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Environmental Impact Statement
Proposed Plan of Subdivision
3112 Carp Road
Ottawa, Ontario

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Submitted to:

TLC Holdings Ltd.
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Carp, Ontario
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Environmental Impact Statement
Proposed Plan of Subdivision
3112 Carp Road
Ottawa, Ontario

April 8, 2026
Project: 102151.001

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EXECUTIVE SUMMARY

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by TLC Holdings Ltd. to complete an Environmental Impact Statement (EIS) in support of a proposed plan of subdivision for the property located at 3112 Carp Road, Ottawa, Ontario (formerly addressed as 3160 Carp Road). The proponent is seeking to develop approximately 21 ha for a subdivision with road access from Carp Road. This EIS has been completed in support of a proposed residential plan of subdivision and the associated planning approvals. The EIS was prepared in accordance with applicable federal, provincial, and municipal policies, guidelines, and regulatory requirements.

To complete this EIS a desktop review and a series of field investigations were completed to identify the presence or absence of natural heritage features and Protected Species in Ontario (PSO) within the study area. The focus of the investigation was to characterize the natural and physical setting of the property and to confirm the presence or absence of natural heritage features and potential PSO habitat identified during the desktop review Field investigations were completed in spring and summer 2023.

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

Potential impacts to the natural heritage features were primarily associated with the loss of vegetation on-site due to potential future development. Potential impacts to significant wildlife habitat and fish habitat are primarily associated with loss of habitat and cumulative impacts to water quality through increases in nutrient and sediment loading.

Potential impacts to natural heritage features on-site can be mitigated through implementation of the recommended 15 m setback from the on-site watercourse.

Given the proposed development and minimal impact potential to Blanding's turtle and their habitat, it is GEMTEC's opinion that standard avoidance and mitigation measures will be sufficient to mitigate impacts of the proposed project and no ministry consultation is required.

Additionally, to provide protection to potential SAR and their habitat on-site, reptile and amphibian exclusion fencing should be installed around individual lots prior to any development or site alteration within the lot, to prevent the immigration of SAR turtles and other wildlife into the construction area. Should any SAR be discovered throughout the course of any development on-

site, operations should stop and the species at risk biologist with the local MECP district should be contacted immediately for further direction.

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by TLC Holdings Ltd. to complete an Environmental Impact Statement (EIS) for the property municipally addressed as 3112 Carp Road, in the City of Ottawa, Ontario (hereafter referred to as "the subject property"). The location of the subject property is illustrated on Figure A.1 in Appendix A.

1.1 Purpose

The proponent is seeking to develop the approximately 21-hectare (ha) property for a future rural commercial/industrial subdivision. Based on *Section 4.7 – Environmental Protection* of the City of Ottawa Official Plan (Ottawa, 2022) 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 property and the extents of the study area are illustrated on Figure A.2 in Appendix A.

1.2 Objective

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

The objective of the work presented herein is twofold; 1) to identify and evaluate the significance of any natural heritage features, as defined in the Provincial Planning Statement (MMAH, 2024), on the subject property and within the broader study area and; 2) to assess the potential impacts from the proposed plan of subdivision on any natural heritage features identified and to recommend appropriate and defensible mitigation measures to ensure the long-term protection of any natural heritage features identified.

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

- Provincial Planning Statement (MMAH, 2024);
- Species Conservation Act (Ontario, 2025);
- Conservation Authorities Act (Ontario, 1990);
- Natural Heritage Reference Manual (OMNR, 2010);
- City of Ottawa Official Plan (Ottawa, 2022b); and
- City of Ottawa EIS Guidelines (Ottawa, 2023).

1.3 Physical Setting

The subject property is municipally addressed as 3112 Carp Road, in the City of Ottawa, Ontario. The subject property currently consists of a mosaic of deciduous woodlands, agricultural field, thicket and cultural meadow. The site is bound to the northeast by Part of Lot 12, Concession 2 and to the northwest by 3186 Carp Road. To the southwest the site is bound by Carp Road and the rear lot lines of neighbouring properties on part of Lot 12, Concession 2. To the southeast the site is bound by lot lines of neighbouring properties on Lot 11, Concession 2.

1.3.1 Land Use Context

The subject property is situated within a larger rural area. The existing land use designation from the City of Ottawa is Rural Industrial and Logistics. The City of Ottawa zoning by-law is rural commercial zone, subzone 9 (RC9).

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 for Protected Species in Ontario (PSO) to occur on the subject property or within the study boundary based on a review of publicly accessible occurrence records and a review of PSO habitat requirements and range maps.

Information regarding the potential presence of natural heritage features and PSO 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);
- City of Ottawa Official Plan (City of Ottawa, 2022b)
- Ontario Geological Survey (OGS, 2019);
- Fisheries and Oceans Canada SAR Maps (DFO, 2023);
- 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 PSO or their habitat that may exist at the subject property.

Field investigations completed in support of this EIS are outlined in Table 2.1 below. Photographs of site features taken during field investigations are provided in Appendix B. Wildlife observed on-site and within the study area during the field investigation completed in 2026 are summarized in Table C.1 in Appendix C.

Table 2.1 Summary of Field Investigations

Date	Time	Weather	Purpose
April 27, 2023	12:45 – 16:00	12°C, ~75% cloud cover, Beaufort 1, no precipitation	Headwater Drainage Feature Assessment
May 17, 2023	11:00 – 13:00	6°C, ~25% cloud cover, Beaufort 3, no precipitation	Headwater Drainage Feature Assessment
May 29, 2023	08:00 – 09:45	17°C, ~0% cloud cover, Beaufort 5, no precipitation	Breeding Bird Survey, Ecological Land Classification
June 15, 2023	08:15 – 10:15	18°C, ~60% cloud cover, Beaufort 4, no precipitation	Breeding Bird Survey, Ecological Land Classification
June 29, 2023	06:30 – 07:45	18°C, ~0% cloud cover, Beaufort 3, no precipitation	Breeding Bird Survey
July 26, 2023	07:15 – 08:45	19°C, ~25% cloud cover, Beaufort 1, no precipitation	Headwater Drainage Feature Assessment

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 May 29 and June 15, 2023, 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.

The ELC surveys included an active search for black ash and butternut trees.

2.2.2 Breeding Bird Surveys

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

2.2.3 Headwater Drainage Feature Assessment

A headwater drainage feature assessment (HDFA) was conducted to aid in the assessment of potential fish habitat on-site. Field data collection of headwater drainage features on-site followed

the protocol outlined in Section 4: Module 11, “Unconstrained Headwater Sampling” from the Ontario Stream Assessment Protocol (Stanfield, 2017).

2.3 Data Analysis

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

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

3.0 EXISTING ENVIRONMENT

3.1 Ecoregion

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

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

3.2 Landforms, Soils and Bedrock Geology

The topography of the site is relatively flat with a topographical high of 119 metres above sea level (mASL) in the southeast corner of the property to a topographical low of 108 mASL in the northeast of the property.

Two topographical landforms, as mapped by Chapman and Putnam (1984) are described on the subject property, sand plains and clay plains, both of the Ottawa Valley Clay Plains physiographic region. The majority of the property is comprised of sand plains, excluding a section of clay plains which occurs along the northeastern property boundary.

The Ontario Geological Survey (OGS, 2019) identifies two surficial soil units on the subject property, coarse-textured glaciomarine deposits and fine-textured glaciomarine deposits. The primary surficial soil unit is the coarse-textured glaciomarine deposits occurring in the southwest portion of the property comprised of littoral deposits consisting of sand, gravel, minor silt and clay. The remainder of the property consists of fine-textured glaciomarine deposits comprised of silt and clay, minor sand and gravel being massive to well laminated occurring in the northeast of the property.

Bedrock on the site is composed of the Ottawa Group; Simcoe Group; Shadow Lake Formation comprised of limestone, dolostone, shale, arkose, sandstone.

3.3 Study Area Land Use

Figure 1 below provides an illustration of the temporal changes in land use within the study area from 1976, 2002, 2014 and 2022, based on aerial imagery from GeoOttawa.

In 1976, the subject property 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 Carp Road. Most of Kanata's urban area was not yet developed.

By 2002, the surrounding lands were still primarily agricultural, however, an increase in the number of small single family rural-residential dwellings were developed. Residential and commercial development within the study area primarily occurred south of the subject property.

By 2014, intensification of housing within the area to the south had reached present day extents. Development of smaller subdivisions continued to the southeast of the subject property.

By 2022, the remaining surrounding lands are in present day configuration.

Figure 1 – Temporal Changes in Land Use within Study Area

3.4 Carp River Watershed/Subwatershed Study and Carp Road Corridor Community Design Plan

The Carp River Subwatershed Study (CRSWS) (Robinson, 2004) was completed, in part, to ensure that planning of future development proceeds in an environmentally sound manner. Specifically, the SWS aims to achieve this objective though making recommendations relating to how water resources and sub-watershed features, including their ecological functions are protected. The Carp River watershed encompasses an area of approximately 30,600 ha surrounding the former municipalities of West Carleton, Kanata and Goulbourn. The Carp River Watershed/Subwatershed Study (CRSWS) identifies opportunities and constraints for improvement of the Carp River Watershed while providing a series of Best Management Practices (BMPs) that may be implemented in order to protect, enhance or restore the environment.

Surface water within the subject property as identified in the Carp River SWS, is described as a warmwater, tolerant system with no sensitive, threatened or endangered species (Robinson, 2004). The portion of the Carp River that is located within the greater study area of this report was documented to have a combination of altered and natural conditions. The altered conditions along the section of the Carp River were representative of a long history of disturbance and reflected direct cattle access, bank erosion, excessive nutrients/abundant aquatic plant growth, and/or no vegetated buffer (Robinson, 2004).

The desktop review has identified a watercourse within the study area, however the CRSWS has not classified it as a cold-water stream. According to the CRSWS, the watercourse falls into the tolerant warmwater fish community, which is distributed throughout the main river between the Village of Kinburn and Richardson Side Road, “Glen Cairn Creek” and the upper portions of Feedmill, Huntley and Corkery Creeks. As such, under the recommendations provided by the CRSWS, the watercourse should receive a 15 m setback and revegetating up to 50% of the total stream length with native wood, riparian vegetation.

The Carp Road Corridor Community Design Plan (CRCCDP) is a Council approved guide to the long-term growth and development of the Carp Road Corridor. The CRCCDP provides guidelines for the day-to-day decision-making on land use planning and sets out the community’s priorities for the future (Ottawa, 2004). The Carp Road Corridor extends from Stittsville to Fitzroy Harbour and is a significant rural employment area. Schedule 2 of the CRCCDP identifies portions of the subject property as a moderate recharge area.

3.5 Surface Water, Groundwater and Fish Habitat

Surface water on the subject property consists of one watercourse, as well as various headwater drainage features (HDFs).

The on-site watercourse originates along the southeastern property boundary and continues along the agricultural field in a northeasterly direction for approximately 1.5 km before discharging into the Carp River.

As a component of the HDFA, fish habitat was assessed within the on-site HDFs. No fish species were observed and the HDFs were determined to provide limited fish habitat due to limited hydroperiod and limited in stream structure, vegetation or habitat.

Groundwater investigations were not completed in support of this EIS.

3.5.1 Headwater Drainage Feature Assessment

A headwater drainage feature assessment (HDFA) was conducted for all un-named ephemeral watercourses on-site. Based on the desktop review and the site surveys, six HDFs occur on-site and are identified as H1, H2, H3, H3A, H3B, and H4. All six HDFs are illustrated on Figure A.2 in Appendix A.

H1 originates on-site near the northwestern property boundary and travels on-site for approximately 50 m before continuing off-site in a north-eastern direction along the agricultural fields, eventually discharging into the Carp River. HDF1 is likely a remnant of historical agricultural drainage efforts.

H2 is an isolated feature that originates in the north of the property and flows in a southeast direction for approximately 50 m before abruptly ending. HDF2 does not have any connection with other surface water features upstream or downstream.

H3 originates in the eastern extent of the property and flows through the cultural thicket in a northwest direction for approximately 460 m before discharging into a vertical drain. Based on site observations, the vertical drain appeared to be allowing the water to pool and reinfiltrate below ground. It did not appear to be moving laterally across the site (i.e. like a tile drain). As such it is assumed that H3 (and H3A and H3B) do not have direct connectivity to any downstream surface water features. They are considered unconnected features,

H3A originates in cultural thicket in the northeast of the property and flows in a northern direction before discharging into the downstream extent of HDF3, and ultimately, the vertical drain.

H3B is located within the eastern-central portion of the property and originates as an off-shoot from HDF3, within the cultural thicket. HDF3B continues from the confluence for approximately 20 m in a northeast direction before abruptly ending before approaching the agricultural fields.

H4 originates in the southeastern corner of the property and flows in a southeastern direction for approximately 35 m before discharging into the permanent watercourse along the agricultural field.

