

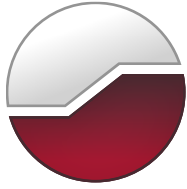


GEMTEC

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**Environmental Impact Statement
Proposed Plan of Subdivision
Part of Lot 16, Concession 10
Geographic Township of Ramsay, Almonte
Lanark County, Ontario**





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Part of Lot 16, Concession 10
Geographic Township of Ramsay, Almonte
Lanark County, Ontario**

January 18, 2023
Project: 101835.001

EXECUTIVE SUMMARY

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by 13165647 Canada Inc. to complete an Environmental Impact Statement (EIS) for the property located on Part of Lot 16, Concession 10 within the Village of Almonte, Lanark County, Ontario. This EIS has been completed in support of a proposed plan of subdivision to permit the development of a 54 townhome subdivision on an approximately 2.87-hectare property, and was completed in accordance with all federal, provincial and municipal policies and guidelines, as applicable.

In support of this EIS, a desktop review and two 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 2022. The focus of the site 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 site investigations the following natural heritage features were identified on-site or within the study area: significant woodlands, significant wildlife habitat for special concern and rare wildlife habitat (wood thrush) and fish habitat.

The following SAR and their habitat were identified as having a potential to occur on-site: eastern small-foot myotis, little brown myotis, tri-colored bat and Blanding's turtle. No regulated category 1 habitat was identified on-site for Blanding's turtles, however the site is likely to contain Category 2 and 3 habitat. No butternut trees were observed on-site or within the study area. No SAR species were identified during site investigations.

Potential impacts to the natural heritage features were primarily associated with the loss of local woodland habitat to accommodate the necessary development, loss of regulated Category 2 and 3 Blanding's turtle habitat, and indirect impacts to aquatic habitat.

Direct impacts to local woodlands on-site from the proposed development include the loss of approximately 1.76 ha of local woodlands. Blanding's turtle habitat impacted by the proposed development includes the loss of approximately 0.46 ha of Category 2 habitat and 2.87 ha of Category 3 habitat on-site. Potential indirect impacts to local aquatic habitat within Spring Creek are primarily associated with water quality through increased nutrient and sediment loading.

The majority of impacts to natural heritage features on-site can be mitigated through the implementation of general mitigation measures provided in Section 7. To minimize the impacts a 15 m setback from the highwater mark of Spring Creek is recommended. This setback will assist in preserving and enhancing the riparian zone protection function, maintain critical Category 2 habitat functions within Spring Creek and minimize impacts to fish habitat. Due to the presence

of regulated habitat for Blanding's turtle on-site, an Information Gathering Form will be required to be submitted to the MECP to determine whether the project is likely to contravene the ESA.

Additionally, 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 subdivision complies with the natural heritage policies of the Provincial Policy Statement and the Municipality of Mississippi Mills Official Plan and the County of Lanark Official Plan. No significant 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 13165647 Canada Inc. to carry out an Environmental Impact Statement (EIS) for the property located on part of Lot 16, Concession 10 within the Village of Almonte, 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 an approximately 2.87 hectare (ha) vacant property into a residential subdivision, consisting of 54 townhouse dwelling units.

Based on Section 3.1.4: *Environmental and Natural Heritage Features* of the Mississippi Mills Official Plan (2019), and Section 5: *Natural Heritage* of the Lanark County Official Plan (2012) an EIS is required showing that the proposed development will not negatively impact any potential natural heritage features, which 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 2020 Provincial Policy Statement (MMAH, 2020) 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 2020 Provincial Policy 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 twofold; 1) to identify and evaluate the significance of any natural heritage features, as defined in the Provincial Policy Statement (MMAH, 2020), on the subject property and within the broader study area and; 2) to assess the potential impacts from the proposed zoning amendment 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 Policy Statement (MMAH, 2020);
- Endangered Species Act (Ontario, 2007);
- Conservation Authorities Act (Ontario, 1990);

- Natural Heritage Reference Manual (OMNR, 2010);
- Municipality of Mississippi Mills Community Official Plan (2019); and
- Lanark County Official Plan (Lanark County Sustainable Communities Official Plan, 2012).

1.3 Physical Setting

The subject property is located on part of Lot 16, Concession 10 within the Village of Almonte, Lanark County, Ontario, is undeveloped, and comprised of unofficial recreational trails throughout, a municipal drain, a lowland forest and a cultural thicket.

The site is bound to the north by a vacant parcel (known as the Hanna Hills development) also located on part of Lot 16 and to the east by an unnamed tributary to the Mississippi River. To the west the site is bound by the rear-yards of the neighbouring properties fronting to McDermott Street and to the south by the same unnamed tributary noted above.

1.4 Land Use Context

The subject property is located within the urban boundary of the Town of Almonte. The existing land use designation from the Lanark County Official Plan is Settlement Area. The Mississippi Mills Official Plan designates the site as residential, zoned for development (D).

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 a review of SAR habitat requirements and range maps.

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

- Make a Map: Natural Heritage Areas (OMNRF, 2014a)
- Land Information Ontario (OMNRF, 2011);
- 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)
- Ontario Herpetofaunal Atlas (Oldham and Weller, 2000);
- Wildlife Values Area (OMNRF, 2020a);
- Wildlife Values Site (OMNRF, 2020b);
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019);
- Municipality of Mississippi Mills Community Official Plan (2019); and
- Lanark County Official Plan (Lanark County Sustainable Communities Official Plan, 2012).

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.

Table 2.1 Summary of Field Investigations

Date	Time	Weather	Purpose
April 25, 2022	09:50–11:00	10°C, ~100% cloud cover, Beaufort 2, no precipitation	Preliminary Constraints, ELC
May 26, 2022	07:45–14:30	16°C, ~90% cloud cover, Beaufort 1, no precipitation	Bird Sweep Investigation

2.2.1 Preliminary Constraints Assessment

A Preliminary Constraints Assessment was conducted in order to identify potential natural heritage features on the subject property which may pose a potential environmental constraint for future development of the site or otherwise limit the development yield of the site. A desktop assessment was completed prior the field investigation. The field investigation was conducted in combination with the initial Ecological Land Classification (ELC) assessment.

2.2.2 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 on April 25, 2022, 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.

2.2.3 Bird Nest Sweep Investigation

A singular bird nest sweep survey was conducted at 13 point count locations; bird nest survey locations are provided on Figure A.2. The bird nest sweep survey consisted of accompanying a drill rig on-site, ensuring no active bird nests were located in the vicinity of the drill rig operations. A list of all avian species identified on-site is provided in Appendix B.1.

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 is relatively flat with elevations ranging between a topographical high of 141 mASL in the southwest portion of the site to a topographical low of 136 mASL in the southeast.

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

The Ontario Geological Survey (OGS, 2019) identifies two surficial soil units onsite; fine-textured glaciomarine deposits of silt, clay, minor sand and gravel occupying the northern half of the subject property, and Paleozoic bedrock occupying the southern half of the property.

Bedrock at the site, as mapped by the Ontario Geological Survey (OGS, 2019), is comprised of dolostone and sandstone of the Beekmantown Group.

3.3 Surface Water, Groundwater and Fish Habitat

Surface water features on-site consisted of a singular watercourse and minor localized areas of standing water, known as vernal pools.

The on-site watercourse is referred to as Spring Creek Municipal Drain. Spring Creek originates approximately 3.25 km north of site, flowing along the eastern property line within an excavated bedrock channel. It continues to flow through the man-made channel into more developed areas of Almonte before discharging into the Mississippi River approximately 1 km south.

A fisheries assessment was not conducted as part of this EIS, and no fish were identified during the field investigations. However, based on permanency and depth, it is assumed that Spring Creek may provide direct fish habitat for small-bodied species of fish and contribute to downstream fish habitat.

Groundwater investigations were not completed in support of this EIS.

3.4 Vegetation Communities

Vegetation communities on-site were confirmed by GEMTEC in 2022, following protocols utilized in the Southern Ontario Ecological Land Classification System (Lee et al., 2008). Vegetation at the site consists of two distinct vegetation communities comprised of a lowland green ash hardwood forest and a cultural thicket.

