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Huntington Road Part A and Part B
Langstaff Road to Nashville Road
Class 'C' Environmental Assessment

Natural Heritage – Existing Conditions and Impact Assessment Report
Parsons

October 2017
SLR Project No.: 209.40224.00000

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October 2017

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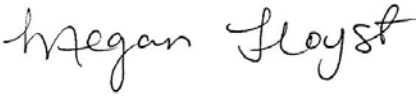

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1.0 INTRODUCTION

Increasing population in the City of Vaughan has led to significant traffic congestion in the western part of the City of Vaughan in the Highway 427 corridor. The need for roadway expansions and improvements has been identified through a number of planning documents and initiatives including:

- York Region Official Plan (2010)
- York Region Transportation Master Plan (2009)
- City of Vaughan Official Plan (2010)
- City of Vaughan Transportation Master Plan (2012)

Huntington Road between Langstaff Road and McGillvray Road (Part A) is planned for expansion from two (2) lanes to four (4) lanes. Huntington Road between Major Mackenzie Drive West and Nashville Road (Part B) will remain as two lanes, but a 26 metre right-of-way will be maintained.

Before road improvements to Huntington Road between Nashville Road and Langstaff Road can be initiated, a Class Environmental Assessment Study (Schedule 'C') is required. The purpose of the Class EA is to describe justification for the project, describe the environmental constraints and opportunities of the study area, evaluate viable alternative methods to address the issues and consult with review agencies and the public to identify a technically preferred solution.

SLR Consulting (Canada) Ltd. (SLR) was retained by Parsons, formally Delcan Corporation on behalf of the City of Vaughan (Vaughan) to provide a description of the aquatic and terrestrial habitat existing conditions within the area of Part A and Part B. In completing this assignment, SLR ecologists collected and reviewed secondary source data, corresponded with review agencies and preformed field inventories of the natural environment in the spring/summer of 2014. This report presents the findings and recommendations of these natural heritage investigations including a presentation of existing conditions and a discussion of the potential impacts, mitigation associated with the technically preferred alternative and suggestions for habitat restoration.

1.1 Environmental Study Area

The Study Area is located in the City of Vaughan, Ontario along Huntington Road. The Study Area is split into two parts along Huntington Road and includes 50 m on either side of the existing roadway. Part A is between Langstaff Road and McGillvray Road; Part B is between Major Mackenzie Drive West and Nashville Road. The location of Parts A and B of the Study Area are shown in Figure 1.

2.0 POLICY CONTEXT AND LEGISLATIVE FRAMEWORK

Development on the site is subject to a number of federal, provincial and local environmental acts, regulations and policies, most of which provide direction and guidance regarding proposed land use changes and the protection of sensitive natural heritage features and functions and species and their habitat. An initial review of the applicable natural heritage policy was carried out to determine appropriate investigations required to satisfy the legislative context that applies to the subject lands, including but not limited to the following instruments:

- *Fisheries Act* (2012);
- *Migratory Birds Convention Act* (1994);
- The Provincial Policy Statement (PPS, 2014);
- Ontario's *Endangered Species Act* (2007);
- Ontario Regulation 166/06 - Development, Interference with Wetlands and Alterations to Shorelines and Watercourses;
- The Living City Policies (TRCA);
- York Region Official Plan (2016);
- City of Vaughan Official Plan 2010 (Office Consolidation January 2017);
- Oak Ridges Moraine Conservation Plan; and,
- The Greenbelt Plan.

2.1 Federal Fisheries Act

The *Federal Fisheries Act* applies to developments that are anticipated to impact fish habitat. The Act prohibits serious harm to fish, and by extension within the Act, fish habitat. In cases where unavoidable impacts are anticipated (after avoidance and mitigation measures are used), the Act's policies require that protection of fish habitat be achieved. Where serious harm to fish is unavoidable, protection is most often achieved by way of employing habitat off-setting measures.

2.2 Migratory Birds Convention Act (1994)

The *Migratory Birds Convention Act* (1994) and its complimentary regulations ensure the conservation of migratory bird populations by regulating potentially harmful human activities. It aims to protect migratory birds, their eggs, and their nests from harm, harassment, killing and or the taking of nests and or eggs of species regulated under the act during the breeding season. Therefore, it is up to the proponent to practice due diligence to ensure that site clearing activities including removal of vegetation (e.g. trees, grasses, shrubs) or structures that has the potential to destroy the nests and young of birds is avoided. In order to assist proponents in achieving compliance with this *Act* and its Migratory Bird Regulations (MBR) Environment Canada recommends removing trees outside the limits of the breeding season as prescribed in supporting guidelines for Regions across Canada.

2.3 Provincial Policy Statement

Policy 2.1 of the Provincial Policy Statement (PPS) (MMAH 2014) issued under Section 3 of The *Planning Act* provides direction to regional and local municipalities regarding planning policies, including the protection and management of natural heritage features and resources. Section 3 of the *Planning Act* requires that decisions affecting planning matters "shall be consistent with" policy statements under the *Act*. In general, Section 2.1 of the PPS requires that no development shall occur in significant features or on their adjacent lands unless it is demonstrated that features and functions will not be negatively impacted. Specifically Section 2.1 of the PPS requires that

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

- *significant wetlands* in Ecoregions 5E, 6E and 7E1; and
- *significant coastal wetlands*.

That no development shall occur in significant features or on their adjacent lands unless it is demonstrated that features and functions will not be negatively impacted. These include

- significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E1;
- significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
- significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
- significant wildlife habitat; or
- significant areas of natural and scientific interest

Development and site alteration is also not permitted in fish habitat or habitat of endangered or threatened species except in accordance with provincial and federal requirements.

A framework to assist in the determination of significance for natural heritage features is provided in the Natural Heritage Reference Manual (OMNR, 2010). In addition, the Significant Wildlife Habitat Technical Guide (OMNR 2000) and Decision Support Criteria were developed to assist land use decision makers in determining whether SWH may be affected by proposals for land use change in the context of the *Planning Act*.

2.4 The Endangered Species Act

The *Endangered Species Act* (ESA, 2007) is a provincial statute administered by the Ministry of Natural Resources and Forestry (MNRF). The *Act* defines mandatory species and habitat protection with a science-based approach to species designated by the Committee on the Status of Species at Risk in Ontario (COSSARO) listed on Schedules 2 (Endangered) and Schedules 3 (Threatened) of Ontario Regulation 230/08. Species and their habitats are protected and any person who has an interest in activities which may harm, harass or kill a species or destroy / remove habitats of species regulated under the *Act* (e.g. the development of a property) must adhere to the policies and regulations under the *Act*.

2.5 Ontario Regulation 166/06 - Development, Interference with Wetlands and Alterations to Shorelines and Watercourses

The Toronto and Region Conservation Authority (TRCA) has made regulations under the *Conservation Authorities Act* governing the use of valleys, watercourses and most recently, wetlands. The objective of Regulation 166/06 is to ensure public safety and protect 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. This Regulation establishes Regulated Areas where development could be subject to flooding, erosion or dynamic beaches, or where interference with wetlands and alterations to shorelines and watercourse might have an adverse effect on those environmental features.

Under this regulation, any proposed development, interference or alteration (e.g., placement or removal of material) within a Regulated Area requires a review by TRCA. Prior to commencing site alteration, the proponent shall forward a submission to TRCA for determination of Regulation 166/06 permit requirements.

Through meetings and discussions with TRCA representatives, it has been confirmed that permit will be required for the proposed construction activities.

2.6 The Living City Policies

The Living City Policies is for Planning and Development in the Watersheds of the TRCA (LCP) is a conservation authority policy document that guides the implementation of TRCA's legislated and delegated roles and responsibilities in the planning and development approvals process. The relevance to this study is based primarily in the program's objective to further the conservation restoration development and management of natural resources as per section 21 of the *Conservation Authorities Act* that Guides TRCA's role in planning and in environmental assessments and in the application of Ontario regulation 166/06.

2.7 York Region Official Plan - Office Consolidation: April 2016 and Regional Greenlands System

The York Region Official Plan (YROP) has been updated to recognize recent Regional initiatives and to bring it into conformity with the recent Provincial planning changes described above. The policies of Section 2.1 of the YROP are designed to identify, protect, and enhance a linked Greenlands System as a permanent legacy for York Region. The Regional Greenlands System on Map 2 of the OP and the policies of Section 2.1 of YROP, protect key natural heritage features and key hydrologic features and the adjacent lands necessary to maintain these features in a linked system. York Region's Greenlands are connected to a larger landscape system that extends across the Greater Toronto and Hamilton Area, Ontario and North America. The Regional Greenlands System policies preserve and enhance natural features within a connected natural heritage system while permitting certain uses including: new infrastructure required to service the community including…streets provided that: no other reasonable alternative location exists and if an approved environmental impact study demonstrates that it can be constructed without negative impact, and shall be subject to the policies of the Greenbelt Plan, where applicable; or authorized through an Environmental Assessment.

2.8 City of Vaughan Official Plan 2010 (Office Consolidation January 2017)

The Natural Heritage Network defined in Section 3 of the Vaughan's Official Plan (OP) and the related policies are provided to protect the specific natural areas and ensure ecological functions are maintained and enhanced. The city's Natural Heritage Network represented on Schedule 2 of the OP consists of a wide range of natural features and forms part of the larger York Regional Greenlands System. The Natural Heritage Network represents an interconnected system of natural features and the functions. Natural features such as wetlands, woodlands and the extensive valley and stream corridors are identified as Core Features to be protected and enhanced.

That development and/or site alteration in Core Features are prohibited except for specific uses outlined in the OP including: "transportation, infrastructure and utilities, where such projects are necessary and deemed in the public interest after all alternatives have been considered, and where such projects will minimize negative impacts on the Core Features and measures shall be identified to maintain habitat area and enhance overall ecosystem function".

2.9 Oak Ridges Moraine Conservation Plan

The Oak Ridges Moraine is an environmentally sensitive, geological landform located in south central Ontario. The Oak Ridges Moraine Conservation Plan (2017) protects a variety of natural heritage and surface water features that occur within its boundaries.

The subject property does not occur within the limits of the Oak Ridges Moraine.

2.10 Greenbelt Plan Area

In February 2005, the *Greenbelt Protection Act* was passed and the Greenbelt Plan was released and has since been updated in 2017. The Greenbelt Plan (2017) delineates the boundaries of the Greater Golden Horseshoe Greenbelt and protects a variety of natural heritage and surface water features that occur within its boundaries.

The subject property does not occur within the limits of the Greenbelt Area.

3.0 METHODOLOGY

3.1 Desktop Analysis

A literature review and desktop analysis of the Study Area was performed to identify known natural heritage features and functions within and adjacent to the Study Area. This information was used in concert with data collected during field investigations to develop a description of the natural environment, inform the evaluation of alternatives and identify potential impacts of the technically preferred solution.

The Ontario Natural Heritage Information Centre (NHIC) compiles, maintains and distributes information on natural species, plant communities and spaces of conservation concern in Ontario. Fisheries and Oceans Canada (DFO) annually prepares distribution maps for fish and mussel Species at Risk. These data sources were consulted for occurrences of nationally and/or provincially designated Species at Risk and Provincially Rare Species (S1-S3) within the Study Area.

Other documents included in the desktop analysis were:

- The Official Plans for the City of Vaughan (2010) and York Region (2010);
- Humber River Watershed Management Plan (2008);
- Humber River Fisheries Management Plan (2005);
- The Greenbelt Plan (2017); and,
- Humber River - State of the Watershed Report (2008).

3.2 Agency Correspondence

The Study Area occurs within the jurisdictional boundaries of the Toronto and Region Conservation Authority (TRCA) and the Aurora District of the Ontario Ministry of Natural Resources and Forestry (MNRF). The following individuals from these organizations were contacted regarding natural heritage information about this Study Area (pertinent correspondence records are provided in Appendix A):

- Ministry of Natural Resources and Forestry, Aurora District, *Brittany Ferguson, Fish and Wildlife Technical Specialist*
- Toronto and Region Conservation Authority
- *Angela Wallace, Biomonitoring Analyst*
- *Dan Clayton, Senior Project Manager, GIS*

3.3 Field Investigations

3.3.1 Aquatic Habitat

The objective of field investigations was to identify, map, and describe the existing aquatic habitat identified within the Study Area. Habitat parameters investigated at each watercourse crossing included:

- general channel dimensions;
- channel morphology mapping;
- substrate characterization;
- aquatic macrophyte inventory;
- bank stability and cover;
- areas of critical habitat (spawning, nursery, feeding);
- presence of fish barriers and system connectivity; and,
- potential enhancement opportunities.

In addition, digital photographs of each crossing location were taken at both the upstream and downstream locations; refer to Figures 2a – 2e for photo references. Detailed fish surveys were conducted as part of these field investigations under License # 1078608, issued by MNR Aurora District. A Smith-Root Model 12 Electrofishing backpack (Pulsed DC setting 200-300 V, 50-60 Hz, 4-6 ms) was used for fish collections. Fish sampling included all available microhabitat types in order to collect a representative fish community sample. Upon completion of sampling, collected fish were identified and numerated by species, and returned unharmed to the watercourse.

Additional data used to describe the fish community present in the watercourses onsite was obtained from MNR and TRCA.

