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Environmental Impact Statement
Proposed Plan of Subdivision
1015 March Road
Geographic Township of March
Ottawa, Ontario

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Submitted to:

13533441 Canada Inc.
1015 March Road
Ottawa, Ontario
K2K 1X7

Environmental Impact Statement
Proposed Plan of Subdivision
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Geographic Township of March
Ottawa, Ontario

December 22, 2021
Project: 101242.001 - V02

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EXECUTIVE SUMMARY

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by 13533441 Canada Inc. to complete an Environmental Impact Statement (EIS) for the property located at 1015 March Road in Kanata, City of Ottawa, Ontario. This EIS has been completed in support of a proposed zoning amendment and draft plan of subdivision application and was completed in accordance with all federal, provincial and municipal policies and guidelines, as applicable.

In support of this EIS a desktop review and a single field investigation was completed in summer 2021 to identify the presence or absence of natural heritage features and species at risk (SAR) on-site. The focus of the site investigation was to describe, in general, the natural and physical setting of the subject property with a focus on confirming the presence or absence of natural heritage features and potential SAR or their habitat as identified in the desktop review.

Following completion of the desktop review and site investigations the following natural heritage features were identified on-site or within the study area: significant wildlife habitat for special concern and rare wildlife habitat (monarch butterfly) and fish habitat. The following SAR and their habitat were identified as having a potential to occur on-site: barn swallow, bobolink, eastern meadowlark, eastern small-foot myotis, little brown myotis, tri-colored bat, Blanding's turtle and butternut. No barn swallow, bobolink or eastern meadowlark, or their respective habitats were identified on-site. No butternut trees were observed on-site.

Potential impacts to the natural heritage features were primarily associated with the a small loss of treed hedgerow habitat and indirect impacts to off-site fish habitat. The majority of impacts to natural heritage features on-site can be mitigated through the implementation of general mitigation measures provided in Section 7. Due to the confirmed regulated habitat for Blanding's turtle on-site an Information Gathering Form will be submitted to the MECP to determine whether the project is likely to contravene the ESA.

Additionally, to provide protection to potential SAR and their habitat on-site, should any SAR be discovered throughout the course of the proposed works, 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 all applicable legislation, all best management practices and adherence to vegetation clearing windows 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 project complies with the natural heritage policies of the Provincial Policy Statement and the new 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 project 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 13533441 Canada Inc. to complete an Environmental Impact Statement (EIS) for the property located at 1015 March Road, in the Geographic Township of March, 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

As part of a proposed plan of subdivision, the proponent is seeking a zoning amendment to permit the development of an approximately 4.9-hectare property into a commercial and retail plaza and a future school. Based on *Section 4.8 – Natural Heritage, Greenspace and the Urban Forest* of the Draft 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 Background

The subject property is located within the northwest quadrant of the Kanata North Urban Expansion Area (KNUEA) lands. In 2016, a large scale, multi-disciplinary study was completed on approximately 181 hectares (ha) of land collectively known as the KNUEA. Located north of the established urban communities of Morgan's Grant, Briarbrook and Brookside, the KNUEA extends north from the urban portion of Kanata along both sides of March Road (Novatech, 2016). Extensive environmental surveys and inventories were completed in preparation of an Environmental Management Plan (Novatech, 2016) to be included as a component of the Community Design Plan (CDP) for KNUEA and to ensure that the CDP is completed in accordance with the goals, objectives and policies of the Draft City of Ottawa Official Plan (Ottawa, 2021). The EMP (Novatech, 2016) has been reviewed in conjunction with the completion of this EIS.

1.3 Objective

The 2020 Provincial Policy Statement (MMAH, 2020) issued under Section 3 of the Planning Act states that "development and site alteration shall not be permitted in: habitats of species at risk, significant wetlands, significant woodlands and significant wildlife habitat unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions." Similarly, the 2020 Provincial Policy Statement dictates that 'development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements."

The objective of the work presented herein is twofold; 1) to identify and evaluate the significance of any natural heritage features, as defined in the Provincial Policy Statement (MMAH, 2020), on the subject property and within the broader study area and; 2) to assess the potential impacts from the proposed zoning amendment and future development on any natural heritage features identified and to recommend appropriate and defensible mitigation measures to ensure the long-term protection of any natural heritage features identified.

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

- Provincial Policy Statement (MMAH, 2020);
- Endangered Species Act (Ontario, 2007);
- Conservation Authorities Act (Ontario, 1990);
- Natural Heritage Reference Manual (OMNR, 2010);
- Draft City of Ottawa Official Plan (Ottawa, 2021); and
- City of Ottawa EIS Guidelines (Ottawa, 2012)

1.4 Physical Setting

The subject property is municipally addressed as 1015 March Road, located on part of Lot 13, Concession 3, in the Geographic Township of March, City of Ottawa, Ontario. The subject property currently consists of active agricultural fields and a vacant rural residential dwelling. To the northwest and southwest the site is bound by neighbouring property addressed as 1035 March Road and 1075 March Road. To the northeast the site is bound by March Road and to the southeast the site is bound by neighbouring property addressed as 927 March Road.

1.5 Land Use Context

The subject property is situated within a larger peri-urban area, just north of the urban area of Kanata and within the Kanata North Urban Expansion Area (KNUEA). The surrounding area is a mix of active agricultural fields and residential subdivisions. The site is located within the Ottawa urban boundary, the land use designation from the existing City of Ottawa Official Plan is General Urban Area. Under the new City of Ottawa Official Plan the site is designated as Corridor – Mainstreet for the majority of the east portion of the property and Neighbourhood for the west half of the property. The City of Ottawa zoning by-law is rural countryside zone (RU) and rural commercial zone (RC).

2.0 METHODOLOGY

2.1 Desktop Review

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

Information regarding the potential presence of natural heritage features and 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 (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.

A single field investigation was completed in support of this EIS on August 27, 2021 from 16:30-18:45. Site conditions during the site investigation were as follows: 25°C, mostly sunny (30% cloud cover), Beaufort wind 3, no precipitation. Photographs of site features taken during field investigations are provided in Appendix B. A summary of all wildlife observed during the site investigation is provided in Table C.1 of Appendix C.

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 August 27, 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.

2.3 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 Study Area Land Use

Figure 1 below provides an illustration of the temporal changes in land use within the study area from 1976, 1999, 2008, and 2019 aerial imagery taken from GeoOttawa.

In 1976, the study site and surrounding lands were primarily populated with agricultural fields and small single family rural-residential dwellings buildings. Most development in the area was centred along March Road and Dunrobin Road. Most of Kanata's urban area was not yet developed.

By 1999, significant development occurred south of the study area in the urban area of Kanata. Smaller subdivisions were also being developed to the south, west and north of the study area.

By 2008, intensification within the Kanata Urban area to the south had reached present day extents. Development of smaller subdivisions continued to the southwest, west and north areas of the subject property.

By 2019, the remaining surrounding lands are in present day configuration.

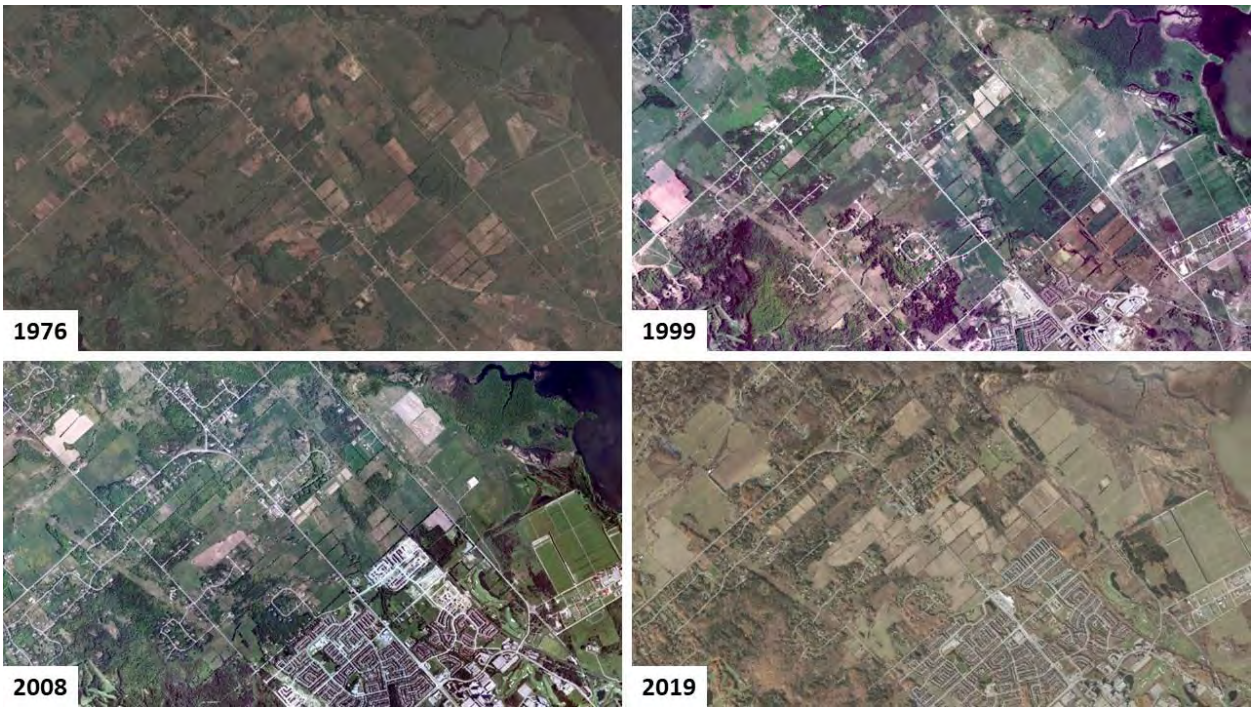

Figure 1 – Temporal Changes in Land Use within Study Area

3.3 Landforms, Soils and Bedrock Geology

The topography of the site is relatively flat, with a gentle slope from west to east, from a topographical high of 85 mASL along the west property boundary to a topographical low of 79 mASL along the eastern property boundary and March Road.

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

The Ontario Geological Survey (OGS, 2019) identifies one surficial soil unit on the subject property, fine-textured glaciomarine deposits. These deposits consist of silt and clay with minor sand and gravel that is massive to well laminated.

Bedrock on the site is composed of the Beekmantown Group comprised of dolostone and sandstone.

3.4 Surface Water, Groundwater and Fish Habitat

No surface water features were identified on-site during the site investigation or desktop review.

Two tributaries of Shirley's Brook have been identified off-site, within the study area. One to the north-northeast and one to the south; these two tributaries confluence approximately 850 m downstream of where they pass through the study area. As discussed in Section 1.5 above the site and surrounding lands form part of the Kanata North Urban Expansion Area. As part of an

overall benefit permit for Species at Risk, the portion of the north tributary that occurs on 1020 March Road (across the street from the subject property) is to be realigned to provide a greater distance between the watercourse and the roadway and to allow for habitat offsetting under the issued OBP. Additionally, the upper reach of this tributary, occurring throughout Lot 13, Concession 3 is also proposed to be realigned as part of an overall benefit permit for Species at Risk. The current tributary configuration and the proposed realignments are illustrated on Figure A.2 in Appendix A.

No fish habitat has been identified on-site, however the two tributaries of Shirley's Brook are assumed to provide direct fish habitat and contribute to downstream fish habitat.

Groundwater investigations were not completed in support of this EIS.

3.5 Vegetation Communities

Vegetation communities on-site were characterized by GEMTEC on August 27, 2021, following protocols utilized in the Southern Ontario Ecological Land Classification System (Lee et al., 2008). The site is comprised of two communities, a small area of rural residential (CVR_4) where the existing vacant home and outbuildings is located and an active agricultural field (OAG). Vegetation communities are illustrated on Figure A.3 in Appendix A.

The agricultural field was planted with soy bean at the time of the site investigation.

Vegetation around the vacant residential building was minimal and primarily comprised of scattered trees and shrubs, as well as a treed hedgerow along the southern property boundary. Tree and shrub species on-site included: American elm (*Ulmus americana*), apple (*Malus* sp.), basswood (*Tilia americana*), bur oak (*Quercus macrocarpa*), Freeman's maple (*Acer freemanii*), hawthorn (*Crataegus* sp.), Manitoba maple (*Acer negundo*), Norway maple (*Acer plantanoides*), white ash (*Fraxinus americana*) and white spruce (*Picea glauca*).

A tree conservation report was conducted for the property to identify trees to be retained and protected under future development and, where feasible, identify opportunities to offset the loss of trees that cannot be retained under future development plans. The Tree Conservation Report (TCR) completed for the subject property is provided in Appendix D.

3.6 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. Furthermore, no unevaluated wetlands were identified on-site or during the desktop review. As no PSW or unevaluated wetlands have been identified on-site or within the study area they 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.

However, as outlined in Section 3.5 above, the site is primarily agriculture with a rural-residential area and small treed hedgerow. No woodland or forest communities have been identified on-site during the desktop review or site investigation. As such, significant woodlands are not present on-site or within the study area and they are not discussed or evaluated further in this EIS.

4.3 Significant Valleylands

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

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

As discussed in Section 3.2, the site is relatively flat, 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 12 types of

seasonal concentration habitats that may be considered significant wildlife habitat. These 12 types of seasonal habitat are presented in Table C.3 in Appendix C, including a brief description of the rationale as to why 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, no specialized habitats for wildlife have been identified on-site or within the study area, as such they are not discussed or evaluated further in this EIS.