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)
Buckthorn Deciduous Shrub Thicket Type (THDM2-6)	The cultural community, those vegetation communities whose composition and form are reflective of or actively maintained by prolonged human disturbance, includes the area covering the western portion of the site. This vegetation community is predominately characterized by glossy buckthorn (<i>Rhamnus frangula</i>), common juniper (<i>Juniperus communis</i>), American elm (<i>Ulmus americana</i>), and bur oak (<i>Quercus macrocarpa</i>).	1.37
Fresh – Moist Green Ash - Hardwood Lowland Deciduous Forest Type (FODM7-2)	The eastern portion of the site contains a lowland green ash (<i>Fraxinus pennsylvanica</i>) hardwood forest which has been significantly deteriorated by the invasive emerald ash borer. The majority of mature ash trees within this forest appear to be dead. The remaining hardwood trees are primarily comprised of silver maple (<i>Acer saccharinum</i>) and red maple (<i>Acer rubrum</i>).	1.5

3.5 Wildlife

Wildlife observed on-site and within the study area during field investigations completed in 2022 are summarized in Table B.1 in Appendix B.

4.0 NATURAL HERITAGE FEATURES

Natural heritage features are defined in the PPS as “features and areas, 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, *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 mean “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 regards 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 provincially significant wetlands were identified within the study area during the desktop review. However, the Natural Heritage Information Center identified a single local unevaluated wetland on-site along the western half of the subject property. Field investigations determined that this area is characterized as a dry, buckthorn deciduous thicket overlying shallow bedrock, as described in Section 3.4, and not a wetland community.

Mississippi Valley Conservation Authority (MVCA) Geoportal identifies a local, unevaluated wetland located directly north of the subject property within the proposed development known as Hanna Hills. It is understood by GEMTEC through correspondences with MVCA and others that this local, unevaluated wetland is proposed to be removed during the future development of Hanna Hills. It is further understood by GEMTEC that approval for removal of this wetland has been approved by local planning authorities. Accordingly, the local, unevaluated wetland mapped by MVCA immediately north of the subject property is not discussed or evaluated for impacts any further within this EIS.

As no PSW's or local wetlands have been identified on-site or within the study area, PSWs and local wetlands are not discussed or evaluated 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.

The subject property is located within the Municipality of Mississippi Mills within Lanark County. The Mississippi Mills Official Plan (2019) has identified significant woodlands to be present on-site along the southern and eastern portions of the subject property, covering approximately 1.6 ha, corresponding with the lowland deciduous forest, as described in Section 3.4. However, as also described in Section 3.4, the vast majority of woodland coverage within this portion of the site was green ash which have subsequently become heavily infested by emerald ash borer and are now dead, leaving woodland coverage significant reduced.

Table B.2 in Appendix B, presents the screening rationale for significant woodlands applied in this EIS. Following review of Table B.2 in Appendix B, and considering the current condition of the on-site woodlands, despite the Municipal identification as significant, on-site woodlands have been evaluated as non-significant. As such, significant woodlands are not discussed or evaluated further in this EIS.

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, furthermore no valleylands were identified on-site during the desktop review or the site investigations. As such, significant valleylands are not discussed or evaluated further in this EIS.

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 site investigations. Therefore, ANSI are not discussed or evaluated further in this EIS.

4.5 Significant Wildlife Habitat

The natural heritage reference manual (OMNR, 2010), in combination with the significant wildlife habitat technical guide (MNRF, 2000) and the significant wildlife habitat ecoregion criterion schedules (MNRF, 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 areas 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 B.3, B.4, B.5 and B.6 in Appendix B, 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, 2015a) identify 12 types of seasonal concentration habitats that may be considered significant wildlife habitat. These 12 types of seasonal habitat are presented in Table B.3 in Appendix B, including a brief description of the rationale as to why they are or are not assessed further in this EIS.

Following review of Table B.3 in Appendix B, no habitats of seasonal concentrations of animals have been identified on-site, and as such, are not discussed further within this EIS.

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. As such, rare vegetation communities are not discussed or evaluated further in this EIS.

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 wildlife habitats are evaluated in Table B.4 in Appendix B.

Following review of Table B.4 in Appendix B, no specialized habitat for wildlife have been identified on-site or within the study area, and as such, are not discussed further within this EIS.

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-16 are provided in Table B.5 in Appendix B, including a brief rationale as to why they are or are not considered further in this EIS. Following review of Table B.5 in Appendix B, one habitat of species of conservation concern has been identified on-site, habitat for special concern and rare wildlife species for wood thrush.

4.5.4.1 Special Concern and Rare Wildlife Species SWH

Based on observation data from the NHIC, DFO SAR mapping, Ontario Reptile and Herp Atlas, and eBird occurrence data, one species of special concern have been identified on-site or within the broader study area, wood thrush.

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. 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). Wood thrush is a woodland species often found in moist, deciduous hardwood or mixed forests stands, with dense deciduous undergrowth and tall trees. The NHIC historical records indicates the presence of the wood thrush

within the study area. Given the woodlands within the study area which may provide suitable habitat and confirmed sighting within the study area, there is a high chance of suitable wood thrush habitat occurring on-site. Wood thrush were not observed calling on-site during the site investigations.

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-16 (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 B.6 in Appendix B, 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). As such, animal movement corridors are not discussed or evaluated further in this EIS.

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. However, given the depths and permanency of Spring Creek, it is assumed the Spring Creek may provide direct fish habitat for small-bodied species and fish and contribute to downstream baseflows.

Impacts to *candidate* fish habitat from the proposed development is discussed in Section 6.

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 B.6 in Appendix B, 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 subdivision application for part of Lot 16, Concession 10 within the Village of Almonte, Lanark County, Ontario.

The proposed plan of subdivision includes the creation of a residential subdivision on an approximately 2.87-hectare property, containing 54 townhome dwellings and a stormwater management pond. The development will be serviced by municipal water and sewer utilities. Access to the proposed subdivision will be from expansions of Adelaide Street and McDermott Street. The proposed plan of subdivision is provided on Figure A.4.

Stormwater runoff will be attenuated within a retention pond located within Block 28 in the southwest corner of the subject property. Outfall from the retention pond will flow southwest, discharging into Spring Creek where it runs parallel with Augusta Street.

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, laneway construction, excavation and pouring of foundations, construction of single-family dwellings, all on municipal services, general landscaping activities and the creation of stormwater management features.

The timeline for the proposed project, from lot creation to completion of residential construction is subject to the regulatory approvals process. However, for the purpose of assessing impacts to natural heritage features, it is assumed in this EIS that the proposed development from property fabric creation to build-out will occur over a several year period with substantial completion before 2027.

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 environment of the site from the proposed development outlined in Section 5 include: loss of urban woodlands and thicket vegetation, an increase in impervious surface area and corresponding increase in stormwater generation, potential short-term increases in sedimentation and/or erosion and short-term increased noise generation.

6.1 Significant Wildlife Habitat

The potential presence of *candidate* and *confirmed* significant wildlife habitat on-site and within the study area was evaluated in Section 4.5. As a result of this assessment one type of significant wildlife habitat was determined to be present on-site or within the study area; *candidate* special concern and rare wildlife species SWH for wood thrush.

Potential impacts to each type of SWH are discussed in greater detail in the following subsections, while mitigation measures intended to prevent such impacts are presented in Section 7.

6.1.1 Habitats of Special Concern and Rare Wildlife Species SWH

6.1.1.1 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.

In Ontario, the wood thrush breeding range extends from southern Ontario north to northern Georgian Bay and eastern Lake Superior (COSEWIC, 2012b). While wood thrush populations have declined over most of its North American range, between 1981 and 2005, breeding bird data indicates populations in Ontario have increased by 4%, likely due to increases in woodland cover south of the Canadian Shield (Cadman et al., 2007). The probability of occurrence in Ontario however, has decreased by 15% between the first and second breeding bird atlas (Cadman et al., 2007). 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, 2012b). 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, 2012b).

Wood thrush observations were provided by the NHIC online database, indicating the species within 1 km of the site. Wood thrush however, were not detected during breeding bird surveys on-site.

Impacts to wood thrush and their habitat on-site from the proposed development is associated with the woodlands on the subject property, which may provide nesting and foraging habitat. Impacts to wood thrush habitat may include loss of forest habitat, increased fragmentation, and increased human presence.

The proposed development may result in the loss of suitable forested habitat on-site however, suitable habitat is readily available with the general study area and beyond to the north of the site. The conceptual site plan drawings show some of the proposed lots extending into the on-site woodlands. If complete buildout of the subject property is realized, then approximately 1.76 ha of the on-site woodlands will be lost, all of which is edge habitat on the southern fringe. This minor loss of 1.76 ha accounts for less than 1% of total woodlands available in the general area. An expansive woodland system of greater than 200 ha is located approximately 800 m north of the site, and possess very little development. As such, impacts to wood thrush are anticipated to be minimal.