3.3.2 Terrestrial Habitat

An SLR terrestrial ecologist and Registered Professional Forester conducted a site visit of the subject lands on September 10, 2014 to document and classify vegetation communities and inventory vegetation within the Study Area. Plant communities were classified using the Ecological Land Classification System for Southern Ontario (ELC), as per Lee *et al*. (1998). This is the provincially accepted standard for classifying vegetation communities in Ontario; based on this standard, vegetation communities were identified down to Vegetation Type where possible. Information regarding the structure and composition of these vegetation units included information describing dominant species, cover, community structure, community disturbance and other notable features.

Breeding bird surveys were undertaken in the peak of breeding season on May 30, 2014 and June 29, 2014. These surveys were conducted in the early morning period (approximately between 05:30 and 10:30 a.m.). Survey protocol followed that was developed for the Ontario Breeding Bird Atlas field program (OBBA, 2001). Sixteen survey point locations were visited and transects were conducted in representative habitats. Breeding birds were counted, using the “assumed pair” as the counting unit (*i.e.*, one of: a singing male, a pair seen, or single adult birds in suitable nesting habitat).

During specific surveys for flora or aquatic habitat species, incidental observations of wildlife were recorded. This included direct observations or indications of habitat use or habitat potential.

4.0 ENVIRONMENTAL SETTING

4.1 Watershed Overview

The portions of Rainbow Creek and Robinson Creek in the Huntington Road Study Area are located in the Main Humber Subwatershed (Rainbow Creek Secondary Subwatershed) within the Humber River Watershed. According to the TRCA's Humber River – State of the Watershed Report (HRSOW) (2008), the Humber River Watershed drains southwest towards the north shore of Lake Ontario, where it outlets to the lake south of the Gardiner Express Way near the South Kingsway. Rainbow Creek is classified as 'small riverine warmwater' and Robinson Creek is classified as 'small and intermediate riverine warmwater' (HRFMP 2005).

The Study Area lies within the South Slope physiographic region, consisting of smooth, faintly drumlinized clay till plain that contains deeply incised stream valleys (HRSOW 2008). There is a band of Peel Plain running from northwest to southeast across the area, through the north portion of Part A (HRSOW 2008). Surficial geology consists of coarse-textured glaciolacustrine deposits (sand, gravel, minor silt and clay) in the northern half of Part B. The southern half of Part B and most of Part A is fine-textured glaciolacustrine deposits (silt, clay, minor sand and gravel) (OGS 2010).

The land use surrounding Huntington Road for Part A is all classified as Urban; for Part B, the east side of Huntington Road is classified as Towns and Villages, and the west side is not classified (rural).

4.2 Aquatic Environment

For the Main Humber Watershed the mean dissolved oxygen between 1999 and 2002 was 11.3 mg/L, the mean water temperature was 10.2°C and the total suspended sediment was 11 mg/L (HRFMP, 2005). According to the TRCA (2005) Humber River Fisheries Management Plan (HRFMP), Rainbow Creek and Robinson Creek segments are located within Management Zone 4; whose target fish species are Darter species. Downstream of the confluence of these two systems the watercourse transitions to coldwater habitat prior to entering the main Humber River. Rainbow and Robinson Creeks combined consist of approximately 731 ha of riparian area, 43% natural cover and the remainder lacking natural cover. The sections of the creek associated with the Huntington Road Study Area consist of permanent and intermittent features, which primarily lack natural cover and are highly disturbed.

4.2.1 General Fish Community

Aquatic ecologists conducted fish and fish habitat investigations on October 16, 2014. At the time of field investigations, water quality parameters were measured in recorded. Provided in Table 1 is a summary of the parameters results collected from Rainbow Creek and Robinson Creek.

Table 1: 2014 Surface Water Quality Recorded on October 16, 2014

Location	Time of Measurement	Air Temperature (°C)	Water Temperature (°C)	Conductivity (µS)	pH	Dissolved Oxygen (mg/L)
East Robinson Creek	1:30 pm	19	16	1060	9.1	5.68
Robinson Creek	12: 00 am	19	12.4	840	9.5	6.35
East Rainbow Creek	11:00 am	19	11.6	1574	9	5.45
West Rainbow Creek	10:30 am	18	11.9	1716	8.88	5.08
Rainbow Creek	10:00 am	18	11.9	646	8.6	4.64

These parameters are within expected ranges for watercourses in southern Ontario (Table 1). A compiled list of fish species captured by the Ministry of Natural Resources and Forestry and TRCA (2001-2010) are provided below (Table 2). The TRCA conducted fish surveys at station HU018WM within the Study Area (Rainbow Creek) and HU019WM downstream of the Study Area (Robinson Creek – tributary of Rainbow Creek) (Figures 2d and 2e). Their surveys were conducted in the years of 2001, 2004, 2007, 2008, and 2010.

In addition to data received from Conservation Authorities and MNR, SLR conducted fish community surveys in Robinson and Rainbow Creeks within the Study Area.

Within the watershed, 19 species are reported by various agencies. Within the Study Area, five species were captured during investigations completed by SLR. Species encountered by TRCA, MNR and SLR are listed in Table 2.

The fish present in the Study Area reflect typical cool / warmwater fish communities in southern Ontario. The communities are comprised of generalist and benthic feeding groups inclusive of cyprinid, stickleback, darter, bullhead and catostomidae species. These fish are relatively tolerant of stresses associated with urbanization. None of the species captured during investigations are sensitive to habitat disturbance and poor water quality. None of these species depend on specialized spawning habitat.

The food web structure within these systems is relatively simple; Creek Chub is likely the top predator (part piscivore) and feed on other insectivore and omnivore minnows. Species within these systems are both resident and migratory species. White Sucker was collected from Rainbow Creek, this is a migratory species which moves from lake to riverine environments to spawn. Fish collections indicate that the study area can support cool water species. Darters, which prefer cooler water temperatures ranging from 22ºC – 19ºC, were also found in Robinson Creek.

Table 2: Fish Species Noted Within Rainbow Creek and Robinson Creek by SLR and Various Agencies

Fish Species		SLR		MNR		TRCA	
Common Name	**Scientific Name**	**Rainbow Creek**	**Robinson Creek**	**Rainbow Creek**	**Robinson Creek**	**Rainbow Creek**	**Robinson Creek**
Blacknose Dace	*Rhinichthys atratulus*			·	·	·	✓
Blackside Darter	*Percina maculata*			·	·	·	✓
Bluntnose Minnow	*Pimephales notatus*			·	·	·	✓
Brook Stickleback	*Culaea inconstans*	✓		·	·	✓	✓
Brown Bullhead	*Ameiurus nebulosus*	✓		·	·	✓	·
Common Shiner	*Luxilus cornutus*			·	·	·	✓
Creek Chub	*Semotilus atromaculatus*	✓		·	·	✓	✓
Fathead Minnow	*Pimephales promelas*			·	·	✓	✓
Golden Shiner	*Notemigonus crysoleucas*			·	·	·	✓
Green Sunfish	*Lepomis cyanellus*			·	·	✓	·
Johnny Darter	*Etheostoma nigrum*		✓	·	·	·	✓
Largemouth Bass	*Micropterus salmoides*			·	·	·	✓
Common Sunfish sp.	*Lepomis sp.*			·	·	✓	·

Fish Species		SLR		MNR		TRCA	
Common Name	**Scientific Name**	**Rainbow Creek**	**Robinson Creek**	**Rainbow Creek**	**Robinson Creek**	**Rainbow Creek**	**Robinson Creek**
Pumkinseed	*Lepomis gibbosus*			·	·	✓	✓
Rock Bass	*Ambloplites rupestris*			·	·		✓
Spottail Shiner	*Notropis hudsonius*			·	·	·	✓
Unknown YOY sp.	---			·	·	·	✓
White Sucker	*Catostomus commersoni*	✓		·	·	✓	✓
Yellow Perch	*Perca flavescens*			·	·	·	✓

4.2.2 Fish Species at Risk

The Ontario Natural Heritage Information Centre does not identify any fish species at risk within the Study Area (Figure 3).

The DFO's Distribution of Fish Species at Risk mapping (May 2014) indicates that Robinson Creek within the Study Area is designated as "Under consideration for listing" under Schedule 1 for Redside Dace (*Clinostomus elongatus*) and/or American Eel (*Anguilla rostrata*) (Figure 3). This means that one or both of these animals is currently being considered for addition to Schedule 1. This is an official list of wildlife species at risk in Canada for which specific protection and recovery measures are developed and implemented. Therefore no current action is required, but this serves as a notice that specific protection and recovery measures are pending for Robinson Creek in the Study Area.

Through direct correspondence with MNRF, it was determined that neither Robinson Creek nor Rainbow Creek are considered regulated habitat for Redside Dace. Please refer to the attached memo (Appendix F) regarding correspondence with MNRF.

4.2.3 Fish Habitat

A total of 11 watercourse crossings were identified within the Study Area using GIS mapping. Watercourse locations and characteristics were confirmed by SLR ecologist through field investigations on October 16, 2014. Watercourses within the Study Area consist of permanent and intermittent warmwater features. The watercourses crossings were identified as contributing to one of five watercourses including: East Robinson Creek, Robinson Creek, Rainbow Creek, East Rainbow Creek, and West Rainbow Creek (Figures 2a – 2f). Descriptions of these crossings are provided below.

East Robinson Creek

At the northern extent of the Study Area, East Robinson Creek flows south east and crosses Huntington Road at three locations. These are identified on Figures 2a and 2b as Crossings 1, 2 and 3. This east branch has a confluence with Robison Creek downstream of the Study Area.

At Crossing 1, the upstream portion of the creek was dry at the time of investigation. The upstream culvert was buried in dense vegetation, suggesting that the culvert conveys little flow. The downstream portion of Crossing 1 was identified as a stormwater management pond, which likely provides direct fish habitat. The pond was constructed with armour stone along the north bank, and the entire perimeter was lined with cobble substrates. A moderate amount of overhanging vegetation existed on the west shoreline. Bait buckets were observed on shore, which further suggests that the pond supports a fish community.

The upstream portion of Crossing 2 was heavily vegetated and channel banks were loosely defined. The soils were saturated at the time of investigation, but no pooled water was observed. The downstream habitat was limited to highway drainage features. This crossing is not likely to support fish and fish habitat.

At Crossing 3 upstream of Huntington Road, a channel approximately 1 m wide conveyed drainage from agricultural fields (soy bean). This channel was dry at the time of investigation.

Clay substrates dominated the channel and instream grasses were observed. Cattails and grasses grew adjacent to the channel.

Downstream of Huntington Road, Crossing 3 provided pool habitat approximately; 1.5 m wide and 2 m long, with a water depth averaging 0.2 m. Thereafter, the watercourse channelized (1 m wetted width) for 5 m. Approximately 6 m from the Huntington Road, the channel was chocked with dense instream grasses and created shallow disconnected pools. Green algae were present in the shallow pools. Channel banks were loosely defined and the channel transitioned into a wetland feature further downstream. Gravel and small cobble existed at the upstream and downstream end of the culvert and silt and sand dominated pools and channels. Reed Canary Grass dominated the riparian vegetative community.

Robinson Creek

Robinson Creek (Crossing 4) flows southeast and intersects the Study Area south of Major Mackenzie Drive. This creek is a well-defined watercourse dominated by pool and run habitat throughout the Study Area. The upstream portion of the watercourse had a wetted width of approximately 7 m and an average water depth of 0.6 m, and up to a depth of 0.7 m in the thalweg. The downstream portion of the watercourse had steep channel banks, and water depth was greater than 1 m. Substrate was dominated by hardpan shale with gravel and rubble dispersed throughout.

Upstream of Huntington Road, moderate cover was provided by overhanging vegetation (grasses and trees), undercut banks, and woody debris. Less cover was observed downstream of Huntington Road. A significant amount of iron staining was observed upstream of Huntington Road, indicating groundwater seepage at this location.

Crossing 4 provided suitable habitat for various species. The woody debris and mixture in substrate sizes provide ideal spawning habitat for a variety of species found in this system. During fish collections, Johnny Darter were captured, both adult and juvenile age classes.

Rainbow Creek

The east and west branches of Rainbow Creek flow southeast through the Study Area. These branches confluence just outside of the Study Area boundary to form the main channel of Rainbow Creek. East Rainbow Creek include Study Area Crossings 5, 6, 7, and 8. West Rainbow Creek include Crossings 9, 10 and 11.

East Rainbow Creek

East Rainbow Creek originates at Crossing 5 and flows east through the Study Area. Upstream of Huntington Road, East Rainbow Creek received approximately 70% natural drainage and 30 % flow from an adjacent stormwater pond and highway runoff. Approximately 50 m upstream of Huntington Road, a wetland feature was present. Downstream of the wetland, a narrow channel developed; approximately 1 m wide. The channel was dominated by silt substrates and bordered by Reid Canary Grass and Cattails. The channel confluences with a rip rap drainage channel from the stormwater pond. This feature was dry during investigations. Further downstream at the inlet of the culvert, a large pool existed, approximately 8 m wide and 0.4 m deep.

A pool measuring approximately 3.5 m wide occurred at the base of the culvert outlet downstream of Huntington Road. The pool was dominated by silt substrate and instream vegetation (Chara). Banks were moderately unstable and undercut. Below the pool, the stream channel averaged approximately A 1.5 m wide. Here, riparian areas were dominated by cattail and Willow trees. Approximately 30 m downstream of the culvert, the channel transitioned into a wetland with no defined channel banks.

