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Environmental Impact Statement
Land Severance Application
Lot 11, Concession 6
Geographic Township of Goulbourn
Ottawa, Ontario

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Ottawa, Ontario

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Project: 100939.001

experience • knowledge • integrity

EXECUTIVE SUMMARY

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained Tony Faranda to complete an Environmental Impact Statement (EIS) for the property located on Lot 11, Concession 6, Geographic Township of Goulbourn, Ottawa, Ontario. This EIS has been completed in support of a proposed land severance application and was completed in accordance with all 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 and summer 2021. 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: local wetlands, significant woodlands, significant wildlife habitat for woodland amphibian breeding habitat (*candidate*), woodland area-sensitive bird habitat (*confirmed*), special concern and rare wildlife habitat (eastern wood-pewee, wood thrush, and snapping turtle), 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, and tri-colored bat. No SAR species were identified during site investigations.

Potential impacts to the natural heritage features were primarily associated with the loss of woodland habitat, and indirect impacts to significant wildlife habitat and fish habitat. Impacts to significant wildlife habitat and fish habitat are primarily associated with alterations to water quality through increased nutrient and sediment loading, and loss of surrounding woodland habitat.

Potential impacts to natural heritage features on-site are likely to be mitigated through the implementation of a 30 m setback from local wetlands and a development envelope for the proposed severances and retained parcel.

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 City of Ottawa Official Plan. No negative impacts to identified natural heritage features or their ecological functions are anticipated as a result of the proposed development as long as all mitigation measures in Section 7 are enacted and best management practices followed.

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Tony Faranda to complete an Environmental Impact Statement (EIS) for the property located on part of Lot 11, Concession 6, in the Geographic Township of Goulbourn, City of Ottawa, Ontario (hereafter referred to as "the subject property"). The location of the subject property is illustrated on Figure A.1 in Appendix A.

1.1 Purpose

The property owner is seeking to sever two parcels from an existing 20.5 hectare (ha) property for future residential purposes. Based on *Section 4.8 – Natural Heritage, Greenspace and the Urban Forest* of the new City of Ottawa Official Plan (Ottawa, 2021) 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 severance application 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);
- City of Ottawa Official Plan (Ottawa, 2021); and
- City of Ottawa EIS Guidelines (Ottawa, 2012b)

1.3 Physical Setting

The subject property is located on part of Lot 11, Concession 6, in the Geographic Township of Goulbourn, City of Ottawa, Ontario. The subject property currently consists of mixed forests and local wetlands. The subject property is bound to the south by neighbouring properties on Lot 11, Concession 6, and to the north by Mansfield Road. To the east the site is bound by neighbouring properties on Lot 12, Concession 6, and to the west by the neighbouring properties on Lot 11, Concession 6.

1.3.1 Land Use Context

The subject property is situated within a larger rural area, just north of the hamlet of Munster. The existing land use designation from the City of Ottawa is general rural area and rural natural features area. The City of Ottawa zoning by-law is rural countryside zone (RU).

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.

Following changes to the MNRF natural heritage information request process, as of 2019, the MNRF is no longer providing responses to these requests. As such, an information request was not submitted for this project. In lieu of a request response, the Natural Heritage Information Request Guide (OMNRF, 2018) was consulted and the data resources listed below were reviewed for relevant natural heritage feature and SAR data relating to the site.

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

- Make a Map: Natural Heritage Areas (OMNRF, 2014a)
- Land Information Ontario (OMNRF, 2011);
- Draft City of Ottawa Official Plan (City of Ottawa, 2021)
- 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); and
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019).

2.2 Field Investigations

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

Field investigations completed in support of this EIS are outlined in Table 2.1 below. Photographs of site features taken during field investigations are provided in Appendix B.

Table 2.1 Summary of Field Investigations

Date	Time	Weather	Purpose
June 23, 2021	05:30- 8:00	7°C, ~10% cloud cover, Beaufort 1, no precipitation	Ecological Land Classification, Breeding Bird Survey
July 9, 2021	07:15- 08:30	14°C, ~100% cloud cover, Beaufort 0, no precipitation	Breeding Bird Survey

2.2.1 Ecological Land Classification

Vegetation communities on the subject property were delineated during the desktop review stage of this EIS using publicly available air photos and confirmed in the field on June 23, 2021, following the Ecological Land Classification System for Southern Ontario (Lee et al., 2008). Vegetation communities were confirmed in the field by employing the random meander methodology while documenting dominant vegetation species within the various vegetation community forms.

2.2.2 Breeding Bird Surveys

Breeding bird surveys were conducted on two occasions at four point count locations. Breeding bird surveys followed protocols from the Canadian Breeding Bird Surveys (Downes and Collins, 2003) and the Ontario Breeding Bird Atlas (Cadman, et al. 2007). Surveys were conducted no earlier than 30 minutes before sunrise and were completed within 5 hours of sunrise, to encompass peak song bird activity. Breeding bird surveys consisted of 5 minutes of passive listening in which all birds heard or seen within the survey period were recorded, including species, sex and breeding behaviour, if possible. A list of all avian species identified on-site is provided in Table C.1 in Appendix C

2.3 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, 2015a); 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 with 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 complex, with a topographical high of 123 mASL in the northwest end of the property and a topographical low of 112 mASL in the south. There is an overall gentle slope from the northwest to the south with the elevation decreasing as the watercourse is approached.

A single topographical landform, as mapped by Chapman and Putnam (1984) is described on the subject property, limestone plains of the Smiths Falls Limestone Plains physiographic region.

The Ontario Geological Survey (OGS, 2019) identifies three surficial soil units on the subject property, till, organic deposits, and coarse textured glaciomarine deposits. Stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain stretches along Mansfield road from the northwest corner to the middle of the eastern property boundary, it also occurs along the western property line. The coarse-textured glaciomarine deposits are located in the southwestern corner of the property, and consist of sand, gravel, minor silt and clay with foreshore and basinal deposits. The majority of the property consists of organic deposits, comprised of peat, muck and marl, occur from the northwestern corner to the southeast corner of the property.

Bedrock on the site consists of the Ottawa Group, Simcoe Group and Shadow Lake Formation comprised of limestone, dolostone, shale, arkose and sandstone.

3.3 Surface Water, Groundwater and Fish Habitat

Surface water features on-site consists of a local, unevaluated wetland in the south part of the property as well as a watercourse running south to east across the southern section of the property.

A fisheries assessment was not conducted as part of this EIS, however based on observations, the watercourse on-site provides sufficient water depth and permanency to provide direct fish habitat. The wetlands on-site are not considered to provide direct fish habitat, due to a lack of permanent hydroperiod, but are likely to contribute baseflows to downstream fish habitat during the spring freshet and large storm events.

Groundwater investigations were not completed in support of this EIS.

3.4 Vegetation Communities

Vegetation communities on-site were confirmed by GEMTEC in 2021, following protocols utilized in the Southern Ontario Ecological Land Classification System (Lee et al., 2008). Vegetation at the site represents mixed forests and lowland swamps. 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 Community Type	Description	Size (ha)
Dry-Fresh White Cedar – Poplar Mixed Forest (FOMM4)	Occurring throughout the northwestern half of the property, this community was dominated by eastern white cedar (*Thuja occidentalis*) and trembling aspen (*Populus tremuloides*) and to a lesser extent, sugar maple (*Acer saccharum*), American elm (*Ulnus americana*) and white spruce (*Picea glauca*). The subcanopy was primarily populated by common buckthorn (*Rhamnus cathartica*). The herbaceous layer included poison ivy (*Toxicodendron radicans*), horsetail, moss and brambles.	13.3
White Cedar – Hardwood Mineral Mixed Swamp (SWMM1-1)	Occurring in the southeastern half of the property is a white cedar – hardwood mixed swamp. This community was dominated by eastern white cedar and a mix of trembling aspen and black ash (*Fraxinus nigra*). The shrub layer included red osier dogwood (*Cornus sericea*) and alder (*Alnus* sp.). The herbaceous layer was	5.6

ELC Community Type	Description	Size (ha)
	populated with a variety of grass species (*Poa* spp.). Large dead stand trees where found frequently within this community.	
Graminoid Mineral Meadow Marsh (MAMM1)	Occurring in the southeastern portion of the property is a graminoid meadow marsh, this community was dominated by dense grass and shrubs. Lesser constituents included willow sp. and red osier dogwood. The marsh is bisected by a watercourse flowing from the south to the east.	1.13

3.5 Wildlife

Wildlife observed on-site and within the study area during field investigations completed in 2021 are summarized in Table C.1 in Appendix C.