Impacts from increased human presence are anticipated to be negligible given the existing urban and residential development surrounding the subject property and availability of suitable habitat within the greater study area.

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

6.2 Fish Habitat

According to the Provincial Policy Statement (MMAH, 2020), “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.”

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 anticipated as part of the proposed development, impacts to fish and fish habitat are anticipated to be indirect in nature.

Potential indirect impacts resulting from increased runoff following construction may include increased inputs to base flow volumes, leading to increases in flow rates and resulting in sedimentation and erosion downstream. Additional indirect impacts to water quality and fish habitat from subdivision development may include increased overland flow and concomitant sediment transport caused by an increase in impervious surface area, as well as increased nutrient loading through both overland and subsurface pathways resulting from landscaping practices.

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

6.3 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. When a species-specific recovery strategy is developed, a specific habitat regulation will be established, which eventually replaces the automatic habitat protection. 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.

6.3.1 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 found throughout eastern North America. In Ontario the species has been observed in the areas south of Lake Superior across to the Ontario-Quebec border (Humphrey, 2017).

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).

Although no suitable forest habitat occurs on-site to support bat maternity colonies, given the availability of available potential habitat within the surrounding study area and the presence of

potentially suitable anthropogenic structures, there is a potential for eastern small-footed *Myotis* to occur on the property, primarily for foraging or non-maternal, summer roosting. 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.

6.3.2 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).

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 clear-cuts are not typically utilized for foraging (COSEWIC, 2013).

Although no suitable forest habitat occurs on-site to support bat maternity colonies, given the availability of potential summer roosting habitat within the surrounding study area and the presence of potentially suitable anthropogenic structures, there is a potential for little brown *Myotis* to occur on the property, primarily for foraging or non-maternal roosting. 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.

6.3.3 Tri-Colored Bat

Tri-colored bat (*Perimyotis subflavos*) 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).

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).

Although no suitable forest habitat occurs on-site to support bat maternity colonies, given the availability of potential summer roosting habitat within the surrounding study area and the presence of potentially suitable anthropogenic structures, there is a potential for tri-colored bat to occur on the property, primarily for foraging or non-maternal roosting. 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.

6.3.4 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).

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, 2005). This turtle species occurs primarily in shallow water; adults are generally found in open or partially vegetated sites, where as 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, 2005).

The Blanding's Turtle is a largely aquatic turtle that occurs in a variety of habitats including but not limited to swamps, bogs, fens, marshes, marshy meadows, lakes, and ponds (COSEWIC, 2016). In the Great Lakes/St. Lawrence population, the most preferred habitats are wetlands that are eutrophic, with shallow water (typically < 100cm, range 0-200cm), an organic substrate, a high density of aquatic vegetation and slow to no flow (COSEWIC, 2016).

Upland forest is a strong predictor for the presence of Blanding's turtle in a landscape, with upland habitat being extensively used as a travel corridor and for hatchling dispersal to overwintering sites (COSEWIC, 2016). Wet forest, vernal pools, beaver ponds and shallow-water wetlands, are also often used by Blanding's turtles when travelling between residence wetlands and during nesting forays (COSEWIC, 2016). Vernal pools and ephemeral wetlands are important foraging sites for Blanding's turtles during spring as they provide rich sources of amphibian and insect eggs and larvae (COSEWIC, 2016).

As outlined in the MNRF general habitat description for Blanding's turtle (Ontario, 2021), Category 1 habitat is defined as "the nest and the area within 30 m of the nest or overwintering sites and the area within 30 m of the site", Category 2 habitat is defined as "the wetland complex (i.e. all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from an occurrence and the area within 30 m around those suitable wetlands or waterbodies" and Category 3 habitat is defined as "the area between 30 m and 250 m around suitable wetlands and waterbodies identified as Category 2, within 2 km of an occurrence." The MNRF general habitat description for Blanding's turtle is provided in Appendix B.

Blanding's turtle nests (Category 1 habitat) are created in open habitats with low vegetation cover, loose soils, and high sun exposure such as in forest clearings, meadows, shorelines, beaches and gravel roads (Ontario, 2021) and (COSEWIC, 2016). Suitable Blanding's turtle overwintering habitat typically includes permanent bogs, fens, marshes, ponds, channels or other habitats with free (unfrozen) shallow water. Blanding's turtle may also hibernate within graminoid shallow marsh areas of larger marsh complexes by burying into substrates in areas of pooled water. Blanding's turtle may also overwinter in seasonal pools or small excavated areas with standing water (Ontario, 2021).

Suitable Category 2 habitat for Blanding's turtles during the active season includes a variety of wetlands such as marsh, swamps, ponds, fens, bogs, slow-flowing streams, shallow bays of lakes or rivers, as well as graminoid shallow marsh and slough forest habitats that are adjacent to larger marsh complexes (Ontario, 2021). Suitable wetlands used during the active season are typically eutrophic (mineral or organic nutrient-rich), shallow with a soft substrate composed of decomposing materials, and often have emergent vegetation, such as water lilies and cattails (Ontario, 2021) and (COSEWIC, 2016).

Although wetlands and ponds are used as movement corridors when available, females make extensive movements through upland habitat to access nesting sites (Ontario, 2021). Blanding's turtles also make regular overland movements between wetlands throughout the active season in order to access Category 1 and 2 habitats within their home range (Ontario, 2021). Category 3 habitat provides essential movement corridors of up to 500 m between wetlands, which will encompass the areas that are most likely to be used for overland movement (Ontario, 2021).

While targeted basking turtle surveys were not completed in support of this EIS, the site is located within a greater area of known Blanding's turtle occurrences. Review of NHIC occurrence data indicates the species has been observed within 1 km of the site. Species were not observed during site investigations. However, a historical report completed by Bowfin Environmental Consulting, dated March 8, 2022, for the adjacent north development, known as Hanna Hills makes note of a Blanding's turtle observation on March 30, 2021, within a stormwater management pond approximately 45 m north of the subject property.

As regulated Blanding's turtle habitat extends up to 2 km from on observation, based conservatively on the NHIC observation data, the Spring Creek Municipal Drain and on-site vegetation communities are assumed to provide Category 2 and 3 habitat, respectively.

Field investigations did not identify any marsh or otherwise suitable aquatic wetland habitat which may support overwintering or nesting habitat for Blanding's turtles on-site. Potential surface water features that may offer foraging habitat for Blanding's turtle was limited to some vernal pools that were identified on-site. Spring Creek may offer potentially suitable foraging habitat, as well as potential travel corridor habitat. No Blanding's turtles were observed to be utilizing the vernal pools or Spring Creek during the investigations.

As discussed in Sections 3.3 and 3.4, the vegetation communities and standing surface water are unlikely to provide direct nesting habitat for Blanding's turtle. No suitable exposed soils devoid of vegetation were observed on-site. Based on the general habitat descriptions and field observations, Category 1 habitat is not present on-site but may be present beyond the study area, Category 2 and Category 3 habitat are likely to be present within the vegetated communities on-site as well as within Spring Creek.

However, the field observations determined that the potential habitat appears to be low in overall function due to small size, lack of permanent water, lack of suitable wetland habitat, and lack of other candidate habitat immediately proximal to the site. Additionally, no in-water work is anticipated as part of the proposed development; therefore impacts to Blanding's turtle are anticipated to be associated with indirect impacts to Spring Creek and the potential loss of Category 2 and 3 habitat.

As no in-water work will occur within Spring Creek or within the vegetation communities on-site, potential indirect impacts to Spring Creek are primarily associated with changes to the surface water and groundwater water balance through increased storm water runoff resulting from an increase in the impervious surface area and encroachment resulting in compaction of soils and vegetation loss. This increase in storm water runoff and flow rates has the potential to result in increased sedimentation and erosion downstream.

Indirect impacts to water quality may include increased overland flow and concomitant sediment transport caused by an increase in impervious surface area, as well as increased nutrient loading through both overland and subsurface pathways resulting from landscaping practices.

Other potential impacts include short duration construction impacts, including: heavy machinery encroachment, fill placement and long term human disturbance such as noise generation, dumping or refuse and yard waste and trampling and increased road mortality, particularly during nesting season, when turtles are more transient.

