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MEMORANDUM

November 8, 2022 Reference No.: 20328

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RE: Terrestrial Ecosystem Existing Conditions and Impact Assessment for the Replacement of Old Fort Road (County Road 58) Overhead Bridge (Simcoe Structure #058086), County of Simcoe

1 INTRODUCTION

LEA Consulting Ltd. (LEA) has been retained by the County of Simcoe (the County) to undertake a detail design and Municipal Class Environmental Assessment (MCEA) study for the replacement of the Old Fort Road (Simcoe County 58) Overhead Bridge over the Trans Canada Trail (the trail) (abandoned CN Railway Line). The bridge crossing is approximately 300 m south of Highway 12, in the Township of Tay, near Port McNicoll, Ontario (Figure 1). The existing bridge structure consists of three (3) concrete slab spans (13.6 m, 13.7m, and 12.1 m) on a prestressed voided slab and reinforced concrete piers and abutments. The study is being conducted in accordance with Schedule B of the MCEA (October 2000, as amended in 2007, 2011 and 2015) process. The study will identify alternatives for the replacement of the bridge. The environmental impacts of each alternative will be evaluated and in consultation with the County, the public and external agencies and a technically preferred alternative will be selected for detail design.

This memorandum is being prepared to provide a summary of existing terrestrial ecosystem conditions within the study area and to evaluate project related impacts of the preferred alternative. Lastly, mitigation measures and strategies are presented to minimize impacts to the terrestrial ecosystem during project implementation.

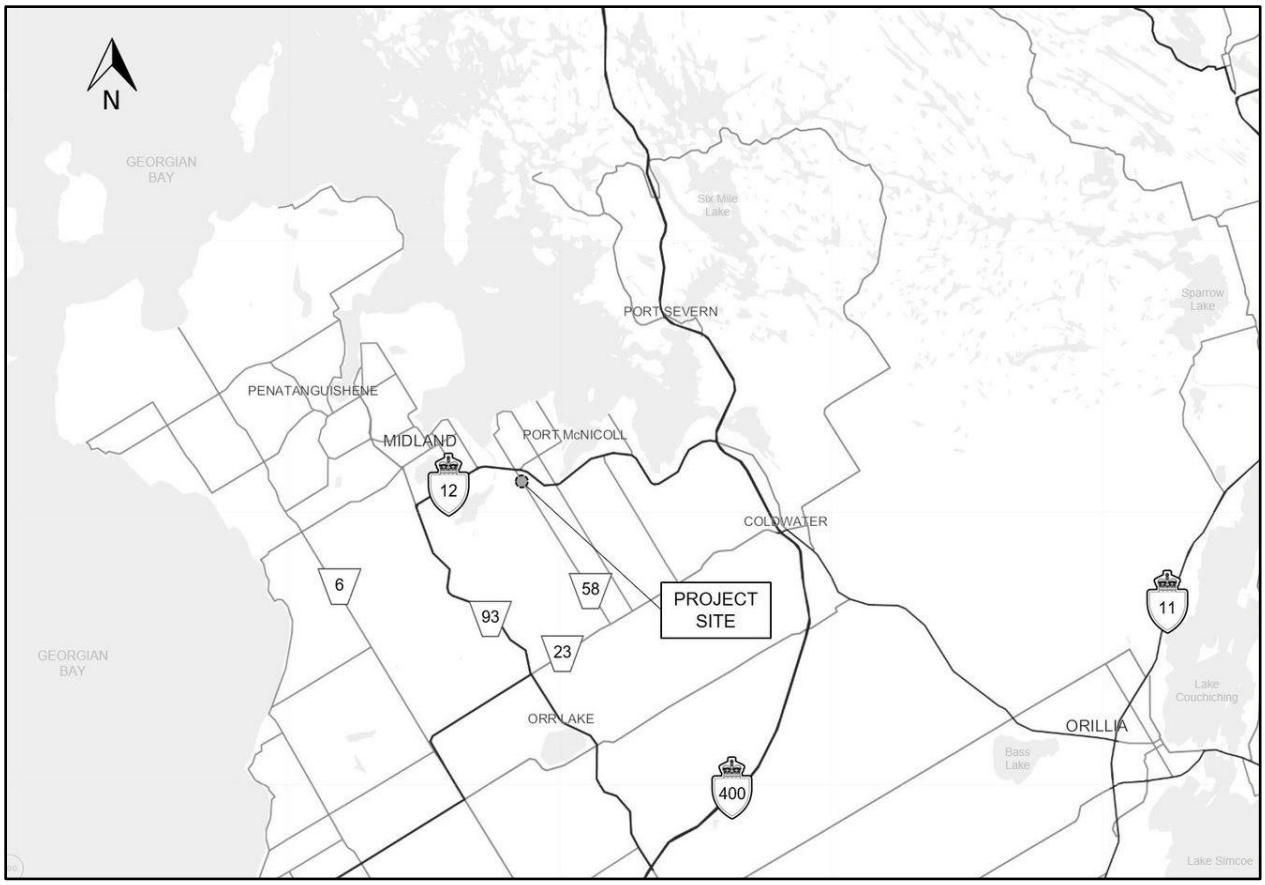

Figure 1. Project Location Key Map

2 STUDY AREA

The project study area for this evaluation is 120 m from the centroid of the bridge crossing (Figure 2). The study area is approximately 5.25 hectares (ha) in size and consists of residential properties, cultural meadows, thickets and small woodlots along the Trans Canada trail. The study area is within the jurisdiction of Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) Midhurst District. The study area is not within any conservation authority jurisdiction; however, the Severn Sound Environmental Association (SSEA) provides functional oversight of work and activities in the watershed. The SSEA is a Joint Service Board under the *Municipal Act* (Section 202). The SSEA "*provides continuing support to local municipalities, to sustain environmental quality and to ensure continued protection through wise stewardship of Severn Sound and its tributaries*" (SSEA, 2020).

3 FIELD INVESTIGATIONS

3.1 Vegetation Communities and Botanical Inventories

An assessment of vegetation communities and inventory of botanical species was undertaken during both a spring survey on May 19, 2020 and a summer survey on July 31, 2020. Where access was permissible,

botanical species were recorded and photographs were taken to document observations within the study area. The field survey program also examined the study area for the presence of rare and/or sensitive vegetation communities and/or species. Prior to the field survey the Natural Heritage Information Centre (NHIC) database was used to determine if rare species were present within or near the study area. Additionally, a tree inventory survey was completed by LEA staff on March 31 and April 1, 2020. General details regarding the tree inventory are presented below and a complete summary is provided under separate cover. Ecological Land Classification (ELC) delineation following the protocols and methods of Ecological Land Classification for Southern Ontario (Lee et al. 2008) was completed as part of the field survey program. In areas outside of the Right-of-Way (ROW) where access was not permitted, the community delineation was inferred from observation from the property line and from conditions and species present within the ROW. Following the inventory of botanical species, community assemblages and habitat characteristics were reviewed in the field to determine Land Classification Types likely to be present within the study area. Satellite aerial imagery was used to augment this assessment, where access was restricted outside of the ROW.

3.2 Wildlife Inventories and Significant Wildlife Habitat

Wildlife inventories were compiled based on incidental observations, including evidence of tracks and/or scat. Habitat was assessed for Significant Wildlife Habitat (SWH) attributes as per the Significant Wildlife Habitat Criteria Schedules (SWHCS) for Ecoregion 6E. The MNDMNRF defines SWH as ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System (MNR 2000; MNRF 2015). SWH is divided into four (4) main categories:

- Seasonal Concentration Areas of Animals;
- Rare Vegetation Communities and Specialized Habitat for Wildlife;
- Habitat for Species of Conservation Concern (excluding Endangered or Threatened species); and,
- Animal Movement Corridors.

To determine the existence of candidate SWH within the Natural Heritage System, the SWHCS identifies ecosites and/or natural features suitable for wildlife to carry our critical life processes (listed within the four (4) main categories described above). As the project study area falls within Ecoregion 6E (Lake Simcoe-Rideau Ecoregion), the SWHCS for Ecoregion 6E applies to determination of candidate SWH within the study areas. Confirmation of any SWH was not undertaken as part of this study, only candidate SWH is present below when it was determined to be potentially present.

4.3 Species at Risk

In Ontario, Species at Risk (SAR) are those species whose individuals or populations are considered Extirpated, Endangered, Threatened, or Special Concern, as determined by the provincial Committee on the Status of Species at Risk in Ontario (COSSARO), and are regulated by the provincial *Endangered Species Act*, 2007 (ESA). The federal *Species at Risk Act*, 2002 (SARA) is also applicable to SAR in Ontario; however,

federal agencies typically defer responsibility for SAR to the province unless the subject lands are federally-owned.