The evaluation, classification, and management recommendations for each HDF, as derived from the Guidance Document (CVC/TRCA, 2014) are provided in the HDFA for the property in Appendix D.

3.6 Vegetation Communities

Vegetation communities on-site were confirmed by GEMTEC in 2023, following protocols utilized in the Southern Ontario Ecological Land Classification System (Lee et al., 2008). Vegetation at the site represents a mosaic of deciduous forest/woodland, cultural meadow, open agriculture, and thicket communities. Table 3.1 below provides a summary of the various vegetation communities identified on-site while Figure A.3 in Appendix A provides an illustration of the various vegetation communities.

Table 3.1 Vegetation Communities On-site

ELC Type	Description	Size (ha)
Fresh – Moist Lowland Deciduous Forest (FODM7)	Located in eastern portion of the property is a deciduous forest, dominated by American elm (*Ulmus americana*) and Manitoba maple (*Acer negundo*), with other common constituents including trembling aspen (*Populus tremuloides*) and willow species (*Salix* sp.). The shrub layer was heavily dominated by buckthorn (*Rhamnus* sp.) and included honeysuckle (*Lonicera periclymenum*). The herbaceous layer consisted of grasses.	2.7
Mixed Meadow (MEM)	Located in the southwestern half of the property is a mixed meadow dominated by grasses. Other common constituents included yellow salsify (*Tragopogon dubius*), orange hawkweed (*Pilosella aurantiaca*), wild parsnip (*Pastinaca sativa*), clover (*Trifolium* sp.), vetch (*Vicia* sp.), common daisy (*Bellis perennis*), common milkweed (*Asclepias syriaca*), meadow hawkweed (*Hieracium caespitosum*), and bladder campion (*Silene vulgaris*). Few trees were scattered within this community, consisting of white spruce (*Picea glauca*) and Scots pine (*Pinus sylvestris*).	12.4
Buckthorn Deciduous Shrub Thicket (THDM2-6)	Located in the eastern portion of the property is a deciduous thicket dominated by buckthorn and red-osier dogwood (*Cornus sericea*). Other common constituents included Manitoba maple, willow, and honeysuckle. The herbaceous layer consisted of grasses.	1.4
Meadow (ME)	Located in the north of the property is a meadow community. Vegetation was dominated by tall grasses, goldenrod (*Solidago* sp.), brambles (*Rubus* sp.), wild parsnip, virgin's bower (*Clematis virginiana*), and dog-strangling vine (*Vincetoxicum rossicum*). Within the eastern extent of this community is a small wetland inclusion, characterized by grasses and sedges, bulrush (*Scirpoides holoschoenus*), cattail (*Typha* sp.), red-osier dogwood, purple loosestrife (*Lythrum salicaria*), jewelweed (*Impatiens capensis*), bedstraw (*Galium* sp.), and bittersweet nightshade (*Solanum dulcamara*). The wetland inclusion is not considered as its own community as it does not meet the minimum size requirements of 0.5 ha, as per the guidelines set out in the Ecological Land Classification System (Lee et al., 2008).	0.5
Open Agriculture (OAG)	Located in the east section of the property is an open agricultural field, comprised of corn.	4.2

3.7 Wildlife

Wildlife observed on-site and within the study area during field investigations completed in 2023 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”.

Natural heritage features identified in Section 4 below are illustrated on Figure A.4 in Appendix A.

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 PSW or local wetlands were identified on-site during the desktop review, nor were they identified on-site. As such, significant wetlands are not discussed or evaluated further in this EIS.

4.2 Significant Woodlands

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

At the local scale, significant woodlands are defined and designated by the local planning authority. Generally, most planning authorities have defined significant woodlands as any woodland that contains any of the four criteria listed in Section 7.2 of the natural heritage reference manual (OMNR, 2010), including: woodland size, ecological functions, uncommon characteristics and economic and social functional values. Furthermore, the City of Ottawa provides a supplementary document *Significant Woodland: Guidelines for Identification, Evaluation, and Impact Assessment* (Ottawa, 2022d) to evaluate woodlands and ensure compliance with the city’s policies.

As outlined in *Significant Woodlands: Guidelines for Identification, Evaluation and Impact Assessment* (Ottawa, 2022b), rural area woodlands are to be identified and evaluated using all the natural heritage resource manual (OMNR, 2010) criteria. Table C.2 in Appendix C, presents the screening rationale for significant woodlands applied in this EIS. For comparison of woodland criteria used in Table C.2, it is assumed that the woodland coverage within the planning area (City

of Ottawa – Rural Planning Area – Ottawa West) is between 30% and 60% of the land area, therefore the minimum woodland size for determining significance is 50 ha or greater, based on the guidance outlined in the natural heritage reference manual (OMNR, 2010).

Based on the NHRM (OMNR, 2010) screening criteria presented in Table C.2 in Appendix C, significant woodlands are not present on-site. As such, significant woodlands are not present on-site or within the study area and are therefore not discussed or evaluated further in this EIS.

4.3 Significant Valleylands

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

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

As discussed in Section 3.2, the site is relatively flat, furthermore no valleylands were identified on-site during the desktop review or the field 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 field investigations. Therefore, ANSI are not discussed or evaluated further in this EIS.

4.5 Significant Wildlife Habitat

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

conservation concern and animal movement corridors. Table C.3, C.4, C.5 and C.6 in Appendix C, provide the screening rationale for each category of significant wildlife habitat, respectively.

4.5.1 Habitats of Seasonal Concentrations of Animals

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

Following review of Table C.3 in Appendix C, no habitats of seasonal concentrations of animals were identified on-site.

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 habitat for wildlife has been identified on-site or within the study area.

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.

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, barn swallow. Based on observation data from the NHIC database, two species of special concern have been identified within the broader study area, eastern wood-pewee and wood thrush. No other species of special concern or rare wildlife species were identified on-site or within the broader study area.

Barn Swallow

The barn swallow (*Hirundo rustica*) is medium-sized, insectivorous bird with an S-rank of S4B (uncommon but not rare, breeding population) and is listed as a species of special concern in Ontario. No historical observations for barn swallow have been identified by the NHIC database within the study area. However, barn swallow were observed on-site foraging over the meadow and agricultural field (ELC codes: MEM and OAG) during the breeding bird field investigation on June 5, 2023. Given the observed sighting and availability of foraging habitat on-site, there is a high potential for barn swallow to occur on-site. However, no suitable nesting sites or structures occurs on-site. Potential impacts to rare and special concern wildlife species are discussed in Section 6 below.

Eastern Wood-Pewee

The eastern wood-pewee (*Contopus virens*) is a small flycatcher bird with an S-rank of S4 (uncommon but not rare) in Ontario. The NHIC identified the eastern wood-pewee as having historically occurred within 1 km of the site; however, eastern wood-pewee were not observed on-site during the breeding bird surveys or other fields investigations. Eastern wood-pewee is a woodland species that is often found near clearings and edges. Given the mosaic of woodland and open habitat on-site and the eastern wood-pewee's affinity for clearings and edges, there is

a moderate chance for the eastern wood-pewee or suitable habitat to occur on-site. Potential impacts to rare and special concern wildlife species are discussed in Section 6 below.

Wood Thrush

The wood thrush (*Hylocichla mustelina*) is a medium-sized songbird with an S-rank of S4 (uncommon but not rare) and is listed as a species of special concern in Ontario. The NHIC identified the wood thrush as having historically occurred within 1 km of the site; however, wood thrush were not observed on-site during the breeding bird surveys or other field investigations. Wood thrush is a woodland species often found in moist, deciduous hardwood or mixed forests stands, with dense deciduous undergrowth and tall trees. Given the forested community on-site and within the study area, there is a moderate chance for the wood thrush or suitable habitat to occur on-site. Potential impacts to rare and special concern wildlife species are discussed in Section 6 below.

Monarch Butterfly

Monarch butterfly (*Danaus plexippus*) is listed as a species of special concern in Ontario. Monarch butterfly were not observed on-site during the field investigations. The surrounding vegetation and available habitat may provide suitable foraging opportunities for monarch butterfly, additionally, milkweed was observed on-site which may support caterpillar development. As such they are considered to have a moderate potential to occur on-site. Potential impacts to rare and special concern wildlife species are discussed in Section 6 below.

4.5.5 Animal Movement Corridors

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

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

4.6 Fish Habitat

The protection of fish and fish habitat is a federal responsibility and is administered by the Department of Fisheries and Oceans Canada (DFO). Fish habitat as defined in the Fisheries Act

(Canada, 1985) means, “spawning grounds and nursery, rearing food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes.”

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

A fisheries assessment was not conducted as part of this EIS, until such a time that a fisheries assessment is completed, the unnamed watercourse is assumed to provide fish habitat for small-bodied fish species.

Given the limited hydrology of the HDFs on-site, (all were dry but the third visit), and the limited connectivity to downstream features, the HDFs on-site do not provide direct fish habitat.

Impacts to fish habitat on-site are discussed in Section 6.

4.6.1.1 Headwater Drainage Feature Assessment

An HDFA was conduced to assess the contribution of un-mapped and un-named watercourses on-site to fish habitat. The full HDFA report is provided in Appendix D. Six HDFs were identified on-site and are illustrated on Figure A.2 in Appendix A. The watercourses on-site were classified based on the information collected during field investigations pertaining to hydrology, riparian habitat, fish and fish habitat and terrestrial components. Using the linking classification management flow chart provided by the TCRA and CVA (2014), illustrated in Figure 4.1 below, the characteristics of the on-site watercourses were used to determine the management recommendations.

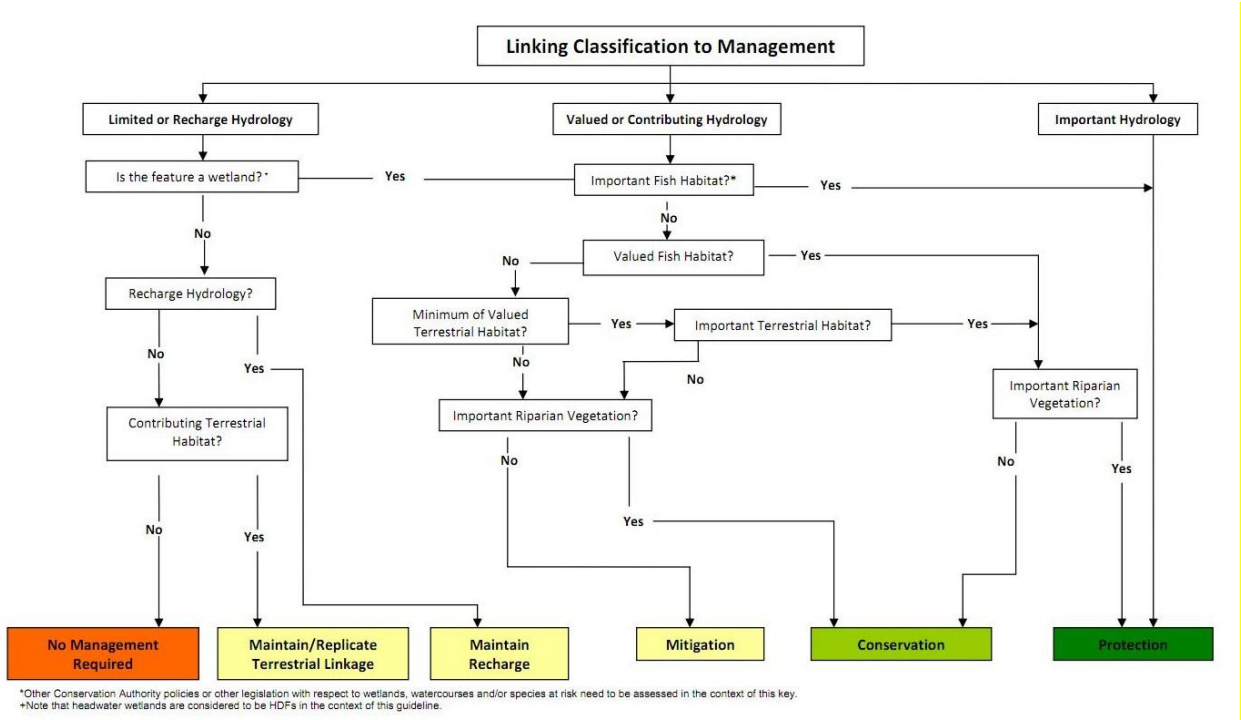

Figure 4.2 Flow Chart Providing Directions of Management Option's (TRCA/CVC, 2014)

4.7 Protected Species in Ontario

The probability of occurrence for PSO 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 protected species in Ontario that were considered to have the potential to occur on-site or within the broader study area, their protection status under the provincial Species Conservation Act (SCA; Ontario, 2025), their probability of occurrence and a brief rationale of that probability. Impacts to endangered or threatened protected species determined to have a moderate or high potential to occur on-site or within the broader study area are discussed further in Section 6.

5.0 PROPOSED PROJECT

The proposed project, assessed for potential impacts on the natural heritage features determined to be present within the broader study area, is a subdivision application for the development of the approximately 21 ha property.