4.5.4 Habitats of Species of Conservation Concern

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

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

The Significant Wildlife Habitat Ecoregion Criterion Schedules (OMNRF, 2015), provides five general habitat types known to support a wide range of species of conservation concern in Ontario. The five general habitat types for Ecoregion 6E-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, one habitat of species of conservation concern has been identified on-site, habitat for special concern and rare wildlife species for monarch butterfly.

4.5.4.1 Special Concern and Rare Wildlife Species SWH

Based on observation data from the field investigations, one species of special concern has been identified on-site or within the broader study area, monarch butterfly. No other species of special concern or rare wildlife species were identified on-site or within the broader study area.

The monarch butterfly is a showy orange and black butterfly with an S-rank of S4B (common) and is listed as a species of special concern in Ontario. Monarch butterfly was observed on-site during the field investigation on August 27, 2021. Monarch butterflies are highly transitory and are found in diverse habitats where they feed on nectar from a variety of wildflowers. Based on the site observation and the availability of suitable habitat within the subject property there is a high potential for monarch butterfly to occur on-site.

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). Additionally, review of the City of Ottawa Natural Landscape Analysis (undated) indicates that the City of Ottawa has not identified any landscape linkages over the subject property or study area. The closest landscape linkage to the subject property occurs approximately 650 m north-northwest of the subject property. 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.

As discussed in Section 3.4 no surface water features have been observed on-site, however two tributaries of Shirley's Brook have been identified within the study area to the north and south of the subject property. A fisheries assessment was not conducted as part of this EIS, however the tributaries are assumed to provide fish habitat for small bodied fish species as well as contribute to downstream fish habitat.

Potential impacts to fish habitat from the proposed project are discussed in Section 6 below.

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 a zoning amendment to permit the future construction of a future commercial and retail plaza as well as a school.. The purpose of this EIS is to apply for the zoning amendment and move forward with draft plan approval for the plan of subdivision.

Details of the future development will be provided during the Site Plan Control Applications. As part of the proposed subdivision application, a new roadway via March Road along the north property boundary is proposed. This new roadway will provide access to the future development on-site as well as future development on off-site properties located on neighbouring parts of Lot 12, 13 and 14, Concession 3 as part of the Kanata North Urban Expansion Area (KNUEA).

Additional components of the future development will include: tree clearing and vegetation grubbing, fill placement and elevation grading and general landscaping activities.

As noted above details of the future development will be provided during Site Plan Control Applications. At this time no site, grading, servicing or landscaping plans are known. Following draft plan approval and finalization of development details, including grading, servicing and site plans an addendum to this EIS may be required.

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: a loss of hedgerow vegetation, an increase in impervious surface, increase in stormwater generation, short-term increases in sedimentation and/or erosion and increased noise generation.

6.1 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 one type of *candidate* significant wildlife habitat was determined to be present on-site or within the study area special concern and rare wildlife habitat for monarch butterfly.

Potential impacts to each type of SWH identified on-site are discussed in greater detail in the following subsections.

6.1.1 Special Concern and Rare Wildlife Habitat - Monarch Butterfly

Monarch butterfly (*Danaus plexippus*) is an orange and black butterfly with small white spots. Monarch butterflies are relatively large reaching wingspans of 93-105 mm (Ontario, 2021c). Throughout their life cycle, Monarchs use three types of habitat. Caterpillars feed on milkweed plants confined to meadows and other areas milkweed grows. Adult butterflies forage in more diverse habitats and can be found wherever wildflowers can provide them nectar. Monarchs spend the winter in central Mexico (Ontario, 2021c).

The main threat to monarch butterflies is habitat loss and fragmentation at their overwintering sites in Mexico (Ontario, 2021c). In Ontario, widespread use of pesticides and herbicides has limited recovery (Ontario, 2021c).

Impacts to monarch butterfly on-site are primarily limited to the loss of vegetation and open foraging habitat. However as the majority of the site is active agricultural fields, availability of good-quality foraging habitat on-site is limited. Considering their mobile nature and given the abundance of available open habitat on-site and in the broader study area, impacts to monarch butterfly SWH are anticipated to be minimal. Additionally, post-construction landscaping planting on-site is likely to result in the creation of suitable and higher quality foraging areas than is currently available on-site.

As impacts to monarch butterfly are not anticipated as a result of the proposed project, mitigation measures are not provided in Section 7 and monarch butterfly are not discussed or evaluated further in this EIS.

6.2 Fish Habitat

According to the Provincial Policy Statement (MMAH, 2020), “development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.” Fish habitat as defined in the Fisheries Act (Canada, 1985) means “spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes.”

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

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

The proposed project is not anticipated to negatively impact the Shirley’s Brook tributary to the south, primarily due to the separation distance between the southern tributary and the proposed development (greater than 230 m at the shortest distance).

As no in-water work will occur in surface water features, potential impacts to the off-site Shirley’s Brook tributary to the north are anticipated to be indirect and primarily associated with changes to the surface water and groundwater water balance through increased storm water runoff resulting from an increase in the impervious surface area and encroachment resulting in compaction of soils and vegetation loss. Other potential impacts include short duration construction impacts, including: heavy machinery encroachment, fill placement and long term human disturbance such as noise generation.

Mitigation measures to protect fish habitat are provided in Section 7.

6.3 Species at Risk

As outlined in the Endangered Species Act (Ontario, 2007), only species listed as threatened or endangered and their general habitat receive automatic protection. When a species-specific recovery strategy is developed, a specific habitat regulation will be established, which eventually

replaces the automatic habitat protection. Species of special concern and their habitat do not receive protection under the ESA.

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

6.3.1 Barn Swallow

The barn swallow (*Hirondo rustico*) 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).

Potentially suitable nesting structures occur on-site and within the broader study area. However, no barn swallows or barn swallow nests were observed on-site or within the study area during the site investigation. As such, no mitigation measures are provided in Section 7 for the protection of barn swallow and they are not discussed or evaluated further in this EIS.

6.3.2 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).

While suitable grassland habitat occurs within the study area, open habitats on-site do not provide suitable grassland habitat for bobolink. Furthermore, no bobolink were observed during the site investigation. As such, no mitigation measures are provided in Section 7 for the protection of bobolink and they are not discussed or evaluated further in this EIS.

6.3.3 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).

While suitable grassland habitat occurs within the study area, open habitats on-site do not provide suitable grassland habitat for eastern meadowlark. Furthermore, no bobolink were observed during the site investigation. As such, no mitigation measures are provided in Section 7 for the protection of eastern meadowlark and they are not discussed or evaluated further in this EIS.

6.3.4 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 site lacks suitable forest habitat to support bat maternity colonies, the buildings and hedgerow on-site may provide suitable roosting habitat for bats. As such, 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.

6.3.5 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 site lacks suitable forest habitat to support bat maternity colonies, the buildings and hedgerow on-site may provide suitable roosting habitat for bats. As such, there is a potential for little brown myotis to occur on the property, primarily for foraging or non-maternal roosting.

Impacts to little brown myotis are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect little brown myotis from impacts of the proposed development are discussed in Section 7.

6.3.6 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 site lacks suitable forest habitat to support bat maternity colonies, the buildings and hedgerow on-site may provide suitable roosting habitat for bats. As such, there is a potential for tri-colored bat to occur on the property, primarily for foraging or non-maternal roosting. Impacts to tri-colored bat are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect tri-colored bat from impacts of the proposed development are discussed in Section 7.

6.3.7 Blanding's Turtle

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

In Canada, Blanding's turtles are found throughout southern and south-central Ontario from south of Manitoulin Island to western Quebec. In Ontario, Blanding's turtles are often observed utilizing eutrophic habitats with clear water (COSEWIC, 2005). This turtle species occurs primarily in shallow water; adults are generally found in open or partially vegetated sites, where as juveniles prefer areas that contain thick aquatic vegetation. Blanding's turtles are known to make large overland journeys between connected lakes, rivers, streams, marshes or ponds, upwards of 6 km in a single active season. Overwintering occurs in permanent pools that average about one metre in depth, or slow flowing streams (COSEWIC, 2005).

While targeted basking turtle surveys were not completed in support of this EIS, the site is located within a greater area of known Blanding's turtle occurrences, review of NHIC occurrence data and the 2016 "Existing Conditions Natural Environment Features Kanata North Expansion Area" report completed by Muncaster Environmental Planning Inc. (Muncaster) as part of the "Kanata North Community Design Plan Environmental Management Plan" (EMP) report prepared by Novatech (2016) in support of the KNUEA, indicates the species has been observed within 1 km of the site. The 2016 Muncaster report identified a Blanding's turtle within the pond to the northwest of the subject property.

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

As regulated Blanding's turtle habitat extends up to 2 km from on observation, based conservatively on the NHIC observation data and observation data from the Muncaster environmental report (2016), the pond to the northwest of the subject site is considered to provide Category 1 overwintering habitat and all watercourses within the study area are assumed to provide Category 2 and 3 habitat. No Category 1 habitat occurs on-site, 274 m^2 of Category 2 habitat extends on-site and Category 3 habitat extends over the entire remainder of the subject property.

The proposed project is not anticipated to negatively impact the Shirley's Brook tributary or associated Category 2 habitat to the south, primarily due to the separation distance between the southern tributary and the proposed development (230 m at the closest point). Similarly, the proposed project is not anticipated to negatively impact the Category 1 habitat to the northwest primarily due to the separation distance between the pond and the subject property (70 m at its closest point).

As no in-water work will occur in surface water features, potential impacts to the off-site Shirley's Brook tributary to the north are anticipated to be indirect and primarily associated with changes to the surface water and groundwater water balance through increased storm water runoff resulting from an increase in the impervious surface area and encroachment resulting in compaction of soils and vegetation loss. Other potential impacts include short duration construction impacts, including: heavy machinery encroachment, fill placement and long term human disturbance such as noise generation and increased road mortality, particularly during nesting season, when turtles are more transient.

Potential direct impacts to Blanding's turtles are anticipated to be associated with the potential loss of Category 2 and 3 habitat and increased interactions with transient Blanding's turtles. The proposed development is anticipated to result in the loss of 273.62 m^2 of Category 2 habitat and 4.87 ha of Category 3 habitat on-site. Impacts to transient Blanding's turtles will be more likely during migratory and nesting periods. Migration and dispersal take place after the start of the active season, following ice-off, and in September when turtles return to their overwintering habitat. Nesting typically take place between late May to early July.

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

6.3.8 Butternut

Butternut (*Juglans cinerea*) is a short lived, medium-sized tree that can reach up to 30 m in height. Butternut is easily recognized by its compound leaves, made up of 11 to 17 leaflets, each 9 to 15 centimetres long, arranged in a feather-like pattern. The bark is grey and smooth in younger trees, and becomes rigid with age. Butternut is a member of the walnut family and produces edible nuts in the fall.

The range of butternut trees in Canada extends from southern Ontario into southern Quebec and New Brunswick (COSEWIC, 2003). It is shade intolerant and prefers riparian habitats or sites with rick, moist, well-drained loams and gravels with limestone origin. Common associates for butternut include: basswood, black cherry, beech, black walnut, elm, hickory, oak, red maple, sugar maple, yellow poplar, white ash and yellow birch.

Butternut observation records were provided by the NHIC for the 1 km grid squares that encompasses the site. However, no butternut trees were observed on-site during the site investigation. As no butternuts were documented on-site no mitigation measures are provided in Section 7 in relation to butternut and they are not discussed or evaluated further in this EIS.

6.4 Cumulative Impacts

Potential cumulative impacts associated with the proposed project include an increase in storm water generation, and the loss of roadside and hedgerow vegetation, 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 existing agricultural development in the surrounding study 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 Kanata North Community Design Plan EMP (Novatech, 2016) was reviewed for avoidance and mitigation measures to be included in this EIS report, where possible general recommendations from the EMP were included in the subsections below. However the focus of specific recommendations throughout the EMP pertained to mitigation and compensation for aquatic species at risk habitat, headwater drainage features and stream corridors. Given the absence of aquatic habitat on-site the recommended mitigation measures and compensation presented in the EMP are not directly applicable to the subject property addressed in this EIS.

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

7.1 Fish Habitat

Given the distance between off-site surface water features to the north and the subject property and existing development between the two (Existing residential development to the north and March Road to the east), the implementation of a vegetated buffer and setback is not feasible or practical.

The following general mitigation measures are provided for the protection of off-site water quality and fish habitat:

- 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.
- Silt fencing should be installed along the property boundary to provide visual demarcation of the construction area and to prevent machinery encroachment and sediment transport to downstream surface water features.
- Install and maintain effective sediment and erosion control measures before starting work.
- Schedule work to avoid wet, windy and rainy periods.
- When native soil is exposed, sediment and erosion control work in the form of heavy-duty sediment fencing shall be positioned along the down gradient edge of any construction envelopes adjacent to waterbodies.
- A storm water management plan should be prepared by a qualified engineer with the purpose of reducing suspended sediment in roadside ditches, if applicable.
- 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 that are in turn directed to road side ditches and not adjacent surface water features. Rain gardens or infiltration trenches should be utilized in areas of difficult topography.

