APPENDIX B

Natural Heritage Evaluation

March 16, 2015
Report No. C14-0026; 1403140

Golder Associates CIMA Partners in excellence

February 2015

NATURAL HERITAGE EVALUATION

Municipal Class Environmental Assessment Study for Sidney Street Corridor Improvements (Bell Boulevard to Tracey Street), City of Belleville, Ontario

Submitted to:
City of Belleville
169 Front Street
Belleville, Ontario
K8N 2Y8

Attn: Deanna O'Leary

REPORT

Report Number: 1403140-5000-R01

Distribution:

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Table of Contents

FIGURES

APPENDICES

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Proponent Contact	Deanna O'Leary, City of Belleville

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1.0 INTRODUCTION

1.1 Objectives

The purpose of this memorandum is to summarize the findings of a field survey of natural heritage and aquatic features on either side of Sidney Street from south of the Tracey Street/Tracey Park Drive intersection northerly to Highway 401 in the City of Bellville (the City). The assessment included a desktop review, field study and information provided by the City of Belleville, Quinte Conservation, and the Ontario Ministry of the Natural Resources (OMNR).

1.2 Site Description

The assessed corridor extends along the Sidney Street corridor from south of the Tracey Street/Tracey Park Drive northerly to Highway 401 (the Site; Figure 1). The width of the Site includes 100 m from the existing edge of pavement on either side of Sidney Street. The natural heritage evaluation included all lands that were publicly accessible at the time of the Site Visit (Section 3.3).

Land uses along Sidney Street include residential and commercial developments and fallow land. A power line easement traverses the Site east-west near the south portion of the Site. A tributary to Potter Creek begins at Bell Boulevard and flows southward approximately 90 m to the west of Sidney Street.

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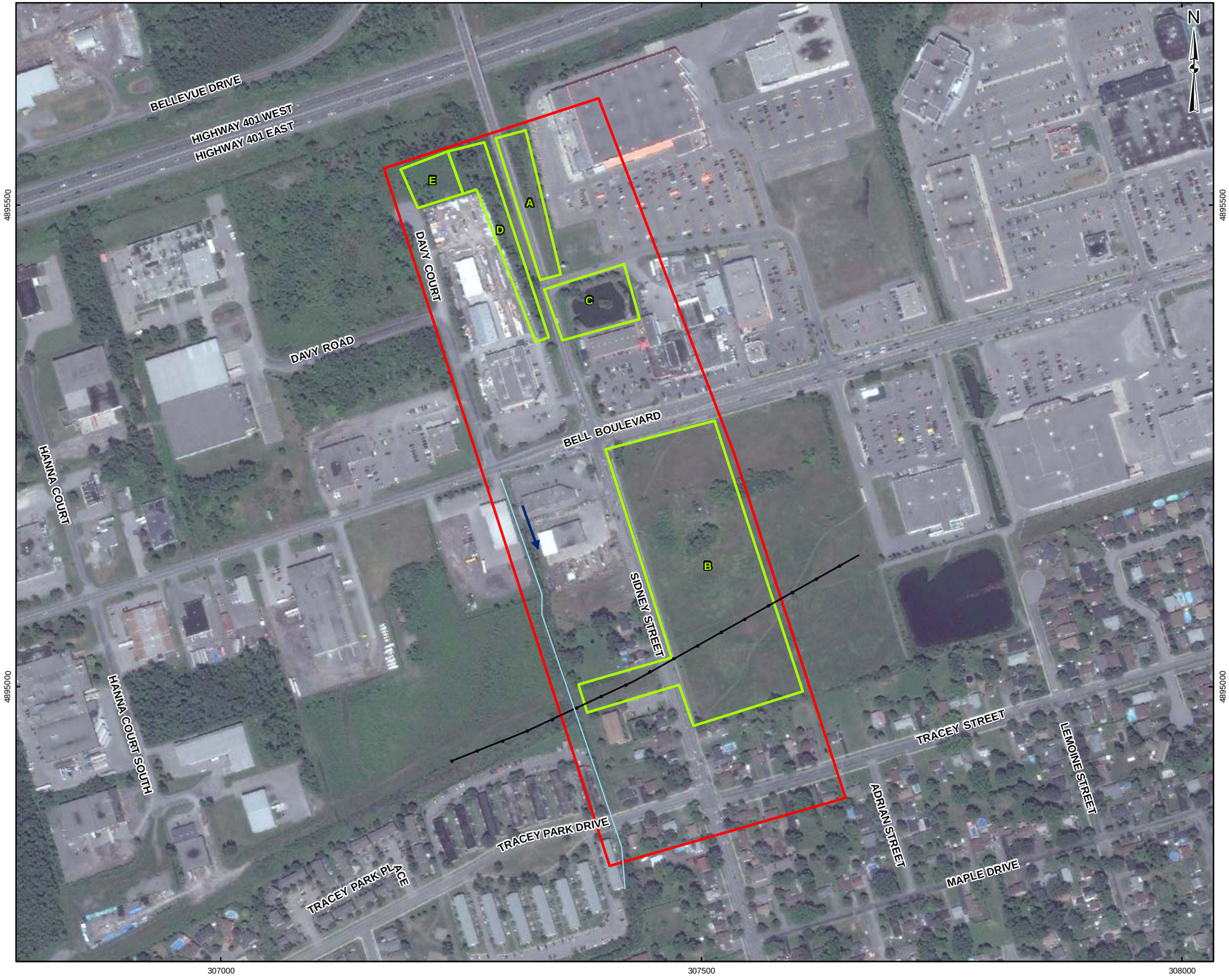

LEGEND

- Power Line
- Tributary to Potter Creek
- Flow Direction
- Approximate Site Limit

Key:

A - Roadside ditch
B - CUM1-1: Old field cultural meadow
C - OA: Open Water
D - SWD2-2: Deciduous swamp
E - CUM: Cultural meadow

REFERENCE

Base Data - MNR LIO, obtained 2013
Produced by Golder Associates Ltd under licence from
Ontario Ministry of Natural Resources, © Queens Printer 2013
Imagery - ESRI World Imagery WMS, 2014.
Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 18

50 25 0 50 100 150
SCALE 1:4,000 METRES

PROJECT
SIDNEY STREET CORRIDOR IMPROVEMENTS
(BELL BOULEVARD TO TRACEY STREET)
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TITLE
SITE PLAN AND ECOLOGICAL LAND CLASSIFICATION

Golder Associates
Mississauga, Ontario

PROJECT NO. 1403140			SCALE AS SHOWN	REV. 0.0
DESIGN	ME	13 Aug. 2014	FIGURE: 1	
GIS	ME	13 Aug. 2014		
CHECK	PH	13 Aug. 2014		
REVIEW	RB	22 Aug. 2014		

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2.0 ENVIRONMENTAL POLICY CONTEXT

Natural heritage features and watercourses described in this report will be governed under the requirements of the following planning policies, government bodies and regulatory agencies:

- Provincial Policy Statement (MMAH 2014);
- City of Belleville Official Plan (2002);
- Quinte Conservation;
- *Species at Risk Act* (2002); and
- *Endangered Species Act* (2007).

