications, particularly the loss of standing dead wood critical for nesting, flycatching, and food caching. This is primarily due to suppression of disturbances that may lead to the creation of standing dead wood such as fire, dead wood removal for aesthetic reasons, or through harvesting

activities, and other human-driven modifications to the ecosystem that reduce standing dead wood (COSEWIC, 2018).

NHIC indicates the presence of red-headed woodpecker within 1km of site. Red-headed woodpecker were not detected on-site during breeding bird surveys, nor any other field investigations.

Impacts to red-headed woodpecker and their habitat on-site from the proposed development are limited to the forest habitat on-site (ELC Codes FODM5-1, FODM5-9 and FOMM2-2 on Figure A.3 in Appendix A), which may provide suitable nesting and foraging habitat. Impacts to red-headed woodpecker habitat may include loss of forest habitat and increased human presence and disturbance.

The proposed development is anticipated to result in the loss of potentially suitable woodland habitat on-site, however, when considering the abundance of woodlands available within the retained lands on-site and within the study area, this reduction in woodlands is not expected to negatively impact red-headed woodpecker habitat. As such, impacts to red-headed woodpecker are anticipated to be minimal.

Mitigation measures intended to prevent negative impacts to nesting and foraging red-headed woodpecker are presented in Section 7.

6.5.2 Eastern Red Bat

Eastern red bat (*Lasiurus borealis*) is a medium-large sized (typically 10-17 g), insectivorous bat found in Ontario. The fur of an eastern red bat is usually orange, but can vary from yellowish-red to yellowish-grey, with white or white-tipped hairs (COSEWIC, 2023).

The eastern red bat is found throughout Canada (except Prince Edward Island), the United States, and northeast Mexico; with distribution uncommon west of the Western Cordillera. In Ontario, the species occurs throughout Ontario, appearing as far north as James Bay (COSEWIC, 2023).

Eastern red bats overwinter in warmer climates in the southern extent of the United States, typically beneath leaf litter (COSEWIC, 2023). In comparison to many other Ontario bat species, they do not overwinter in caves. During the spring and summer months, they typically utilize the foliage of trees and occasionally shrubs for roosting habitat, with a preference for roosting near the edge of the crown and at sufficient heights to prevent access from mammalian predators (COSEWIC, 2023).

As discussed in Section 4.5.1.1, the forest habitat on-site does meet the requirements to support bat maternity colonies. As such, given the availability of habitat on-site and within the study area, there is a potential for eastern red bat to utilize the on-site forest for maternal roosting and/or foraging. Impacts to eastern red bat are primarily associated with habitat loss, encroachment and

increased wildlife-human interaction. Mitigation measures intended to protect eastern red bat from impacts of the proposed development are discussed in Section 7.

6.5.3 Eastern Small-footed Myotis

Eastern small-footed Myotis (*Myotis leibii*) is the smallest (typically 3-5 g), insectivorous bat found in Ontario. The fur of an eastern small-footed Myotis is golden-brown in colour, with a distinct black mask across the face. The eastern small-footed Myotis is very similar in appearance to the little brown Myotis, and is distinguishable by their small foot and keeled calcar (Fraser, MacKenzie & Davy, 2007). The eastern small-footed myotis is listed as endangered in Ontario.

Eastern small-footed Myotis overwinter primarily in caves and abandoned mines with low humidity and temperatures and stable microclimates (Humphrey, 2017). In comparison to other Ontario bat species, they are able to tolerate much colder temperatures, drier conditions and draftier locations for hibernating (Humphrey, 2017). During the spring and summer months, they utilize a variety of habitats for roosting, including under rocks or rock outcrops, in buildings, under bridges, or in caves, mines or hollow trees (Ontario, 2019a).

As discussed in Section 4.5.1.1, the forest habitat on-site does meet the requirements to support bat maternity colonies. As such, given the availability of habitat on-site and within the study area, there is a potential for eastern small-footed myotis to utilize the on-site forest for maternal roosting and/or foraging. Impacts to eastern small-footed myotis are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect eastern small-footed myotis from impacts of the proposed development are discussed in Section 7.

6.5.4 Hoary Bat

Hoary bat (*Lasiurus cinereus*) is a large (typically 16-38 g), insectivorous bat found in Ontario and is the largest bat found in Canada. The fur of a hoary bat is dense and include a complex mixture of colors, ranging from light to dark brown, and have white tipped hairs on the dorsal and ventral sides (COSEWIC, 2023). The hoary bat is distinguishable by the large size and light yellow-brown fur on the head, throat, and anterior margins of the wings (COSEWIC, 2023).

The hoary bat range spans across all provinces and territories within Canada, all the states within the United States, and has a wide distribution throughout Mexico (COSEWIC, 2023). In Ontario, the hoary bat is found throughout the province, and has been observed north of James Bay (COSEWIC, 2023).

Hoary bats overwinter in warmer climates in the southern extent of the United States, typically beneath leaf litter (COSEWIC, 2023). In comparison to many other Ontario bat species, they do not overwinter in caves. During the spring and summer months, they typically utilize the foliage of trees and occasionally shrubs for roosting habitat, with a preference for roosting near the edge of

the crown and at sufficient heights to prevent access from mammalian predators (COSEWIC, 2023).

As discussed in Section 4.5.1.1, the forest habitat on-site does meet the requirements to support bat maternity colonies. As such, given the availability of habitat on-site and within the study area, there is a potential for hoary bat to utilize the on-site forest for maternal roosting and/or foraging. Impacts to hoary bat are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect hoary bat from impacts of the proposed development are discussed in Section 7.

6.5.5 Little Brown Myotis

Little brown Myotis (*Myotis lucifugus*) is a small (typically 4-11 g), insectivorous bat. The fur of a little brown Myotis is bi-coloured; fur is a glossy brown with a darker coloured base. The tragus of the Little Brown Myotis is long and thin, with a rounded tip (Fraser, MacKenzie & Davy, 2007). The little brown myotis is listed as endangered in Ontario.

In Canada, little brown Myotis' occur throughout all of the provinces and territories (except Nunavut), with its range extending south through the majority of the United States as well. In Ontario, the little brown Myotis is widespread in southern Ontario and has been found as far north as Moose Factory and Favourable Lake (Ontario, 2019b).

Little brown Myotis overwinter in caves and abandoned mines, they require highly humid conditions and temperatures that remain above the freezing mark (Ontario, 2019b). During the summer months, maternity colonies are often located in buildings or large-diameter trees. Little brown Myotis roost in trees and buildings. Foraging occurs over water and along waterways, forest edges and in gaps in the forest. Open fields and clearcuts are not typically utilized for foraging (COSEWIC, 2013).

As discussed in Section 4.5.1.1, the forest habitat on-site does meet the requirements to support bat maternity colonies. As such, given the availability of habitat on-site and within the study area, there is a potential for little brown myotis to utilize the on-site forest for maternal roosting and/or foraging. Impacts to little brown myotis are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect little brown myotis from impacts of the proposed development are discussed in Section 7.

6.5.6 Silver-Haired Bat

Silver-haired bat (*Lasionycteris noctivagans*) is a medium-sized (typically 9-17 g), insectivorous bat. The fur is one of the darkest of all bats in Canada, with black skin membranes and black to dark brown fur (COSEWIC, 2023).

In North America, the silver-haired bat is widely distributed and spans from the southern extent of the Canadian provinces to east-central Mexico (COSEWIC, 2023). In Canada, the distribution

spans from coast to coast, but appears to be uncommon in Atlantic Canada. In Ontario, the species occurs throughout Ontario, appearing as far north as James Bay (COSEWIC, 2023).

Silver-haired bats overwinter in mines, rock crevices, trees, and snags across North America, including the United States, the Great Lakes region of Ontario, and in some areas of British Columbia (COSEWIC, 2023). Foraging typically occurs in young and old forests. Silver-haired bat roost primarily under bark and in cavities of trees; however, may occasionally roost on or in buildings (COSEWIC, 2023).

As discussed in Section 4.5.1.1, the forest habitat on-site does meet the requirements to support bat maternity colonies. As such, given the availability of habitat on-site and within the study area, there is a potential for silver-haired bat to utilize the on-site forest for maternal roosting and/or foraging. Impacts to silver-haired bat are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect silver-haired bat from impacts of the proposed development are discussed in Section 7.

6.5.7 Tri-Colored Bat

Tri-colored bat (*Perimyotis subflavus*) is a small (typically 5-7 g), insectivorous bat. The fur is uniformly coloured on the ventral and dorsal sides, however when parted fur shows three distinct colour bands. The base of the hair is blackish, with a blonde middle and brownish tip. The snout of the tri-coloured bat is also distinct, with swollen bulbous glands present (Fraser, MacKenzie & Davy, 2007). The tri-colored bat is listed as endangered in Ontario.

In Canada, the tri-colored bat has only been recorded in southern parts of Nova Scotia, New Brunswick, Quebec and central Ontario. In Ontario it occurs primarily from the southern edge of Lake Superior across to the Ontario-Quebec border and south (COSEWIC, 2013).

Tri-colored bat overwinter in in caves or mines, and have very rigid habitat requirements; they typically roosting the deepest parts where temperatures are the least variable, and have the strongest correlation with humidity levels and warmer temperatures (COSEWIC, 2013). In the spring and summer, tri-colored bat utilize trees, rock crevices and buildings for maternity colonies. Foraging is mainly done over watercourses and streamside vegetation (COSEWIC, 2013).

As discussed in Section 4.5.1.1, the forest habitat on-site does meet the requirements to support bat maternity colonies. As such, given the availability of habitat on-site and within the study area, there is a potential for tri-colored bat to utilize the on-site forest for maternal roosting and/or foraging. Impacts to tri-colored bat are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect tri-colored bat from impacts of the proposed development are discussed in Section 7.