Potential direct impacts to Blanding's turtles are anticipated to be associated with the direct loss of vegetation on-site, resulting in the potential loss of Category 2 and 3 habitat and increased interactions with transient Blanding's turtles. The impact to Category 2 and 3 habitat by the proposed subdivision cannot be avoided. The proposed development has the potential to impact up to 0.46 ha of Category 2 habitat and 2.84 ha of Category 3 habitat. Potential impacts to transient Blanding's turtles will be more likely during migratory and nesting periods. Migration and dispersal take place after the start of the active season, following ice-off, and in September when turtles return to their overwintering habitat. Nesting typically take place between late May to early July.

However, based on the above, the subject property is limited in its value for Blanding's turtle usage. Spring Creek is likely to provide corridor movement habitat, and the vernal pools identified on-site may offer some foraging habitat, albeit, limited. The removal of potential Category 3 habitat on-site is unlikely to result in direct impacts to Blanding's turtle migrations as there is no suitable habitat immediately surrounding the site to the west, south or east, as those areas are already developed, nor does it provide a linkage to other suitable habitat. Any suitable habitat is more likely to be present north of the site which is accessible via Spring Creek.

As such, overall impacts to regulated Blanding's turtle habitat is anticipated to be minimal. Regardless, avoidance and mitigation measures intended to prevent harm to Blanding's turtles who have the potential to occur on-site are presented in Section 7.

6.4 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 marginal 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 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. As such, the following avoidance and mitigation measures should be enforced throughout the development through application of Site Plan Controls.

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). Buffers recommended in the following subsections and illustrated on Figure A.6, are done so within the context of the existing environmental disturbances but also to promote reasonable natural rehabilitation.

7.1 Woodlands

Based on the conceptual development illustrated on Figure A.4, development of the proposed subdivision has the potential to result in the entire loss of the on-site woodlands.

A 15 m wide buffer from the edge of the Spring Creek highwater mark is recommended to retain woodlands providing watercourse buffering and riparian habitat functions while still permitting the proposed development. The proposed setback from Spring Creek is illustrated on Figure A.6.

The above setback is supported by the Mississippi Mills Official Plan (2019), under Section 3.1.4.4 *Significant Woodlands and Vegetation Cover General Policies* which include:

- This Plan shall require the retention and/or establishment of mature tree cover and native shrubs and vegetative cover on lands within 15 metres (49 feet) of a highwater mark of a water resource in order to protect the riparian and littoral zones and associated habitat, prevent erosion, siltation and nutrient migration, maintain shoreline character and appearance, and minimize the visual impact of development;
- Within the natural vegetative buffer, the pruning of trees for viewing purposes or the removal of trees for safety reasons may be permitted provided the intent of the policy is maintained.

To ensure that the 15 m setback and corresponding buffer to Spring Creek function as proposed, the following selected points from the Mississippi Mills Official Plan (2019) (Section 3.1.4.4 *Significant Woodlands and Vegetation Cover General Policies*) should be implemented.

Preparation of a Landscaping Plan that includes the following provisions:

- Retain as much natural vegetation as possible, especially along watercourses, on steep slopes, in valued woodlots, in areas linking green spaces and along roadways;
- Determine which stands of trees or individual trees warrant retention based on a preliminary assessment;
- Outline measures for the protection of those trees or stands of trees being retained during construction;
- Indicate tree planting or vegetative cover required to provide protection for stream courses or steep slopes;
- Investigate the use of native species in tree planting strategies; and,
- Provide guidelines for property owners on the importance and care of trees on their property.

7.2 Significant Wildlife Habitat

7.2.1 Habitats of Species of Conservation Concern

Due to the minimal nature of potential impacts to wood thrush as documented in Section 6.1, it is GEMTECs opinion that the proposed 15 m buffer to protect and enhance the riparian functions of Spring Creek as prescribed are sufficient to protect habitats of species of conservation concern, wood thrush.

7.3 Fish Habitat

In consideration of the ecological functions of Spring Creek on-site, its significantly altered and entrenched nature, the downstream urban setting and the recently approved upstream development, a 15 m setback from the from the top-of-bank is sufficient to protect fish and fish habitat within Spring Creek.

Additional general mitigation measures recommended for the protection of water quality and fish habitat include the following:

- Buffers should be comprised of a mixture of native or non-invasive, self-sustaining trees, shrubs and tall grasses.
- 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.

- Culverts, if required, should be installed such that it is imbedded in the streambed, ensuring the culvert remains passable (i.e. does not become perched).
- No in-water work, if required, should occur between March 15 and June 30 of any year to protect spawning fish habitat adjacent to the development area. All in-water habitat features, including aquatic vegetation, natural woody debris and boulders should be left in their current locations.
- 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.
- Silt fencing should be installed along all setbacks to provide visual demarcation of the setbacks to prevent machinery encroachment and sediment transport.
- The development plan should include lot-side swales and/or roadside ditches designed to promote infiltration.
- Downspouts should be directed towards lot-side swales, soak-away pits, rain gardens or infiltration trenches.
- A storm water management plan should be prepared by a qualified engineer with the purpose of reducing suspended sediment and ensuring matching of pre- and post-development flows to Spring Creek.

7.4 Species at Risk

7.4.1 Eastern Small-footed Myotis, Little Brown Myotis, and Tri-Colored Bat

To protect roosting and foraging bats, tree removal where required should take place outside of the spring and summer active season (March 15 to November 30), when bats are more likely to be using forest habitat. If vegetation clearing must be conducted during the spring and summer timing window than a roost survey should be conducted by a qualified professional.

7.4.2 Blanding's Turtle

The 15 m setback as prescribed above is sufficient for the protection of Category 2 habitat within Spring Creek and has been supported by the MECP for the adjacent north development, Hanna Hills.

Blanding's turtle habitat impacted by the proposed development includes 0.46 ha of Category 2 Blanding's habitat on-site and 2.84 ha of Category 3 habitat on-site. Due to the presence of Blanding's turtle in the surrounding area, presence of Category 2 and 3 habitat on-site and that development cannot avoid impacts to regulated habitat, an Information Gathering Form is required to be submitted to the MECP to determine if the proposed development plan requires an authorization under the ESA.

The following mitigation measures are expected to be implemented to avoid contravention of the ESA:

- To protect migratory Blanding's turtles, vegetation clearing should be undertaken outside of the MECP identified turtle active season (April 1 – October 31).
- Prior to any site work, reptile and amphibian exclusion fencing should be installed around the entire perimeter of the construction area to prevent the migration of Blanding's Turtles and other wildlife into the construction zone. The temporary exclusion fencing will also provide a visual demarcation of the development area for workers during construction. Exclusion fencing should follow the protocols outlined in the Species at Risk Branch: Best Practices Technical Note: Reptile and Amphibian Exclusion Fencing Version 1.1 (MNR, July 2013).
- Each day of construction a daily pre-work sweep of the construction area should occur to ensure no SAR are present and to remove any wildlife from inside the construction area.
- All staff working on-site should be provided Species at Risk training to identify species at risk which a potential to occur on-site including: Blanding's turtle. Training will also outline the stop work procedures and MECP reporting/consultation prior to resuming work.
- During construction if any SAR is identified on-site all work should stop and a qualified professional and the MECP should be contacted for next steps. SAR sightings should be reported to the MECP and the NHIC.
- Heavy-duty silt fencing should be installed and maintained during construction and whenever soil is exposed; the incorporation of lot-side swales and gravel laneways are intended to promote infiltration and direct stormwater runoff to road side ditches instead of towards adjacent waterbodies.
- Cover all stockpiled material with a geotextile to prevent turtles from nesting in the material between May 1 and August 1 of any year.
- To protect aquatic habitat for Blanding's turtles, machinery should be maintained in good working condition and all machinery should be fueled a minimum of 30 m from the high water mark.
- Following construction completion, property owners, tenants and property managers will be provided with information and awareness packages for SAR that have the potential to occur on their property. Information and awareness packages will include information on species identification, life-history, and habitat use for all species at risk with a potential to occur on-site, including Blanding's turtle. Information packages will also include contact/reporting options to the MECP and NHIC if species are encountered.

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 April 15 to August 15) 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 than a nest, survey shall be conducted by a qualified professional.
- Should any species at risk be discovered throughout the course of the proposed works, the species at risk biologist with the local MECP district shall be contacted immediately and operations ceased 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 creation of a residential subdivision on an existing approximately 2.87 ha 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 regards to the Environmental Impact Statement.