The potential for SAR and rare species to occur with the project study areas was determined based on the procedures and requirements outlined in the *MECP Client Guide to Preliminary Screening* (May 2019). As part of the preliminary screening process, information regarding SAR was gathered from Land Information Ontario (LIO) and the NHIC databases and through agency consultation. The preliminary screening process was used to determine the likelihood of SAR being present within the study areas and to determine if further consultation with the MECP is required to ensure compliance with the ESA. The focus of the field survey program was to determine the potential occurrence of SAR based on habitat conditions observed. No formal protocol or detection procedures were completed to evaluate and confirm the presence of any specific SAR or their habitat.

3.4 Photographic Record

A photographic record was compiled to capture the range of botanical species and other terrestrial ecosystem resources of interest or concern within the study areas. The photographic record is presented in **Appendix A**. A compiled list of wildlife observations is provided in **Appendix B**.

4 EXISTING CONDITIONS

The following provides a compiled synopsis of existing terrestrial ecosystem conditions based on a review of secondary source and background information and following the completion of a spring and summer field survey program.

5.1 Vegetation

The study area is located within Ecoregion 6E, this ecoregion is situated in the Lake Simcoe-Rideau Ecoregion Region. The Lake Simcoe-Rideau Ecoregion encompasses 6.4% of Ontario and extends from Lake Huron in the west to the Ottawa River in the east. The vegetation is diverse in this ecoregion and hardwood forests are generally dominated by Sugar Maple (*Acer saccharum*), American Beech (*Fagus grandifolia*), White Ash (*Fraxinus americana*) and Eastern Hemlock (*Tsuga canadensis*). Forests and woodlands often contain Green Ash (*Fraxinus pennsylvanica*), Silver Maple (*Acer saccharinum*), Red Maple (*Acer rubrum*), Eastern White Cedar (*Thuja occidentalis*), Yellow Birch (*Betula alleghaniensis*), Balsam Fir (*Abies balsamea*), and Black Ash (*Fraxinus nigra*).

Trees identified within the study area include Eastern White Cedar, Red Maple, Red Oak (*Quercus rubra*), Red Pine (*Pinus resinosa*), Trembling Aspen (*Populus tremuloides*), White Birch (*Betula papyrifera*) and Yellow Birch. Some shrubs observed include Red Osier Dogwood (*Cornus sericea*), Black Chokeberry (*Aronia melanocarpa*) and Staghorn Sumac (*Rhus typhina*).

Other frequently observed species within the study area include, Cattails (*Typha latifolia*) and Speckled Alder (*Alnus incana*). The observed conditions are well represented within the local area with low potential for rare or unique vegetation communities to exist.

An informal Ecological Land Classification survey was conducted during the field investigations to provide a better understanding of vegetation communities present within the study area. The findings of the ELC survey are summarized in Table 1 below and visualized in Figure 2.

Table 1. Ecological Land Classification within the Study Area.

Ecosite	Description	Size (ha)
CUM - Cultural Meadow	This ecosite is associated with the hydro corridor near the Trans Canada Trail south and southeast side of the bridge. This is a community with a tree and shrub cover less than or equal to 25% as a result of human disturbance. Grasses and herbs dominate the area. Some examples of vegetation present in these communities include but are not limited to: Canada Goldenrod, New-England Aster, Wild Carrot, Panicled Aster, Common Dandelion and Bird's-foot-trefoil.	0.19 ha
CVR_4 – Rural Residential	Residences found within the study area are low rise residential homes with larger rural properties. These properties also include small buildings such as sheds, small barns and other outbuildings consistent with rural properties. Many of these communities featured ornamental plant species and mature trees and shrub species. Other grasses and herbaceous species are also present. Some examples of vegetation present in these communities include but are not limited to: Canada Goldenrod, New-England Aster, Wild Carrot, Panicled Aster, Common Dandelion and Bird's-foot-trefoil.	1.61 ha
THD – Deciduous Thicket	This ecosite is present on both the east and west side of the Old Fort Road, north of the bridge. The ecosite is dominated by roadside vegetation adjacent to the road and deciduous shrubs beyond that. The deciduous cover is these areas is greater than 75%. Some species observed in the area include Common Buckthorn, Staghorn Sumac, Poison Sumac and young Ash trees. Roadside vegetation includes; Bird's-foot trefoil, Goldenrod sp., Spotted Knapweed, Riverbank Grape, Virginia Creeper, White Sweetclover and Wild Carrot. Invasive species such as Common Buckthorn, Purple Loostrife and Tartarian Honeysuckle were observed in these areas.	0.41 ha
WOM – Mixed Woodland	This ecosite is found along the side of the Trans Canada Trail on both the east and west side of the bridge. This ecosite is characterized by a mixture of both deciduous and coniferous species and are areas with a cultural legacy. Invasive species are present in these areas and include Common Buckthorn and Tartarian Honeysuckle. These observations were made in areas immediately along the trail.	2.25 ha

Generally, the ecosystem within the study area is heavily influenced by the Old Fort Road which runs north-south and the historical rail line which runs west-east through the center of the study area. Additionally, many of the properties within the study area and along Old Fort Road have agricultural influence and are either presently or were historically used for agricultural purposes. The property on the northeast corner of the study area is a landscape tree retailer. Within the broader ecosystem, the study area is located just east of the Wye River Marsh, a 3000 acre Provincially Significant Wetland (PSW). More information on Wetlands

can be found in Section 5.6 below.

5.1.1 Tree Inventory

A tree inventory was undertaken on March 31 and April 1, 2020 and included an area along the Trans Canada Trail 150 m west and east of the bridge. The results of the tree inventory reported the occurrence of 12 species and 512 trees within the surveyed area, the results of the inventory note that Trembling Aspen and Eastern White Cedar accounted for a large majority (44%) of the surveyed trees and that the most trees were considered to be in "Good" or "Fair" condition with only minor structural or health related defects. No tree SAR, such as Butternut (*Juglans cinerea*), were recorded during the survey. A separate memorandum has been prepared to summarize the tree inventory.

5.2 Avifauna

The Ontario Breeding Bird Atlas (OBBA) is based on breeding evidence codes assigned to bird sighting in individual 10 km x 10 km quadrants of the National Topographic System (NTS). Species are identified by point count surveys. The NTS square for the study area is 17NK95 within the Simcoe County region. The OBBA lists 121 bird species within the related square (17NK95) of the study area. Of note, the OBBA lists observation of Bank Swallow (*Riparia riparia*), Barn Swallow (*Hirundo rustica*), Bobolink (*Dolichonyx oryzivorus*), Cerulean Warbler (*Setophaga cerulean*), Chimney Swift (*Chaetura pelagica*), Eastern Meadowlark (*Sturnella magna*), King Rail (*Rallus elegans*) and Least Bittern (*Ixobrychus exilis)* with the square correlated with the study area. These species are all listed as *Threatened* with the exception of the King Rail which is listed as *Endangered* under the provincial ESA. Further information regarding Species at Risk is presented below in Section 5.7.

Although no formal point count surveys were conducted during the field surveys, several avian species were observed on site including; Black-Capped Chickadee (*Poecile atricapillus*), Blue Jay (*Cyanocitta genus*), Cardinal (*Cardinalis cardinalis*), Downy Woodpecker (*Picoides pubescens*), Eastern Phoebe (*Sayornis phoebe*), House Sparrow (*Passer domesticus*), Red-Wing Blackbird (*Agelaius phoeniceus*) and Wild Turkey (*Meleagris gallopavo*). No birds were noted to have been nesting on any part of the bridge structure during either the spring or summer surveys and no inactive or historical nests were observed on the bridge structure. Additionally, a twin Corrugated Steel Pipe (CSP) culvert structure north of the bridge was also confirmed to not provide habitat for nesting birds. One (1) nests (species unknown) was observed in a dead tree ~5 m south west of the bridge. The nest was inactive during the summer field survey. However, there is a potential for nesting birds to be present within trees and shrubs near the bridge structure. Lastly, it is likely that the varying habitat conditions (i.e. wetland areas shrub understory, mixed forest stands, etc.) as observed within and around the study area are likely to provide suitable foraging, mating, nesting and rearing habitat for a variety of bird species, including SAR.

5.3 Reptiles and Amphibians

The Ontario Reptiles and Amphibians Atlas (ORAA) reported 24 species of reptiles and amphibians within the 10 x 10 km square that corresponds with the study area. The species observed within the square

corresponding with study area include Blanding's Turtle (*Emydoidea blandingii*), Eastern Hog-nosed Snake (*Heterodon platirhinos*), Northern Map Turtle (*Graptemys geographica*) and Snapping Turtle (*Chelydra serpentina*).