- In order to protect fish habitat from contamination, it is recommended that all machinery be maintained in good working condition and that all machinery be fueled a minimum of 30 m from the high water mark.
- Any temporary storage of aggregate material shall be set back from the water's edge by no less than 40 m and be contained by heavy-duty silt fencing.
- Maintain as much permeable surface area as possible in future development plans to limit the generation of stormwater runoff.

7.2 Species at Risk

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

To protect roosting and foraging bats, tree removal and building demolition 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/acoustic monitoring survey should be conducted be a qualified professional.

7.2.2 Blanding's Turtle

Blanding's turtle habitat impacted by the proposed development includes 274 m^2 of Category 2 habitat and 2.5 ha of Category 3 habitat on-site.

Due to the presence of Blanding's turtle in the surrounding area, presence of Category 2 and 3 habitat on-site and that development cannot avoid impacts to regulated habitat, an Information Gathering Form is required to be submitted to the MECP to determine if the proposed development plan requires a permit or authorization under the ESA. The IGF has been completed concurrently with this EIS report and has been submitted to the MECP for review and comment.

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

- Prior to any site work, reptile and amphibian exclusion fencing should be installed around the entire perimeter of the construction area to prevent the migration of Blanding's Turtles and other wildlife into the construction zone. The temporary exclusion fencing will also provide a visual demarcation of the development area for workers during construction. Exclusion fencing should follow the protocols outlined in the Species at Risk Branch: Best Practices Technical Note: Reptile and Amphibian Exclusion Fencing Version 1.1 (MNRF, July 2013).
- Each day of construction a daily pre-work sweep of the construction area should occur to ensure no SAR are present and to remove any wildlife from inside the construction area.

- All staff working on-site should be provided Species at Risk training to identify species at risk which a potential to occur on-site including: Blanding's turtle. Training will also outline the stop work procedures and MECP reporting/consultation prior to resuming work.
- During construction if any SAR is identified on-site all work should stop and a qualified professional and the MECP should be contacted for next steps. SAR sightings should be reported to the MECP and the NHIC.
- Heavy-duty silt fencing should be installed and maintained during construction and whenever soil is exposed; the incorporation of lot-side swales and gravel laneways are intended to promote infiltration and direct stormwater runoff to road side ditches instead of towards adjacent waterbodies.
- Cover all stockpiled material with a geotextile to prevent turtles from nesting in the material between May 1 and August 1 of any year.
- To protect aquatic habitat for Blanding's turtles, machinery should be maintained in good working condition and all machinery should be fueled a minimum of 30 m from the high water mark.
- During Site Plan Control stages of the proposed project the school board (CEPEO), commercial tenants and property managers will be provided with information and awareness packages for SAR that have the potential to occur on their property. Information and awareness packages will include information on species identification, life-history, and habitat use for all species at risk with a potential to occur on-site, including Blanding's turtle. Information packages will also include contact/reporting options to the MECP and NHIC is species are encountered.

7.3 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).
- While no buildings will be constructed as part of this application, any future development plans for the site should incorporate the City of Ottawa Bird Safe Guidelines to inform building, landscape and lighting design to minimize the threat of bird collisions.
- Vegetation removal should occur outside of April 1 to September 1 (extended to October 15 is swarming is observed) 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 of the proposed road 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.

7.4 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;

- As suggested in the EMP report prepared by Novatech (2016) in support of the KNUEA, trees and vegetation within the hedgerow along the south of the subject property should be preserved as much as possible.
- 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 EIS is a zoning amendment application to permit the future construction of a commercial and retail plaza as well as a future school. The purpose of this EIS is to apply for the zoning amendment and move forward with draft plan approval for the future commercial and retail plaza as well as the future school.

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 wildlife habitat, fish habitat and habitats of species at risk, from future commercial construction are anticipated.
- The proposed project complies with the natural heritage policies of the Provincial Policy Statement.
- The proposed development complies with the natural heritage polices of the City of Ottawa new 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 13533441 Canada Inc. and is intended for the exclusive use of 13533441 Canada Inc.. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC, 13533441 Canada Inc.. Nothing in this report is intended to provide a legal opinion.

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

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

Should new information become available during future work 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,

Taylor Warrington, B.Sc.
Biologist

Drew Paulusse, B.Sc.
Senior Biologist

TW/DP

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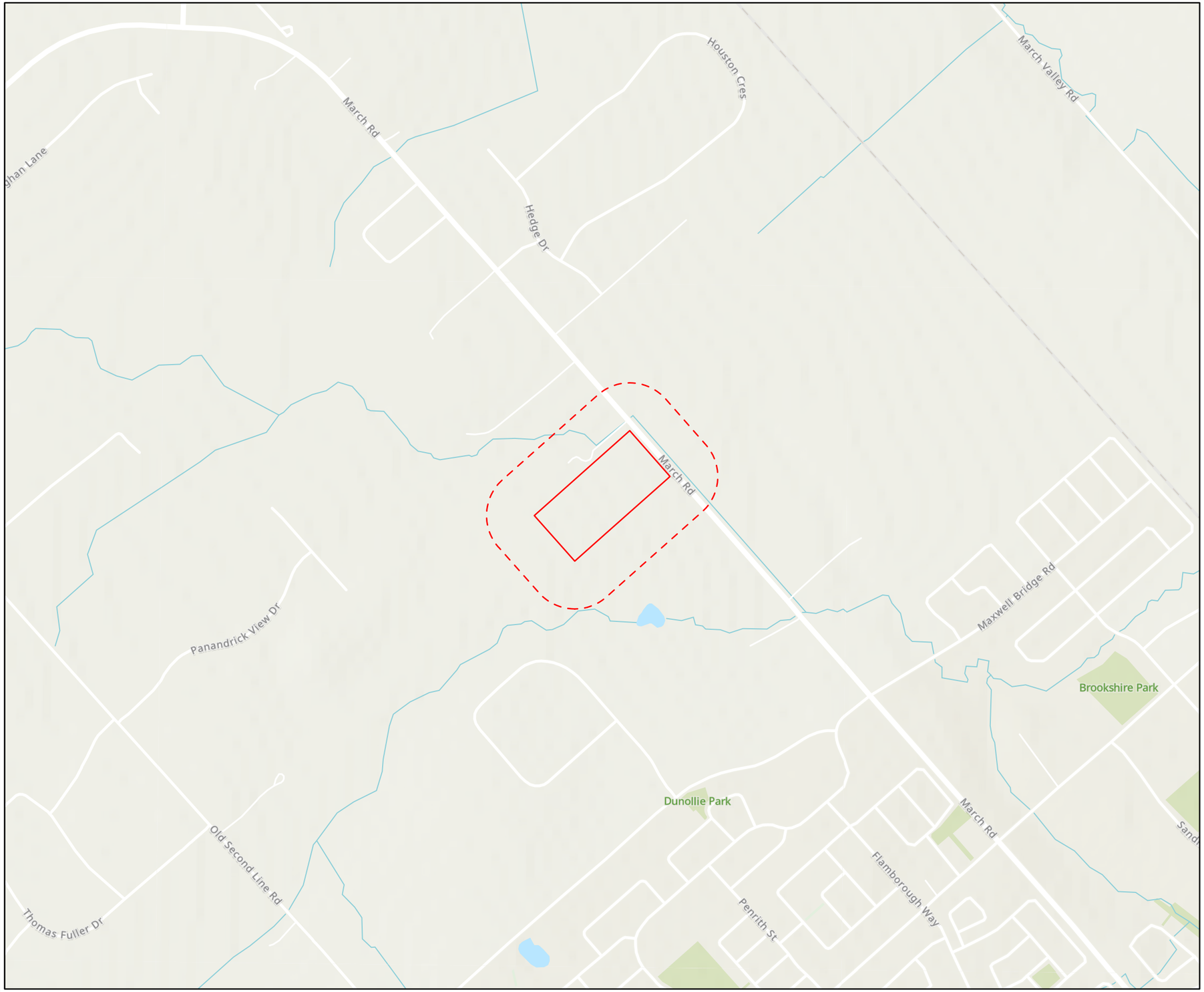
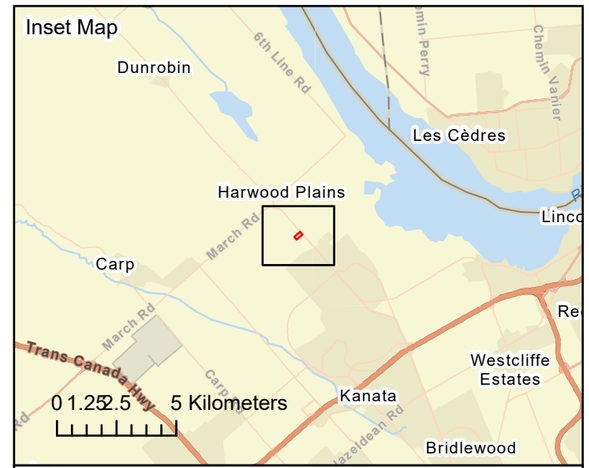
APPENDIX A

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



Legend

- Property Boundary
- Study Area



Scale
1:10,000
0 50100 200 300 400 500 Meters

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Client:	Project:
13533441 Canada Inc.	101242.001

Location
1015 March Road
Ottawa, Ontario

Drwn By:	Chkd By:	
TW	DP	Site Location

Date: December 2021	Rev.	Figure: A.1
	0	

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
World Topographic Map: Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Legend

- Property Boundary
- Study Area
- Block
- Waterbody
- Proposed Pond
- Watercourse
- Relocated Watercourse
- Watercourse to be Relocated
- Conceptual Road

Scale
1:2,600
0 25 50 100 150 Meters

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Project: 101242.001

Location: 1015 March Road
Ottawa, Ontario

Drwn By: TW | Chkd By: DP | Site Layout

Date: December 2021

Rev. 0

Figure: A.2

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Property Boundary
- Study Area
- Watercourse
- Relocated Watercourse
- Watercourse to be Relocated
- Hedgerow Vegetation
- Vegetatation Communities

OAG = Active Agriculture
CVR_4 = Rural Property

Scale
1:2,600
0 25 50 100 150 Meters

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Location
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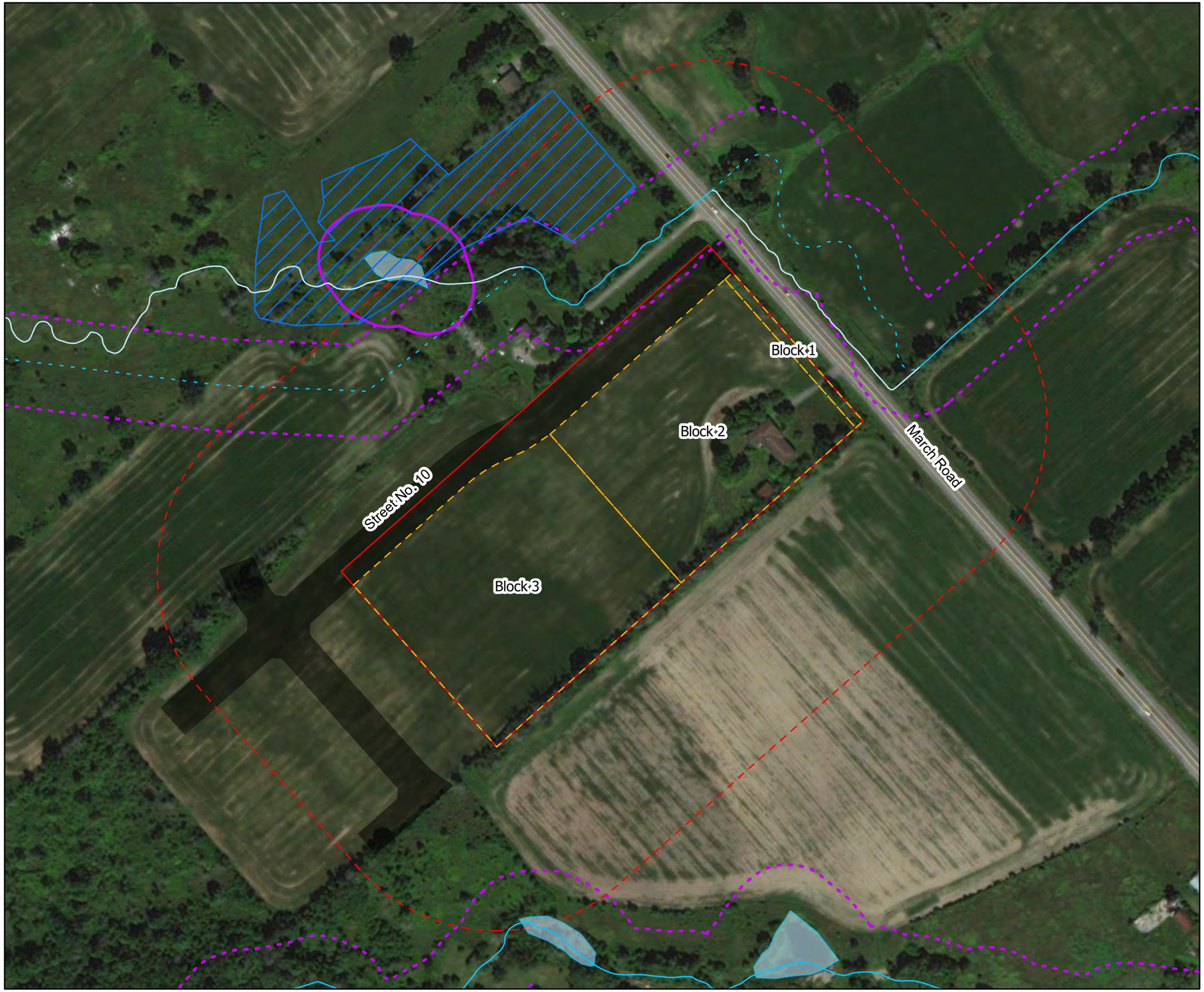
Ottawa, Ontario

Drwn By:	Chkd By:	
TW	DP	Vegetation Communities

Date: December 2021	Rev.	
	0	Figure: A.3

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Legend

- Property Boundary
- Study Area
- Block
- Waterbody
- Proposed Pond
- Watercourse
- Relocated Watercourse
- Watercourse to be Relocated
- Conceptual Road

Blanding's Turtle Regulated Habitat

- Category 1 Habitat (Overwintering)
- Category 2 Habitat (30m Radius)

Scale
1:2,600
0 25 50 100 150 Meters

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Client: 13533441 Canada Inc.