- No significant impacts to natural heritage features identified on-site, including fish habitat, significant wildlife habitat or habitats of species at risk are anticipated as a result of future residential development.
- The proposed project complies with the natural heritage policies of the Provincial Policy Statement.
- The proposed development complies with the natural heritage policies of the Mississippi Mills Official Plan and 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 13165647 Canada Inc. and is intended for the exclusive use of 13165647 Canada Inc. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC and 13165647 Canada Inc. 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, re-assess 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.



Adam Alaimo, B.Sc.
Biologist



Drew Paulusse, B.Sc.
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APPENDIX A

Report Figures

Figure A.1 – Site Location

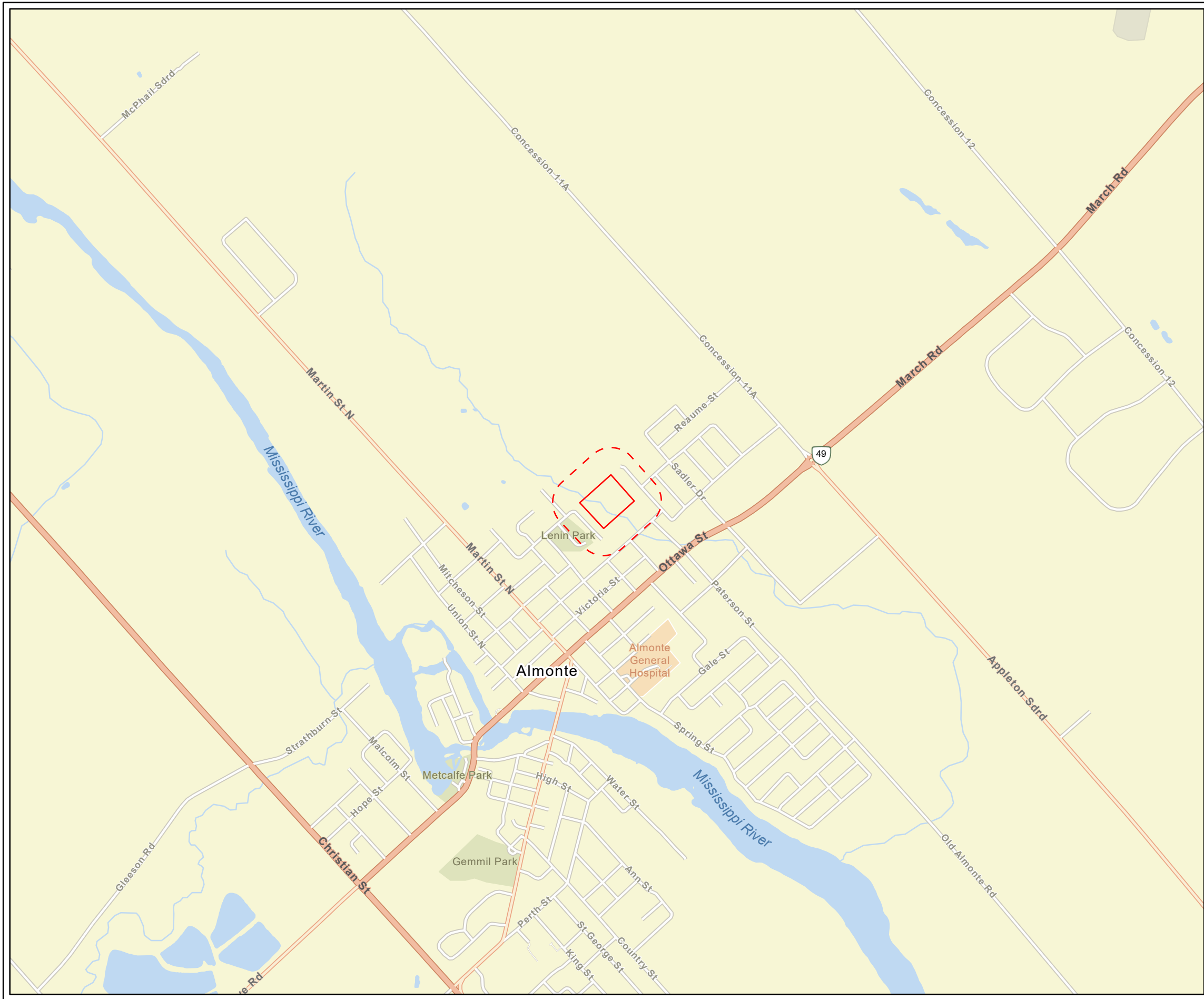
Figure A.2 – Site Layout

Figure A.3 – Vegetation Communities

Figure A.4 – Conceptual Site Plan

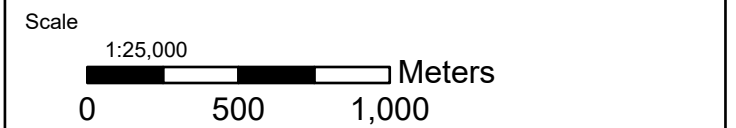
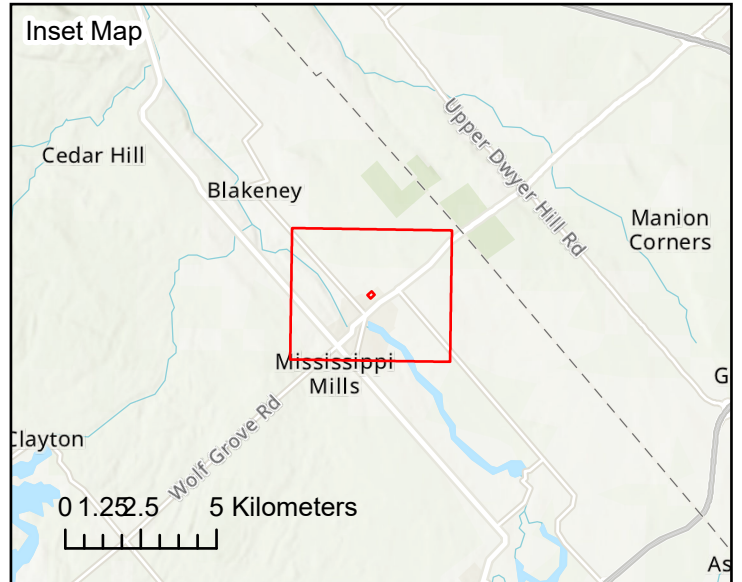
Figure A.5 – Natural Heritage Features