The proposed development at the site will consist of 14 lots with sizes ranging from about 0.33 ha to 3.8 ha in size, and the creation of an internal road. Access to the proposed subdivision via the internal road will be from Carp Road. The proposed plan of subdivision is provided on Figure A.5.

Stormwater management will be provided for quality and quantity and is proposed to occur on Block 4. Post-development, stormwater runoff will be captured by a system of ditches/swales and conveyed to the proposed SWM facility on Block 4 before discharging to a proposed outlet ditch.

The proposed SWM facility has been designed with adequate storage volume to detain flows exceeding pre-development levels for up to and including the 100-year design storm event. The stormwater runoff will be captured by a system of ditches/swales, and conveyed to the proposed SWM facility. From there, it will be discharged into the proposed outlet ditch, located along the northeastern property boundary. As identified on the Draft Plan of Subdivision, the site is subject to an existing 10 m wide easement. The construction of a drainage ditch is proposed within the easement. The outlet channel will be designed in keeping with the recommendations for an enhanced grass swale and will provide pretreatment and attenuation for runoff prior to discharging into the SWM facility. The implementation of vegetated roadside ditches and rear yard ditches/swales, a flat bottom outlet channel, a dry pond, on-site block level quality controls, will provide a reasonable amount of quality control for stormwater runoff generated from the municipal right-of-way and future development blocks.

Future components of the proposed project considered in the impact assessment presented in Section 6 include: tree clearing and vegetation grubbing, fill placement and elevation grading, road construction, laneway construction, drilling of a groundwater well and septic system installation, excavation and pouring of a foundation, construction of commercial and light industrial buildings and general landscaping activities.

The timeline for the proposed project, from lot creation to completion of construction is currently unknown. For the purpose of assessing impacts to natural heritage features, it is assumed in this EIS that the creation of individual lots will happen in the near-term and will not result in any physical alterations to the natural environment of the site and the broader study area. Future construction of each lot is assumed to occur over a several year period, and that the construction of any lot will be completed such that the duration of any potential impacts on the natural environment during construction will be approximately six to nine months.

6.0 IMPACT ASSESSMENT

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

Potential effects to the environment of the site from the proposed development outlined in Section 5 include: vegetation removal, habitat fragmentation and loss, disturbance of the natural soil mantle, increased noise generation, increased human disturbance, increase storm water generation, increased nutrient loading to adjacent surface water features, increase in impervious surface and short-term increases in sedimentation and/or erosion.

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 significant wildlife habitats were determined to be present on-site or within the study area; *candidate* special concern and rare wildlife species SWH for barn swallow, eastern wood-pewee and wood thrush.

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

6.1.1 Habitats for Special Concern and Rare Wildlife Species SWH

6.1.1.1 Barn Swallow

Barn swallow (*Hirundo rustica*) is medium-sized, insectivorous bird listed as a species of special concern in Ontario.

Impacts to barn swallow and their habitat from the proposed development is limited to the open agricultural field and meadow habitats (ELC codes OAG, MEM, and ME), which may provide suitable foraging habitat. No nests or suitable nesting structures were directly observed on-site. Suitable nesting structures may occur off-site within the study area. Additionally, an abundance of habitat for foraging barn swallow is present within the study area. Impacts to barn swallow habitat may include the loss of foraging habitat, increased fragmentation and increased human interaction. Impacts from increased human presence are anticipated to be negligible given the existing development surrounding the subject property and availability of suitable habitat within the greater study area.

Mitigation measures intended to prevent negative impacts to foraging barn swallow are presented in Section 7.

6.1.1.2 Eastern Wood-Pewee

Eastern wood-pewee is a small, avian insectivore listed as a species of special concern in Ontario.

As eastern wood-pewee were not identified on-site during targeted breeding bird surveys or any other field investigation, the project is not anticipated to impact eastern wood-pewee or their habitat.

6.1.1.3 Wood Thrush

The wood thrush is a medium-sized songbird, listed as a species of special concern in Ontario.

As wood thrush were not identified on-site during targeted breeding bird surveys or any other field survey, the project is not anticipated to impact wood thrush of their habitat.

6.1.1.4 Monarch Butterfly

The monarch butterfly is listed as a species of special concern in Ontario.

Monarch butterfly were not identified on-site during any of the field investigations; however, targeted surveys were not completed. Monarch is known to occur within the vicinity of the site. Given the presence of milkweed on-site, potentially suitable foraging habitat is present on the subject property.

Mitigation measures intended to prevent negative impacts to foraging monarch butterfly are presented in Section 7.

6.2 Fish Habitat

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

As no in-water work within fish habitat is anticipated as part of the development, impacts are anticipated to be temporary and indirect in nature.

Potential indirect impacts to water quality and fish habitat from development can include increased overland flow and concomitant sediment transport caused by an increase in impervious surface area, increased nutrient loading through both overland and subsurface pathways resulting from landscaping practices and septic leachate.

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

6.2.1 Headwater Drainage Features

H1 had water conveyance throughout the first and second visits but was dry during the third visit. Due to H1 running along the agricultural field and originating as an agricultural ditch, it was determined to have limited riparian vegetation. In accordance with the TRCA/CVC guidance, the contributing (ephemeral) hydrology coupled with the limited riparian vegetation results in the determination that the above noted HDF requires **mitigation**.

H2 was channelized and had water conveyance throughout the first visit but was dry during the second and third visit. As such, it was determined to have limited hydrology. In conjunction with limited terrestrial habitat, **no management** is required.

H3 had water conveyance throughout the first and second visits but was dry during the third and was determined to have valuable hydrology. The feature provides contributing fish habitat, limited terrestrial habitat and important riparian habitat (scrubland). As such, **conservation** is required for H3.

H3A had water conveyance throughout the first and second visits but was dry during the third investigation. In conjunction with having no defined feature, H3 was determined to have valuable hydrology. As such they were determined to have contributing hydrology. The feature provides contributing fish habitat, limited terrestrial habitat, and important meadow riparian habitat. As such, **mitigation** is required for H3A.

H3B and H4 were channelized and had standing water during the first and second visit, but dry conditions during third site investigation. Both features provide contributing fish habitat, limited terrestrial habitat, and important scrubland riparian habitat. As such **conservation** is required for the feature.

As per the proposed development, H2, H3, H3A, and H3B will be removed and infilled. These features are identified as no management required, conservation and mitigation. The conservation (H3, H3B) and the mitigation (H3A) classifications have been driven through the features riparian habitat (i.e. important–scrubland and valued-meadow), and have not been identified as providing important functions for hydrology, fish habitat or terrestrial habitat. Currently, none of these features connect to downstream or upstream habitat, and were primarily observed to be fed by spring run-off and storm events, as evidenced by the intermittent and ephemeral hydrology detailed in the HDFA.

Impacts to these four features will include the infill and relocation of the features as well as loss of riparian habitat. While these features will not be maintained on the landscape, considering that none of features currently connect to downstream aquatic features, do not provide contributions to downstream systems (including base flows or allochthonous inputs), and all were shown to provide limited habitat functions for fish and aquatic habitats and terrestrial habitat, it is GEMTECs opinion that full conservation and mitigation measures are not required for these segments.

It is anticipated that the infilling of the HDFs will be completed during the dry season. Should the development occur outside of these conditions, a Department of Fisheries and Oceans (DFO) Request for Project Review (RfR) will be required to address potential impacts to fish and fish habitat.

Mitigation measures to protect baseflow conditions of the site and to replicate functions of the HDFs are provided below in Section 7.3.

6.3 Protected Species in Ontario

As outlined in the SCA, only species listed as threatened or endangered and their general habitat receive protection under the SCA. The SCA provides habitat definitions for specific species (e.g. black ash), for all other species whose habitat is not specifically outlined in the SCA, the following definition is used:

"'habitat' means:

a) *In respect of an animal species:*
    i. *A dwelling-place such as a den, nest or other similar place, that is occupied or habitually occupied by one or more members of a species for the purposes of breeding, rearing, staging, wintering or hibernating, and*
    ii. *The area immediately around a dwelling place described in subclause (i) above that is essential for the purposes set out in that subclause*
b) *In respect of a vascular plant species: the critical root zone surroundings a member of the species, and*
c) *In respect of all other species: an area on which any member of a species directly depends in order to carry on its life processes"*

Endangered and threatened species identified in Table C.7 as having a moderate or high potential to occur on-site are discussed in the sub-sections below.

6.3.1 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 indicates the species has been observed within 1 km of the site. During the field investigations, Blanding's turtles were not detected on-site. Protected habitat for Blanding's turtle under the SCA is limited to overwintering sites, and nesting sites.

As discussed in Section 3.5, an unnamed watercourse and six HDFs have been identified on-site or within the study area. The unnamed watercourse and all identified HDFs are unlikely to provide suitable overwintering habitat given the lack of permanent water and insufficient water depths to support overwintering. Additionally, the habitat within the watercourse is extremely limited in function, with relatively low water levels, minimal in-stream vegetation, and the watercourse flows between two agricultural fields. Riparian vegetation is also extremely limited in function and form for Blanding's turtle as there are no other suitable aquatic habitats on-site that a turtle would be migrating to (i.e. no ponds, wetlands, or other permanent aquatic features. As such, the watercourse and all HDFs on-site are not anticipated to maintain suitable water depths for turtle overwintering habitat. No soft substrates, suitable for turtle nesting was observed on-site.

No overwintering habitat and no nesting sites or suitable nesting habitat was identified on-site during the EIS. As such regulated habitat, as defined under the SCA is not present on-site.

Impacts to Blanding's turtle is limited to individual turtle impacts, particularly during construction. Potential impacts may include short duration construction impacts, such as heavy machinery encroachment, and long-term human disturbance such as noise generation, and trampling and increased road mortality, particularly during migratory periods, when turtles are more transient. 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 takes place between late May to early July. Post-construction, the proposed development is not anticipated to negatively impact the use or function of migratory habitat, as Blanding's turtles will still be able to utilize the habitat for migration.

General construction has the potential to impact individual turtle species, however these impacts can be mitigated through implementation of avoidance measures and best management practices during construction.

As the proposed project will not impact protected overwintering or nesting habitat, and impacts to individual turtle species can be mitigated during construction, it is GEMTECs opinion that registration under the SCA is required at this time, as there is no contravention of the SCA..

General mitigation measures and best practices intended to Blanding's turtles from negative impacts are discussed in Section 7.

6.3.2 Eastern Red Bat

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

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

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

Although the forest habitat on-site does not meet the requirements to support bat maternity colonies, given the availability of habitat on-site and within the study area, there is a potential for eastern red bat to occur on the property, primarily for foraging or non-maternal roosting. Impacts to eastern red bat are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect eastern red bat from impacts of the proposed development are discussed in Section 6.

6.3.3 Eastern Small-footed Myotis

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

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

Eastern small-footed myotis overwinter primarily in caves and abandoned mines with low humidity and temperatures and stable microclimates (Humphrey, 2017). In comparison to other Ontario bat species, they are able to tolerate much colder temperatures, drier conditions and draftier locations for hibernating (Humphrey, 2017). During the spring and summer months, they utilize a

variety of habitats for roosting, including under rocks or rock outcrops, in buildings, under bridges, or in caves, mines or hollow trees (Ontario, 2021a).

Although the vegetation community on-site does not meet the requirements to support bat maternity colonies, given the availability of habitat and buildings within the study area, there is a potential for eastern small-footed myotis to occur on the property, primarily for foraging or non-maternal roosting. Impacts to eastern small-footed myotis are primarily associated with habitat loss, encroachment and increased wildlife-human interaction.

Mitigation measures intended to protect eastern small-footed myotis from impacts of the proposed development are discussed in Section 7.

6.3.4 Hoary Bat

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

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

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

Although the forest habitat on-site does not meet the requirements to support bat maternity colonies, given the availability of habitat on-site and within the study area, there is a potential for hoary bat to occur on the property, primarily for foraging or non-maternal roosting. Impacts to hoary bat are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect hoary bat from impacts of the proposed development are discussed in Section 6.

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, 2013).

Although the vegetation community on-site does not meet the requirements to support bat maternity colonies, given the availability of habitat and buildings within the study area, there is a potential for little brown myotis to occur on the property, primarily for foraging or non-maternal roosting. Impacts to little brown myotis are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect little brown myotis from impacts of the proposed development are discussed in Section 7.

6.3.6 Silver-Haired Bat

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

In North America, the silver-haired bat is widely distributed and spans from the southern extent of the Canadian provinces to east-central Mexico (COSEWIC, 2023). In Canada, the distribution spans from coast to coast, but appears to be uncommon in Atlantic Canada. In Ontario, the species occurs throughout Ontario, appearing as far north as James Bay (COSEWIC, 2023).