Both the Blanding's Turtle and the Eastern Hog-nosed Snake are listed as threatened and are protected under the provincial ESA. The Northern Map Turtle and Snapping Turtle are listed as Species Concern; however, they are not afforded any formal protection under the provincial ESA.

Reptiles and amphibians commonly found in this ecoregion (6E) can include American Bullfrog (*Lithobates catesbeianus*), Northern Leopard Frog (*Lithobates pipiens*), Spring Peeper (*Pseudacris crucifer*), Red-Spotted Newt (*Notophthalmus viridescens*), Snapping Turtle, Eastern Gartersnake (*Thamnophis sirtalis*) and Northern Watersnake (*Nerodia sipedon*).

Other species that have been recorded within adjacent 10 x 10 km NTS squares include Dekays Brownsnake (*Storeria dekayi*), Green Frog (*Rana clamitans*), Midland Painted Turtle (*Chrysemys picta marginata*), Milksnake (*Lampropeltis triangulum*), Mink Frog (*Lithobates septentrionalis*), Pickerel Frog (*Lithobates palustris*), and Wood Frog (Lithobates sylvaticus).

Observed conditions and reported occurrence records indicate that habitat within the study area is likely present for a wide variety of reptile and amphibian species as noted above, including the likelihood that SAR and/or their specialized habitat occurs within the study area should they be locally present. The study area contains features such as rock barrens, rocky slopes and a permanent body of water which are necessary habitat components for many reptile species. One (1) Eastern Gartersnake was observed by LEA staff during the tree inventory survey on March 31, 2020. Given the early season observation there is a potential for snake hibernacula to occur within or nearby the study area. In particular, this individual was observed on the southwest side of the bridge where a large rocky slope was noted. There is a potential for this natural feature to be a hibernacula site (see Photo appendix). Other smaller rock features were also observed within the study area which may serve as basking sites. Additionally, the study area is within close proximity to a PSW, the Wye River Marsh which provides habitat for many species of reptiles and amphibians including SAR. The bridge is located east of this Natural Heritage System and ends at Highway 12.

5.4 Mammals

The Atlas of the Mammals of Ontario (Dobbyn, 1994) reports the potential occurrence of 37 species of mammals within the study area. All of these species are broadly distributed over Ontario and other parts of Canada. Representative fauna of the ecoregion (6E) include; White-tailed Deer (*Odocoileus virginianus*), Northern Raccoon (*Procyon lotor*), Striped Skunk (*Mephitis mephitis*), and Groundhog (*Marmota monax*).

INaturalist, a citizen science database managed by the NHIC, has reported the following additional mammals within a 10 km radius of the study area within the past two (2) years: American River Otter (*Lontra canadensis*), American Red Squirrel (*Tamiasciurus hudsonicus*), Groundhog, Eastern Chipmunk (*Tamias striatus*), Eastern Gray Squirrel (*Sciurus carolinensis*), North American Beaver (*Castor canadensis*), Northern Short Tailed Shrew (*Blarina brevicauda*) and Raccoon.

Two (2) Mammal species, Eastern Chipmunk and Eastern Grey Squirrel were noted during the field survey program. Additionally, several dens were observed along an embankment just outside of the study area. It is unclear which species these dens belong to. It is likely that observed habitat conditions within the study area provide some form of habitat for a wide variety of mammal species as noted above. Additionally, the study area may provide habitat for White-tailed Deer as White-tailed Deer Overwintering Yards (Stratum 1 and Stratum 2) are located within the Wye River Marsh area. The study area may also provide habitat for semi aquatic mammals such as American River Otter and American Mink along wetted ditches and a pond located in north west of the study area. However, this area is likely primarily used as a movement corridor for species to move between more specific habitat features.

5.5 Significant Wildlife Habitat

Under the Provincial Policy Statement (PPS), SWH is defined as natural heritage areas "*…where plants, animals, and other organisms live, and find adequate amounts of food, water, shelter, and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or non-migratory species*". Wildlife habitat is considered significant where it is: "*…ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System. Criteria for determining significance may be recommended by the Province, but municipal approaches that achieve the same objective may also be used*".

The Significant Wildlife Habitat Technical Guide defines Significant Wildlife Habitat (SWH) in four (4) categories:

1. Seasonal concentration areas are sites where large numbers of a species gather together at certain times of the year (i.e. to breed, migrate or winter), or where several species congregate.

2. Rare vegetation communities or specialized habitats are defined as separate components of Significant Wildlife Habitat. Rare vegetation communities are those that are considered rare (S1-S3) in the province. These habitats are generally at risk and may support plant or wildlife species that are considered significant. Specialized habitats are microhabitats that are critical to some wildlife species.

3. Habitat for Species of Conservation Concern are the habitats used by rare or declining species of conservation, which are defined as species listed as special concern on the Species at Risk Ontario (SARO) list and those that are provincially rare (S1-S3, SH).

4. Animal movement corridors are distinct passageways or defined natural features that are used by wildlife to move between habitats. Movement is usually in response to different seasonal habitat requirements. Movement corridors are identified once the related seasonal concentration areas or specialized habitats are confirmed as Significant Wildlife Habitat.

5.5.1 Candidate Significant Wildlife Habitat

A review of the background data suggests that the following SWH types may occur in association with woodland and wetland communities within the study areas.

Bat Maternity Colonies

There is a potential for Bat Maternity Colonies to be present in the southwest corner of the study area where Mixed Forest is present. There are several mature trees which may present suitable habitat for roosting bat species.

Special Concern and Rare Wildlife Species

Significant wildlife habitat for species of special concern and rare wildlife species does not include species whose habitats are already protected by ESA. Presence was determined by observations recorded in the OBBA and ORRA databases. It should be noted that none of the following species were observed on site during field investigations. A list of the species considered for this determination include:

- Black Tern (*Chlidonias niger*);
- Canada Warbler (*Cardellina Canadensis*);
- Eastern Wood-Pewee (*Contopus virens*);
- Golden Winged Warbler (*Vermivora chrysoptera*);
- Olive-sided Flycatcher (*Contopus cooperi*);
- Red-headed Woodpecker (*Melanerpes erythrocephalus*);
- Wood Thrush (*Hylocichla mustelina*);
- Northern Map Turtle (*Graptemys geographica*); and
- Snapping Turtle (*Chelydra serpentina*).

5.6 Wetlands

The Wye River Marsh is a 3,000 acres PSW located to the east of the study area. The Wye River Marsh is an Area of Natural and Scientific Interest (ANSI) and a Provincial Wildlife Area. Additionally, the wetland is a designated Important Birding Area, notably the Wye River Marsh is the location of the provincial reintroduction program for the Trumpeter Swan. The Marsh is also an important area for reptile and amphibians including SAR. The area is primarily cattail marsh with some fen areas, there is also a small amount of coniferous swamp and deciduous forests. The center of the marsh is an area of open water known as Mud Lake. This wetland is a critical and significant component of the natural heritage system.

5.7 Species at Risk

Table 2 below provides a summary of terrestrial SAR that may be present within or adjacent to the study area. The species list was compiled based on a review of secondary source and background information. Where appropriate, information and results of the field survey program are provided. The probability of

habitat/occurrence of individual species within the study area is a general interpretation, intended to provide guidance only as formal surveys during the appropriate seasons were not undertaken as a part of this assignment.

Table 2. Summary of Species at Risk Potential Within the Study Area.

Species Name, Status (SARA[1], ESA[2], S-Rank[3]), and Data Source[4]	Preferred Habitat	Probability of Habitat/Occurrence within the Study Area
AVIFAUNA		
Bank Swallow (*Hirundo rustica*) SARA: Threatened ESA: Threatened S-Rank: S4B Source: ABBO	Bank Swallows nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. Many nests are on banks of rivers and lakes, but they are also found in active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs (MECP 2019).	**Low** – Bank Swallow have been detected within the 10 x 10 km OBBA square corresponding with the study area (NTSNK95). However, the probability of the species being present with the study area is low due to lack of suitable habitat.
Barn Swallow (*Hirundo rustica*) SARA: Threatened ESA: Threatened S-Rank: S4B Source: ABBO	Often found feeding in a range of open habitats including fields, marshes, meadows, and ponds. They primarily use man-made structures such as building, bridges, and culverts for nesting (COSEWIC 2011a).	**Low** – Barn Swallow have been detected within the 10 x 10 km OBBA square corresponding with the study area (NTS 17NK95). The probability of this species occurring and breeding within the study area is low due to lack of nesting habitat. The only potentially suitable nesting habitat for Barn Swallow would be on the bridge itself which was visually inspected for any active or historical nests; none were observed.
Bobolink (*Dolichonyx oryzivorus*) SARA: Threatened ESA: Threatened S-Rank: S4B Source: ABBO	Bobolink nest primarily in forage crops, hayfields and pastures are their preferred habitat. Bobolink also occur in wet prairie, graminoid peatlands and abandoned fields dominated by tall grasses, no-till cropland, small-grain fields, and reed beds. This species does not generally occupy fields of row crops or pastures with high shrub density or intensively grazed pastures (COSEWIC 2010a).	**Low** – Bobolink have been detected within the 10 x 10 km OBBA square corresponding with the study area (NTS 17NK95). The probability of this species occurring and breeding within the study area is low due to lack of suitable habitat. Bobolink prefer to nest in prairies, grasslands and agricultural areas. In particular, they prefer to nest in tall grass areas which were not present within the study area.
Cerulean Warbler *(Setophaga cerulea)* SARA: Threatened ESA: Threatened S-Rank: S4B Source: ABBO	Cerulean Warblers nest and spent the duration of the summer in mature, deciduous forests with large, tall trees and an open under story (MECP 2019).	**Low/Moderate** – Cerulean Warblers have been detected within the 10 x 10 km OBBA square corresponding with the study area (NTS 17NK95). There is a potential for Cerulean Warbler to be present in the southwest corner of the study area where Mixed Forest (FOM) was observed. This area has a large stand of mature trees with little to no understory which may provide suitable habitat for Cerulean Warbler.