Project: 101242.001

Location: 1015 March Road
Ottawa, Ontario

Drwn By: TW | Chkd By: DP

Natural Heritage Features

Date: December 2021

Rev. 0

Figure: A.4

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

APPENDIX B

Site Photographs

Site Photograph 1 – Vegetation along March Road

Site Photograph 2 – Hedgerow vegetation

Site Photograph 3 – Hedgerow vegetation fronting to March Road

Site Photograph 4 – Hedgerow vegetation

GEMTEC Consulting Engineers and Scientists	Project Environmental Impact Statement Proposed Development 1015 March Road, Ottawa, Ontario	**APPENDIX B** File No. 101242.001	**Site Photographs**

Site Photograph 5 – Existing vacant dwelling

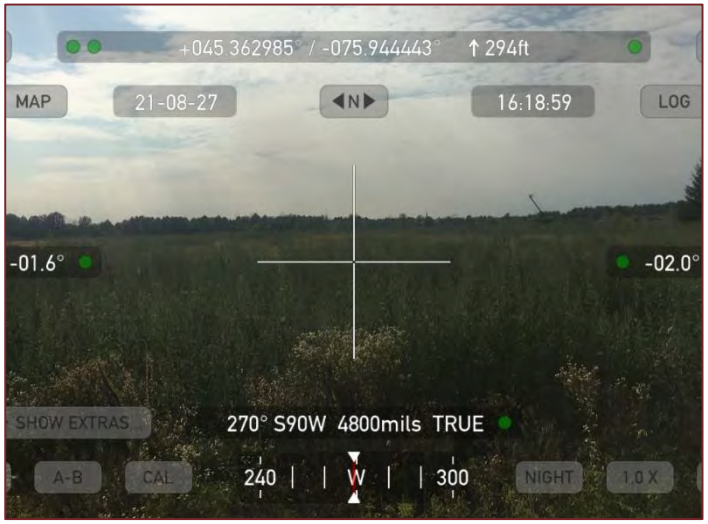
Site Photograph 6 – Existing vacant dwelling

Site Photograph 7 – Existing vacant outbuilding

Site Photograph 8 – Existing vacant outbuilding

Site Photograph 9 – Hedgerow and agricultural field

Site Photograph 10 – Agricultural field



Site Photograph 11 – Agricultural field

Site Photograph 12 – Agricultural field

APPENDIX C

Report Summary Tables

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

Common Name	Scientific Name	S-Rank	Evidence
Avian Species			
American crow	*Corvus brachyrhynchos*	S5B	Heard calling
American goldfinch	*Spinus tristis*	S5B	Heard calling
American robin	*Turdus migratorius*	S5B	Heard calling, observed foraging
Black-capped chickadee	*Poecile atricapillus*	S5	Heard calling
Common raven	*Corvus corax*	S5	Heard calling
Common yellowthroat	*Geothlypis trichas*	S5B	Heard calling
Chestnut-sided warbler	*Setophaga pensylvanica*	S5B	Heard calling
Chipping sparrow	*Spizella passerina*	S5B	Heard calling
Eastern wood-pewee	*Contopus virens*	S4B	Heard calling
Mourning dove	*Zenaida macroura*	S5	Heard calling
Northern flicker	*Colaptes auratus*	S4B	Heard calling, observed foraging
Ovenbird	*Seiurus aurocapilla*	S4B	Heard calling
Song sparrow	*Melospiza melodia*	S5B	Heard calling
Turkey vulture	*Cathartes aura*	S5B	Observed soaring
Veery	*Catharus fuscescens*	S4B	Heard calling
Yellow warbler	*Setophaga petechia*	S5B	Heard calling

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.X
SCREENING RATIONALE FOR SIGNIFICANT WOODLANDS

Woodland Criteria	Further Considered in EIS	Rationale
Woodland Size	No	Contiguous woodlands on-site do not meet the minimum size requirement for the planning area (> 50 ha).
Ecological Functions		
a) Woodland Interior	No	Interior woodlands on-site does not meet the minimum size requirement for the planning area (> 8 ha).
b) Proximity	Yes	Woodlands on-site are proximate to local wetlands.
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.
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.2
SCREENING RATIONALE FOR HABITATS OF SEASONAL CONCENTRATION AREAS

Wildlife Habitat	Further Considered in EIS	Rationale
Winter Deer Yard	No	No significant stands of mast producing trees, no large coniferous forest stands on-site to provide protection and cover from winter elements. 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 publically available data from the OMNRF on Land Information Ontario Geo-hub, no Stratum I deer yards, Stratum II deer yards, or winter congregation areas have been identified on-site or within the broader study area.
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	No suitable habitat located on-site or within the study area to meet the defining use criteria for waterfowl use (i.e. no fields with sheet water).
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 contain a suitable mix of forest and upland habitat to meet the defining use criteria for raptor wintering.
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	No on-site surface water features present on-site to provide suitable turtle wintering area habitat.
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	The site lacks suitable upland habitat adjacent to wetlands necessary to support waterfowl nesting.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	No	The site lacks suitable forest community adjacent to a riparian area to support nesting, foraging and perching habitat for Bald Eagle and Osprey.
Woodland Nesting Raptor Habitat	No	No suitable forested habitat has been identified on-site.
Turtle Nesting Habitat	No	No suitable exposed soil or loose gravel areas adjacent to wetland communities are present on-site to support turtle nesting habitat.
Seeps and Springs	No	Seeps were identified within the pasture land on-site. However, as outlined in the SWH Criteria Schedules seeps and springs are considered candidate SWH when they occur within any forested ecosite with less than 25% meadow, field or pasture habitat. As the seeps identified on-site do not meet the candidate criteria for ELC no seep or spring SWH is present on-site.
Woodland Amphibian Breeding Habitat	No	No suitable wetland or pond habitat within or adjacent to a woodland has been identified on-site to support woodland amphibian breeding habitat.
Wetland Amphibian Breeding Habitat	No	No suitable wetland habitat has been identified on-site to support wetland amphibian breeding habitat.
Woodland Area-Sensitive Bird Breeding habitat	No	No woodlands of adequate size occur on-site to support woodland area-sensitive bird breeding habitat. Needs large mature forest > 30 ha, with interior habitat at least 200 m from forest edge

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

General Habitats of Species of Conservation Concern	Further Considered in EIS	Rationale
Marsh Breeding Bird Habitat	No	No suitable wetlands have been identified on-site or adjacent to 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. Habitat on-site does not meet the defining use criteria to support shrub/early successional breeding bird habitat.
Terrestrial Crayfish Habitat	No	Terrestrial crayfish are only found within southwestern Ontario (MNRF, 2012).
Special Concern and Rare Wildlife Species	Yes	Monarch butterfly, a species of special concern, were observed on-site during the site investigation. No other special concern or rare wildlife species were observed on-site during the site investigation or desktop review.

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 SPEICES AT RISK ON-SITE OR WITHIN STUDY AREA

Species	ESA Status	Regional Distribution	Habitat Use	Probability of Occurrence On-Site or Within Study Area	Rationale
Avian					
Bald Eagle	Special Concern	Confirmed nest at Shirley's bay since 2012.	Nest in mature forests near open water.	Low	Site lacks suitable forest habitat adjacent to suitable open water and foraging area to support Bald Eagle activity.
Bank Swallow	Threatened	12 confirmed, 2 probable and 8 possible nests in recent OBBA.	Colonial nester, burrows in eroding silt, to sand banks, sand pit walls, etc.	Low	Species has not been observed on-site. No suitable habitat on-site.
Barn Swallow	Threatened	33 confirmed, 2 probable, and 3 possible nests in recent OBBA.	Nests in barns and other semi-open structures. Forages over open fields and meadows.	Moderate	Potentially suitable nesting habitat on-site. No nests observed during the site investigation. Species was not observed during site investigations nor through NHIC or other online databases.
Bobolink	Threatened	Widespread in the Ottawa region, confirmed and probable nests found in 39 or 40 local atlas squares during recent OBBA.	Nests in dense tall grass fields and meadows, low tolerance for woody vegetation.	Moderate	Potentially suitable grassland habitat adjacent to site in agricultural fields but no suitable tall grass habitat on-site to support bobolink. Species was not observed during site investigation. NHIC occurrence data indicates species has been observed within 1km of the site.
Canada Warbler	Special Concern	1 confirmed, 2 probable, 6 possible nests during recent OBBA. No critical habitat identified in region.	Prefers wet forests with dense shrub layers	Low	Preferred wet forest habitat is not present on-site.
Cerulean Warbler	Threatened	No nests reported during recent OBBA. SARO and SARA range maps include part of Ottawa.	Prefers mature deciduous forest habitat.	Low	Preferred mature deciduous forest habitat is not present on-site or within study area.
Chimney Swift	Threatened	3 confirmed, 2 probable, and 11 possible nests in recent OBBA.	Nests in traditional-style open brick chimneys.	Low	Suitable nesting structures are not present on-site or within the broader study area.
Common Nighthawk	Special Concern	6 probable, 5 possible nests reported in recent OBBA. No critical habitat identified in Ottawa region.	Nests in a variety of open sites: beaches, fields and grave rooftops.	Low	Species known to nest in gravel and rocky areas such as quarries, gravel pits and bedrock outcrops. Species was not observed during site investigations nor through NHIC or other online databases.
Eastern Meadowlark	Threatened	Sporadic occurrences in Ottawa region, more common in rural areas with pasture or fallow fields.	Nests and forages in dense tall grass fields and meadows, higher tolerance to woody vegetation.	Moderate	Potentially suitable grassland habitat adjacent to site in agricultural fields but no suitable tall grass habitat on-site to support eastern meadowlark. Species was not observed during site investigation. NHIC occurrence data indicates species has been observed within 1km of the site.
Eastern Whip-poor-will	Threatened	Primary breeding range located east, west and south of the Precambrian shield. 7 probable and 10 possible nests in recent OBBA. Critical habitat tentatively identified in 4 squares in western Ottawa.	Nests on the ground in open deciduous or mixed woodlands with little underbrush, and bedrock outcrops.	Low	No suitable woodland habitat occurs on-site or within study area.
Eastern Wood-Pewee	Special Concern	4 possible, 15 probable and 19 confirmed nests in recent OBBA for Ottawa area	Woodland species, often found near clearings and edge habitat.	Low	No suitable woodland habitat occurs on-site or within study area.
Golden Eagle	Endangered	Migrant only in Ottawa area.	Nests on remote, bedrock cliffs, overlooking large burns, lakes or tundra's	Low	Suitable nesting habitat is not present on-site.
Golden-winged Warbler	Special Concern	1 confirmed, 1 probable nest in recent OBBA. Critical habitat identified in Quebec, northwest of Ottawa.	Ground nesting, edge species. Breeds in successional scrub habitats surrounded by forests.	Low	Preferred scrub habitat is not present on-site or within the study area.
Evening Grosbeak	Special Concern	5 confirmed, 6 probable, 8 possible nests in recent OBBA.	Nests in trees or large shrubs, preference to large coniferous forests, will use deciduous. Overwinters in Ottawa.	Low	Suitable habitat does not occur on-site.
Henslow's Sparrow	Endangered	No nests in recent OBBA.	Prefers open, moist, tallgrass fields.	Low	Preferred grassland habitat is not present on-site or within the study area.
Loggerhead shrike	Endangered	1 possible nest in recent OBBA. Critical habitat in Montague Township, however no confirmed nests from MNRF since 2002.	Prefers grazed pastures with short grass and scattered shrubs, especially hawthorn.	Low	Preferred pasture habitat and shrub vegetation does not occur on-site.
Olive-sided Flycatcher	Special Concern	1 probable, 1 possible nest in recent OBBA.	Forest edge species, forages in open areas from high vantage points in trees.	Low	Preferred grassland habitat is not present on-site or within study area.
Peregrine Falcon	Special Concern	1 confirmed nest in recent OBBA and second nest established in 2011 in the Ottawa downtown.	Nests on cliffs near water and on more anthropogenic structures such as tall buildings, bridges, and smokestacks.	Low	Site lacks suitable nesting structure for peregrine falcon.
Red Knot	Endangered	Migrant only in region, found along Ottawa River shorelines, and area lagoons,	Nests in the far north, migrant along the shorelines and lagoons of the Ottawa River.	Low	Site does not provide suitable habitat for migrant red knot.
Red-headed Woodpecker	Special Concern	1 confirmed, 1 probable and 1 possible during recent OBBA. Nesting pair reported from village of Constance Bay in recent years.	Prefers open deciduous woodlands.	Low	Potentially suitable woodland habitat is present on-site. Species was not observed during site investigations nor through NHIC or other online databases.
Rusty Blackbird	Special Concern	No nests in recent OBBA. Primarily observed during migration only.	Wet wooded or shrubby areas (nests at edges of Boreal wetlands)	Low	Suitable habitat does not occur on-site.
Short-eared Owl	Special Concern	1 confirmed, 2 probable, 2 possible nests in recent OBBA.	Ground nester, prefers open habitats, fields and marshes.	Low	No suitable open field or open marsh habitat on-site.
Wood Thrush	Special Concern	5 possible, 15 probable, and 16 confirmed nests in recent OBBA for Ottawa area.	Prefers deciduous or mixed woodlands.	Low	No suitable woodland habitat occurs on-site or within study area.
Mammalian					
Eastern small-footed Myotis	Endangered	Rare throughout its range. Historical records in downtown Ottawa.	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 present on-site. No suitable woodland habitat on-site or within study area.
Little Brown Myotis	Endangered	Various sites in central and western parts of the Ottawa area. No critical habitat (hibernacula) identified in Ottawa to date.	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 present on-site. No suitable woodland habitat on-site or within study area.