6.5.8 Blanding's Turtle

Blanding's turtles (*Emydoidea blandingii*) have a highly domed, smooth black carapace with small, irregular tan or yellow flecking. The most distinctive characteristic of this species is the bright yellow chin and throat. Their hinged plastron is yellow with a large dark blotch in the corner of each scute but may also be entirely black (Oldham and Weller, 2000). The Blanding's turtle is listed as threatened in Ontario.

In Canada, Blanding's turtles are found throughout southern and south-central Ontario from south of Manitoulin Island to western Quebec. In Ontario, Blanding's turtles are often observed utilizing eutrophic habitats with clear water (COSEWIC, 2016). This turtle species occurs primarily in shallow water; adults are generally found in open or partially vegetated sites, whereas juveniles prefer areas that contain thick aquatic vegetation. Blanding's turtles are known to make large overland journeys between connected lakes, rivers, streams, marshes or ponds, upwards of 6 km in a single active season. Overwintering occurs in permanent pools that average about one metre in depth, or slow flowing streams (COSEWIC, 2016).

A series of turtle basking surveys were undertaken to determine the presence or absence of Blanding's turtles on-site. Observation data from the NHIC indicates Blanding's turtle as occurring within 2 km of the site; however, they were not observed on-site during the field investigation.

As discussed in Section 4.5.1.2, the Mississippi River provides suitable conditions for *candidate* overwintering habitat. Additionally, fallen trees and large boulders along the shoreline within the study area may provide suitable basking turtle habitat. Turtle nesting habitat within the study area is limited to small pockets of sandy banks along the shoreline.

As no in-water work is required for the project, potential indirect impacts to Blanding's turtles are primarily associated with changes to the surface water and groundwater water balance through increased stormwater runoff resulting from an increase in the impervious surface area and encroachment resulting in compaction of soils and vegetation loss.

Other potential impacts include short-duration construction impacts, including heavy machinery encroachment, fill placement, and long-term human disturbances such as noise generation, dumping of refuse and yard waste and trampling, and increased road mortality, particularly during the breeding season.

Potential direct impacts to Blanding's turtle habitat are associated with impacts to terrestrial habitat used by transients and increased interactions with transient Blanding's turtles. However, given the nature of the proposed development, impacts from increased human presence and disturbance are anticipated to be minimal.

Further, the general habitat description for Blanding's turtle outlines that generally compatible activities include small-scale alterations to land cover that do not impede overland movements or

impair nesting sites. Although the Mississippi River may provide suitable overwintering conditions, no suitable areas of nesting are present within the proposed area of development. Mitigation measures during construction are sufficient to protect transient Blanding's turtle from negative impacts.

In consideration of the proposed project and considering that the majority of potential terrestrial habitat on-site will be maintained, the proposed development is not anticipated to impede overland movements of Blanding's turtle post-construction.

Avoidance and mitigation measures intended to prevent harm to Blanding's turtles who have the potential to occur on-site are present in Section 7.

6.5.9 American Eel

American eel (*Anguilla rostrata*) is an elongated, cylindrical fish and is listed as endangered in Ontario.

The American eel uses both freshwater and marine habitats throughout its life. American eels are widespread in Eastern Canada, and preferred habitat in the freshwaters of Canada includes lakes, rivers and all waters extending from the high-water mark down to at least 10 m depth. Growing eels frequently use a variety of substrate (rock, sand, mud), woody debris and submerged vegetation to provide protection and cover, particularly during daylight hours.

A fisheries assessment was not completed as part of this EIS. Occurrence data from the NHIC indicates that American eel have been observed within 1 km of the site, likely within the Mississippi River.

American eel habitat within the study area is limited to Mississippi River. As no in-water work is proposed as part of the development plan, impacts to American eel are anticipated to be indirect in nature. Impacts to American eel and their habitat may include changes in water quality due to increases in imperviousness and storm water runoff, as well as increased human disturbance, increased wildlife and human interaction, and encroachment during construction.

Avoidance and mitigation measures intended to prevent harm to American eel who have the potential to occur on-site are present in Section 7.

6.5.10 Rapids Clubtail

The rapids clubtail is a relatively small, 42 to 45 millimetre-long and brightly coloured dragonfly and is listed as threatened in Ontario.

The rapids clubtail is typically found near clear, cool medium-to-large rivers with gravel shallows and muddy pools, with the larvae occupying quiet muddy pools. Adult males perch on exposed rocks and other projections in the rapids. Males are quite territorial and make short flights over

the water, repeatedly returning to the same perch. Adult females typically inhabit forests along riverbanks, and only visit shallows and pools when they are ready to mate and lay eggs (Ontario, 2021)

In Ontario, the rapids clubtail has only been found in four rivers in southern and eastern Ontario: the Thames, Humber, Credit and Mississippi (Ontario, 2021). The primary threat to the rapids clubtail is the degradation of river habitats. Activities which impede or alter the quantity and quality of water in the rivers, such as dams and pollution pose threats. (Ontario, 2021).

Occurrence data from the NHIC indicates that rapids clubtail has been observed within 1 km of the site, likely within the Mississippi River. Rapids clubtail was not observed during field investigations.

Rapids clubtail habitat within the study area is limited to Mississippi River. As no in-water work is proposed as part of the development plan, impacts to rapids clubtail are anticipated to be indirect in nature. Impacts to rapids clubtail and their habitat may include changes in water quality due to increases in imperviousness and storm water runoff, as well as increased human disturbance, increased wildlife and human interaction, and encroachment during construction.

Avoidance and mitigation measures intended to prevent harm to rapids clubtail who have the potential to occur on-site are present in Section 7.

6.5.11 Butternut

Butternut (*Juglans cinerea*) is a relatively short lived, medium-sized tree that can reach heights of up to 30 m. It is easily distinguished by its compound leaves, made up of 11 to 17 leaflets, arranged in a feather-like pattern. Each leaflet is 9 to 15 centimetres in length. The bark is grey and smooth on young trees, developing ridges with age. Butternut is a member of the walnut family and produces edible nuts in the fall.

The Canadian range for Butternut extends through southern Ontario into southern Quebec, and New Brunswick (COSEWIC, 2017). Butternut is a shade-intolerant tree that is commonly found in riparian habitats and sites in a regenerative state. Butternut can also be found on rich, moist, well-drained gravels, favouring those of limestone origin. Common associates of Butternut trees include basswood, black cherry, beech, black walnut, elm, hickory, oak, red maple, sugar maple, yellow poplar, white ash, and yellow birch.

Four butternut trees were observed on-site, within the Dry - Fresh White Pine - Sugar Maple Mixed Forest (ELC code: FOMM2-2). The locations of the butternut are illustrated on Figure A.5 in Appendix A. Impacts to the butternut observed on-site may include encroachment and increased disturbance during construction.

If construction within of the critical root zone (CRZ) of each butternut tree on the property cannot be avoided, or if the butternuts on-site will be impacted by any aspect of the proposed development (e.g. killed, harmed or taken), a Butternut Health Assessment (BHA) must be submitted to the Kemptville district Ministry of Environment, Conservation and Parks (MECP) office, a minimum of 30 days before undertaking any activity that may kill, harm or take any of the butternut trees identified on-site.

Mitigation measures for the protection of butternut during the proposed development are presented in Section 7.

6.5.12 Black Ash

The Canadian range for black ash extends from western Newfoundland to southeastern Manitoba (Ontario, 2023). It is a shade-intolerant species that is typically found on moist to wet sites, including swamps, bogs, and riparian areas. Black ash was added to the Species at Risk in Ontario list in January 2022.

One black ash was identified on-site, adjacent to the Mississippi River. The location of the black ash is illustrated on Figure A.5 in Appendix A.

While the proposed project is expected to require some level of vegetation clearing to accommodate future construction activities, the black ash is unlikely to be removed. If construction within the dripline of the identified black ash vegetation communities cannot be avoided, or if the black ash on-site will be impacted by any aspect of the proposed development (e.g. killed, harmed or taken), a black ash health assessment and consultation with the Ministry of Environment, Conservation and Parks (MECP) would be required to determine next steps for the property.

Potential impacts may include short duration construction impacts, including heavy machinery encroachment, fill placement, and long-term human disturbance such as dumping of refuse and trampling.

Mitigation measures anticipated to be required to protect black ash are provided in Section 7.

6.6 Cumulative Impacts

Potential cumulative impacts associated with the proposed project include an increase in storm water generation, increases in nutrient loading to aquatic features, and the loss of forest habitat, primarily for avian species.

Cumulative impacts to the natural environment at the site due to increased human presence, increased wildlife and human interaction and increased noise, are expected to be negligible given the existing residential and agricultural land use in the surrounding project area.

Cumulative impacts such as those listed above can be mitigated by implementing the proposed setbacks and recommended mitigation measures outlined in Section 7 below.

7.0 RECOMMENDED AVOIDANCE AND MITIGATION MEASURES

The following avoidance and mitigation measures have been recommended by GEMTEC in order to minimize or eliminate potential environmental impacts identified in Section 6.

For the purpose of this report, a setback is defined as the minimum required distance between any structure, development or disturbance and a specified line. A buffer, for the purpose of this report, is defined as the area located between a natural heritage feature and the prescribed setback. For the purpose of the following subsections, buffers should be located between natural heritage features and lands subject to development or alteration, be permanently vegetated by native or non-invasive, self sustaining vegetation and protect the natural heritage feature against the impact of the adjacent land use.

Vegetated buffers, particularly buffers that are vegetated with a mix of grassy herbaceous vegetation and shrubby or woody vegetation are most effective in mitigating impacts associated with anthropogenic activities in adjacent lands (Beacon, 2012). In the subsections below, where possible, literature references for studies used as the basis of the recommended buffer widths are provided.

7.1 Significant Woodlands

Based on the current conceptual site plan, the proposed plan of development is anticipated to result in a loss of approximately 0.94 ha of the existing 2.80 ha (34%) of significant woodland cover on-site. In support of the proposed development, a tree inventory has been completed for the subject property. As such, a Tree Conservation Report (TCR) is being prepared in conjunction with this EIS. The TCR is to be finalized and submitted at the time of a future Site Plan Control application once a detailed plan is available and tree retainability is determined.