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

Although the forest habitat on-site does not meet the requirements to support bat maternity colonies, given the availability of habitat and buildings on-site and within the study area, there is a potential for silver-haired bat to occur on the property, primarily for foraging or non-maternal roosting. Impacts to silver-haired bat are primarily associated with habitat loss, encroachment and increased wildlife-human interaction. Mitigation measures intended to protect silver-haired bat from impacts of the proposed development are discussed in Section 6.

6.3.7 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 caves or mines and have very rigid habitat requirements; they typically roost in 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 utilizes trees, rock crevices and buildings for maternity colonies. Foraging is mainly done over watercourses and streamside vegetation (COSEWIC, 2013).

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

6.4 Cumulative Impacts

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

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

Cumulative impacts such as those listed above can be mitigated through development setbacks and recommended mitigation measures outlined in Section 7 below.

7.0 RECOMMENDED AVOIDANCE AND MITIGATION MEASURES

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

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

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

7.1 Fish Habitat

Beacon Environmental Review of Ecological Buffers (2012), provides a range for buffer widths to protect various natural heritage features based on the current science. The buffers are presented in a way that determines the risk of not achieving the desired buffer function (i.e. high, moderate and low). The functions analysed include water quantity, water quality, screening or human disturbance/changes in land use, hazard mitigation zone and core habitat protection. Impacts to the watercourse on and off-site were identified to include potential impacts to water quality, human disturbance and core habitat protection (habitat for Blanding's turtle). Watercourse buffer widths have a moderate risk of not providing adequate mitigation for water quality and human disturbance/land use change impacts at widths between 11 m and 30 m. Watercourse buffer widths have a moderate risk of not providing adequate mitigation for core habitat protection at widths between 21 m and 60 m.

In consideration of the watercourse, and the nature of the proposed development, a minimum 30 m setback from the watercourse is recommended. The recommended 15 m setback provides sufficient protection for mitigating water quality impacts and human disturbances. At 15 m, the protection the buffer offers for core habitat protection, falls into the moderate risk of not achieving desired buffer function. As such a 15 m setback is sufficient to protect water quality impacts, human disturbance/land use change impacts, and core habitat within the watercourse. The setback is consistent with the recommendations of the Carp River Watershed/Subwatershed Study, which recommends a minimum 15 m setback. The 15 m setback is illustrated on Figure A.6 in Appendix A.

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

- Buffers should be comprised of a mixture of native, self-sustaining trees, shrubs and tall grasses. The prescribed setbacks along the watercourse should remain in a natural, vegetated state.
- All future development and construction activities within the study area, including ditching, culvert installation, erosion and sediment control and storm water management should be completed in accordance with Ontario Provincial Standard Specification 182 and OPSS 805.
- Sediment fencing should be installed along all setbacks to provide visual demarcation of the setbacks to prevent machinery encroachment and sediment transport.
- Install and maintain effective sediment and erosion control measures before starting work.
- Schedule work to avoid wet, windy and rainy periods.
- When native soil is exposed, sediment and erosion control work in the form of heavy-duty sediment fencing shall be positioned along the down gradient edge of any construction envelopes adjacent to waterbodies.
- Maintain erosion and sediment control measures until all disturbed ground has been permanently stabilized, suspended sediment has resettled, and runoff water is clear.
- 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.

7.1.1 Headwater Drainage Features

As detailed in Appendix D, a headwater drainage feature assessment was completed and six HDFs were identified on-site, identified as H1 through H4. Recommended management for on-site HDFs includes conservation, mitigation, and no management.

Following the classification guidance from TRCA/CVC, H3 and H3B is recommended for conservation management, and H3A is recommended for mitigation management. Conservation management typically requires maintaining, relocating and/or enhancing the existing features or riparian zone corridor; restoring lost functions through enhanced lot level controls; etc. and mitigation management typically requires replicating or enhancing feature functions through enhanced lot level conveyance measures (well vegetated swales), replicating on-site flow and outlet flow at the top of the system with vegetated swales/bioswales, restoring lost functions

through enhanced lot level controls and, replicating functions by lot level conveyance measures (e.g. vegetated swales) connected to the natural heritage system.

Currently, the existing features do not provide any direct connectivity to downstream surface water features, as such their function as an HDF from a landscape perspective is limited with respect to hydrology, terrestrial linkages, and fish habitat. As such it is GEMTECs opinion that the conservation management implications for H3 and H3B, and mitigation management implication for H3A do not accurately account for the limited connectivity and function of the features.

One of the key management implications for conservation and mitigation management features is to provide direct downstream connectivity. Currently neither features H2, H3, H3A or H3B are directly connected to downstream habitat, which severely limits the hydrologic function, as well as the contributions to downstream fish habitat and terrestrial habitat. The proposed new drainage ditches/swales will collect surface run-off on site and feed it into the proposed SWM pond. The SWM pond will provide quality and quantity controls before discharging into the watercourse along the east property boundary. The new drainage swales and ditches will provide improved connectivity for surface water features on-site and off-site. The proposed SWM plan is sufficient to replicate and enhance the existing hydrologic function of the HDFs on-site. Impacts associated with the loss of riparian vegetation function can be mitigated through implementation of a landscape plan.

Where possible, drainage swales and ditches should be vegetated (i.e. bioswales) in order to enhance these features' ability to attenuate nutrients and promote infiltration,

As mentioned in Section 6.2.1, several HDFs are to be infilled as part of the development. It is anticipated that the infilling of the HDFs will be completed during the dry season. Should the development occur outside of these conditions, a Department of Fisheries and Oceans (DFO) Request for Project Review (RfR) will be required to address potential impacts to fish and fish habitat.

7.2 Significant Wildlife Habitat

7.2.1 Habitats of Species of Conservation Concern – Barn Swallow

Nesting birds, including species of special concern, are protected from harm under the *Migratory Birds Convention Act*. Construction activities must avoid the disturbance, damage, or destruction of active nests, eggs, and dependent young during all phases of development. Implementation of appropriate mitigation measures, including adherence to vegetation clearing timing restrictions, pre construction nest surveys where warranted, establishment of protective buffers around active nests, and contractor education and awareness training, will reduce the risk of harm to nesting birds during construction.

Additional mitigation measures, timing windows, and best practices to protect SWH and associated species are provided in Section 7.4 below.

7.2.2 Habitats of Species of Conservation Concern – Monarch Butterfly

Implementation of appropriate mitigation measures, including adherence to vegetation clearing timing restrictions and contractor education and awareness training, will reduce the risk of harm to monarch butterfly during construction. Additionally, consideration should be given to replanting disturbed areas with native vegetation to support habitat restoration and enhance ecological function.

7.3 Protected Species in Ontario

Based on the findings of the impact assessment in Section 6, the proposed project is not anticipated to result in direct adverse effects to protected species or regulated habitat as defined under the Act. As such, registration of project activities in the Species Conservation Registry is not anticipated to be required at this time. Should project design, construction methods, or applicable regulations change, the need for registration or permitting would be re-evaluated. General mitigation measures anticipated for the protection of species at risk include;

- All development should occur outside of the prescribed 15 m watercourse setback. This is to ensure that all development occurs outside of potentially protected habitat on-site and outside of the prescribed wetland setbacks. The setbacks are intended to provide relief from encroachment, minimize human-wildlife interaction and disturbance, protect PSO habitat, as well as maintain a vegetated buffer for on-site wetlands. The maintenance of a vegetated buffer will provide mitigation for impacts associated with sediment and nutrient loading to the wetlands.
- Vegetation removal should occur outside of the combined wildlife active season, of March 15 – November 30, of any given year, for the protection of bats, turtles, and birds.
- All construction staff working on-site should be provided PSO training to identify species at risk which a potential to occur on-site including black ash, butternut, PSO bats. Training will also outline the stop work procedures and MECP reporting/consultation prior to resuming work.
- During construction if any PSO is identified on-site, all work should stop and a qualified professional and the MECP should be contacted for next steps. PSO sightings should be reported to the MECP and the NHIC.
- Following construction completion, property owners, staff, and guests will be provided with or access to information and awareness packages for PSO that have the potential to occur on the 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 and PSO bats. Information packages will also include contact/reporting options to the MECP and NHIC is species are encountered.

Species specific mitigation measures anticipated to be implemented are discussed in the subsections below.

7.3.1 Blanding's Turtle

As discussed in Section 6.3.1, no protected habitat under the SCA is present on-site. Standard avoidance and mitigation measures will be sufficient to mitigate impacts of the proposed project on individual turtles, and no further registration under the SCA is required.

The 15 m setback from the permanent watercourse is sufficient to protect transient Blanding's turtles during migration. The 15 m setback ensures that riparian vegetation remains intact.

The following best practice measures should be implemented to avoid impacts to transient Blanding's turtles. If these measures cannot be implemented, consultation with the MECP is required to determine whether the project requires an authorization:

- All future development, including the SWM pond, roadways and future buildings should be located outside of the 15 m setback.
- Prior to any site work, silt fencing should be installed around the entire construction area to prohibit the potential migration of Blanding's Turtles, and other wildlife into the construction area. Silt 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). Temporary fencing should be installed prior to the start of the active season and remain in place throughout the active season of each year of construction.
- Temporary exclusion fencing should be inspected by a designated staff member once per week between April 15 and October 15 of any year. The designated staff member should be trained by a Qualified Professional. Any damage to temporary fencing should be repaired by the end of the business day when the damage is observed.
- Each day of construction a daily pre-work sweep of the construction area should occur to ensure no PSO 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 PSO is identified on-site all work should stop and a qualified professional and the MECP should be contacted for next steps. 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.
- Tree clearing and vegetation removal will be undertaken outside of the active season (April 1 – October 31) for Blanding's turtles. Prior to vegetation removal a sweep will be completed to ensure Blanding's turtles are absent from the area.
- Cover all stock piled material with a geotextile to prevent turtles from nesting in the material between May 1 and August 1 of any year.

- 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.
- To protect aquatic habitat, machinery should be maintained in good working condition and all machinery should be fueled a minimum of 30 m from the high-water mark.

7.3.2 Eastern Red Bat, Eastern Small-footed Myotis, Hoary Bat, Little Brown Myotis, Silver-Haired Bat & Tri-colored Bat

No regulated habitat for PSO bats had been identified within the on-site forested communities given that the forest habitat on-site does not meet the requirements to support bat maternity colonies. The following species-specific mitigation measures are anticipated at a minimum, and are expected to be implemented to avoid contravention of the SCA:

- As no critical habitat (i.e. overwintering caves or crevasses, or maternity roosts) were identified on-site, in accordance with MECP best management practices, to protect roosting and foraging bats, any further tree clearing as required shall take place outside of the spring and summer active season (typically March 15 to November 30), when bats are more likely to be using forest habitat.
- Impacts to snag trees, or vegetation removal within the active season will require consultation with the MECP to determine whether a registration under the SCA will be required.

7.4 Wildlife

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

- Active nests for migratory birds (including species of special concern) are protected under the Migratory Birds Convention Act. If an active nest from a migratory bird is observed it may not be disturbed, disrupted, removed or destroyed until the nest is no longer active (i.e. birds have fledged, or nest is abandoned).
- Vegetation removal if required should occur outside of March 15 - November 30 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 Species Conservation 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.
- To minimize impacts on the natural, forested area surrounding the proposed development, outdoor lighting within the development should be limited. To minimize light pollution following construction, the use of bright, external lighting (e.g. flood lights) should be

avoided. Development plans should incorporate dark night lighting in order to minimize light pollution.

- 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.
- Should any PSO 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 PSO or their habitat until further direction is provided by the MECP.

7.5 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, landscaping, and development activities;

- To protect trees identified to be retained during construction, the Critical Root Zone (CRZ) should be identified and fenced. The CRZ is defined as 10 cm from the base of the tree for every centimetre in diameter of the tree trunk measured at breast height.
- Maintain as much permeable surface as possible in future development plans to minimize the generation of stormwater runoff.
- Silt fencing should be installed along all setbacks to provide visual demarcation of the setbacks and to prevent machinery encroachment and sediment transport.
- Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized.
- In effort to offset the effect of vegetation clearing, consideration should be given to landscape planting with native tree species indicative of the Great Lakes – St. Lawrence Forest Region, such as white cedar, white spruce, red maple, and red oak.
- Reasonable compensation and replacement of vegetation is recommended where feasible on the site. For example, reinstatement within areas that can remain undisturbed for the long-term and not necessitating routine maintenance or removal.

8.0 CONCLUSIONS

The proposed project supported by this EIS is the development of the approximately 21 ha property for future subdivision development. The development will result in the construction of twelve commercial/industrial lots, a road to provide access, and commercial/industrial buildings on each lot.

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 and MECP requirements regarding SCA are satisfied, no significant residual impacts are anticipated from the proposed development.

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

- No significant negative impacts to natural heritage features identified on-site, including fish habitat, *candidate* significant wildlife habitat, habitat of PSO, from future development are anticipated.
- The proposed project complies with the natural heritage policies of the Provincial Planning Statement.
- The proposed development complies with the natural heritage policies of the City of Ottawa Official Plan.