Crossing 5 flows southeast around the Study Area boundary, flows adjacent to Huntington Road at Crossing 6 for 225 m, and ultimately intersects Huntington Road at Crossings 7 and 8. Due to an absence of flow at the time of investigation, crossing 8 is considered indirect fish habitat.

Crossing 6 and 7 provided pool habitat both upstream and downstream of Huntington Road. Species observed utilizing these refuge pools include young-of-year and juvenile Creek Chub, White Sucker, Stickleback, and Brown Bullhead. East Rainbow Creek located at Crossing 8 was dry at the time of investigations.

At Crossing 7, a pool approximately 5 m wide and 5 m in length was observed upstream of Huntington Road. Average water depth was 0.6 m. A perched channel drained to the pool, however this was dry at the time of investigation. Highway drainage channels that ran parallel to Huntington Road were also dry at the time of investigation and are not considered fish habitat. Riparian areas were dominated by dense cattail and overhanging riparian trees. Instream vegetation consisted of Chara. Dominate substrate types included gravel and silt.

At Crossing 7, pool habitat was also located downstream of Huntington Road had a water depth up to 0.6 m, width ranged from 2 to 3 m, and length was approximately 7 m. Water was very turbid during the field investigation. The pool undercut a large tree, providing habitat for aquatic species. Substrate was dominated by silt and organic debris in the deepest portion of the pool, and gravel occurred along the perimeter of the pool. Submergent and emergent woody debris provided additional cover for aquatic species. The upstream (Location 6) and downstream channel portions connecting to the pool were shallow and densely vegetated with cattails. These conditions likely limit the ability of fish to move through and utilize these portions of the channel.

West Rainbow Creek

West Rainbow Creek is identified as Crossings 9, 10, and 11 on Figures 2e and 2f. Crossing 10 and 11 were dry at the time of investigation and are considered to provide indirect fish habitat.

Through the Study Area, Crossing 9 was typified by a relatively narrow channel (1.5 to 2 m) with run and pool habitat. The watercourse flows generally from northwest to southeast and confluences with East Rainbow Creek at the boundary of the Study Area. Substrate was comprised of cobble and gravel in the channel. Sand and silt was also observed, primarily in banks and pools.

Riparian areas were dominated with tall grass, cattail, and willows. Instream cover was provided not only by overhanging vegetation, but also by undercut banks, woody debris and instream vegetation (Chara). Average water depth was approximately 0.20 m. Typical pool depth was up to 0.55 m, width ranged from 0.5 to 5 m, and length from 1 to 2 m.

Water was observed breaching inside of the culvert, which may suggest evidence of groundwater upwelling, however no vegetative evidence or staining was observed. The field

measurement for water temperature was approximately 12ºC, indicating that the site could be influenced by groundwater and classified as coolwater habitat (Stoneman and Jones 1996). Observed scat suggests that aquatic mammals are active within the Study Area.

4.2.4 Existing Fish and Fish Habitat Conditions Summary

Table 3 is a summary of the existing fish and fish habitat conditions observed by SLR or noted by agencies in the Study Area.

Table 3: Existing Fish Habitat Conditions Summary

Waterbody	Discharge Regime	Thermal Regime	Substrate Type	Vegetation	Supports Fishery
East Robinson Creek	Main branch is permanent	Warm	Primarily cobble and gravel with sand and silt	Dense overhanging vegetation, instream grasses (Reid Canary Grass), banks of cattails and grasses	Crossing 1 Pond - direct Crossing 2 - indirect Crossing 3 - direct
Robinson Creek	Main branch is permanent	Warm	Hard pan shale with gravel and rubble	Over hanging grasses and trees, undercut banks and woody debris	Crossing 4 - direct
East Rainbow Creek	Main branch is permanent	Warm	Gravel and silt Organics in pool habitat	Reed Canary Grass, cattails, Chara, willows	Crossing 5 – direct Crossing 6 – direct Crossing 7 – direct Crossing 8 - indirect
West Rainbow Creek	Main branch is permanent	Warm	Cobble and gravel Sand and silt in pools	Overhanging vegetation, and Chara	Crossing 9 – direct Crossing 10 – indirect Crossing 11 – indirect

4.3 Terrestrial Environment

According to the Humber River State of the Watershed Report (TRCA 2008) the terrestrial environment within the Study Area consists of agricultural and meadow areas with some urban and urbanizing areas; Part B consists of agricultural and natural areas (forests). The natural environments along the whole Study Area range from poor to good quality. The report also stated that linkages or connections between natural areas were limited within the Humber River watershed with the majority being almost entirely along the river valley corridors.

4.3.1 Vegetation Communities

Within the Study Area, nine distinct vegetation communities (polygons) were identified (Table 4 and Figures 4a - 4f). Descriptions of the dominant species by strata, structure, and soil of each polygon are included below. There are 42 vegetation polygons identified (Table 4, Figures 4a - 4f). Descriptions of the dominant species of each of the areas are also included below. A complete plant list can be found in Appendix D.

The communities which occur most often throughout the study area are Cultural Meadows (CUM) (Photo 1 – Appendix B) and hedgerows (Table 4). The meadow habitats are formerly agricultural or residential lands.

Table 4: Vegetation Communities

Polygon ID	ELC Code	ELC Description	Area (ha)
1	FOD6-3	Moist Sugar Maple - Yellow Birch Deciduous Forest	0.88
2	MAS2-1	Cattail Mineral Shallow Marsh	1.01
3	CU	Residential Property	1.16
4	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.25
5	FOD3-1	Fresh Poplar Deciduous Forest	2.10
6	MAM3-8	Jewelweed Organic Meadow Marsh	0.16
7	MAM3-8	Jewelweed Organic Meadow Marsh	0.76
8	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	3.81
9	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	1.93
10	CU	Watercourse Banks	0.24
11	Manicured	Cultural Meadow	0.26
12	CU	Commercial Property	3.28
13	CU	Hedge Row	0.13
14	CU	Hedge Row	0.13
15	FOD7-3	Moist Willow Lowland Deciduous Forest	1.20
16	CUM	Cultural Meadow	0.70
17	CUM1-1	Dry - Moist Old Field Meadow	2.62
18	CUM	Cultural Meadow	0.66
19	CUM	Residential Property	0.19
20	MAS2-1	Cattail Mineral Shallow Marsh	0.75
21	MAS2-1	Cattail Mineral Shallow Marsh	0.93

Polygon ID	ELC Code	ELC Description	Area (ha)
22	CU	Ditch	0.49
23	CU	Wetland	0.30
24	CUM	Cultural Meadow	0.59
25	MAS2-1	Cattail Mineral Shallow Marsh	0.73
26	SWT	Thicket Swamp	0.22
27	MAS2-1	Cattail Mineral Shallow Marsh	0.08
28	CU	Watercourse Banks	0.10
29	CU	Hedge Row	0.27
30	CUM	Cultural Meadow	0.68
31	CU	Watercourse Banks	0.61
32	CUM	Cultural Meadow	1.12
33	CUM	Cultural Meadow	1.01
34	CUW	Cultural Woodland	3.39
35	CU	Residential and Industrial Property	0.97
36	CUW	Cultural Woodland	0.18
37	CUM	Cultural Meadow	0.49
38	CU	Hedge Row	0.27
39	CU	Hedge Row	0.17
40	CU	Hedge Row	0.26
41	CU	Hedge Row	0.23
42	CU	Commercial Property	0.38

According to the NHIC none of the communities identified within the Study Area are significant or rare within the province of Ontario.

4.3.1.1 *Polygon Descriptions*

Descriptions of the dominant species by strata, structure, and soil of each polygon are included below.

Polygon 1: Moist Sugar Maple – Yellow Birch Deciduous Forest (FOD 6-3)

This forest is within a fenced residential area therefore the ecological classification was performed from the road. This forest is dominated by Sugar Maple (*Acer saccharum*), which is greater in abundance than Yellow Birch (*Betula alleghaniensis*). The understory is comprised of Sugar Maple, which is greater than Yellow Birch. The shrub layer is comprised of equal amounts of Choke Cherry (*Prunus virginiana*) and Sugar Maple. The ground vegetation in this polygon is sparse. There are open areas near the residential building that show evidence of human influences and are classified as Cultural Meadows dominated by Tall Goldenrod (*Solidago altissima*). The soil was not classified since there was no access to the area.

Polygon 2: Cattail Mineral Shallow Marsh (MAS2-1)

This wetland ecosite (polygon 1) is surrounded by the road and by residential properties. The dominant species is Cattail (*Typha latifolia*) with a dead Ash overstory and sparse Crack Willow

(Photo 2 – Appendix B). The canopy is comprised of Crack Willow greater than Green Ash. Along the fringe (edge) of the wetland, there is Common Buckthorn (*Rhamnus cathartica*). There is water at surface within the marsh. There is >40 cm of fibric organic soil, having a moisture regime of 6 – very fresh.

Polygon 5: Fresh Poplar Deciduous Forest (FOD3-1)

This forest is dominated by Trembling Aspen (*Populous tremuloides*). The overstory is comprised of equal amounts of Sugar Maple and Green Ash (*Fraxinus pennsylvanica*), which is greater than equal amounts of Black Walnut (*Juglans nigra*) and American Elm (*Ulmus americana*). The shrub layer is comprised of Common Buckthorn and Green Ash saplings. The ground vegetation is dominated by Woodland Strawberry (*Fragaria vesca*), Running Strawberry-bush (*Euonymus obovata*) and Lady Fern (*Athyrium felix-femina*). The A horizon of soil is a brown silty fine to very fine sand enriched with organic material. Below 20 cm, the soil is light brown, silty fine sand with no organics. There are two small inclusions within the larger polygon to the western extent. The first is dominated by Sugar Maple, Beech (*Fagus grandifolia*), and Black Cherry (*Prunus serotina*) with very sparse shrub or ground vegetation. The second is a moist area dominated by Green Ash, with a Green Ash and Elm overstory and a Sensitive Fern (*Onoclea sensibilis*) ground layer.

Polygon 6 and 7: Jewelweed Organic Meadow Marsh (MAM3-8)

The marsh areas are dominated by Jewelweed (*Impatiens capensis*) (Photo 3 – Appendix B). There is a transition area approximately 15 m wide between the marsh and surrounding polygons, which is comprised of Elm, Sensitive Fern, and Jewelweed. Even though the polygon is primarily dominated by Jewelweed, there is a gradual transition of dominant species as you move from the dense forested area towards the road (from west to east). The transition moves from Jewelweed to Reed Canary-grass (*Phalaris arundinacea*) to Cattail (Photo 4 – Appendix B). The Jewelweed is mixed with New England Aster (*Symphiotrichum novae-angliae*) and the Cattail is mixed with the invasive Common Reed (*Phragmites australis*). There are sparse Crack Willow present. The soil in the marsh is organic in texture.

Polygon 4, 8 and 9: Fresh Sugar Maple Deciduous Forest Ecosite (FOD5)

This forest is dominated by Sugar Maple and Eastern Hemlock (*Tsuga canadensis*). The understory is comprised of Sugar Maple, but is sparse (Photo 5 – Appendix B). The shrub layer is comprised of sparse Sugar Maple. The ground level is made up of extremely sparse Sugar Maple saplings, which is more abundant than Running Strawberry-bush. The overstory makes up over 60% of the vegetation cover in this polygon. A 15 m by 15 m vernal pool is located within the polygon. The pool becomes approximately 2.5 times larger in the summer, based on high water marks. The soils found in this polygon are the same as is found in Polygon 5.

Polygon17: Dry – Moist Old Field Meadow (CUM1-1)

This cultural meadow is located in a private property therefore the assessment was performed from the roadside. The meadow is an agricultural pasture dominated by Tall Goldenrod with the occasional Common Buckthorn (Photo 6 – Appendix B). There is a stream that passes through the polygon, which is surrounded on both banks by Jewelweed, Manitoba Maple (*Acer negundo*), Wild Cucumber (*Echinocystis lobata*), Basswood (*Tilia americana*) and Crack Willow. The stream extends to the Study Area boundary.

Polygon 15: Moist Willow Lowland Deciduous Forest (FOD7-3)

This forest is adjacent to a stream that passes through the polygon to the extent of the Study Area boundary. The overstory is dominated by Crack Willow. The rest of the plant species found along the banks are the same as those found on the banks in Polygon 17. There appears to be little riparian area. This polygon is also in a private property and the observations were made from the roadside.

Polygon 26: Swamp Thicket (SWT)

This unit comprises the riparian area of Crossing 6 (Rainbow Creek West). Vegetation is dominated by willow and cattail in association with Common Reed.

Polygon 34 and 36: Cultural Woodland (CUW)

This polygon is dominated by Milkweed (*Asclepias syriaca*). However, there are smaller areas within the polygon that are comprised of young Common Buckthorn and Manitoba Maple thickets. Other plant species found in the area are Sugar Maple, Running Strawberry-bush and Scots Pine (*Pinus sylvestris*). The polygon has been influenced by human activities since the Scots Pine is planted. This polygon is found within a private property therefore all observations were made from the roadside.

Polygon 3: Cultural (CU)

This area is a residential property that is highly influenced by human activities. The plant species found in this area are Crack Willow, Trembling Aspen, Common Reed, Eastern White Pine (*Pinus strobus*), and Manitoba Maple.