As mentioned in Section 6.1, although a loss of significant woodlands is anticipated, the majority of woodlands on-site will be retained. Additionally, at the time of writing it is understood that the preferred approach is to preserve the natural qualities of the site to the greatest extent possible by removing only select trees, particularly to accommodate the cabins, rather than clear-cutting. It is understood that once the forested areas have been cleared of dead trees, the cabins would be sited to maintain healthy trees as much as possible. With regard to the larger buildings, including the spa, hotel, banquet hall, etc. their siting will be determined based on maximizing tree retention as well as other considerations such as slope stability, functional layouts, etc. As such, while tree removal will be required to accommodate the project, vegetation clearing will be minimized through site plans to preserve the natural qualities of the forest to the greatest extent possible.

No negative impacts on the ecological function of the significant woodlands are anticipated as a result of this project if all mitigation measures and best management practices recommended in the TCR are adhered to.

7.2 Significant Wildlife Habitat

7.2.1 *Candidate* Reptile Hibernaculum and *Candidate* Turtle Wintering Habitat

The 30 m setback to protect fish habitat and aquatic SWH from development impacts is sufficient for the protection of the *candidate* reptile hibernaculum and the *candidate* turtle wintering SWH.

Furthermore, the 30 m setback ensures that the core forest cover and surrounding summer habitat is maintained, which is important for reptiles and amphibians moving between habitats throughout the year.

7.2.2 Habitats of Special Concern and Rare Wildlife Species – Eastern Wood Pewee and Wood Thrush

Impacts to eastern wood-pewee and wood thrush primarily concern habitat loss and increased fragmentation.

To minimize the impact of the proposed development on eastern wood-pewee, wood thrush and habitat, vegetation removal should occur outside the key breeding bird period (typically April 15 to August 15) as identified by Environment Canada for the protection of nesting and foraging eastern wood-pewee and to avoid contravention of the Migratory Bird Convention Act. If vegetation clearing activities must take place during the aforementioned timing window then a nest survey shall be conducted by a qualified professional.

7.2.3 Habitats of Special Concern and Rare Wildlife Species – Eastern Musk Turtle, Northern Map Turtle and Snapping Turtle

The 30 m setback to protect fish habitat and aquatic SWH from development impacts is sufficient to protect special concern and rare wildlife habitat (eastern musk turtle, northern map turtle, and snapping turtle) within the Mississippi River. Furthermore, the 30 m setback ensures that forest cover and surrounding summer habitat is maintained, which is important for reptiles moving between habitats throughout the year.

7.2.4 Habitats of Special Concern and Rare Wildlife Species – River Redhorse

The 30 m setback to protect fish habitat and aquatic SWH from development impacts is sufficient to protect special concern and rare wildlife habitat (river redhorse). Furthermore, the 30 m setback ensures that forest cover is maintained, which is important for the significant woodlands ecological functions of proximity to and protection of fish habitat.

7.3 Fish Habitat

Beacon Environmental Review of Ecological Buffers (2012), provides a range for buffer widths to protect various natural heritage features based on the current science. The buffers are presented in a way that determines the risk of not achieving the desired buffer function (i.e. high, moderate and low). The functions analysed include water quantity, water quality, screening or human disturbance/changes in land use, hazard mitigation zone and core habitat protection. Watercourse

buffer widths have a moderate risk of not providing adequate mitigation for water quality impacts at widths between 11 m and 30 m. Watercourse buffer widths have a moderate risk of not providing adequate mitigation for human disturbance/land use change impacts at widths between 11 m and 30 m and low risk at widths of 31 m to 60 m. Watercourse buffer widths have a moderate risk of not providing adequate mitigation for core habitat protection at widths between 21 m and 60 m.

In consideration of the surface water features associated with fish habitat on-site, and the nature of the proposed development, a minimum 30 m setback from the Mississippi River is recommended. The recommended 30 m setback provides sufficient protection for mitigating water quality impacts and human disturbances. At 30 m, the protection the buffer offers for core habitat protection, falls into the moderate risk of not achieving desired buffer function. As such a 30 m setback is sufficient to protect core habitat within the Mississippi River.

With the proposed 30m setback from the Mississippi River, all of the proposed building structures within the subject property will be outside of this setback. Sections of the proposed multi use trail will be within the 30m setback; however, it is our opinion that the construction of this feature will not impact fish habitat and that with proper erosion and sediment control (ESC) measures, it will ensure any indirect impacts associated with the path construction are avoided. Additionally, certain minor works may occur within this buffer, including a possible stormwater outlet that will involve pipes and a headwall, as well as amenities that require access or proximity to water such as docks and gazebos. Consultation with the DFO may be required and will be determined at the time of a future Site Plan Control application once a detailed plan is available.

No negative impacts on fish habitat are anticipated as a result of this project if all mitigation measures recommended below are enacted and best management practices followed. The Mississippi River can be protected against potential impacts of the proposed development through the implementation of a construction setback.

General mitigation measures recommended for the protection of water quality and wetland habitat include:

- Buffers should be comprised of a mixture of native, self-sustaining trees, shrubs and tall grasses. The prescribed setbacks along the watercourse should remain in a natural, vegetated state.
- All future development and construction activities within the study area, including ditching, culvert installation, erosion and sediment control and storm water management should be completed in accordance with Ontario Provincial Standard Specification 182 and OPSS 805.
- Sediment fencing should be installed along all setbacks to provide visual demarcation of the setbacks to prevent machinery encroachment and sediment transport.
- Install and maintain effective sediment and erosion control measures before starting work.

- Schedule work to avoid wet, windy and rainy periods.
- When native soil is exposed, sediment and erosion control work in the form of heavy-duty sediment fencing shall be positioned along the down gradient edge of any construction envelopes adjacent to waterbodies.
- Maintain erosion and sediment control measures until all disturbed ground has been permanently stabilized, suspended sediment has resettled, and runoff water is clear. Sediment and erosion control measures should be inspected daily, with any required repairs being completed immediately.
- In order to protect fish habitat from contamination, it is recommended that all machinery be maintained in good working condition and that all machinery be fueled a minimum of 30 m from the high-water mark.
- Any temporary storage of aggregate material shall be set back from the water's edge by no less than 40 m and be contained by heavy-duty silt fencing.
- Maintain as much permeable surface area as possible in future development plans to limit the generation of stormwater runoff.

7.4 Species at Risk

7.4.1 Red-Headed Woodpecker

Impacts to red-headed woodpecker primarily concern habitat loss and increased fragmentation.

To minimize the impact of the proposed development on red-headed woodpecker and habitat, vegetation removal should occur outside the key breeding bird period (typically April 15 to August 15) as identified by Environment Canada for the protection of nesting and foraging eastern woodpeewee and to avoid contravention of the Migratory Bird Convention Act. If vegetation clearing activities must take place during the aforementioned timing window then a nest survey shall be conducted by a qualified professional.

7.4.2 Eastern Red Bat, Eastern Small-footed Myotis, Hoary Bat, Little Brown Myotis, Silver-Haired Bat, and Tri-Colored Bat

To protect bat species during vegetation removal, trees and vegetation should be cleared in stages, working from the outer edge, in towards the centre, in order to provide wildlife in the forest time to migrate out.

In GEMTECs experience on similar development applications and consultation with the MECP for projects and properties of similar size and scale, the above mitigation/avoidance measures are sufficient to ensure no negative impacts to SAR bats. In eastern Ontario habitat is not a limiting factor, as such the MECP recommends the use of avoidance timing window for clearing of trees (>10cm in diameter) in order to avoid impacts to SAR bat species. As long as timing windows can be adhered to, the project will not impact SAR bats, and it is GEMTECs opinion that no further consultation with the MECP is required.

7.4.3 Blanding's Turtle

As indicated in Section 6.5, Blanding's turtles has the potential to occur on-site, primarily in a transient nature. To protect Blanding's turtles that may use the site, on-site reptile exclusion fencing should be installed around the entire construction zone and be maintained for the duration of the project, to prevent Blanding's turtle from entering the construction zone. Reptile exclusion fencing should follow guidelines established in *Species at Risk Branch Best Practices Technical Note – Reptile and Amphibian Exclusion Fencing* (OMNRF, 2013b).

7.4.4 American Eel and Rapids Clubtail

The 30 m setback to protect fish habitat and aquatic SWH from development impacts is sufficient to protect American eel and rapids clubtail habitat within the Mississippi River.

7.4.5 Butternut

As indicated in Section 6.5.10, four butternut trees, a plant SAR were identified on-site. As the proposed development has the potential to impact the stems and/or the critical root zone of the butternuts on-site, completion of a Butternut Health Assessment (BHA) is recommended that will determine the categories of the identified trees. Following the BHA submission there is a 30-day period where no butternut trees can be removed, harmed or taken.

Following the 30-day period, unless otherwise directed by MECP staff, all Category 1 trees may be harmed, removed or taken, if required.

Following the 30-day period, a Notice of Butternut Impact must be submitted to the Kemptville MECP if the Category 2 tree on-site is required to be removed, harmed or taken. The Notice of Butternut Impact must be submitted before the Category 2 tree is removed, harmed or taken. Additionally, if Category 2 trees will be impacted by the proposed project additional regulations apply including: planting butternut seedlings (following the ratios and planting requirements outlined in the ESA), tending and monitoring the seedlings for a period of 2 years following planting, and maintaining records relating to planting, tending and monitoring. Records must be submitted to the MECP within 14 days of receiving a request.

7.4.6 Black Ash

The 30 m setback to protect fish habitat and aquatic SWH from development impacts is sufficient to protect on-site black ash from negative impacts.

Healthy black ash trees and their critical root zone, that are taller than 1.37 m or larger than 8 cm diameter at breast height (DBH) are protected under the Endangered Species Act. Any work within the critical root zone of a healthy black ash tree that meets the size criteria will require consultation with the MECP before undertaking any activity that may kill, harm or take any of the black ash trees identified on-site.