Figure A.6 – Mitigation Measures



Legend

- Property Boundary
- Study Area



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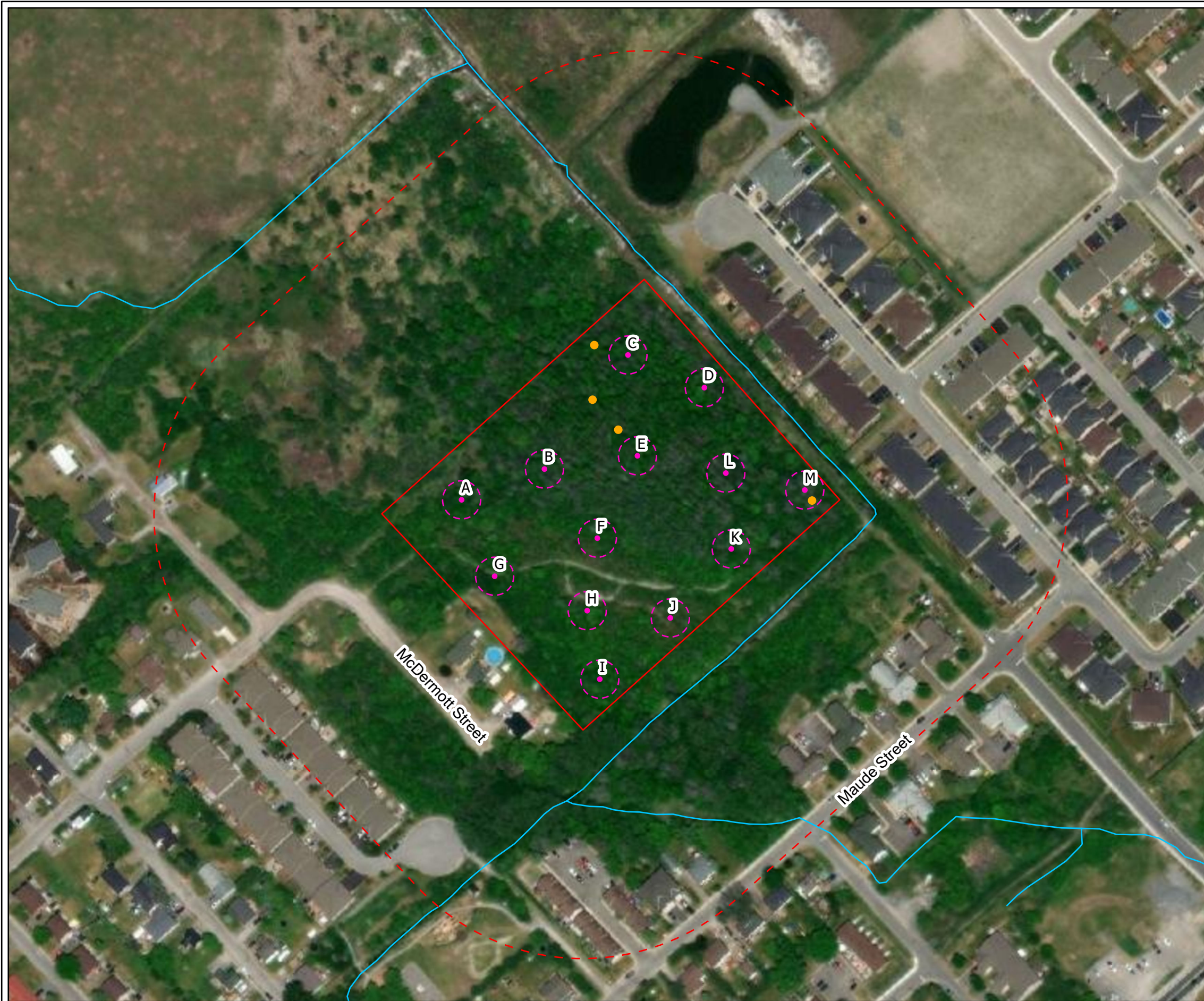
Client: 13165647 Canada Inc.	Project: 101835.001
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Location
Part of Lot 16, Concession 10
Almonte, Ontario

Drwn By: EP	Chkd By: TW	Site Location
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Date: January 2023	Rev. 0	Figure: A.1
© Queen's Printer for Ontario		

Coordinate System: NAD 1983 UTM Zone 18N
 Service Layer Credits: World Topographic Map: City of Ottawa, Province of Ontario, Esri Canada, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, NRCan, Parks Canada
 World Street Map: City of Ottawa, Province of Ontario, Esri Canada, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada

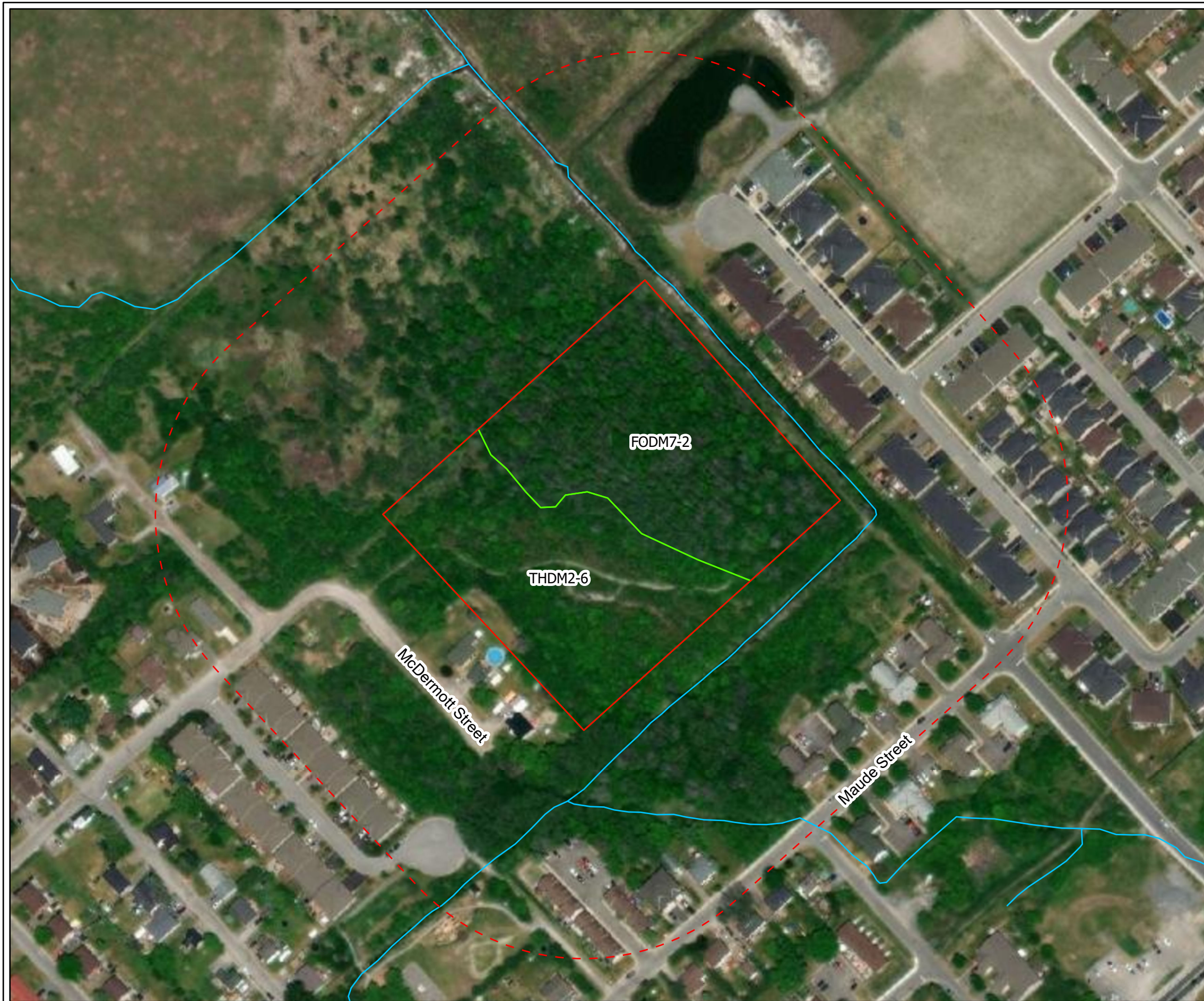


Legend

- Property Boundary
- Study Area
- Watercourse
- Borehole Location (10 m)
- Confirmed Nest Location

Scale		1:3,000	
0		125	
62.5		Meters	
		32 Steacie Drive, Ottawa, ON K2K 2A9 T: (613) 836-1422 www.gemtec.ca ottawa@gemtec.ca	
Client:		Project:	
13165647 Canada Inc.		101835.001	
Location			
Part of Lot 16, Concession 10 Almonte, Ontario			
Drwn By:	Chkd By:	Site Layout	
EP	TW		
Date: January 2023		Rev.	Figure: A.2
© Queen's Printer for Ontario		0	

Coordinate System: NAD 1983 UTM Zone 18N
 Service Layer Credits: World Imagery: Maxar, Microsoft



Legend

- Property Boundary
 - Study Area
 - Watercourse
 - Vegetation Community
- FODM7-2 = Fresh - Moist Green Ash - Hardwood Lowland Deciduous Forest
 THDM2-6 = Buckthorn Deciduous Shrub Thicket

Scale		1:3,000	
		Meters	
		32 Steacie Drive, Ottawa, ON K2K 2A9 T: (613) 836-1422 www.gemtec.ca ottawa@gemtec.ca	
Client:		Project:	
13165647 Canada Inc.		101835.001	
Location Part of Lot 16, Concession 10 Almonte, Ontario			
Drwn By:	Chkd By:	Vegetation Communities	
EP	TW		
Date: January 2023		Rev.	Figure: A.3
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Coordinate System: NAD 1983 UTM Zone 18N
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Legend

- Property Boundary
- Study Area
- Watercourse

Development Concept

- Block
- Line
- Lot
- Sidewalk
- Road



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Client: 13165647 Canada Inc.	Project: 101835.001
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Location
**Part of Lot 16, Concession 10
Almonte, Ontario**

Drwn By: EP	Chkd By: TW	Development Concept
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Date: January 2023	Rev. 0	Figure: A.4
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Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Maxar, Microsoft