Polygon 11, 18, 24, 30, 32 and 33: Cultural Meadow (CUM)

These areas are Cultural Meadows (CUM). The meadows are comprised of Tall Goldenod, Common Buckthorn, Wild Carrot (*Daucus carota*), Sweet White Clover (*Melilotus alba*), Black Medic (*Medicago lupulina*), Wild Tessle (*Dipsacus sylvestris*) and Canada Thistle (*Cirsium arvense*).

Polygon 12: Cultural (CU)

This area is a cemetery with planted hedges comprised of Norway Spruce (*Picea abies*), Silver Maple (*Acer saccharinum*), Red Pine (*Pinus resinosa*), Mugo Pine (*Pinus mugo*), Sugar Maple, and Eastern White Pine. There is also Common Buckthorn throughout the area.

Polygon 10, 28 and 31: Cultural (CU)

These areas are found adjacent to ditches and are dominated by Cattail.

Polygon 13 and 14: Cultural (CU)

These areas are planted hedges found in meadows and agricultural pastures. The hedges consist of Black Walnut.

Polygon 16: Cultural Meadow (CUM)

This area is a Cultural Meadow (CUM) similar to other cultural meadows occurring in the study area except Black Locust is also found within this unit.

Polygon 19: Cultural Meadow (CUM)

This is a residential farmland that is comprised of a Cultural Meadow (CUM) and similar to other cultural meadows occurring in the study area except it also contains planted Scots Pine and Bur Oak (*Quercus macrocarpa*) Hedges.

Polygon 20, 21, 25 and 27: Cattail Mineral Shallow Marsh (MAS2-1)

This area is a Cattail Mineral Shallow Marsh. It is dominated by Cattails with the sparse Willow and Common Reed.

Polygon 23: Cultural (CU)

The CU Cultural Community polygon has a low species diversity. Species dominance varies between Common Reed and Cattail species.

Polygon 22: Cultural (CU)

The CU Cultural Community is characterized by a variety of both native and non-native plant species adapted to disturbed or degraded habitats. Species found throughout this polygon include: grasses such as Smooth Brome (*Bromus inermis*), Kentucky Blue Grass (*Poa pratensis*), Bird Vetch (*Vicia cracca*), Common Mallow (*Malva neglecta*), Black Medic (*Medicago lupulina*), Common Ragweed (*Ambrosia artemisiifolia*), and Chickory (*Cichorium intybus*).

Polygon 29: Cultural (CU)

This area is a hedge consisting of Norway Spruce and White Spruce (*Picea glauca*).

Polygon 35: Cultural (CU)

This area is a combination of residential and industrial land that is highly impacted by human activities. There are planted Sugar Maple, White Spruce, and Red Pine.

Polygon 37: Cultural Meadow (CUM)

This area is a Cultural Meadow (CUM) similar to other cultural meadows occurring in the study area except Bur Oak is also found within this unit.

Polygon 38 and 39: Cultural (CU)

These areas are hedges dominated by Common Buckthorn.

Polygon 40 and 41: Cultural (CU)

These areas are hedges dominated by Common Buckthorn and Manitoba Maple.

Polygon 42: Cultural (CU)

This area is highly influenced by human activities. There is Specimen Colorado Spruce, Weeping Willow (*Salix babylonica*), Eastern White Cedar (*Thuja occidentalis*) and Norway Spruce found in the front field of a commercial building.

4.3.2 Flora

For a complete list of species observed per polygon, please see Appendix D.

According to the NHIC database the Scarlet Beebalm (*Monarda didyma*) (no rating) may be present within or immediately adjacent to the Study Area (Figure 3). None were observed in the field by SLR.

During the field investigations, one Butternut (*Juglans cinerea*) individual was located within the Study Area (Figure 4a). Butternut is listed as 'endangered' according to the Ontario *Species at Risk Act*. The individual is located at the northern extent of the Study Area within the Trembling Aspen dominated forest in Polygon 3. The butternut found is in poor health. There is canker surrounding most of the trunk and a large open wound exposing the heartwood that runs intermittently from the base to approximately 3 m off the ground. However, there is approximately 90% live crown.

4.3.3 Wildlife

The Cerulean Warbler (*Dendroica cerulea*) and the Bobolink (*Dolichonyx oryzivorus*) were identified by the MNR (2014) as threatened species that have the potential to occur in the Study Area according to the NHIC database. Both species are listed as 'Threatened' according to the Ontario *Species at Risk Act*. Bobolink habitat is typically grassland communities with an abundance of grass species that are typical of old fields. Potential habitat for Bobolink is present in the Study Area, but no evidence of this species was detected in SLR's 2014 bird surveys. Cerulean Warbler habitat is typically provided by relatively large tracts of mature deciduous forest with open understory. There areas of relatively mature forest in the north of the Study Area, but are too small for Cerulean Warbler habitat. No Cerulean Warblers were observed within the study area by SLR biologists in 2014.

Invertebrate and amphibian field surveys were not completed as part of SLR's field investigation as such studies are typically beyond the scope of Class EA. The Eastern Ribbonsnake *(Thamnophis sauritus)* listed as 'Special Concern' and has the potential to be present on or near the Study Area according to NHIC (2014). Limited potential Eastern Ribbonsnake habitat is present in small open water areas throughout the Study Area. None were observed during the 2014 field season.

NHIC elemental occurrence records reveal Blanding's Turtles *(Emydoidea blandingii)* have been historically on or near the Study Area. These animals are listed as 'Threatened'. The date of these occurrences (all on May 24, 1986) was provided although the location of these observations was not specified. Also the type of occurrence (walking through area, basking, nesting, overwintering, etc.) is unknown. Blanding's Turtle prefer to nest close to permanent wetlands and their overwintering habitats can include: bogs, marshes, ponds, channels or seasonal pools or excavated areas of standing water (MNR, no date). No Blanding's Turtles were observed during field investigations. The NHIC occurrence is close to 30 years old and is considered historical.

Thirty nine bird species were observed by SLR in May and June of 2014 (Table 5). SLR observations were made at sixteen locations throughout the Study Area (Figures 4a – 4f). A complete list and tally of birds by survey point is included as Appendix E.

Table 5: Bird Species Observed within the Study Area

Common Name	Scientific Name
American Crow	*Corvus brachyrhynchos*
American Goldfinch	*Carduelis tristis*
American Redstart	*Setophaga ruticilla*
American Robin	*Turdus migratorius*
Baltimore Oriole	*Icterus galbula*
Barn Swallow	*Hirundo rustica*
Black-capped Chickadee	*Poecile atricapillus*
Brown-headed Cowbird	*Molothrus ater*
Canada Goose	*Branta canadensis*
Cedar Waxwing	*Bombycilla cedrorum*
Chestnut-sided Warbler	*Setophaga pensylvanica*
Chipping Sparrow	*Spizella passerina*
Common Grackle	*Quiscalus quiscula*
Common Yellowthroat	*Geothlypis trichas*
Eastern Kingbird	*Tyrannus tyrannus*
Eastern Meadowlark	*Sturnella magna*
Eastern Wood-pewee	*Contopus virens*
European Starling	*Sturnus vulgaris*
Gray Catbird	*Dumetella carolinensis*
Great-crested Flycatcher	*Myiarchus crinitus*
Horned Lark	*Eremophila alpestris*
House Finch	*Carpodacus mexicanus*

Common Name	Scientific Name
House Sparrow	*Passer domesticus*
House Wren	*Troglodytes aedon*
Indigo Bunting	*Passerina cyanea*
Killdeer	*Charadrius vociferus*
Mallard	*Anas platyrhynchos*
Mourning Dove	*Zenaida macroura*
Northern Cardinal	*Cardinalis cardinalis*
Red-breasted Nuthatch	*Sitta canadensis*
Red-eyed Vireo	*Vireo olivaceus*
Red-tailed Hawk	*Buteo jamaicensis*
Red-winged Blackbird	*Agelaius phoeniceus*
Rock Pigeon	*Columba livia*
Savannah Sparrow	*Passerculus sandwichensis*
Song Sparrow	*Melospiza melodia*
Swamp Sparrow	*Melospiza georgiana*
Tree Swallow	*Tachycineta bicolor*
Warbling Vireo	*Vireo gilvus*
Willow Flycatcher	*Empidonax traillii*
Yellow Warbler	*Setophaga petechia*

The Eastern Wood Pewee (*Contopus virens*), a species of Special Concern in Ontario, was identified in the Study Area (Table 5). It was aurally noted in on the edge of a deciduous forest at survey point HR-01 in the northern portion of the Study Area (Figure 4a). The Eastern Wood Pewee is a flycatcher that, although ubiquitous in southern Ontario, has been declining in population. This species is adapted to a wide variety of habitats, including forest clearings, edges, and woodlands.

Barn Swallow *(Hirundo rustica),* a species listed as 'Threatened' in Ontario, was identified at multiple points in the Study Area by SLR. Barn Swallow is protected as a Threatened species under Ontario's provincial *Endangered Species Act*, 2007 (ESA); section 10 of the ESA

prohibits damaging or destroying the habitat of Species at Risk. Barn Swallows occupy a wide range of habitats including urban and rural environments, particularly where suitable built structures and open spaces combine with active animal husbandry. The Barn Swallow nests almost exclusively on human-made structures such as open barns, under bridges, in culverts, and ledges.

A total of 21 observations (both aurally and visually) were made of Barn Swallows at five different survey points (Table 6). An observation of individuals was made during both survey dates and points HR-7, HR-8, and HR-11. HR-7 and HR-8 are close to, but not adjacent to, buildings that may have nests. HR-11 is in an agricultural area. Individuals were observed on one survey day at points HR-10 and HR-15. No nests were observed.

Table 6: Barn Swallow Observations

Survey Point	HR-7	HR-8	HR-10	HR-11	HR-15
Date (number observed)	May 30, 2014 (1) June 29, 2014 (3)	May 30, 2014 (2) June 29, 2014 (2)	June 29, 2014 (2)	May 30, 2014 (2) June 29, 2014 (4)	June 29, 2014 (5)
Observation Notes	Perched on snag	Aural observations	Flyovers. Likely same individuals observed at HR-11	Flyovers	Flyovers
Habitat	Cattail Mineral Marsh. Buildings to the northeast may have nests	Agriculture. Buildings to the southeast (near point HR-9) may have nests	Agriculture. Recently constructed building to west may have nests	Agriculture	Agriculture. Buildings to southwest may have nests.

Should any nests be observed during detailed design within areas requiring disturbance, it is recommended that construction activities be scheduled to occur outside of the breeding bird window which is approximately May 1 to August 31 in order to avoid the destruction of active nests.

On July 1, 2013, the streamlined approach under the MNR Modernization of Approvals process was implemented (MNR 2013). Individuals and business may now register with MNR to undertake certain activities related to the ESA. This process includes: a) submission of a Notice of Activity to MNR; b) minimization and mitigation of adverse effects on Barn Swallow and its habitat; c) habitat compensation where new nesting habitat must be created and maintained; and d) monitoring and reporting on mitigation and habitat compensation measures that were implemented to reduce and compensate for impacts to individuals or their habitats.

Addressing the presence of this species and providing suitable habitat replacement through MNR's ESA Modernization of Approvals process (MAP) may be required at Detailed Design. Provided active nesting is confirmed during the Detailed Design phase, a suitable location for a Barn Swallow kiosk in the vicinity of the Study Area to compensate for the loss of nesting habitat will likely be required.

With the exception of Eastern Wood Pewee and Barn Swallow, the assemblage of birds identified by SLR in 2014 is common in mixed habitat in southern Ontario.

4.3.4 Habitat Connectivity

There is very limited habitat connectivity within the Study Area, as the area is highly influenced by agriculture, residential, and industrial activities. Natural contiguous features are limited to very thin riparian areas along streams and ditches.

4.3.5 Designated Areas

Areas of Natural and Scientific Interest

An Area of Natural and Scientific (ANSI) is defined by the OMNR as an area that contains natural features that are provincially or regionally significant (NHIC). Earth Science ANSIs contain important geological features, and Life Science ANSIs contain representative ecological features. ANSIs are considered to be the best representation of a natural area within each site district and can be considered as an ecological benchmark. Provincially designated ANSIs are protected from development under the Provincial Policy Statement (PPS) (2005).

There are no provincially or regionally designated Areas of Natural and Scientific Interest (ANSI) within or adjacent to the study area according to the City of Vaughan OP Schedule 3 (2014).

Environmentally Sensitive Area

An area that has ecological significance may be identified as an Environmentally Significant Area (ESA) and designated for protection by a municipality or Conservation Authority. Often ESAs overlap with designated ANSIs.

There are no ESAs in the study area according to the City of Vaughan OP Schedule 3 (2014).

Woodlands

York Region (Map 5 of OP, 2010) and the City of Vaughan (Schedule 2 of OP, 2010) have designated portions of the forest within and adjacent to the study area as Woodlands.

None of the jurisdictions have identified woodland in the Study Area as Significant in their Official Plans. The largest contiguous woodland in the study area is the FOD5 and FOD3-1 forest comprised of Polygons 4, 5, 8 and 9, which is 8.09 ha in area. This area is designated as Ecologically Significant Forest in the York Region Official Plan (Figure 1a).).

Oak Ridges Moraine and Green Belt Plan

The Oak Ridges Moraine is an environmentally sensitive, geological landform located in south central Ontario. The Oak Ridges Moraine Conservation Plan (2017) is a component of the Greenbelt Plan. The study area does not lie within the prescribed boundaries of the Oak Ridges Moraine, nor the Green Belt Plan area according the City of Vaughan OP, Schedule 4 (2014).