4.0 NATURAL HERITAGE FEATURES

Natural heritage features are defined in the PPS as "features and 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, *significant habitats of endangered species and threatened species, significant wildlife habitat* and *significant areas of natural and scientific interest*, which are important for their environmental and social values as a legacy of the natural landscape of an area".

4.1 Significant Wetlands

As described in the Natural Heritage Reference Manual (OMNR, 2010), wetlands 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 during the desktop review, nor were they identified on-site. Local wetlands have been identified throughout the southern portion of the property. Impacts to local wetlands from the proposed development are discussed in Section 6 below. As no PSW's have been identified on-site or within the study area, PSWs are not present and 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. Furthermore, the City of Ottawa provides a supplementary document *Significant Woodland: Guidelines for Identification, Evaluation, and Impact Assessment* (Ottawa, undated) to evaluate woodlands and ensure compliance with the city's policies.

As outlined in *Significant Woodlands: Guidelines for Identification, Evaluation and Impact Assessment* (Ottawa, undated), rural area woodlands are to be identified and evaluated using all the natural heritage resource manual (OMNR, 2010) criteria. Table C.2 in Appendix C, presents the screening rationale for significant woodlands applied in this EIS. For comparison of woodland criteria used in Table C.2, it is assumed that the woodland coverage within the planning area (City of Ottawa – Rural Planning Area – Jock River) is between 30% and 60% of the land area, therefore the minimum woodland size for determining significance is 50 ha or greater, based on the guidance outlined in the natural heritage reference manual (OMNR, 2010).

Following review of Table C.2 in Appendix C, significant woodlands are present on-site due to their size and ecological functions. Significant woodlands are illustrated on Figure A.4 in Appendix A. Impacts to significant woodlands from the proposed development are discussed in Section 6.

4.3 Significant Valleylands

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

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

As discussed in Section 3.2, the site is relatively flat, further more 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 of animals, rare vegetation communities, specialized habitats for wildlife, habitats of species of conservation concern and animal movement corridors. Table C.3, C.4, C.5 and C.6 in Appendix C, provide the screening rationale for each category of significant wildlife habitat, respectively.

4.5.1 Habitats of Seasonal Concentrations of Animals

Seasonal concentration areas are habitats where large numbers of species congregate at one particular time of the year. The significant wildlife habitat technical guides (OMNR, 2000) and significant wildlife habitat ecoregion criterion schedules (OMNRF, 2015a) identify 11 types of seasonal concentration habitats that may be considered significant wildlife habitat. These 11 types of seasonal habitat are presented in Table C.3 in Appendix C, including a brief description of the rationale as to why they are or are not assessed further in this EIS.

Following review of Table C.3 in Appendix C, no habitats of seasonal concentrations of animals have been identified on-site, as such they are not discussed or evaluated further in 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 C.4 in Appendix C.

Following review of Table C.4 in Appendix C, four specialized habitats for wildlife have been identified on-site or within the study area, woodland raptor nesting habitat, woodland amphibian breeding habitat, wetland amphibian breeding habitat and woodland area-sensitive bird breeding habitat.

4.5.3.1 *Candidate* Woodland Raptor Nesting Habitat

Candidate woodland raptor nesting habitat was identified throughout the wooded area of the subject property. Specific surveys targeting woodland nesting raptor habitat were not conducted as part of this EIS.

The subject property meets the defining use criteria in that candidate woodland raptor nesting habitat may be found in all forested ELC ecosites and be comprised of all natural or conifer plantation woodland/forest stands greater than 30 ha with greater than 10 ha of interior habitat (OMNRF, 2015).

The defining use criteria for *confirmed* woodland raptor nesting is the presence of 1 or more active stick nests from any of the listed indicator species. No stick nests were observed during any of the site investigations. As such, woodland raptor nesting is not present on-site and is not discussed or evaluated further in this EIS.

4.5.3.2 *Candidate* Woodland Amphibian Breeding Habitat

Formal amphibian breeding surveys were outside of the scope of this EIS. *Candidate* woodland amphibian breeding habitat was identified within the on-site swamp communities. Woodland amphibian breeding habitat provides critically important breeding habitat for the following wildlife species: eastern newt, blue-spotted salamander, spotted salamander, gray treefrog, spring peeper, western chorus frog and wood frog. Woodland amphibian breeding habitat can be located in all ecosites associated with coniferous, mixed and deciduous forests or swamps. The defining criteria for confirmed woodland amphibian breeding SWH is the presence of breeding populations of one or more listed newt/salamander species, two or more of the listed frog/toad species with at least 20 individuals, or two or more of the listed frog/toad species with a call level code 3.

Impacts to woodland amphibian breeding habitat from the proposed development is discussed in Section 6.

4.5.3.3 *Candidate* Woodland Area-Sensitive Bird Breeding Habitat

Candidate woodland area-sensitive bird breeding habitat was identified within the forested area that occurs on-site. To evaluate the potential for the woodland to provide confirmed woodland area-sensitive bird breeding habitat, a series of breeding bird surveys were conducted. A list of all breeding bird species observed during site investigations can be found in Appendix C, Table C.1: Summary of Wildlife Observed On-Site and Adjacent to Site.

Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest songbirds. Woodland area-sensitive bird breeding habitat provides critically important habitat for the following wildlife species: yellow-bellied sapsucker, red-breasted nuthatch, veery, blue-headed vireo, northern parula, black-throated green warbler, blackburnian warbler, black-throated blue warbler, ovenbird, scarlet tanager, winter wren, and special concern for cerulean warbler and Canada warbler (OMNRF, 2015).

The defining criteria for confirmed woodland area-sensitive bird breeding significant wildlife habitat is the presence of nesting or breeding pairs of three or more of the listed wildlife species, with any site containing breeding cerulean warblers or Canada warblers is to be considered SWH (OMNRF, 2015).

Based on the description provided in the Significant Wildlife Habitat Criteria Schedules (MNRF, 2015), and following review of Table C.1 from Appendix C, the woodland on-site provides *confirmed* woodland area-sensitive bird breeding significant wildlife habitat, due to the presence of five indicator species (yellow-bellied sapsucker, red-breasted nuthatch, veery, ovenbird and scarlet tanager).

SWH for woodland area-sensitive breeding birds is illustrated in Figure A.4 in Appendix A. Potential impacts to *confirmed* woodland area-sensitive bird breeding SWH are discussed in Section 6.

4.5.4 Habitats of Species of Conservation Concern

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

Based on the guidance provided in the Significant Wildlife Habitat Ecoregion Criterion Schedules (MNRF, 2015), when a plant or animal element occurrence is recorded for any species with an S-rank of S1 (extremely rare), S2 (very rare), S3 (rare to uncommon) or SH (historically present),

the corresponding vegetation ecosite is considered to provide *candidate* habitat for species of conservation concern and further consideration within the EIS is warranted.

The Significant Wildlife Habitat Ecoregion Criterion Schedules (OMNRF, 2015), provides five general habitat types known to support a wide range of species of conservation concern in Ontario. The five general habitat types for Ecoregion 6E-11 are provided in Table C.5 in Appendix C, including a brief rationale as to why they are or are not considered further in this EIS. Following review of Table C.5 in Appendix C, two habitats of species of conservation concern have been identified on-site, marsh breeding bird habitat and habitat for special concern and rare wildlife species for eastern wood-pewee, wood thrush and snapping turtle.

4.5.4.1 *Candidate* Marsh Breeding Bird SWH

Candidate marsh breeding bird SWH was identified within local marsh and swamp on-site. Wetlands for marsh breeding birds are typically productive and rare in southern Ontario landscapes. Marsh breeding bird habitat provides critical habitat for the following wildlife species: American bittern, Virginia rail, sora, common moorhen, American coot, pied-billed grebe, marsh wren, sedge wren, common loon, sandhill crane, green heron, trumpeter swan black tern and yellow rail.

The defining use criteria for confirmed marsh breeding bird habitat is the presence of five or more nesting pairs of sedge or marsh wrens, or one pair of sandhill cranes or breeding by any combination of five or more listed species. Any wetland with breeding of one or more black tern, trumpeter swan, green heron or yellow rail is also considered SWH. Based on observations from breeding bird surveys and other site investigations, no listed species were observed on-site. As such marsh breeding bird habitat is not present on-site and is not discussed or evaluated further in this EIS.