Species Name, Status (SARA[1], ESA[2], S-Rank[3]), and Data Source[4]	Preferred Habitat	Probability of Habitat/Occurrence within the Study Area
Chimney Swift *(*Chaetura pelagica*)* SARA: Threatened ESA: Threatened S-Rank: S4B Source: ABBO	Chimney Swift requires a vertical cavity for nesting and roosting, with an interior surface that is porous but stable, and to which swifts can cling and attach their nests. Prior to European settlement in the late 17th and 18th centuries, Chimney Swift mainly nested and roosted inside large hollow trees (living or dead) and occasionally on cave walls and in rocky crevices (COSEWIC 2018).	**Very Low** – Chimney Swift have been detected within the 10 x 10 km OBBA square corresponding with the study area (NTS 17NK95). However, no suitable habitat for Chimney Swift were observed during the field surveys. There may be some suitable trees for Chimney Swift to nest in in the southwest corner of the study area (FOM) or some houses or outbuildings with chimneys which may be suitable for nesting/roosting; however, none were directly observed during the field surveys.
Eastern Meadowlark (*Sturnella magna*) SARA: Threatened ESA: Threatened S-Rank: S4B Source: ABBO	A bird most common in native grasslands, pastures and savannahs. It also uses a wide variety of other anthropogenic grassland habitats. As with other grassland bird species, the suitability of grassland habitat for this species involves a combination of landscape and patch characteristics (COSEWIC 2011b).	**Low** – Eastern Meadowlark have been detected near or within the study area (NTS 17NK95). The probability of this species occurring and breeding within the study area is low. Eastern Meadowlark prefer to nest in prairies, grasslands and agricultural areas. In particular, they prefer to nest in tall grass areas which were not present within the study area.
King Rail (*Rallus elegans)* SARA: Endangered ESA: Endangered S-Rank: S2B Source: ABBO	King Rails are found in a variety of freshwater marshes and marsh-shrub swamp habitats. The species occurs in areas where wild rice grows but also in sedge and cattail marshes. Most importantly, the species requires large marshes with open shallow water that merges with shrubby areas (COSEWIC 2008).	**Low** – King Rail have been detected near or within the study area (NTS 17NK95). King Rail detected nearby the study area likely breed at the nearby Wye River Marsh and associated wetland areas where there are more permanent waterbodies and suitable vegetation. It is unlikely that King Rail are present within the study area.
Least Bittern *(Ixobrychus exilis)* SARA: Threatened ESA: Threatened S-Rank: S4B Source: ABBO	Least Bitterns breed strictly in marshes of emergents (usually cattails, Typha spp.) that have relatively stable water levels and interspersed areas of open water (COSEWIC 2009).	**Low** – Least Bittern have been detected near or within the study area (NTS 17NK95). Least Bittern detected nearby the study area likely breed at the nearby Wye River Marsh and associated wetland areas where there are more permanent waterbodies and suitable vegetation. It is unlikely that Least Bittern are present within the study area.
MAMMALS		
Little Brown Myotis (*Myotis lucifugus*) SARA: Endangered ESA: Endangered S-Rank: S3 Source: AMO, BCI	Roosts in tree cavity, including small spaces or crevices found in loose bark, hollow trees, rock faces and human structures such as attics, walls and bat boxes. Hibernates in caves and abandoned mines during the winter months. Typically forages over water with surrounding open habitat (COSEWIC 2013b).	**Low** - There have been no recent or nearby sightings of Little Brown Myotis in relation to the study area. Observations of bat species typically occur during hibernation and are limited due to their nocturnal and elusive nature. Therefore, sightings alone are difficult to use as a determination of the presence or absence of this and other bat species. Although the range for the Little Brown Myotis does extend across nearly all of Ontario it is more commonly found in Southern Ontario. The species has been observed in a great variety of habitats, including all forest types. Although there is no data of the species being present within or near the study area, due to the potential for habitat and given that the study area is within the species range there is a low probability that the species is present within the area.

Species Name, Status (SARA[1], ESA[2], S-Rank[3]), and Data Source[4]	Preferred Habitat	Probability of Habitat/Occurrence within the Study Area
Northern Myotis (*Myotis septentrionalis*) SARA: Endangered ESA: Endangered S-Rank: S3 Source: AMO, BCI	Roosts in usually decaying tree cavity, including small spaces or crevices found in loose bark, hollow trees, rock faces and human structures such as attics, walls and bat boxes. Hibernates in caves and abandoned mines during the winter months. Typically forages for primarily terrestrial insects (COSEWIC 2013b, Environment Canada 2015b).	**Low** - There have been no recent or nearby sightings of this species. Lack of data for bat species is common due to the nocturnal and elusive nature of the species. This species also spends most of the year, eight months in hibernation making it even more rare to observe. However, due to the rare nature of this species the probability that it occurs within the study area is low.
Tri-colored Bat (*Perimyotis subflavus*) SARA: Endangered ESA: Endangered S-Rank: S3 Source: AMO, BCI	Roosting habitat includes large trees, dead clusters of leaves or arboreal lichens on trees. Barns or similar structures may also be used. Foraging occurs over water and along forest streams. Caves and mines that remain above 0˚C provide overwintering habitat (COSEWIC 2013b, MNRF 2018a).	**Low** - There have been no recent or nearby sightings of this species. This species is found in southern Ontario and as far north as Espanola near Sudbury. Because it is very rare, it has a scattered distribution. Due to the rare nature of this species the probability that it occurs within the study area is low.
REPTILE AND AMPHIBIANS		
Blanding's Turtle (*Emydoidea blandingii*) Great Lakes – St. Lawrence population SARA: Endangered ESA: Endangered S-Rank: S3 Source: ORAA	Prefers high nutrient organic wetlands with slow flow, shallow water and dense aquatic vegetation. Upland habitat is used as travel corridors and hatchling dispersal. Females nest in substrates including sand, organic soil, gravel and cobblestone. Overwintering occurs in a variety of habitats, generally with pools averaging 1 m deep (COSEWIC 2016b).	**Low** – Blanding's Turtle have been detected near or within the study area (NTS 17NK42). The most recent observation was in 2018. Given that there are no areas of open water within the study area it is unlikely that they are present. It is likely that Blanding's Turtles found within 17NK95 are present near the Wye River Marsh and associated wetland areas.
Eastern Hog-nosed Snake (*Emydoidea blandingii*) Great Lakes – St. Lawrence population SARA: Threatened ESA: Threatened S-Rank: S3 Source: ORAA	The Eastern Hog-nosed Snake specializes in hunting and eating toads, and usually only occurs where toads can be found. Eastern Hog-nosed Snakes prefer sandy, well-drained habitats such as beaches and dry forests where they can lay their eggs and hibernate. They use their up-turned snout to dig burrows below the frost line in the sand where eggs are deposited.	**Low** – Eastern Hog-nosed Snake have been detected near or within the study area (NTS 17NK42). Although, there is suitable habitat for the Eastern Hog-nosed Snake within the study area. No Eastern Hog-nosed Snakes have been observed within the study area since 2004. Additionally, no sightings have been recorded of the Eastern Hog-nosed Snake on iNaturalist.