The Terrestrial Natural Heritage System Strategy and the City of Vaughan's Natural Heritage System

The Terrestrial Natural Heritage System Strategy (TNHSS) is a significant undertaking toward achieving the TRCA's objective for Regional Biodiversity. The Strategy was developed at the regional scale with a primary focus of terrestrial biodiversity and was incorporated into the City of Vaughan's OP Natural Heritage System.

Vaughan's Natural Heritage Network is a part of the larger York Region Greenlands System and is shown in Schedule 2 of the Vaughan OP (2014). There is a section of the Regional Greenlands System that crosses the Study Area. It is a riparian area along Robinson Creek (Figure 1a). On the east side of Huntington Road, the area is comprised of Cultural Meadow (Polygon 17). On the west side of the road, the area adjacent to Robinson Creek, the forest is comprised of Moist Willow Lowland Deciduous Forest (Polygon 15).

4.3.6 Assessment of Terrestrial Environment Sensitivity

One contiguous forest is present in the northern portion of the Study Area and is comprised of a mix of upland deciduous forest and marsh (Polygons 4, 5, 6, 7, 8,and 9). The forest acts as a buffer to the wetland. Both forest and wetland types are common in southern Ontario, but uncommon in the Study Area. This forest is habitat for the Eastern Wood Pewee, a species of Special Concern in Ontario, and one Butternut tree, an Endangered species in Ontario. Barn Swallow a species listed as 'Threatened' in Ontario was identified at multiple points in the Study Area by SLR but no nests were observed.

Significance of terrestrial resources in the remainder of the Study Area is limited due to the high level of agricultural, commercial, and residential activity. The dominant community type is Cultural Meadow, often dominated by invasive and early-successional species. Areas along ditches and streams are dominated either by Crack Willow (a non-native species), or Cattail and Common Reed (an invasive species). Although these habitats are extremely common in southern Ontario, they are ecologically important in the Study Area as there are limited natural features.

5.0 IMPACT ASSESSMENT

5.1 Proposed Work

Two alternatives were recommended for two sections in Part A. From Langstaff Road to Rutherford Road, the recommended alternative design is Alternative 3: Four-lane Urban Roadway with Multi-use Trail and Sidewalk. This alternative is able to meet the growing traffic demand and development along Huntington Road, including providing operational and safety improvements for an increase of freight traffic. Having pedestrian/cycling facilities to the west and the east will support development on both sides of the roadway.

From Rutherford Road to McGillivray Road, the recommended alternative design is Alternative 4: Four-lane Urban Roadway with Multi-use Trail. This alternative is able to meet the growing traffic demand along the corridor and also provides adequate facilities for other road users, such as pedestrians and cyclists to the east, where development is planned to occur. A sidewalk was deemed unnecessary along this portion of Part A as there would be no development to the west due to the existing CP lands.

For Part B, from Major Mackenzie Drive to Nashville Road, the recommended alternative design is Alternative 4: Two-lane Urban Roadway with Multi-use Trail. Part B will see lower traffic demand than Part A, thus a widening to four lanes was not warranted. Similarly, a multi-use trail was sufficient to meet pedestrian and cycling needs for the corridor, thereby also reducing capital and maintenance costs of an additional sidewalk.

For Part A, there will be four 3.5 metre lanes, and a 6 metre boulevard on both sides, which includes a 3.0 metre multi-use trail on the east boulevard, and 1.5 metre sidewalk on the west side between Langstaff Road to Rutherford Road. With the 6 metre boulevard on the west side, additional sidewalk can be implemented between Rutherford Road and McGillivray Road depending on the pedestrian demand. There will be a minimum 2 metre buffer between sidewalk/MUT and through traffic. An additional 3.5 metre left turn lane is also proposed at intersections.

For Part B, there will be two 5.75 metre through lanes, and a 7.25 metre boulevard on each side, which includes a 3.0 metre multi-use trail on the east boulevard. With the 7.25 metre boulevard in the west side, additional sidewalk can be implemented between Rutherford Road and McGillivray Road depending on the pedestrian demand. There will be a minimum 2 metre buffer between the sidewalk/MUT and through traffic. Additional 3.5 metre left and right turn lanes are also proposed at East's Corner Boulevard and Algoma Drive intersections.

As a result of the proposed work, structural improvements will be completed at six watercourse crossings. The proposed works include the replacement of six existing culverts. The work will be completed in the dry to limit impacts to water quality and the aquatic ecosystem. To facilitate works in the dry, the work area will be separated from flow (i.e. cofferdams) and passive flow conveyance by means of a bypass channel, pipe or flume.

Currently, the majority of the roadway is drained by roadside ditches and the proposed project will modify the road to an urban section with curb and gutter. Several stormwater management methods were assessed by Sanchez Engineering Inc. In subsequent study phases engineers will determine the most appropriate method to mitigate impacts of road improvements on water quality.

Due to the nature of the proposed undertaking and the existing conditions within the study area, the following works have the potential to impact the aquatic and terrestrial environment:

- West Rainbow Creek culvert replacement – Crossing ID No. 9;
- Rainbow Creek Tributary culvert replacement – Crossing ID No. 8;
- East Rainbow Creek Tributary culvert replacement – Crossing ID No. 7;
    - East Rainbow Creek is proposed to be relocated eastward out of the road right-of-way between Station 21+450 and Station 21+700 in the vicinity of Crossings No. 6 and 7 near the intersection of Huntington Road and Rutherford Road.
- East Rainbow Creek culvert replacement – Crossing ID No. 5;
- Robinson Creek culvert replacement – Crossing ID No. 4;
- East Robinson Creek culvert replacement – Crossing ID No. 3; and,
- Widening of Huntington Road to accommodate projected growth.

Details regarding the assessment process and the description of potential impacts to the terrestrial and aquatic environment as a result of the proposed Huntington Road improvements and watercourse crossing structure works are outlined in the sections below.

5.2 Assessment of Potential Impacts of the Project

5.2.1 Aquatic Environment

5.2.1.1 *Impact Assessment Process*

The selection of the preferred alternatives has been undertaken with consideration of the sensitivity of fish and fish habitat occurring throughout the study area. The purpose of this section is to assess the potential impacts on fish and fish habitat associated with the Recommended Alternatives as it relates to the rehabilitation and improvement needs for Huntington Road – Part A and B.

In Canada, the legislation for the conservation and management of fisheries and fish habitat is the *Fisheries* Act. Section 35 (1) of the *Federal Fisheries Act* states that,

- *'…No person shall carry on any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery'.*
- *Serious harm is defined as the death of fish or permanent alteration to or destruction of fish habitat.*

Subsection 35(2) of the *Fisheries Act*, outlines conditions under which proponents may carry on any work, undertaking or activity without contravening subsection (1).

The Fisheries Protection Policy Statement (DFO 2013) requires proponents to demonstrate that measures and standards have been applied to avoid, then mitigate and finally offset residual serious harm to fish that are part of or support commercial, recreational or Aboriginal fisheries.

Typically, project components such as alterations to river banks and bed and the removal of riparian vegetation are considered to cause *serious harm* to fish and fish habitat. As a result, an *Authorization* under *Section 35* of the *Fisheries Act* must be obtained prior to beginning construction activities.

As a condition of a *Fisheries Act Authorization*, offsetting measures are necessary to counterbalance unavoidable *serious harm* associated with project phases. As part of an authorization, a proponent must prepare an offset plan detailing selected offset measures, and establish monitoring and reporting conditions to assess the effectiveness of offset measures. The plan must be submitted to DFO, with a letter of credit (estimate offset implementation costs) for approval prior to implementation.

The proposed work activities were screened using DFO's Self-Assessment process to determine if project works require review by DFO. Through the Self-Assessment process it was determined that some project activities meet the criteria, and avoided serious harm to fish. For these project activities, no further assessment was required.

For project activities that did not meet DFO's criteria, potential impacts were further assessed. SLRs impact assessment approach was adapted from DFO's Pathways of Effects (PoE) framework for assessing the potential impacts of a project on fish and fish habitat.

PoEs are used to describe projects in terms of:

- *the activities that are involved (e.g., vegetation clearing, flow management);*
- *the type of cause-effect relationships that are known to exist between a project and fish and fish habitat that create 'stress' on the fish and fish habitat; and*
- *the mechanisms by which stressors ultimately lead to effects on the aquatic environment.*

The PoEs are also linked to mitigation, in that the effect pathway can be 'broken' by applying mitigation measures to avoid or minimize the effect. This PoE approach is useful to determine possible cause-and-effect relationships between in-water or near water activities on the aquatic environment. At the beginning stages of project design, all activities that have the potential to affect fish habitat in a negative way are identified, and methods for eliminating or mitigating each of the POEs are evaluated. By following this approach, a clear understanding of potential aquatic impacts can be demonstrated.

The risk to fish habitat from potential impacts is often controlled or eliminated through the use of: timing windows for in-water construction; standard best management practices for erosion and sediment control; construction access, site controls and operational constraints; and construction monitoring and inspection.

The treatment and mitigation of these potential impacts together with a more detailed description of the proposed environmental protection are provided in sections below.

5.2.1.2 *Impact Assessment of Huntington Road Rehabilitation Works*

The purpose of this section is to assess the potential impacts on fish and fish habitat associated with Huntington roadway improvements which is ultimately used to determine the likelihood of the proposed works resulting in *serious harm to fish*.

Through the application of DFO's Self-Assessment criteria, it was identified that the severity of potential impacts due to works occurring at watercourse Crossing ID No's 1, 2, 6, 10, and 11 is Low. This assessment is based on the following criteria:

- No aquatic species at risk occur with the project area;
- Low sensitivity of fish and fish habitat (MNRF characterization);
- Mitigation and design modification will prevent potential impacts from causing serious harm to fish and fish habitat;
- No increased footprint below the high water mark;
- No addition of new fill below the high water mark;
- No significant removal of woody riparian vegetation;
- Effective control of sediment and / or debris;
- All in-water work completed within in-water timing window; and
- Fish passage will be maintained during construction activity.

As a result of this Self-Assessment process it was determined that the proposed works at the above mentioned crossings, meet the criteria for works that do not typically require project review by DFO or an authorization under the *Fisheries Act*. The submission of a Request for Project Review Form to DFO is not required for works at the above mentioned locations.

At the remaining six watercourse crossings (Crossing ID No. 3, 4, 5, 7, 8, and 9) in the study area, the existing culverts will be replaced with new culverts to accommodate roadway widening (Table 1). Due to the nature of the works proposed at these six watercourse crossings and the sensitivity of fish and fish habitat within these watercourses, it was determined that the works do not meet the Self-Assessment criteria listed above, and further assessment is required.

In general, potential impacts from highway improvements including culvert replacements may include: site erosion and release of sediment laden water into the creek; temporary avoidance by fish of the in-water areas adjacent to the bridge due to vibration; fuel spills from storage and refuelling of equipment; removal of riparian vegetation; temporary isolation/encroachment of creek habitat due to mitigation techniques (coffer dams, silt curtains, etc.), and permanent bank alteration and channel infill resulting from highway geometry improvements requiring an adjustment in crossing location.

The following discussion provides a detailed evaluation of potential impacts using the POE diagrams as the primary reference tool. The extent, duration and intensity of the potential impacts were considered specifically in relation to the sensitivity of the fish and fish habitat. In general, these potential effects fall into two broad categories of site preparation and construction (generally short to moderate duration) and the longer term effects from channel modifications and structures that remain post construction. Each of these categories has elements that can potentially put fish and fish habitat at risk.

East Robinson Creek – Crossing No. 3

This watercourse crossing directly supports a warm water fish community. However, the creek is poorly or variably defined, with limited to no morphological development. Substrate composition was primarily comprised of cobble and gravel with some sand and silt in pool habitat. Riparian vegetation was dense and included Reed Canary Grass and Cattails. Currently East Robinson Creek is conveyed through a CSPA culvert under Huntington Road.

A new concrete box culvert is proposed at this crossing. The new culvert will be approximately 9.5 m longer than the existing culvert and will result in an overall increase in footprint of approximately 24.5 m^2. This design will result in a lengthened segment of the watercourse shaded by artificial material. The new culvert is not expected to cause any passage issues, and will maintain fluvial functions. Furthermore, the affected reach provides low quality habitat and lacks attributes suitable for functions such as spawning or rearing. The majority of impacts to fish and fish habitat are likely to occur in the short term at the construction phase of the project.

Robinson Creek – Crossing No. 4

This creek is a well-defined warmwater watercourse dominated by pool and run habitat throughout the Study Area. During field investigations, localized evidence of groundwater inputs was observed at this crossing. During fish collections, juvenile and adult Johnny Darter was captured. The creek has been interpreted by MNRF as Low sensitivity. Currently Robinson Creek is conveyed through a CSP culvert under Huntington Road.

A new concrete box culvert is proposed at this crossing. The new culvert will be approximately 4.5 m longer than the existing culvert and will result in an overall increase in footprint of approximately 80.7 m^2. This design will result in a lengthened segment of the watercourse shaded by artificial material. The new culvert is not expected to cause any passage issues, and will maintain fluvial functions.

During construction, downstream flow and connection to the upstream reaches will be maintained and where possible, works will be completed in the dry. This strategy will reduce potential adverse effects to fish and fish habitat. The potential for encountering groundwater during construction should be further investigated during detailed design.