4.5.4.2 Special Concern and Rare Wildlife Species SWH

Based on observation data from the field investigations, three species of special concern has been identified on-site or within the broader study area, the wood pewee, wood thrush and snapping turtle. No other species of special concern or rare wildlife species were identified on-site or within the broader study area.

The eastern wood-pewee is a small flycatcher bird with an S-rank of S4 (uncommon but not rare) in Ontario. The NHIC identified the eastern wood-pewee as having historically occurred within 1 km of the site, but did not provide a last observed date. Eastern wood-pewee is a woodland species that is often found near clearings and edges. Given the mosaic of woodland and open habitat on-site and the eastern wood-pewee's affinity for clearings and edges, there is a high chance of the eastern wood-pewee or suitable habitat to occur on-site. Furthermore, Eastern wood-pewee were observed calling on-site during the site investigations.

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 has identified that the species has been observed within 1 km of the subject property and the species was detected on-site during targeted breeding bird surveys or during any other site investigation.

The snapping turtle is a highly aquatic turtle species with an S-rank of S3 (rare to uncommon) in Ontario. Snapping turtles are aquatic generalists, found in a variety of wetlands, water bodies and watercourses. The Ontario Reptile and Amphibian Atlas has indicated that snapping turtle is present in the area, the watercourse on-site has the potential to support snapping turtle. The wetlands on-site are not considered to provide suitable habitat due to their limited connectivity and hydroperiod. As a highly aquatic species, snapping turtles prefer wetlands and waterbodies to be permanently flooded, which is not the case for the on-site local wetland. As such it is unlikely for the local wetland to provide suitable habitat for snapping turtle. Potential impacts to snapping turtle and the on-site watercourse are discussed in Section 6 below.

4.5.5 Animal Movement Corridors

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

Following review of Table C.6 in Appendix C, no animal movement corridors have been identified on-site. Furthermore, the MNRF has not identified any animal movement corridors on the publicly available data sets for wildlife values area (OMNRF, 2020a) or wildlife values site (OMNRF, 2020b). 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, until such time that a fisheries assessment is completed, the watercourse in the southeastern portion of the property are assumed to provide fish habitat for small bodied fish species. Due to the limited connectivity and hydroperiod, the wetlands on-site are not considered to provide direct fish habitat, but are assumed to contribute baseflows to downstream fish habitat during the spring freshet and large storm events.

As discussed in Section 3.3, no fish SAR or critical habitat have been identified within any permanent waterbody on-site. Impacts to fish habitat on-site are 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 C.7 in Appendix C, provides a summary of all species at risk which were determined to have the potential to occur on-site or within the broader study area, their protection status under the provincial Endangered Species Act (Ontario, 2007), their regional distribution, 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 the Section 6.3.

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 includes the severance of two parcels from an existing 20.5 hectare property for future residential development. The land severances are proposed to occur in the northwest portion of the property, with road frontage to Mansfield Road.

Future components of the proposed project considered in the impact assessment presented in Section 6 may include: tree clearing and vegetation grubbing, fill placement and elevation grading, laneway construction, drilling of individual lot groundwater wells and septic system installation, excavation and pouring of foundations, construction of single family dwellings and general landscaping activities.

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: vegetation removal, an increase in impervious surface, increased noised generation, increased human disturbance, increase in stormwater generation and short-term increases in sedimentation and/or erosion.

6.1 Unevaluated Local Wetlands

As no in-water work is proposed as part of the project, the greatest potential impacts to wetlands on-site are changes to the surface water and groundwater water balance through increased storm water runoff resulting from an increase in the impervious surface area, compaction of soils, vegetation loss and decreased groundwater recharge resulting from reduced upland infiltration capacity.

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.

Mitigation measures to protect unevaluated local wetlands are provided in Section 7.

6.2 Significant Woodlands

As discussed in Section 4.2, the woodlands on-site are considered significant due to their size and ecological function. Potential impacts to significant woodlands on-site may include the loss of roadside forest habitat and interior forest habitat, increased fragmentation and increased human disturbance.

Avoidance and mitigation measures to reduce impacts to significant woodlands are outlined in Section 7.

6.3 Significant Wildlife Habitat

The potential presence of *candidate* significant wildlife habitat on-site and within the study area was evaluated in Section 4.5. As a result of this assessment three types of *candidate* significant wildlife habitat were determined to be present on-site or within the study area; woodland amphibian breeding SWH, , woodland are-sensitive breeding bird habitat and special concern and rare wildlife species SWH for eastern wood-pewee, wood thrush and snapping turtle

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.

6.3.1.1 *Candidate* Woodland Amphibian Breeding SWH

Candidate woodland amphibian breeding habitat is confined to the local wetlands on-site. As no in-water work is proposed as part of the development, potential impacts to woodland amphibian breeding SWH are anticipated to be associated with direct impacts to woodland habitat and indirect impacts to wetland habitats. Direct impacts to woodland amphibian breeding SWH is primarily associated with loss of surrounding woodland cover and vegetation as a result of the proposed development. Indirect impacts to wetland habitats may include alterations to water quality due to nutrient and sediment loading as well as alterations to the hydrologic regime due to loss of riparian vegetation and increases in impermeable surfaces and increases in storm water runoff.

Other potential impacts include short duration construction impacts, including: heavy machinery encroachment, fill placement, and long-term human disturbance such as noise generation, dumping of refuse and trampling.

Mitigation measures to reduce impacts to *candidate* woodland amphibian breeding habitat SWH are provided in Section 7.

6.3.2 *Confirmed* Woodland Area-Sensitive Bird Breeding Habitat

Confirmed woodland area-sensitive bird breeding habitat can be found extensively throughout the site and broader study area. The subject property contains contiguous woodlands of greater than 30 ha with more than 10 ha of interior habitat, providing sufficient area to support woodland area-sensitive bird breeding habitat.

Site investigations revealed occurrences of the following species: yellow-bellied sapsucker, red-breasted nuthatch, veery, ovenbird and scarlet tanager. These observations in conjunction with the woodland size meet the defining criteria for *confirmed* woodland area-sensitive bird breeding habitat.

The proposed lot severances are proposed to front to Mansfield Road and occur throughout portions of the woodland habitat. The proposed severances will result in the loss of roadside woodland habitat, and are anticipated to minimally impact a portion of the interior habitat.

Potential direct impacts to *confirmed* woodland area-sensitive bird breeding habitat are associated with fragmentation of the on-site contiguous forest, removal of trees and vegetation scrubbing which may decrease the availability of specific breeding sites, loss of potential foraging habitat, and disruption to interior forest habitat. Indirect impacts include increase human presence, increased human and wildlife interaction and disturbances, and increased noise levels.

However, given the abundance of the woodland and available habitat, it is unlikely that the proposed project will have a negative impact on area-sensitive bird breeding habitat. Mitigation

measures to protect *confirmed* woodland area-sensitive bird breeding habitat are provided in Section 7.

6.3.3 Special Concern and Rare Wildlife Species SWH

6.3.3.1 Eastern Wood-Pewee

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

Threats to eastern wood-pewee are not well understood, however, loss of suitable forest habitat does not appear to be a significant issue across their Canadian breeding range (COSEWIC, 2012). Furthermore, research indicates that the species is not very sensitive to forest fragmentation effects or forest size (COSEWIC, 2012). Eastern wood-pewee may be sensitive to human habitation, in Ontario they occur less frequently in woods with surrounding development than those without houses (COSEWIC, 2012). Other threats to eastern wood-pewee may include changes in the availability of aerial insects, mortality during migration and/or wintering, nest predation and habitat changes due to white-tailed deer browsing (COSEWIC, 2012).

Impacts to eastern wood-pewee and their habitat on-site from the proposed development is limited to the wooded and forest habitat on-site (ELC codes FOMM4 on Figure A.3), which may provide nesting and foraging habitat. Impacts to eastern wood-pewee 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 within the broader study area. Research also indicates that eastern wood-pewee are not negatively impacted by the loss of forest habitat, increased fragmentation or smaller woodlot size (COSEWIC, 2012). Impacts from increased human presence are anticipated to be negligible given the existing development surrounding the subject property and availability of suitable habitat within the greater study area.

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

6.3.3.2 Wood Thrush

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

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 for the subject property as well as being observed during breeding bird surveys on-site.