Sections 2.1 through 2.4 provide a summary of applicable environmental policies for the Site.

2.1 The Provincial Policy Statement

The Provincial Policy Statement was issued under Section 3 of *The Planning Act* and came into effect on April 30, 2014. It replaces the PPS issued March 1, 2005 and applies to all applications, matters or proceedings commenced on or after April 30, 2014.

The natural heritage policies of the PPS (MMAH 2014) indicate that:

2.1.1 Natural features and areas shall be protected for the long term;

2.1.2 The diversity and connectivity of natural features in an area, and the long-term *ecological function* and biodiversity of *natural heritage systems*, should be maintained, restored or, where possible, improved, recognizing linkages between and among *natural heritage features and areas*, *surface water features* and *ground water features;*

2.1.3 Natural heritage systems shall be identified in Ecoregions 6E and 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas;

2.1.4 *Development* and *site alteration* shall not be permitted in:

a) significant wetlands in Ecoregions 5E, 6E and 7E; and

b) significant coastal wetlands.

2.1.5 Unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, development and site alteration shall not be permitted in:

a) significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;

b) significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);

c) significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);

d) significant wildlife habitat;

e) significant areas of natural and scientific interest; and

f) coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b).

2.1.6 *Development* and *site alteration* shall not be permitted in *fish habitat* except in accordance with *provincial and federal requirements;*

2.1.7 Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements; and

2.1.8 *Development* and *site alteration* shall not be permitted on *adjacent lands* to the *natural heritage features and areas* identified in policies 2.1.3, 2.1.4 and 2.1.5 unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated that there will be no *negative impacts* on the natural features or on their *ecological functions*.

2.2 City of Belleville Official Plan

The Official Plan for the City of Belleville was adopted in 2002. Urban land use strategies are outlined in the Land Use Plan for Urban Serviced Areas (Schedule B), which identifies the permitted land uses for the Site as residential and commercial. The area surrounding Bell Boulevard is intended for a wide variety of commercial uses that serve the community on a regional scale. Retail stores, restaurants, automotive services, business, professional and administrative offices and entertainment are among the commercial activities permitted in the area. Residential land uses permit low, medium, or high density housing as directed by council. The City encourages the maintenance and planting of trees wherever possible (Belleville, 2002).

2.3 Quinte Conservation Authority

Quinte Conservation was formed in 1996 from the amalgamation of the Moira River, Prince Edward Region and Napanee Region Conservation Authorities, under the *Conservation Authorities Act* (the Act; 1946). Ontario Regulation 319/09 (Quinte Conservation Authority: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses), under the authority of Section 28 of the Act, was enacted to ensure public safety by protecting property with respect to natural hazards, and to safeguard watershed health by preventing pollution and destruction of sensitive environmental areas such as wetlands, shorelines and watercourses. Ontario Regulation 319/09 establishes Regulated Areas where development could be subject to flooding, erosion or dynamic beaches, or where interference with wetlands and alterations to shorelines and watercourses might have an adverse effect on those environmental features. Under Ontario Regulation 319/09, any proposed development, interference or alteration within a Regulated Area requires a permit from Quinte Conservation.

The Site is located within the jurisdiction of Quinte Conservation and is part of the Potter Creek Watershed. Correspondence from Quinte Conservation has indicated that a tributary of Potter Creek lies west of the Site (T. Trustham, personal communication, July 14, 2014; Figure 1). Any excavation, filling, site grading or development within 30 m of the tributary will require a permit from Quinte Conservation.

2.4 Species at Risk

2.4.1 Species at Risk Act (SARA)

At the federal level, species at risk (SAR) designations for species occurring in Canada are initially determined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). If approved by the federal Minister of the Environment, species are added to the federal List of Wildlife Species at Risk (Government of Canada 2002). Species that are included on Schedule 1 as endangered or threatened are afforded protection of critical habitat on federal lands under the *Species at Risk Act* (SARA). On private or provincially-owned lands, only aquatic species listed as endangered, threatened or extirpated and migratory birds are protected under SARA, unless ordered by the Governor in Council.

2.4.2 Endangered Species Act (ESA)

Species at risk designations for species in Ontario are initially determined by the Committee on the Status of Species at Risk in Ontario (COSSARO), and if approved by the provincial Minister of Natural Resources, species are added to the provincial *Endangered Species Act* (ESA), which came into effect June 30, 2008 (Ontario 2007).

Subsection 9(1) of the legislation prohibits the killing, harming or harassing of species identified as endangered or threatened in various schedules to the Act. The ESA also provides habitat protection to all species listed as threatened or endangered (Subsection 10[1]). Species-specific habitat protection is only afforded to those species for which a habitat regulation has been prepared and passed into law as a regulation of the ESA. The ESA has a permitting process where alterations to protected species or their habitats may be considered.

The SARO list is contained in Ontario Regulation 230/01 and was last updated in January 2014.

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3.0 METHODS

Assessment of existing conditions on, or within 120 m of, the Site was undertaken through a desktop review of background information, and data collected during a site visit by Golder on August 1, 2014.

3.1 Background Information Review

A number of existing background information sources and documents were reviewed during the preparation of this report including:

- Official Plan for the City of Belleville (2002);
- Correspondence from Quinte Conservation Authority (Tim Trustham, Planner/Ecologist, personal communication, 14 July 2014);
- Watershed Report Card, Potter Creek. (Quinte Conservation, 2006);
- Potter Creek Subwatershed Plan (Moira River Conservation Authority, 1994);
- Natural Heritage Information Centre (NHIC) database, maintained by the OMNR (NHIC 2014);
- Species at risk range mapping;
- Atlas of Breeding Birds of Ontario (Cadman et al 2007);
- Atlas of the Mammals of Ontario (Dobbyn 1994);
- Atlas of Ontario Herpetofauna (Oldham and Weller 1986);
- Ontario Butterfly Atlas (Toronto Entomologists Association 2014);
- Bat Conservation International;
- Information contained in natural heritage related map layers from Ontario Base Map series, Natural Resource Values Information System (NRVIS) mapping and Land Information Ontario (LIO); and
- Existing aerial photography.

