

# NATURAL HERITAGE REPORT

VILLAGE OF ALTON, MAIN STREET NORTH  
AND QUEEN STREET WEST  
CLASS ENVIRONMENTAL ASSESSMENT

*prepared for:*

**R.V Anderson Associates Limited**



*On Behalf of:*



*prepared by:*



**MARCH 2021**

# NATURAL HERITAGE REPORT

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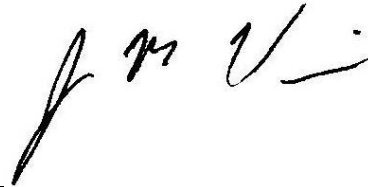
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**MARCH 2021**  
**LGL Project # TA8904**

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## 1.0 INTRODUCTION

The Town of Caledon is undertaking a Schedule “C” Class Environmental Assessment for the reconstruction of Queen Street West and Main Street to fulfil recommendations in their Transportation Master Plan (TMP) related to complete streets objectives and maintaining/improving connectivity to meet demands of increasing population and growth. Urban reconstruction will take place along 12 intersections to improve the stormwater management system and incorporate all modes of active transportation. The study limits are shown in **Figure 1**.

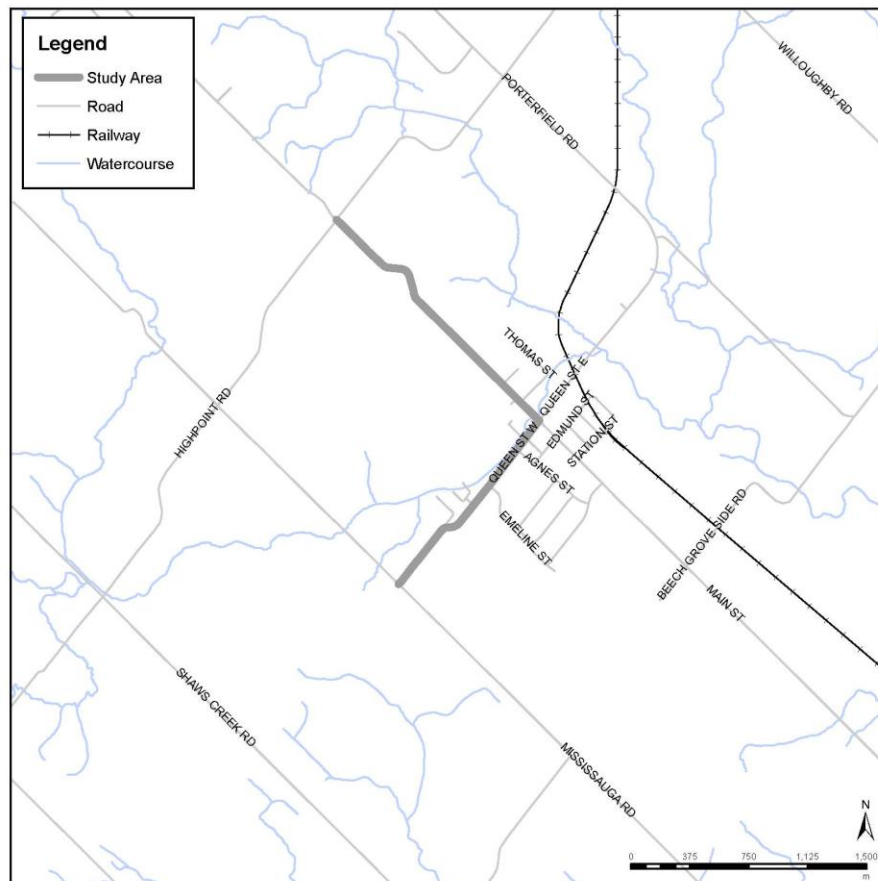


Figure 1. Key map – Study Area, Main Street North and Queen Street West

This Class EA is being conducted by R.V. Anderson Associates Limited (RVA) on behalf of the Town of Caledon. LGL Limited, as a sub-consultant to RVA is providing natural heritage services. This Natural Heritage Report documents the data collected in the spring and summer of 2019 along with background data regarding natural heritage features at and in the vicinity of the study area. An analysis of the potential effects of this project on natural heritage and environmental protection to mitigate these potential effects is also presented herein.

## 2.0 EXISTING CONDITIONS

The following discussion outlines the existing environmental conditions within the study area and identifies natural heritage areas and/or features of environmental sensitivity and/or significance.

## 2.1 Aquatic Habitats and Communities

The study area encompasses Queen Street West between Main Street and Mississauga Road, and Main Street between Queen Street East and Highpoint Side Road, within the Village of Alton. The study area is located within the Shaw's Creek subwatershed (subcatchment boundary 17-10) with one watercourse crossing, Shaw's Creek, which is situated to the north and runs parallel to, Queen Street and crosses Main Street just north of the Queen Street and Main Street intersection. This watercourse is under the jurisdiction of Credit Valley Conservation Authority (CVC) and the Ministry of Natural Resources and Forestry (MNR) Aurora District.

### **Background Data**

LGL conducted a secondary source review to identify the fish community within the watercourse. The secondary source review included a species at risk screening through aquatic species at risk mapping (DFO 2019) and the Natural Heritage Information Centre (NHIC) database (MNR 2019). Background review also included: correspondence with the CVC regarding fish sensitivity and fisheries collection records within the study area (January 3, 2020); review of LGL's previous report, Environmental Impact Statement - Alton Village Streetscaping (July 2018), to obtain historical correspondence with the MNR and CVC regarding fisheries collection records; review of the Shaw's Creek Draft Subwatershed Study Background Report (CVC 2006). LGL also reviewed the Shaw's Creek Subwatershed Study (CVC 2014).

According to background investigations there is no regulated habitat for aquatic species at risk and no species at risk were recorded the study area (DFO 2019). Secondary source data from the MNR's NHIC database was reviewed to screen for the presence or absence of wildlife species at risk within or adjacent to the study area. The NHIC database indicated that no species at risk have historically been found in the vicinity of Shaw's Creek within the study area. Based on recent work by LGL within Alton (Queen Street East Road Reconstruction and Bridge Replacement and Alton Village Streetscaping, completed in 2017 and 2018, respectively) which incorporated background reviews and agency correspondence, Shaw's Creek contains a coldwater aquatic community which supports Brook Trout (*Salvelinus fontinalis*), a sensitive sport fish.

### **Field Investigations**

An LGL fisheries biologist visited the study area on June 17, 2019 to observe and document existing aquatic habitat conditions. The fish habitat was investigated from the mill pond to downstream of the Main Street crossing, where access was permitted. Physical habitat features were surveyed in sufficient detail to enable mapping and identification of key habitat types. The physical habitat attributes assessed included: (a) instream cover, (b) bank stability, (c) substrate characteristics, (d) stream dimensions, (e) barriers, (f) stream morphology, (g) terrain characteristics, (h) stream canopy cover, (i) stream gradient, (j) aquatic vegetation, (k) ground water seepage areas, and (l) general comments. **Figures 2 and 3** present the location of the watercourse identified within the study area. An aquatic habitat summary is presented below which describes existing conditions within Shaw's Creek. Representative photographs of the watercourse were also taken during investigations and are provided in **Appendix A**.

**TABLE 1.  
 HISTORIC FISH COLLECTION RECORDS WITHIN PROXIMITY OF THE STUDY AREA**

Scientific Name	Common Name	Shaw's Creek	COSEWIC	SARA	MNRF	Provincial
<i>Chrosomus eos</i>	Northern Redbelly Dace	x	-	-	-	S5
<i>Cyprinus carpio</i>	Common Carp	x	-	-	-	SNA
<i>Hybognathus hankinsoni</i>	Brassy Minnow	x	-	-	-	S5
<i>Luxilus cornutus</i>	Common Shiner	x	-	-	-	S5
<i>Margariscus nachtriebi</i>	Northern Pearl Dace	x	-	-	-	S5
<i>Pimephales notatus</i>	Bluntnose Minnow	x	-	-	-	S5
<i>Pimephales promelas</i>	Fathead Minnow	x	-	-	-	S5
<i>Rhinichthys cataractae</i>	Longnose Dace	x	-	-	-	S5
<i>Rhinichthys atratulus</i>	Blacknose Dace	x	-	-	-	SNA
<i>Semotilus atromaculatus</i>	Creek Chub	x	-	-	-	S5
<i>Catostomus commersonii</i>	White Sucker	x	-	-	-	S5
<i>Hypentelium nigricans</i>	Northern Hog Sucker	x	-	-	-	S4
<i>Ameiurus nebulosus</i>	Brown Bullhead	x	-	-	-	S5
<i>Salmo trutta</i>	Brown Trout	x	-	-	-	SNA
<i>Salvelinus fontinalis</i>	Brook Trout	x	-	-	-	S5
<i>Esox lucius</i>	Northern Pike	x	-	-	-	S5
<i>Umbra limi</i>	Central Mudminnow	x	-	-	-	S5
<i>Culaea inconstans</i>	Brook Stickleback	x	-	-	-	S5
<i>Ambloplites rupestris</i>	Rock Bass	x	-	-	-	S5
<i>Micropterus salmoides</i>	Largemouth Bass	x	-	-	-	S5
<i>Pomoxis nigromaculatus</i>	Black Crappie	x	-	-	-	S4
<i>Lepomis gibbosus</i>	Pumpkinseed	x	-	-	-	S5
<i>Etheostoma exile</i>	Iowa Darter	x	-	-	-	S5
<i>Perca flavescens</i>	Yellow Perch	x	-	-	-	S5

Note: x = Secondary Source Fish Collection Data, personal correspondence with CVC (February 2016)

### 2.1.1 Shaw's Creek

Shaw's Creek is the only watercourse located within the study area. This watercourse runs generally from west to east parallel to Queen Street. Shaw's Creek enters the study area from the west at the upstream end of the Alton Mill Pond where it comes in relatively close proximity to the edge of pavement of the north side of Queen Street West (minimum distance approximately 8 m). The pond is maintained by an approximately 2 m high dam at its east (downstream) end. Downstream of the dam, the watercourse flows with a relatively high gradient parallel to Queen Street West through a mainly residential area (behind the houses/buildings situated along the north side of Queen Street West). It passes under two small bridges before crossing under the Main Street structure. From there, it continues through an increasingly natural floodplain, crosses under railway tracks and enters the Credit River at Alton Wetland Complex (a provincially significant wetland - PSW) through which it continues to the south under Queen Street East. Shaw's Creek is a permanent watercourse classified as a coldwater stream.

The Alton Mill Pond is an online pond formed by the damming of Shaw's Creek. It is surrounded by a cattail fringe with a dense cattail marsh comprising much of the area at its upstream (west) end. The pond is shallow throughout with an observable thalweg running near its south shore. The thalweg depth is approximately 30 cm to 40 cm. On air photos, there appears to be another channel (likely with its own thalweg) that runs along the north side of the cattails and into the open water portion of the pond, although this could not be observed from the road or the dam. Substrates are coarse, consisting of cobble, boulder, gravel and sand which are overlaid by silt and detritus. Sparse submerged and emergent vegetation was observed during the site visit, but this vegetation likely becomes denser as the season progresses, as evidenced by air photos (Google Earth). Instream cover consists of a moderate woody debris, submerged and emergent vegetation and some boulders. Along the south bank adjacent to Queen Street West, riparian areas consist of manicured and semi-natural vegetation (planted trees). The northern shoreline is dominated by cedars lining the shoreline in front of a pine plantation along the upstream portion of the pond, with manicured grass and deciduous trees and shrubs present along the downstream end of pond. Many adult Common Carp (*Cyprinus carpio*) and one adult Rock Bass (*Ambloplites rupestris*) were observed in the pond during the site visit. Because there is very little shading of the pond provided by riparian vegetation, and it has a considerable open water component, it is likely that the surface water is heated during the warmer months of the year which could have a negative thermal impact on coldwater habitat downstream. Although the pond supports direct fish habitat, the dam acts as a barrier to fish passage as it prevents fish from travelling upstream of the dam.

Downstream of the dam, the gradient becomes high with an associated increase in flow velocity. The channel morphology is dominated by riffles with a few runs. The channel is approximately 7 m in width depths ranging from 10 cm to 40 cm. The downstream right bank has been reinforced with various materials (armourstone, concrete, wood and stone) as the channel runs adjacent to the rear yards of several homes along Queen Street West. The downstream left bank is more natural and is well vegetated with Eastern White Cedars (*Thuja occidentalis*) and deciduous trees. Substrates are coarse, comprised of bedrock, boulders, cobble, gravel and sand. Some emergent vegetation is present along the banks. The channel appears to be stable. Along the channel between the dam and the Main Street crossing are two single-span bridges with concrete and/or armourstone abutments.

Shaw's Creek crosses Main Street approximately 25 m north of the Queen Street intersection. The crossing is through a concrete bridge structure that mostly spans the wetted width of the watercourse (the south abutment is in the water). Downstream of the crossing, riffles are the dominant morphology type. A short run conveys water from just upstream to just downstream of the structure. The channel narrows to an average of 5 m in width and 15 cm in depth (30 cm deep in the run). Bankfull width and depth are 6 m and 40-50 cm, respectively. This creek does not appear to experience high fluctuations in water levels as only minor erosion was observed (undercut banks) at the bend in the watercourse located approximately 35 m



downstream of the crossing. The downstream left and right banks have been armoured with gabion baskets and stone (downstream left bank only). The downstream left bank consists of a manicured yard downstream of Main Street and the manicured area reaches the bank here, although trees are still present. Further downstream beyond the manicured yards (>200 m), eastern white cedars become the dominant riparian vegetation species. Substrates within this portion of the watercourse are comprised of cobble, gravel and boulders. Instream cover is comprised of mainly these substrates with some woody debris and undercut banks providing additional cover. Riparian cover is fairly robust and is provided by small deciduous trees. Groundcover is almost absent.