Impacts to wood thrush and their habitat on-site from the proposed development are limited to the forest habitat on-site (ELC codes FOMM4 Figure A.3), which may provide suitable nesting and foraging habitat. Impacts to wood thrush habitat may include the loss of forest habitat, increased fragmentation and increased human interaction. While the proposed development will result in the loss of suitable forest habitat on-site suitable habitat is readily available within the broader study area. Impacts from increased human presence are anticipated to be negligible given the existing development surrounding the subject property and availability of suitable habitat within the greater study area.

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

6.3.4 Snapping Turtle

Snapping turtle is the largest freshwater turtle found in Canada; in central Ontario males average 32 cm in carapace length and have an average mass of 9.3 kg (COSEWIC, 2008). The carapace is keeled, and can be brown, black or olive in colour (COSEWIC, 2008). The plastron is cross-shaped and is small, leaving the limbs and sides of the body exposed (COSEWIC, 2008). The head of a snapping turtle is large with a hooked upper jaw, relatively long neck, and tail that can be as long as the carapace (COSEWIC, 2008). In Ontario the snapping turtle is listed as a species of special concern.

Threats to snapping turtle are primarily related to their life-history: their slow recruitment, late maturity, long lifespan and high adult survival makes them extremely vulnerable to a variety anthropogenic impacts (COSEWIC, 2008). Short, cool summers also reduce hatching success.

In Canada, snapping turtles are most impacted by events that increase adult mortality, such as harvesting of adults, persecution and road mortality (COSEWIC, 2008). Other threats include loss of habitat, environmental contamination, and nest predation (COSEWIC, 2008).

As no in-water work is proposed impacts to snapping turtle are anticipated to be indirect in nature. Indirect impacts to snapping turtle may include alterations to water quality due to nutrient loading and alterations to the hydrologic regime due to increases in impermeable surfaces and storm water runoff. Potential indirect impacts to water quality from the construction project may also include increased sediment transport and/or erosion caused by an increase in construction activity.

Potential direct impacts to snapping turtle may include increased human-wildlife interaction and disturbances. Additionally, the presence of construction vehicles may result in mortalities associated with construction activity. Direct impacts are more likely to be associated with migrating turtles, particularly during nesting season, when turtles move between winter and summer habitats.

Mitigation measures for the protection of snapping turtle are provided in Section 7.

6.4 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.”

As no in-water work is anticipated as part of the proposed project, potential impacts to fish habitat are anticipated to be indirect in nature. Potential indirect impacts to water quality and fish habitat from the proposed development may include increased overland flow and concomitant sediment transport caused by an increase in impervious surface area, increased nutrient and/or contaminant loading through both overland and subsurface pathways resulting from landscaping practices and septic leachate.

Mitigation measures, intended to protect fish habitat on-site are presented in Section 7.

6.5 Species at Risk

As outlined in the Endangered Species Act (Ontario, 2007), only species listed as threatened or endangered and their general habitat receive automatic protection. 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 the subsections below.

6.5.1 Barn Swallow

The barn swallow (*Hirondelle rustique*) is a medium-sized, insectivorous bird with a slightly flattened head and broad shoulders that taper to long, pointed wings. The forked tail is long and extends beyond wingtips when perched. Barn swallows have blue-black coloured wings and tail, with a whitish to orange underside and dark rufus throat.

While most abundant in Ontario south of the Shield, the breeding range for barn swallow in Ontario extends from the Carolinian region in extreme southwest Ontario to the Hudson Bay Lowlands (Cadman et al., 2007). In Ontario, breeding bird survey data demonstrated a decline in barn swallow populations of 60-75% between the first and second breeding bird atlas.

Barn swallows typically build their nests out of mud on ledges or walls on barns or other human made structures. Natural sites, including cliffs and caves are not rarely used for nesting (Cadman et al., 2007). Foraging occurs fields and ponds. Barn swallows are less common in highly urban area and areas with higher forest cover (Cadman et al., 2007).

While there is suitable foraging habitat and nesting structures located off-site, but within the study area, there is no suitable habitat or nesting structures located on-site to support barn swallows. Furthermore, no barn swallows were detected during breeding bird surveys. As such, the project is not anticipated to negatively impact barn swallow or their habitat. As such, barn swallow are not discussed or evaluated further in this EIS.

6.5.2 Bobolink

Bobolink (*Dolichonyx oryzivorus*) are small, omnivorous songbirds with large, somewhat flat heads, short necks and short tails. The male bobolink has a white back, black underside and a straw-yellow coloured patch on the back of the head. Female bobolinks have a non-descript buff and brown plumage not unlike most species of sparrows. In Ontario, bobolink are restricted to southern Ontario and occur south of the Highway 17 corridor between North Bay and Sault Ste. Marie. Scattered populations exist in correlation with Clay Belt areas in Timiskaming, Cochrane and Thunder Bay areas. Between the first and second breeding bird atlas, the probability of bobolink observations declined by 28% province wide(Cadman et al., 2007).

Bobolink breed primarily in hayfields and other grasslands with tall vegetation that provides cover for nests which are established on the ground (Cadman et al., 2007). The bobolink is generally sensitive to vegetation structure and composition in its habitat that are generally found in old (> 8 years old) forage crops. Abundance and density are positively correlated with a moderate litter depth, high lateral litter cover, high grass-to-legume rations, an abundance of small shrubs and a high percentage of forb cover (COSEWIC, 2010). Bobolinks typically avoid nesting in habitats that

are dominated by overly dense shrub vegetation with an overly deep littler layer or a high percentage of bare soil (COSEWIC, 2010).

Bobolink were not detected on-site however, they have been observed within the study area. While there is suitable foraging and nesting habitat located off-site, but within the study area, there is no suitable habitat located on-site to support bobolink. As such, the project is not anticipated to negatively impact bobolink or their habitat and they are not discussed or evaluated further in this EIS.

6.5.3 Eastern Meadowlark

Eastern meadowlark (*Sturnella manga*) is a chunky, medium-sized grassland songbird, with a short tail, and a long spear-shaped bill. The colour pattern of the species is pale brown marked with black, the underside is bright yellow and a bold black 'V' pattern across the chest.

The eastern meadowlark was once well established in southern Ontario, however, due to the natural succession of abandoned agricultural fields transitioning back to forested habitat on the Canadian shield and through the northern portion of the Lake Simcoe-Rideau region, along with intensive farming practices and expanding of urbanization in southwestern and eastern Ontario, the eastern meadowlark has suffered significant habitat loss (Cadman et al., 2007). Between the first and second breeding bird atlas, the probability of observation declined by 13% province wide (Cadman et al., 2007). The current distribution of eastern meadowlark is concentrated through the Lake Simcoe-Rideau region, primarily from Kingston to Lake Simcoe.

The eastern meadowlark prefers native grassland, pasture and savannah habitat, however it is known to use a variety of anthropogenic grassland habitats including hayfields, weedy meadows, young orchards, grain fields and herbaceous fence rows (COSEWIC, 2011). Preferred grassland habitat typically contains moderately tall (25 to 50 cm) grass species with abundant litter cover, with a high proportion of grass, moderate to high forb density a low percent of shrub cover (typically <5%) and low percent cover of bar ground (COSEWIC, 2011).

Eastern meadowlark were not detected on-site however, they have been observed within the study area. While there is suitable foraging and nesting habitat located off-site, but within the study area, there is no suitable habitat located on-site to support eastern meadowlark. As such, the project is not anticipated to negatively impact eastern meadowlark or their habitat and they are not discussed or evaluated further in this EIS.

6.5.4 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 sough 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, 2021a).

Although the forest habitat on-site does not meet the requirements to support bat maternity colonies, given the availability of habitat and buildings on-site and within the study area, there is a potential for eastern small-footed myotis to occur on the property, primarily for foraging or non-maternal 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.

6.5.5 Little Brown Myotis

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

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, 2021b).

Little brown myotis overwinter in caves and abandoned mines, they require highly humid conditions and temperatures that remain above the freezing mark (Ontario, 2021b). 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, 2013b).

Although the forest habitat on-site does not meet the requirements to support bat maternity colonies, given the availability of habitat and buildings on-site and within the study area, 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.

6.5.6 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 the woodlands on-site do not meet minimum snag density requirements to support bat maternity colony habitat, given the availability of habitat on-site 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.

6.6 Cumulative Impacts

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

Cumulative impacts to the natural environment at the site due to increased human presence are expected to be negligible given the nature of the development; single family residential dwellings, within a larger rural residential land use area.