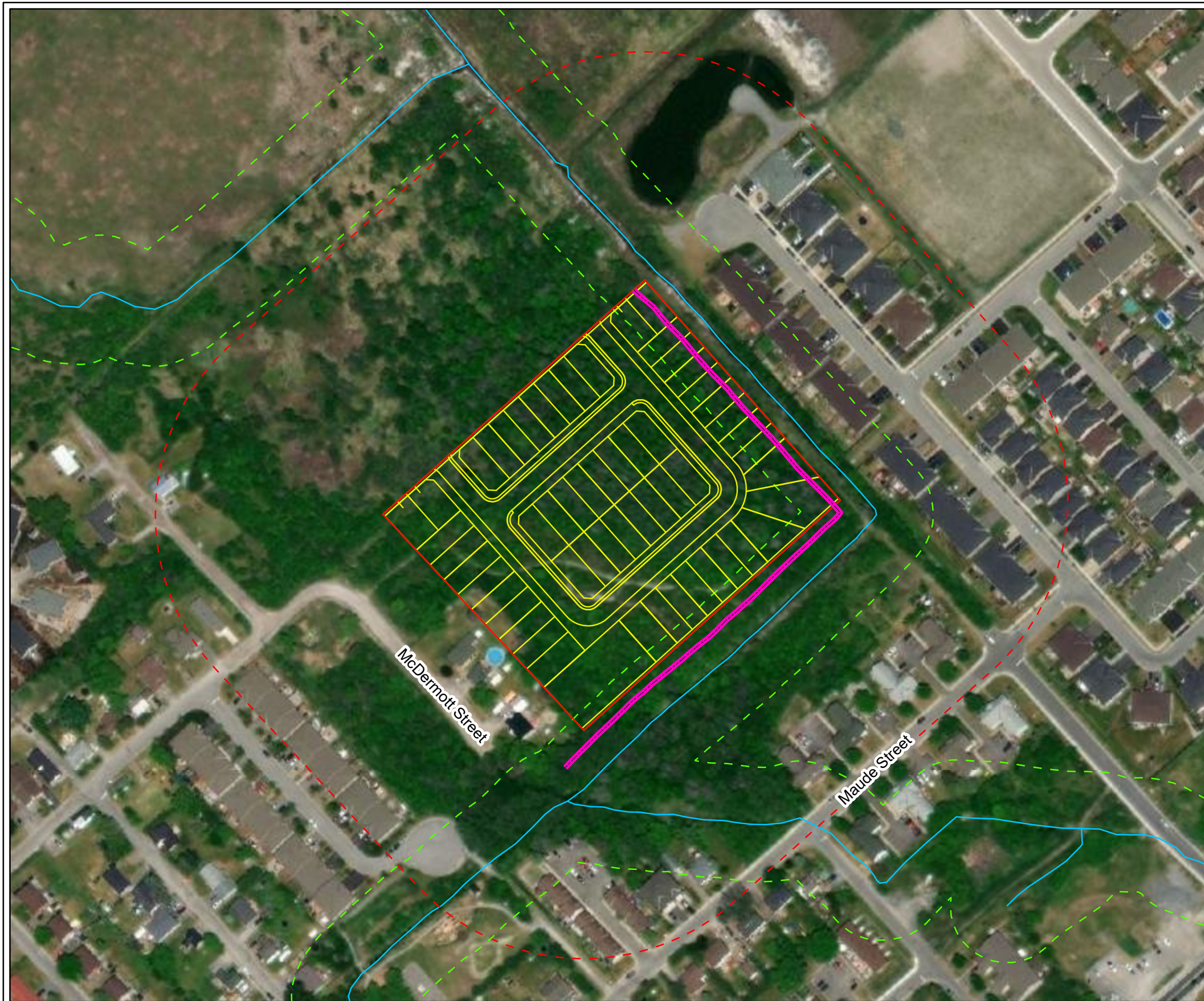


Legend

- Property Boundary
- Study Area
- Watercourse
- Development Concept
- Blanding's Category 2 Habitat (30 m)


Scale		1:3,000	
		Meters	
		32 Steacie Drive, Ottawa, ON K2K 2A9 T: (613) 836-1422 www.gemtec.ca ottawa@gemtec.ca	
Client:	13165647 Canada Inc.	Project:	101835.001
Location Part of Lot 16, Concession 10 Almonte, Ontario			
Drwn By:	Chkd By:	Natural Heritage Features	
EP	TW	Date: January 2023	Rev. 0
© Queen's Printer for Ontario		Figure: A.5	

Coordinate System: NAD 1983 UTM Zone 18N
 Service Layer Credits: World Imagery: Maxar, Microsoft



Legend

- Property Boundary
- Study Area
- Watercourse
- Development Concept
- Blanding's Category 2 Habitat (30 m)
- 15 m Setback

Scale		1:3,000	
0		62.5	125
Meters			
		32 Steacie Drive, Ottawa, ON K2K 2A9 T: (613) 836-1422 www.gemtec.ca ottawa@gemtec.ca	
Client:	13165647 Canada Inc.	Project:	101835.001
Location Part of Lot 16, Concession 10 Almonte, Ontario			
Drwn By:	Chkd By:	Mitigation Measures	
EP	TW		
Date: January 2023		Rev.	Figure: A.6
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Coordinate System: NAD 1983 UTM Zone 18N
 Service Layer Credits: World Imagery: Maxar, Microsoft



APPENDIX B

Report Summary Tables

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

Common Name	Scientific Name	S-Rank	Evidence
Avian Species			
American crow	<i>Corvus brachyrhynchos</i>	S5B	Heard calling
American goldfinch	<i>Spinu tristis</i>	S5B	Heard calling
American robin	<i>Turdus migratorius</i>	S5B	Heard calling, observed foraging
Black-and-white warbler	<i>Mniotilta varia</i>	S5B	Heard calling
Black-capped chickadee	<i>Poecile atricapillus</i>	S5	Heard calling
Blue jay	<i>Cyanocitta cristata</i>	S5	Heard calling
Canada goose	<i>Branta canadensis</i>	S5	Heard calling
Cedar waxwing	<i>Bombycilla cedrorum</i>	S5B	Heard calling
Chipping sparrow	<i>Spizella passerina</i>	S5B	Heard calling
Common grackle	<i>Quiscalus quiscula</i>	S5B	Heard calling
Common yellowthroat	<i>Geothlypis trichas</i>	S5B	Heard calling
Downy woodpecker	<i>Picoides pubescens</i>	S5	Heard calling
Eastern wood-pewee	<i>Contopus virens</i>	S4B	Heard calling
Gray catbird	<i>Dumetella caroliniensis</i>	S4B	Heard calling
House wren	<i>Troglodytes aedon</i>	S5B	Heard calling
Mourning dove	<i>Senaida macroura</i>	S5	Heard calling
Northern cardinal	<i>Cardinalis cardinalis</i>	S5	Heard calling
Red-winged blackbird	<i>Agelaius phoeniceus</i>	S4B	Heard calling
Ring-billed gull	<i>Larus delawarensis</i>	S5B, S4N	Heard calling
Song sparrow	<i>Melospiza melodia</i>	S5B	Heard calling

Notes:

Subnational Conservation Status Ranks:

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

S2 - Imperilled, 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 B.2
SCREENING RATIONALE FOR SIGNIFICANT WOODLANDS**

Woodland Criteria	Further Considered in EIS	Rationale
Woodland Size	No	Contiguous woodlands on-site do not meet the minimum size requirement for the planning area (> 20 ha).
Ecological Functions		
a) Woodland Interior	No	Interior woodlands on-site does not meet the minimum size requirement for the planning area (> 2 ha).
b) Proximity	No	Woodlands on-site are not proximate to local wetlands or fish habitat.
c) Linkages	No	Woodlands on-site do not provide linkages to other natural heritage features.
d) Water Protection	No	Woodlands on-site are not proximate to local wetlands or 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 B.3
SCREENING RATIONALE FOR HABITATS OF SEASONAL CONCENTRATION AREAS**

Wildlife Habitat	Further Considered in EIS	Rationale
Winter Deer Yard	No	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 northeast.
Colonial Bird Nesting Habitat	No	No suitable habitat located on-site or within the study area to support colonial bird nesting.
Waterfowl Stopover and Staging Areas	No	Suitable wetland habitat not present on-site. Site does not provide suitable conditions for waterfowl stopover and staging areas (aquatic). Terrestrial stopover and staging areas are not present on-site.
Shorebird Migratory Stopover Area	No	Shorebird stopover sites are typically well-known and have a long history of use. The site does not contain suitable shoreline habitat for shorebird foraging.
Raptor Wintering Area	No	Suitable combination of open and forested habitat are not present on-site.
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	No	Suitable wetland habitat with suitable open water of sufficient depths to support overwintering is not present on-site.
Reptile Hibernaculum	No	No structures such as large rock piles, bedrock outcrops, cervices or other karstic features have been identified on-site.
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.