9.0 LIMITATION OF LIABILITY

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

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

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

Should new information become available during future work or other studies, GEMTEC should be requested to review the information and, if necessary, re-assess the conclusions presented herein.

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

Sincerely,

Emily Pentz, B.Sc.
Junior Biologist

Taylor Warrington, B.Sc.
Biologist

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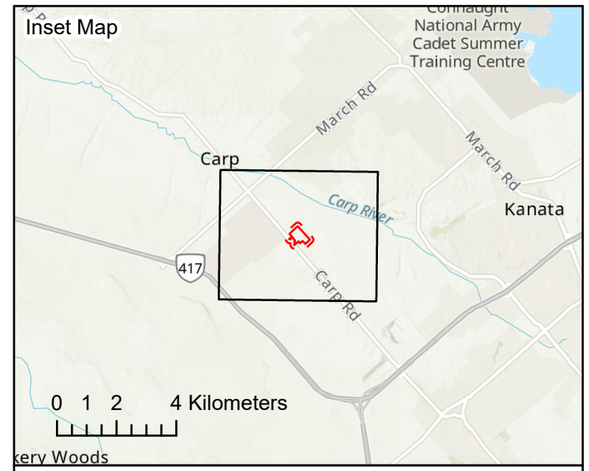
APPENDIX A

Report Figures
Figure A.1 – Site Location
Figure A.2 – Site Layout
Figure A.3 – Vegetation Communities
Figure A.4 – Natural Heritage Features
Figure A.5 – Proposed Development
Figure A.6 - Mitigation Measures

Legend

- Property Boundary
- Study Area



Scale
1:25,000
0 200 400 800 1,200 1,600 Meters

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Client:	Project:
TLC Holdings Ltd.	102151.001

Location
3112 Carp Road
Ottawa, Ontario

Drwn By:	Chkd By:	
EP	TW	Site Location

Date: February 2026	Rev.	
	2	Figure: A.1

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

Legend

- Property Boundary
- Study Area
- Watercourse
- Breeding Bird Survey Location (100 m Radius)
- Headwater Drainage Feature

Scale 1:5,250

0 50 100 200 300 400 Meters

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Client:	Project:
TLC Holdings Ltd.	102151.001

Location: 3112 Carp Road, Ottawa, Ontario

Drwn By:	Chkd By:	
EP	TW	Survey Locations

Date: February 2026

Rev. 2

Figure: A.2

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Vantor
City of Ottawa 2022 Imagery:

Legend

- Property Boundary
- Study Area
- Watercourse
- Headwater Drainage Feature
- Vegetation Community

FODM7 = Fresh – Moist Lowland Deciduous Forest
THDM2-6 = Buckthorn Deciduous Shrub Thicket
ME = Meadow
MEM = Mixed Meadow
OAG = Open Agriculture

Scale
1:5,250
0 50 100 200 300 400 Meters

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Project: 102151.001

Location: 3112 Carp Road
Ottawa, Ontario

Drwn By: EP | Chkd By: TW

Vegetation Communities

Date: February 2026

Rev. 2

Figure: A.3

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Vantor
City of Ottawa 2022 Imagery:

Legend

- Property Boundary
- Study Area
- Watercourse
- Headwater Drainage Feature

Scale
1:5,250
0 50 100 200 300 400 Meters

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Location
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Drwn By:	Chkd By:	
EP	TW	Natural Heritage Features

Date: February 2026	Rev.	Figure: A.4
	2	

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Vantor
City of Ottawa 2022 Imagery:

Legend

- Property Boundary
- Study Area
- Watercourse
- Headwater Drainage Feature

Development Concept

- Block
- Road
- Stormwater Management Pond
- 3 m Access Road
- 5 m Access Road
- Proposed Drainage Ditch

Scale 1:5,250

0 50 100 200 300 400 Meters

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Location: 3112 Carp Road, Ottawa, Ontario

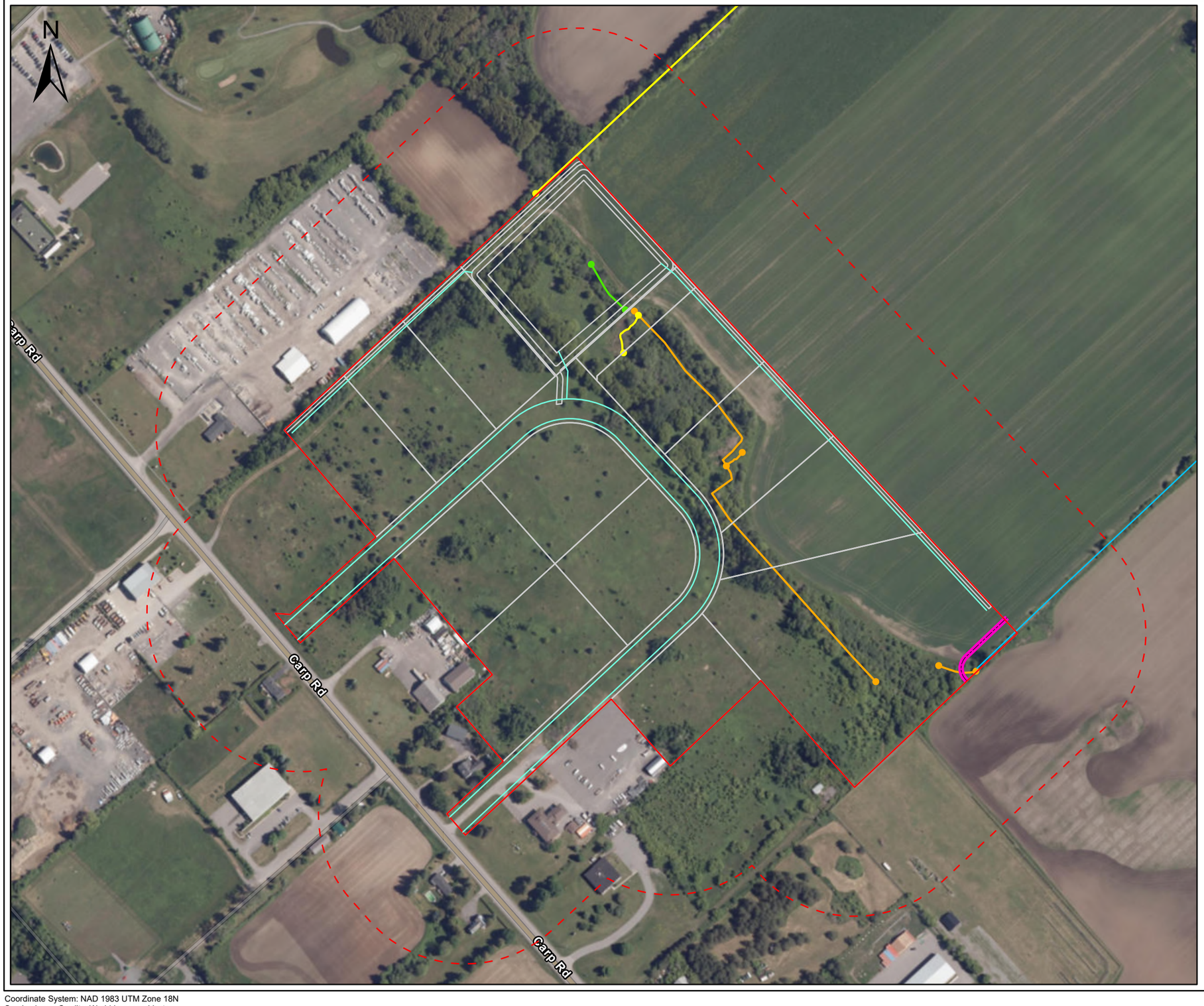
Drwn By:	Chkd By:	
EP	TW	Development Concept

Date: February 2026

Rev. 2

Figure: A.5

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Vantor
City of Ottawa 2022 Imagery:



Legend

- Property Boundary
- Study Area
- Watercourse
- Development Concept
- Proposed Drainage Ditch
- 15 m Setback

Headwater Drainage Feature Management

- Conservation
- Mitigation
- No Management

Scale

1:5,250

0 50 100 200 300 400 Meters

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Location

3112 Carp Road
Ottawa, Ontario

Drwn By:	Chkd By:	
EP	TW	Mitigation Measures

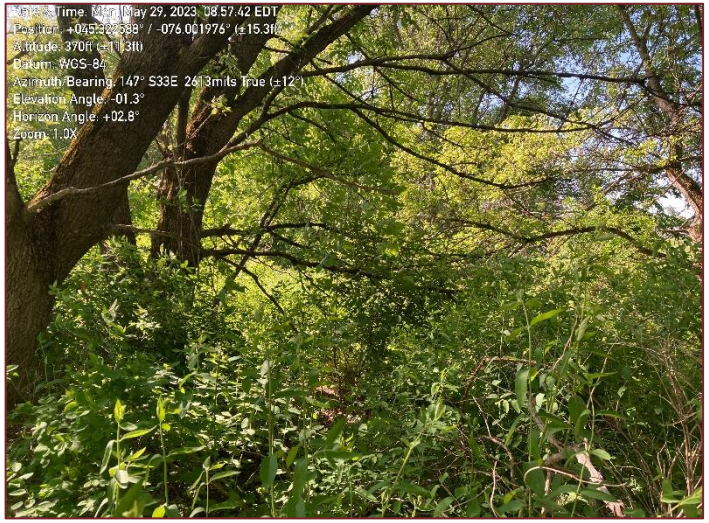
Date: February 2026	Rev.	
	2	Figure: A.6

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Vantor
City of Ottawa 2022 Imagery:

APPENDIX B

Site Photographs

Site Photograph 1: Mixed Meadow (MEM).



Site Photograph 2: Fresh – Moist Lowland Deciduous Forest (FODM7).

Site Photograph 3: Open Agriculture (OAG).

Site Photograph 4: Meadow (ME).

GEMTEC Consulting Engineers and Scientists	Project Environmental Impact Statement 3112 Carp Road Ottawa, Ontario	**APPENDIX B** File No. 102151.001	**Site Photographs**

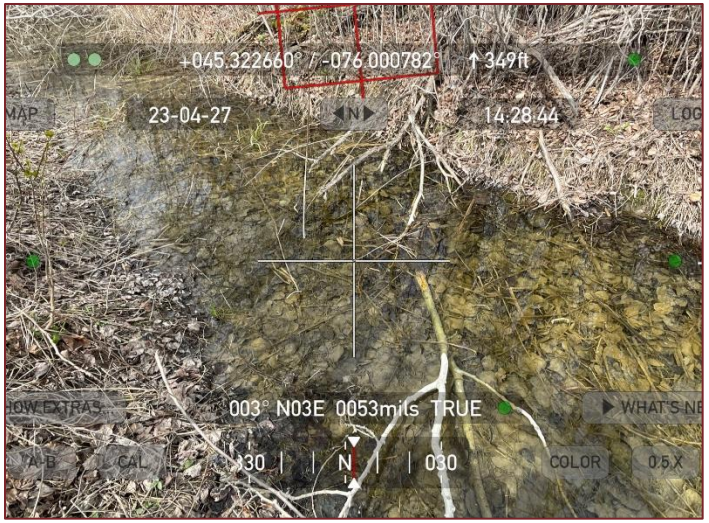
Site Photograph 5: Upstream extent of HDF3 and Buckthorn Deciduous Shrub Thicket (THDM2-6).

Site Photograph 6: The vertical drain on-site.

Site Photograph 7: HDF1

Site Photograph 8: HDF2

GEMTEC Consulting Engineers and Scientists	Project Environmental Impact Statement 3112 Carp Road Ottawa, Ontario	**APPENDIX B** File No. 102151.001	**Site Photographs**



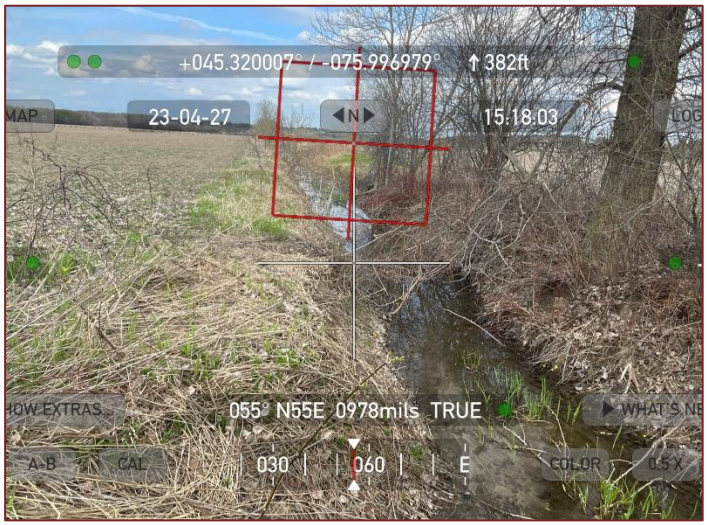
Site Photograph 9: Downstream extent of HDF3.