7.5 Wildlife

The following avoidance and mitigation measures are provided in effort to minimize impacts to on-site and off-site wildlife:

- Vegetation removal should occur outside the key breeding bird period (typically March 15 to November 30) as identified by Environment Canada for the protection of migratory birds and to avoid contravention of the Migratory Bird Convention Act. If vegetation clearing activities must take place during the aforementioned timing window then a nest survey shall be conducted by a qualified professional.
- Installation of silt fence barriers around the entire construction envelope of each future residential dwelling to prohibit the emigration of wildlife into the construction area.
- Cover all stock piled material with a geotextile to prevent turtles from nesting in the material between May 1 and August 1 of any year.
- Perform daily pre-work sweeps of the construction area to ensure no species at risk are present and to remove any wildlife from inside the construction area.
- Should any species at risk be discovered throughout the course of the proposed works, the species at risk biologist with the local MECP district should be contacted immediately and operations modified to avoid any negative impacts to species at risk or their habitat until further direction is provided by the MECP.

7.6 Best Practice Measures for Mitigation of Cumulative Impacts

The following best management practice measures are provided for the mitigation of cumulative impacts resulting from general construction and development activities;

- To protect trees identified to be retained during construction, the Critical Root Zone (CRZ) should be identified and fenced. The CRZ is defined as 10 cm from the base of the tree for every centimetre in diameter of the tree trunk measured at breast height.
- Maintain as much permeable surface as possible in future development plans to minimize the generation of storm water runoff.
- Silt fencing should be installed along all setbacks to provide visual demarcation of the setbacks and to prevent machinery encroachment and sediment transport.
- Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized.
- In effort to offset the effect of vegetation clearing, consideration should be given to landscape planting with native tree species indicative of the Great Lakes – St. Lawrence Forest Region, such as white cedar, white spruce, red maple and red oak.

8.0 CONCLUSIONS

The proposed project supported by this EIS is the expansion of the existing dwelling and creation of an apartment building, hotel and spa, spa grounds, private cabins, a parking lot, and internal road, on an existing approximately 4.5 ha subject property.

Based on the results of the impact analysis, impacts to the natural environment are anticipated to be minimal. Provided that mitigation measures recommended in Section 7 are implemented as proposed, no significant residual impacts are anticipated from the proposed development.

Following review of the information pertaining to the natural heritage features of the site, the following general conclusions are provided by GEMTEC in regard to the Environmental Impact Statement.

- No significant impacts to natural heritage features identified on-site, including significant woodlands, fish habitat, significant wildlife habitat or habitats of species at risk are anticipated as a result of future development.
- The proposed project complies with the natural heritage policies of the Provincial Planning Statement.
- The proposed development complies with the natural heritage policies of the Lanark County Official Plan.

9.0 LIMITATION OF LIABILITY

This report and the work referred to within it have been undertaken by GEMTEC Consulting Engineers and Scientists Ltd (GEMTEC) and prepared for Novatech and is intended for the exclusive use of Novatech. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC and Novatech. Nothing in this report is intended to provide a legal opinion.

The investigation undertaken by GEMTEC with respect to this report and any conclusions or recommendations made in this report reflect the best judgements of GEMTEC based on the site conditions observed during the investigations undertaken at the date(s) identified in the report and on the information available at the time the report was prepared.

This report has been prepared for the application noted and it is based, in part, on visual observations made at the site, all as described in the report. Unless otherwise stated, the findings contained in this report cannot be extrapolated or extended to previous or future site conditions, or portions of the site that were unavailable for direct investigation.

Should new information become available during future work, including excavations, borings or other studies, GEMTEC should be requested to review the information and, if necessary, reassess the conclusions presented herein.

We trust this report provides sufficient information for your present purposes. If you have any questions concerning this report, please do not hesitate to contact our office.



Emily Pentz, B.Sc.
Junior Biologist



Zachary Anderson, B.Sc., CAN-CISEC
Biologist

10.0 REFERENCES

Beacon Environmental. 2012. Ecological Buffer Guideline Review – Prepared for Credit Valley Conservation Authority. December.

Cadman M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier. 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature. Toronto.

Canada, Government of (Canada). 1985. Fishers Act. R.S.C. 1985, c. F-14.

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

COSEWIC. 2023. COSEWIC assessment and status report on the Hoary Bat *Lasiurus cinereus*, Eastern Red Bat *Lasiurus borealis* and Silver-haired Bat, *Lasionycteris noctivagans*, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxi + 100 pp.

COSEWIC. 2018. COSEWIC assessment and status report on the Red-headed Woodpecker *Melanerpes erythrocephalus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 60 pp.

COSEWIC. 2016. COSEWIC assessment and status report on the Blanding's Turtle *Emydoidea blandingii*, Nova Scotia population and Great Lakes/St. Lawrence population, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xix + 110 pp.

COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis *Myotis lucifugus*, Northern Myotis *Myotis septentrionalis* and Tri-coloured Bat *Perimyotis subflavus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp.

COSEWIC. 2012a. COSEWIC assessment and status report on the Eastern Musk Turtle *Sternotherus odoratus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 68 pp.

COSEWIC. 2012b. COSEWIC assessment and status report on the Eastern Wood-pewee *Contopus virens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp.

COSEWIC. 2012c. COSEWIC assessment and status report on the Wood Thrush *Hylocichla mustelina* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 46 pp.

COSEWIC. 2008. COSEWIC assessment and status report on the Snapping Turtle *Chelydra serpentina* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 28 pp.

Crins, J., William., P. A. Grey, P. W. Uhlig, and M.C. Wester. 2009. The Ecosystems of Ontario, Part I: Ecozones and Ecoregions. Ontario Ministry of Natural Resources, Peterborough, Ontario.

Department of Fisheries and Oceans (DFO). 2019. Aquatic Species at Risk Map. Viewed online, September 20, 2024. Available from: <http://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html>

Department of Fisheries and Oceans (DFO). 2013. Land Development Guidelines for the Protection of Aquatic Habitat.

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

Downes, C.M., and B.T. Collins, Canadian Breeding Bird Survey, 1967-2003. National Wildlife Research centre, Canadian Wildlife Service, Ottawa.

Fraser E., MacKenzie, A., and Davy, C. 2007. Photo Field Guide to the Bats of Ontario. Published by St. Thomas Field Naturalists Club Incorporated.

Holm, E., N. Mandrak, and M. Burrige. 2009. The ROM field guide to freshwater fishes of Ontario. Royal Ontario Museum Science Publication. Toronto, ON. 462 pp

Humphrey, C. 2017. Recovery Strategy for the Eastern Small-footed Myotis (*Myotis leibii*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. Vii + 76 pp.

Lanark. 2012. Lanark County Official Plan: Sustainable Communities Official Plan. Available online:<http://www.lanarkcounty.ca/Assets/New/Planning+Department/SCOP+Approved+2013.pdf>

Lee, H. T. 2008. Draft Southern Ontario Ecological Land Classification. Ministry of Natural Resources: London, Ontario.

Mississippi Mills Official Plan. Municipality of Mississippi Mills Community Map. Available online: <http://cgis.com/cpal/Default.aspx?CLIENT=MMILLS&MAPTYPE=Official%20Plan>

Mississippi Valley Conservation Authority. MVCA Portal. Available online: <https://camaps.maps.arcgis.com/apps/webappviewer/index.html?id=70831905961e470988262c7a703a56af>

Municipality of Mississippi Mills (Mississippi Mills). 2018. Municipality Of Mississippi Mills Community Official Plan.

Oldham, M.J and W.F. Weller. 2000. Ontario Herpetofaunal Atlas.

Ontario, Government of (Ontario). 2021a. Rapids Clubtail, viewed online September 20, 2024. Available online: <https://www.ontario.ca/page/rapids-clubtail>

Ontario, Government of (Ontario). 2021b. Red-headed Woodpecker, viewed online September 20, 2024. Available online: <https://www.ontario.ca/page/red-headed-woodpecker>

Ontario, Government of (Ontario). 2019a. Eastern small-footed Myotis. Viewed online September 20, 2024. Available from: <https://www.ontario.ca/page/eastern-small-footed-myotis>

Ontario, Government of (Ontario). 2019b. Little Brown Myotis. Viewed online September 20, 2024. Available from: <https://www.ontario.ca/page/little-brown-myotis>

Ontario, Government of (Ontario). 2019c. Northern Map Turtle, viewed online September 20, 2024. Available online: <https://www.ontario.ca/page/northern-map-turtle>

Ontario, Government of (Ontario). 2019d. Northern Myotis. Viewed online September 20, 2024. Available from: <https://www.ontario.ca/page/northern-myotis>

Ontario, Government of (Ontario). 2019e. River Redhorse, viewed online September 20, 2024. Available online: <https://www.ontario.ca/page/river-redhorse>

Ontario, Government of (Ontario). 1990. Conservation Authorities Act. R.S.O. 1990. Chapter C.27. Last amendment: 2011, C.9 Sched. 27, S. 22.

Ontario Legislative Assembly (Ontario). 2007. Endangered Species Act.

Ontario Ministry of Municipal Affairs and Housing (MMAH). 2024, Provincial Planning Statement – Under Planning Act, Toronto. April.

Ontario Ministry of Natural Resources and Forester (OMNRF). 2020a. Wildlife Values Area. Accessed from Ontario GeoHub, viewed online September 19, 2024. Available from <https://geohub.lio.gov.on.ca/datasets/wildlife-values-area?geometry=-117.696%2C38.917%2C-51.778%2C58.786>

Ontario Ministry of Natural Resources and Forestry (OMNRF). 2020b Wildlife Values Site. Accessed from Ontario GeoHub, viewed online September 19, 2024. Available from: <https://geohub.lio.gov.on.ca/datasets/wildlife-values-site>

Ontario Ministry of Natural Resources and Forestry (OMNRF). 2018. Natural Heritage Information Request Guide.