Although no fish were observed at the Shaw's Creek crossing, the watercourse supports direct fish habitat. As Shaw's Creek has a cold thermal regime, it is likely that species tolerant of cooler temperatures would inhabit these waters, specifically Brook Trout which are known to inhabit the watercourse (CVC 2014).

### 2.1.2 Species at Risk

As stated above, based on a review of the MNRF Natural Heritage Information Centre database, DFO Species at Risk mapping, and correspondence with CVC, no aquatic species at risk occur within the study limits.

## 2.2 Vegetation and Vegetation Communities

The geographical extent, composition, structure and function of vegetation communities were identified through air photo interpretation and field investigations. Air photos were interpreted to determine the limits and characteristics of vegetation communities. A field investigation of the vegetation communities within the existing right-of-way of Main Street between Queen Street and Highpoint Sideroad and beyond to the extent possible, was undertaken on October 11, 2019.

Vegetation communities were classified according to the *Ecological Land Classification for Southern Ontario: First Approximation and Its Application* (Lee *et al.* 1998). The communities were sampled using a plotless method for the purpose of determining general composition and structure of the vegetation. Plant species status was reviewed for Ontario (Oldham 2009), Credit Valley Conservation Authority (2002) and Peel (Riley 1989). Vascular plant nomenclature follows Newmaster *et al.* (1998) with a few exceptions that have been updated to Newmaster and Ragupathy (2008).

### 2.2.1 Vegetation Communities

The majority of the study area is comprised of manicured areas associated with residential properties. Closer to Highpoint Sideroad vegetation becomes more naturalized and is comprised of a variety of ELC vegetation communities. A total of six ELC vegetation communities were identified within the study area including: Cattail Mineral Shallow Marsh (MAS2-1), Forb Mineral Meadow Marsh (MAM2-10), Dry-Moist Old Field Meadow (CUM1-1), Mineral Cultural Woodland (CUW1), Mineral Cultural Thicket (CUT1), and Coniferous Plantation (CUP3). The vegetation communities identified in the study area are described in **Table 2** and presented on **Figure 2**. All of the vegetation communities within the study area are considered widespread and common in Ontario and are secure globally.

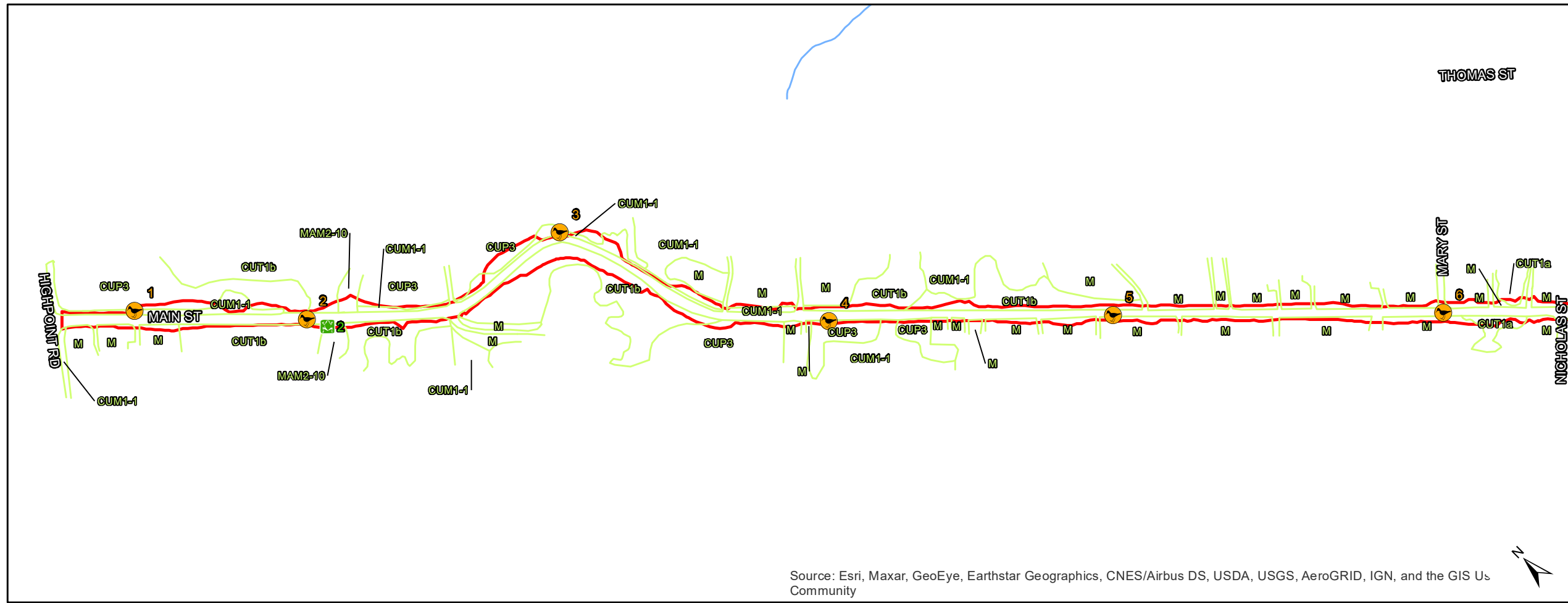
### 2.2.2 Flora

A total of 90 plant species have been recorded within the study area. Two of these plants could only be identified to genus and are not included in the following calculations. Of the 88 plants identified to species, 45 (51%) plant species identified are native to Ontario and 43 (49%) plant species are considered introduced and non-native to Ontario. A list of vascular plants is presented in **Appendix B**. Definitions of the acronyms and species ranks used in **Appendix B** are described in **Appendix C**.

### **2.2.3 Species at Risk**

No plant species that are regulated under the Ontario *Endangered Species Act* or the Canada *Species at Risk Act* were encountered during LGL's botanical investigation. A review of the MNRF Natural Heritage Information Centre (MNRF 2019) indicates that there are no historic records of plant species at risk within the study area.

Two plant species identified within the study area are considered regionally rare including eastern red cedar (*Juniperus virginiana*) and Indian grass (*Sorghastrum nutans*). The eastern red cedar was planted as an amenity feature on a residential property. The Indian grass was associated with subdivision development at the corner of Queen Street and Mississauga road and as such, is not likely not naturally occurring. Given these two species are not naturally occurring they should not be considered significant within the study area.



### LEGEND

- Anuran Monitoring Station
- Breeding Bird Point Count Station
- Watercourse Crossing
- Watercourse
- Grading Limit
- Bobolink/Eastern Meadowlark Habitat

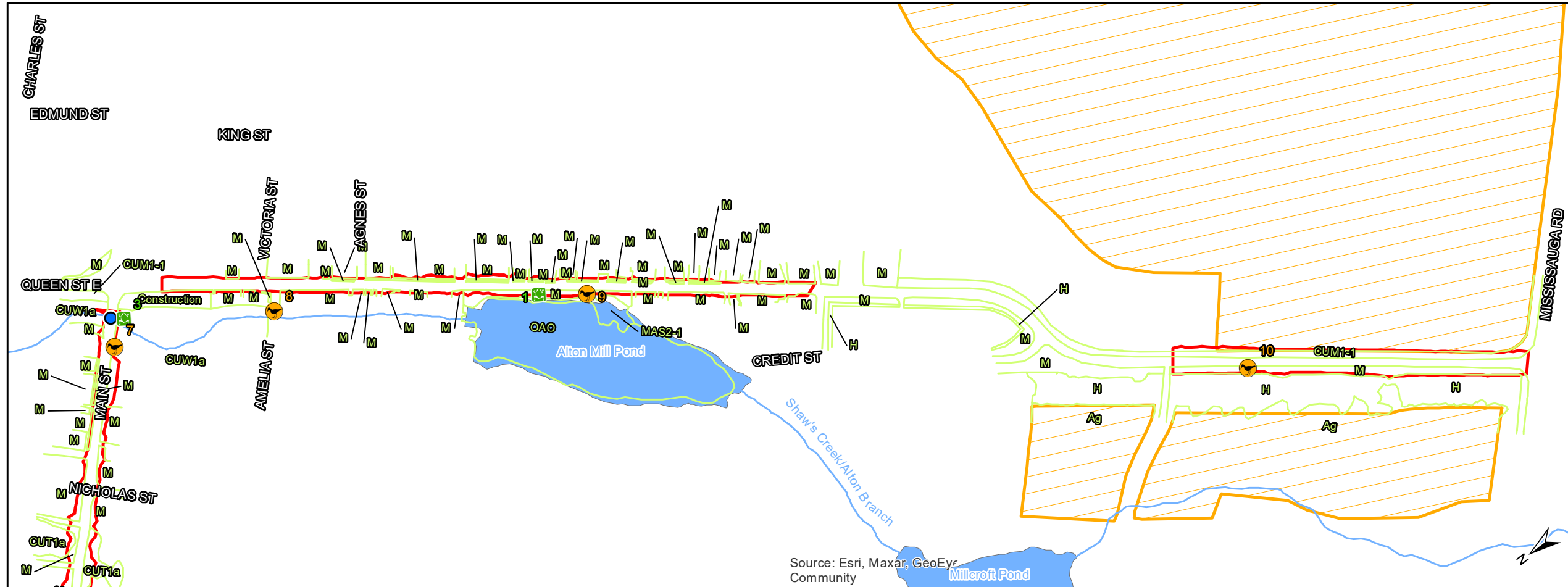
**Vegetation Communities**

- Vegetation Community Boundary
- Ag** Agricultural
- GUM1-1** Dry-Moist Old Field Meadow
- GUP3** Coniferous Plantations
- GUT1 (a,b)** Mineral Cultural Thicket Ecosite
- GUW1a** Mineral Cultural Woodland Ecosite
- H** Hedgerow
- M** Manicured
- MAM2-10** Forb Mineral Meadow Marsh Type
- MAS2-1** Cattail Mineral Shallow Marsh Type
- OAO** Open Aquatic

Data Sources: LGL Limited field surveys & Ontario Ministry of Natural Resources and Forestry (LFO).

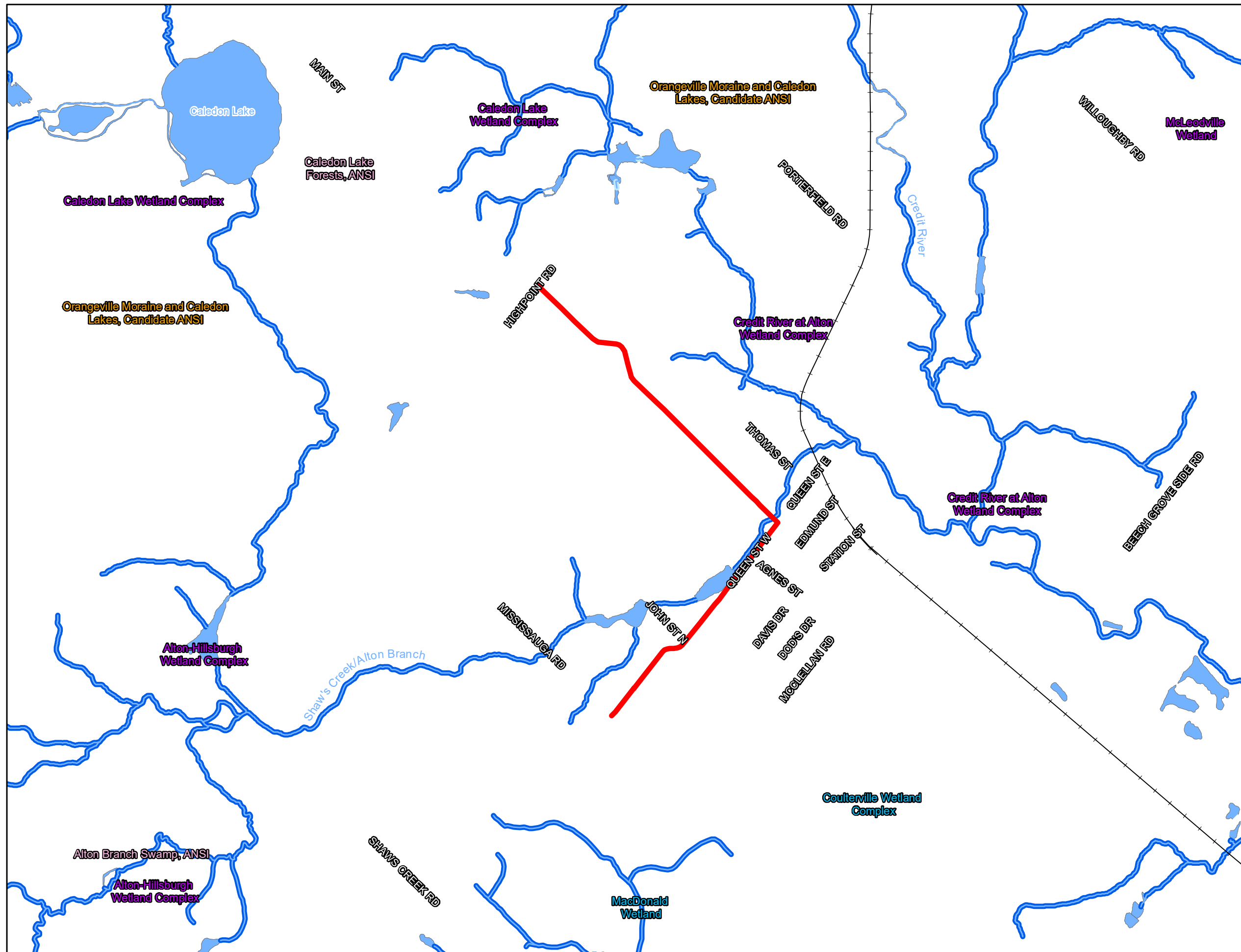
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







## EXISTING CONDITIONS

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Date: December, 2020	Prepared By: JJP
Scale: 1 : 5,000	Checked By: JMV

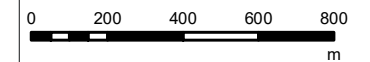


**LEGEND**

-  Study Area Limits/Centreline
-  Railway
-  Watercourse
-  Cold Thermal Regime
-  Regulation Limit (CVC)
-  Greenbelt Plan
-  Earth Science ANSI
-  Life Science ANSI
-  Evaluated Wetland Provincial
-  Evaluated Wetland Other
-  Wetland Not Evaluated per OWES
-  Waterbody
-  Wooded Area

Data Sources: Credit Valley Conservation Authority (CVC) & Ontario Ministry of Natural Resources and Forestry (LJO).