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

7.0 RECOMMENDED AVOIDANCE AND MITIGATION MEASURES

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

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

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

7.1 Unevaluated Local Wetlands and Fish Habitat

No negative impacts on the integrity of the wetlands or fish habitat are anticipated as a result of the proposed development if all mitigation measures recommended below area enacted and best management practices followed. Wetlands and fish habitat on-site can be protected against potential impacts of the proposed development through the implementation of a construction setback.

Beacon Environmental Review of Ecological Buffers (2012), provides a range for buffer widths to protect various natural heritage features based on the current science. The buffers are presented in a way that determines the risk of not achieving the desired buffer function (i.e. high, moderate and low). The functions analysed include water quantity, water quality, screening or human disturbance/changes in land use, hazard mitigation zone and core habitat protection. Impacts to the local wetlands on-site were identified to include potential impacts to water quality, human disturbance and core habitat protection (SWH for breeding woodlands amphibians). Wetland buffer widths have a moderate risk of not providing adequate mitigation for water quality impacts at widths equal to or greater than 10 m. Wetland buffer widths have a low risk of not providing adequate mitigation for human disturbance/land use change impacts at widths equal to or greater than 30 m. Wetland buffer widths have a moderate risk of not providing adequate mitigation for core habitat protection at widths greater than 20 m.

In consideration of the local wetlands, and the low-impact nature of the proposed development, (single family residential dwellings), a minimum 30 m setback from the local wetlands is recommended. The recommended 30 m setback provides sufficient protection for mitigating water quality impacts and human disturbances. At 30 m, the protection the buffer offers for core habitat protection, falls into the moderate risk of not achieving desired buffer function, however, in conjunction with the prescribed development envelopes, development is not anticipated to

negatively impact the core habitat functions of the wetlands and adjacent woodlands. As such a 30 m setback is sufficient to protect core habitat within the local wetlands.

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

- 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.
- 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.
- The development plan should include lot-side swales and/or road side ditches designed to promote infiltration.
- Downspouts should be directed towards lot-side swales, soak-away pits, rain gardens or infiltration trenches.

7.2 Significant Woodlands

Development on site has the potential to result in a significant amount of significant woodland loss. To ensure that only the area require to accommodate a single a single family dwelling, septic field, drinking water well and garage is cleared where avoidance is not possible, site control, by way of prescribed development envelopes for each severance parcel and retained parcel is recommended. Proposed development envelopes are illustrated on Figure A.5 in Appendix A. Each development envelope is 0.4 ha in size and have been positioned in such a way as to minimize impacts on the integrity and function of the significant woodlands on-site.

By registering the proposed 0.4 ha development envelopes on land title for the proposed severances, the maximum loss of significant woodlands is only 1.2 ha of the 18.9 ha (6.35%) of significant woodlands on-site. Furthermore, siting of development envelopes abutting to Mansfield Road ensure that the size or ecological functions of the woodlands are not negatively impacted; the on-site woodlands in conjunction with contiguous off-site woodlands continue to meet the criteria provided in the NHRM, that were discussed in Section 4.2. Through implementation of the development envelopes, the on-site and contiguous woodlands still meet the 50 ha size requirement, and development adjacent to Mansfield Road ensures the on-site woodlands still meet the ecological function criteria for interior habitat and proximity to local wetlands.

No negative impacts on the ecological function of the significant woodlands are anticipated as a result of this project if the development envelopes proposed above are registered on land title and all mitigation measures and best management practices recommended below are adhered to.

7.3 Significant Wildlife Habitat

7.3.1 *Candidate* Woodland Amphibian Breeding Habitat

The 30 m setback presented in Section 7.1 above, to protect local wetlands on-site (ELC codes SWM1-1 and MAMM1) is sufficient to protect *candidate* woodland amphibian breeding habitat.

Furthermore, the development envelope prescribed to protect significant woodlands is sufficient to provide protection to the forested woodland amphibian breeding habitat defined as a 230 m radius around the identified wetlands. The positioning of the severances fronting to Mansfield Road limits intrusion into the significant wildlife habitat area. The development envelopes on the proposed parcels further ensures that forest cover and surrounding summer habitat is maintained, which is important for wetland amphibians moving between habitats throughout the year.

To protect migrating amphibians associated with *candidate* breeding habitat on-site, exclusion fencing should be installed around the entire construction area prior to construction commencing to prohibit the movement of turtles and amphibians into the construction area.

7.3.2 *Confirmed* Woodland Area-Sensitive Bird Breeding Habitat

The development envelope prescribed to protect significant woodlands is sufficient to provide protection to the woodland area-sensitive bird breeding habitat. Through use of the development envelopes impacts to woodland area-sensitive bird breeding habitat includes the loss of approximately 1.2 ha of forested woodland area-sensitive bird breeding habitat. Furthermore, the positioning of the severances fronting to Mansfield Road limits intrusion into the significant wildlife habitat area. The development envelopes on the proposed parcels further ensures the minimization of habitat fragmentation and that forest cover is maintained, which is important, as this reduces the risk of the woodland from being invaded by competitive birds from the surrounding open areas.

To further minimize the impact of the proposed development on eastern wood-pewee and wood thrush habitat, vegetation removal should occur outside the key breeding bird period (typically April 15 to August 15) as identified by Environment Canada for the protection of nesting and foraging 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.

7.3.3 Habitats of Species of Conservation Concern

7.3.3.1 Eastern Wood-pewee and Wood Thrush

Impacts to eastern wood-pewee and wood thrush primarily concern habitat loss and increased fragmentation. The development envelopes prescribed above to protect significant woodlands will result in the loss of 6.35% of suitable woodland habitat on-site for eastern wood-pewee and wood thrush.

To further minimize the impact of the proposed development on eastern wood-pewee and wood thrush habitat, vegetation removal should occur outside the key breeding bird period (typically April 15 to August 15) as identified by Environment Canada for the protection of nesting and foraging eastern wood-pewee and wood thrush 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.

7.3.3.2 Snapping Turtle

The 30 m setback established to protect general fish habitat on-site is sufficient to protect reptilian species of special concern and their potential habitat on-site. Furthermore, the development envelopes ensures that forest cover and surrounding summer habitat is maintained, which is important for wetland amphibians and reptiles moving between habitats throughout the year.

7.4 Species at Risk

7.4.1 Eastern Small-footed Myotis, Little Brown Myotis & Tri-colored Bat

To protect roosting and foraging bats, tree removal where required should take place outside of the spring and summer active season (typically April 1 to September 1, extended to October 15 is swarming is observed), 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 be a qualified professional.

7.5 Wildlife

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

- To protect wildlife during construction, construction should be completed in accordance with the best practices outlined in Protocols for Wildlife Protection During Construction, from the City of Ottawa (Ottawa, 2015).
- Vegetation removal should occur outside of April 1 to September 1 to avoid the key breeding bird period and bat summer active season. The timing windows provides protection of migratory birds, roosting bats and avoids contravention of the Migratory Bird Convention Act and Endangered Species Act. If vegetation clearing activities must take

place during the aforementioned timing window than a nest and roost survey shall be conducted by a qualified professional.

- Installation of silt fence barriers around the entire construction envelope to prohibit the emigration of wildlife into the construction area, silt fencing should be checked daily and following each precipitation event.
- Cover all stock piled material with a geotextile to prevent turtles from nesting in the material between May 1 and August 1 of any year.
- Perform daily pre-work sweeps of the construction area to ensure no species at risk are present and to remove any wildlife from inside the construction area.
- Should any species at risk be discovered throughout the course of the proposed works, the species at risk biologist with the local MECP district 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 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 stormwater 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 scoped EIS is the severance of two parcels from an existing 20.5 hectare property for future residential development.

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 negative impacts are anticipated from the proposed future 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 negative impacts to natural heritage features identified on-site, including significant woodlands, *confirmed* significant wildlife habitat, habitat of species at risk and local wetlands and fish habitat, from future residential development are anticipated.
- 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 City of Ottawa 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 Tony Faranda and is intended for the exclusive use of Tony Faranda. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC, Tony Faranda. Nothing in this report is intended to provide a legal opinion.