[1] *Species At Risk Act, 2002* (SARA).
[2] *Endangered Species Act, 2007* (ESA).
[3] S1 - Extremely rare throughout its range in the province; S2 - Rare throughout its range in the province; S3 - Uncommon or vulnerable species; S4 - Apparently Secure Species; S5 - Secure Species; SX - Extirpated; B - Breeding; N - Non-breeding; ? – Uncertainty; BH – Historical Breeder
[4] NHIC - Natural Heritage Information Centre; ABBO - Atlas of the Breeding Birds of Ontario; AMO - Atlas of Mammals of Ontario; BCI - Bat Conservation International; ORAA - Ontario Reptile and Amphibian Atlas.

5 SUMMARY OF PROPOSED WORKS

The purpose of this project is to address the deterioration of existing bridge components such as the concrete girders, pier caps, expansion joints, handrails and barrier walls. These observations indicate severe structural deficiencies, particularly bearing cracks of the girders. Additionally, this proposed works will include the replacement of twin 800 mm CSP culvert located on the north side of the bridge under Old Fort

Road. The culverts will be a 'like-for-like' replacement and will include riverstone erosion protection at the inlet and outlet.

The preferred alternative is for the replacement of the existing 26 m span bridge with a 30 m span bridge. The new bridge will have a concrete deck on steel girders and semi-integral abutments supported on spread footings. The bridge replacement alternative was selected as it minimizes environmental factors and constructability issues, has a relatively short construction period, and minimizes the potential for property/entrance impacts.

The new bridge structure will incorporate the following details:

- 30 m single-span bridge, with 32° skew to the centreline of the Trans Canada Trail;
- The new profile consists of a -2.59% grade;
- The vertical profile is lowered by 0.9 m to reduce the clearance over the Trans Canada Trail;
- Two (2) x 3.5 m wide traffic lanes with 1.5 m wide shoulders between inside faces of the parapet walls on the replacement bridge;
- 300 mm wide parapet walls with steel railing on the outside of the shoulders;
- Superstructure consists of four (4) lines of steel girders made composite with a 225 mm thick cast-in-place reinforced concrete deck slab, and 90 mm waterproofing and asphalt overlay;
- Semi-integral abutments, each consisting of 1.2 m reinforced concrete wall;
- Each abutment will be supported on spread footings founded on the very dense shallow till layer;
- 5.5 m and 6 m long wingwalls/approach slabs on the north and south approach respectively;
- Embankment slopes will be constructed at 2:1; and
- Guide rail replacement and safety improvements will be undertaken.

Within the project limits, no entrances will be re-graded as a result of the profile lowering. Roadside safety improvements include the elimination of the crest curve at the bridge to improve sight line distances and upgrades to guiderails.

Construction staging will be provided within the existing Old Fort Road roadway with a complete road closure in effect. Traffic will be temporarily detoured for the duration of construction.

6 ASSESSMENT OF IMPACTS

The following provides an interpretation of impacts resulting from the proposed design as presented above with respect to the terrestrial ecosystem. The evaluation of impacts includes an assessment of both temporary and permanent impacts. Impacts can either be direct or indirect and related to physical construction activities or works related to staging and/or access.

Temporary impacts include those that through the application of mitigation measures or implementation of operational constraints during active construction are of short duration and not expected to result in any residual long-term negative impacts. The severity of these impacts is anticipated to be further minimized following restoration, where such initiatives are fully intended to restore post-construction conditions to near or better than conditions as evaluated for this project.

Permanent impacts include those that directly alter the environment, primarily through footprint encroachment. These footprint impacts results from the enlargement of the transportation facility and associated roadway infrastructure.

The assessment of impacts as presented below largely reflect anticipated footprint impacts of the proposed works relative to the interpreted sensitivity of the impacted area.

6.1 POTENTIAL TERRESTRIAL ECOSYSTEM IMPACTS

6.1.1 Potential Impacts to Natural Features and Vegetation

The replacement of the bridge will require the removal of a few select trees immediately adjacent to the existing bridge to facilitate access, erection of temporary protection systems, demolition of the existing bridge and for construction of the new bridge. Additionally, several trees, shrubs, grasses and herbaceous species will be removed to provide appropriate access to the culvert to accommodate its replacement. All proposed works will take place within the ROW. Trees likely to be impacted include common species such as Common Buckthorn, Eastern White Cedar, Norway Spruce, Trembling Aspen and White Ash. These are all common hedgerow tree species which were determined to be in “Good” to “Fair” health during the tree inventory survey.

6.1.2 Potential Impacts to Wildlife and Wildlife Habitat

Candidate SWH that has the potential to occur in the study area are not anticipated to be impacted as a result of the proposed works.

6.1.3 Potential Impacts to Species at Risk

Thirteen (13) SAR, five (5) listed as Endangered and eight (8) listed as Threatened under the provincial ESA. As well as nine (9) species of Special Concern have been noted as potentially present within the study area. None of these species have been observed within the study area and the potential for occurrence within the study area is low-moderate. Core habitat features for SAR is not present within the direct area of impact and therefore impacts to these species and/or their habitat are not anticipated.

6.1.4 Potential Impacts to Migratory Nesting Birds

Species protected under the federal *Migratory Birds Convention Act* (MBCA 1994) are present in the study area. Destruction and disturbance of active nests (with eggs or young birds) as well as wounding and/or killing species protected under the MBCA is prohibited under this federal legislation. No bird nests active or historical were observed under the bridge during field surveys. As mentioned above, one nest was observed in a tree approximately 5m away from the bridge within the removal limits. Mitigation recommendations

are included below to prevent disturbance to migratory birds during the breeding season (April 1 – August 31).

7 MITIGATION RECOMMENDATIONS

The following mitigation measures and environmental protection recommendations are provided and are typical for projects of this nature. Refinement of the mitigation strategy should be undertaken as the design progresses. The intent of presenting these recommendations is to inform the detail design process, specifically constructability planning, staging and access requirements and scheduling of operations. Where applicable, recommendations should follow applicable Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD).

7.1 EROSION AND SEDIMENT CONTROL

- Design and implement standard Erosion and Sediment control (ESC) measures, consistent with OPSS and OPSD, to contain/isolate the construction zone, manage site drainage/runoff and prevent erosion of exposed soils and migration of sediment.
- ESC measures to be implemented prior to commencement of works, and maintained through all phases of the project, until vegetation is re-established, and/or disturbed ground is permanently stabilized.

7.2 TERRESTRIAL ECOSYSTEM

7.2.1 Vegetation

- Create designated access/egress and select staging areas to minimize disturbance to vegetation.
- Prevent bringing new invasive species to the site by washing down equipment prior to transporting to site and limiting travel of equipment and vehicles to and from the project site.
- Limit soil erosion and spread of invasive plant species during rehabilitation through installation of silt fencing around work areas and post-construction through active re-vegetation and encouragement of natural re-vegetation/re-colonization.
- Re-vegetate cleared or heavily disturbed ground with native plant species that are representative of the native communities within the study area.
- Minimizing dust production to the extent practical by implementing dust suppression methods and thereby minimizing the zone of influence. Primary dust suppression methods can include road watering in cases where watering will not promote entry of chemicals into nearby wetlands or waterways.
- Reducing greenhouse gas emissions by minimizing transportation needs and increasing fuel use efficiency and thereby decreasing fuel consumption. Minimize the number of vehicles travelling to site. Turn off vehicles when not in use. Maintaining site equipment and vehicles in good working order through regular preventative maintenance.

7.2.2 Wildlife

- Inclusion of wildlife awareness information into regular safety and environmental inductions performed on site. Workers and contractors should be made aware of seasonal changes in wildlife behaviour or presence in proximity to the study area.
- Vegetation clearing, and grubbing should occur outside of the breeding season (April 1 to August 31) to limit the chance of disturbing nesting migratory birds.
- If vegetation clearing or grubbing occurs during the breeding season, this activity shall be preceded by a bird nest survey conducted by a Qualified Biologist to ensure no active nests (with eggs or young) are disturbed.
- Installation and maintenance of wildlife fencing to provide a physical barrier and to prevent the entry of wildlife, particularly snakes and turtles, into the active work area. Installation should be undertaken prior to the active season (April – October).
- Minimize sources of unnecessary noise or encroachment of worker activities into nearby forests or wetlands in order to limit the extent of the project zone of influence when possible.
- All heavy equipment and tools used on-site shall be maintained in good working condition, including the use of appropriate noise-suppression devices.
- Wildlife incidentally encountered during construction shall not knowingly be harmed and shall be allowed to move away from the construction area on its own.

8 LEGISLATIVE CONTEXT

8.1 PROVINCIAL POLICY STATEMENT

The Provincial Policy Statement (PPS) (2014), issued under Section 3 of the *Planning Act* (R.S.O 1990, as amended May 30, 2017), sets a policy foundation for regulating the development and use of land in Ontario. It provides direction on matters of provincial interest and supports the enhancement of the quality of life for all citizens of Ontario, while still maintaining environmental integrity.