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**NATURAL HERITAGE**

<b>Project:</b> TA8904	<b>Figure:</b> 3
<b>Date:</b> November, 2020	<b>Prepared By:</b> JJP
<b>Scale:</b> 1 : 20,000	<b>Checked By:</b> JMV

**TABLE 2.**  
**SUMMARY OF ECOLOGICAL LAND CLASSIFICATION VEGETATION COMMUNITIES**

ELC Code	Vegetation Type	Species Association	Community Characteristics
<b>WETLAND</b>			
MAS	Shallow Marsh		
MAS2-1	Cattail Mineral Shallow Marsh	<b>Ground Cover:</b> includes narrow-leaved cattail ( <i>Typha angustifolia</i> ), and broad-leaved cattail ( <i>Typha latifolia</i> ).	<ul style="list-style-type: none"> <li>• Tree and shrub cover &lt;25% with variable flooding regimes (water depth &lt;2m) (MA).</li> <li>• Water up to 2 m deep (MAS).</li> <li>• Mineral soil (2).</li> <li>• Cattail dominant (-1).</li> </ul>
MAM	Meadow Marsh		
MAM2-10	Forb Mineral Meadow Marsh	<b>Ground Cover:</b> includes Canada goldrod ( <i>Solidago canadensis</i> ), sedges ( <i>Carex</i> spp.), tall white aster ( <i>Aster lanceolatus</i> ssp. <i>lanceolatus</i> ), stick-tight ( <i>Bidens cernua</i> ), and reed canary grass ( <i>Phalaris arundinacea</i> ).	<ul style="list-style-type: none"> <li>• Tree and shrub cover &lt;25% with variable flooding regimes (water depth &lt;2m) (MA).</li> <li>• Species less tolerant of prolonged flooding (MAM).</li> <li>• Mineral soil (2).</li> <li>• Forb dominant (-10).</li> </ul>
<b>TERRESTRIAL – CULTURAL</b>			
CUM1	Cultural Meadow		
CUM1-1	Dry-Moist Old Field Meadow	<b>Emergent Trees/Shrubs:</b> includes common lilac ( <i>Syringa vulgaris</i> ), common buckthorn ( <i>Rhamnus cathartica</i> ), and staghorn sumac ( <i>Rhus typhina</i> ). <b>Ground Cover:</b> includes Kentucky bluegrass ( <i>Poa pratensis</i> ssp. <i>pratensis</i> ), Canada goldenrod, New England aster ( <i>Aster novae-angliae</i> ), common ragweed ( <i>Ambrosia artemisiifolia</i> ), and awnless brome ( <i>Bromus inermis</i> ssp. <i>inermis</i> ).	<ul style="list-style-type: none"> <li>• Cultural communities (CU).</li> <li>• Tree cover and shrub cover &lt; 25 % (M).</li> <li>• Mineral soil (1).</li> <li>• Grasses and forbs are dominant (-1).</li> </ul>
CUT	Cultural Thicket		

**TABLE 2.**  
**SUMMARY OF ECOLOGICAL LAND CLASSIFICATION VEGETATION COMMUNITIES**

ELC Code	Vegetation Type	Species Association	Community Characteristics
CUT1	Mineral Cultural Thicket	<p><b>Canopy:</b> includes silver poplar (<i>Populus alba</i>), Norway maple (<i>Acer platanoides</i>), Austrian pine (<i>Pinus nigra</i>), and Scotch pine (<i>Pinus sylvestris</i>).</p> <p><b>Understory:</b> includes eastern white cedar (<i>Thuja occidentalis</i>), common buckthorn, Tartarian honeysuckle (<i>Lonicera tatarica</i>), common lilac, and silver poplar.</p> <p><b>Ground Cover:</b> includes yellow avens (<i>Guem aleppicum</i>), awnless brome, bitter nightshade (<i>Solanum dulcamara</i>), and coltsfoot (<i>Tussilago farfara</i>).</p>	<ul style="list-style-type: none"> <li>• Cultural community (CU).</li> <li>• Tree cover &lt;25 %; shrub cover &gt;25% (T).</li> <li>• Mineral soil (1).</li> </ul>
CUW	Cultural Woodland		
CUW1	Mineral Cultural Woodland	<p><b>Canopy:</b> includes Norway maple, Manitoba maple (<i>Acer negundo</i>), basswood (<i>Tilia americana</i>), and black walnut (<i>Juglans nigra</i>).</p> <p><b>Understory:</b> includes eastern white cedar, common buckthorn, alternate-leaved dogwood (<i>Cornus alternifolia</i>), and apple (<i>Malus</i> sp.).</p> <p><b>Ground cover:</b> includes yellowish enchanter's nightshade (<i>Circaea lutetiana</i> ssp. <i>canadensis</i>), swallow-wort (<i>Cynanchum rossicum</i>), and coltsfoots.</p>	<ul style="list-style-type: none"> <li>• Cultural communities (CU).</li> <li>• 25 % &lt; tree cover &lt; 35 % (W).</li> <li>• Mineral Soil (1). Mineral soil (1).</li> </ul>
CUP	Cultural Plantation		
CUP3	Coniferous Plantation	<p><b>Canopy:</b> includes Norway spruce (<i>Picea abies</i>), white spruce (<i>Picea glauca</i>), Austrian pine and eastern white pine (<i>Pinus strobus</i>).</p> <p><b>Understory:</b> includes eastern white cedar and common buckthorn.</p> <p><b>Ground cover:</b> includes Canada goldenrod and awnless brome.</p>	<ul style="list-style-type: none"> <li>• Cultural communities (CU).</li> <li>• Plantation (P).</li> <li>• Coniferous tree cover &gt;75% of canopy cover (3).</li> </ul>
*OTHER	Manicured		
M	Manicured	Areas where large expanses of grass/shrubs/trees are maintained and/or planted.	<ul style="list-style-type: none"> <li>• Manicured grasses and planted shrubs and/or trees</li> </ul>

### 2.3 Wildlife and Wildlife Habitat

Field investigations were conducted with the purpose of documenting wildlife and wildlife habitat and to characterize the nature, extent and significance of wildlife usage within the study area. Wildlife investigations were focused within and immediately adjacent to the Queen Street West and Main Street rights-of-way. Direct observations, calls and tracks were used to record wildlife present within the study area. A summary of survey date(s), tasks and weather conditions is presented in **Table 3**. Information concerning wildlife species at risk previously recorded within the study area limits was obtained from the NHIC, CVC and the MNRF, Aurora District Office.

**TABLE 3.  
 SUMMARY OF DATE OF INVENTORY, TASK, WEATHER AND PERSONNEL**

<b>Date of Inventory</b>	<b>Task</b>	<b>Weather</b>	<b>Personnel</b>
April 24, 2019	Anuran survey	Partly cloudy, 10°C, wind 11km/hr	Lisa Catcher
May 16, 2019	Anuran survey	Overcast, 13°C, wind 5km/hr	Lisa Catcher
June 17, 2019	Breeding Bird survey and incidental wildlife observations	Clear, 11°C, wind calm	Judson Venier
June 18, 2019	Anuran survey	Overcast, 21°C, wind calm	Lisa Catcher
June 27, 2019	Breeding Bird survey and incidental wildlife observations	Clear, 14°C, wind calm	Judson Venier

#### 2.3.1 Wildlife Habitat

Wildlife and wildlife habitat were found to be distributed across the entire study area as most of the study area is rural residential (i.e., properties with dwellings and large yards. Therefore, natural heritage features were generally incorporated into these properties and/or these properties bordered large natural areas. The exceptions to these areas were in the vicinity of the Main Street/Queen Street intersection and west along Queen Street West to approximately James Street where properties were smaller and bordered other residential properties, especially on the south side. The watercourse crossing, old field meadow, cultural thicket, cultural plantation, cultural woodland and small inclusions of marsh habitat types provide the majority of natural heritage features. The more densely urbanized setting found along much of Queen Street West (from the Main Street intersection to James Street) supports limited natural heritage features and consequently supports a modest assemblage of wildlife species which are generally considered urban or tolerant of anthropogenic features and disturbance. The exception to this is the wetland associated with the Alton Mill Pond on the north side of Queen Street West that supports habitat for bird and mammal species and, potentially, for amphibians (although none were observed during surveys).

Although the study area has been disturbed/altered from its natural state, there is generally opportunity for wildlife to move across the local landscape throughout, especially along Main Street and at the west end of Queen Street West. The single crossing structure associated with Shaw’s Creek offers limited capacity for wildlife movement and it is likely that most wildlife movement through the area is at the surface (i.e., crossing the roads). This is especially true along Main Street where large rural properties that offer some

degree of natural cover are bordered by natural areas that foster an important component in permeability of the study area for wildlife.

The large number of natural areas (e.g., Credit River at Alton, Alton-Hillsburgh and Caledon Lake Wetland Complexes, the Alton Branch Swamp and Caledon Lake Forest ANSIs, the Orangeville Moraine and Caledon Lakes Candidate ANSI and various forests and unevaluated wetlands; **Figure 3**) which surround the study area contain relatively high-quality wildlife habitat, and likely influence the wildlife assemblage found in its vicinity. In addition, the west end of the study area is bordered by agricultural lands which provide open country habitat type, in particular for bird species.

The forested habitat associated with the Shaw's Creek crossing of Main Street is recommended to be considered Significant Wildlife Habitat downstream (east) of the crossing (North-South Environmental *et al.* 2009). This recommended designation was made using the criterion B5 for "highly diverse areas" which is derived from relatively high number of ELC community types within a given patch (continuous natural area) of land (North-South Environmental *et al.* 2009). In the study area, it is assumed that this patch of area includes the ELC communities associated with the PSW to the east and the Shaw's Creek riparian corridor. North-South Environmental *et al.* (2009) identified the "top 5% most diverse habitat patches in (a) the Town of Caledon..." as an appropriate threshold for defining Significant Wildlife Habitat for the study. This Significant Wildlife Habitat is not mapped on Figure 3 as digital files for this recommended land designation were not available. But a digital figure provided by CVC indicates that this habitat begins immediately outside of the rights-of-way of Main Street to the west, Queen Street to the south and the forest edge to the north and continues to the northeast along the Shaw's Creek corridor. This area is shown as cultural woodland on Figure 2.

### 2.3.2 Wildlife

Based on field observations, 53 species of wildlife (4 herpetofauna, 43 birds and 6 mammals) could be verified as occurring in the study area, and the majority of these recordings came from identification (through calls and sightings) of bird species, with more modest numbers of herpetofauna and mammal species. A summary of species documented in the study area during field investigations is presented in **Table 5**. Data from the secondary sources included records for two additional wildlife species previously recorded within the vicinity of the study area. Wildlife species identified within the study area are largely species common within rural areas of Southern Ontario.

#### *Bird Species*

Breeding bird surveys were conducted on two separate occasions (June 17 and June 27, 2019; **Table 4**) during the 2019 breeding bird season to document breeding bird evidence (BBE) and to characterize the nature, extent and significance of breeding bird usage of the habitats within the study area. Breeding bird survey methodology and breeding bird behaviours used as evidence of breeding success were categorized according to the Breeding Bird Atlas five-year surveys organized by Bird Studies Canada (Cadman *et al.* 2007). Locations of breeding bird point count stations are shown on **Figure 2**.

A total of 43 species of birds were observed in the study area during field investigations. Two additional bird species have been identified as previously recorded in the study area based on secondary sources. Bird species were recorded across the study area; however, higher species diversity was noted within more extensive natural heritage features in the northern portion of the study area.

The study area contained a relatively large number of breeding bird species that are representative of several habitat types. Breeding evidence was obtained for all species of birds through vocalization or visible evidence of nest sites and juveniles present. No nests were identified on bridge/culvert structures within the study area. A summary of the breeding birds documented in the study area during field investigations is presented in **Appendix D**.



Several bird species at risk were also identified within the datasets described above (see **Section 2.3.3** for further details). There are also multiple species that are considered area-sensitive and/or interior species according to the Significant Wildlife Habitat Technical Guide (MNR 2000). A number of bird species identified within the study area are protected under the *Migratory Birds Convention Act* (MBCA) and/or the *Fish and Wildlife Conservation Act* (FWCA). See **Table 4** for details regarding these species.