Ontario Ministry of Natural Resources and Forestry (OMNRF). 2015. Significant Wildlife Habitat Ecoregion 6E Criterion Schedules.

Ontario Ministry of Natural Resources and Forestry (OMNRF). 2014a. Make a Map: Natural Heritage Areas.

Ontario Ministry of Natural Resources and Forestry (OMNRF). 2014b. Significant Wildlife Habitat Mitigation Support Tool.

Ontario Ministry of Natural Resources and Forestry (OMNRF). 2013. Natural Heritage Information Centre (NHIC) Biodiversity Explorer.

Ontario Ministry of Natural Resources (OMNR). 2011a. Bats and Bat Habitats Guidelines for Wind Power Projects. Second Edition.

Ontario Ministry of Natural Resources (OMNR). 2011b. Land Information Ontario (LIO).

Ontario Ministry of Natural Resources (OMNR). March 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition.

Ontario Ministry of Natural Resources (OMNR). 2005 Natural Heritage Information Centre. Ontario Odonata Atlas.

Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Technical Guide.

Ontario Geological Survey 2019. Surficial geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 128-REV

Ontario Nature, 2019, Ontario Reptile and Amphibian Atlas, viewed online September 20, 2024. Available:

<https://www.ontarioinsects.org/herp/index.html?Sort=1&area2=squaresCounties&records=all&myZoom=5&Lat=42.95&Long=-81.01>Rowe, J.S. 1972. Forest Regions of Canada. Canadian Forestry Service Publication no. 1300. Publishing Division, Information Canada.

Stanfield, L (Ed.). 2017. Ontario Stream Assessment Protocol. Version 10. Ontario, Canada.



APPENDIX A

Report Figures

Figure A.1 – Site Location

Figure A.2 – Site Layout

Figure A.3 – Vegetation Communities

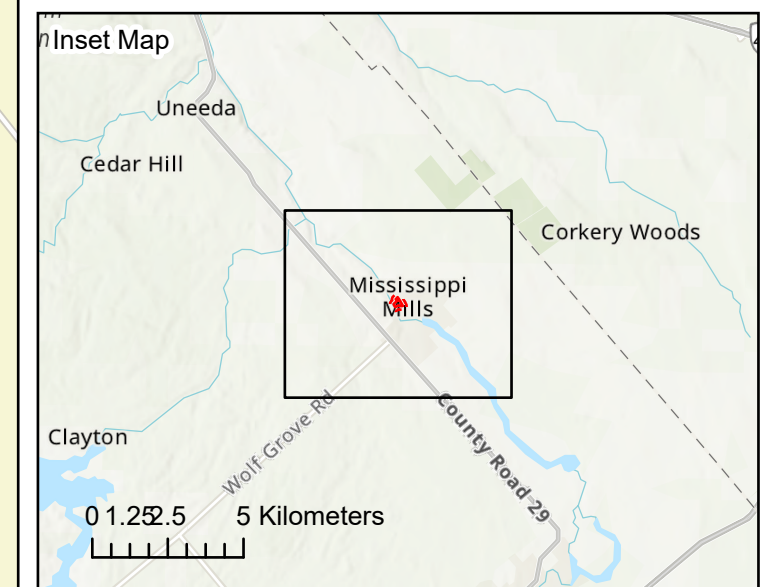
Figure A.4 – Proposed Development Plan

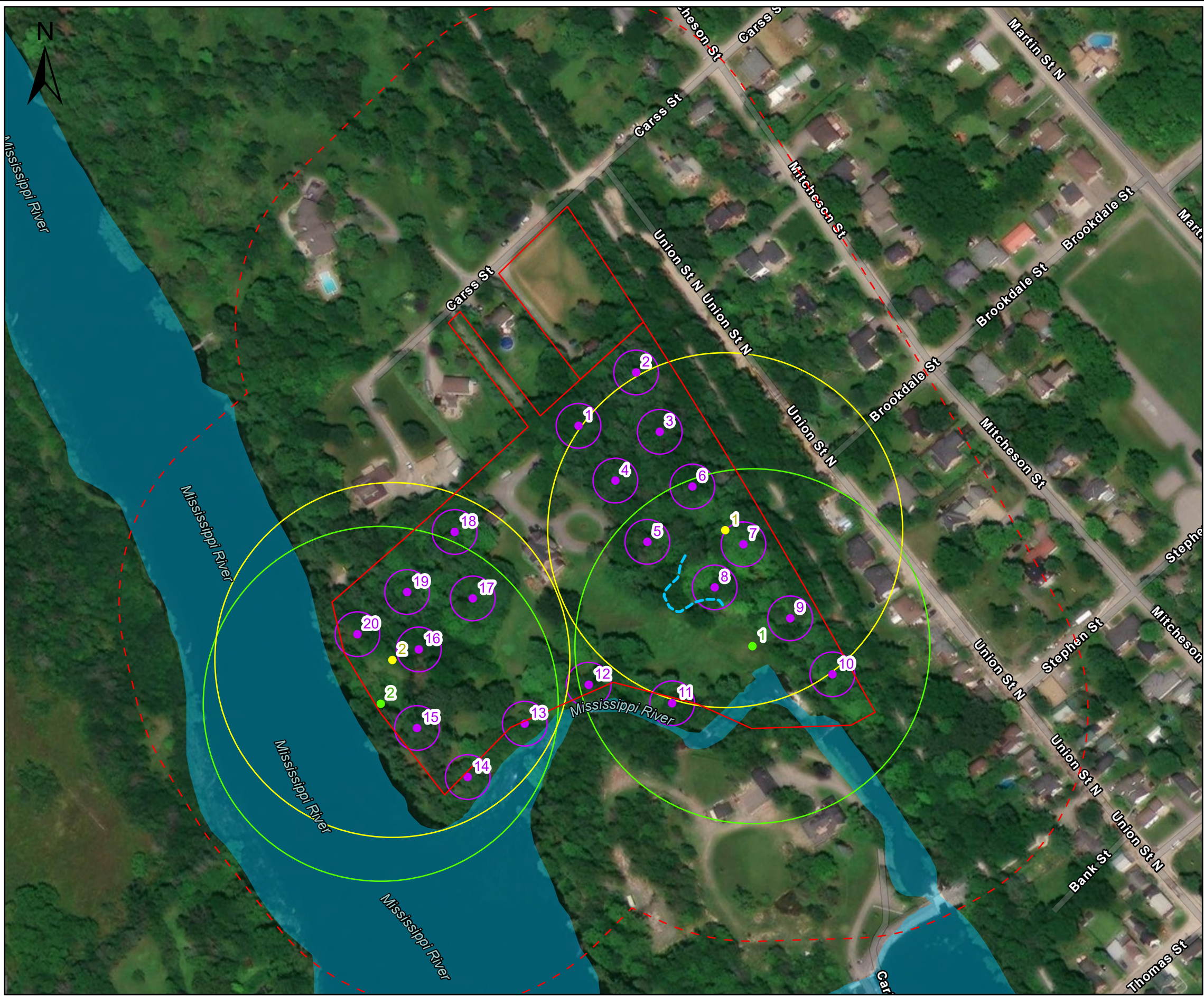
Figure A.5 – Natural Heritage Features

Figure A.6 – Mitigation Measures



Legend





Legend

- Property Boundary
- Study Area
- Waterbody
- Ephemeral Watercourse
- Breeding Bird Survey Location (100 m radius)
- Amphibian Breeding Survey Location (100 m radius)
- Bat Maternity Roost Survey Location (12.6 m radius)

Scale
1:2,250

0

15

30

60

90

120

150

Meters



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Location 39 and 53 Carss Street Almonte, Ontario							
Drwn By: EP		Chkd By: ZA		Site Layout			
Date: August 2025				Rev. 0		Figure: A.2	
© Queen's Printer for Ontario							



Legend

Property Boundary

Study Area

Waterbody

Ephemeral Watercourse

Vegetation Community

CVR: Residential
FOMM2-2: Dry - Fresh White Pine - Sugar Maple Mixed Forest
FODM5-1: Dry - Fresh Sugar Maple Deciduous Forest
FODM5-9: Dry - Fresh Sugar Maple - Hardwood Deciduous Forest

Scale
1:2,250

Meters

0

15

30

60

90

120

150

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Project:

100011.097

Location

39 and 53 Carss Street
Almonte, Ontario

Drwn By:

EP

Chkd By:

ZA

Vegetation Community

Date: August 2025

Rev.

0

Figure: A.3

© Queen's Printer for Ontario

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Maxar, Microsoft
Hybrid Reference Layer: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



Legend

- Property Boundary
- Study Area
- Waterbody
- Ephemeral Watercourse

Development Concept

- Building
- Cabin
- Existing Building
- Parking
- Road
- Spa Grounds
- Trail
- Existing Patio

Scale
1:2,250

0 15 30 60 90 120 Meters



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Location 39 and 53 Carss Street Almonte, Ontario							
Drwn By: EP		Chkd By: ZA		Development Concept			
Date: August 2025				Rev. 0		Figure: A.4	
© Queen's Printer for Ontario							



Legend

- Property Boundary
- Study Area
- Waterbody
- Ephemeral Watercourse
- Proposed Development Concept
- Significant Woodland
- 1:100 Year Floodplain
- Butternut Occurrence
- Black Ash Occurrence

Scale

1:2,250

0

15

30

60

90

120

Meters



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Client:		Novatech		Project:		100011.097	
Location							
39 and 53 Carss Street Almonte, Ontario							
Drwn By:		Chkd By:		Natural Heritage Features			
EP		ZA					
Date: August 2025						Rev.	
© Queen's Printer for Ontario						0	
Figure: A.5							



Legend

- Property Boundary
- Study Area
- Waterbody
- Ephemeral Watercourse
- Proposed Development Concept
- Significant Woodland
- 1:100 Year Floodplain
- Butternut Occurrence
- Black Ash Occurrence
- 30m Setback

Scale

1:2,250

0 15 30 60 90 120 150 Meters



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Client:		Novatech		Project:		100011.097	
Location							
39 and 53 Carss Street Almonte, Ontario							
Drwn By:		Chkd By:		Mitigation Measures			
EP		ZA					
Date: August 2025				Rev.		Figure: A.6	
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APPENDIX B

Site Photographs



Site Photograph 1: Dry - Fresh White Pine - Sugar Maple Mixed Forest (FOMM2-2).