The PPS recognizes the need to protect natural heritage features and areas for the long term. It also recognizes that the diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved. The PPS also recognizes linkages between and among natural heritage features and areas, surface water features and groundwater features.

Where there is the potential presence of natural heritage features of provincial significance, Section 2.1.5 of the PSS denotes development and site alteration shall not be permitted in the following areas unless it has been demonstrated that there will be no negative impacts on the natural heritage feature or its ecological functions:

- Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
- Significant woodlands in Ecoregions 6E and 7E;

- Significant valley lands in Ecoregions 6E and 7E;
- Significant wildlife habitat;
- Significant Areas of Natural and Scientific Interest (ANSI); and,
- Coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4 (b)

The PPS also provides the following with respect to protection of natural heritage components:

> Section 2.1.6 states that development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.
>
> Section 2.1.7 states that development and site alteration shall not be permitted in habitat of endangered species and threatened species except in accordance with provincial and federal requirements
>
> Section 2.1.8 states that development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, 2.1.6 and 2.1.7 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on the ecological functions.

Under the PPS, site alteration "*…means activities, such as grading, excavation and the placement of fill that would change the landform and natural vegetative characteristics of a site*." The Ontario Natural Heritage Reference Manual for the PPS defines adjacent lands as:

- 120 m from Provincially Significant Wetlands (PSW);
- 50 m from significant woodlands, significant valley lands, significant wildlife habitat, significant portions of habitat for threatened or endangered species;
- Significant ANSIs; and,
- 30 m from fish habitat.

8.1.1 Applicability to the Project

No SWH has been confirmed to be present within or near the study area. Only candidate SWH has been identified as potentially present within the study area, additionally there are no anticipate impact to candidate significant wildlife habitats present.

8.2 ENDANGERED SPECIES ACT, 2007

The ESA protects habitat and individuals of wildlife species designated as Threatened, Endangered, or Extirpated in Ontario. Provincial SAR are identified and assessed by the Committee on the Status of Species at Risk in Ontario (COSSARO).

The ESA protects species listed as threatened, endangered, or extirpated on the SAR in Ontario list by prohibiting anyone from killing, harming, harassing or possessing protected species. The ESA also prohibits damage or destruction to the habitat of the listed species.

All listed species are provided with general habitat protection under the ESA, which is aimed at protecting areas that species depend on to carry out their life processes, such as reproduction, rearing, hibernation, migration or feeding. Some species have detailed habitat regulations that go beyond the general habitat protection to define specifically the extent and character of protected habitats.

Activities that may impact a protected species or its habitat require the prior issuance of a permit from the Ontario Ministry of Environment, Conservation and Parks (MECP), unless the activities are exempted under Regulation. The current Ontario Regulation (O. Reg.) 242/08 identifies activities that are exempt from the permitting requirements of the ESA, subject to rigorous controls outside the permit process including registration of the activity and preparation of a mitigation plan. Activities not exempt under O. Reg. 242/08 require a complete permit application process through the MECP.

The ESA applies on all private and Crown lands in Ontario. Habitat protection under the ESA is typically comprehensive, including all habitats that directly or indirectly support SAR throughout its life cycle.

8.2.1 Applicability to the Project

Thirteen (13) species that are listed under the ESA have the potential to be present within the study area. Eight (8) are listed as Threatened and five (5) are listed as Endangered. None of these species are likely to occur within the study area but all have to potential to be present. All of these species have important and/or critical habitat features which would be protected under the ESA. Project footprint alterations as a result of the work are not anticipated to impact SAR.

8.3 MIGRATORY BIRDS CONVENTION ACT, 1994

The *Migratory Birds Convention Act* (S.C. 1994, c.22) (MBCA) regulates the protection and conservation of migratory birds as populations and individuals and also protects their nests. The MBCA applies to any areas that provide potential for nesting habitat of migratory birds. Section 6 of the Migratory Bird Regulations made under the MBCA states that "*…no person shall disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird except under authority or permit*". Environment and Climate Change Canada (ECCC) is charge with the development and implementation of policies and regulations to ensure the protection of migratory birds, their eggs and their nests.

9 CLOSURE

The focus of this *Terrestrial Ecosystem Memorandum* is to provide a summary of the existing terrestrial habitat conditions and to identify constraints and sensitivities within the study area. The intent of the report is to summarize existing conditions, evaluate and interpret project specific impacts of the most current

design, provide recommendations for mitigation and environmental protection, and to outline permit/approval requirements.

The study area can be broadly characterized by coniferous and deciduous forests, rural residential properties and marsh/wetland areas. As anticipated, areas within the ROW where impacts are expected include a species assemblage that typifies degraded soil conditions, where disturbance and fragmentation permit the growth and establishment of tolerant species including non-native species.

Across the study area several SAR were determined to be potentially present based on secondary source information. No SAR were observed within the study area during field surveys. Based on the characterization of habitat conditions within the study area, SAR are not anticipated to be impacted as a result of the project.

Within this report, mitigation strategies to protect the natural environment including vegetation and wildlife, have been developed to ensure project works do not impact habitat and individuals.

We trust that this *Terrestrial Ecosystem Memorandum* provides a level of detail and technical documentation to meet the requirements of the Municipal Class EA process. Should you *have* any questions or concerns regarding information presented in this report please contact the undersigned.

Should you have any questions or concerns related to the information provided above, please do not hesitate to contact the undersigned.

Yours truly,

LEA CONSULTING LTD.

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Enclosure:

- Figure 2 – Ecological Land Classification Map
- Appendix A – Photographic Record
- Appendix B – Compiled Species List

Legend:

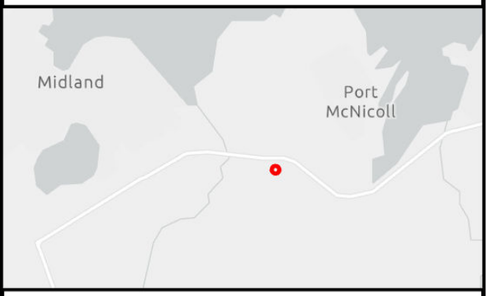
- Culvert Location
- Study Area
- National Wildlife Area
- Watercourse

Provincially Significant Wetland

- No
- Yes

ELC Communities

CUM	Cultural Meadow
CVR_4	Rural Residential
THD	Deciduous Thicket
WOM	Mixed Woodlot



Scale:

0 0.02 0.04 0.09 km

Title:

Old Fort Road Bridge Rehabilitation

Project No.:	Figure No.:
20328	1
Department:	Date:
Environmental	2022-09-02

APPENDIX A

Photographic Record

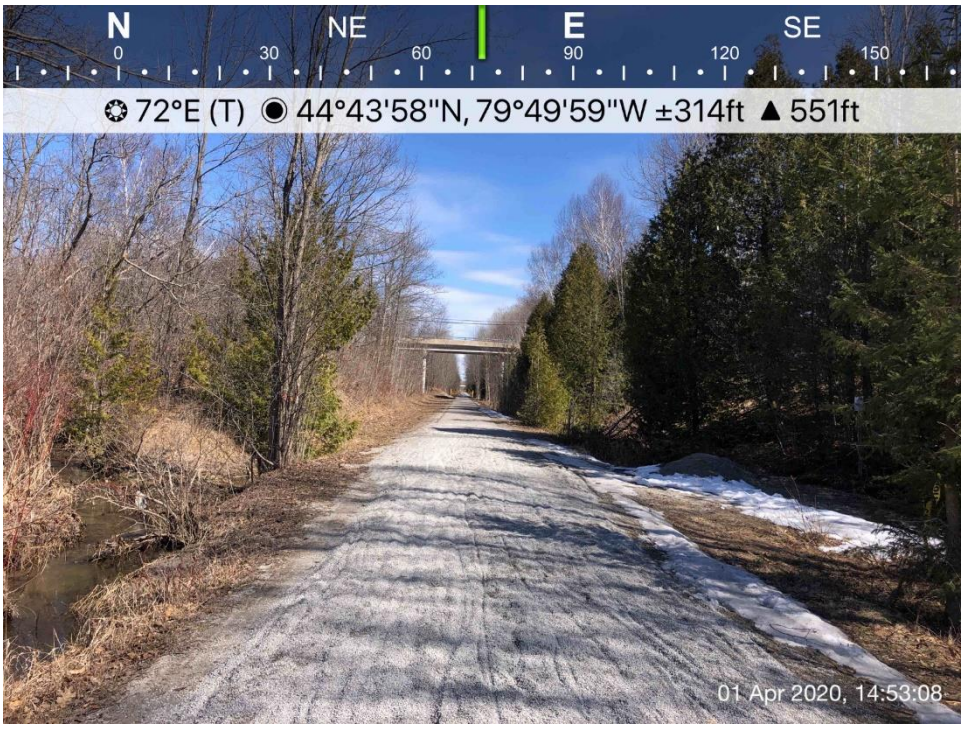


Photo 1: Photo of the Trans Canada Trail facing East. April 1, 2020.