**TABLE 4.**  
**WILDLIFE SPECIES DOCUMENTED WITHIN THE STUDY AREA BY LGL AND OTHERS**

Wildlife	Scientific Name	Common Name	Species Status under Legislation/ Local Sensitivity				Source of Species Identification	
			Canada SARA	Ontario ESA	Legal Status	Local	LGL <sup>1</sup>	Secondary Source <sup>2</sup>
<b>Herpetofauna</b>	<i>Anaxyrus americanus</i>	American Toad	-	-	-	-	*	
	<i>Pseudacris crucifer</i>	Spring Peeper	-	-	-	-	*	
	<i>Hyla versicolor</i>	Gray Treefrog	-	-	FWCA(P)	-	*	
	<i>Rana clamitans</i>	Green Frog	-	-	-	-	*	
<b>Birds</b>	<i>Branta canadensis</i>	Canada Goose	-	-	-	-	*	
	<i>Zenaida macroura</i>	Mourning Dove	-	-	MBCA	-	*	
	<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	-	-	MBCA	CC	*	
	<i>Charadrius vociferus</i>	Killdeer	-	-	MBCA	CC	*	
	<i>Picoides villosus</i>	Hairy Woodpecker	-	-	MBCA	CC	*	
	<i>Picoides pubescens</i>	Downy Woodpecker	-	-	MBCA	-	*	
	<i>Colaptes auratus</i>	Northern Flicker	-	-	MBCA	-	*	
	<i>Contopus virens</i>	Eastern Wood Peewee	SC	SC	MBCA	CC		*
	<i>Empidonax alnorum</i>	Alder Flycatcher	-	-	MBCA	CC	*	
	<i>Sayornis phoebe</i>	Eastern Phoebe	-	-	MBCA	-	*	
	<i>Myiarchus tyrannulus</i>	Great Crested Flycatcher	-	-	MBCA	-	*	
	<i>Tyrannus tyrannus</i>	Eastern Kingbird	-	-	MBCA	CC	*	
	<i>Vireo olivaceus</i>	Red-eyed Vireo	-	-	MBCA	-	*	
	<i>Cyanocitta cristata</i>	Blue Jay	-	-	FWCA(P)	-	*	
	<i>Corvus brachyrhynchos</i>	American Crow	-	-	-	-	*	
	<i>Corvus corax</i>	Common Raven	-	-	FWCA(P)	-	*	
	<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	-	-	MBCA	-	*	
	<i>Poecile atricapillus</i>	Black-capped Chickadee	-	-	MBCA	-	*	
	<i>Sitta carolinensis</i>	White-breasted Nuthatch	-	-	MBCA	-	*	
	<i>Troglodytes aedon</i>	House Wren	-	-	MBCA	-	*	
<i>Hylocichla mustelina</i>	Wood Thrush	SC	SC	MBCA	CC		*	
<i>Turdus migratorius</i>	American Robin	-	-	MBCA	-	*		

**TABLE 4.**  
**WILDLIFE SPECIES DOCUMENTED WITHIN THE STUDY AREA BY LGL AND OTHERS**

Wildlife	Scientific Name	Common Name	Species Status under Legislation/ Local Sensitivity				Source of Species Identification	
			Canada SARA	Ontario ESA	Legal Status	Local	LGL <sup>1</sup>	Secondary Source <sup>2</sup>
	<i>Dumetella carolinensis</i>	Gray Catbird	-	-	MBCA	CC	*	
	<i>Sturnus vulgaris</i>	European Starling	-	-	-	-	*	
	<i>Bombycilla garrulus</i>	Cedar Waxwing	-	-	MBCA	-	*	
	<i>Spinus tristis</i>	American Goldfinch	-	-	MBCA	-	*	
	<i>Seiurus auropilla</i>	Ovenbird	-	-	MBCA	CC	*	
	<i>Vermivora cyanoptera</i>	Blue-winged Warbler	-	-	MBCA	CC	*	
	<i>Oreothlypis ruficapilla</i>	Nashville Warbler	-	-	MBCA	CC	*	
	<i>Geothlypis philadelphia</i>	Mourning Warbler	-	-	MBCA	CC	*	
	<i>Setophaga pensylvanica</i>	Chestnut-sided Warbler	-	-	MBCA	CC	*	
	<i>Pipilo erythrophthalmus</i>	Eastern Towhee	-	-	MBCA	CC	*	
	<i>Spizella pusilla</i>	Field Sparrow	-	-	MBCA	-	*	
	<i>Spizella passerina</i>	Chipping Sparrow	-	-	MBCA	-	*	
	<i>Passerculus sandwichensis</i>	Savannah Sparrow	-	-	MBCA	CC	*	
	<i>Ammodramus savannarum</i>	Grasshopper Sparrow	-	-	MBCA	CC	*	
	<i>Melospica melodia</i>	Song Sparrow	-	-	MBCA	-	*	
	<i>Cardinalis cardinalis</i>	Northern Cardinal	-	-	MBCA	-	*	
	<i>Passerina cyanea</i>	Indigo Bunting	-	-	MBCA	-	*	
	<i>Sturnella magna</i>	Eastern Meadowlark	THR	THR	MBCA	CC	*	*
	<i>Dolichonyx oryzivorus</i>	Bobolink	THR	THR	MBCA	CC	*	
	<i>Agelaius phoeniceus</i>	Red-winged Blackbird	-	-	-	-	*	
	<i>Quiscalus quiscula</i>	Common Grackle	-	-	-	-	*	
	<i>Molothrus ater</i>	Brown-headed Cowbird	-	-	-	-	*	
	<i>Icterus galbula</i>	Baltimore Oriole	-	-	MBCA	-	*	
<b>Mammals</b>	<i>Sylvilagus floridanus</i>	Eastern Cottontail	-	-	FWCA(G)	-	*	
	<i>Tamias striatus</i>	Eastern Chipmunk	-	-	FWCA(P)	-	*	
	<i>Sciurus carolinensis</i>	Eastern Gray Squirrel	-	-	FWCA(G)	-	*	
	<i>Tamiasciurus hudsonicus</i>	Red Squirrel	-	-	FWCA(F)	-	*	

**TABLE 4.**  
**WILDLIFE SPECIES DOCUMENTED WITHIN THE STUDY AREA BY LGL AND OTHERS**

Wildlife	Scientific Name	Common Name	Species Status under Legislation/ Local Sensitivity				Source of Species Identification	
			Canada SARA	Ontario ESA	Legal Status	Local	LGL <sup>1</sup>	Secondary Source <sup>2</sup>
	<i>Canis latrans</i>	Coyote	-	-	FWCA(F)	-	*	
	<i>Odocoileus virginianus</i>	White-tailed Deer	-	-	FWCA(G)	-	*	

All acronyms used in this table are defined in **Appendix C** (Acronyms and Definitions Used in Species Lists).

Legislation Referenced in the Table:

- SARA – Canada *Species at Risk Act*
- ESA – Ontario *Endangered Species Act*
- MBCA – *Migratory Bird Convention Act*
- FWCA – *Fish and Wildlife Conservation Act*

Local Ranks:

- Significant Wildlife Habitat Technical Guide (MNR 2000):
- SWH – Area Sensitive Species
- INT - Interior Species
- CC – Conservation Concern (CVC 2003)

Source of Species Identification: <sup>1</sup>Species recorded within the study area (LGL 2019).<sup>2</sup>Species recorded based on fauna data provided by NHIC (2019).

**Mammal Species**

Six mammal species were identified during field investigations within the study area. The majority of mammal activity was found in association with the naturally vegetated areas in the northern portion of the study area where large natural areas border the rural residential properties. Coyote (*Canis latrans*), White-tailed Deer (*Odocoileus virginianus*) and Eastern Cottontail (*Sylvilagus floridanus*) were observed within these well vegetated areas along Main Street. White-tailed Deer tracks were also identified along roadside ditches, mainly at the edge of vegetation communities. Eastern Gray Squirrel (*Sciurus carolinensis*), Red Squirrel (*S. vulgaris*) and Eastern Chipmunk (*Tamias striatus*) were identified across much of the study area, including within and around roadside trees in more disturbed areas. Given the relatively large tract of natural areas adjacent to the study area, wildlife movement across Main Street is likely common.

Generally, the mammal species identified within the study area represent an assemblage that readily utilizes human influenced landscapes. All mammal species identified within the study area are protected under FWCA.

**Herpetofauna Species**

Methodologies outlined in the Marsh Monitoring Program Protocol (2000) were applied to confirm presence/absence of anuran species, document potential breeding habitat/areas, and confirm the nature, extent and significance of amphibian usage. Three stations were strategically placed where amphibian breeding habitat was suspected, based on air-photo interpretation and a review of the study area (**Figure 2**). Anuran surveys within the study area were conducted on three separate nights during the spring and summer of 2019, ran from one half hour after sunset and ended prior to midnight, and were conducted during appropriate weather conditions (**Table 3**). Investigations were undertaken during periods of peak anuran breeding activity and vocalization.

Anuran breeding evidence was documented for three species during 2019 surveys. Vocalizing male American Toad (*Anaxyrus americanus*), Spring Peeper (*Pseudacris crucifer*) and Green Frog (*Lithobates clamitans*) were noted within the study area or in the immediate vicinity. A summary of anuran species and their respective call level codes is presented in **Table 5**. Overall, given the residential and disturbed nature of the study area, anuran use of the area is expected to be limited, but most prevalent within aquatic and riparian habitat.

**TABLE 5.  
 AMPHIBIAN SURVEY OF STUDY AREA AND ADJACENT LANDS BY LGL LIMITED**

Station	Scientific Name	Common Name	SARA	ESA	CVC	Legal Status	Call Level Code
1*	-	-					-
2	<i>Pseudacris crucifer</i> <i>Anaxyrus americanus</i> <i>Hyla versicolor</i>	Spring Peeper American Toad Gray Treefrog					2 1 1
3*	-	-					-

\* - No anuran species/individuals documented  
 Call Level Codes – Abundance Count (according to Bird Studies Canada):  
 Call Level One (1) – Individual males can be counted accurately.  
 Call Level Two (2) - Frogs can be generally counted but calls overlap thus no exact number can be obtained.  
 Call Level Three (3) - Calls continuous and overlapping, no reasonable estimate of numbers.

In addition to the three herpetofauna species mentioned above, one additional species was observed in the study area during field investigations; Gray Treefrog (*Hyla versicolor*). Based on the habitats present, several additional amphibian and reptile species may be expected to occupy habitats within the study area. Wetland habitats and adjacent open country and forested habitat types may be expected to function as habitat for herpetofauna species. As described above, aquatic habitats present within the study area have the potential to function as anuran breeding habitat.

Other reptile and amphibian species are expected to be found within the study area; though, an assemblage that is generally considered tolerant of anthropogenic influences is expected to be present within the lands examined.

### 2.3.3 Species at Risk

Of the 53 wildlife species recorded within the study area, two are regulated under the Ontario *Endangered Species Act, 2007* (ESA) and the Canada *Species at Risk Act* (SARA). Bobolink (*Dolichonyx oryzivorus*) and Eastern Meadowlark (*Sturnella magna*), both species regulated as Threatened under the ESA and SARA, were identified during 2019 breeding bird surveys. The Natural Heritage Information Centre (NHIC) database (MNR 2019) contained records for three rare species, Eastern Meadowlark, Eastern Wood Pewee (*Contopus virens*) and Wood Thrush (*Hylocichla mustelina*) within the vicinity of the study area. Although Bobolink and Eastern Meadowlark were observed during the 2019 breeding bird surveys, no evidence of Eastern Wood Pewee or Wood Thrush was observed throughout the study area.

Each of the four species discussed above, their respective legal status, biological requirements and the likelihood of presence within the study area are discussed below and summarized in **Table 6**.

#### Bobolink

Bobolink, a species with a broad distribution across southern Ontario, is listed as a species at risk and is regulated as ‘Threatened’ under the Ontario *Endangered Species Act, 2007* (ESA) and *Species at Risk Act* (SARA). The Bobolink is listed as ‘Threatened’ by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Bobolink are typically described as residents of grassland communities with an abundance of grass species that are typical of old fields. Bobolink are also commonly associated with agricultural lands. Several Bobolink were identified during breeding bird surveys at the west end of the study area, specifically in the unfinished subdivision that has grown into a grassland on the south side of Queen Street West, east of Mississauga Road (**Figure 2**). This area provides suitable habitat for Bobolink and several were observed. Note that a few Bobolink were observed to the north of the trees in the agricultural field north of Queen Street West, east of Mississauga Road (**Figure 2**).

#### Eastern Meadowlark

Eastern Meadowlark, a species with a broad distribution across southern Ontario, is regulated as ‘Threatened’ under the ESA and SARA. Eastern Meadowlark is listed as ‘Threatened’ by COSEWIC. The Eastern Meadowlark, formerly a prairie species, has adapted to agricultural practices of the European settlers (hayfields, pastures, etc.). As farming practices have become more efficient, Eastern Meadowlark numbers have declined. Several Eastern Meadowlark were identified during breeding bird surveys conducted in 2019. Habitat suitable for this species was identified within the west portion of the study area, in the same area described for Bobolink above (**Figure 2**).

### Eastern Wood Pewee

Eastern Wood Pewee is listed as ‘Special Concern’ under the Species at Risk in Ontario List; however, this species is not a regulated species (‘Endangered’ or ‘Threatened’) under the ESA. The Eastern Wood Pewee is listed as ‘Special Concern’ by COSEWIC, but has no status under SARA. The Eastern Wood Pewee is found in deciduous and mixed forests and in forest openings/clearings/edges. No Eastern Wood Pewee were identified during targeted breeding bird surveys. Forest habitat suitable for this species exists outside of the study area in the natural areas backing on to the properties fronting Main Street.

### Wood Thrush

Wood Thrush is listed as ‘Special Concern’ under the Species at Risk in Ontario List; however, this species is not a regulated species (‘Endangered’ or ‘Threatened’) under the ESA. The Wood Thrush is listed as ‘Special Concern’ by COSEWIC, but has no status under the *Species at Risk Act*. The Wood Thrush is found in mature deciduous and mixed forests with large trees, shade and leaf litter for foraging. Habitats which have the potential to support Wood Thrush were identified outside of the study area (see discussion for Eastern Wood Pewee above).

**TABLE 6.  
 WILDLIFE SPECIES AT RISK SUMMARY**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Location (s)</b>	<b>ESA</b>	<b>SARA</b>	<b>Last Observed Date</b>	<b>Preferred Habitat*</b>	<b>Potential Habitat in Study Area</b>	<b>Species Confirmed in Study Area</b>
<i>Dolichonyx oryzivorus</i>	Bobolink	West end of Queen St. W, north and south of road	THR	THR	June 27, 2019	Open country/grasslands and agricultural.	Open country/agricultural habitat types at west end of study area	Yes
<i>Hirundo rustica</i>	Eastern Meadowlark	West end of Queen St. W south of road	THR	THR	June 27, 2019	Open country and agricultural	Open country/agricultural habitat types at west end of study area	Yes
<i>Contopus virens</i>	Eastern Wood Pewee	In the vicinity of the study area.	SC	-	Unknown	Forest species, typically associated with forest openings, clearing or edges.	Forest and forest edges were identified as habitat for the species. However, forested areas within the study area are limited in size/distribution. Only limited habitat suitable to support this species identified within the study area.	No
<i>Hylocichla mustelina</i>	Wood Thrush	In the vicinity of the study area.	SC	-	Unknown	Relatively large tracts of deciduous and mixed forests with large trees, shade, and leaf litter for foraging.	Forested areas within the study area are limited in size/distribution. No habitat suitable to support this species identified within the study area.	No

\*Preferred habitat is based on a review of secondary sources; however, these species may be found in other habitats.