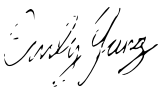
The investigation undertaken by GEMTEC with respect to this report and any conclusions or recommendations made in this report reflect the best judgements of GEMTEC based on the site conditions observed during the investigations undertaken at the date(s) identified in the report and on the information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

Sincerely,



Emily Young, B.Sc.
Junior Biologist

Taylor Warrington, B.Sc.
Biologist

10.0 REFERENCES

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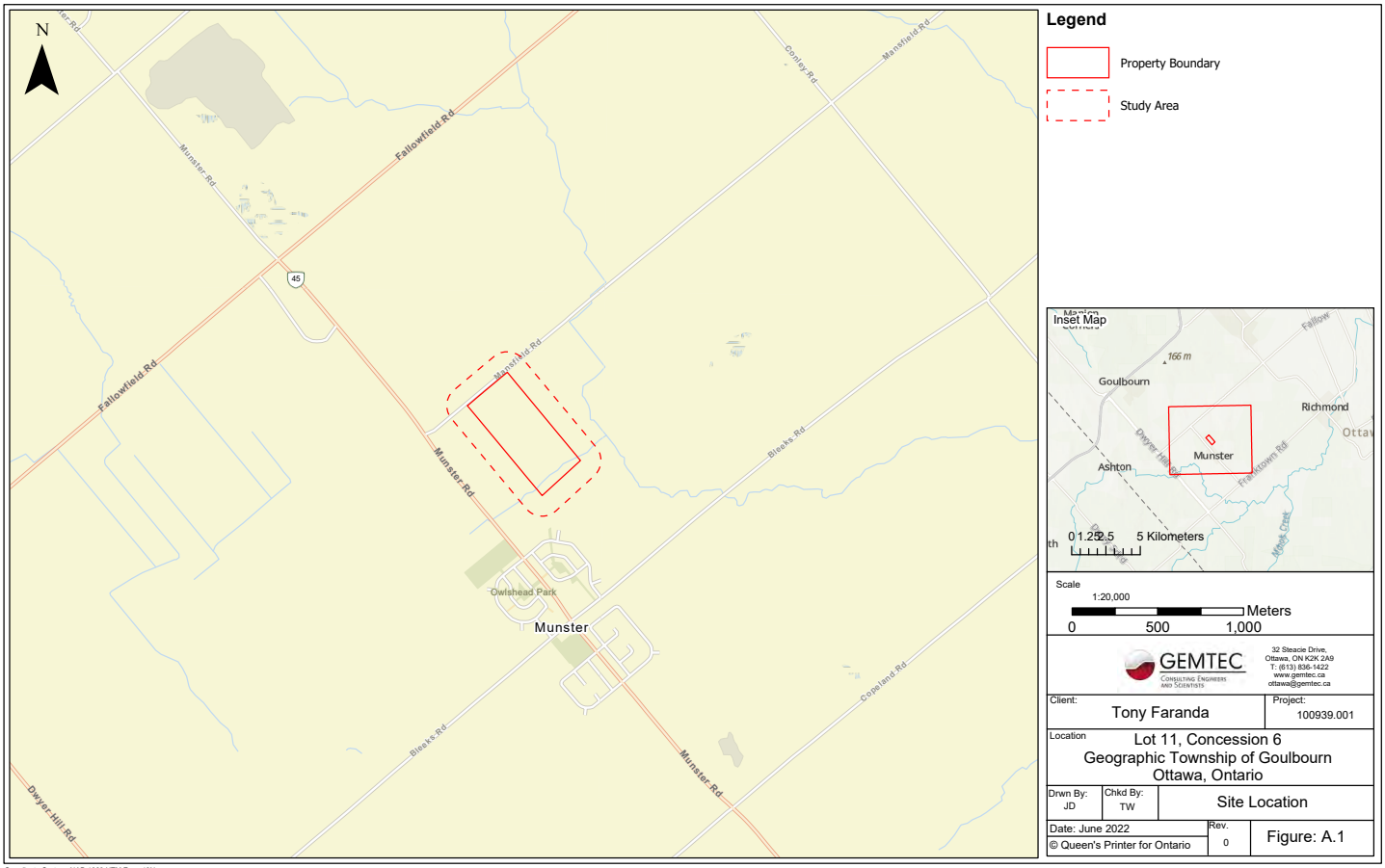
APPENDIX A

Report Figures
Figure A.1 – Site Location
Figure A.2 – Site Layout
Figure A.3 – Vegetation Communities
Figure A.4 – Natural Heritage Features
Figure A.5 – Mitigation Measures



Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Street Map: Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community
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Legend

- Property Boundary
- Study Area
- Proposed Severance
- Local Wetland
- Watercourse
- Breeding Bird Survey Location (100 m radius)

Scale
1:4,000
0 125 250 Meters

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ottawa@gemtec.ca

Client:	Project:
Tony Faranda	100939.001

Location
Lot 11, Concession 6
Geographic Township of Goulbourn
Ottawa, Ontario

Drwn By:	Chkd By:	
JD	TW	Site Layout

Date: June 2022	Rev.	
	0	Figure: A.2

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: RVCA DRAPE 2019 Imagery: Rideau Valley Conservation Authority (RVCA)

Legend

- Property Boundary
- Study Area
- Proposed Severance
- Vegetation Community

FOMM4 = Dry-Fresh White Cedar- Poplar Mixed Forest
MAMM1 = Graminoid Mineral Meadow Marsh
SWMM1-1 = White Cedar - Hardwood Mineral Mixed Swamp

Scale
1:4,000
0 125 250 Meters

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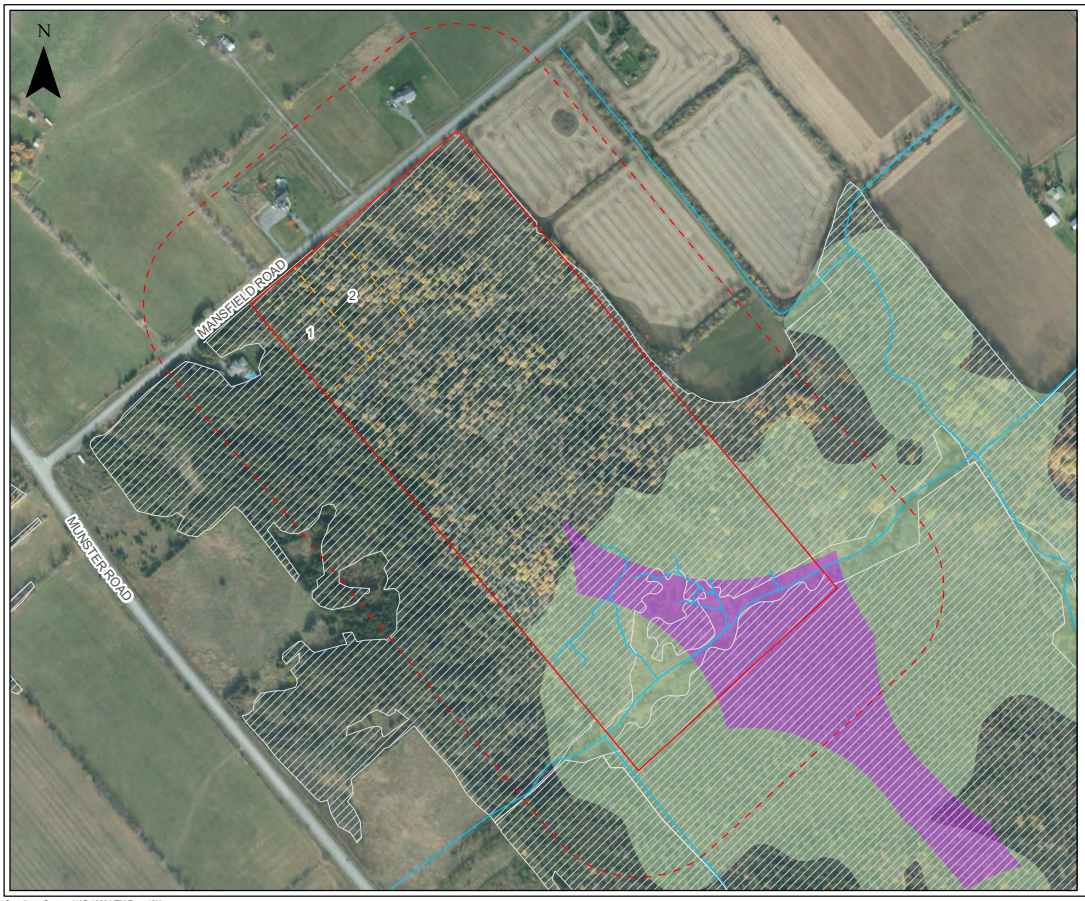
Location: Lot 11, Concession 6
Geographic Township of Goulbourn
Ottawa, Ontario

Drwn By:	Chkd By:	
JD	TW	Vegetation Communities

Date: June 2022	Rev.	
	0	Figure: A.3

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: RVCA DRAPE 2019 Imagery: Rideau Valley Conservation Authority (RVCA)