Photo 2: Photo of ditchline located along the south side of the Trans Canada Trail west of the bridge. April 1, 2020.

Photo 3: Photo of the ditchline along the north side of the Trans Canada Trail on the west side of the bridge. April 1, 2020.

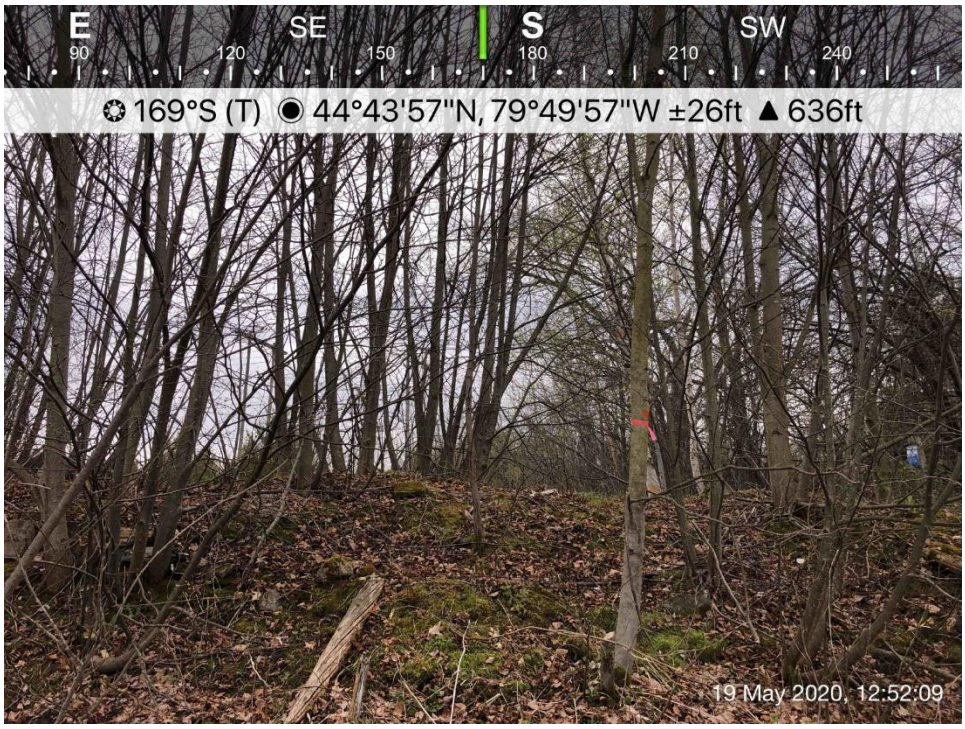


Photo 4: Mixed Woodlot (WOM) located on the south side of the Trans Canada Trail west of the bridge. April 1, 2020.

Photo 5: Evidence of Beaver activity within the study area. May 19, 2020.

Photo 6: Photo taken from the north side of the bridge facing south. July 31, 2020.

Photo 7: Photo taken from the north side of the bridge facing west towards Mixed Woodlot (WOM). July 31, 2020.

Photo 8: Photo taken under the north side of the bridge. No nests active or historical were observed. July 31, 2020.

Photo 9: Photo taken under the north side of the bridge. No nests active or historical were observed. July 31, 2020.

Photo 10: Photo taken facing the south side of the bridge. No nests active or historical were observed. July 31, 2020.

Photo 11: Photo taken from the Trans Canada Trail facing east away from the bridge. July 31, 2020.

Photo 12: Photo of a side trail located on the north side of the Trans Canada. July 31, 2020.

Photo 13: Mixed Woodlot (WOM) located within the study area. July 31, 2020.

Photo 14: Photo taken from the Trans Canada Trail facing west towards the bridge. July 31, 2020.

Photo 15: Photo taken facing west from the top of the bridge. July 31, 2020.

Photo 16: Photo of Rural Residential Property (CRV_4) located in the southwest corner of the study area. July 31, 2020.

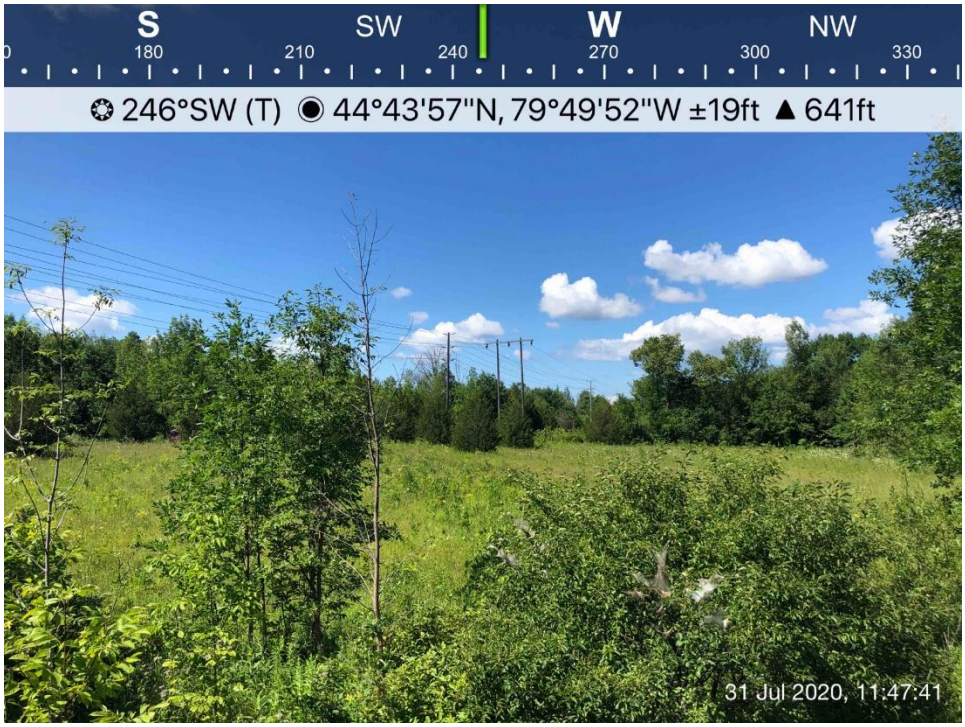


Photo 17: Photo of Hydro Corridor on the south side of the study area. July 31, 2020.

Photo 18: Rural Residential property on the southeast side of the study area. July 31, 2020.

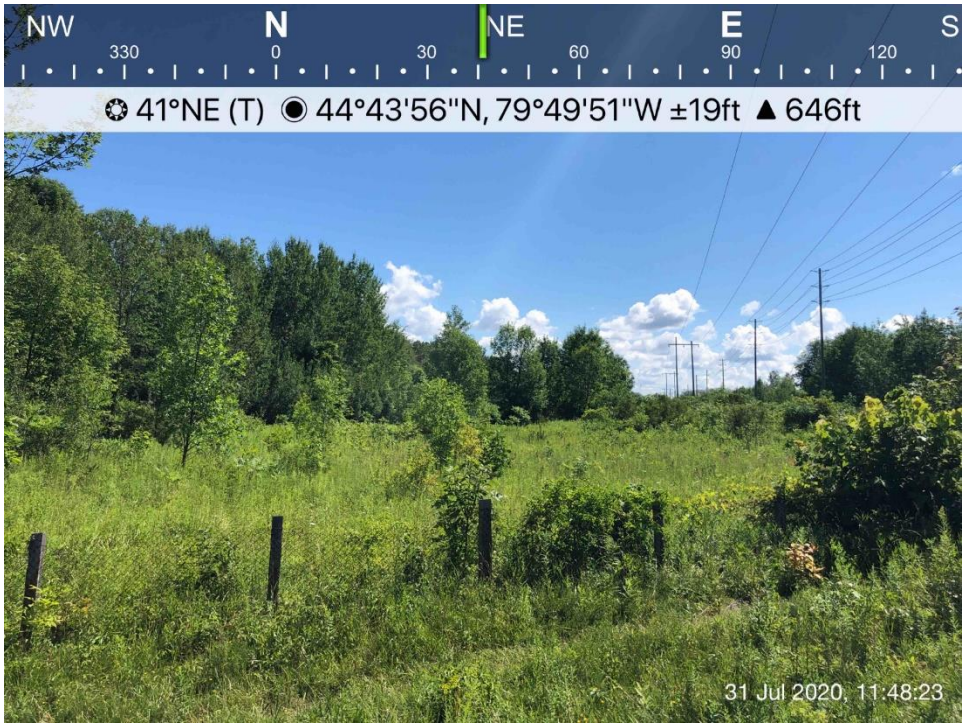


Photo 19: Photo of Hydro Corridor on the south side of the study area. July 31, 2020.