East Rainbow Creek – Crossing No. 5, 7, and 8

East Rainbow Creek (Crossings 5 & 7) is a well-defined warmwater watercourse dominated by pool and run habitat throughout the Study Area. Substrate composition was dominated by gravel and silt with organics. The creek has been interpreted by MNRF as Low sensitivity. Currently East Rainbow Creek is conveyed through a CSPA culvert under Huntington Road.

A new concrete box culvert is proposed at Crossings 5 and 7. At Crossing 5, the new culvert will be approximately 7 m longer than the existing culvert and will result in an overall decrease in footprint of approximately 5 m^2. At Crossing 7, the new culvert will be approximately 9.4 m longer than the existing culvert and will result in an overall increase in footprint of approximately 0.5 m^2. This design will result in a lengthened segment of the watercourse shaded by artificial material. At these watercourse crossing locations, pool habitat was observed upstream and downstream of Huntington Road. Species observed utilizing these refuge pools included young-of-year and juvenile Creek Chub, White Sucker, Stickleback, and Brown Bullhead. As a result of culvert lengthening, the upstream and downstream pool habitat will be overprinted resulting in a direct loss to fish habitat. It is recommended that pool habitat is replaced upstream and / or downstream of the new culverts within a suitable reach to counterbalance the loss of available refuge habitat.

In the vicinity of Crossing 7, approximately 260 m of open channel length will be realigned through lands currently classified as cultural and hedgerow to accommodate the 26 m right-of-way. The proposed conceptual channel realignment will replace the existing channel with an equal length of natural designed channel, thereby maintaining channel and habitat area. The conceptual channel alignment meanders through existing trees with the objective of integrating as many of the larger hedgerow associated trees as possible into the riparian area of the new channel.

The affected reach provides moderate quality fish habitat, including pool/riffle morphology, coarse substrates and sparse woody debris cover. Fish species observed through this reach were common, tolerant species. Many fish were captured in a relatively large pool downgradient of Crossing 7. Investigations during detailed design should further assess this habitat feature and representation of pools through the subject reach and in up and downstream reaches to further assess just how limiting/represented pool habitat is along the broader reach and assess opportunities for enhancement of existing pools or creation of new pools.

It is further recommended that the following enhancement opportunities be considered where appropriate in the natural channel design:

- enhancement of morphology (specifically riffle habitat), substrate diversity and woody cover elements;
- re-stabilization of eroding banks within, up and downstream of the realigned sections where minor erosion has occurred; and,
- enhancing pools, instream cover or overhanging cover in up or downstream reaches.

The use of natural channel design to create an enhanced and dynamically stable channel of equal length to the existing reach combined with the purposeful enhancement of fish habitat is anticipated to achieve the fish habitat protection objectives of the *Fisheries Act*, although a need for an authorization from DFO should be determined through a Request for Project Review during detail design.

East Rainbow Creek located at crossing 8 was dry at the time of investigations and indirectly supports fish and fish habitat. The creek has been interpreted by MNRF as Low sensitivity. Currently East Rainbow Creek is conveyed through a CSP culvert under Huntington Road. A new concrete box culvert is proposed at crossing 8. The new culvert will be approximately 10.5 m longer than the existing culvert and will result in an overall increase in footprint of approximately 23.5 m^2. This design is not expected to cause any passage issues, and will maintain fluvial functions.

West Rainbow Creek Crossing - 9

Through the Study Area, crossing 9 was typified as a permanent warmwater creek and characterized as a Low sensitivity watercourse by MNRF. The channel was relatively narrow (1.5 to 2 m) with run and pool habitat. Substrate was comprised of cobble and gravel in the channel. Sand and silt was also observed, primarily in banks and pools. During field investigations, water was observed breaching inside of the culvert, which may suggest evidence of groundwater upwelling, however no vegetative evidence or staining was observed. Currently, the creek is conveyed through a CSPA culvert under Huntington Road.

A new concrete box culvert is proposed at this crossing. The new culvert will be approximately 7 m longer than the existing culvert and will result in an overall increase in footprint of approximately 23.5 m^2. This design will result in a lengthened segment of the watercourse shaded by artificial material. The new culvert is not expected to cause any passage issues, and will maintain fluvial functions.

Short term impacts, such as temporary avoidance of the area by fish, are likely to occur at the construction phase of the project. During construction, downstream flow and connection to the upstream reaches will be maintained and where possible, works will be completed in the dry. This strategy will reduce potential adverse effects to fish and fish habitat. Due the nature of this work, the potential for the occurrence of significant residual impacts is anticipated to be low.

A summary of potential impacts to the aquatic environment as a result of project activities are summarized in Table 7.

5.2.2 Summary of Aquatic Ecosystem Impacts

As a result of the proposed project activities, a total of 147 m^2 of fish habitat will be directly impacted in the study area. The proposed works also involves an eastward realignment of a portion of East Rainbow Creek to accommodate the right-of-way. It is recommended that Request for Project Review Form be prepared and submitted to DFO in Detail Design, prior to construction.

A summary of anticipated impacts to the aquatic ecosystem are provided in Table 7. Proposed mitigation measures to avoid, minimize or offset impacts to aquatic ecosystems are further discussed in Section 6.

Table 7: Summary of Anticipated Impacts to the Aquatic Environment

		Existing Conditions			Structure Type		Existing		Proposed		Overall Change in Footprint	
Watercourse	Crossing ID No.	Thermal Regime	Supports a Fishery	MNR Sensitivity Rating	Existing	Proposed	Length (m)	Area (m2)	Length (m)	Area (m2)	Length (m)	Area (m2)
West Rainbow Creek	9	Warm	Directly	Low	CSPA	Concrete Box	19	70.3	26	93.6	-7	-23.3
East Rainbow Creek	8	Warm	Indirectly	Low	CSP	CSP	13.2	15.5	26	39	-10.5	-23.5
East Rainbow Creek	7	Warm	Directly	Low	CSPA	Concrete Box	16.6	39.5	26	39	-9.4	0.5
East Rainbow Creek	5	Warm	Directly	Low	CSPA	Concrete Box	18.9	51.8	26	46.8	-7.1	5
Robinson Creek	4	Warm	Directly	Low	CSP	Concrete Box	21.5	75.3	26	156	-4.5	-80.7
East Robinson Creek	3	Warm	Directly	Low	CSPA	Concrete Box	16.5	37.9	26	62.4	-9.5	-24.5
Total											-48	-146.5

5.2.3 Terrestrial Environment

Due to the nature of the proposed undertaking and the existing conditions within the study area, significant impacts to terrestrial features are not anticipated to occur as result of this project (Figure 6). Designated features such as ANSIs, ESAs and PSWs do not occur within the study area. The majority of vegetation throughout the study area has been culturally influenced by agriculture, rural residents, and routine roadway maintenance. The vegetation units being affected by the preferred alternative are generally not part of larger habitat patches, are isolated on the landscape through the roadway corridor, and contain low species diversity with many non-native species.

5.2.3.1 *Vegetation*

Encroachment into existing roadside vegetation, including upland communities and cultural meadows will be required as a result of the preferred alternative. The majority of the vegetation communities affected throughout the study area have been identified as Cultural Communities which have a low species diversity comprised of common, tolerant, and often invasive species. Such communities are typical of previously disturbed roadside communities and are common throughout southern Ontario. There is minor encroachment into an ecological significant forest in Part B and one crossing of the York Region Greenlands system in Part A of the study area. Both of these areas are also under consideration (i.e. unapproved) as Core Areas of the City of Vaughan's Natural Heritage Network. The following discussion addresses the potential impacts to vegetation and vegetation communities due to construction of the proposed preferred alternative. The following discussion and Table 8 provide an assessment of potential impacts together with a determination of significance and proposed mitigation.

5.2.3.1.1 Cultural Upland Vegetation (meadow, hedgerow)

This community class is the most dominant vegetation form/polygon in the study area and very common along roadways in southern Ontario. Dominant species within these areas are almost entirely adapted to previously disturbed areas and are typically successional species, tolerant of disturbance. Removal of portions of these community polygons is not considered a significant impact and many of the species will naturally re-establish along the new margin improved roadway following construction.

5.2.3.1.2 Lowland Deciduous Forest (FOD7-3 Willow)

One area of lowland deciduous forest associated with the riparian corridor along Robinson Creek (Crossing 4) will be removed and/or disturbed as a result of the proposed roadway improvements. This vegetated corridor in Part A is part of the the York Region Greenlands system. Being dominated by Crack Willow with occasional Manitoba maple and basswood trees in association with tall goldenrod, and Jewelweed along the banks, this community is typical of many low lying riparian communities in Southern Ontario. The proposed encroachment of removal of a portion of this community is not considered significant due to the dominance of common species and often non-native species and their inherent resilience to disturbance. Furthermore, is anticipated that tree species within this type of community will naturally re-establish along the new margin of the new roadway in low lying areas following construction. For this reason, replacement plantings should target the introduction of native woody species in newly exposed areas and amongst the remaining trees along this corridor.

5.2.3.1.3 Wetland Vegetation (MAS2-1)

MAS Shallow Marsh Ecosite polygons occur sporadically throughout the study area on both sides of the roadway. Two (2) small units will encroached upon to the proposed roadway improvements. These units have relatively low species diversity and species dominance varies between Common Reed and cattail species. Removal of portions of these small community polygons, especially those dominated by the aggressive Common Reed is not considered a negative impact. Many of the species within this type of community will naturally re-establish along the new margin of the new roadway in low lying areas following construction.

5.2.3.1.4 MAM*3*-8

The small marsh MAM community is contiguous with adjacent forest communities which together comprise the forest consisting of Polygons 4 and 5; an identified ecological significant forest (Region of York) in the Official Plan. This marsh unit contains a variety of wetland indicator species although this community is primarily dominated by Reed Canary Grass and Cattail with evidence of Common Reed and sparse Crack Willow in the area adjacent to the roadway and within the proposed foot print of the proposed roadway improvements. Encroachment and removal of a portion of this unit will reduce local habitat variability but is not considered a significant impact due its relatively small area and composition of dominant plant species to be affected.

5.2.3.1.5 Forest Units (FOD5, FOD 3-1)

The forest area positioned in the most northern limit of the study area in Part B is designated as an ecological sensitive forest (Region of York) in the Official Plan. Being comprised of multiple smaller forest community units, encroachment in two forest units (FOD5 and FOD 3-1) will occur as result of the proposed roadway improvements. The FOD 3-1 community is dominated by trembling aspen in association with Sugar Maple, Green Ash, Black Walnut and American Elm. FOD 5 is dominated by Sugar Maple with abundance of Yellow Birch. Although both of these ELC communities commonly occur in southern Ontario, their low representation in the study area together with the Regional designation as an ecological sensitive forest raises the significance of this forest and the proposed impacts. Although impacts to this forest are likely unavoidable as a result of the proposed roadway improvements, reduction in corridor width and grading requirements should be considered during detailed design to limit the proposed incursion and disturbance to this feature. With the resulting reduction in forest cover the City will require planting of similar forest species both along newly created edges and in adjacent opportunity lands to compensate for species lost. Unless replacement planting can occur along the remaining perimeter of this forest unit, a reduction in ecological sensitive forest area will occur as a result of the proposed improvements.

5.2.4 Wildlife Habitat and Passage

The proposed roadway improvements have the potential to reduce habitat connectivity for wildlife by creating a wider linear barrier across the landscape. Fortunately, the proposed replacement culverts have been designed with consideration to the provision and enhancement of wildlife crossing opportunities. Based on the proposed new culvert dimensions, wildlife passage for small mammals should be maintained or enhanced in both study areas Part A and Part B.

Table 8: Summary of Terrestrial Ecosystem Impacts and Mitigation

FEATURE	EFFECT		MITIGATION
	Part B	Part A	Part A & B
Cultural Upland Vegetation (meadow, hedgerow)	0.418 ha of CU will be removal and/or encroached upon. Community is predominantly non-woody meadow species including Tall Goldenrod, Wild Carrot and other common meadow species interspersed with Buckthorn	0.63 ha of CU will be removed and/or encroached upon. Predominantly non-woody meadow species including Tall Goldenrod, Wild Carrot and other common meadow species interspersed with Buckthorn.	Refinements to grading limit and silt fence during Detail Design and construction phases may limit removals of this community type.
Lowland Deciduous Forest (FOD7-3 Willow)	0 ha of direct disturbance or encroachment.	0.12 ha of riparian vegetation (Robinson Creek) will be removed and/or disturbed. Dominated by Crack Willow, in association with tall goldenrod, and Jewelweed along the banks. Other occasional species include Manitoba maple and basswood	Consider reducing the requirement for grading and disturbance adjacent to these features during Detail Design. Install tree hoarding (i.e. tree protection fence) and enhance the area with restoration plantings where feasible as part of the Landscape Plan.
Wetland Vegetation (MAS2-1) (CUW)	0.14 ha of wetland vegetation, dominated by Cattail with sparse Crack Willow canopy will be disturbed and/or removed. Dead Ash is common throughout this community.	0.26 ha of wetland vegetation will be removed and/or disturbed including 0.07 ha of MAS2-1 associated with East Rainbow Creek. This feature is dominated by Cattail, with Sparse Crack Willow canopy and occurrence of Common Reed.	Consider reducing the requirement for grading and disturbance over the riparian area. Reconstruction of a wetland of similar area may be required.
MAM3-8	0.20 ha of community will be removed and/or disturbed. This marsh community is contiguous with the adjacent forest communities of Polygons 4 and 5; an identified ecological significant forest (Region of York) in the Official Plan. Adjacent to the road, this community is primarily dominated by Reed Canary Grass and Cattail with evidence of Common Reed and sparse Crack Willow.	0 ha of direct disturbance or encroachment.	Consider reducing the requirement for grading and disturbance of the meadow marsh area. Locate staging areas, stockpiles, fuelling areas etc. outside of community units.
Forest Units (FOD5, FOD 3-1)	0.42 ha of forest will be removed and/or disturbed. This forest area is comprised of two forest units (FOD5 and FOD 3-1) are designated as an ecological sensitive forest (Region of York) in the Official Plan. FOD 3-1 is dominated by trembling aspen in association with Sugar Maple, Green Ash, Black Walnut and American Elm. FOD 5 is dominated by Sugar Maple with abundance of Yellow Birch. These ELC communities are not rare and are common in southern Ontario.	0 ha of direct disturbance or encroachment	Delineate all work zones and erect Tree Protection Fence up to the where the treed / vegetation buffer occurs. Locate staging areas, stockpiles, fuelling areas etc. outside of forest units. Removal of riparian vegetation, particularly woody vegetation, should be kept to the minimum necessary for the project works and site preparation, including close cut clearing and grubbing, should be performed immediately prior to commencement of instream construction activities to minimize erosion. Reduction in forest cover will require planting of similar forest species to compensate for loss of canopy cover.