Legend

- Property Boundary
- Study Area
- Proposed Severance
- Local Wetland
- Significant Woodlands
- Area-Sensitive Breeding Bird Habitat
- Watercourse

Scale
1:4,000
0 125 250 Meters

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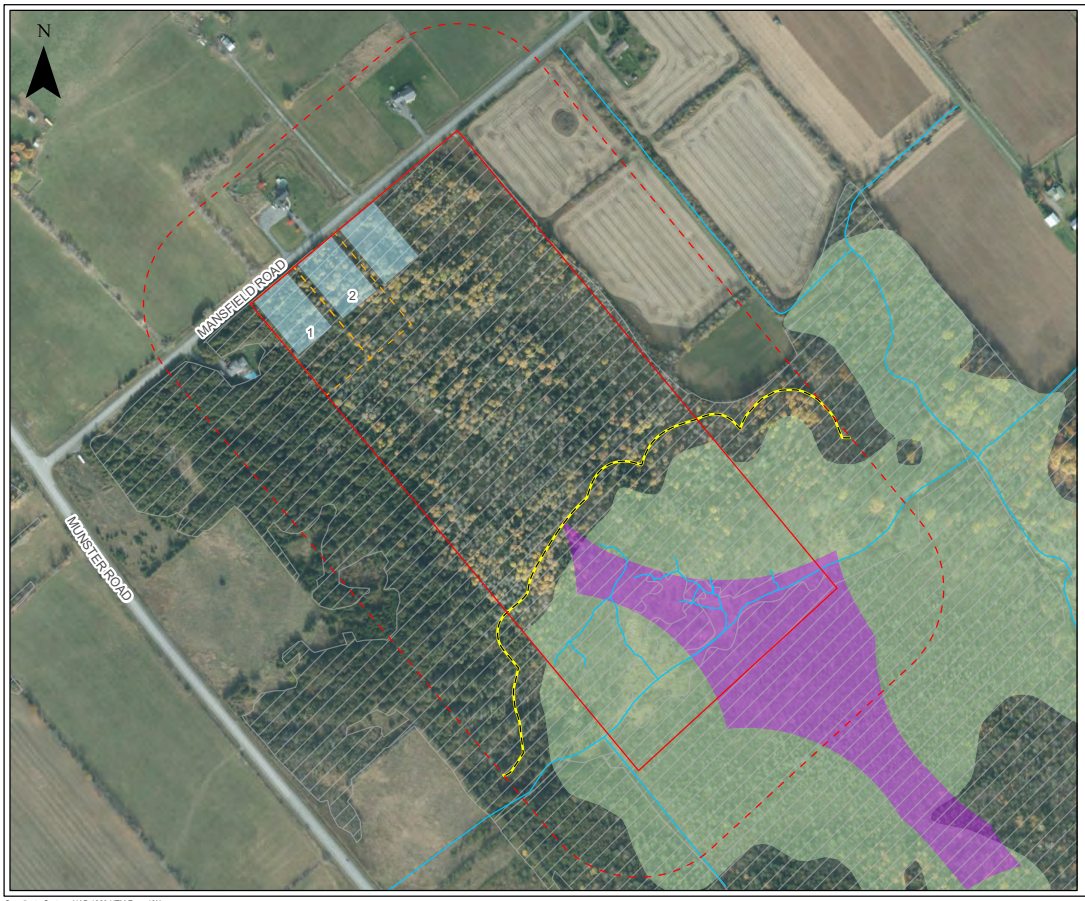
Client:	Project:
Tony Faranda	100939.001

Location
Lot 11, Concession 6
Geographic Township of Goulbourn
Ottawa, Ontario

Drwn By:	Chkd By:	
JD	TW	Natural Heritage Features

Date: June 2022	Rev.	
	0	Figure: A.4

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: RVCA DRAPE 2019 Imagery: Rideau Valley Conservation Authority (RVCA)



Legend

- Property Boundary
- Study Area
- Proposed Severance
- Local Wetland
- Significant Woodlands
- Area-Sensitive Breeding Bird Habitat
- Development Envelope (0.4 hectares)
- Watercourse
- 30 m Setback

Scale
1:4,000
0 125 250 Meters

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Client:	Project:
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Location: Lot 11, Concession 6
Geographic Township of Goulbourn
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Drwn By:	Chkd By:	
JD	TW	Mitigation Measures

Date: June 2022	Rev.	
© Queen's Printer for Ontario	0	Figure: A.5

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: RVCA DRAPE 2019 Imagery: Rideau Valley Conservation Authority (RVCA)

APPENDIX B

Site Photographs

Report to: Tony Faranda
Project: 100939.001 (June 1, 2022)

Site Photograph 1 – White Cedar – Poplar Mixed Forest (FOMM4)

Site Photograph 2 – White Cedar – Poplar Mixed Forest (FOMM4)

Site Photograph 3 – White Cedar – Poplar Mixed Forest (FOMM4)

Site Photograph 4 – White Cedar – Hardwood Mineral Mixed Swamp (SWMM1-1)

GEMTEC Consulting Engineers and Scientists	Project Environmental Impact Statement Land Severance Application Part of Lot 11, Concession 6 Goulbourn, Ontario	**ATTACHEMNT B** File No. 100939.001	**Site Photographs**

Site Photograph 5 – Graminoid Mineral Meadow Marsh (MAMM1)

Site Photograph 6 – Graminoid Mineral Meadow Marsh (MAMM1)

Site Photograph 7 – Watercourse

Site Photograph 8 – Watercourse

GEMTEC Consulting Engineers and Scientists	Project Environmental Impact Statement Land Severance Application Part of Lot 11, Concession 6 Goulbourn, Ontario	**ATTACHEMNT B** File No. 100939.001	**Site Photographs**

APPENDIX C

Report Summary Tables

Report to: Tony Faranda
Project: 100939.001 (June 1, 2022)

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

Common Name	Scientific Name	S-Rank	Evidence
Avian Species			
American crow	*Corvus brachyrhynchos*	S5B	Heard calling
American goldfinch	*Spinu tristis*	S5B	Heard calling
American kestrel	*Falco sparverius*	S4	Observed perched
American robin	*Turdus migratorius*	S5B	Heard calling, observed foraging
Belted kingfisher	*Megaceryle alcyon*	S4B	Observed on-site
Black-and-white warbler	*Mniotilta varia*	S5B	Heard calling
Black-capped chickadee	*Poecile atricapillus*	S5	Heard calling
Blue jay	*Cyanocitta cristata*	S5	Heard calling
Bobolink	*Dolichonyx oryzivorus*	S4B	Heard calling, observed perched off-site
Brown creeper	*Certhia americana*	S5B	Observed foraging
Cedar waxwing	*Bobycilla cedrorum*	S5B	Heard calling, observed perched
Chimney swift	*Chaetura pelagica*	S4B, S4N	Heard calling
Chipping sparrow	*Spizella passerina*	S5B	Heard calling
Common yellowthroat	*Geothlypis trichas*	S5B	Heard calling
Eastern kingbird	*Tyrannus tyrannus*	S4B	Heard calling, observed perched
Eastern meadowlark	*Sturnella magna*	S4B	Heard calling from off-site location
Eastern wood-pewee	*Contopus virens*	S4B	Heard calling
European starling	*Sturnus vulgaris*	SNA	Heard calling
Gray catbird	*Dumetella carolinensis*	S4B	Heard calling
Great-crested flycatcher	*Myiarchus crinitus*	S4B	Heard calling
Hairy woodpecker	*Picoides villosus*	S5	Observed on-site
Mourning dove	*Senaida macroura*	S5	Heard calling
Northern cardinal	*Cardinalis cardinalis*	S5	Heard calling
Northern flicker	*Colaptes auratus*	S4B	Heard calling, observed foraging
Northern waterthrush	*Parkesia noveboracensis*	S5B	Observed on-site
Ovenbird	*Seiurus aurocapilla*	S4B	Heard calling
Red-breasted nuthatch	*Sitta canadensis*	S5	Heard calling
Red-winged blackbird	*Agelaius phoeniceus*	S4B	Heard calling
Rose-breasted grosbeak	*Pheucticus ludovicianus*	S4B	Heard calling
Ruffed grouse	*Bonasa umbellus*	S4	Heard drumming, flushed
Savannah sparrow	*Passerculus sandwichensis*	S4B	Heard calling
Scarlet tanager	*Piranga olivacea*	S4B	Heard calling
Song sparrow	*Melospiza melodia*	S5B	Heard calling
Veery	*Catharus fuscenscens*	S4B	Heard calling
White-breasted nuthatch	*Sitta carolinensis*	S5	Heard calling
White-throated sparrow	*Zonotrichia albicollis*	S5B	Heard calling
Wood thrush	*Hylocichla mustelina*	S4B	Heard calling
Yellow-bellied sapsucker	*Sphyrapicus varius*	S5B	Heard calling and drumming
Mammalian Species			
American black bear	*Ursus americanus*	S5	Observed scat on-site
Red squirrel	*Tamiasciurus hudsonicus*	S5	Observed on-site
Striped skunk	*Mephitis mephitis*	S5	Observed on-site
White-tailed deer	*Odocoileus virginianus*	S5	Observed on-site