Site Photograph 2: Dry - Fresh Sugar Maple Deciduous Forest (FODM5-1).



Site Photograph 3: Residential (CVR).



Site Photograph 4: Residential (CVR).



Site Photograph 5: Dry - Fresh Sugar Maple - Hardwood Deciduous Forest (FODM5-9).



Site Photograph 6: Waterfront to the Mississippi River.



Site Photograph 7: Exposed rock on-site; candidate reptile hibernaculum.



Site Photograph 8: Drainage feature on-site.



Site Photograph 9: Black ash on-site.



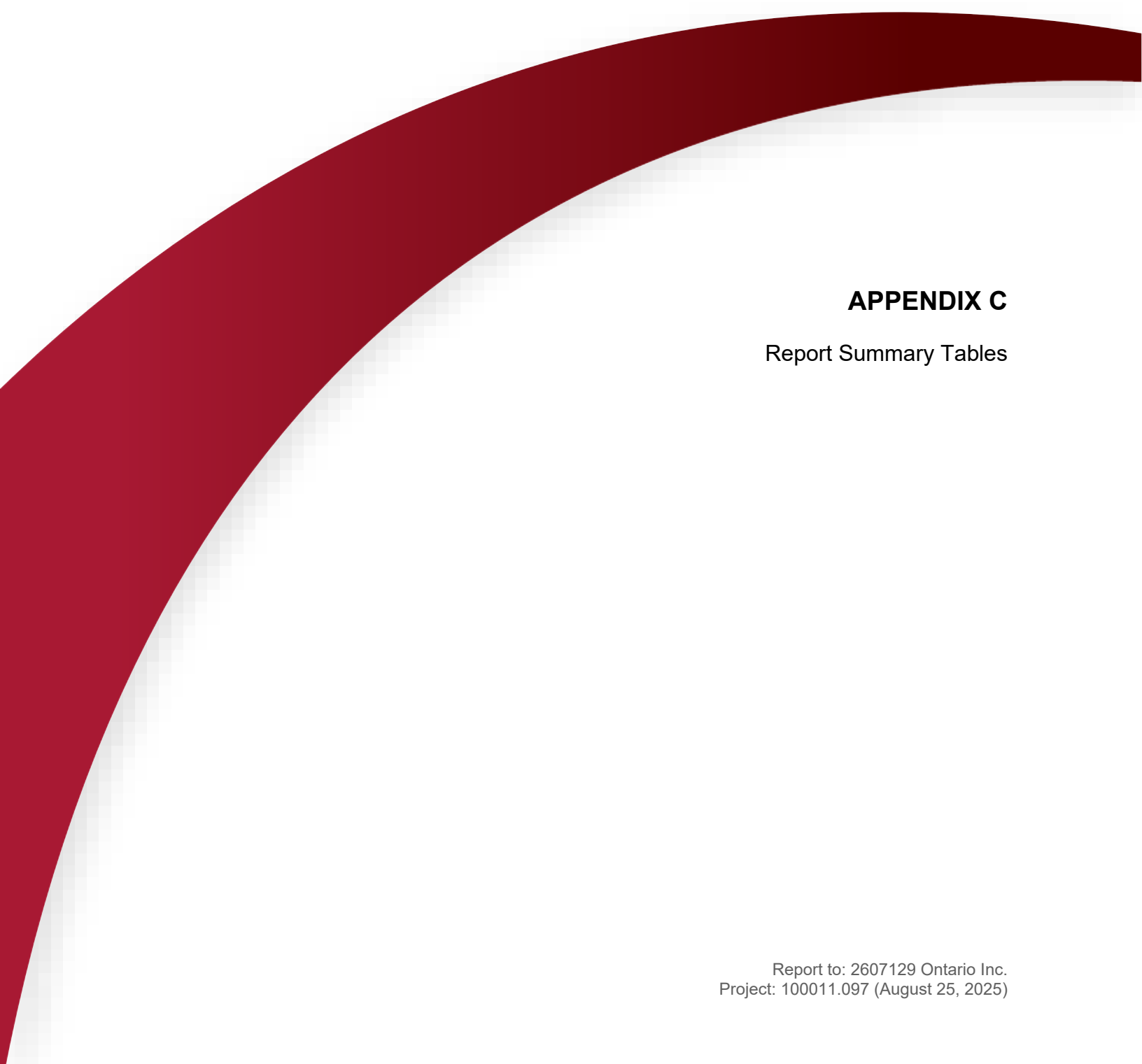
Site Photograph 10: Butternut on-site.



Site Photograph 11: Existing dwelling and structures on-site.



Site Photograph 12: Existing road on-site.



APPENDIX C

Report Summary Tables

TABLE C.1
SUMMARY OF WILDLIFE OBSERVED ON-SITE AND ADJACENT TO SITE

Common Name	Scientific Name	S-Rank	Evidence
Avian Species			
American goldfinch	<i>Spinus tristis</i>	S5	Heard calling on-site
Baltimore oriole	<i>Icterus galbula</i>	S4B	Heard calling on-site
Belted kingfisher	<i>Megaceryle alcyon</i>	S5B,S4N	Heard calling on-site
Black-capped chickadee	<i>Poecile atricapillus</i>	S5	Heard calling on-site
Blue jay	<i>Cyanocitta cristata</i>	S5	Heard calling on-site
Chipping sparrow	<i>Spizella passerina</i>	S5B,S3N	Heard calling on-site
Common grackle	<i>Quiscalus quiscula</i>	S5	Heard calling on-site
Common raven	<i>Corvus corax</i>	S5	Heard calling on-site
Dark-eyed junco	<i>Junco hyemalis</i>	S5	Heard calling on-site
Double-crested cormorant	<i>Nannopterum auritum</i>	S5B,S4N	Observed on-site
Eastern kingbird	<i>Tyrannus tyrannus</i>	S4B	Heard calling on-site
Eastern wood-pewee	<i>Contopus virens</i>	S4B	Heard calling on-site
European starling	<i>Sturnus vulgaris</i>	SNA	Heard calling on-site
Great crested flycatcher	<i>Myiarchus crinitus</i>	S5B	Heard calling on-site
Mallard	<i>Anas platyrhynchos</i>	S5	Observed adjacent to site
Mourning dove	<i>Zenaida macroura</i>	S5	Heard calling on-site
Northern cardinal	<i>Cardinalis cardinalis</i>	S5	Heard calling on-site
Northern flicker	<i>Colaptes auratus</i>	S5	Heard calling on-site
Pine warbler	<i>Setophaga pinus</i>	S5B,S3N	Heard calling on-site
Purple finch	<i>Haemorhous purpureus</i>	S5	Heard calling on-site
Red-breasted nuthatch	<i>Sitta canadensis</i>	S5	Heard calling on-site
Red-winged blackbird	<i>Agelaius phoeniceus</i>	S5	Heard calling on-site
Ring-billed gull	<i>Larus delawarensis</i>	S5	Heard calling on-site
Song sparrow	<i>Melospiza melodia</i>	S5	Heard calling on-site
Turkey vulture	<i>Cathartes aura</i>	S5B,S3N	Observed flying overhead
Warbling vireo	<i>Vireo gilvus</i>	S5B	Heard calling on-site
White-breasted nuthatch	<i>Sitta carolinensis</i>	S5	Heard calling on-site
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	S5B,S3N	Heard calling on-site
Mammalian			
Eastern chipmunk	<i>Tamias striatus</i>	S5	Observed on-site
Eastern gray squirrel	<i>Sciurus carolinensis</i>	S5	Observed on-site
White-tailed deer	<i>Odocoileus virginianus</i>	S5	Observed on-site
Reptilian			
Eastern gartersnake	<i>Thamnophis sirtalis sirtalis</i>	S5	Observed on-site
Eastern musk turtle	<i>Sternotherus odoratus</i>	S3	Observed on-site
Midland painted turtle	<i>Chrysemys picta marginata</i>	S4	Observed on-site
Amphibian			
American bullfrog	<i>Lithobates catesbeianus</i>	S4	Heard calling on-site
American toad	<i>Anaxyrus americanus</i>	S5	Heard calling on-site
Gray treefrog	<i>Dryophytes versicolor</i>	S5	Heard calling on-site
Green frog	<i>Lithobates clamitans</i>	S5	Heard calling on-site
Spring peeper	<i>Pseudacris crucifer</i>	S5	Heard calling on-site
Wood frog	<i>Lithobates sylvaticus</i>	S5	Heard calling on-site

Notes:

* Denotes a Species at Risk

Subnational Conservation Status Ranks:

S1 - Critically Imperilled, at very high risk of extirpation, very few populations or occurrences or very steep population decline

S2 - Imperiled, at high risk of extirpation, few populations or occurrences or steep population decline

S3 - Vulnerable, at moderate risk of extirpation, relatively few populations or occurrences, recent and widespread population decline

S4 - Apparently Secure, at a family low risk of extirpation, many populations or occurrences, some concern for local population decline

S5 - Secure, at very low or no risk of extirpation, abundant populations or occurrences, little to no concern for population decline

Qualifiers:

S#B - Conservation status refers to the breeding population of the species

S#N - Conservation status refers to the non-breeding population of the species

S#M - Migrant species, conservation status refers to the aggregating transient population of the species

TABLE C.2
SCREENING RATIONAL FOR SIGNIFICANT WOODLANDS

Woodland Criteria	Further Considered in EIS	Rationale
Woodland Size	Yes	Contiguous woodlands on-site meet the minimum size requirement for the planning area (> 2 ha).
Ecological Functions		
a) Woodland Interior	No	Interior woodlands on-site does not meet the minimum size requirement for the planning area (> 8 ha).
b) Proximity	Yes	Woodlands on-site are proximal to fish habitat.
c) Linkages	No	Woodlands on-site do not provide linkages to other natural heritage features.
d) Water Protection	Yes	Woodlands on-site are proximal to fish habitat.
e) Diversity	No	Species composition within the on-site woodland is well represented on the landscape and no rare species communities were observed on-site.
Uncommon Characteristics	No	The woodlands on-site do not have a unique species composition, vegetation communities with a ranking of S1, S2 or S3, or a mature size structure.
Economical and Social Functional Values	No	The woodlands on-site do not contain high productivity in terms of economically valuable products, high social value such as recreational use, identified historical cultural or educational values.