Consultation with the OMNR and the Quinte Conservation Authority provided current information regarding species at risk in the vicinity of the Site.

3.2 Species at Risk Screening

A species at risk screening was completed for the Site and the area within 120 m of the Site. Species at Risk (SAR) considered include species listed in the ESA and SARA. An assessment was conducted to determine which SAR had potential habitat on, or within 120 m of, the Site. A screening of all SAR which have the potential to be found in the vicinity of the Site was conducted first as a desktop exercise, using sources listed in Section 3.1. Species with ranges overlapping the Site, or recent occurrence records in the vicinity, were screened by comparing their habitat requirements to habitat conditions on, and within 120 m of, the Site.

For SAR with potential to occur on the Site, a preliminary habitat suitability ranking of low, moderate, or high was given based on the existing data, including air photo interpretation of the discernible habitat and on data collected during the site visit. A habitat suitability rank of low indicates no suitable habitat availability for that species; moderate indicates more potential for the species to occur, as suitable habitat appears to be present on the Site, but there has been no occurrence of the species recorded on the Site; and high potential indicates a known species record on, or in the vicinity of, the Site and habitat appears to be present on the Site. Results of the SAR screening are provided in Appendix A, and discussed further below.

3.3 Field Data Collection

A field investigation was carried out on August 1, 2014 to ground-truth the findings of the desktop study. During the field survey existing natural features were documented and the functions of the Site were assessed on the basis of its primary characteristics, as well as connection to adjacent areas. Surveys were restricted to publicly accessible lands; private lands were visually observed from public vantage points only. Plant community boundaries were delineated and characterized using classification adapted from the Ecological Land Classification (ELC) system developed by Lee *et al.* (1998). Existing habitats and plant communities were evaluated with respect to their potential as habitat for SAR determined to have “moderate” or “high” potential to occur on site as identified by the desktop review.

The tributary to Potter Creek was visually inspected for connectivity and for the presence of features indicative of fish habitat.

4.0 EXISTING CONDITIONS

4.1 Regional Setting

The Site is located within the physiographic region known as the Napanee plain (MRCA 1994). A thin layer of coarse glacial till overlays limestone/dolostone bedrock of the Simcoe Group (Chapman and Putnam 1972; Map 2544 Ontario Geological Survey 1991). Lacustrine deposits of fine sand and silt can be found in some areas.

The Site is within the Deciduous Forest Region of Ontario. The Deciduous Forest, which is the most southerly forest region in Ontario, is situated north of Lakes Erie and Ontario. Dominant tree species of the Deciduous Forest Region include white pine, red pine, eastern hemlock, white cedar, yellow birch, sugar and red maples, basswood and red oak. However species with more southern affinities can also be found in this region, including black walnut, butternut, tulip tree, magnolia, black gum, and many types of oaks, hickories and sassafras (Rowe 1972). The forest life is the most diverse in Ontario and a number of nationally rare species occur in this region, including species of plants, mammals, birds, reptiles and amphibians at the northern limit of their North American ranges (Ontario, 2010).

4.2 Watershed Context

The Site is located in the Potter Creek Watershed, which drains a 31 km^2 area in the City and adjoining Township of Sidney (MRCA, 1994). Six tributaries flow into Potter Creek before it discharges into the Bay of Quinte near the community of Bayside, which is approximately 10 km southwest of the Site. The portion of the watershed that is in the City of Belleville is developed, while land use in the Township of Sidney is mainly agricultural. Parts of the northern reaches of Potter Creek flow through conservation land. The tributary which is adjacent to the Site was, channelized when the Tracey Park residential and industrial area was developed (MRCA, 1994).

4.3 Natural Features

4.3.1 Vegetation Communities

Natural features at the Site are largely of anthropogenic origin. Vegetation is dominated by non-native, disturbance-tolerant plant species (i.e., invasive species). Past and ongoing development has removed natural ground cover, and hardened surfaces or buildings have fragmented vegetation communities distributed throughout the Site (Figure 1, Areas A to E).

Area A is approximately 0.4 ha, located at the north end of the Site, on the east side of Sidney Street. Area A includes a roadside ditch that drains runoff from Sidney Street and the access ramp to Highway 401 (Figure 1). The ditch was densely vegetated with cattails (*Juncus sp.*) and phragmites (*Phragmites australis*) at the time of the site visit. Other species included goldenrods (*Solidago sp.*), purple loosestrife (*Lythrum salicaria*) and native and non-native grasses and forbs. A row of evenly spaced red cedars lined the top of the west embankment along Sidney Street and a row of non-native maples (*Acer sp.*) lined the east side along a paved parking lot. The ditch was dry at the time of the site visit.

Area B is approximately 3.0 ha, located on the southeast corner of Sidney Street and Bell Boulevard. This area consists of a cultural meadow (Figure 1). It is dominated by non-native grasses such as Kentucky blue-grass (*Poa pratensis*) and smooth brome (*Bromus inermis*). Native and non-native forbs included several dense patches of common milkweed (*Asclepias syriaca*). An overgrown hedgerow bisects the area. The hedgerow consists of staghorn sumac (*Rhus typhina*), mature Manitoba maples (*Acer negundo*), as well as European buckthorn (*Rhamnus carhartica*), prickly ash (*Zanthoxylum americanum*) and Tatarian honeysuckle (*Lonicera tatarica*). The ground layer in the hedgerow was dominated by garlic mustard (*Alliaria petioloata*). The few mature trees had broken and decaying branches with peeling bark and cavities. A few standing snags were also observed.

Area C is approximately 0.3 ha and consists of a man-made pond with a small island in the centre (Figure 1). It was located on private property and enclosed by chain link fencing. The riparian area was narrow and covered in tall weeds surrounded by mown grass. There were several mature silver maples (*Acer saccharinum*) and Manitoba maples on the island and along the north shore of the pond.