Site Photograph 10: HDF3A

Site Photograph 11: HDF3B

Site Photograph 12: HDF4

GEMTEC Consulting Engineers and Scientists	Project: Environmental Impact Statement, 3160 Carp Road, Ottawa, Ontario	**APPENDIX B**	**Site Photographs**
		File No. 102151.001	



Site Photograph 12: Watercourse along east property boundary.

APPENDIX C

Report Summary Tables

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

Common Name	Scientific Name	S-Rank	Evidence
Avian Species			
American crow	*Corvus brachyrhynchos*	S5	Heard calling
American goldfinch	*Spinus tristis*	S5	Heard calling
American robin	*Turdus migratorius*	S5	Heard calling
Barn swallow	*Hirundo rustica*	S4B	Observed flying overhead, foraging
Black-capped chickadee	*Poecile atricapillus*	S5	Heard calling
Blue jay	*Cyanocitta cristata*	S5	Heard calling
Brown thrasher	*Toxostoma rufum*	S4B	Heard calling
Canada goose	*Branta canadensis*	S5	Observed
Cedar waxwing	*Bombycilla cedrorum*	S5	Heard calling
Chestnut-sided warbler	*Setophaga pensylvanica*	S5B	Heard calling
Common grackle	*Quiscalus quiscula*	S5	Heard calling
Common yellowthroat	*Geothlypis trichas*	S5B,S3N	Heard calling
Gray catbird	*Dumetella carolinensis*	S5B,S3N	Heard calling
Great crested flycatcher	*Myiarchus crinitus*	S5B	Heard calling
Killdeer	*Charadrius vociferus*	S4B	Heard calling
Mourning dove	*Zenaida macroura*	S5	Heard calling
Northern cardinal	*Cardinalis cardinalis*	S5	Heard calling
Northern flicker	*Colaptes auratus*	S5	Heard calling
Red-eyed vireo	*Vireo olivaceus*	S5B	Heard calling
Red-winged blackbird	*Agelaius phoeniceus*	S5	Heard calling
Ring-billed gull	*Larus delawarensis*	S5	Heard calling
Rose-breasted grosbeak	*Pheucticus ludovicianus*	S5B	Heard calling
Song sparrow	*Melospiza melodia*	S5	Heard calling
Turkey vulture	*Cathartes aura*	S5B,S3N	Observed flying overhead
Veery	*Catharus fuscescens*	S5B	Heard calling
White-throated sparrow	*Zonotrichia albicollis*	S5	Heard calling
Wild turkey	*Meleagris gallopavo*	S5	Observed
Yellow warbler	*Setophaga petechia*	S5B	Heard calling
Mammalian Species			
White-tailed deer	*Odocoileus virginianus*	S5	Observed on-site

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

TABLE C.2
SCREENING RATIONAL FOR SIGNIFICANT WOODLANDS

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

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

Wildlife Habitat	Further Considered in EIS	Rationale
Waterfowl Stopover and Staging Areas	No	No suitable habitat located on-site or within the study area to support waterfowl stopover and staging areas.
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	No suitable woodland and upland habitat to support raptor overwintering.
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 suitable habitat on-site or within the study area to support turtle overwintering.
Reptile Hibernaculum	No	No structures such as large rock piles, bedrock outcrops, cervices or other karstic features have been identified on-site.
Colonial Bird Nesting Habitat	No	No suitable habitat located on-site or within the study area to support colonial bird nesting.
Migratory Butterfly Stopover Area	No	The site is not located within 5 km of Lake Ontario and therefore does not meet the defining criteria.
Landbird Migratory Stopver Area	No	The site is not located within 5 km of Lake Ontario and therefore does not meet the defining criteria.
Deer Yarding Areas and Winter Congregation Areas	No	As outlined in the Significant Wildlife Habitat Criteria Schedules (OMNRF, 2015) winter deer yards and deer management are an MNRF responsibility. Based on review of publicly available data from the OMNRF on Land Information Ontario Geo-hub, no Stratum I deer yards, Stratum II deer yards, or winter congregation areas have been identified on-site or within the broader study area.

TABLE C.4
SCREENING RATIONALE FOR SPECIALIZED WILDLIFE HABITATS

Specialized Wildlife Habitat	Further Considered in EIS	Rationale
Waterfowl Nesting Area	No	No upland habitat adjacent to wetland is present on-site to support waterfowl nesting areas.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	No	The site is located >120 m from any habitat which could support foraging bald eagles or osprey. Nesting sites for these species are uncommon in Ecoregion 6E (MNRF, 2012).
Woodland Nesting Raptor Habitat	No	Nesting may occur in any ecosite and species preference is towards mature forest stands >30 ha with >10 ha of interior habitat with a 200 m buffer. Contiguous forest stands >30 ha are not present on-site. No sticks nests were observed on-site.
Turtle Nesting Habitat	No	No wetland on-site to provide suitable nesting habitat.
Seeps and Springs	No	No seeps or springs are present on-site.
Woodland Amphibian Breeding Habitat	No	No suitable wetland habitat adjacent to woodlands to support woodland amphibian breeding habitat.
Wetland Amphibian Breeding Habitat	No	No wetlands on-site or within study area to support wetland amphibian breeding habitat.
Woodland Area-Sensitive Bird Breeding Habitat	No	Woodland area-sensitive birds require interior forest habitat located >200 m from the forest edge in large (>30 ha) forest stands. Woodlands on-site and adjacent to the site do not meet the defining criteria.

TABLE 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	Suitable marsh habitat is not present on-site.
Open Country Breeding Bird Habitat	No	Candidate open country breeding bird habitat typically includes large grassland areas (includes natural and cultural fields and meadows) that are >30 ha. The meadow habitat on-site does not meet the size requirement; thus, no suitable habitat is present on-site.
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. No suitable habitat is present on-site.
Terrestrial Crayfish Habitat	No	Terrestrial crayfish are only found within southwestern Ontario (MNRF, 2012).
Special Concern and Rare Wildlife Species	Yes	One species of special concern were identified on-site during the site investigation: barn swallow. Occurrence data from the NHIC indicates historical occurrence of eastern wood-pewee and wood thrush within 1km of the site.

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 amphibian movement corridors have been identified on-site during the site investigation, nor has it been identified by MNRF mapping. Additionally, no wetlands have been identified on site or within the study area.
Deer Movement Corridor	No	No cervid movement corridors have been identified on-site during the site investigation, nor has it been identified by MNRF mapping

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

Species	SCA Status	Habitat Use	Probability of Occurrence On-Site or Within Study Area	Rationale
Avian				
Golden Eagle	Endangered	Nests on remote, bedrock cliffs, overlooking large burns, lakes or tundras	Low	Suitable nesting habitat does not occur on-site. No historical occurrences recorded. Species not observed on-site.
Lesser Yellowlegs	Threatened	Ottawa Migrant. Breeding is limited to Alaska and northern Canada. During winter and migration usess coastal salt marshes, estuaries and ponds, lakes, freshwater wetlands, anthropogenic wetlands.	Low	Suitable nesting habitat does not occur on-site. No historical occurrences recorded. Species not observed on-site.
Short-eared Owl	Threatened	Ground nester, prefers open habitats, fields and marshes.	Low	Suitable nesting habitat does not occur on-site. No historical occurrences recorded. Species not observed on-site.
Mammalian				
Eastern Red Bat	Endangered	Roosts in tree foliage; overwinters in leaf litter. Do not roost in anthropogenic structures.	Moderate	Available habitat within project area unlikely to meet bat maternity colony requirements however the site and surrounding area may provide foraging and non-maternal roost habitat.
Eastern small-footed Myotis	Endangered	Roosts in rock crevices, barns and sheds. Overwinters in abandoned mines. Summer habitats are poorly understood in Ontario, elsewhere prefers to roost in open, sunny rocky habitat and occasionally in buildings (Humphrey, 2017).	Moderate	Available habitat within project area unlikely to meet bat maternity colony requirements however the site and surrounding area may provide foraging and non-maternal roost habitat.
Hoary Bat	Endangered	Roosts in tree foliage; overwinters in leaf litter. Do not roost in anthropogenic structures.	Moderate	Available habitat within project area unlikely to meet bat maternity colony requirements however the site and surrounding area may provide foraging and non-maternal roost habitat.
Little Brown Myotis	Endangered	Maternal colonies known to use buildings, may also roost in trees during summer. Affinity towards anthropogenic structures for summer roosting habitat and exhibit high site fidelity (Environment Canada, 2015).	Moderate	Available habitat within project area unlikely to meet bat maternity colony requirements however the site and surrounding area may provide foraging and non-maternal roost habitat.
Northern myotis (Northern Long-eared Bat)	Endangered	Occurs throughout eastern North America in associated with Boreal forests. Roosts mainly in trees, occasionally anthropogenic structures during summer (Environment Canada, 2015). Overwinters in caves and abandoned mines.	Low	Species affinity is for Boreal forests and species rarely roosts in anthropogenic structures.
Silver-haired Bat	Endangered	Roosts in tree foliage. Overwinters in in mines, rock crevices, trees, and snags. May use anthropogenic structures for roosting.	Moderate	Available habitat within project area unlikely to meet bat maternity colony requirements however the site and surrounding area may provide foraging and non-maternal roost habitat.
Tri-colored Bat	Endangered	Roosts in trees, rock crevices and occasionally buildings during summer. Overwinters in caves and mines.	Moderate	Available habitat within project area unlikely to meet bat maternity colony requirements however the site and surrounding area may provide foraging and non-maternal roost habitat.
Reptilian				
Blanding's Turtle	Threatened	Inhabits quiet lakes, streams and wetlands with abundant emergent vegetation. Frequently occurs in adjacent upland forests.	Moderate	NHIC observations indicated species has been observed within 1km of the site, however the site and study area do not provide suitable wetland habitat to support Blanding's turtle or their habitat. Occurrence records likely associated with wetland habitat south of site. Potential for transient Blanding's turtles to occur on-site.
Spotted Turtle	Endangered	Secretive wetland species.	Low	No historical occurrences for the species within the study area. No suitable aquatic habitat on-site. Species not observed on-site.
Wood Turtle	Endangered	Primarily terrestrial forest species. Associated with clear, gravelly streams.	Low	No historical occurrences for the species within the study area. No suitable habitat on-site. Species not observed on-site.
Plants				
American Ginseng	Threatened	Rich, moist, relatively mature deciduous forests.	Low	Woodlands on-site may support species presence. No occurrence data for species within study area. Species not observed during the site investigation.
Black Ash	Endangered	Predominantly a wetland species, found in swamps, floodplains and fens.	Low	No suitable habitat on-site to support species.

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

Species	SCA Status	Habitat Use	Probability of Occurrence On-Site or Within Study Area	Rationale
Butternut	Endangered	Inhabits a wide range of habitats including upland and lowland deciduous and mixed forests.	Low	Species not observed on-site.
Lichens				
Pale-bellied Frost Lichen	Endangered	Grows on the bark of hardwood trees such as white ash, black walnut, American elm and ironwood. Can also be found growing on fence posts and boulders.	Low	Species believed to be extirpated from the study area.
Fish				
American Eel	Endangered	Primarily nocturnal, hiding in soft substrate or submerged vegetation during the day.	Low	Watercourse on-site does not provide sufficient aquatic habitat to support species. No historical records for species in study area.
Cutlip Minnow	Threatened	Lives in warmer rivers and creeks with clear, slow-moving water and rocky or gravel bottoms.	Low	Watercourse on-site does not provide sufficient aquatic habitat to support species. No historical records for species in study area.
Lake Sturgeon	Endangered	Large lakes and rivers. Forages in cool water, 4-9m deep over soft substrates. Spawns in shallower, fast-flowing areas over rocks or gravel.	Low	Watercourse on-site does not provide sufficient aquatic habitat to support species. No historical records for species in study area.
Insects				
Bogbean Buckmoth	Endangered	Preferred food plant is bog bean, present in a variety of wetlands including bogs, swamps and fens.	Low	No suitable wetland habitat within the study area. Prefered food species not observed. Species not observed during site investigations.
Gypsy Cuckoo Bumble Bee	Endangered	Inhabits a wide range of habitats: open meadows, agricultural and urban areas, boreal forests and woodlands.	Low	Currently the only known population is in Pinery Provincial Park.
Mottled Duskywing	Endangered	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	Habitat generalist	Low	No recent occurrence reports in the area, thought to be locally extirpated
Rusty-patched Bumble Bee	Endangered	Habitat generalist	Low	Currently the only known population is in Pinery Provincial Park.
Traverse Lady Beetle	Endangered	Habitat generalist	Low	No new records of Traverse Lady Beetle in Ontario, species thought to be absent in former habitats.