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

Species	ESA Status	Regional Distribution	Habitat Use	Probability of Occurrence On-Site or Within Study Area	Rationale
Northern myotis (Northern Long-eared Bat)	Endangered	Historical records in downtown Ottawa, more recently in sites to east (Orleans, Clarence-Rockland). No critical habitat (hibernacula) identified in Ottawa to date. Ottawa and region is at southern most limit of range.	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 species rarely roosts in anthropogenic structures.
Tri-colored Bat	Endangered	Provincially Uncommon, only 26 documented occurrences in Ontario from pre-1980 to present (MNRF, 2016). Unknown distribution in Ottawa; historical records from sites in urban Ottawa and Lanark County.	Roosts in trees, rock crevices and occasionally buildings during summer. Overwinters in caves and mines.	Moderate	Potentially suitable anthropogenic structures present on-site. No suitable woodland habitat on-site or within study area.
Reptilian					
Blanding's Turtle	Threatened	Provincial range extends from Manitoulin Island south and east. Scattered occurrence records in central Ontario. Scattered throughout Ottawa and National Capital Region, with numerous sites in western half of region. Critical habitat present in Ottawa.	Inhabits quiet lakes, streams and wetlands with abundant emergent vegetation. Frequently occurs in adjacent upland forests.	Moderate	No suitable aquatic habitat on-site, and no observation data for the site on the NHIC, however the site is within a broader area of known Blanding's occurrences. Based on the results of the Kanata North Urban Expansion Area (KNUEA) study both the Shirley's Brook tributaries located north and south of the site are considered to provide habitat for Blanding's turtle.
Snapping Turtle	Special Concern	Widespread and abundant in Ottawa and surrounding region.	Highly aquatic species, found in a wide variety of wetlands, water bodies and watercourses.	Low	No historic occurrence data for species on NHIC database for the site. No critical habitat has been identified on-site. The site does provide potentially suitable aquatic habitat for snapping turtle. Potentially suitable aquatic habitat located within study area.
Plants					
American Ginseng	Endangered	Critical habitat broadly identified in the Ottawa area. Specific locations are confidential.	Rich, moist, relatively mature deciduous forests.	Low	Suitable habitat does not occur on-site.
Butternut	Endangered	Range is confined to eastern and southern Ontario. Widespread in Ottawa and region.	Inhabits a wide range of habitats including upland and lowland deciduous and mixed forests.	Moderate	Majority of the site is open and in a regenerative state. NHIC indicated historical prevalence of Butternut within 1 km of subject property. No butternuts were observed on-site during Tree Conservation Report.
Lichens					
Pale-bellied Frost Lichen	Endangered	Historical records in downtown area (extirpated locally). No critical or regulated habitat identified in Ottawa.	Grows on the bark of hardwood trees such as white ash, black walnut, American elm and ironwood. Can also be found growing on fence posts and boulders.	Low	Species believed to be extirpated from the Ottawa area.
Insects					
Bogbean Buckmoth	Endangered	Richmond Fen	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	Historic occurrences only. Range in Ontario uncertain.	Inhabits a wide range of habitats: open meadows, agricultural and urban areas, boreal forests and woodlands.	Low	Currently the only known population is in Pinery Provincial Park
Monarch Butterfly	Special Concern	Widespread in the region	Caterpillars require milkweed plants confined to meadow and open areas. Adult butterflies use more diverse habitat with a variety of wildflowers	High	Potentially suitable foraging habitat for monarch butterflies occurs on-site. Species was observed on-site during the site investigation.
Mottled Duskywing	Endangered	Constance Bay area, Burnt Lands Alvar	Larval food plant (New Jersey Tea) found in sandy areas and alvars.	Low	Sandy areas and alvars not present in the study area.
Nine-spotted Lady Beetle	Endangered	Historically present but no reports in Ontario since mid-1990s	Habitat generalist	Low	No recent occurrence reports in the area, thought to be locally extirpated.
Rusty-patched Bumble Bee	Endangered	Historic records in Ottawa and Gatineau	Habitat generalist	Low	Currently the only known population occurs in Pinery Provincial Park.
Traverse Lady Beetle	Endangered	Unknown in Ottawa region. No southern Ontario records since 1985	Habitat generalist	Low	No new records of traverse lady beetle in Ontario, species thought to be absent in former habitats.
West Virginia White Butterfly	Special Concern	Unknown. No NESS or NHIC records. SARO range map includes Ottawa.	Requires mature moist deciduous woods with larval host plant toothwort.	Low	Necessary vegetation and toothwort plant not present on-site or within study area.
Yellow-banded Bumble Bee	Special Concern	Unknown. Historic occurrences and a few recent occurrences in Eastern Ontario/Western Quebec region.	Habitat generalist; mixed woodlands, variety of open habitat	Moderate	Potentially suitable foraging habitat for yellow-banded bumble bee occurs on-site.

APPENDIX D

Tree Conservation Report

GEMTEC
www.gemtec.ca

Tree Conservation Report
Proposed Commercial Development
1015 March Road
Geographic Township of March
Ottawa, Ontario

GEMTEC
www.gemtec.ca

Submitted to:

13533441 Canada Inc.
1015 March Road
Ottawa, Ontario
K2K 1X7

Tree Conservation Report
Proposed Commercial Development
1015 March Road
Geographic Township of March
Ottawa, Ontario

December 22, 2021
Project: 101246.001 - V02

experience • knowledge • integrity

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by 13533441 Canada Inc. to carry out a Tree Conservation Report (TCR) for the property located at 1015 March Road, Geographic Township of March, in Ottawa, Ontario, hereafter referred to as the "subject property". The site location is provided in Figure A.1 in Appendix A.

1.1 Purpose

The proponent is seeking a zoning amendment and draft plan approval for a future commercial and retail plaza and a school on an approximately 4.9 ha property. In accordance with the City of Ottawa's Urban Tree Conservation By-Law (No. 2020-340), a Tree Conservation Report (TCR) is required to identify trees to be retained and protected under future development scenarios and, where feasible, identify opportunities to offset the loss of trees that cannot be retained or contribute to the City's forest cover targets.

Details of the future development will be provided during the Site Plan Control Applications. As part of the proposed subdivision application, a new roadway via March Road along the north property boundary is proposed. This new roadway will provide access to the future development on-site as well as future development on off-site properties located on neighbouring parts of Lot 12, 13 and 14, Concession 3 as part of the Kanata North Urban Expansion Area (KNUEA).

1.2 Definitions

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

Diameter at Breast Height (DBH), is defined as the diameter of the tree trunk measured at a height of 1.2 metres above ground surface for trees of 10 centimeters in diameter and greater.

Critical Root Zone (CRZ), is defined as the ground area within a circumference around the tree trunk calculated as 10 centimetres from the trunk of the tree for every one centimetre of tree truck diameter at breast height.

Distinctive Tree, a distinctive tree within the City of Ottawa is defined as any tree with a DBH of 30 cm or greater within the inner urban area and with a DBH of 50 cm or greater within the suburban and rural areas. For the purposes of this report, a distinctive tree is considered to be a tree with a DBH of 50 cm or greater, as the subject property is located within the suburban area boundary.

2.0 METHODOLOGY

2.1 Desktop Review

To complete the TCR, digital colour air photos of the site available from GeoOttawa were reviewed from 1976 to 2019 to identify natural features, including historical trees, present on-site and in the vicinity of the site.

2.2 Field Investigations

In addition to the completion of a desktop review of historical air photos, a site visit was conducted on August 27, 2021 from 16:30-18:45. Site conditions during the site investigation were as follows: 25°C, mostly sunny (30% cloud cover), Beaufort wind 3, no precipitation. The site investigation utilized transects bisecting the property to document the health of each tree greater than 10 cm in DBH, the trees location and the tree species.

Site photographs taken during the field investigations are provided in Appendix B.

3.0 RESULTS

3.1 Existing Conditions

The site is currently comprised of a vacant residential dwelling with associated rural residential vegetation and hedgerow and an active agricultural field. Exisiting road access to March Road is present in the south half of the property, providing access to the vacant residential dwelling.

The proposed commercial and retail plaza is to take place on the east half of the subject property, and a future school is planned on the western half of the subject property. Tree cover on site is primarily constrained to the area around the vacant residential dwelling and in a hedgerow along the southern property boundary. A summary of all trees identified on-site is provided in Section 3.2 below.

The land use in the vicinity of the site is characterized primarily by agricultural, rural-residential and in the broader surrounding area urban-residential subdivision land uses. Natural environmental features in the area are limited to two tributaries of Shirley's Brook, located to the north and south of the subject property. Both of these tributaries are known to provide habitat for Blanding's turtle, a threatened species at risk. Shriley's Brook tributaries and Blanding's turtle are addressed in detail in the Environmental Impact Statement for 1015 March Road. There are no other natural environmental features in the vicinity of the project, as summarized in Table 3.1 below.

Table 1.1 Summary of Natural Features Present On-site or Adjacent to Site

Natural Feature	Present On-site or Adjacent
Surface water or wetlands present	Shirley's Brook Tributaries to the north and south of the study area
Steep slopes, valleys or escarpments	None
Urban Natural Features or Natural Environment Areas	None
Significant Woodlands	None
Greenspace Linkages	None
High Quality Specimen Trees	None
Rare plant communities or unique environmental features	None
Presence of Species at Risk	Blanding's turtle are known to occur in the area

Based on a review of historical air photos, the site and surrounding area has been in a regenerative state since at least 1976. The following alterations were noted during review:

- 1976: The study site and surrounding lands were primarily populated with agricultural fields and small single family rural-residential dwellings buildings. Most development in the area was centred along March Road and Dunrobin Road. Most of Kanata's urban area was not yet developed.
- 1999: Significant development occurred south of the study area in the urban area of Kanata. Smaller subdivisions were also being developed to the south, west and north of the study area.
- 2008: Intensification within the Kanata Urban area to the south had reached present day extents. Development of smaller subdivisions continued to the southwest, west and north areas of the subject property.
- 2019: Study area and the remaining surrounding lands are in present day configuration.

3.2 Tree Inventory Summary

A tree inventory was conducted on August 27, 2021. Trees on-site were identified, enumerated and assessed for visual signs of distress and disease. Table C.1 in Appendix C provides a summary of all tree specimens on-site whose DBH was greater than 10 cm. CRZ values for trees with DBH greater than 10 cm are also present in Table C.1 in Appendix C. Critical Root Zones were not calculated for dead trees. For trees with multiple stems greater than 10 cm DBH, the largest DBH was used to calculate the CRZ. All trees with a DBH greater than 10 cm and their CRZ are illustrated on Figure A.3a through A.3c, in Appendix A. In general, the tree community assemblage can be described as containing a few mature and semi-mature opportunistic trees.

Per the City of Ottawa By-law No. 2020-340, 13 distinctive trees (DBH > 50 cm) were identified on-site or adjacent to site.

None of the trees identified on-site are listed under the provincial Endangered Species Act.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on a review of the information summarized in Section 3.2, Table C.1 in Appendix C and the proposed development concept illustrated on Figure A.2, the following conclusions are provided:

- A total of 69 trees were identified on-site and along the property boundary;
- As noted above details of the future development will be provided during Site Plan Control Applications. At this time no site, grading, servicing or landscaping plans are known. Following draft plan approval and finalization of development details, including grading, servicing and site plans an addendum to this TCR may be required.
- Multiple trees along the south property boundary are either jointly owned or owned by the neighbour. The proponent has been in contact with the neighbours and the neighbours are in agreement with the removal of the identified trees along the property boundaries.
- 13 trees meeting the City of Ottawa By-Law No. 2020-340 requirements for significant trees (> 50 cm DBH), were identified on-site. 10 of the 13 significant trees are dead or in poor condition;
- 6 potential wildlife trees were identified within the development area;
- Trees on-site are of a typical urban and opportunistic or early successional species;
- 30 trees are in good/healthy condition, 4 are in moderate condition, 20 are poor or dying and 15 trees are dead; and
- None of the 69 trees present on-site are protected under the Endangered Species Act, Ontario 2007, represent exceptional native tree specimens, or provide any significant conservation value.