Area D is approximately 0.5 ha located on the west side of Sidney Street where it intersects Highway 401 (Figure 1). The canopy of this deciduous swamp is dominated by immature trembling aspen (*Populus tremuloides*) and green ash (*Fraxinus pensylvanica*). Shallow standing water was observed throughout the lowest areas. Cattails and dogbane (*Apocynum sp.*) formed the understory layer and other species observed included reed canary grass (*Phalaris arundinacea*), goldenrods, European buckthorn, purple loosestrife, willow shrubs (*Salix sp.*) and orange jewelweed (*Impatiens capensis*). A row of red cedars lined the roadside.

Area E is approximately 0.3 ha located in the northwest corner of the Site (Figure 1). The substrate consists of compacted, crushed gravel, which may have been a former parking area. It is now overgrown mainly with Canada goldenrod (*Solidago Canadensis*) and dogbane. A low diversity of plant species in this area is likely due to the poor quality substrate.

4.3.2 Tributary to Potter Creek

A tributary to Potter Creek surfaces from a culvert, which passes under Bell Boulevard. The creek then flows southward between commercial and residential properties, and passes through a large concrete culvert slightly south of Bell Boulevard. A third culvert, with four pipes and a metal screen allows the tributary to pass under Tracey Park Drive at the south end of the Site. The entire length of the tributary has been channelized within the Site limits. The evenly graded banks become taller as the tributary flows south. The bank-full width increases from approximately 0.5 m up to 7 m by the time it reaches Tracey Park Drive. The wetted width was approximately 3.5 m for the assessed creek section at the time of the site visit. The water was shallow (<15 cm) and turbid and flow was imperceptible or slow throughout.

Potter Creek supports a limited number of warmwater fishes due to its warm temperatures and low flow conditions (MRCA, 1994). Although it is possible for fish from Potter Creek to travel upstream into the tributary, it is not likely that they would reach the Site due to distance, insufficient water depths and lack of flow. No fish were observed during the site visit.

Riparian vegetation along the creek varied from mowed grass at the north end to dense forbs, graminoids and shrubs such as red osier dogwood (*Cornus sericea*) at the south end with small clumps of mature trees along the

way. The channel substrate consisted of very soft silt. Small amounts of woody debris and dense emergent vegetation dominated by cattails and arrowhead (*Sagittaria latifolia*) provided in-stream cover.

A ditch on the south side of Bell Boulevard directs runoff into the tributary. Another ditch flows into the tributary from the west behind a row of apartment buildings that face onto Tracey Park Drive.

The Potter Creek tributary is designated warmwater habitat not known to contain SAR. None of the plant species observed in and around the tributary are rare or protected under the ESA or SARA.

4.4 Wildlife

Wildlife observed at the Site included a green frog (*Lithobates clamitans*), which was heard in the tributary to Potter Creek; painted turtles (*Chrysemys picta*), which were basking in the pond in Area C; and common bird species that are well adapted to disturbance and the presence of humans. Examples include American robin (*Turdus migratorius*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), song sparrow (*Melospiza melodia*), and European starling (*Sturnus vulgaris*). American robin and song sparrow fledglings were observed in the hedgerow in Area B. Mallard (*Anas platyrhynchos*) fledglings were observed in the water and on the island in Area C. A monarch butterfly (*Danaus plexippus*) was seen adjacent to the tributary.

None of the species observed in and around the tributary are rare or protected under the ESA or SARA except monarch butterfly, which has a designation of special concern under the ESA (2007).

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5.0 ASSESSMENT OF SIGNIFICANCE

5.1 Areas of significance

Natural areas that are protected under the Provincial Policy Statement include significant habitat of endangered and threatened species, wetlands, woodlands, valleylands, fish and wildlife habitat, coastal wetlands and areas of natural and scientific interest. These areas are protected in order conserve the biodiversity and protect essential ecological processes in the province (Ontario, 2010). There are no areas of natural significance at the Site.

5.2 Hazard Lands

Potter Creek tributary and its floodplain are protected from alteration under Ontario Regulation 319/09 and under regulation of Quinte Conservation. If any development will take place within 15 m of the tributary, a permit for Development, Interference with wetlands and Alterations to Shorelines and Watercourses will be required.

5.3 Vegetation

The vegetation communities at the Site are dominantly made up invasive species. Native plant species at the Site are not sensitive or rare. They are commonly found in areas influenced by anthropogenic disturbances. Disturbance to these areas is unlikely to result in significant effects to vegetation because of their disturbed state, low quality and limited connection to adjacent natural features. Permits may be applicable for tree removals, where required.

5.4 Wildlife

Wildlife observed at the Site is tolerant of disturbance and human presence. The wildlife and bird species observed during the field survey are common and not considered at risk. Potential effects can be addressed through standard mitigation, preconstruction surveys and planning.

5.5 Fish Habitat

Potter creek tributary and its fish community are protected under the provisions of the *Canadian Fisheries Act* against disturbance. The typical setback for protection of warmwater streams is 15 m from top of bank in order to preserve riparian areas. Should construction disturbance be within 15 m from the Potter Creek tributary, a self-assessment of the project would be required by the Department of Fisheries and Oceans (DFO) to assess effects under the *Canadian Fisheries Act*.

5.6 Sensitive Species and Species at Risk

None of the wildlife species inhabiting the habitat fragments are rare or sensitive except monarch butterfly. The monarch butterfly is listed as a species of special concern under the ESA (2007). Special concern species and

their habitat do not receive protection under the ESA; however, habitat protection for species of special concern should be included during project planning and design, where possible. The preferred habitat for monarch butterfly is areas of milkweed growth, Dense patches of milkweed were observed within cultural meadow habitat, which is likely used by monarch; however, the meadow habitat is outside of the proposed Project area. Therefore, impacts to the monarch butterfly and monarch butterfly habitat are unlikely to occur as a result of the Project.

5.7 Migratory Birds

The *Migratory Birds Convention Act* (MBCA; Canada, 1994) protects migratory birds and their nests. It is unlawful to destroy the nest of a migratory bird protected under the MBCA. Migratory birds may build their nests in the trees, shrubs and meadow grasses. Migratory birds protected under the MBCA may utilize trees, shrubs and meadows for nesting. Disruption to the nests and harm to migratory birds can be avoided by scheduling all vegetation clearing, including the cutting of trees on private property, outside of the breeding bird season that takes place from late May to mid-July.