FEATURE	EFFECT	MITIGATION
	Part B Part A	Part A & B
Wildlife Habitat	Removals of habitat for urban tolerant species.	Areas should be recovered with restoration where feasible within the Regional right-of-way.
Linkages and Corridors	No Regional corridors effected. There is one crossing within the Regional Greenlands System adjacent to Robinson Creek (Crossing 4).	Consideration should be given to the provision and enhancement of wildlife crossing within the new culvert. Where culverts are replaced, wildlife passage should be maintained or enhanced. Based on new culvert dimensions, the openness ratio will provide enhanced wildlife passage for small mammals.

5.2.5 Summary of Terrestrial Ecosystem Impacts and Mitigation

As a result of roadway widening and culvert improvements associated with the project, a total of approximately 3.64 ha (Part A - 1.26 ha and Part B – 2.38 ha) of vegetation will be disturbed and / or removed. A summary of anticipated direct and indirect impacts to the terrestrial ecosystem are provided in Table 8. Proposed mitigation measures to avoid, minimize or offset impacts to terrestrial ecosystems are also summarized below.

Site restoration in these areas and in the vicinity of other watercourse crossings throughout the study area should be guided by the Natural System goals and policies of TRCA (The Living Land Policy) and seek to maintain and enhance the natural features and ecological functions within watersheds.

6.0 MITIGATION

During construction, mitigation encompasses implementation of all relevant standard and nonstandard / site-specific protection measures and management practices including Operational Constraints and Construction Specifications. Relevant Ontario Provincial Standards Specifications (OPSS) including: OPSS 201 (Clearing and Grubbing), OPSS 503 (Site Preparation), OPSS 565 (Tree Protection), OPSS 182 (Environmental Protection for Construction in Waterbodies and on Waterbody Banks) are to be followed.

These measures and all the site specific measures will continue to be refined and detailed as the design evolves through subsequent design phases. The mitigation measures will be finalized based on the final design, and its effects on aquatic and terrestrial environment. In addition, comprehensive construction mitigation involves recognition and implementation of additional control measures that may be identified through good construction practices and environmental inspection.

6.1 Fish Protection

All in-water and near-water activities will be conducted within the applicable in-water construction timing windows, as identified by MNRF, to protect the resident fishery life functions as outlined below. Fish protection measures include:

- The MNRF classifies the majority of watercourses in the study area as warmwater and therefore, in-water work in many of watercourses should only occur between the months of July 1 to March 31.
- Timing windows for in-water works should be confirmed with MNRF/TRCA prior to the commencement of construction as these windows are subject to change where species at risk or migratory corridors exist.
- All in-water activities shall be performed in the dry. This will require construction to occur behind water tight isolation barriers (coffer dam, Aqua-Dam, sheet piling, etc.).
- The water tight work zones shall not occupy more than one third of the active channel at any point in time to maintain downstream flow and fish passage.
- Any fish stranded within the temporary in-water work zones will be removed and relocated using appropriate techniques by a qualified fisheries specialist possessing a valid Scientific Collector’s Permit.

6.2 Sediment and Erosion Control

A comprehensive sediment and erosion control (SEC) plan will be developed in subsequent design phases and implemented to prevent migration of sediment laden runoff (or other contaminants) from the construction zone to the creek. This plan will include inspection and maintenance of the measures until final cover is established. Specific aspects include:

- Perimeter silt fence installed between the work areas and along the banks of watercourses within the area of construction (where feasible).
- Temporary silt fence placed around inlets and outlets of existing culverts in the drainage system (where feasible).
- Silt fence properly installed and regularly inspected and maintained. It will be left in place and maintained until all surfaces contributing drainage to these watercourses are fully stabilized.
- All exposed and newly constructed surfaces will be stabilized using appropriate means in accordance with the characteristics of the soil material. These surfaces will be fully stabilized and re-vegetated as quickly as possible following completion of the proposed works.
- Contingency procedures, materials and notification procedures will be readily available for use in the event of a silt release and for general application in regular maintenance and repair.

6.3 Construction Access, Site Controls and Operational Constraints

The construction access and work areas to be confined to the extent required for the construction activities, and these areas are to be defined in the field using appropriately installed protective fencing or other suitable barriers.

- Removal of riparian vegetation, particularly woody vegetation, will be kept to the minimum necessary for the project works. The woody vegetation that will likely require removal should be replaced with appropriate native species.
- Any temporarily stockpiled material, construction or related materials will be properly contained (e.g. within silt fencing) in areas separated a minimum of 30 m from any waterbody.
- All construction materials and debris will be removed and appropriately disposed of following construction.
- Every effort will be made to retain as much of the natural vegetation as reasonably possible to help ensure bank stability, control erosion and expedite the re-colonization of vegetative cover.
- Removal of natural vegetation should take place outside of the breeding bird window (April 1-July 31) in order to avoid disturbance of migratory breeding birds protected by the *Migratory Birds Convention Act* (1994).
- Removed shoreline vegetation from watercourses is to be replaced using native vegetation along the newly created shoreline at a ratio that exceeds the removal of woody stock.
- All activity will be controlled so as to prevent entry of any petroleum products, debris or other potential contaminants / deleterious substances, in addition to sediment as outlined above, to any waterbody. No storage, maintenance or refuelling of equipment will be conducted near any waterbody. A Spills Prevention and Response Plan will be developed and kept on site at all times.

6.4 Protection During Culvert Replacement Activities

- Appropriate containment systems (e.g. coffer dams, Aqua-Dam, sheet piling, etc.) will be designed and implemented during the removal of the existing structures to prevent entry of debris into watercourses. This system(s) will address large materials and fine particulates, and will be regularly monitored to remove and appropriately dispose of accumulated material.
- Materials that fall in the water will be carefully retrieved to minimize disturbance.
- All excavated material shall be removed and deposited in an area above the high water mark of the shoreline and be contained behind properly installed and maintained sediment barriers or devices.

6.5 Rehabilitation Following Construction

- All of the areas disturbed during construction will be restored, stabilized and re-vegetated as soon as the works are completed to prevent migration of fine material to watercourses during runoff events, as well as minimizing the opportunity for colonization of the area by invasive species.
- Only native plants, compatible with site conditions will be used.

6.6 Site Inspection and Monitoring

A qualified Certified Inspector of Sediment and Erosion Control (CISEC) should conduct regular inspections of the environmental protection measures (ESCs, containment measures, etc.) and identifying deficiencies. The inspector will ensure all environmental mitigation and design measures are properly installed / constructed and maintained, and appropriate contingency and response plans are in place and implemented if required.

6.7 Terrestrial

Clearing and Grubbing

Mitigation measures will be applied during clearing and grubbing activities to minimize removal of native vegetation; minimize impact to retained features, maintain water balance and avoid native soil disturbance. Examples of measures that should be applied where applicable include:

- Removal of natural vegetation should take place outside of the breeding bird window (April 1- to August 31) in order to avoid disturbance of migratory breeding birds protected by the *Migratory Birds Convention Act* (1994).
- Tree removal should be restricted to the working area and minimized were possible.
- Trees should be felled into the ROW to avoid damaging other standing vegetation. Trees will be felled away from any watercourse where it is safe to do so.
- Trees along newly created edges of forests should be flush cut (not grubbed) to stimulate suckering regeneration along remaining forest edge. This is particularly relevant in Part B - FOD units.
- Tree hording fence (i.e. tree protection fence) should be established along the edge of disturbance to prevent intrusion and stockpiling of materials into adjacent forest areas.

Grading

- The need for grading should be narrowed where possible during Detail Design within and adjacent to the ecological sensitive forest.
- Mitigation measures will be used during grading to minimize the overall grading footprint and keep gradients low.

Restoration

- Restoration and landscaping plans should use only native species, and ideally those found within the watersheds of TRCA. Vegetation should be sourced from appropriate local genetic stock where possible.
- Use a variety of seeding and planting methods, multiple species and relatively high planting densities for woody species to build natural redundancy into the restoration plans.

7.0 SUMMARY AND CONCLUSIONS

This report presents the findings and recommendations of the natural heritage investigations including a presentation of existing conditions and a discussion of the potential impacts and mitigation associated with the preferred alternative. Due to the nature of the proposed undertaking and the existing conditions within the study area, significant impacts to aquatic and terrestrial features are not anticipated to occur as result of this project.

The watercourses located within the Study Area were classified by MNRF as warmwater habitat with Low Sensitivity - providing marginal habitat quality and quantity. The fish community is comprised of species tolerant to disturbed and degraded systems that are capable of spawning in a range of environments and conditions.

As a result of the proposed project activities, a total of 147 m^2 of fish habitat will be directly impacted in the study area. In addition, a portion of East Rainbow Creek is proposed to be relocated eastward out of the road right-of-way in the vicinity of Crossings No. 6 and 7. Due to the nature of the works and the sensitivity of fish and fish habitat within these watercourses, it was determined that the works prosed at the six crossing locations do not meet the Self-Assessment criteria. As a result, a Request for Project Review Form should be prepared and submitted to DFO in Detail Design, prior to construction.

Designated features such as ANSIs, ESAs and PSWs do not occur within the study area. The majority of vegetation throughout the study area has been culturally influenced by agriculture, rural residents, and routine roadway maintenance. The vegetation units being affected by the preferred alternative are generally not part of larger habitat patches, are isolated on the landscape through the roadway corridor, and contain low species diversity with many non-native species.

As a result of roadway widening and culvert improvements associated with the project, a total of approximately 3.64 ha (Part A - 1.26 ha and Part B – 2.38 ha) of vegetation will be disturbed and / or removed. A summary of anticipated direct and indirect impacts to the terrestrial ecosystem are provided in Table 8. Proposed mitigation measures to avoid, minimize or offset impacts to terrestrial ecosystems are also summarized below.

Site restoration in these areas and in the vicinity of other watercourse crossings throughout the study area should be guided by the Natural System goals and policies of TRCA (The Living Land Policy) and seek to maintain and enhance the natural features and ecological functions within watersheds.

8.0 NEXT STEPS

Based on comments received from TRCA, the following additional aquatic and terrestrial based field surveys should be completed at Detail Design. The results of these studies will inform permit application process and development of restoration plans in support of the proposed project.

8.1 Aquatic Environment

At the Detail Design phase, TRCA recommended that a fish community inventory be conducted in the spring to determine if the watercourses in the Study Area provide seasonal habitat. The results of this survey can also be used to confirm previous findings and further substantiate the absence of aquatic species at risk.

8.2 Terrestrial Environment

8.2.1 Vegetation Survey

A vegetation survey should be conducted in detailed design to confirm existing vegetation, adjacent to the proposed creek realignment and delineate portions of vegetation polygons to be retained, removed or compensated. Based on the findings of this survey, it was also recommended that a replanting plan be developed in later stages.

8.2.2 Wildlife Surveys

The presence of SAR should be confirmed at the Detail Design phase. In support of this, TRCA recommended that additional bird and bat surveys be conducted in the study area. The bat surveys should also focus on the identification of bat roosts.

Amphibian surveys should also be completed at Detailed Design; these findings may influence the design of the road alignment and use of enhanced wildlife crossings at key locations.

9.0 REFERENCES

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10.0CLOSURE

This report has been prepared and the work referred to in this report has been undertaken by SLR for Parson and the City of Vaughan. It is intended for the sole and exclusive use of PARSONS and the City of Vaughan and its authorized agents for the purpose(s) set out in this report. Any use of, reliance on or decision made based on this report by any person other than PARSONS or the City of Vaughan for any purpose, or by PARSONS or the City of Vaughan for a purpose other than the purpose(s) set out in this report, is the sole responsibility of such other person or PARSONS or the City of Vaughan. PARSONS, the City of Vaughan and SLR make no representation or warranty to any other person with regard to this report and the work referred to in this report and they accept no duty of care to any other person or any liability or responsibility whatsoever for any losses, expenses, damages, fines, penalties or other harm that may be suffered or incurred by any other person as a result of the use of, reliance on, any decision made or any action taken based on this report or the work referred to in this report.