4.1 Tree Conservation Recommendations

4.2 Opportunities exist along the perimeter of the potential future development, along March Road and along all property boundaries to offset the potential loss of trees that are not retainable under the future development concepts. 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. Recommended Mitigation Measures

The following mitigation measures and best practice recommendations are provided by GEMTEC in order to minimize and eliminate negative impacts to trees identified in Appendix C as retainable. Construction contractors shall apply the following measures outlined below to prevent damage to trees identified to be retained in the redevelopment plan for the site;

- All trees identified to be retained should be clearly marked and the CRZ delineated with fencing to prevent encroachment and damage during construction. The CRZ of all trees s

illustrated on Figures A.3a through A3.c in Appendix A and are provided in Table C.1 in Appendix C;

- Tree protection should follow the tree protection specification provided by the City of Ottawa (2019). The Specification is provided in Appendix D.
- If trees to be removed overlap with the CRZ of trees to be retained, cut roots at the edge of the retained CRZ and grind down stumps after tree removal, do not pull out stumps. If roots must be cut, roots 20 cm or larger should be cut at right angles with clean, sharp, horticultural tools, without tearing, crushing, or pulling;
- Do not place any material or equipment within the CRZ of any tree identified to be retained;
- Do not attach any signs, notices or posters to any tree identified to be retained;
- Do not damage the root system, trunk, or branches or any tree identified to be retained;
- Ensure that exhaust fumes from all equipment are directed away from tree canopy; and
- Vegetation removal should occur outside of April 1 to September 30 (extended to October 15 if swarming is observed) to avoid the key breeding bird period and bat summer active season. The timing window 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.

5.0 CLOSURE

This letter and the work referred to within it have been undertaken by GEMTEC Consulting Engineers and Scientists Ltd. (GEMTEC), and was prepared for 13533441 Canada Inc. and is intended for the exclusive use of 13533441 Canada Inc. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC and 13533441 Canada Inc. Nothing in this report is intended to provide a legal opinion.

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

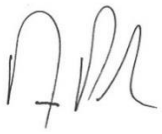
This letter has been prepared for the application notes and it is based in part, on visual observations made at the site, all as described in the report. Unless otherwise states, the findings contained in this report cannot be extrapolates or extended to previous or future site conditions or for portions 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 present 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,

Taylor Warrington , B.Sc.
Biologist



Drew Paulusse, B.Sc.
Senior Biologist

6.0 REFERENCES

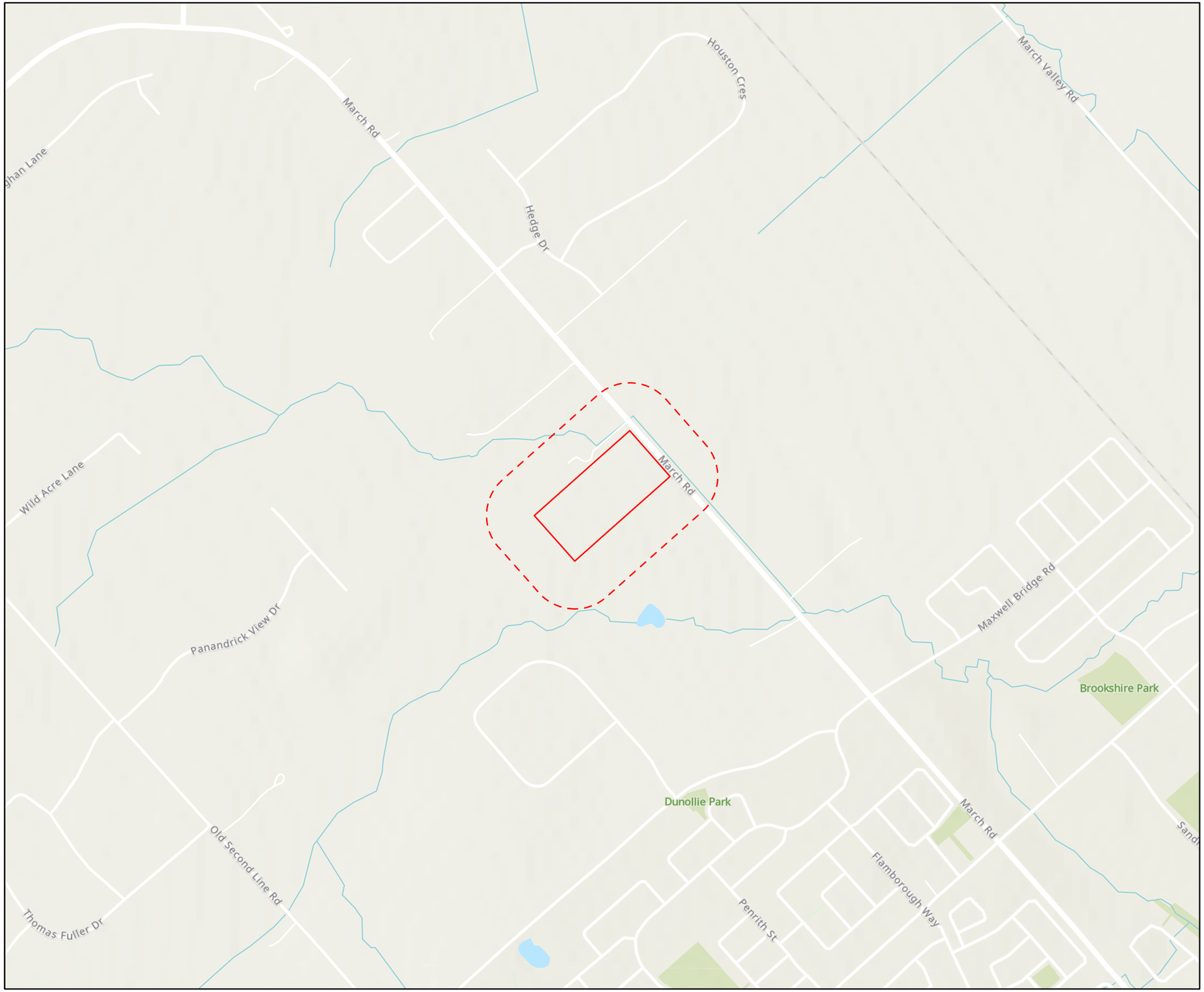
Ottawa, City of (Ottawa). 2021. New City of Ottawa Official Plan. November 24, 2021.

Ottawa, City of (Ottawa), By-law No. 2020-340, *Tree Protection*.

APPENDIX A

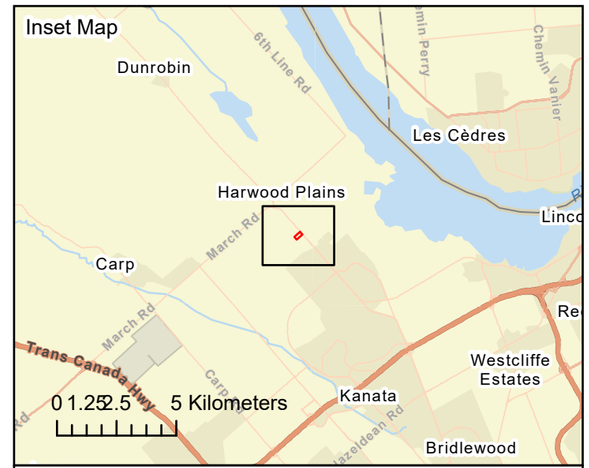
Report Figures

Figure A.1 – Site Location
Figure A.2 – Site Layout
Figure A.3 (a to c) – Tree Inventory



Legend

- Property Boundary
- Study Area



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ottawa@gemtec.ca

Client:	Project:
13533441 Canada Inc.	101242.001

Location
1015 March Road
Ottawa, Ontario

Drwn By:	Chkd By:	
TW	DP	Site Location

Date: December 2021	Rev.	
	0	Figure: A.1

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
World Topographic Map: Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Legend

- Property Boundary
- Study Area
- Block
- Watercourse
- Relocated Watercourse
- Watercourse to be Relocated
- Conceptual Road
- Tree with DBH Greater than 10 cm
- Dead Tree

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Project: 101242.001

Location: 1015 March Road
Ottawa, Ontario

Drwn By: TW

Chkd By: DP

Site Layout

Date: December 2021

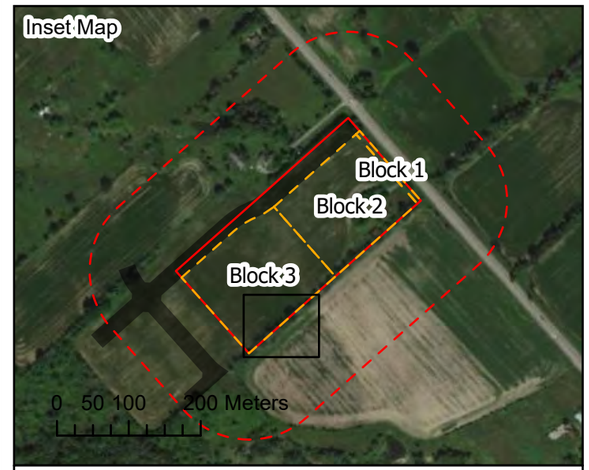
Rev. 0

Figure: A.2

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Property Boundary
- Study Area
- Block
- Conceptual Road
- Tree Number (Critical Root Zone, cm)
- Dead Tree



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Client:	Project:
13533441 Canada Inc.	101242.001

Location
1015 March Road
Ottawa, Ontario

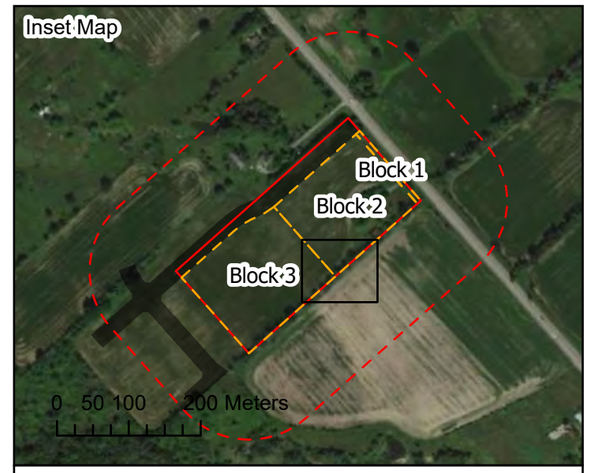
Drwn By:	Chkd By:	
TW	DP	Tree Inventory

Date: December 2021	Rev.	Figure: A.3a
	0	

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Property Boundary
- Study Area
- Block
- Conceptual Road
- Tree Number (Critical Root Zone, cm)
- Dead Tree



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Client:	Project:
13533441 Canada Inc.	101242.001

Location
1015 March Road
Ottawa, Ontario

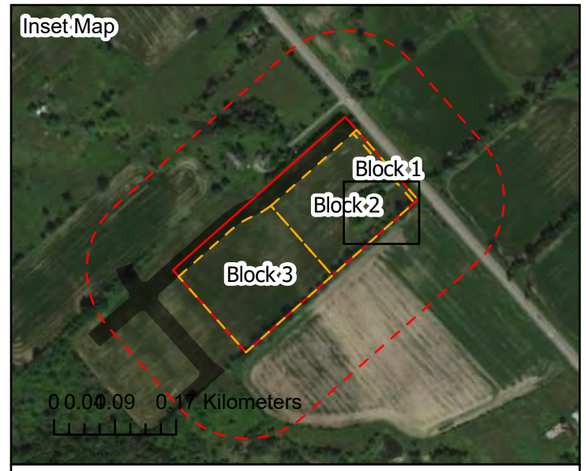
Drwn By:	Chkd By:	
TW	DP	Tree Inventory

Date: December 2021	Rev.	
© Queen's Printer for Ontario	0	Figure: A.3b

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Property Boundary
- Study Area
- Block
- Conceptual Road
- Tree Number (Critical Root Zone, cm)
- Dead Tree



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Client:	Project:
13533441 Canada Inc.	101242.001

Location
1015 March Road
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Drwn By:	Chkd By:	
TW	DP	Tree Inventory