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6.0 CONCLUSIONS

Sidney Street improvements include widening between Tracey Street/Tracey Park Drive and Highway 401, and intersection improvements at Bell Boulevard and Tracey Street/Tracey Park Drive. This natural heritage survey has been carried out to identify constraints to the proposed improvement of Sidney Street on the natural features at the Site.

The Site is highly disturbed and surrounded by existing development. There are no areas of natural significance at the Site or within 120 m thereof. Habitat at the Site is of low value to wildlife due to the presence of non-native vegetation communities, anthropogenic disturbances and fragmentation. Species specific surveys can confirm that there are no sensitive species at the Site. Standard construction mitigation methods can minimize harm to wildlife and their habitat, including sensitive species.

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Report Signature Page

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APPENDIX A

Species at Risk Table

Appendix A - Species at Risk Table

Taxon	Common Name	Scientific Name	Species At Risk Act (Sch 1)[1]	Endangered Species Act[2]	COSEWIC[3]	Provincial (SRank)[4]	Habitat Requirements[5]	Potential to Occur on Site	Rationale for Potential to Occur on Site
Amphibian	Western chorus frog - Great Lakes St. Lawrence/Canadian Shield Population	*Pseudacris triseriata*	THR	--	THR	S3	In Ontario, chorus frog habitat typically consists of marshes or wooded wetlands, particularly those with dense shrub layers and grasses, as this species is a poor climber. They will breed in almost any fishless pond including roadside ditches, gravel pits and flooded swales in meadows. This species hibernates in terrestrial habitats under rocks, dead trees or leaves, in loose soil or in animal burrows. During hibernation, this species is tolerant of flooding.	Low	Areas of open water on the site are small and surrounded by roads, development and disturbed areas
Arthropod	Monarch	*Danaus plexippus*	SC	SC	SC	S2N, S4B	In Ontario, monarch is found throughout the northern and southern regions. This butterfly is found wherever there are milkweed (Asclepius spp.) plants for its caterpillars and wildflowers that supply a nectar source for adults; often found on abandoned farmland, meadows, open wetlands, prairies and roadsides, but also in city gardens and parks. Important staging areas during migration occur along the north shores of the Great Lakes.	High	The large cultural meadow at the site had dense patches of milkweed on which monarch larvae feed. One monarch was observed adjacent to the tributary to Potter Creek.
	West Virginia white	*Pieris virginiensis*		SC		S3	In Ontario, west virginia white is found primarily in the southern region of the province. This butterfly lives in moist, mature, deciduous woodlands, and the caterpillars feed only on the leaves of toothwort (Cardamine spp), which are small, spring-blooming plants of the forest floor. These woodland habitats are typically maple-beech-birch dominated.	Low	There is moist, mature deciduous forests at the site
Bird	Barn swallow	*Hirundo rustica*	--	THR	THR	S4B	In Ontario, barn swallow breeds in areas that contain a suitable nesting structure, open areas for foraging, and a body of water. This species nests in human made structures including barns, buildings, sheds, bridges, and culverts. Preferred foraging habitat includes grassy fields, pastures, agricultural cropland, lake and river shorelines, cleared rights-of-way, and wetlands. Mud nests are fastened to vertical walls or built on a ledge underneath an overhang. Suitable nests from previous years are reused.	Low	There are no suitable nesting structures at the site.
	Black tern	*Chlidonias niger*		SC	NAR	S3B	In Ontario, the black tern breeds in freshwater marshlands where it forms small colonies. It prefers marshes or marsh complexes greater than 20 ha in area and which are not surrounded by wooded area. Black terns are sensitive to the presence of agricultural activities. The black tern nests in wetlands with an even combination of open water and emergent vegetation, and still waters of 0.5-1.2 m deep. Preferred nest sites have short dense vegetation or tall sparse vegetation often consisting of cattails, bulrushes and occasionally burreed or other marshland plants. Black terns also require posts or snags for perching.	Low	There are no marshlands at the site
	Bobolink	*Dolichonyx orizivorus*	--	THR	THR	S4B	In Ontario, the bobolink breeds in grasslands or graminoid dominated hayfields with tall vegetation. Bobolinks prefer grassland habitat with a broad-leaf component and a substantial litter layer. They have low tolerance for presence of woody vegetation and are sensitive to extensive mowing. They are found in greater numbers in old fields where mowing and re-sowing are infrequent. Their nest is woven from grasses and forbs. It is built on the ground, in dense vegetation, usually under the cover of one or more broad-leaved forbs.	Low	Although there is old field/cultural meadow habitat at the site, it is surrounded by developed areas, and highly disturbed making unsuitable for use by bobolink. A hedgerow through the middle further fragments the habitat.

Taxon	Common Name	Scientific Name	Species At Risk Act (Sch 1)[1]	Endangered Species Act[2]	COSEWIC[3]	Provincial (SRank)[4]	Habitat Requirements[5]	Potential to Occur on Site	Rationale for Potential to Occur on Site
	Canada warbler	*Cardellina canadensis*	THR	SC	THR	S4B	In Ontario, breeding habitat for the Canada warbler consists of moist mixed forests with a well-developed shrubby understory. This includes low-lying areas such as cedar and alder swamps, and riparian thickets. It is also found in densely vegetated regenerating forest openings. Suitable habitat often contains a developed moss layer and an uneven forest floor. Nests are well concealed on or near the ground in dense shrub or fern cover, often in stumps, fallen logs, overhanging stream banks or mossy hummocks.	Low	There is no suitable mixed forest habitat on site.
	Cerulean warbler	*Setophaga cerulea*	SC	THR	END	S3B	In Ontario, breeding habitat of the cerulean warbler consists of second-growth or mature deciduous forest with a tall canopy of uneven vertical structure and a sparse understory. This habitat occurs in both wet bottomland forests and upland areas, and often contains large hickory and oak trees. This species may be attracted to gaps or openings in the upper canopy. The cerulean warbler is associated with large forest tracks, but may occur in woodlots as small as 10 ha. Nests are usually built on a horizontal limb in the mid-story or canopy of a large deciduous tree.	Low	There are no mature forests at the site
	Chimney swift	*Chaetura pelagica*	THR	THR	THR	S4B, S4N	In Ontario, chimney swift breeding habitat is varied and includes urban, suburban, rural and wooded sites. They are most commonly associated with towns and cities with large concentrations of chimneys. Preferred nesting sites are dark, sheltered spots with a vertical surface to which the bird can grip. Unused chimneys are the primary nesting and roosting structure, but other anthropogenic structures and large diameter cavity trees are also used.	Low	No suitable roosting or nesting structures were seen near the site.
	Common nighthawk	*Chordeiles minor*	THR	SC	THR	S4B	These aerial foragers require areas with large open habitat. This includes farmland, open woodlands, clearcuts, burns, rock outcrops, alvars, bog ferns, prairies, gravel pits.	Low	There is no suitable open habitat at the site.
	Eastern meadowlark	*Sturnella magna*		THR	THR	S4B	In Ontario, the eastern meadowlark breeds in pastures, hayfields, meadows and old fields. Eastern meadowlarks prefer moderately tall grasslands with abundant litter cover, high grass proportion, and a forb component. They prefer well drained sites or slopes, and sites with different cover layers.		Although there is old field/cultural meadow habitat at the site, it is surrounded by developed areas, and highly disturbed making unsuitable for use by meadowlark.
	Eastern Wood-Pewee	*Contopus virens*		SC	SC	S4B	In Ontario, the eastern wood-pewee inhabits a wide variety of wooded upland and lowland habitats, including deciduous, coniferous, or mixed forests. It occurs most frequently in forests with some degree of openness. Intermediate-aged forests with a relatively sparse midstory are preferred.Tends to inhabit edges of younger forests having a relatively dense midstory. Also occurs in anthropogenic habitats providing an open forested aspect such as parks and suburban neighborhoods. Nest is constructed atop a horizontal branch, one to two meters above the ground, in a wide variety of deciduous and coniferous trees.	Low	The only forest at the site is a small fragment of deciduous swamp surrounded by roadways.