TABLE C.3
SCREENING RATIONALE FOR HABITATS OF SEASONAL CONCENTRATION AREAS

Wildlife Habitat	Further Considered in EIS	Rationale
Waterfowl Stopover and Staging Areas	No	Open water of the Mississippi River may provide suitable conditions for waterfowl stopover and staging areas (aquatic) in the study area. Aggregations of defining criteria species not observed. Aquatic and terrestrial stopover and staging areas habitat are not present on-site.
Shorebird Migratory Stopover Area	No	No suitable wetland habitat to support shorebird migratory stopover areas on-site.
Raptor Wintering Area	No	No suitable woodland and upland habitat to support raptor overwintering SWH.
Bat Hibernacula	No	Cave and crevice habitat is not present on-site or within the study area.
Bat Maternity Colonies	No	Woodlands on-site do not meet minimum snag density (>10 snags/hectare) requirement to be considered SWH for bat maternity colonies.
Turtle Wintering Area	Yes	The Mississippi River may provide suitable open water with sufficient depths to provide turtle wintering habitat.
Reptile Hibernaculum	Yes	Structures such as large rock piles, bedrock outcrops, and crevices have been identified on-site.
Colonial Bird Nesting Habitat	No	No suitable habitat located on-site or within the study area to support colonial bird nesting.
Migratory Butterfly Stopover Area	No	The site is not located within 5 km of Lake Ontario and therefore does not meet the defining criteria.
Landbird Migratory Stopover Area	No	The site is not located within 5 km of Lake Ontario and therefore does not meet the defining criteria.
Deer Yarding Areas and Winter Congregation Areas	No	While there are stands of coniferous woodlands on-site, as outlined in the the Significant Wildlife Habitat Criteria Schedules (OMNRF, 2015) winter deer yards and deer management are an MNRF responsibility. Based on review of publically available data from the OMNRF on Land Information Ontario Geo-hub, no Stratum I deer yards, Stratum II deer yards, or winter congregation areas have been identified on-site or within the broader study area. The closest deer yard to site is a patch of Stratum I deer yard located approximately 5 km to the east.

TABLE C.4
SCREENING RATIONALE FOR SPECIALIZED WILDLIFE HABITATS

Specialized Wildlife Habitat	Further Considered in EIS	Rationale
Waterfowl Nesting Area	No	No suitable upland habitat adjacent to wetland habitat present on-site. Suitable forest habitat is located on-site directly adjacent to the open water of the Mississippi River, which may support foraging bald eagles or osprey.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	No	However, no nests were observed on-site, and neither species were observed during investigations. Nesting sites for these species are uncommon in Ecoregion 6E (MNRF, 2012). Nesting may occur in any ecosite and species preference is towards mature forest stands >30 ha with >10 ha of interior habitat with a 200 m buffer.
Woodland Nesting Raptor Habitat	No	Contiguous forest stands of >30 ha and interior forest are not present and does not meet the minimum size criteria. No sticks nests were observed on-site.
Turtle Nesting Habitat	No	No suitable habitat (exposed mineral soil with minimal vegetation cover) is present within 100 m of the Mississippi River, on-site.
Seeps and Springs	No	No seeps or springs were identified on-site.
Woodland Amphibian Breeding Habitat	Yes	Suitable habitat adjacent the woodlands are present to support woodland amphibian breeding SWH.
Wetland Amphibian Breeding Habitat	No	No suitable wetland habitat on-site to provide wetland amphibian breeding habitat.
Woodland Area-Sensitive Bird Breeding Habitat	No	Woodland area-sensitive birds require interior forest habitat located >200 m from the forest edge in large (>30 ha) forest stands. Woodlands on-site and adjacent to the site do not meet the defining criteria.

TABLE C.5
SCREENING RATIONALE FOR HABITAT FOR SPECIES OF CONSERVATION CONCERN

General Habitats of Species of Conservation Concern	Further Considered in EIS	Rationale
Marsh Breeding Bird Habitat	No	Potentially suitable marsh habitat is not present on-site to support marsh breeding bird habitat.
Open Country Breeding Bird Habitat	No	No suitable meadow habitat on-site to support open country bird breeding due to recent (< 5 years) agricultural disturbances. Candidate early successional breeding bird habitat typically includes fallow fields transitioning to early successional forest habitats that are > 10 ha but have not been actively used for farming. The cultural thickets on-site are not considered SWH due to recent (< 5 years) agricultural disturbances.
Shrub/Early Successional Breeding Bird Habitat	No	
Terrestrial Crayfish Habitat	No	Terrestrial crayfish are only found within southwestern Ontario (MNRF, 2012).
Special Concern and Rare Wildlife Species	Yes	The following species of special concern were identified on-site during the site investigation: eastern wood-pewee and eastern musk turtle. Occurrence data for the NHIC also indicates the following species of special concern to have occurred within 2km of the subject property: common nighthawk, grasshopper sparrow, wood thrush, northern map turtle, snapping turtle, river herring, and yellow-banded butterfly

TABLE C.6
SCREENING RATIONALE FOR ANIMAL MOVEMENT CORRIDORS

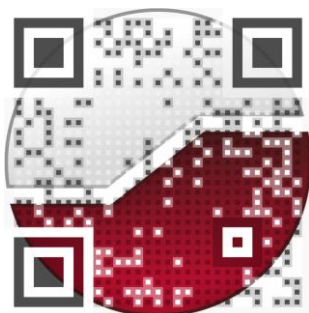
Animal Movement Corridor	Further Considered in EIS	Rationale
Amphibian Movement Corridor	No	No <i>confirmed</i> wetland amphibian breeding habitat has been identified on-site.
Deer Movement Corridor	No	No winter deer yards have been identified on-site by the OMNRF.

TABLE C.7 SCREENING RATIONALE FOR POTENTIAL SPECIES AT RISK ON-SITE OR WITHIN STUDY AREA				
Species	ESA Status	Habitat Use	Probability of Occurrence On-Site or Within Study Area	Rationale
Avian				
Bank Swallow	Threatened	Colonial nester, burrows in eroding silt, to sand banks, sand pit walls, etc.	Low	Site lacks suitable habitat for species. No NHIC historical occurrences for the species within 1km of the site. Species not observed on-site.
Barn Swallow	Special Concern	Nests in barns and other semi-open structures. Forages over open fields and meadows.	Low	Site unlikely to support nesting habitat. No NHIC historical occurrences for the species within 1km of the site. Species not observed on-site.
Bobolink	Threatened	Nests in dense tall grass fields and meadows, low tolerance for woody vegetation.	Low	Site lacks suitable grassland habitat for species. The NHIC database indicates historical occurrences for the species within 1km of the site. Species not observed on-site.
Canada Warbler	Special Concern	Prefers wet forests with dense shrub layers	Low	Suitable habitat not present on-site. No historical occurrences for the species; nor was it observed on-site.
Cerulean Warbler	Threatened	Prefers mature deciduous forest habitat.	Low	Suitable habitat not present on-site. No historical occurrences for the species; nor was it observed on-site.
Chimney Swift	Threatened	Nests in traditional-style open brick chimneys.	Low	Suitable habitat not present on-site. No historical occurrences for the species; nor was it observed on-site.
Common Nighthawk	Special Concern	Nests in a variety of open sites: beaches, fields and gravel rooftops.	Low	Site lacks suitable habitat for species; however, it may be present in the study area. The NHIC database indicates historical occurrences for the species within 2km of the site. Species not observed on-site.
Eastern Meadowlark	Threatened	Nests and forages in dense tall grass fields and meadows, higher tolerance to woody vegetation.	Low	Site lacks suitable grassland habitat for species. The NHIC database indicates historical occurrences for the species within 1km of the site. Species not observed on-site.
Eastern Whip-poor-will	Threatened	Nests on the ground in open deciduous or mixed woodlands with little underbrush, and bedrock outcrops.	Low	Site lacks suitable habitat for species. The NHIC database indicates historical occurrences for the species within 2km of the site. Species not observed on-site.
Eastern Wood-Pewee	Special Concern	Woodland species, often found near clearings and edge habitat.	High	Suitable habitat is present on-site. The NHIC database indiactes historical occurrences for the species within 1km of the site. Species observed on-site.
Evening Grosbeak	Special Concern	Nests in trees or large shrubs, preference to large coniferous forests, will use deciduous. Overwinters in Ottawa.	Low	Forest on-site is unlikely to support habitat. No historical occurrences for the species; nor was it observed on-site.
Golden Eagle	Endangered	Nests on remote, bedrock cliffs, overlooking large burns, lakes or tundras	Low	Suitable habitat not present on-site. No historical occurrences for the species; nor was it observed on-site.
Golden-winged Warbler	Special Concern	Ground nesting, edge species. Breeds in successional scrub habitats surrounded by forests.	Low	Suitable scrub habitat not present on-site. No historical occurrences for the species; nor was it observed on-site.
Grasshopper Sparrow	Special Concern	Ground-nesting grassland species. Prefers fields with low sparse vegetation on sand, alvars or poor soils.	Low	Site lacks suitable grassland habitat for species. The NHIC database indicates historical occurrences for the species within 2km of the site. Species not observed on-site.
Henslow's Sparrow	Endangered	Prefers open, moist, tallgrass fields.	Low	Suitable habitat not present on-site. No historical occurrences for the species; nor was it observed on-site.
Least Bittern	Threatened	Prefers marshes, shrub swamps, usually near cattails	Low	Site lacks suitable wetland habitat for species. The NHIC database indicates historical occurrences for the species within 2km of the site. Species not observed on-site.
Loggerhead Shrike	Endangered	Prefers grazed pastures with short grass and scattered shrubs, especially hawthorn.	Low	Site lacks suitable pasture habitat for species. The NHIC database indicates historical occurrences for the species within 2km of the site. Species not observed on-site.
Olive-sided Flycatcher	Special Concern	Forest edge species, forages in open areas from high vantage points in trees.	Low	Suitable habitat not present on-site. No historical occurrences for the species; nor was it observed on-site.
Peregrine Falcon	Special Concern	Nests on cliffs near water and on more anthropogenic structures such as tall buildings, bridges, and smokestacks.	Low	Suitable habitat not present on-site. No historical occurrences for the species; nor was it observed on-site.
Red-headed Woodpecker	Endangered	Prefers open deciduous woodlands, particularly those dominated by oak and beech.	Low	Suitable woodlands do not occur on-site;however, may be present in the study area. The NHIC database indicates historical occurrences for the species within 1km of the site. Species not observed on-site.
Rusty Blackbird	Special Concern	Wet wooded or shrubby areas (nests at edges of Boreal wetlands)	Low	Suitable habitat not present on-site. No historical occurrences for the species; nor was it observed on-site.