Photo 20: Photo of Hydro Corridor on the south side of the study area. July 31, 2020.

Photo 21: Photo taken facing east down the Trans Canada Trail. July 31, 2020.

Photo 22: Rural residential/Commercial property (CVR_4/CVC) located on the northeast side of the study area. July 31, 2020.

APPENDIX B

Compiled Species List

APPENDIX B

Table 1 – Vegetation Species Observed

Species Name	Species Name	Coefficient of Conservatism	Coefficient of Wetness	Invasive – Yes/No	Provincial Status (S-Rank)	National Status (N-Rank)	ESA Status	SARA Status
Acer negundo	Manitoba Maple	0	0	Y	S5	N5		
Alnus incana	Grey Alder	6	-3		S5	N5		
Anemonastrum canadense	Canada Anemone	3	-3		S5	N5		
Asclepias syriaca	Common Milkweed	0	5		S5	N5		
Centaurea stoebe	Spotted Knapweed	0	5		SE5	NNA		
Cichorium intybus	Wild Chicory	0	3		SE5	NNA		
Convolvulus arvensis	Field Bindweed	0	5		SE5	NNA		
Cornus sericea	Red-osier Dogwood	2	-3		S5	N5		
Daucus carota	Wild Carrot	0	5		SE5	NNA		
Epilobium strictum	Downy Willowherb	9	-5		S4	N4N5		
Eutrochium maculatum	Spotted Joe Pye Weed	3	-5		S5	N5		
Frangula alnus	Glossy Buckthorn	0	0	Y	SE5	NNA		
Fraxinus americana	White Ash	4	3		S4	N5		
Juniperus communis	Common Juniper	4	3		S5	N5		
Juniperus virginiana	Eastern Red Cedar	4	3		S5	N5		
Linaria vulgaris	Butter-and-eggs	0	5		SE5	NNA		
Lonicera tatarica	Tatarian Honeysuckle	0	3	Y	SE5	NNA		
Lotus corniculatus	Garden Bird's-foot Trefoil	0	3	Y	SE5	NNA		
Melilotus albus	White Sweet-clover	0	3	Y	SE5	NNA		
Nuttallanthus canadensis	Canada Toadflax	4	5		S1	N2N3		

Species Name	Species Name	Coefficient of Conservatism	Coefficient of Wetness	Invasive – Yes/No	Provincial Status (S-Rank)	National Status (N-Rank)	ESA Status	SARA Status
Parthenocissus quinquefolia	Virginia Creeper	6	3		S4?	N4?		
Parthenocissus vitacea	Thicket Creeper	4	3		S5	N5		
Phalaris arundinacea	Reed Canarygrass	0	-3	Y	S5	N5		
Populus tremuloides	Trembling Aspen	2	0		S5	N5		
Quercus rubra	Northern Red Oak	6	3		S5	N5		
Rhamnus cathartica	European Buckthorn	0	0	Y	SE5	NNA		
Rhus typhina	Staghorn Sumac	1	3		S5	N5		
Rudbeckia hirta	Black-eyed Susan	0	3		S5	N5		
Schoenoplectus tabernaemontani	Soft-stemmed Bulrush	5	-5		S5	N5		
Silene vulgaris	Bladder Campion	0	5		SE5	NNA		
Solidago canadensis	Canada Goldenrod	1	3		S5	N5		
Sonchus arvensis	Field Sow-thistle	0	3		SE5	NNA		
Spiraea alba	White Meadowsweet	3	-3		S5	N5		
Symphyotrichum novae-angliae	New England Aster	2	-3		S5	N5		
Symphyotrichum urophyllum	Arrow-leaved Aster	6	5		S4	N4		
Tanacetum vulgare	Common Tansy	0	5		SE5	NNA		
Taraxacum officinale	Common Dandelion	0	3		SE5	N5		
Thuja occidentalis	Eastern White Cedar	4	-3		S5	N5		
Tilia americana	Basswood	4	3		S5	N5		
Toxicodendron radicans var. rydbergii	Western Poison Ivy	2	0		S5	N5		
Toxicodendron vernix	Poison Sumac	8	-5		S4	N4		

Species Name	Species Name	Coefficient of Conservatism	Coefficient of Wetness	Invasive – Yes/No	Provincial Status (S-Rank)	National Status (N-Rank)	ESA Status	SARA Status
Trifolium pratense	Red Clover	0	3		SE5	NNA		
Tussilago farfara	Coltsfoot	0	3	Y	SE5	NNA		
Typha angustifolia	Narrow-leaved Cattail	0	-5	Y	SE5	N5		
Ulmus americana	White Elm	3	-3		S5	N5		
Verbascum thapsus	Common Mullein	0	5		SE5	NNA		
Vicia cracca	Tufted Vetch	0	5	Y	SE5	NNA		
Vitis riparia	Riverbank Grape	0	0		S5	N5		

VEGETATION SUMMARY AND ASSESSMENT

Species Diversity

Total Species	48	
Native Species	29	(60.42%)
Introduced	29	(39.58%)

Coefficient for Conservatism (CC)

Mean (native species)	3.31
Mean (all species)	2.00

Floral Quality Index (FQI)

Mean (native species)	17.83
Mean (all species)	13.86

LEGEND

Species Name & Common Name: Taxonomy follows the current NHIC Vascular Plant Species List.

Coefficient of Conservation:

This value, ranging from 0 (low) to 10 (high) and is based on a species tolerance to disturbance and site fidelity.

Coefficient of Wetness:

This value, ranging from -5 (obligate wetland) to 5 (upland) provides the probability of a species occurring in wetland or upland habitats.

Floral Quality Index:

This value indicates the overall vegetative quality of the site and is assessed through the application of conservatism values (CC). 1 - 20 has minimal significance from natural quality perspective. > 35 has sufficient conservatism and richness to be floristically important from a Provincial perspective. > 50 Extremely rare and represents a significant component of Ontario's biodiversity.

SRANK & NRANK

Ranking is a process of assigning a risk of extinction rank to each species. Ranking and review are based on a standard set of criteria developed by the international organization NatureServe and the Natural Heritage Information Center (NHIC). NHIC assigns subnational ranks (SRANKs) for species and plant communities in Ontario using the best available information and considering factors such as abundance, distribution, population trends and threats. These ranks are scientifically based but do not have legal implications.

S = Provincial, N = National

X – Presumed Extirpated – Species is believed to be extirpated from the nation or province.

1 – Critically imperiled – Very high risk of extirpation in jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, and/or other factors.

2 – Imperiled – At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

3 – Vulnerable – At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.

4 – Apparently Secure – At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

5 – Secure – At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

ESA (Endangered Species Act, 2007)

Special Concern (SC): -A species with characteristics that make it sensitive to human activities or natural events.

Threatened (THR): A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.

Endangered (END): A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act (ESA)

Extirpated (EXP): A species that no longer exists in the wild in Ontario but still occurs elsewhere.

Extinct (EXT): A species that no longer exists anywhere.

SARA (Species at Risk Act, 2002)

Special Concern (SC): A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

Threatened (THR): A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.

Endangered (END): A wildlife species that is facing imminent extirpation or extinction.

Extirpated (EXP): A wildlife species that no longer exists in the wild in Canada but exists elsewhere in the wild.

Extinct (EXT): A wildlife species that no longer exists

Table 2 – Incidental Wildlife Observed

Common Name	Species Name	Observation Type	ESA Status	SARA Status	Date Observed	Location (DD)
Avian						
Black-capped Chickadee	*Poecile atricapillus*	Visual observation	No Status	No Status		
Blue Jay	*Cyanocitta genus*	Visual observation	No Status	No Status		
Downy Woodpecker	*Picoides pubescens*	Visual observation	No Status	No Status		
Eastern Phoebe	*Sayornis phoebe*	Visual observation	No Status	No Status		
House Sparrow	*Passer domesticus*	Visual observation	No Status	No Status		
Northern Cardinal	*Cardinalis cardinalis*	Visual observation	No Status	No Status		
Red-wing Blackbird	*Agelaius phoeniceus*	Visual observation	No Status	No Status		
Wild Turkey	*Meleagris gallopavo*	Visual observation	No Status	No Status		
Mammals						
Eastern Chipmunk	*Tamias striatus*	Visual observation	No Status	No Status		
Eastern Grey Squirrel	*Sciurus carolinensis*	Visual observation	No Status	No Status		
Reptiles						
Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	Visual observation	No Status	No Status		