**TABLE B.4
SCREENING RATIONALE FOR SPECIALIZED WILDLIFE HABITATS**

Specialized Wildlife Habitat	Further Considered in EIS	Rationale
Waterfowl Nesting Area	No	Upland habitat is not present adjacent to the forested communities on-site.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	No	The site is located >120 m from any habitat which could support foraging bald eagles or osprey. Nesting sites for these species are uncommon in Ecoregion 6E (MNR, 2012).
Woodland Nesting Raptor Habitat	No	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. Contiguous forest stands >30 ha are not present on-site or within the study area.
Turtle Nesting Habitat	No	No suitable habitat (exposed mineral soil with minimal vegetation cover) is present within 100 m of site.
Seeps and Springs	No	Seeps and springs were not identified on-site.
Woodland Amphibian Breeding Habitat	No	Suitable wetland habitat adjacent to suitable woodland habitat is not present on-site.
Wetland Amphibian Breeding Habitat	No	Suitable wetlands do not occur on-site to support 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 B.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 present is not 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.
Shrub/Early Successional Breeding Bird Habitat	No	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 regenerative thicket on-site is 1.3 and thus is not considered SWH due to not meeting minimum size requirements.
Terrestrial Crayfish Habitat	No	Terrestrial crayfish are only found within southwestern Ontario (MNRF, 2012).
Special Concern and Rare Wildlife Species	Yes	No species of special concern were identified on-site during the site investigation. Occurrence data from NHIC indicates the following species to be present within 1km of site: wood thrush.

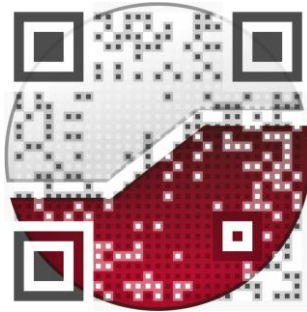
TABLE B.6
SCREENING RATIONALE FOR ANIMAL MOVEMENT CORRIDORS

General Habitats of Species of Conservation Concern	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 B.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				
Barn Swallow	Threatened	Nests in barns and other semi-open structures. Forages over open fields and meadows.	Low	Site lacks suitable structures to provide habitat for species. Species not observed during field investigations.
Black Tern	Special Concern	Breeds in loose colonies in shallow marshes, particularly cattails.	Low	Species not observed during field investigations. Site lacks suitable habitat to support species.
Bobolink	Threatened	Nests in dense tall grass fields and meadows, low tolerance for woody vegetation.	Low	Suitable grassland habitat is not available on-site, but may be in the study area. NHIC database indicates species within the 1km ² grid of site. Species not observed during field investigations.
Canada Warbler	Special Concern	Breeds in a range of deciduous and coniferous, usually wet forest types, all with a well-developed, dense shrub layer.	Low	Suitable habitat not present on-site. Species not observed during field investigations.
Cerulean Warbler	Threatened	Prefers mature, deciduous forests	Low	Woodlands on-site do not provide preferred habitat.
Chimney Swift	Threatened	Nests in traditional-style open brick chimneys.	Low	No suitable nesting structures within the broader study area.
Eastern Meadowlark	Threatened	Nests and forages in dense tall grass fields and meadows, higher tolerance to woody vegetation.	Low	Suitable grassland habitat is not available on-site, but may be in the study area. NHIC database indicates species within the 1km ² grid of site. Species not observed during field investigations.
Eastern Whip-poor-will	Threatened	Nests on the ground in open deciduous or mixed woodlands with little underbrush, and bedrock outcrops.	Low	Suitable woodland and exposed rock habitat not present on-site or within study area. Species not identified during field investigations.
Eastern Wood-pewee	Special Concern	Woodland species, often found near clearings and edges.	High	Eastern wood-pewee was observed on-site during site investigations. Suitable habitat found on-site.
Henslow's Sparrow	Endangered	Prefers open, moist tallgrass fields.	Low	No suitable grassland habitat to support Henslow's sparrow nesting on-site.
Wood Thrush	Special Concern	Prefers deciduous or mixed woodlands	Moderate	Species was not observed on-site during site investigations. Suitable habitat may be found on-site. NHIC database indicates species to be present within 1km of 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	Potentially suitable anthropogenic structures adjacent to site. Available habitat on-site does not 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	Potentially suitable anthropogenic structures adjacent to site. Available habitat on-site does not 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.
Tri-colored Bat	Endangered	Roosts in trees, rock crevices and occasionally buildings during summer. Overwinters in caves and mines.	Moderate	Potentially suitable anthropogenic structures adjacent to site. Available habitat on-site does not meet bat maternity colony requirements however the site and surrounding area may provide foraging and non-maternal
Reptilian				
Blanding's Turtle	Threatened	Inhabits quiet lakes, streams and wetlands with abundant emergent vegetation. Frequently occurs in adjacent upland forests.	High	NHIC data indicates species to be present within 1km of site. The site may provide potentially suitable aquatic habitat for Blanding's turtle. Historical reports indicate presence of Blanding's turtle within a stormwater management pond adjacent to the site.
Eastern Musk Turtle	Special Concern	Permanent ponds, lakes, marshes and rivers.	Low	NHIC data does not indicate any known occurrences for species on-site. The site may provide potentially suitable aquatic habitat for species.
Gray Ratsnake	Threatened	On the Frontenac Axis, preference to a mosaic of forest and open habitats (fields; bedrock outcrops) with a high amount of edge habitat. In summer, seeks shelter in standing snags, hollow logs, and rock crevices. Nesting occurs inside standing snags, logs, stumps, compost piles. Overwinters in below ground hibernacula.	Low	No historic occurrence data for species through NHIC or Ontario Herp and Reptile databases. Site lacks suitable habitat for species. Based on present day occurrence data (post-1996), the current range maps for gray ratsnake does not include the subject property (COSEWIC, 2018).
Northern Map Turtle	Special Concern	Inhabits rivers and lakeshores where it basks on emergent rocks and fallen trees throughout the spring and summer. In winter, the turtles hibernate on the bottom of deep, slow-moving sections of river	Low	NHIC data does not indicate any known occurrences for species on-site. The site may provide potentially suitable aquatic habitat for species.
Snapping Turtle	Special Concern	Highly aquatic species, found in a wide variety of permanent ponds, lakes, marshes and rivers.	Low	NHIC data does not indicate any known occurrences for species on-site. The site may provide potentially suitable aquatic habitat for species.
Plants				
American Ginseng	Endangered	Grows in rich, moist but well-drained and relatively mature, deciduous woodlands dominated by sugar maple, white ash and American basswood.	Low	Woodlands on-site are unlikely to support habitat requirements for American ginseng growth.
Butternut	Endangered	Inhabits a wide range of habitats including upland and lowland deciduous and mixed forests.	Low	A small portion of the site is open and in a regenerative state. Species was not observed on-site during the site investigations. No historical records for species on-site.
Insects				
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.	Low	Currently the only known Ontario population occurs in Pinery Provincial Park.
Monarch Butterfly	Special Concern	Caterpillars required milkweed plants that are confined to meadows and open areas. Adult butterflies use more diverse habitats with a variety of wildflowers.	Moderate	Potentially suitable foraging vegetation available for Monarch on-site.
Mottled Duskywing	Endangered	Larval food plant, New Jersey Tea, is found in sandy areas and alvars.	Low	Preferred habitat of sandy areas and alvars not present in the study area.
Nine-spotted Lady Beetle	Endangered	Habitat generalist	Low	No recent occurrence reports in the area, thought to be locally extirpated.
Rusty-patched Bumble Bee	Endangered	Habitat generalist	Low	Currently the only known Ontario population occurs in Pinery Provincial Park.
Traverse Lady Beetle	Endangered	Habitat generalist	Low	No new records 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 are not present on-site or within study area.
Yellow-banded Bumble Bee	Special Concern	Habitat generalist: mixed woodlands, variety of open habitat.	Moderate	Potentially suitable foraging habitat available for yellow-banded bumble bee on-site.

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