## **2.4 Designated Natural Areas**

Designated natural areas include areas identified for protection by the Ontario Ministry of Natural Resources and Forestry, Credit Valley Conservation, Regional Municipality of Peel and the Town of Caledon. A review of the MNRF Natural Heritage Information Centre (NHIC 2019) indicates that there are three Provincially Significant Wetland (PSW), two other evaluated wetlands, two Areas of Natural and Scientific Interest (ANSI), one candidate ANSI and one Environmentally Significant/Sensitive Area (ESA) identified within the greater landscape of the study area (**Figure 3**). In addition, there are several unevaluated wetlands and wooded areas. Also, the cultural woodland associated with the Shaw's Creek crossing of Main Street is recommended for designation as Significant Wildlife Habitat as described in **Section 2.3.1**.

These natural areas, although not bordering the study area (with the exception of the Significant Wildlife Habitat mentioned above), provide a mosaic within the greater landscape for wildlife habitat and movement between and amongst them. The study area (and the village of Alton in general) lies within this greater mosaic through which wildlife can travel from one natural area to another.

### *Greenbelt Plan Area*

The entire study area is identified as "Protected Countryside" within the Greenbelt Plan Area and specifically "Towns/Villages".

### *Peel Region Official Plan*

The lands within the study area are not designated as any special area. The river corridor and wetlands located to the east of the study area are identified as "Core Area of the Greenlands System in the Region of Peel Official Plan".

## **3.0 PROJECT DESCRIPTION**

Improvements to Queen Street West and Main Street in Alton Village include road reconstruction of a two-lane urban cross section within the Alton Village Core, including storm sewer and catch basin infrastructure upgrades (curb and gutter), continuous accessible sidewalk on the south boulevard with pedestrian crossings to key tourist locations, and the rehabilitation of the Main Street bridge. The bridge rehabilitation will entail work at the surface of the bridge only (barrier wall replacement and cantilevering 300 mm to 600 mm off of the deck for sidewalk widening) and not involve work in the valley or the banks of Shaw's Creek. The project will maintain the rural character of the corridor along Main Street North through a two-lane rural cross section including 1.5 metre paved shoulders (where feasible), enhanced grass swales, and the introduction of a retaining wall on the south side of a large s-curve in the roadway. Traffic calming features and non-intrusive streetscape enhancements will be incorporated into the roadway throughout the study area. The draft storm water management plan (RVA 2020) recommends a new storm water outfall to Shaw's Creek within the northwest quadrant of the Main Street bridge.

## **4.0 IMPACT ASSESSMENT AND ENVIRONMENTAL PROTECTION**

This section focuses on the potential effects on significant environmental features and outlines the environmental protection/mitigation measures proposed to manage adverse effects related to terrestrial and aquatic ecosystems. Environmental effects are identified based on natural heritage issues/concerns anticipated associated with preliminary design plan and grading impacts. The proposed environmental protection/mitigation measures will need to be reviewed and updated as necessary during detail design.

#### **4.1 Aquatic Habitats and Communities**

The only watercourse within the study limits, Shaw's Creek, supports direct fish habitat. It is connected to two online ponds, Alton Mill Pond and Millcroft Pond, both of which support direct fish habitat. **Figure 2** presents the location the watercourse crossing and online ponds. Although there are no direct impacts anticipated to the crossing of Shaw's Creek from the proposed works, potential indirect impacts resulting from the grading near Alton Mill Pond, the exposure of soils upslope of the watercourse and the proposed new storm water outfall have the potential to result in impacts to fish habitat due to the following effects:

- temporary disruption of site-specific habitat;
- changes to water quality and quantity;
- changes in water temperature;
- changes to floodplain and riparian vegetation; and,
- barriers to fish passage.

As stated above, only indirect impacts to fish and fish habitat are anticipated as a result of the proposed works. As no works within the watercourse are proposed, it is likely that no harm to fish or fish habitat will ensue, therefore, consultations and permitting from the DFO are not required. However, as a relatively large portion of the study area lies within the CVC regulation limits, the proposed works are subject to *Ontario Regulation 160/06* and permitting will be required through CVC.

##### **4.1.2 Temporary Disruption or Permanent Loss of Site-Specific Habitat**

The proposed works will not result in the permanent loss of fish habitat as there is no in-water work proposed. However, in order to minimize the potential for adverse effects, particularly to the Alton Mill Pond, the grading limit should be as tight to the ROW as possible to avoid encroachment into the riparian area. Project mitigation to reduce potential impacts within riparian areas and valleys should include the use of erosion and sediment controls measures and the reduction of the amount of space between the sidewalk and the curb to minimize slope encroachment into riparian habitat. In addition, the new storm water outfall in the northwest quadrant of the Main Street bridge should be located in an area where scour from storm flows will not occur (i.e., in a riffle where substrates are large). Also, bank erosion from the outfall should be mitigated with a quantity control to ensure no erosion of riparian habitat occurs.

To reduce the potential for adverse effects to fish habitat, the following environmental protection measures will be implemented:

- an in-water work/work within riparian habitat construction timing restriction should be implemented to protect spawning fish, incubating eggs and fry emergence: due to the coldwater habitat designation, in-water work/works within riparian habitat should be permitted from July 1 to September 15 at the crossing (to be confirmed with MNRF and CVC);
- work areas will be delineated with construction fencing to minimize the area of disturbance;
- appropriate sediment control structures will be installed prior to and maintained during construction to prevent entry of sediments into the watercourse;
- good housekeeping practices related to materials storage/stockpiling, equipment fuelling/maintenance, etc. will be implemented during construction; and
- disturbed riparian areas will be vegetated and/or covered with an erosion control blanket as quickly as possible to stabilize the banks and minimize the potential for erosion and sedimentation.

These environmental protection measures will greatly reduce the potential adverse effects to fish and fish habitat resulting from construction activities.

#### **4.1.2 Temporary Change to Water Quality**

The construction associated with the proposed works has the potential to alter water quality through on-site erosion of exposed materials and the subsequent impairment of downstream water quality with sediments and other contaminants.

Changes to water quality will be mitigated through the treatment of effluent from dewatering (if applicable) prior to its release back into the receiving watercourse and the deployment and maintenance of erosion and sediment which will prevent sediments from reaching the watercourses from exposed soils upslope. To improve storm water quality, roadway runoff should be directed to existing storm water management facilities where technically feasible and sufficient permanent pool volume is available within the SWM facility. In addition, all exposed areas should be vegetated as quickly as possible once work is completed. Other best management practices (BMPs) should be instated to treat water prior to entering the watercourse. These BMPs include; catch basin capture devices, oil grit separators, infiltration/cooling trenches, plunge pools at outlets, stone cooling trenches, online storage devices, control orifices, and Low Impact Development (LID) bioretention planters.

The implementation of some of these mitigation measures BMPs should eliminate potential changes to water quality to the receiving watercourse.

#### **4.1.3 Changes in Water Temperature**

The thermal regime of a receiving watercourse may be altered by storm water runoff or removal of riparian vegetation that shades the watercourse. In the summer, runoff can become superheated through contact with paved surfaces, which, when discharged to a receiving watercourse can result in thermal shock, thereby injuring or killing aquatic organisms. Coldwater or coolwater streams are usually considered more sensitive to changes in water temperature than warmwater streams.

Some of the storm water treatment BMPs listed above will also function to reduce discharge temperatures to receiving watercourses (e.g., infiltration/cooling trenches, stone cooling trenches, online storage devices). It is expected that there will be no significant increase in temperature as a result of the proposed works as long as appropriate storm water management strategies are implemented.

#### **4.1.4 Barriers to Fish Passage**

No barriers to fish passage will result from this project.

#### **4.1.5 Restoration/Enhancement/Compensation**

The riparian areas at the Shaw's Creek crossing and Alton Mill Pond may be affected by the proposed road improvements. Restoration, enhancement and/or compensation will focus on these main areas of impact.

The goal of restoration/enhancement in these areas is to provide an overall benefit to the existing riparian habitat. Restoration of disturbed riparian areas associated with grading efforts should focus on the replacement and enhancement of the riparian vegetation that will be affected by the proposed works. These restoration and enhancement works should increase the diversity of habitat in relation to what is present by increasing riparian cover, increase habitat diversity and provide good floodplain connectivity, as well as provide shade to the watercourses.

At a minimum, the following should be employed as restoration/enhancement during the detail design phase of the project where riparian works are proposed. Riparian areas should be planted with native grasses, trees and shrubs to provide increased shading and allochthonous inputs to the watercourse. Where restoration and enhancement will not suffice to offset/mitigate impacts, compensation should be employed. Compensation plans, if necessary, will be completed during detail design in consultation with regulatory agencies.

## 4.2 Vegetation and Vegetation Communities

The proposed improvements to Main Street and Queen Street West will result in the displacement of and disturbance to vegetation and vegetation communities. Effects on vegetation and vegetation communities may include:

- Displacement of/disturbance to vegetation and vegetation communities; and,
- Displacement of/disturbance to rare, threatened or endangered vegetation and vegetation communities.

### 4.2.1 Displacement of/Disturbance to Vegetation and Vegetation Communities

Clearing of vegetation will be required to accommodate the proposed improvements to Main Street between Highpoint Sideroad and Queen Street, and Queen Street West from Main Street to Mississauga Road. The improvements will result in the removal of approximately 2.48 ha of naturalized and/or planted areas. The largest area of impact will be to lands that have been anthropogenically influenced, including cultural vegetation communities, hedgerows and manicured areas. A total of 2.44 ha of anthropogenically influenced lands and cultural vegetation communities will be removed as a result of the proposed improvements. In addition, a total of 0.04 ha of wetland communities will be removed. **Table 7** provides a summary of the total area of vegetation communities that will be removed for the improvements to Main Street and Queen Street West.

**TABLE 7.  
 IMPACTS TO VEGETATION COMMUNITIES**

<b>Vegetation Community Type</b>	<b>Vegetation Community</b>	<b>Total Area (ha) to be Impacted</b>
Wetland	Meadow Marsh (MAM2-10)	0.04
	<i>Sub-total for Wetland Communities</i>	<b>0.04</b>
Cultural	Dry-Moist Old Field Meadow (CUM1-1)	0.55
	Mineral Cultural Thicket (CUT1a, CUT1b)	0.58
	Coniferous Plantation (CUP3)	0.25
	Mineral Cultural Woodland (CUW1a)	0.05
	<i>Sub-total for Cultural Communities</i>	<b>1.43</b>
Anthropogenic	Manicured (M)	1.00
	Hedgerows (H)	0.01
	<i>Sub-total for Anthropogenic Lands</i>	<b>1.01</b>
<b>Total Area (ha) of Impacted Vegetation Communities</b>		<b>2.48</b>

#### *Cultural Vegetation Communities*

Road improvements will result in the removal of approximately 1.43 ha of cultural vegetation communities including cultural meadow, cultural thicket, cultural woodland and coniferous plantation. Overall, impacts resulting in the loss of vegetation within these cultural communities is considered to be minor. Cultural

vegetation communities typically persist in areas that are regularly disturbed, and as a result, generally contain a high proportion of invasive and non-native plant species that are tolerant of these conditions.

It is expected that plant species displaced and/or disturbed within the cultural vegetation communities due to the road improvements will re-colonize available lands adjacent to the new right-of-way post-construction. Disturbance activities often serve to promote the establishment and / or spread of certain plant species (including the disturbance tolerant species identified within the existing right-of-way).

#### *Wetland Communities*

Impacts to the meadow marsh community will result in the removal of a small portion of the community adjacent to the Main Street right-of-way. Meadow marsh are widespread and common in Ontario and the loss of a portion of this community is not anticipated to have any negative impacts to the remaining portions of meadow marsh within the study area.

#### *Anthropogenic Communities*

As noted in **Table 7**, a total of 1.01 ha of human influence lands will be removed including 1.00 ha of manicured lands and 0.01 ha of hedgerows. The overall significance of the impact to these lands is considered low.

### **4.2.2 Displacement of Rare, Threatened, Endangered Vegetation or Significant Vegetation**

All of the vegetation communities identified within the study area are considered to be widespread and common in Ontario and secure globally. As a result, there will be no impacts to rare, threatened, or endangered vegetation communities.

As noted in **Section 2.2.3**, no plant species that are regulated under the Ontario *Endangered Species Act*, or the Canada *Species at Risk Act* were encountered during LGL's botanical investigation with the study area (those plant species regulated as Endangered, Threatened or Special Concern). Two plant species considered rare by CVC were identified within the study area including white spruce and Indian grass. These two species were planted and are not naturally occurring as a result, they should not be considered significant within the study area.