Notes:
* Denotes a threatened or endangered Species at Risk under the ESA
Subnational Conservation Status Ranks:
S1 – Critically Imperiled, at very high risk of extirpation, very few populations or occurrences or very steep population decline;
S2 – Imperiled, at high risk of extirpation, few populations or occurrences or steep population decline;
S3 – Vulnerable, at moderate risk of extirpation, relatively few populations or occurrences, recent and widespread population decline;
S4 – Apparently Secure, at a fairly low risk of extirpation, many populations or occurrences, some concern for local population decline;
S5 – Secure, at very low or no risk of extirpation, abundant populations or occurrences, little to no concern for population decline.
Qualifiers:
S#B – Conservation status refers to the breeding population of the species;
S#N – Conservation status refers to the non-breeding population of the species;
S#M – Migrant species, conservation status refers to the aggregating transient population of the species.

TABLE C.2
SCREENING RATIONALE FOR SIGNIFICANT WOODLANDS

Woodland Criteria	Further Considered in EIS	Rationale
Woodland Size	Yes	Contiguous woodlands on-site meet the minimum size requirement for the planning area (> 50 ha).
Ecological Functions		
a) Woodland Interior	Yes	Interior woodlands on-site does meet the minimum size requirement for the planning area (> 8 ha).
b) Proximity	Yes	Woodlands on-site are proximate to local wetlands and fish habitat.
c) Linkages	No	Woodlands on-site do not provide linkages to other natural heritage features.
d) Water Protection	Yes	Woodlands on-site are proximate to local wetlands and fish habitat.
e) Diversity	No	Species composition within the on-site woodland is well represented on the landscape and no rare species communities were observed on-site.
Uncommon Characteristics	No	The woodlands on-site do not have a unique species composition, vegetation communities with a ranking of S1, S2 or S3, or a mature size structure.
Economical and Social Functional Values	No	The woodlands on-site do not contain high productivity in terms of economically valuable products, high social value such as recreational use, identified historical cultural or educational values.

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

Wildlife Habitat	Further Considered in EIS	Rationale
Winter Deer Yard	No	While there are stands of coniferous woodlands on-site, as outlined in the Significant Wildlife Habitat Criteria Schedules (OMNRF, 2015) winter deer yards and deer management are an MNRF responsibility. Based on review of publicly 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.
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	Wetland and 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	The site does not contains both forest and upland habitat and it does not meet the minimum size criteria of greater than 20 ha.
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	Wetlands on-site are not of sufficient hydroperiod permanency to support overwintering turtles.
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 C.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 wetland ELC ecosite MAS 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 (MNRF, 2012).
Woodland Raptor Nesting Habitat	Yes	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. Both contiguous forest stands >30 ha and interior forest habitat >10 ha are present. No stick nests were observed on-site.
Turtle Nesting Habitat	No	No suitable habitat (exposed mineral soil with minimal vegetation cover) is present within 100 m of the wetlands on-site.
Seeps and Springs	No	No seeps or springs were identified on-site.
Woodland Amphibian Breeding Habitat	Yes	Suitable wetland habitat and vernal pooling within or adjacent to a woodland occurs on-site may support woodland amphibian breeding habitat.
Wetland Amphibian Breeding Habitat	No	Vernal pooling throughout the swamp and meadow marsh have the potential to support woodland amphibian breeding but do not provide sufficient water permanency to support wetland breeding
Woodland Area-Sensitive Bird Breeding Habitat	Yes	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 meet the defining criteria.

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

General Habitats of Species of Conservation Concern	Further Considered in EIS	Rationale
Marsh Breeding Bird Habitat	Yes	Potentially suitable marsh habitat present on-site to support marsh breeding bird habitat.
Open Country Breeding Bird Habitat	No	No suitable meadow habitat on-site to support open country bird breeding due to recent (< 5 years) agricultural disturbances.
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. There are no cultural thickets present on-site.
Terrestrial Crayfish Habitat	No	Terrestrial crayfish are only found within southwestern Ontario (MNRF, 2012).
Special Concern and Rare Wildlife Species	Yes	The following species of special concern were identified on-site during the site investigation: eastern wood-pewee and wood thrush. According to Herps Canada the following species have been observed within the 10km2 encompassing the property snapping turtle.

TABLE C.6
SCREENING RATIONALE FOR ANIMAL MOVEMENT CORRIDORS

General Habitats of Species of Conservation Concern	Further Considered in EIS	Rationale
Amphibian Movement Corridor	No	No *confirmed* wetland amphibian breeding habitat has been identified on-site.
Deer Movement Corridor	No	No winter deer yards have been identified on-site by the OMNRF.

TABLE C.7
SCREENING RATIONALE FOR POTENTIAL SPECIES AT RISK ON-SITE OR WITHIN STUDY AREA

Species	ESA Status	Habitat Use	Probability of Occurrence On-Site or Within Study Area	Rationale
Avian				
Barn Swallow	Threatened	Nests in barns and other semi-open structures. Forages over open fields and meadows.	Moderate	Suitable foraging habitat and nesting structures within the broader study area.
Black Tern	Special Concern	Breeds in loose colonies in shallow marshes, particularly cattails.	Low	Species has not been observed on-site.
Bobolink	Threatened	Nests in dense tall grass fields and meadows, low tolerance for woody vegetation.	High	Suitable grassland habitat available within study area. Species was observed nesting in the broader study area.
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.	High	Suitable grassland habitat available within study area. Species was observed within the broader study area prior to the nesting season.
Eastern Whip-poor-will	Threatened	Nests on the ground in open deciduous or mixed woodlands with little underbrush, and bedrock outcrops.	Low	Woodlands and cultural lands on-site or within the broader study area do not provide suitable habitat conditions for eastern whip-poor-will.
Eastern Wood-pewee	Special Concern	Woodland species, often found near clearings and edges.	High	Eastern wood-pewee was observed on-site during site investigations.
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	High	Wood Thrush was observed on-site during site investigations.
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 roost habitat.
Reptilian				
Blanding's Turtle	Threatened	Inhabits quiet lakes, streams and wetlands with abundant emergent vegetation. Frequently occurs in adjacent upland forests.	Low	Based on data obtained from the Herp Atlas (Ontario Nature, 2019), Blanding's turtle have been observed four times between 2018 and 2019 within the 10 km2 grid square that encompass the site. However NHIC data does not indicate any known occurrences for Blanding's turtles on-site. The site does not provide potentially suitable aquatic habitat for Blanding's turtle.
Eastern Musk Turtle	Special Concern	Permanent ponds, lakes, marshes and rivers.	Low	No historic occurrence data for the species on-site or within the broader study area. The species was not observed on-site.
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 suitable habitat present on-site or within the broader study area for the gray ratsnake.
Snapping Turtle	Special Concern	Highly aquatic species, found in a wide variety of permanent ponds, lakes, marshes and rivers.	Moderate	Based on data obtained from the Herp Atlas (Ontario Nature, 2019), the species has been detected seven times between 2018 and 2019 within the 10km2 grid square that encompass the site. However NHIC data does not indicate any known occurrences for Snapping turtles on-site. The site does provide potentially suitable aquatic habitat for snapping turtle within the watercourse.
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 mixed and 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	No areas on-site that are open or in a regenerative state. Species was not observed on-site during the site investigations.
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.

TABLE C.7
SCREENING RATIONALE FOR POTENTIAL SPECIES AT RISK ON-SITE OR WITHIN 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.

experience • knowledge • integrity

civil	civil
geotechnical	géotechnique
environmental	environnementale
field services	surveillance de chantier
materials testing	service de laboratoire des matériaux

expérience • connaissance • intégrité