APPENDIX D

Headwater Drainage Feature Assessment
(GEMTEC, 2024)

GEMTEC Consulting Engineers and Scientists Limited
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May 10, 2024

File: 102151.001

TLC Holdings Ltd.
1380 Howie Road
Carp, Ontario
K0A 1L0

Attention: Mr. Tom Carroll

Re: Headwater Drainage Feature Assessment
Proposed Plan of Subdivision, 3160 Carp Road
City of Ottawa, Ontario

INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by TLC Holdings Ltd. to carry out a Headwater Drainage Feature Assessment (HDFA) for the property located at 3160 Carp Road, in the City of Ottawa, hereafter referred to as the "subject property". This letter provides the methodologies and results of the HDFA conducted at the subject property. The subject property location and layout are illustrated on Figure A.1 and A.2, respectively, in Attachment A.

Purpose

The proponent is seeking to develop a plan of subdivision on an approximately 23-hectare (ha) property located at 3160 Carp Road, in the City of Ottawa. The project involves the planned construction of 12 lots for future single-family residential dwellings, and a road.

Objective

Under Section 28 (1) of the Conservation Authorities Act, conservation authorities have the ability to define the definition of a watercourse, which is defined under Section 28 (5) of the Act as "*An identifiable depression in the ground in which a flow of water regularly or continuously occurs*". Headwater drainage features are defined as "*non-permanently flowing drainage features that may not have defined bed or banks; they are first-order and zero-order intermittent and ephemeral channels, swales and connected to headwater wetlands, but do not include rills or furrows*". According to conservation authorities in Ontario, headwater drainage features (HDFs) meet the definition of a watercourse.

The objective of the work presented herein is twofold; 1) to identify HDFs and 2) to evaluate and classify any HDFs on-site, in accordance with *"Evaluation, Classification and Management of Headwater Drainage Features Guidelines*" from the Toronto Region Conservation Authority and

the Credit Valley Conservation (TRCA/CVC, 2014), and to recommend mitigation and conservation measures for HDFs present on-site.

METHODOLOGY

Desktop Review

A desktop information gathering exercise was completed to aid in the scoping of field surveys and to gather background information relating to HDFs on-site. Information relating to the presence and assessment of HDFs on-site was obtained from the following sources:

- Evaluation, Classification and Management of Headwater Drainage Features Guidelines (TRCA/CVC, 2014);
- Ontario Stream Assessment Protocol, Section 4, Module 11 (OSAP, 2017);
- Land Information Ontario (OMNR, 2011);
- Mississippi Valley Conservation Authority Interactive Map (MVCA, n.d.);
- City of Ottawa Official Plan (Ottawa, 2022); and
- Make a Map: Natural Heritage Areas (OMNRF, 2014).

Field Investigations

Three field surveys were undertaken to evaluate the HDF identified on-site. Field surveys completed in support of this HDFA are outlined in Table 2.1 below. Photographs of site features taken during field investigations are provided in Attachment C.

Table 2.1 Summary of Field Investigations

Date	Time	Weather	HDFA Visit Number
April 27, 2023	12:45 – 16:00	12°C, ~75% cloud cover, Beaufort 1, no precipitation	1 (Spate)
May 17, 2023	11:00 – 13:00	6°C, ~25% cloud cover, Beaufort 3, no precipitation	2 (Spate)
July 26, 2023	07:15 – 08:45	19°C, ~25% cloud cover, Beaufort 1, no precipitation	3 (Baseflow)

Headwater Drainage Feature Assessment

Field data collection of HDFs on-site followed the protocol outlined in Section 4: Module 11, “Unconstrained Headwater Sampling” from the Ontario Stream Assessment Protocol (OSAP) (Stanfield, 2017).

Data collected during the site investigations included flow conditions, sediment transport, feature roughness, riparian and feature vegetation, as well as upstream and downstream site features. As outlined in the OSAP manual for assessing HDFs, three site surveys were completed.

Classification of the HDFs on-site followed the protocols outlined in the Evaluation, Classification and Management of Headwater Drainage Features Guidelines manual (TRCA/CVC, 2014). Functions of the HDF that were evaluated included hydrology, vegetation, fish and fish habitat, and terrestrial habitat. Mitigation and management recommendations are provided for the HDFs based on the results of the classification.

HEADWATER DRAINAGE FEATURES ASSESSMENT

Site Characteristics

The 23 ha site currently consists of a mosaic of deciduous forest/woodland, cultural meadow, open agriculture, and thicket communities. The site is located within the 'Carp River' watershed and is under the jurisdiction of the Mississippi Valley Conservation Authority (MVCA).

Based on the desktop review and the site surveys, six HDFs occur on-site and are identified as HDF1, HDF2, HDF3, HDF3A, HDF3B and HDF4. All six HDFs are illustrated on Figure A.3 in Attachment A.

HDF1, HDF2, HDF3, and HDF3B and HDF4 are artifact of historical agricultural drainage efforts. HDF3A is associated with water pooling and groundwater drainage, likely due to snowmelt.

Each HDF is identified and described in more detail in the subsections below, while table B.1 in Attachment B provides a summary of collected field data.

HDF1

HDF1 originates within the north of the property and flows along the property boundary in a northeasterly direction for approximately 52 m before exiting the subject property. From there, the feature continues off-site in a linear, northeastern direction along the agricultural fields for approximately 1.2 km.

HDF1 is a channelized feature that was observed to have standing water during the first two site investigations, and dry during the third. No evidence of seeps, springs or upwellings were noted during any of the three surveys. HDF1 had scrubland vegetation within the feature while the riparian zone was dominated by cropped fields.

Table B.1 in Attachment B summarizes the existing conditions and characteristics of HDF1 observed during the site surveys. During the site surveys, HDF1 was assessed as one continuous feature with no site break triggers.

HDF2

HDF2 is an isolated feature that originates in the north of the property and flows in a southeast direction for approximately 50 m before abruptly ending.

HDF2 is a channelized feature that was observed to have standing water during the first assessment in April 2023, and dry during the second and third visits. No evidence of seeps, springs or upwellings were noted during any of the three surveys. HDF2 had scrubland vegetation within both the feature and riparian zone.

Table B.1 in Attachment B summarizes the existing conditions and characteristics of HDF2 observed during the site surveys. During the site surveys, HDF2 was assessed as one continuous feature with no site break triggers.

HDF3

HDF3 originates in the eastern extent of the property and flows through the cultural thicket in a northwest direction for approximately 460 m before discharging into a vertical drain.

HDF3 is a channelized feature that was observed to have minimal flow during the first visit, interstitial flow during the second, and dry during the third. No evidence of seeps, springs or upwellings were noted during any of the three surveys. HDF3 had scrubland vegetation within both the feature and riparian zone.

Table B.1 in Attachment B summarizes the existing conditions and characteristics of HDF3 observed during the site surveys. During the site surveys, HDF3 was assessed in two segments based on site break triggers, but the segments displayed similar site features and conditions and have been grouped for evaluation purposes.

HDF3A

HDF3A originates in cultural thicket in the northeast of the property and flows in a northern direction for approximately 45 m before discharging into the downstream extent of HDF3, and ultimately, the vertical drain.

HDF3A has no defined feature and was observed to have minimal flow during the first visit, interstitial flow during the second, and dry during the third. No evidence of seeps, springs or upwellings were noted during any of the three surveys. Vegetation within HDF3A and within the riparian zone was dominated by meadow.

Table B.1 in Attachment B summarizes the existing conditions and characteristics of HDF3A observed during the site surveys. During the site surveys, HDF3A was assessed as one continuous feature with no site break triggers.

HDF3B

HDF3B is located within the eastern-central portion of the property and originates as an off-shoot from HDF3, within the cultural thicket. HDF3B continues from the confluence for approximately 20 m in a northeast direction before abruptly ending before approaching the agricultural fields.

HDF3B is a channelized feature that was observed to have standing water during the first two site investigations and was dry by the third. No evidence of seeps, springs or upwellings were noted during any of the three surveys. HDF3B had meadow vegetation within the feature while the riparian zone was dominated by scrubland.

Table B.1 in Attachment B summarizes the existing conditions and characteristics of HDF3B observed during the site surveys. During the site surveys, HDF3B was assessed as one continuous feature with no site break triggers.

HDF4

HDF4 originates in the southeastern corner of the property and flows in a southeastern direction for approximately 35 m before discharging into the permanent watercourse along the agricultural field.

HDF4 is a channelized feature that was observed to have interstitial flow during the first site investigation, standing water during the second, and was dry during the third. No evidence of seeps, springs or upwellings were noted during any of the three surveys. Vegetation within HDF4 and within the riparian zone was dominated by scrubland.

Table B.1 in Attachment B summarizes the existing conditions and characteristics of HDF4 observed during the site surveys. During the site surveys, HDF4 was assessed as one continuous feature with no site break triggers.

CLASSIFICATION

All HDFs on-site were classified based on the information collected during the site surveys pertaining to hydrology, riparian habitat, fish and fish habitat and terrestrial components. Using the linking classification to management flow chart provided by the TRCA and CVC (2014), illustrated in Figure 1 below, the classification of each HDF was used to determine management recommendations.

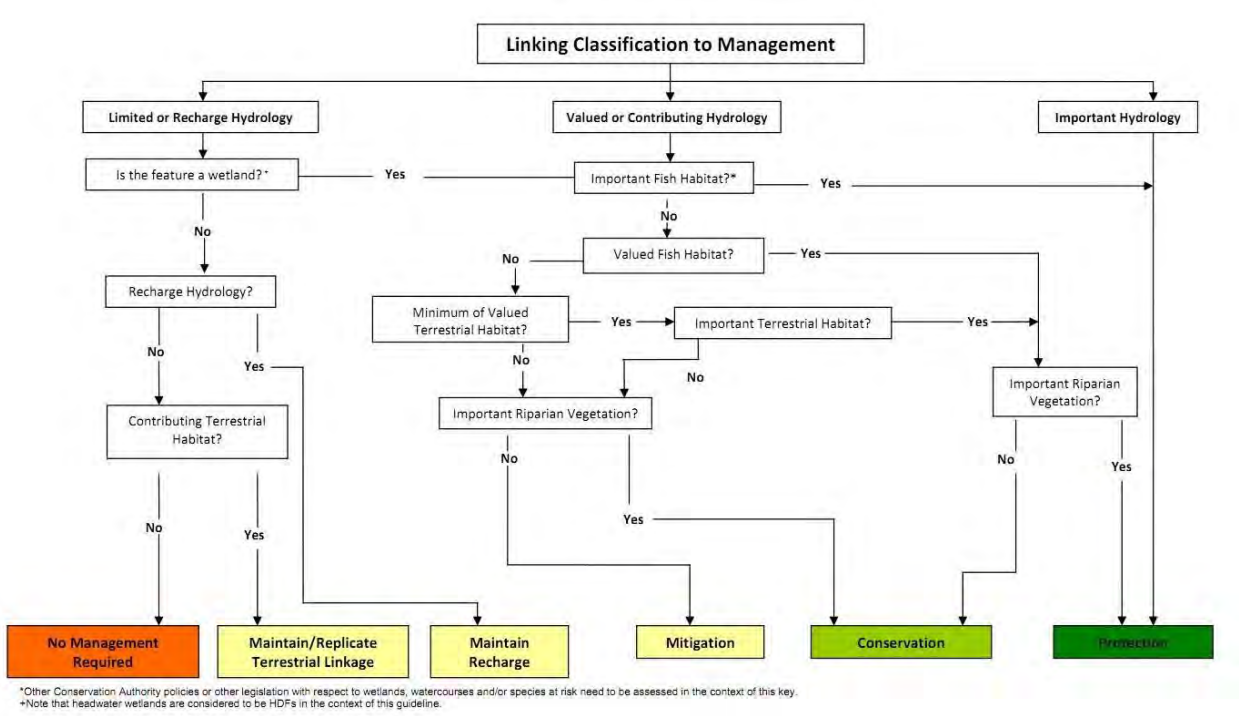

Figure 1 Flow Chart Providing Directions of Management Option's (TRCA/CVC, 2014)

H1 had water conveyance throughout the first and second visits but was dry during the third visit. Due to H1 running along the agricultural field and originating as an agricultural ditch, it was determined to have limited riparian and terrestrial vegetation. In accordance with the TRCA/CVC guidance, the contributing (ephemeral) hydrology coupled with the limited terrestrial vegetation results in the determination that the above noted HDF requires and **mitigation**.

H2 was channelized and had water conveyance throughout the first visit but was dry during the second and third visit. As such, it was determined to have limited hydrology. In conjunction with limited terrestrial habitat, **no management** is required.

H3 had water conveyance throughout the first and second visits but was dry during the third and was determined to have valuable hydrology. The feature provides contributing fish habitat, limited terrestrial habitat and important riparian habitat (scrubland). As such, **conservation** is required for H3.

H3A had water conveyance throughout the first and second visits but was dry during the third investigation. In conjunction with having no defined feature, H3 was determined to have valuable hydrology. As such they were determined to have contributing hydrology. The feature provides contributing fish habitat, limited terrestrial habitat, and important meadow riparian habitat. As such, **mitigation** is required for H3A.