### **4.2.3 Mitigation**

At a minimum, the following protection/mitigation measures will be implemented during construction to ensure the protection of vegetation and vegetation communities to the extent possible:

- During detail design, efforts will be made to minimize the removal of vegetation/vegetation communities, to the extent possible;
- The contractor shall ensure that soil migration from the construction area is prevented, and that exposed soils are stabilized as soon as is possible;
- Native and non-invasive vegetation cover will be used to protect any exposed surfaces;
- Old field seed mix and mulching or erosion control blanket will be placed in areas of soil disturbance to provide adequate slope protection and long-term slope stabilization in areas where sensitive features and watercourses are to be protected;
- Appropriate tree protection will be installed to protect trees and natural areas to be retained, including safeguarding trees and natural areas from construction operations, equipment and vehicles. Prior to construction, trees and natural areas to be protected will be clearly identified in the field by the Contract Administrator and a protective barrier will be installed. Repairing or

replacing trees/shrubs identified to remain outside of grading limits, which become damaged by construction activities, should be undertaken; and, restoration of disturbed natural areas should use a native species seed mix and woody species plantings similar to the character of the surrounding area, or similar native woody species; and,

- Landscape planning and planting will be undertaken and implemented to mitigate removals within landscaped/manicured areas, to beautify areas within the new right-of-way, provide shading, provide wildlife habitat for local, urban species, and to promote carbon capture. Landscaping planning and implementation shall be undertaken by experienced, qualified professionals. Maintenance and warranty for Landscaping should be in place for landscaping works undertaken.

### **4.3 Wildlife and Wildlife Habitat**

The construction and operation of the upgraded roadway proposed along Queen Street West and Main Street have the potential to result in impacts to wildlife and wildlife habitat. Effects related to the construction and operation of the road expansion could include:

- Displacement of wildlife and wildlife habitat;
- Barrier effects on wildlife passage;
- Wildlife/vehicle conflicts;
- Disturbance to wildlife from noise, light and visual intrusion;
- Potential impacts to migratory birds; and,
- Displacement of rare, threatened or endangered wildlife or significant wildlife habitat.

#### **4.3.1 Displacement of Wildlife and Wildlife Habitat**

Modification of the existing road network will occur in areas that have been previously disturbed by human activity (mainly urbanization and agricultural practices), and consist of low-quality wildlife habitat. However, higher quality habitats exist within valleylands associated with watercourses (see description of Significant Wildlife Habitat in **Section 2.3.1**) and in wetlands and forested areas adjacent to and outside of the study area, also acting as corridors. These valleylands, wetlands and forested areas support natural or semi-natural vegetation communities and contribute to the wildlife assemblage identified within the lands examined.

Only minimal infringement to the edge of the above-mentioned natural heritage features will occur as a result of road modification to the existing road network along Main Street and Queen Street West. Modification to these roads within and beyond the right-of-way are not expected to have a significant impact on wildlife and/or wildlife habitat throughout the majority of the study area, including the Significant Wildlife Habitat east of the right-of-way at Shaw's Creek). However, displacement of species at risk habitat is anticipated along both sides of Queen Street West adjacent to Mississauga Road where two species at risk, Eastern Meadowlark (*Sturnella magna*) and Bobolink (*Dolichonyx oryzivorus*), were observed utilizing these fields during field investigations (discussed further in **Section 4.3.6**).

The proposed activities within the project area should occur outside of the breeding bird window (see **Section 4.3.5**), to minimize disturbance to birds and other wildlife species utilizing habitats within the study area.

An analysis of vegetation removal per vegetation (wildlife habitat) community is presented in **Section 4.2**.

#### **4.3.2 Barrier Effects on Wildlife Passage**

No new permanent migratory barriers to wildlife will be created in the study area as a result from the proposed works. The existing potential barrier posed by the steep slope of the “S” bend along Main Street will be similar due to the proposed works. However, wildlife likely use the lands north and south of the slope for movement throughout the study area. Accommodating wildlife passage will also reduce the amount of wildlife/vehicle conflicts (discussed below).

#### **4.3.3 Wildlife/Vehicle Conflicts**

The proposed road modifications will not significantly increase the width of the travelled surface that could potentially result in an increased risk of mortality for wildlife crossing the road. The proposed road improvements along Main Street and Queen Street West incorporate a moderate speed limit and the use of speed control measures (e.g., speed bumps), which will limit the risk of wildlife to vehicular conflicts. Additionally, the potential increase in wildlife mortality above existing conditions is considered very minor due to the proposed construction of retaining walls and guiderails throughout the study area.

#### **4.3.4 Disturbance to Wildlife from Noise, Light and Visual Intrusion**

Noise, light and visual intrusion may alter wildlife activities and patterns. Local wildlife has likely become acclimatized to the noise, light and visual conditions associated with roads, residences, farms and general human activity present within and in the vicinity of the study area. Only those fauna that are tolerant of human activities tend to persist. Given that wildlife found within the study area are acclimatized to the presence of the existing infrastructure, disturbance to wildlife from any increase in noise, light and visual intrusion potentially caused by the operation of the proposed roadways are not expected to have any significant adverse effects. Potential disturbance caused by light pollution from the roadways can be mitigated by using reflectors to focus light beams onto the facilities and away from natural heritage features adjacent to them.

#### **4.3.5 Potential Impacts to Migratory Birds**

As identified above (**Section 2.3.2**), numerous bird species listed under the *Migratory Birds Convention Act* (MBCA) were identified within the study area. The MBCA prohibits the killing, capturing, injuring, taking or disturbing of migratory birds (including eggs) or the damaging, destroying, removing or disturbing of nests. While migratory insectivorous and non-game birds are protected year-round, migratory game birds are only protected from March 10 to September 1. The study area lands fall within Environment Canada’s Nesting Zone C2 (Nesting Period: end of March – end of August). Consequently, to comply with the requirements of the MBCA, it is recommended that disturbance, clearing or disruption of vegetation where birds may be nesting should be completed outside the window of April 1 to August 31 to avoid the breeding bird season for the majority of the bird species protected under the Act. In the event that these activities must be undertaken from April 1 to August 31, a nest screening survey will be conducted by a qualified avian biologist. If an active nest is located, a mitigation plan shall be developed and provided to Environment Canada – Ontario Region for review prior to implementation.

#### **4.3.6 Displacement of Rare, Threatened or Endangered Wildlife or Significant Wildlife Habitat**

**Section 2.3.3** above discusses the four species at risk that have been identified, or previously identified, as present within the study area. Two of these species (Eastern Meadowlark and Bobolink) were observed during the field investigations. Agricultural fields and overgrown grasses along Queen Street West and Mississauga Road provide suitable habitat for both Eastern Meadowlark and Bobolink. However, the likelihood of the project having a negative effect on species at risk is low as encroachment into suitable habitats will be minimal, with potential effects only along edges. These bird species tend to avoid edges and, with the presence of the existing roadways in the study area, likely will only be found far from the potential work areas of the proposed roadway widenings and road construction. Because of the unlikelihood

of adverse effects on species at risk, no permitting requirement under the ESA is anticipated; however, consultation with the MECP during the detail design phase is warranted. Follow-up field surveys may be required during detailed design to further assess presence/absence and potential habitat function of lands within the study area.

#### **4.4 Designated Natural Areas**

There are no Areas of Natural and Scientific Interest (ANSIs) or Environmentally Significant Areas (ESAs) within 120 m of the study area. Two unevaluated wetlands lie within the immediate vicinity of the study area, however, no significant impacts are anticipated to either, as they lie outside of the proposed grading limit. Works adjacent to the Significant Wildlife Area at the Main Street bridge crossing of Shaw's Creek is anticipated to be contained within the right-of-way. Therefore, not impacts to this habitat are expected.

##### *Greenbelt Plan Area*

As noted above, a portion of the study area falls within the "Protected Countryside" designation of the Greenbelt Plan Area, as part of the "Natural Heritage System". Minor impacts are expected to occur to vegetation communities within the Greenbelt Plan Area. Vegetation removals within these communities will occur to a small portion of the community adjacent to the Main Street right-of-way. Consequently, impacts to the Greenbelt Plan Area designated lands are considered to be minor in nature.

##### *Peel Region Official Plan*

No impacts to lands designated as any special area under the Peel Region Official Plan are anticipated as a result of the proposed works within the study area.

#### **4.5 Potential Permit Requirements**

##### **4.5.1 Fisheries Act**

As discussed above in **Section 3.2**, the proposed works around the watercourse crossing, Shaw's Creek, are not anticipated to impact the watercourse or fish and fish habitat. As the proposed works follow the measures to protect fish and fish habitat, authorization under the *Fisheries Act* will not be required.

##### **4.5.2 Species At Risk Act**

The works proposed have the potential to affect three species, Wood Thrush, Eastern Meadowlark and Bobolink, which are listed as "Schedule 1: Threatened" under the federal *Species at Risk Act*, the latter two having been confirmed during field investigations. One species, Eastern Wood Pewee, is regulated as "Special Concern" under the SARA. During detailed design, consultation with Environment Canada regarding the proposed works should be conducted to determine whether a permit(s) is required.

##### **4.5.3 Endangered Species Act**

Both Eastern Meadowlark and Bobolink are regulated as "Threatened" under the Ontario *Endangered Species Act, 2007* and have been observed within the study area. Wood Thrush and Eastern Wood Pewee are regulated as "Special Concern" under the ESA. Consultation with the MECP should occur during detailed design to determine if permit requirements under the ESA are required. If required, the necessary permit(s) will be secured during detailed design.

##### **4.5.4 CVC Regulation 160/06**

Shaw's Creek and the Alton Mill Pond located within the study area are subject to *Ontario Regulation 160/06: CVC Regulation of Development, Interference with Wetlands and Alterations to Shorelines and*



*Watercourses.* A permit from the CVC, pursuant to *O. Reg. 160/06*, will be required for work within these areas and will be secured during detail design.

## **5.0 MONITORING**

To ensure that erosion and sediment controls are installed prior to and maintained during construction, an Erosion and Sediment Control (ESC) Plan will be prepared. The ESC Plan will provide details regarding the inspection, maintenance (e.g., need for repair), and documentation procedures during all stages of construction. An environmental inspector will monitor the site during construction to confirm that construction fencing, tree protection barriers and erosion and sedimentation control measures are installed correctly and are functional.

## **6.0 CONCLUSION**

In general, the study area consists mainly of rural and urban residential properties, with some natural vegetation communities, that may experience disturbance from proposed project. Vegetation within the study area consists of a mixture of cultural communities, wetland and manicured human-influenced lands. In general, Queen Street West is a residential area with manicured lawns and a number of planted trees, while Main Street consists of a combination between residential properties and naturalized vegetation communities.

As a result of the disturbed landscape and limited natural heritage features within the immediate vicinity of the study area, the assemblage of wildlife species observed are considered urban or tolerant of anthropogenic features and disturbance. Four herpetofauna species were observed during LGL's field investigations; however, additional species considered urban tolerant may be expected to occupy within aquatic and adjacent riparian habitats within the study area.

Six mammalian species were observed during field investigations. Based on the habitat types present, several additional mammal species that prefer cultural, open country, wetland and urban habitat types may be expected to occupy areas within the lands examined. The areas associated with the cultural communities, watercourse valleylands and unevaluated wetlands within the study area are likely to provide locally significant mammal movement corridors, given the number of significant habitat type and natural heritage features within the landscape.

No nests of migratory bird species were recorded within the study area. Generally, bird species identified (and expected to be present) are tolerant of anthropogenic features and disturbance.

DFO Aquatic Species at Risk Mapping (DFO 2019) shows no species at risk or their associated habitat within Shaw's Creek or the Alton Mill Pond. Therefore, it can be concluded that there are no aquatic species at risk in the watercourse within the study area. Based on information obtained from the MNR, three species at risk, Eastern Meadowlark, Eastern Wood Pewee and Wood Thrush, were documented within or near the study area. However, the latter two species were not observed during LGL's field investigations, as suitable habitat was not present throughout the study area. Alternatively, habitat that was suitable to support Eastern Meadowlark and Bobolink was identified within the study area and both species were observed during LGL's field investigations. No trees were identified within the study area during the site visits (April - June and October, 2019) containing suitable micro habitats (e.g., snags and cavities) for bats. Consequently, no habitat considered suitable to support species at risk bats (noted above) was identified within the study area. However, it is recommended that a formal snag survey be performed during detailed design using accepted protocols (e.g., MNR 2016) to determine if there is any bat habitat that could be affected by the project.

Given the results of the field investigations, no significant natural heritage features were identified or are expected to be within the study area, with the exception of the Significant Wildlife Habitat downstream of the Main Street bridge crossing of Shaw's Creek. As such, limited impacts to the natural heritage features within the study area are expected and impacts to the Significant Wildlife Habitat are not expected. As a result of the proposed works, 2.48 ha of vegetation communities will be removed, which will in turn impact availability and quality of wildlife habitat. Minimal to no impacts are anticipated to fish and fish habitat, as long as proper mitigation measures are in place to prevent exposure of construction materials and effluent to the surrounding waterbodies.

## 6.0 REFERENCES

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**APPENDIX A**  
**PHOTOGRAPHIC RECORD**





Shaw's Creek at Alton Mill Pond: upstream end of pond facing north.



Shaw's Creek at Alton Mill Pond: main part of pond facing northeast (downstream).



Shaw's Creek at Alton Mill Pond: facing upstream (west) with Queen Street East on left of photo. Note manicured area between street and south bank of pond.



Shaw's Creek at Alton Mill Pond: facing downstream (east) at dam.

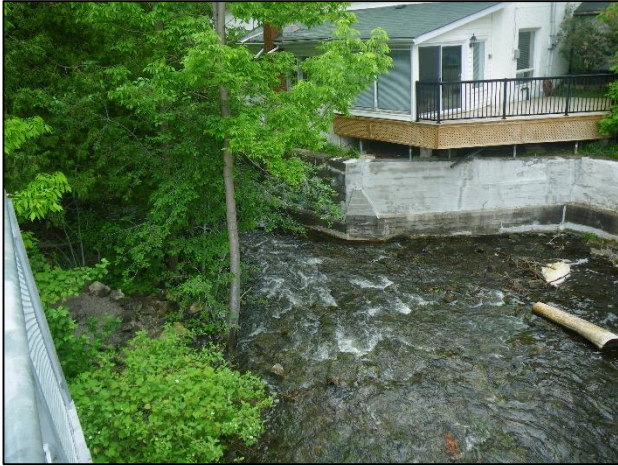


Shaw's Creek at Alton Mill Pond: downstream end of pond at upstream end of dam. Facing downstream (west).