Taxon	Common Name	Scientific Name	Species At Risk Act (Sch 1)[1]	Endangered Species Act[2]	COSEWIC[3]	Provincial (SRank)[4]	Habitat Requirements[5]	Potential to Occur on Site	Rationale for Potential to Occur on Site
	Golden-winged warbler	*Vermivora chrysoptera*	THR	SC	THR	S4B	In Ontario, golden-winged warbler breeds in regenerating scrub habitat with dense ground cover and a patchwork of shrubs, usually surrounded by forest. Their preferred habitat is characteristic of a successional landscape associated with natural or anthropogenic disturbance such as rights-of-way, field edges or openings resulting from logging or burning. The nest of the golden-winged warbler is built on the ground at the base of a shrub or leafy plant, often at the shaded edge of the forest or at the edge of a forest opening.	Low	There are is no regenerating scrub habitat at the site
	Least bittern	*Ixobrychus exilis*	THR	THR	THR	S4B	In Ontario, the least bittern breeds in marshes, usually greater than 5 ha, with emergent vegetation, relatively stable water levels and areas of open water. Preferred habitat has water less than 1 m deep (usually 10 – 50 cm). Nests are built in tall stands of dense emergent or woody vegetation. Clarity of water is important as siltation, turbidity, or excessive eutrophication hinders foraging efficiency.	Low	There are no marshlands at the site
	Loggerhead shrike	*Lanius ludovicianus (migrans subsp)*	END	END	END	S2B	In Ontario, the loggerhead shrike breeds in open country habitat characterized by short grasses with scattered shrubs or low trees. Unimproved pasture containing scattered hawthorns (Crataegus spp.) on shallow soils over limestone bedrock is the preferred habitat. Preferred nest sites include isolated hawthorns or red cedar. Males defend large territories of approximately 50 ha.	Low	There are not open country habitats with short grasses, shrubs or low trees at the site.
	Louisiana waterthrush	*Parkesia motacilla (formerly Seiurus motacilla)*	SC	SC	SC	S3B	The Louisiana waterthrush inhabits mature forests along steeply sloped ravines adjacent to running water. It prefers clear, cold streams and densely wooded swamps. Trees, bushes, exposed roots, cliffs, banks and mossy logs are favoured nesting spots. Riparian woodlands are preferred stopover sites during migration.	Low	There are no mature forests or suitable running water at the site.
	Red-headed woodpecker	*Melanerpes erythrocephalus*	THR	SC	THR	S4B	In Ontario, the red-headed woodpecker breeds in open, deciduous woodlands or woodland edges and are often found in parks, cemeteries, golf courses, orchards and savannahs. They may also breed in forest clearings or open agricultural areas provided that large trees are available for nesting. They prefer forests with little or no understory vegetation. They are often associated with beech or oak forests, beaver ponds and swamp forests where snags are numerous. Nests are excavated in the trunks of large dead trees.	Low	There are insufficient large trees at the site for this species.
	Short-eared owl	*Asio flammeus*	SC	SC	SC	S2N,S4B	In Ontario, the short-eared owl breeds in a variety of open habitats including grasslands, tundra, bogs, marshes, clearcuts, burns, pastures and occasionally agricultural fields. The primary factor in determining breeding habitat is proximity to small mammal prey resources. Nests are built on the ground at a dry site and usually adjacent to a clump of tall vegetation used for cover and concealment.	Low	The grassed area at the site is too small and highly disturbed for this species.
	Wood Thrush	*Hylocichla mustelina*		SC	THR	S4B	During the breeding season, the Wood Thrush is found in moist, deciduous hardwood or mixed stands, often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches. Wood Thrushes choose habitats based on the structure of the forest. Specifically, this species selects nesting sites with the following characteristics: lower elevations with trees >16 m in height, a closed canopy cover (>70 %), a high variety of deciduous tree species, moderate subcanopy and shrub density, shade, fairly open forest floor, moist soil, and decaying leaf litter.	Low	There are no forests of sufficient size or suitable structure for this species at the site.