Date: December 2021	Rev.	
	0	Figure: A.3c

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

APPENDIX B

Site Photographs

Site Photograph 1 – Vegetation surrounding vacant dwelling

Site Photograph 2 – Vegetation surrounding vacant dwelling

Site Photograph 3 – Hedgerow vegetation fronting to March Road

Site Photograph 4 – Hedgerow vegetation

Site Photograph 5 – Hedgerow vegetation

Site Photograph 6 – Hedgerow vegetation

Site Photograph 7 – Hedgerow vegetation

Site Photograph 8 – Hedgerow vegetation

APPENDIX C

Tree Inventory Summary Table

Table C.1
Summary of Tree Inventory Results

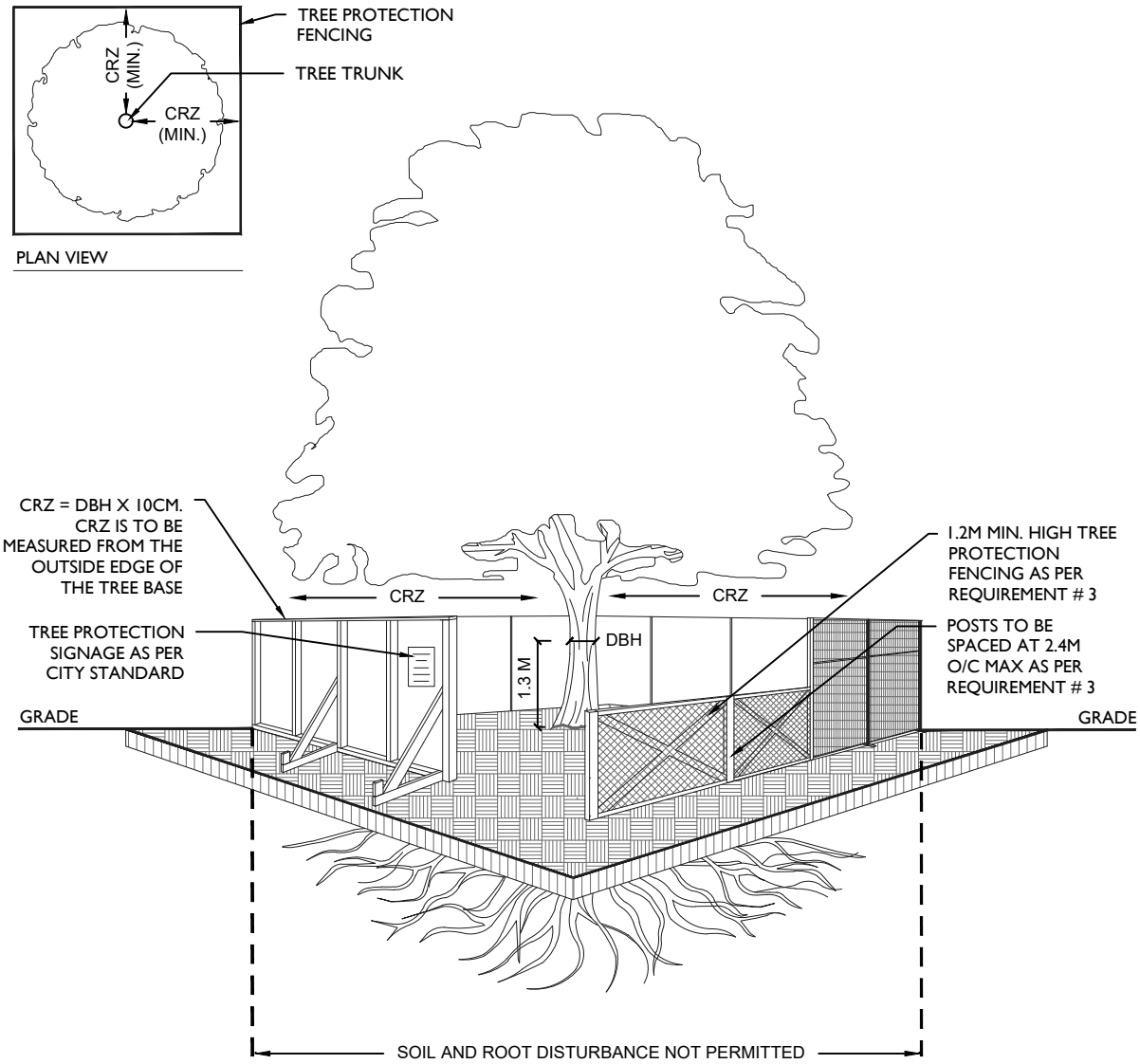
Tree Number	Common Name	Scientific Name	Diameter (cm DBH)	Critical Root Zone (cm)	Condition	Retainable or Conflict	Significant Tree (> 50 cm)	Wildlife Tree
1	White Ash	*Fraxinus americana*	11	110	Poor	Retainable	No	No
2	European Buckthorn	*Rhamnus cathartica*	11	110	Good	Retainable	No	No
3	European Buckthorn	*Rhamnus cathartica*	13	130	Good	Retainable	No	No
5	White Ash	*Fraxinus americana*	70	--	Dead	Non-Retainable	Yes	No
16	White Ash	*Fraxinus americana*	58	--	Dead	Non-Retainable	Yes	Yes
6	European Buckthorn	*Rhamnus cathartica*	12	120	Good	Retainable	No	No
7	European Buckthorn	*Rhamnus cathartica*	13	130	Good	Retainable	No	No
8	American Elm	*Ulmus americana*	19	190	Moderate	Retainable	No	No
9	American Elm	*Ulmus americana*	21	210	Poor	Retainable	No	No
10	White Ash	*Fraxinus americana*	29	290	Poor	Retainable	No	No
11	Hawthorne Species	*Crataegos sp.*	11	110	Good	Retainable	No	No
12	European Buckthorn	*Rhamnus cathartica*	20	200	Good	Retainable	No	No
13	White Ash	*Fraxinus americana*	15	150	Poor	Retainable	No	No
14	European Buckthorn	*Rhamnus cathartica*	10	100	Good	Retainable	No	No
15	American Elm	*Ulmus americana*	11	110	Poor	Retainable	No	No
17	White Ash	*Fraxinus americana*	70	--	Dead	Non-Retainable	Yes	No
42	Unknown Species	*Unknown sp.*	55	--	Dead	Non-Retainable	Yes	Yes
68	Basswood	*Tilia americana*	75	750	Good	Non-Retainable	Yes	Yes
19	White Ash	*Fraxinus americana*	43	430	Poor	Retainable	No	No
20	White Ash	*Fraxinus americana*	34	340	Poor	Retainable	No	No
69	White Ash	*Fraxinus americana*	50	--	Dead	Non-Retainable	Yes	No
22	European Buckthorn	*Rhamnus cathartica*	15	150	Good	Retainable	No	No
23	Bur Oak	*Quercus macrocarpa*	16	160	Poor	Retainable	No	No
24	White Ash	*Fraxinus americana*	23	--	Dead	Non-Retainable	No	No
25	Bur Oak	*Quercus macrocarpa*	27	270	Poor	Retainable	No	No
26	Bur Oak	*Quercus macrocarpa*	12	120	Poor	Retainable	No	No
27	White Ash	*Fraxinus americana*	22	220	Poor	Retainable	No	No
4	White Ash	*Fraxinus americana*	72	720	Poor	Retainable	Yes	No
18	White Ash	*Fraxinus americana*	63	630	Poor	Retainable	Yes	No
30	White Ash	*Fraxinus americana*	42	--	Dead	Non-Retainable	No	Yes
31	Bur Oak	*Quercus macrocarpa*	21	210	Moderate	Retainable	No	No
32	White Ash	*Fraxinus americana*	39	--	Dead	Retainable	No	Yes
21	White Ash	*Fraxinus americana*	53	530	Poor	Retainable	Yes	Yes
34	White Ash	*Fraxinus americana*	40	--	Dead	Retainable	No	No
28	Bur Oak	*Quercus macrocarpa*	70	700	Good	Retainable	Yes	No
36	American Elm	*Ulmus americana*	30	300	Good	Retainable	No	No
37	White Ash	*Fraxinus americana*	44	--	Dead	Non-Retainable	No	No
38	American Elm	*Ulmus americana*	30	300	Good	Non-Retainable	No	No
39	White Ash	*Fraxinus americana*	30	--	Dead	Non-Retainable	No	No
40	American Elm	*Ulmus americana*	40	400	Poor	Retainable	No	No
41	White Ash	*Fraxinus americana*	25	--	Dead	Non-Retainable	No	No
29	Bur Oak	*Quercus macrocarpa*	78	780	Good	Retainable	Yes	No
43	White Ash	*Fraxinus americana*	22	220	Poor	Retainable	No	No
44	White Ash	*Fraxinus americana*	22	220	Poor	Non-Retainable	No	No
45	White Ash	*Fraxinus americana*	43	430	Poor	Retainable	No	No
46	White Ash	*Fraxinus americana*	37	370	Poor	Possible Conflict	No	No
47	White Ash	*Fraxinus americana*	30	300	Moderate	Possible Conflict	No	No
48	White Ash	*Fraxinus americana*	27	--	Dead	Non-Retainable	No	No

Table C.1
Summary of Tree Inventory Results

Tree Number	Common Name	Scientific Name	Diameter (cm DBH)	Critical Root Zone (cm)	Condition	Retainable or Conflict	Significant Tree (> 50 cm)	Wildlife Tree
49	Apple Species	*Malus sp.*	37	370	Good	Possible Conflict	No	No
50	Freeman's Maple	*Acer freemanii*	37	370	Good	Non-Retainable	No	No
51	White Spruce	*Picea glauca*	29	290	Moderate	Non-Retainable	No	No
52	Manitoba Maple	*Acer negundo*	13	130	Good	Non-Retainable	No	No
53	Manitoba Maple	*Acer negundo*	38	380	Good	Non-Retainable	No	No
54	Manitoba maple	*Acer negundo*	34	340	Good	Non-Retainable	No	No
55	Freeman's Maple	*Acer freemanii*	31	310	Good	Non-Retainable	No	No
56	Freeman's Maple	*Acer freemanii*	30	300	Good	Non-Retainable	No	No
57	Freeman's Maple	*Acer freemanii*	34	340	Good	Non-Retainable	No	No
58	Freeman's Maple	*Acer freemanii*	24	240	Good	Non-Retainable	No	No
59	Freeman's Maple	*Acer freemanii*	30	300	Good	Non-Retainable	No	No
60	Norway Maple	*Acer plantanoides*	37	370	Good	Non-Retainable	No	No
61	White Ash	*Fraxinus americana*	20	--	Dead	Non-Retainable	No	No
62	Manitoba Maple	*Acer negundo*	15	150	Good	Non-Retainable	No	No
63	Manitoba Maple	*Acer negundo*	41	410	Good	Non-Retainable	No	No
64	Manitoba Maple	*Acer negundo*	44	440	Good	Non-Retainable	No	No
65	White Spruce	*Picea glauca*	34	340	Good	Non-Retainable	No	No
66	Apple Species	*Malus sp.*	19	190	Good	Non-Retainable	No	No
67	American Elm	*Ulmus americana*	48	480	Good	Non-Retainable	No	No
33	White Ash	*Fraxinus americana*	70	--	Dead	Retainable	Yes	No
35	White Ash	*Fraxinus americana*	70	700	Poor	Retainable	Yes	No

APPENDIX D

City of Ottawa Tree Protection Specification



TREE PROTECTION REQUIREMENTS:

1. PRIOR TO ANY WORK ACTIVITY WITHIN THE CRITICAL ROOT ZONE (CRZ = 10 X DIAMETER) OF A TREE, TREE PROTECTION FENCING MUST BE INSTALLED SURROUNDING THE CRITICAL ROOT ZONE, AND REMAIN IN PLACE UNTIL THE WORK IS COMPLETE.
2. UNLESS PLANS ARE APPROVED BY CITY FORESTRY STAFF, FOR WORK WITHIN THE CRZ:
   - DO NOT PLACE ANY MATERIAL OR EQUIPMENT - INCLUDING OUTHOUSES;
   - DO NOT ATTACH ANY SIGNS, NOTICES OR POSTERS TO ANY TREE;
   - DO NOT RAISE OR LOWER THE EXISTING GRADE;
   - TUNNEL OR BORE WHEN DIGGING;
   - DO NOT DAMAGE THE ROOT SYSTEM, TRUNK, OR BRANCHES OR ANY TREE;
   - ENSURE THAT EXHAUST FUMES FROM ALL EQUIPMENT ARE NOT DIRECTED TOWARD ANY TREE CANOPY.
   - DO NOT EXTEND HARD SURFACE OR SIGNIFICANTLY CHANGE LANDSCAPING
3. TREE PROTECTION FENCING MUST BE AT LEAST 1.2M IN HEIGHT, AND CONSTRUCTED OF RIGID OR FRAMED MATERIALS (E.G. MODULOC - STEEL, PLYWOOD HOARDING, OR SNOW FENCE ON A 2"X4" WOOD FRAME) WITH POSTS 2.4M APART, SUCH THAT THE FENCE LOCATION CANNOT BE ALTERED. ALL SUPPORTS AND BRACING MUST BE PLACED OUTSIDE OF THE CRZ, AND INSTALLATION MUST MINIMISE DAMAGE TO EXISTING ROOTS. (SEE DETAIL)
4. THE LOCATION OF THE TREE PROTECTION FENCING MUST BE DETERMINED BY AN ARBORIST AND DETAILED ON ANY ASSOCIATED PLANS FOR THE SITE (E.G. TREE CONSERVATION REPORT, TREE INFORMATION REPORT, ETC). THE PLAN AND CONSTRUCTED FENCING MUST BE APPROVED BY CITY FORESTRY STAFF PRIOR TO THE COMMENCEMENT OF WORK.
5. IF THE FENCED TREE PROTECTION AREA MUST BE REDUCED TO FACILITATE CONSTRUCTION, MITIGATION MEASURES MUST BE PRESCRIBED BY AN ARBORIST AND APPROVED BY CITY FORESTRY STAFF. THESE MAY INCLUDE THE PLACEMENT OF PLYWOOD, WOOD CHIPS, OR STEEL PLATING OVER THE ROOTS FOR PROTECTION OR THE PROPER PRUNING AND CARE OF ROOTS WHERE ENCOUNTERED.

THE CITY'S TREE PROTECTION BY-LAW, 2020-340 PROTECTS BOTH CITY-OWNED TREES, CITY-WIDE, AND PRIVATELY-OWNED TREES WITHIN THE URBAN AREA. PLEASE REFER TO WWW.OTTAWA.CA/TREEBYLAW FOR MORE INFORMATION ON HOW THE TREE BY-LAW APPLIES.