Shaw's Creek at downstream end of Alton Mill Pond dam facing upstream (west) at dam.





Shaw's Creek downstream of dam showing hardened bank of backyard of house on Queen Street East.



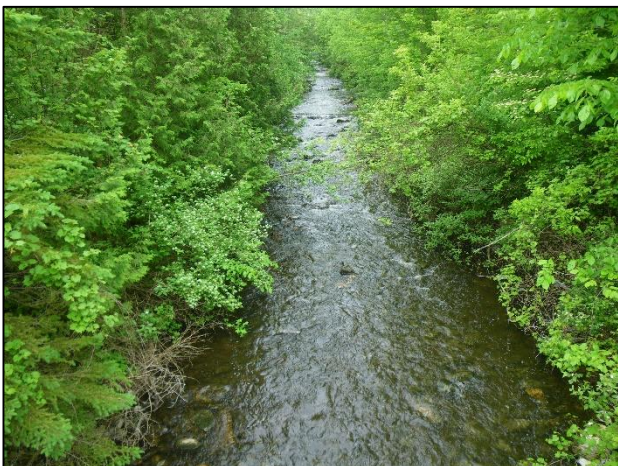
Shaw's Creek: facing south from north bank showing more bank hardening downstream of dam.



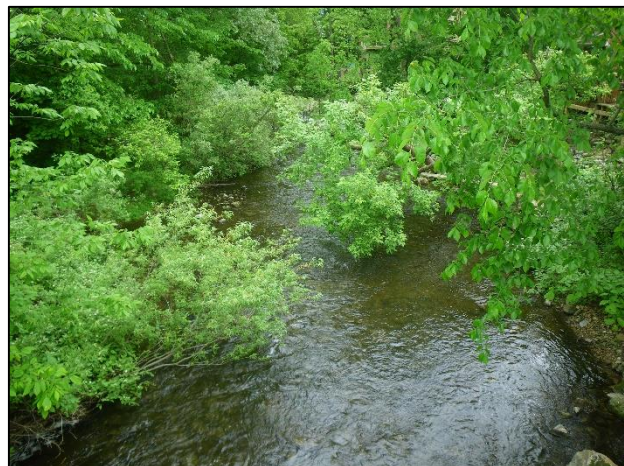
Shaw's Creek facing upstream (west) toward dam from Alton Mills Art Centre pedestrian bridge.



Shaw's Creek facing downstream (east) from Alton Mills Art Centre pedestrian bridge. Note shoreline armoring on south bank (right in photo).



Shaw's Creek facing upstream (west) from Amelia Street bridge.



Shaw's Creek facing downstream (east) from Amelia Street bridge.





Shaw's Creek facing northwest (upstream) from NW corner of Queen Street/Main Street intersection.



Shaw's Creek facing east (downstream) from NW corner of Queen Street/Main Street intersection.



Shaw's Creek facing west (upstream) from downstream of Main Street crossing.



Shaw's Creek facing east (downstream) from downstream of Main Street crossing.



Shaw's Creek: Gabion basket bank treatments downstream of Main Street crossing.



**APPENDIX B**  
**VASCULAR PLANT LIST**

Vascular Plant List

Scientific Name	Common Name	GRank	SRank	MNR	COSEWIC	Peel-Riley	Peel CVC	CUM1-1	CUP3	CUT1a	CUT1b	CUW1	MAM2-10	MAS2-1	Hedgerow
<b>PINACEAE</b>	<b>PINE FAMILY</b>														
<i>Picea glauca</i>	white spruce	G5	S5			X			X						X
* <i>Picea abies</i>	Norway spruce	G?	SE3			X			X		X				X
* <i>Picea pungens</i>	Colorado spruce	G5	SE1												X
* <i>Pinus nigra</i>	Austrian pine	G?	SE2						X	X	X				
<i>Pinus strobus</i>	eastern white pine	G5	S5			X			X		X				X
* <i>Pinus sylvestris</i>	scotch pine	G?	SE5			X				X					
<b>CUPRESSACEAE</b>	<b>CEDAR FAMILY</b>														
<i>Juniperus virginiana</i>	eastern red cedar	G5	S5				Rare								X
<i>Thuja occidentalis</i>	eastern white cedar	G5	S5			X			X	X	X	X			
<b>RANUNCULACEAE</b>	<b>BUTTERCUP FAMILY</b>														
<i>Thalictrum dioicum</i>	early meadow-rue	G5	S5			X						X			
<b>ULMACEAE</b>	<b>ELM FAMILY</b>														
<i>Ulmus americana</i>	white elm	G5?	S5			X					X	X			
<b>JUGLANDACEAE</b>	<b>WALNUT FAMILY</b>														
<i>Juglans nigra</i>	black walnut	G5	S4			X Nat					X	X			
<b>BETULACEAE</b>	<b>BIRCH FAMILY</b>														
<i>Betula papyrifera</i>	white birch	G5	S5			X					X				
<b>CARYOPHYLLACEAE</b>	<b>PINK FAMILY</b>														
* <i>Saponaria officinalis</i>	bouncing-bet	G?	SE5			X				X	X				

Vascular Plant List

Scientific Name	Common Name	GRank	SRank	MNR	COSEWIC	Peel-Riley	Peel CVC	CUM1-1	CUP3	CUT1a	CUT1b	CUW1	MAM2-10	MAS2-1	Hedgerow
<b>POLYGONACEAE</b>	<b>SMARTWEED FAMILY</b>														
* <i>Rumex crispus</i>	curly-leaf dock	G?	SE5			X		X		X	X				
<b>TILIACEAE</b>	<b>LINDEN FAMILY</b>														
<i>Tilia americana</i>	basswood	G5	S5			X						X			
<b>CUCURBITACEAE</b>	<b>GOURD FAMILY</b>														
<i>Echinocystis lobata</i>	prickly cucumber	G5	S5			X				X		X			
<b>SALICACEAE</b>	<b>WILLOW FAMILY</b>														
<i>Populus tremuloides</i>	trembling aspen	G5	S5			X					X				
* <i>Salix X rubens</i>	reddish willow	HYB	SE4									X			
* <i>Populus alba</i>	silver poplar	G5	SE5			X				X	X				
<b>BRASSICACEAE</b>	<b>MUSTARD FAMILY</b>														
* <i>Hesperis matronalis</i>	dame's rocket	G4G5	SE5			X						X			
* <i>Alliaria petiolata</i>	garlic mustard	G5	SE5			X						X			
<b>ROSACEAE</b>	<b>ROSE FAMILY</b>														
<i>Malus sp.</i>	apple										X	X			
<i>Amelanchier laevis</i>	smooth Juneberry	G4G5Q	S5			X					X				
<i>Prunus virginiana ssp. virginiana</i>	choke cherry	G5T?	S5			X						X			
* <i>Rubus idaeus ssp. idaeus</i>	red raspberry	G5T5	SE1									X			
<i>Geum aleppicum</i>	yellow avens	G5	S5			X					X	X			
<i>Fragaria virginiana ssp. virginiana</i>	scarlet strawberry	G5T?	SU			X						X			





Vascular Plant List

Scientific Name	Common Name	GRank	SRank	MNR	COSEWIC	Peel-Riley	Peel CVC	CUM1-1	CUP3	CUT1a	CUT1b	CUW1	MAM2-10	MAS2-1	Hedgerow
<i>Fraxinus pennsylvanica</i>	red ash	G5	S5			X					X				
* <i>Syringa vulgaris</i>	common lilac	G?	SE5			X		X			X				
<b>SCROPHULARIACEAE</b>	<b>FIGWORT FAMILY</b>														
* <i>Verbascum thapsus</i>	common mullein	G?	SE5			X		X							
<b>CAPRIFOLIACEAE</b>	<b>HONEYSUCKLE FAMILY</b>														
* <i>Viburnum opulus</i>	guelder rose	G5	SE4			X					X				
<i>Sambucus canadensis</i>	common elderberry	G5	S5			X					X				
* <i>Lonicera tatarica</i>	Tartarian honeysuckle	G?	SE5			X				X	X	X			
<b>DIPSACACEAE</b>	<b>TEASEL FAMILY</b>														
* <i>Dipsacus fullonum ssp. sylvestris</i>	wild teasel	G?T?	SE5			X		X							
<b>ASTERACEAE</b>	<b>ASTER FAMILY</b>														
* <i>Arctium lappa</i>	great burdock	G?	SE5			X						X			
* <i>Achillea millefolium ssp. millefolium</i>	common yarrow	G5T?	SE?			X		X							
<i>Aster lanceolatus ssp. lanceolatus</i>	tall white aster	G5T?	S5			X							X		
<i>Bidens cernua</i>	stick-tight	G5	S5			X							X		
* <i>Chrysanthemum leucanthemum</i>	ox-eye daisy	G?	SE5			X		X							
<i>Aster lateriflorus var. lateriflorus</i>	calico aster	G5T5	S5									X			

Vascular Plant List

Scientific Name	Common Name	GRank	SRank	MNR	COSEWIC	Peel-Riley	Peel CVC	CUM1-1	CUP3	CUT1a	CUT1b	CUW1	MAM2-10	MAS2-1	Hedgerow
<i>Aster ericoides ssp. ericoides</i>	white heath aster	G5T?	S5			X		X			X	X			
<i>Ambrosia artemisiifolia</i>	common ragweed	G5	S5			X		X							
* <i>Arctium minus ssp. minus</i>	common burdock	G?T?	SE5					X							
* <i>Cichorium intybus</i>	chicory	G?	SE5			X		X							
<i>Aster novae-angliae</i>	New England aster	G5	S5			X		X			X		X		
* <i>Tussilago farfara</i>	coltsfoot	G?	SE5			X					X	X			
* <i>Sonchus arvensis ssp. arvensis</i>	field sow-thistle	G?T?	SE5			X		X							
* <i>Cirsium arvense</i>	Canada thistle	G?	SE5			X		X							
* <i>Tragopogon dubius</i>	doubtful goat's-beard	G?	SE5			X		X							
* <i>Taraxacum officinale</i>	common dandelion	G5	SE5			X		X							
* <i>Cirsium vulgare</i>	bull thistle	G5	SE5			X		X							
* <i>Lactuca serriola</i>	prickly lettuce	G?	SE5			X		X							
<i>Euthamia graminifolia</i>	flat-topped bushy goldenrod	G5	S5					X							
<i>Solidago canadensis</i>	canada goldenrod	G5	S5			X		X	X	X	X	X	X		X
<i>Eupatorium maculatum ssp. maculatum</i>	spotted joe-pye-weed	G5T5	S5			X							X		
<b>CYPERACEAE</b>	<b>SEDGE FAMILY</b>														
<i>Carex sp.</i>	sedge												X		
<i>Carex bebbii</i>	Bebb's sedge	G5	S5			X							X		

Vascular Plant List

Scientific Name	Common Name	GRank	SRank	MNR	COSEWIC	Peel-Riley	Peel CVC	CUM1-1	CUP3	CUT1a	CUT1b	CUW1	MAM2-10	MAS2-1	Hedgerow
<b>POACEAE</b>	<b>GRASS FAMILY</b>														
* <i>Elymus repens</i>	quack grass	G?	SE5			X		X							
* <i>Bromus inermis ssp. inermis</i>	awnless brome	G4G5T?	SE5			X		X	X	X	X	X			
* <i>Dactylis glomerata</i>	orchard grass	G?	SE5			X		X							
<i>Poa pratensis ssp. pratensis</i>	Kentucky bluegrass	G5T	S5			X		X		X	X	X			
<i>Phragmites australis</i>	common reed	G5	S5			X		X							
* <i>Phleum pratense</i>	timothy	G?	SE5			X		X							
<i>Phalaris arundinacea</i>	reed canary grass	G5	S5			X		X					X		
<i>Panicum capillare</i>	witch grass	G5	S5			X		X							
<i>Sorghastrum nutans</i>	Indian grass	G5	S4			R	Rare	X							
<b>TYPHACEAE</b>	<b>CATTAIL FAMILY</b>														
<i>Typha angustifolia</i>	narrow-leaved cattail	G5	S5			X								X	
<i>Typha latifolia</i>	broad-leaved cattail	G5	S5			X							X	X	

\* Non-native species

X present

Refer to **Appendix C** for species rank definitions.



**APPENDIX C**  
**ACRONYMS AND DEFINITIONS USED IN SPECIES LISTS**

## Species Status

<b>GRANK</b>	<b>Global Rank</b>
<p>Global ranks are assigned by a consensus of the network of Conservation Data Centres, scientific experts, and The Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies or variety.</p> <p>The most important factors considered in assigning global ranks are the total number of known, extant sites world-wide, and the degree to which they are potentially or actively threatened with destruction. Other criteria include the number of known populations considered to be securely protected, the size of the various populations, and the ability of the taxon to persist at its known sites. The taxonomic distinctness of each taxon has also been considered. Hybrids, introduced species, and taxonomically dubious species, subspecies and varieties have not been included.</p>	
<b>Short Form</b>	<b>Definition</b>
G1	<b>Extremely rare;</b> usually 5 or fewer occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.
G2	<b>Very rare;</b> usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences; or because of some factor(s) making it vulnerable to extinction.
G3	<b>Rare to uncommon;</b> usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.
G4	<b>Common;</b> usually more than 100 occurrences; usually not susceptible to immediate threats.
G5	<b>Very common;</b> demonstrably secure under present conditions.
GH	Historic, no records in the past 20 years.
GU	Status uncertain, often because of low search effort or cryptic nature of the species; more data needed.
GX	Globally extinct. No recent records despite specific searches.
?	Denotes inexact numeric rank (i.e. G4?).
G	A "G" (or "T") followed by a blank space means that the NHIC has not yet obtained the Global Rank from The Nature Conservancy.
G?	Unranked, or, if following a ranking, rank tentatively assigned (e.g. G3?).
Q	Denotes that the taxonomic status of the species, subspecies, or variety is questionable.
T	Denotes that the rank applies to a subspecies or variety.