H3B and H4 were channelized and had standing water during the first and second visit, but dry conditions during third site investigation. Both features provide contributing fish habitat, limited terrestrial habitat, and important scrubland riparian habitat. As such **conservation** is required for the feature.

A summary of the classification and management recommendation for all HDFs is provided in Table B.2 in Attachment B.

MANAGEMENT RECOMMENDATIONS AND MITIGATION MEASURES

In accordance with the guidance document (TRCA/CVC, 2014), HDFs classified as valued functions require **conservation**; these are typically features characterized by contributing hydrology, and important riparian vegetation. Based on the classification in Section 4 above, H3, H3B and H4 have been field verified to provide valued or contributing hydrology, contributing fish habitat, limited terrestrial habitat and important riparian habitat, as such **conservation** is required for these features.

As outlined in the guidance document, conservation management includes: maintaining, relocating, and/or enhancing the existing feature and riparian zone corridor; restoring lost functions through enhanced lot level controls; maintaining or replacing on-site flows using mitigation measures and/or wetland creation; maintaining or replacing external flows; and feature must remain connected to downstream features (TRCA/CVC, 2014).

In accordance with the guidance document (TRCA/CVC, 2014), HDFs classified as contributing functions require **mitigation**; these are typically features characterized by contributing hydrology, contributing fish habitat, contributing terrestrial habitat and/or contributing riparian habitat. Based on the classification in Section 4 above, H1 and H3A has been field verified to provide contributing hydrology and fish habitat, limited terrestrial habitat and/or valued riparian habitat, as such **mitigation** is required for this feature.

As outlined in the guidance document, mitigation management includes: replicating or enhancing feature functions through enhanced lot level conveyance measures (well vegetated swales), replicate on-site flow and outlet flows at the top of the system to maintain feature functions with vegetated swales/bioswales, if catchment drainage has been previously removed due to diversion of stormwater flows, restore lost functions through enhanced lot level controls, replicated functions by lot level conveyance measures (e.g. vegetated swales) connected to the natural heritage system, as feasible and/or Low Impact Development (LID) stormwater options (TRCA/CVC, 2014).

In accordance with the guidance document (TRCA/CVC, 2014) HDFs classified as limited functions require **no management**; these are typically features with no or minimal flow and/or no fish or fish habitat. Based on the classification in Section 4 above, H2 has been field verified to

have very limited hydrology, fish habitat, terrestrial habitat and/or riparian habitat, as such **no management** is required for this feature.

In addition to the management recommendations outlined above, the following mitigation measures are provided by GEMTEC in order to minimize or eliminate potential impacts to 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.
- No in-water work should occur between March 15 and June 30 of any year to protect spawning fish habitat adjacent to the development area. All in-water habitat features, including aquatic vegetation, natural woody debris and boulders should be left in their current locations in the near shore area.
- When native soil is exposed, sediment and erosion control work in the form of heavy-duty sediment fencing shall be positioned along the down gradient edge of any construction envelopes adjacent to waterbodies.
- The development plan should include lot-side swales and/or road side ditches designed to promote infiltration.
- 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.

SUMMARY

A headwater drainage feature assessment was completed and six HDFs were identified on-site, identified as HDF1, HDF2, HDF3, HDF3A, HDF3B, and HDF4. Conservation is required for H3, HDF3B, and HDF4. Conservation management should include: maintaining, relocating and/or enhancing the existing features or riparian zone corridor; restoring lost functions through enhanced lot level controls; maintaining or replacing on-site flows through mitigation; maintaining or replacing external flows and maintaining connectivity with downstream features. Mitigation management is required for HDF1 and H3A. Mitigation management should include: replicating or enhancing feature functions through enhanced lot level conveyance measures. No management is required for HDF2 .

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 the undersigned.

Sincerely,

Emily Pentz, B.Sc.
Junior Biologist

Taylor Warrington, B.Sc.
Biologist

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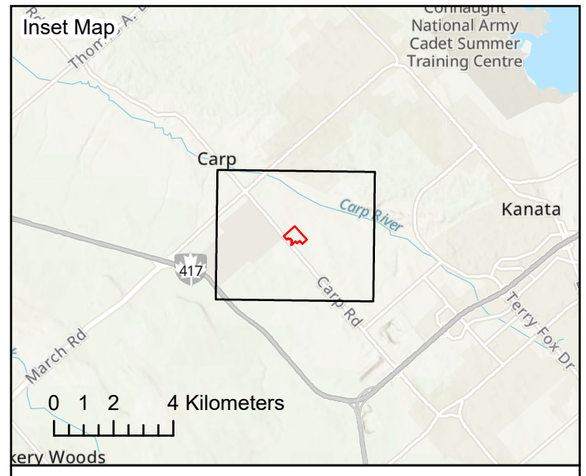
ATTACHMENT A

Figure A.1 – Site Location
Figure A.2 – Site Layout
Figure A.3 – Headwater Drainage Feature Assessment

Legend

- Property Boundary
- Study Area



Scale
1:25,000
0 200 400 800 1,200 1,600 Meters

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Client:	Project:
TLC Holdings Ltd.	102151.001

Location
3160 Carp Road
Ottawa, Ontario

Drwn By:	Chkd By:	
EP	TW	Site Location

Date: April 2024	Rev.	
	0	Figure: A.1

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

Legend

- Property Boundary
- Study Area
- Watercourse
- Headwater Drainage Feature
- Development Concept

Scale
1:5,250
0 50 100 200 300 400 Meters

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Location
3160 Carp Road
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Drwn By:	Chkd By:	
EP	TW	Site Layout

Date: April 2024	Rev.	Figure: A.2
	0	

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: Hybrid Reference Layer: Esri Community Maps Contributors, City of Ottawa, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada
World Imagery: Maxar

N

Carp Rd

Carp Rd

Legend

- Property Boundary
- Study Area
- Watercourse
- Development Concept

Headwater Drainage Features

- Conservation
- Mitigation
- No Managment Required

Scale

1:4,000

0 50 100 200 300 Meters

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Location

3160 Carp Road
Ottawa, Ontario

Drwn By:	Chkd By:	
EP	TW	Headwater Drainage Feature Assessment

Date: April 2024	Rev.	
	0	Figure: A.3

Coordinate System: NAD 1983 UTM Zone 18N
Service Layer Credits: World Imagery: Maxar, Microsoft
Hybrid Reference Layer: Esri Community Maps Contributors, City of Ottawa, Province of Ontario, Esri Canada, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada

ATTACHMENT B

Headwater Drainage Feature Assessment Summary Tables

Table B.1
Summary of Headwater Drainage Features

	Hydrology			Vegetation Assessment		Channel Form			Sediment Transport		
Site Visit	Flow Influence (FI)	Flow Condition (FC)	Feature Type (FT)	Feature	Riparian	Average Wetted Width (m)	Average Depth (range) (cm)	Average Bankfull Width (m)	Substrate	Sediment Transport	Sediment Deposition
HDF1											
1	Freshet (1)	Standing Water (2)	Channelized (2)	Scrubland (5)	Cropped (3)	1.25	12	1.6	Sandy Silt	None	None
2	Spate (2)	Standing Water (2)	Channelized (2)	Scrubland (5)	Cropped (3)	0.8	7	1.6	Sandy Silt	None	None
3	Baseflow (3)	Dry (1)	Channelized (2)	Scrubland (5)	Cropped (3)	--	--	1.6	Sandy Silt	None	None
HDF2											
1	Freshet (1)	Standing Water (2)	Channelized (2)	Scrubland (5)	Scrubland (5)	1	7	1.3	Sandy Silt	None	None
2	Spate (2)	Dry (1)	Channelized (2)	Scrubland (5)	Scrubland (5)	--	--	1.3	Sandy Silt	None	None
3	Baseflow (3)	Dry (1)	Channelized (2)	Scrubland (5)	Scrubland (5)	--	--	1.3	Sandy Silt	None	None
HDF3											
1	Freshet (1)	Minimal Flow (4)	Channelized (2)	Scrubland (5)	Scrubland (5)	1.5	14	2	Sandy Silt	None	None
2	Spate (2)	Interstitial Flow (3)	Channelized (2)	Scrubland (5)	Scrubland (5)	1.75	10.5	2	Sandy Silt	None	None
3	Baseflow (3)	Dry (1)	Channelized (2)	Scrubland (5)	Scrubland (5)	--	--	2	Sandy Silt	None	None
HDF3A											
1	Freshet (1)	Minimal Flow (4)	No Defined Feature (4)	Meadow (4)	Meadow (4)	1	14	--	Sandy Silt	None	None
2	Spate (2)	Interstitial Flow (3)	No Defined Feature (4)	Meadow (4)	Meadow (4)	0.9	12	--	Sandy Silt	None	None
3	Baseflow (3)	Dry (1)	No Defined Feature (4)	Meadow (4)	Meadow (4)	--	--	--	Sandy Silt	None	None
HDF3B											
1	Freshet (1)	Standing Water (2)	Channelized (2)	Meadow (4)	Scrubland (5)	1.25	10	1.25	Sandy Silt	None	None
2	Spate (2)	Standing Water (2)	Channelized (2)	Meadow (4)	Scrubland (5)	1.25	8.5	1.25	Sandy Silt	None	None
3	Baseflow (3)	Dry (1)	Channelized (2)	Meadow (4)	Scrubland (5)	--	--	1.25	Sandy Silt	None	None
HDF4											
1	Freshet (1)	Interstitial Flow (3)	Channelized (2)	Scrubland (5)	Scrubland (5)	0.8	8	1	Sandy Silt	None	None
2	Spate (2)	Standing Water (2)	Channelized (2)	Scrubland (5)	Scrubland (5)	0.8	6	1	Sandy Silt	None	None
3	Baseflow (3)	Dry (1)	Channelized (2)	Scrubland (5)	Scrubland (5)	--	--	1	Sandy Silt	None	None

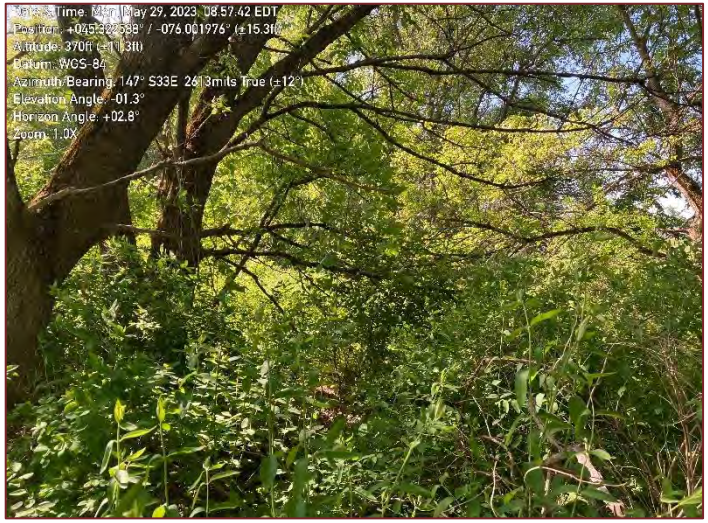
Table B.2
Summary of HDF Classification and Management Recommendations

HDF	Step 1		Step 2	Step 3	Step 4	Management Recommendation
	Hydrology	Modifiers	Fish Habitat	Terrestrial Habitat	Riparian Vegetation	
H1	Contributing- Ephemeral	None	Contributing	Limited	Limited -Cropped	Mitigation
H2	Limited	None	Contributing	Limited	Important - Scrubland	No Management Required
H3	Valued - Intermittent	None	Contributing	Limited	Important - Scrubland	Conservation
H3A	Valued - Intermittent	None	Contributing	Limited	Valued - Meadow	Mitigation
H3B	Contributing- Ephemeral	None	Contributing	Limited	Important - Scrubland	Conservation
HDF4	Contributing- Ephemeral	None	Contributing	Limited	Important - Scrubland	Conservation

ATTACHMENT C

Photolog

Site Photograph 1: Mixed Meadow (MEM).



Site Photograph 2: Fresh – Moist Lowland Deciduous Forest (FODM7).

Site Photograph 3: Open Agriculture (OAG).

Site Photograph 4: Meadow (ME).

Site Photograph 5: Upstream extent of HDF3 and Buckthorn Deciduous Shrub Thicket (THDM2-6).

Site Photograph 6: The vertical drain on-site.

Site Photograph 7: HDF1

Site Photograph 8: HDF2

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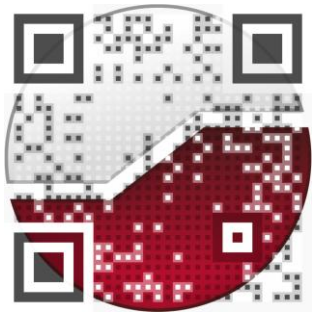
Site Photograph 9: Downstream extent of HDF3.

Site Photograph 10: HDF3A

Site Photograph 11: HDF3B

Site Photograph 12: HDF4

experience • knowledge • integrity



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

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