ACCESSIBLE FORMATS AND COMMUNICATION SUPPORTS ARE AVAILABLE, UPON REQUEST

Ottawa

TREE PROTECTION SPECIFICATION

TO BE IMPLEMENTED FOR RETAINED TREES, BOTH ON SITE AND ON ADJACENT SITES, PRIOR TO ANY TREE REMOVAL OR SITE WORKS AND MAINTAINED FOR THE DURATION OF WORK ACTIVITIES ON SITE.

SCALE:	NTS
DATE:	MARCH 2021
DRAWING NO.:	1 of 1

experience • knowledge • integrity

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

expérience • connaissance • intégrité

APPENDIX E

MNRF General Habitat Description – Blanding's Turtle

General Habitat Description for the Blanding's Turtle (*Emydoidea blandingii*)

A general habitat description is a technical document that provides greater clarity on the area of habitat protected for a species based on the general habitat definition found in the Endangered Species Act, 2007. General habitat protection does not include an area where the species formerly occurred or has the potential to be reintroduced unless existing members of the species depend on that area to carry out their life processes. A general habitat description also indicates how the species' habitat has been categorized, as per the policy "Categorizing and Protecting Habitat Under the Endangered Species Act", and is based on the best scientific information available.

HABITAT CATEGORIZATION

1	Nest and the area within 30 m or Overwintering sites and the area within 30 m
2	The wetland complex (i.e. all suitable wetlands or waterbodies within 500 m of each other) that extends up to 2 km from an occurrence, and the area within 30 m around those suitable wetlands or waterbodies
3	Area between 30 m and 250 m around suitable wetlands/waterbodies identified in Category 2, within 2 km of an occurrence

Category 1

Nest sites and overwintering sites are essential features and along with the 30 m area surrounding them are considered to have the lowest tolerance to alteration. Blanding's Turtles depend on these areas for sensitive life processes including egg-laying, incubation, hatching of young, and hibernation. A 30 m radius (average tree height) buffer around nesting and overwintering sites is important to maintain the microclimate conditions (e.g., thermal, vegetative and lighting features). These areas are habitually used and may support concentrations of individuals.

Nesting Sites

Blanding's Turtle nests are created in open habitats with low vegetation cover and high sun exposure such as in forest clearings, meadows, shorelines, beaches, rock outcrops, cornfields, gravel roads, road shoulders, ploughed fields, gardens, powerline rights-of-ways, yards and abandoned railroad beds (Linck *et al*. 1989, Ross and Anderson 1990, Kiviat 1997, Standing *et al*. 1999, Joyal *et al*. 2001, Congdon *et al*. 2008, Downing *et al*. 2010, Refsnider and Linck 2012). Females often show high fidelity to the same general nesting areas (Congdon *et al*. 1983, McNeil 2002, Congdon *et al*. 2011).

Overwintering Sites

Overwintering sites are typically occupied for at least six months during the overwintering period in Ontario (Edge *et al*. 2009, Edge *et al*. 2010, Davy 2011 unpublished data, Paterson unpublished data 2013, NHIC 2013). Blanding's Turtles display overwintering site fidelity, using some sites year after year (Power 1989, McNeil 2002, Caverhill 2006 in Newton and Herman 2009, Edge *et al*. 2009). Many individuals may aggregate at one site while overwintering (Anderson 1990, St-Hilaire 2003 in COSEWIC 2005, Ross and, Congdon *et al*. 2008, Edge *et al*. 2009).

Suitable Blanding's Turtle overwintering habitat typically includes permanent bogs, fens, marshes, ponds, channels or other habitats with free (unfrozen) shallow water (Joyal *et al*. 2001, Edge 2010, Seburn 2010). Blanding's Turtles studied in Algonquin Provincial park overwintered in wetlands with free water depths of 7 cm - 50 cm (Edge *et al*. 2009).This species may also hibernate within graminoid shallow marsh areas of larger marsh complexes by burying into substrates in areas of pooled water (Gillingwater unpublished data 2013). Blanding's Turtle's may also overwinter in seasonal pools or small excavated areas with standing water (Joyal *et al*. 2001, Rouse unpublished data 2012).

Category 2

The wetland complex that extends up to 2 km from an occurrence and 30 m around these suitable wetlands/waterbodies (Category 2) will be considered to have a moderate level of tolerance to alteration before their function is compromised. For the purpose of general habitat protection for Blanding's Turtle, a wetland complex is defined as all wetlands that are within 500 m of each other. This definition is based on the biology of the species and its documents movement patterns between adjacent suitable wetlands/waterbodies. In cases where an occurrence is not within suitable aquatic habitat, the nearest wetland should be considered the starting point for delineating the wetland complex.

Blanding's Turtles depend on these wetlands and the surrounding habitat throughout their home range for life processes including feeding, mating, thermoregulation, movement, and protection from predators.

Blanding's Turtle home range sizes and lengths in Ontario vary significantly between individuals within the same population and between different populations. In Algonquin Provincial Park, the average range length of radio-tracked Blanding's Turtles was 1.8 km (1.2 standard deviation), with a maximum of 4.3 km (Edge 2013 unpublished data). Recent Ontario studies documented a 90th percentile home range length of radio-tracked Blanding's Turtles in Parry Sound District and Bancroft District of 2.0 and 2.3 km, respectively (Rouse unpublished data 2013, Cameron unpublished data 2013). Average range length of a population on Grenadier Island, Ontario, was 813 m, with a maximum range length just over 2 km. In a Minnesota population, average range length was just over 1.6 km, with a maximum range length just over 5 km (Pappas *et al*. 2000).

Blanding's Turtles regularly move between wetlands or other aquatic areas in order to access mates, overwintering sites, nesting sites, other seasonally required resources and thermoregulation sites (Congdon *et al*. 2008, Edge *et al*. 2010). In a study from Algonquin Provincial Park, Blanding's Turtles made an average of four movements between wetlands each year with an average movement distance of 231 m for males and 497 m for females (Edge *et al*. 2010). Average interwetland movement distances of a population in Maine was 680 ± 550 m (Joyal *et al*. 2001). Rouse and Cameron (unpublished data 2013) found that Blanding's Turtles primarily moved through wetlands and other water and were rarely located more than 200 m from water. Since interwetland movements tend to average about 500 m, wetlands that are separated by more than 500 m from other suitable wetlands have a lower likelihood of being occupied.

A 30 m radius (average tree height) buffer around suitable wetlands helps to maintain microclimate conditions. Buffers of 30 m are widely recognized as providing a range of functional benefits to aquatic features and wetlands such as maintaining water quality by filtering sediment and nutrients, input of woody debris, and cooling water temperatures by shading and infiltrating surface runoff (OMNR 2010). Blanding's Turtles have also been shown to generally bask within 30 m of wetlands (Joyal *et al*. 2001).

Suitable habitat for Blanding's Turtles during the active season includes a variety of wetlands such as marsh, swamps, ponds, fens, bogs, slow-flowing streams, shallow bays of lakes or rivers, as well as graminoid shallow marsh and slough forest habitats that are adjacent to larger marsh complexes (Joyal *et al*. 2001, Gillingwater 2001, Gillingwater and Piraino 2004, 2007, Congdon *et al*. 2008, Edge *et al*. 2010; Seburn 2010). Suitable wetlands used during the active season are typically eutrophic (mineral or organic nutrient-rich), shallow with a soft substrate composed of decomposing materials, and often have emergent vegetation, such as water lilies and cattails (COSEWIC 2005, Congdon *et al*. 2008).

Category 3

The area between 30 m and 250 m around suitable Category 2 wetlands/waterbodies will be considered to have the highest tolerance to alteration. Blanding's Turtles depend on these areas as movement corridors between wetlands, which are essential for carrying out life processes associated with Category 1 and 2 habitats.

Blanding's Turtle nests are typically close to permanent wetlands and reported average distances between nests and the nearest wetland range from 99.5 to 242 m, with maximum distances of 256 m to just over 400 m (Joyal *et al*. 2001, Beaudry *et al*. 2010, Congdon *et al*. 2011, Paterson *et al*. 2012, Refsnider and Linck 2012). Consequently, the area within 250 m of suitable aquatic habitat provides critical movement corridors through with hatchling Blanding's Turtles access wetlands after hatching. This habitat is also used by some hatchlings as overwintering habitat in their first year (Paterson *et al*. 2012).

Although Blanding's Turtles nest close to water, they often travel considerable distances from their wetland of origin during nesting migrations, with movements of 6 km being documented in some Ontario populations (Edge *et al*. 2010). Although wetlands and ponds are used as movement corridors when available, females make extensive movements through upland habitat to access nesting sites (Congdon *et al*. 2008). As mentioned in the previous section (see Category 2), Blanding's Turtles also make regular overland movements between wetlands throughout the active season in order to access Category 1 and 2 habitats within their home range. Category 3 habitat provides essential movement corridors of up to 500 m between wetlands, which will encompass the areas that are most likely to be used for overland movement.

Activities in Blanding's Turtle habitat

Activities in general habitat can continue as long as the *function of these areas for the species is maintained and individuals of the species are not killed, harmed, or harassed.*

Generally compatible:

- Recreational use of the water such as swimming, boating, and fishing.
- Small-scale alterations to land cover that do not impede overland movements or impair nesting sites.

Generally not compatible:*

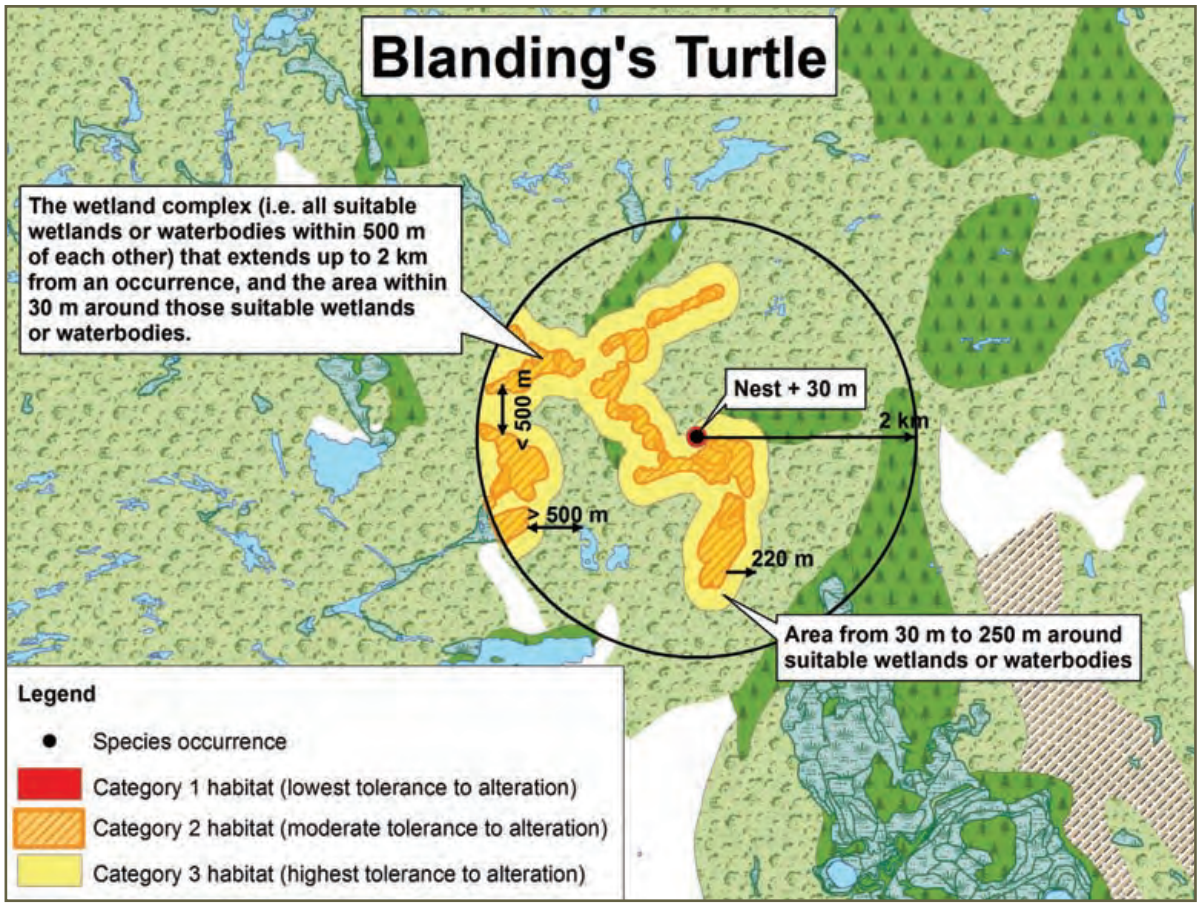
- Significant draining, infilling, dredging, or other significant alteration of wetlands or other suitable waterbodies.
- Significant alteration of shorelines, especially hardening (e.g. the use of gabion baskets, rip-rap, and rock armour).

* If you are considering an activity that may not be compatible with general habitat, please contact your local MNR office for more information.

Key terms:

- **Thermoregulation:** Some animals, such as turtles, use thermoregulation to alter their internal body temperature through behavioural patterns, such as basking in the sun to increase body temperature or seeking out cool areas to lower body temperature.

Sample application of the general habitat protection for Blanding's Turtle



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experience • knowledge • integrity

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

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