<b>SRANK</b>	<b>Provincial Rank</b>
<p>Provincial (or Sub-national) ranks are used by the Ontario Ministry of Natural Resources Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario. By comparing the global and provincial ranks, the status, rarity, and the urgency of conservation needs can be ascertained. The NHIC evaluates provincial ranks on a continual basis and produces updated lists at least annually.</p>	
<b>Short Form</b>	<b>Definition</b>
S1	<b>Critically Imperiled</b> in Ontario because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation.
S2	<b>Imperiled</b> in Ontario because of rarity due to very restricted range, very few populations (often 20 or fewer occurrences) steep declines or other factors making it very vulnerable to extirpation.

<b>SRANK</b>	<b>Provincial Rank</b>
<p>Provincial (or Sub-national) ranks are used by the Ontario Ministry of Natural Resources Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario. By comparing the global and provincial ranks, the status, rarity, and the urgency of conservation needs can be ascertained. The NHIC evaluates provincial ranks on a continual basis and produces updated lists at least annually.</p>	
<b>Short Form</b>	<b>Definition</b>
S3	<b>Vulnerable</b> in Ontario due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4	<b>Apparently Secure</b> —Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5	<b>Secure</b> —Common, widespread, and abundant in Ontario.
SX	<b>Presumed Extirpated</b> – Species or community is believed to be extirpated from Ontario.
SH	<b>Possibly Extirpated</b> – Species or community occurred historically in Ontario and there is some possibility that it may be rediscovered.
SNR	<b>Unranked</b> —Conservation status in Ontario not yet assessed
SU	<b>Unrankable</b> —Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA	<b>Not Applicable</b> —A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S#	<b>Range Rank</b> —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

<b>COSEWIC</b>	<b>Committee on the Status of Endangered Wildlife in Canada</b>
<p>The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species that are considered to be at risk in Canada.</p>	
<b>Status</b>	<b>Definition</b>
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species likely to become endangered if limiting factors are not reversed.
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.
Not at Risk (NAR)	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)	A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.

<b>COSSARO/OMNR</b>	<b>Committee on the Status of Species at Risk in Ontario/Ontario Ministry of Natural Resources</b>
The Committee on the Status of Species at Risk in Ontario (COSSARO)/Ontario Ministry of Natural Resources (OMNR) assesses the provincial status of wild species that are considered to be at risk in Ontario.	
<b>Status</b>	<b>Definition</b>
Extinct (EXT)	A species that no longer exists anywhere.
Extirpated (EXP)	A species that no longer exists in the wild in Ontario but still occurs elsewhere.
Endangered (Regulated) (END-R)	A species facing imminent extinction or extirpation in Ontario which has been regulated under Ontario's <i>Endangered Species Act</i> .
Endangered (END)	A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's <i>Endangered Species Act</i> .
Threatened (THR)	A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
Special Concern (SC)	A species with characteristics that make it sensitive to human activities or natural events.
Not at Risk (NAR)	A species that has been evaluated and found to be not at risk.
Data Deficient (DD)	A species for which there is insufficient information for a provincial status recommendation.

### Species Status under Federal Legislation

<b>MBCA</b>	<b>Migratory Birds Convention Act</b>
The Canada <i>Migratory Birds Convention Act</i> provides for the protection of migratory birds in Canada and the United States. The provisions of this Act are implemented through the Migratory Bird Regulations.	
Bird species that are regulated under the <i>Migratory Birds Convention Act</i> are noted in the applicable species lists.	

<b>SARA</b>	<b>Species at Risk Act</b>
The Canada <i>Species at Risk Act</i> provides a framework for actions across Canada to ensure the survival of wildlife species and the protection of our natural heritage. It sets out how to decide which species are a priority for action and what to do to protect a species. It identifies ways governments, organizations and individuals can work together, and it establishes penalties for a failure to obey the law. Regulated species are listed in Schedules 1, 2 and 3 of the Act.	
Schedule 1 SARA (1)	Species that are currently covered under the Act.
Schedule 2 SARA (2)	Species that are endangered or threatened that have not been re-assessed by COSEWIC for inclusion on Schedule 1.
Schedule 3 SARA (3)	Species that are of special concern that have not yet been re-assessed by COSEWIC for inclusion on Schedule 1.

## Species Status under Provincial Legislation

<b>ESA</b> <b>Endangered Species Act</b>		
The Ontario <i>Endangered Species Act</i> provides for the conservation, protection, restoration and propagation of species of fauna and flora of the Province of Ontario that are threatened with extinction. Regulated species are listed in Ontario Regulation 338.		
<b>Schedule No.</b>	<b>Short Form</b>	<b>Status</b>
Schedule 1 ESA (1)	EXT	The species of flora and fauna listed in Schedule 1 are declared to be threatened with extinction.
Schedule 2 ESA (2)	EXP	The species of flora and fauna listed in Schedule 2 are declared to be extirpated.
Schedule 3 ESA (3)	END	The species of flora and fauna listed in Schedule 3 are declared to be endangered.
Schedule 4 ESA (4)	THR	The species of flora and fauna listed in Schedule 4 are declared to be threatened.
Schedule 5 ESA (5)	SC	The species of flora and fauna listed in Schedule 5 are declared to be special concern.

<b>FWCA</b> <b>Fish and Wildlife Conservation Act</b>		
The Ontario <i>Fish and Wildlife Conservation Act</i> outlines the restrictions for hunting, trapping and fishing; handling of live wildlife; sale, purchase and transport of wildlife; and, licences that can be secured under the Act. Under Schedules 1 to 11 of the Act, wildlife are grouped for the purpose of regulating these species. These schedules are further defined below.		
Note: where there is a conflict between this Act and the Ontario <i>Endangered Species Act</i> , the provision with the most protection will prevail (s. 2 of the <i>Fish and Wildlife Conservation Act</i> ).		
<b>Schedule No.</b>	<b>Short Form</b>	<b>Status</b>
Schedule 1	Furbearing – M	The species of fauna listed in Schedule 1 are declared to be furbearing mammals.
Schedule 2	Game – M	The species of fauna listed in Schedule 2 are declared to be game mammals.
Schedule 3	Game – B	The species of fauna listed in Schedule 3 are declared to be game birds.
Schedule 4	Game – R	The species of fauna listed in Schedule 4 are declared to be game reptiles.
Schedule 5	Game – A	The species of fauna listed in Schedule 5 are declared to be game amphibians.
Schedule 6	Specially Protected – M	The species of fauna listed in Schedule 6 are declared to be specially protected mammals.
Schedule 7	Specially Protected – R	The species of fauna listed in Schedule 7 are declared to be specially protected birds (raptors).
Schedule 8	Specially Protected – B	The species of fauna listed in Schedule 8 are declared to be specially protected birds (other than raptors).
Schedule 9	Specially Protected – R	The species of fauna listed in Schedule 9 are declared to be specially protected reptiles.
Schedule 10	Specially Protected – A	The species of fauna listed in Schedule 10 are declared to be specially protected amphibians.

<b>FWCA</b>	<b>Fish and Wildlife Conservation Act</b>	
<p>The Ontario <i>Fish and Wildlife Conservation Act</i> outlines the restrictions for hunting, trapping and fishing; handling of live wildlife; sale, purchase and transport of wildlife; and, licences that can be secured under the Act. Under Schedules 1 to 11 of the Act, wildlife are grouped for the purpose of regulating these species. These schedules are further defined below.</p> <p>Note: where there is a conflict between this Act and the Ontario <i>Endangered Species Act</i>, the provision with the most protection will prevail (s. 2 of the <i>Fish and Wildlife Conservation Act</i>).</p>		
<b>Schedule No.</b>	<b>Short Form</b>	<b>Status</b>
Schedule 11	Specially Protected – I	The species of fauna listed in Schedule 11 are declared to be specially protected invertebrates.

### Local Species Status

<b>CVC</b>	<b>Local Species Status Definitions</b>
<p>Level of Conservation Concern in Credit Valley Conservation Authority (2003).</p> <p><b>CVC</b>  CC Conservation Concern</p>	

<b>BSC</b>	<b>Bird Studies Canada</b>
<p>The Bird Studies Canada <i>Conservation Priorities for the Birds of Southern Ontario</i> (1999), based on work completed by Bird Studies Canada, the Canadian Wildlife Service and the MNR identifies bird species of high conservation priority. This list was prepared to assist municipalities in identifying significant natural heritage features, through using the information regarding the presence of birds of conservation priority in their municipality.</p> <p>Birds of conservation priority have been noted (BSC) in the appropriate species lists.</p>	

## **APPENDIX D**

### **BREEDING BIRD SPECIES IDENTIFIED ALONG MAIN STREET NORTH AND QUEEN STREET WEST**

**Breeding Bird List**

<b>Scientific Name</b>	<b>Common Name</b>	<b>SARA<sup>1</sup></b>	<b>ESA<sup>1</sup></b>	<b>Legal Status<sup>1</sup></b>	<b>Other<sup>1</sup></b>	<b>Station #<sup>2</sup></b>
<i>Branta canadensis</i>	Canada Goose	-	-	-	-	9
<i>Zenaida macroura</i>	Mourning Dove	-	-	MBCA	-	1, 5, 9
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	-	-	MBCA	CC	2
<i>Charadrius vociferus</i>	Killdeer	-	-	MBCA	CC	10
<i>Picoides villosus</i>	Hairy Woodpecker	-	-	MBCA	CC	5, 6
<i>Picoides pubescens</i>	Downy Woodpecker	-	-	MBCA	-	3, 5, 8
<i>Colaptes auratus</i>	Northern Flicker	-	-	MBCA	-	1, 4, 5
<i>Empidonax alnorum</i>	Alder Flycatcher	-	-	MBCA	CC	2
<i>Sayornis phoebe</i>	Eastern Phoebe	-	-	MBCA	-	5, 9
<i>Myiarchus tyrannulus</i>	Great Crested Flycatcher	-	-	MBCA	-	4, 5
<i>Tyrannus tyrannus</i>	Eastern Kingbird	-	-	MBCA	CC	10
<i>Vireo olivaceus</i>	Red-eyed Vireo	-	-	MBCA	-	5, 6, 7, 8
<i>Cyanocitta cristata</i>	Blue Jay	-	-	FWCA(P)	-	1, 2, 3, 4, 6, 10
<i>Corvus brachyrhynchos</i>	American Crow	-	-	-	-	1, 2, 3, 6, 8, 10
<i>Corvus corax</i>	Common Raven	-	-	FWCA(P)	-	5
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	-	-	MBCA	-	9
<i>Poecile atricapillus</i>	Black-capped Chickadee	-	-	MBCA	-	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
<i>Sitta carolinensis</i>	White-breasted Nuthatch	-	-	MBCA	-	1, 3, 4, 8
<i>Troglodytes aedon</i>	House Wren	-	-	MBCA	-	1, 2, 3, 4, 6, 7, 9
<i>Turdus migratorius</i>	American Robin	-	-	MBCA	-	1, 5, 6, 7, 8, 9, 10
<i>Dumetella carolinensis</i>	Gray Catbird	-	-	MBCA	CC	1, 2, 3, 6, 7
<i>Sturnus vulgaris</i>	European Starling	-	-	-	-	1, 6, 7, 8, 9
<i>Bombycilla garrulus</i>	Cedar Waxwing	-	-	MBCA	-	2, 3, 4
<i>Spinus tristis</i>	American Goldfinch	-	-	MBCA	-	1, 2, 4, 5, 6, 7, 8, 9
<i>Seiurus aurocapilla</i>	Ovenbird	-	-	MBCA	CC	3
<i>Vermivora cyanoptera</i>	Blue-winged Warbler	-	-	MBCA	CC	2
<i>Oreothlypis ruficapilla</i>	Nashville Warbler	-	-	MBCA	CC	2
<i>Geothlypis philadelphia</i>	Mourning Warbler	-	-	MBCA	CC	2, 6, 7



**Breeding Bird List**

<b>Scientific Name</b>	<b>Common Name</b>	<b>SARA<sup>1</sup></b>	<b>ESA<sup>1</sup></b>	<b>Legal Status<sup>1</sup></b>	<b>Other<sup>1</sup></b>	<b>Station #<sup>2</sup></b>
<i>Setophaga pensylvanica</i>	Chestnut-sided Warbler	-	-	MBCA	CC	2
<i>Pipilo erythrophthalmus</i>	Eastern Towhee	-	-	MBCA	CC	2, 3, 4
<i>Spizella pusilla</i>	Field Sparrow	-	-	MBCA	-	2, 4
<i>Spizella passerina</i>	Chipping Sparrow	-	-	MBCA	-	2, 3, 4, 5, 6, 8, 9, 10
<i>Passerculus sandwichensis</i>	Savannah Sparrow	-	-	MBCA	CC	10
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	-	-	MBCA	CC	2
<i>Melospica melodia</i>	Song Sparrow	-	-	MBCA	-	2, 3, 4, 5, 6, 7, 8, 9, 10
<i>Cardinalis cardinalis</i>	Northern Cardinal	-	-	MBCA	-	3, 4, 5, 6, 9
<i>Passerina cyanea</i>	Indigo Bunting	-	-	MBCA	-	2, 3, 4, 5, 6, 7
<i>Sturnella magna</i>	Eastern Meadowlark	THR	THR	MBCA	CC	10
<i>Dolichonyx oryzivorus</i>	Bobolink	THR	THR	MBCA	CC	10
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	-	-	-	-	1, 7, 9, 10
<i>Quiscalus quiscula</i>	Common Grackle	-	-	-	-	3, 4, 5, 6, 7, 8, 9, 10
<i>Molothrus ater</i>	Brown-headed Cowbird	-	-	-	-	1, 4, 6, 7
<i>Icterus galbula</i>	Baltimore Oriole	-	-	MBCA	-	5, 7, 9

<sup>1</sup>For definitions of species ranks, refer to **Appendix C**.

<sup>2</sup>Breeding Bird Point Count Station.