TABLE C.7 SCREENING RATIONALE FOR POTENTIAL SPECIES AT RISK ON-SITE OR WITHIN STUDY AREA				
Short-eared Owl	Threatened	Ground nester, prefers open habitats, fields and marshes.	Low	Suitable habitat not present on-site. No historical occurrences for the species; nor was it observed on-site.
Wood Thrush	Special Concern	Prefers deciduous or mixed woodlands.	Moderate	Suitable woodlands may occur on-site or within the study area. The NHIC database indicates historical occurrences for the species within 1km of the site. Species not observed on-site.
Mammalian				
Eastern small-footed Myotis	Endangered	Roosts in rock crevices, barns and sheds. Overwinters in abandoned mines. Summer habitats are poorly understood in Ontario, elsewhere prefers to roost in open, sunny rocky habitat and occasionally in buildings (Humphrey, 2017).	Moderate	Available habitat on-site is unlikely to meet bat maternity colony requirements; however, the site and surrounding area may provide foraging and non-maternal roost habitat.
Little Brown Myotis	Endangered	Maternal colonies known to use buildings, may also roost in trees during summer. Affinity towards anthropogenic structures for summer roosting habitat and exhibit high site fidelity (Environment Canada, 2015).	Moderate	Available habitat on-site is unlikely to meet bat maternity colony requirements; however, the site and surrounding area may provide foraging and non-maternal roost habitat.
Northern myotis (Northern Long-eared Bat)	Endangered	Occurs throughout eastern North America in associated with Boreal forests. Roosts mainly in trees, occasionally anthropogenic structures during summer (Environment Canada, 2015). Overwinters in caves and abandoned mines.	Low	Species affinity is for Boreal forests and rarely roosts in anthropogenic structures. Subject property occurs at extreme southern end of species range and lacks preferred boreal forest habitat.
Tri-colored Bat	Endangered	Roosts in trees, rock crevices and occasionally buildings during summer. Overwinters in caves and mines.	Moderate	Available habitat on-site is unlikely to meet bat maternity colony requirements; however, the site and surrounding area may provide foraging and non-maternal roost habitat.
Reptilian				
Blanding's Turtle	Threatened	Inhabits quiet lakes, streams and wetlands with abundant emergent vegetation. Frequently occurs in adjacent upland forests.	Moderate	The NHIC database indicates historical occurrences for Blanding's turtles within 2 km of the site. Suitable aquatic habitat for Blanding's turtle may be present within the greater study area. Species not observed on-site.
Eastern Musk Turtle	Special Concern	Wetlands. Highly aquatic habtiats.	High	The NHIC database indicates historical occurrences for eastern musk turtles within 1 km of the site. Suitable aquatic habitat for eastern musk turtle may be present within the greater study area. Species observed on-site.
Eastern Ribbonsnake	Special Concern	Marshy edfes of wetlands and watercourses.	Low	No suitable habitat present on-site. NHIC data does not indicate any known occurrences for the species within 2km of the site. Species not observed on-site.
Northern Map Turtle	Special Concern	Highly aquatic species, found only in lakes and large rivers.	Moderate	The NHIC database indicates historical occurrences for Northern map turtles within 2 km of the site. Suitable aquatic habitat for Northern map turtle may be present within the greater study area. Species not observed on-site.
Snapping Turtle	Special Concern	Highly aquatic species, found in a wide variety of wetlands, water bodies and watercourses.	Moderate	The NHIC database indicates historical occurrences for snapping turtles within 2 km of the site. Suitable aquatic habitat for snapping turtle may be present within the greater study area. Species not observed on-site.
Spotted Turtle	Endangered	Secretive wetland species.	Low	No suitable habitat present on-site. NHIC data does not indicate any known occurrences for the species within 2km of the site. Species not observed on-site.
Wood Turtle	Endangered	Primarily terrestrial forest species. Associated with clear, gravelly streams.	Low	No suitable habitat present on-site. NHIC data does not indicate any known occurrences for the species within 2km of the site. Species not observed on-site.
Plants				
American Ginseng	Endangered	Rich, moist, relatively mature deciduous forests.	Low	No suitable habitat to support American ginseng on-site or within study area.
Black Ash	Endangered	Predominantly a wetland species, found in swamps, floodplains and fens.	High	Species observed on-site.
Butternut	Endangered	Inhabits a wide range of habitats including upland and lowland deciduous and mixed forests.	High	Species observed on-site.
Lichens				

TABLE C.7 SCREENING RATIONALE FOR POTENTIAL SPECIES AT RISK ON-SITE OR WITHIN STUDY AREA				
Pale-bellied Frost Lichen	Endangered	Grows on the bark of hardwood trees such as white ash, black walnut, American elm and ironwood. Can also be found growing on fence posts and boulders.	Low	Species believed to be extirpated from the Ottawa area.
<i>Fish</i>				
American Eel	Endangered	Primarily nocturnal, hiding in soft substrate or submerged vegetation during the day.	Moderate	Suitable haitat present within the study area. The NHIC database indicates historical occurrences within 1km of the site. No DFO historical occurrences for the species in the study area. Species not observed during site investigations.
Bridle Shiner	Special Concern	Prefers clear water with abundant vegetation over silty or sandy vegetation	Low	Suitable habitat not present on-site. No DFO historical occurrence data for the species in the study area.
Channel Darter	Special Concern	Prefers clear water with abundant vegetation over silty or sandy vegetation	Low	Suitable habitat not present on-site. No DFO historical occurrence data for the species in the study area.
Lake Sturgeon	Endangered	Large lakes and rivers. Forages in cool water, 4-9m deep over soft substrates. Spawns in shallower, fast-flowing areas over rocks or gravel.	Low	Suitable habitat not present on-site. No DFO historical occurrence data for the species in the study area.
Northern Brook Lamprey	Special Concern	Prefers shallow areas with warm water. Larvae burrows in soft substrate for up to 7 years.	Low	Suitable habitat not present on-site. No DFO historical occurrence data for the species in the study area.
River Redhorse	Special Concern	Prefers fast-flowing, clear rivers over rocky substrate	High	Suitable haitat present within the study area. The NHIC database indicates historical occurrences within 1km of the site. Additionally, the DFO indicates historical occurrences for the species in the study area. Species not observed during site investigations.
Silver Lamprey	Special Concern	Larvae live 4-7 years in burrows, preference to soft substrate.	Low	Suitable habitat not present on-site. No DFO historical occurrence data for the species in the study area.
<i>Insects</i>				
Bogbean Buckmoth	Endangered	Preferred food plant is bog bean, present in a variety of wetlands including bogs, swamps and fens.	Low	Preferred wetland habitat is not present on-site.
Gypsy Cuckoo Bumble Bee	Endangered	Inhabits a wide range of habitats: open meadows, agricultural and urban areas, boreal forests and woodlands. Caterpillars require milkweed plants confined to meadow and open areas. Adult butterflies use more diverse habitat with a variety of wildflowers	Low	Currently the only known population is in Pinery Provincial Park.
Monarch Butterfly	Special Concern	Larval food plant (New Jersey Tea) found in sandy areas and alvars.	Moderate	Suitable foraging habitat present on-site.
Mottled Duskywing	Endangered	Habitat generalist	Low	Sandy areas and alvars not present in the study area.
Nine-spotted Lady Beetle	Endangered	Distribution in Ottawa not know. Occurs along Mississippi River in Blakeney/Pakenham area upstream of City. One of two extant populations in Ontario (and Canada).	Low	No recent occurrence reports in the area, thought to be locally extirpated.
Rapids Clubtail	Endangered	Habitat generalist	Moderate	Suitable aqautic habiat in study area is limited to the Mississippi River. NHIC indicates presence of species within 1km of site.
Rusty-patched Bumble Bee	Endangered	Habitat generalist	Low	Currently the only known population is in Pinery Provincial Park.
Transverse Lady Beetle	Endangered	Habitat generalist	Moderate	The NHIC database indicates historical records for the species within 2km of the site. No new records of Traverse Lady Beetle in Ontario, species thought to be absent in former habitats.
West Virginia White Butterfly	Special Concern	Requires mature moist deciduous woods with larval host plant toothwort.	Low	Necessary vegetation and toothwort plant not present on-site or within study area.
Yellow-banded Bumble Bee	Special Concern	Habitat generalist; mixed woodlands, variety of open habitat	Moderate	Suitable foraging habitat may be present on-site. The NHIC database indicates historical records for the species within 1km of the site.

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