Taxon	Common Name	Scientific Name	Species At Risk Act (Sch 1)[1]	Endangered Species Act[2]	COSEWIC[3]	Provincial (SRank)[4]	Habitat Requirements[5]	Potential to Occur on Site	Rationale for Potential to Occur on Site
	Yellow-breasted chat	*Icteria virens virens*	SC	END	END	S2B	In Ontario, the yellow-breasted chat breeds in early successional, shrub-thicket habitats including woodland edges, regenerating old fields, railway and hydro rights-of-ways, young coniferous reforestations, and wet thickets bordering wetlands. Tangles of grape (Vitisspp.) and raspberry (Rubusspp.) vines are features of most breeding sites. There is some evidence that the yellow-breasted chat is an area sensitive species. Nests are located in dense shrubbery near to the ground.	Low	There is no shrub/thicket habitat at the site.
Fish	American eel	*Anguilla rostrata*		END	THR	S1?	In Ontario, the American eel is native to Lake Ontario, St. Lawrence River and Ottawa River watersheds. Their current distribution includes lakes Huron, Erie, and Superior and their tributaries. The Ottawa River population is considered extirpated. The preferred habitat of the American Eel is cool water of lakes and streams with muddy or silty substrates in water temperatures between 16 and 19°C. The American eel is a catadromous fish that lives in fresh water until sexual maturity then migrates to the Sargasso Sea to spawn.	Low	There is no fish habitat at the site.
	Channel darter	*Percina copelandi*	THR	THR	THR	S2	In Ontario, the channel darter is found in the lower Great Lakes basin along the shores of Lake Erie, Detroit River, St. Clair River, Lake St. Clair, Ottawa River and some of its tributaries, and in drainages of the Bay of Quinte. Channel darter are freshwater member of the perch family of fishes. Channel darter can be found in three general types of habitats, depending on which aquatic system they occupy: 1) in lakes, they are found in gravel and coarse sand beach areas; 2) in large river systems, they are typically found in gravel and cobble shoals and riffles; and, 3) in small- to medium-sized rivers, they are typically found in the riffles and pools. Communal spawning occurs in the spring and early summer in upstream areas with moderate to fast current and over fine gravel or small rocks.	Low	There is no fish habitat at the site.
	Grass pickerel	*Esox americanus ssp. vermiculatus*	SC	SC	SC	S3	In Ontario, the grass pickerel is found in Lake Huron, Lake St. Clair, Lake Erie, Niagara River, Lake Ontario and St. Lawrence River and their tributaries, and an isolated population occurs in the Severn River system. The grass pickerel is a subspecies of redfin pickerel, Esox americanus. This fish species is found in warm, slow moving streams and shallow bays of lakes. It prefers clear to tea-coloured water and dense aquatic vegetation. The grass pickerel typically occurs over mud substrates, but has also been found over rock and gravel. Spawning occurs in vegetated areas of streams and lakes.	Low	There is no fish habitat at the site.
	Lake sturgeon - Great Lakes / upper St.Lawrence Population	*Acipenser fulvescens*		THR	THR	S2	In Ontario, the lake sturgeon, a large prehistoric freshwater fish, is found in all the Great Lakes and in all drainages of the Great Lakes and of Hudson Bay. This species typically inhabits highly productive shoal areas of large lakes and rivers. They are bottom dwellers, and prefer depths between 5-10 m and mud or gravel substrates. Small sturgeons are often found on gravelly shoals near the mouths of rivers. They spawn in depths of 0.5 to 4.5 metres in areas of swift water or rapids. Where suitable spawning rivers are not available, such as in the lower Great Lakes, they are known to spawn in wave action over rocky ledges or around rocky islands.	Low	There is no fish habitat at the site.

Appendix A - Species at Risk Table

Taxon	Common Name	Scientific Name	Species At Risk Act (Sch 1)[1]	Endangered Species Act[2]	COSEWIC[3]	Provincial (SRank)[4]	Habitat Requirements[5]	Potential to Occur on Site	Rationale for Potential to Occur on Site
Mammal	Eastern small-footed myotis	*Myotis leibii*		END		S2S3	In Ontario, the eastern small-footed myotis occurs primarily in hemlock forest. The species generally roosts on the ground under rocks, in rock crevices, and under loose tree bark. It occasionally inhabits buildings. Areas near the entrances of caves or abandoned mines may be used for hibernaculum, where the conditions are drafty with low humidity, and may be subfreezing.	Low	There are very few mature trees at the site that would be suitable for roosting. No hibernaculum habitat exists at the site.
Mammal	Little Brown Myotis	*Myotis lucifugus*		END	END	S4	In Ontario, this species range is extensive and covers much of the province. It will roost in both natural and man-made structures. They require a number of large dead trees, in specific stages of decay and that project above the canopy in relatively open areas. May form nursery colonies in the attics of buildings within 1 km of water. Caves or abandoned mines may be used for hibernaculum, but high humidity and stable above freezing temperatures are required.	Low	There are very few mature trees and no structures at the site that would be suitable for roosting. No hibernaculum habitat exists at the site.
Mammal	Northern Myotis	*Myotis septentrionalis*		END	END	S3	In Ontario, this species range is extensive and covers much of the province. It will usually roost in hollows, crevices, and under loose bark of mature trees. Roosts may be established in the main trunk or a large branch of either living or dead trees. Caves or abandoned mines may be used for hibernaculum, but high humidity and stable above freezing temperatures are required.	Low	There are very few mature trees at the site that would be suitable for roosting. No hibernaculum habitat exists at the site.
Mollusc	Eastern pondmussel	*Ligumia nasuta*	END	END	END	S1	Eastern pondmussel's preferred habitat is sheltered areas of lakes or slow streams in substrates of fine sand and mud at depths up to 4.5 m.	Low	There are no lakes or suitable streams at the site
Reptile	Blanding's turtle - Great Lakes/St.Lawrence population	*Emydoidea blandingii*	THR	THR	THR	S3	Blanding's turtle will utilize a range of aquatic habitats, but favor those with shallow, standing or slow-moving water, rich nutrient levels, organic substrates and abundant aquatic vegetation. They will use rivers, but prefer slow-moving currents and are likely only transients in this type of habitat. This species is known to travel great distances over land in the spring in to order reach nesting sites, which can include dry conifer or mixed forests, partially vegetated fields, and roadsides. Suitable nesting substrates include organic soils, sands, gravel and cobble. They hibernate underwater and infrequently under debris close to water bodies.	Low	The pond and watercourse at the site have no records of Blanding's turtle and are surrounded by developed areas. No suitable nesting substrate was observed near the site.
	Eastern ribbonsnake - Great Lakes population	*Thamnophis sauritius*	SC	SC	SC	S3	Eastern ribbonsnake is semi-aquatic, and is rarely found far from shallow ponds, marshes, bogs, streams or swamps bordered by dense vegetation. They prefer sunny locations and bask in low shrub branches. Hibernation occurs in mammal burrows, rock fissures or even ant mounds.	Low	There is no suitable aquatic habitat at the site
	Milksnake	*Lampropeltis triangulum*	SC	SC	SC	S3	Milksnake utilizes a wide range of habitats including prairies, pastures, hayfields, wetlands and various forest types, and is well-known in rural areas where it frequents older buildings. Proximity to water and cover enhances habitat suitability. Hibernation takes place in mammal burrows, hollow logs, gravel or soil banks, and old foundations.	Low	Although there may be potential for this species to occur in the cultural meadow it is more likely to occur outside of the site boundaries where there is access to water and less disturbance.

Taxon	Common Name	Scientific Name	Species At Risk Act (Sch 1)[1]	Endangered Species Act[2]	COSEWIC[3]	Provincial (SRank)[4]	Habitat Requirements[5]	Potential to Occur on Site	Rationale for Potential to Occur on Site
	Northern map turtle	*Graptemys geographica*	SC	SC	SC	S3	Northern map turtle prefers large waterbodies with slow-moving currents, soft substrates, and abundant aquatic vegetation. Ideal stretches of shoreline contain suitable basking sites, such as rocks and logs. Hibernation takes place in soft substrates under deep water.	Low	There are no large waterbodies at the site.
	Snapping turtle	*Chelydra serpentina*	SC	SC	SC	S3	Snapping turtle utilizes a wide range of waterbodies, but shows preference for areas with shallow, slow-moving water, soft substrates and dense aquatic vegetation. Hibernation takes place in soft substrates under water. Nesting sites consist of sand or gravel banks along waterways or roadways.	Low	The pond at the site is very small, entirely fenced in and surrounded by developed properties.
	Spotted turtle	*Clemmys guttata*	END	END	END	S3	Spotted turtle habitat consists of shallow, slow-moving and unpolluted water such as ponds, bogs, marshes, ditches, vernal pools and sedge meadows. It is also occasionally found in woodland streams or sheltered shallow bays. These habitats are characterized by soft substrates and abundant aquatic vegetation. Females lay eggs in soil and leaf litter in wooded areas close to wetlands. Hibernation takes place in substrates under water, often under moss hummocks or muskrat dens.	Low	The pond at the site is surrounded by development and there is no access to suitable forested nesting habitat.
	Stinkpot or Eastern musk turtle	*Sternotherus odoratus*	THR	THR	SC	S3	Eastern musk turtle is very rarely out of water and prefers permanent bodies of water that are shallow and clear, with little or no current and soft substrates with abundant organic materials. Hibernation occurs in soft substrates under water. Eggs are sometimes laid on open ground, or in shallow nests in decaying vegetation, shallow gravel or rock crevices.	Low	The pond at the site is very small, entirely fenced in and surrounded by developed properties.
	Wood turtle	*Glyptemys insculpta*	THR	END	THR	S2	Wood turtle spends spring and fall in or near waterbodies, including clear rivers and streams with sandy or gravel-sand substrates and moderate to fast current. During the summer, this species is often found on land in habitats with moderate or patchy shrub and tree cover, often more than 500 m from water. Hibernation takes place in substrates under water. Nesting sites are found on sand or gravel-sand beaches and banks with patchy vegetation cover. Other sites less often used include gravel holes, roadsides, railways, utility corridors, farm lands and pastures.	Low	There are no suitable waterbodies or streams at the site.
Vascular Plant	American ginseng	*Panax quinquefolius*	END	END	END	S2	American ginseng is found in moist, undisturbed and relatively mature deciduous woods often dominated by sugar maple. It is commonly found on well-drained, south-facing slopes. American ginseng grows under closed canopies in neutral, loamy soils.	Low	The site is highly disturbed and has no mature forests
	Butternut	*Juglans cinerea*	END	END	END	S3?	Butternut is found along stream banks, on wooded valley slopes, and in deciduous and mixed forests. It is commonly associated with beech, maple, oak and hickory. Butternut prefers moist, fertile, well-drained soils, but can also be found in rocky limestone soils. This species is shade intolerant.	Low	A tree inventory found no butternut at the site

Appendix A - Species at Risk Table

1 Species at Risk Act (SARA), 2002. Schedule 1 (Last amended 8 March 2013); Part 1 (Extirpated), Part 2 (Endangered), Part 3 (Threatened), Part 4 (Special Concern)

2 Endangered Species Act (ESA), 2007 (O.Reg 242/08 last amended 13 Dec 2013 as O.Reg 323/13). Species at Risk in Ontario List, 2007 (O.Reg 230/08 last amended 24 Jan 2013 as O.Reg 25/13, s. 1.); Schedule 1 (Extirpated - EXP), Schedule 2 (Endangered - END), Schedule 3 (Threatened - THR), Schedule 4 (Special Concern - SC)

3 Committee on the Status of Endangered Wildlife in Canada (COSEWIC) http://www.cosewic.gc.ca/

4 Global Ranks (GRANK) are Rarity Ranks assigned to a species based on their range-wide status. GRANKS are assigned by a group of consensus of Conservation Data Centres (CDCs), scientific experts and the Nature Conservancy. These ranks are not legal designations. G1 (Extreemly Rare), G2 (Very Rare), G3 (Rare to uncommon), G4 (Common), G5 (Very Common), GH (Historic, no record in last 20yrs), GU (Status uncertain), GX (Globally extinct), ? (Inexact number rank), G? (Unranked), Q (Questionable), T (rank applies to subspecies or variety). Last assessed August 2011

5 Provincial Ranks (SRANK) are Rarity Ranks assigned to a species or ecological communities, by the Natural Heritage Information Centre (NHIC). These ranks are not legal designations. SRANKS are evaluated by NHIC on a continual basis and updated lists produced annually. SX (Presumed Extirpated), SH (Possibly Extirpated - Historical), S1 (Critacally Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), SNA (Not Applicable), S#S# (Range Rank), S? (Not ranked yet), SAB (Breeding Accident), SAN (Non-breeding Accident), SX (Apparently Extirpated). Last assessed August 2011.

6 General Habitat Protection is applied when a species is newly listed as endangered or threatened on the SARO list under the ESA, 2007. The definition of general habitat applies to areas that a species currently depends on. These areas may include dens and nests, wetlands, forests and other areas essential for breeding, rearing, feeding, hibernation and migration. General habitat protection will also apply to all listed endangered or threatened species without a species-specific habitat regulation as of June 30, 2013 (ESA 2007, c.6, s.10 (2)). Regulated Habitat is species-specific habitat used as the legal description of that species habitat. Once a species-specific habitat regulation is created, it replaces general habitat protection. Refer to O.Reg 242/08 for full details regarding regulated habitat.

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