The investigation undertaken by SLR with respect to this report and any conclusions or recommendations made in this report reflect SLR's judgment based on the site conditions observed at the time of the site inspection on the date(s) set out in this report, on information available at the time of preparation of this report and on the interpretation of data collected from the field investigation. This report has been prepared for specific application to this site and it is based, in part upon visual observation of the site as described in this report. Unless otherwise stated, the findings cannot be extended to previous or future site conditions and portions of the site which were unavailable for direct investigation

Nothing in this report is intended to constitute or provide a legal opinion. SLR makes no representation as to the requirements of or compliance with environmental laws, rules, regulations or policies established by federal, provincial or local government bodies. Revisions to the regulatory standards referred to in this report may be expected over time. As a result, modifications to the findings, conclusions and recommendations in this report may be necessary.

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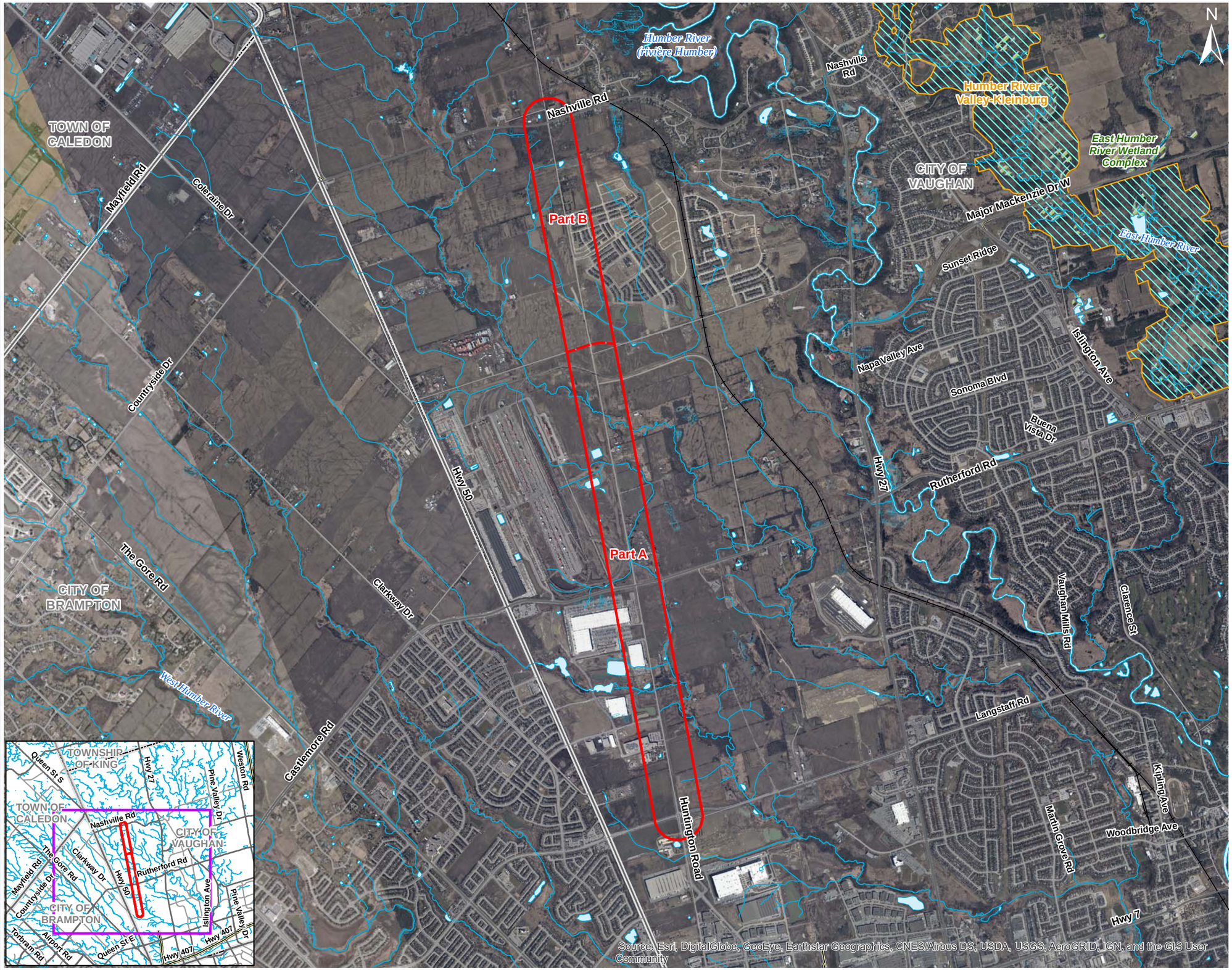
PARSONS or the City of Vaughan may submit this report to the MNRF and/or related Federal and Provincial environmental regulatory authorities or persons for review and comment purposes.

FIGURES

Natural Heritage - Existing Conditions and Impact Assessment Report
Huntington Road Part A and Part B - Langstaff Road to Nashville Road
SLR Project No. 209.40224.00000



LEGEND

- Study Area
- Municipal Boundary
- Regional - ANSI, Life Science
- Cartographic Wetland
- Provincially Significant Wetland
- Waterbodies
- Intermittent Watercourse
- Permanent Watercourse
- Railway

0 0.5 1 Kilometers

SCALE: 1:32,000
NAD 1983 UTM Zone 17N

NOTES

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

STUDY AREA

October 17, 2017	Rev **1.0**	Figure No. **1**
Project No. 209.40224.00000		

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Site Code	Date of Fish	Watershed	Sub Watershed	Tributary	Region	Local	Landowner Site	Easting	Northing	Blacknose Dace	Blackside Darter	Bluntnose Minnow	Brook Stickleback	Brown Bullhead	Common Shiner	Creek Chub	Fathead Minnow	Golden Shiner	Green Sunfish	Johnny Darter	Largemouth Bass	Lepomis sp	Pumpkinseed	Rock Bass	Spottail Shiner	Unknown Small Fish	White Sucker	Yellow Perch
HU018WM	08/12/2004	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes	No
HU018WM	08/15/2007	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	No	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No
HU018WM	07/21/2010	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	Yes	No	Yes	Yes	No	Yes	No	No	No	No	No	No	No	Yes	No
HU019WM	07/30/2001	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No
HU019WM	08/04/2004	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	No	No	No	Yes	No
HU019WM	10/03/2008	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No	No	Yes	Yes
HU019WM	08/12/2010	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	Yes	No

LEGEND

- Study Area
- Municipal Boundary
- Waterbody
- Permanent Watercourse (with Flow Direction)
- Railway

0 50 100 200 Meters

SCALE: 1:5,000
NAD 1983 UTM Zone 17N

NOTES

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

AQUATIC FIELD SURVEY

October 17, 2017 | Rev **1.0** | Figure No. **2a**

Project No. 209.40224.00000

SLR Consulting (Canada) Ltd.

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Site Code	Date of Fish	Watershed	Sub Watershed	Tributary	Region	Local	Landowner Site	Easting	Northing	Blacknose Dace	Blackside Darter	Bluntnose Minnow	Brook Stickleback	Brown Bullhead	Common Shiner	Creek Chub	Fathead Minnow	Golden Shiner	Green Sunfish	Johnny Darter	Largemouth Bass	Lepomis sp	Pumpkinseed	Rock Bass	Spottail Shiner	Unknown Small Fish	White Sucker	Yellow Perch
HU018WM	08/12/2004	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes	No
HU018WM	08/15/2007	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	No	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No
HU018WM	07/21/2010	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	Yes	No	Yes	Yes	No	Yes	No	No	No	No	No	No	No	Yes	No
HU019WM	07/30/2001	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No
HU019WM	08/04/2004	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	No	No	No	Yes	No
HU019WM	10/03/2008	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No	No	Yes	Yes
HU019WM	08/12/2010	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	Yes	No

LEGEND

- TRCA Fish Data Sampling Location
- Study Area
- Municipal Boundary
- Waterbody
- Permanent Watercourse (with Flow Direction)
- Railway

0 50 100 200 Meters

SCALE: 1:5,000
NAD 1983 UTM Zone 17N

NOTES

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

AQUATIC FIELD SURVEY

October 17, 2017 | Rev **1.0** | Figure No. **2b**

Project No. 209.40224.00000

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Site Code	Date of Fish	Watershed	Sub Watershed	Tributary	Region	Local	Landowner Site	Easting	Northing	Blacknose Dace	Blackside Darter	Bluntnose Minnow	Brook Stickleback	Brown Bullhead	Common Shiner	Creek Chub	Fathead Minnow	Golden Shiner	Green Sunfish	Johnny Darter	Largemouth Bass	Lepomis sp	Pumpkinseed	Rock Bass	Spottail Shiner	Unknown Small Fish	White Sucker	Yellow Perch
HU018WM	08/12/2004	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes	No
HU018WM	08/15/2007	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	No	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No
HU018WM	07/21/2010	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	Yes	No	Yes	Yes	No	Yes	No	No	No	Yes	No	No	No	Yes	No
HU019WM	07/30/2001	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No
HU019WM	08/04/2004	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	No	No	No	Yes	No
HU019WM	10/03/2008	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No	No	Yes	Yes
HU019WM	08/12/2010	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	Yes	No

LEGEND

- Study Area
- Municipal Boundary
- Cartographic Wetland
- Waterbody
- Permanent Watercourse (with Flow Direction)

0 50 100 200 Meters

SCALE: 1:5,000
NAD 1983 UTM Zone 17N

NOTES

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

AQUATIC FIELD SURVEY

October 17, 2017 | Rev **1.0** | Figure No. **2c**

Project No. 209.40224.00000

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LEGEND

- TRCA Fish Data Sampling Location
- Study Area
- Municipal Boundary
- Cartographic Wetland
- Waterbody
- Permanent Watercourse (with Flow Direction)
- Railway

0 125 250 Meters

SCALE: 1:7,500
NAD 1983 UTM Zone 17N

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

AQUATIC FIELD SURVEY

October 17, 2017 | Rev **1.0** | Figure No. **2d**

Project No. 209.40224.00000

SLR Consulting (Canada) Ltd.

Site Code	Date of Fish	Watershed	Sub Watershed	Tributary	Region	Local	Landowner Site	Easting	Northing	Blacknose Dace	Blackside Darter	Bluntnose Minnow	Brook Stickleback	Brown Bullhead	Common Shiner	Creek Chub	Fathead Minnow	Golden Shiner	Green Sunfish	Johnny Darter	Largemouth Bass	Lepomis sp	Pumpkinseed	Rock Bass	Spottail Shiner	Unknown Small Fish	White Sucker	Yellow Perch
HU018WM	08/12/2004	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes	No
HU018WM	08/15/2007	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	No	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No
HU018WM	07/21/2010	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	Yes	No	Yes	Yes	No	Yes	No	No	No	Yes	No	No	No	Yes	No
HU019WM	07/30/2001	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No
HU019WM	08/04/2004	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	Yes	No	No	No	Yes	No
HU019WM	10/03/2008	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No	Yes	Yes
HU019WM	08/12/2010	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	Yes	No

CITY OF VAUGHAN

Rainbow Creek

Part A

8US

8DS

Huntington Rd

East Rainbow Creek

West Rainbow Creek

9US

9DS

HU018WM

10DS

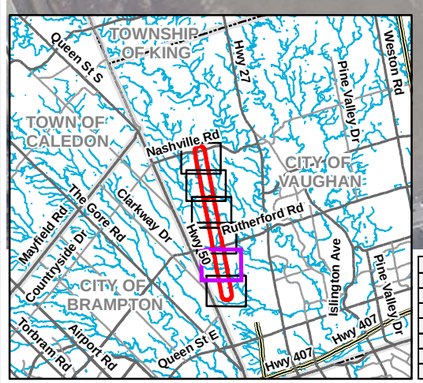
Rainbow Creek

Rainbow Creek

Trade Valley Dr

Hunters Valley Rd

N



Site Code	Date of Fish	Watershed	Sub Watershed	Tributary	Region	Local	Landowner Site	Easting	Northing	Blacknose Dace	Blackside Darter	Bluntnose Minnow	Brook Stickleback	Brown Bullhead	Common Shiner	Creek Chub	Fathead Minnow	Golden Shiner	Green Sunfish	Johnny Darter	Largemouth Bass	Lepomis sp	Pumpkinseed	Rock Bass	Spottail Shiner	Unknown Small Fish	White Sucker	Yellow Perch
HU018WM	08/12/2004	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes	No
HU018WM	08/15/2007	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	No	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No
HU018WM	07/21/2010	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	Yes	No	Yes	Yes	No	Yes	No	No	No	Yes	No	No	No	Yes	No
HU019WM	07/30/2001	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No
HU019WM	08/04/2004	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No	Yes	No
HU019WM	10/03/2008	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No	No	Yes	Yes
HU019WM	08/12/2010	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	Yes	No

LEGEND

- TRCA Fish Data Sampling Location
- Study Area
- Municipal Boundary
- Cartographic Wetland
- Waterbody
- Permanent Watercourse (with Flow Direction)
- Railway

0 50 100 200 Meters

SCALE: 1:5,000
NAD 1983 UTM Zone 17N

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

AQUATIC FIELD SURVEY

October 17, 2017 | Rev **1.0** | Figure No. **2e**

Project No. 209.40224.00000

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Site Code	Date of Fish	Watershed	Sub Watershed	Tributary	Region	Local	Landowner Site	Easting	Northing	Blacknose Dace	Blackside Darter	Bluntnose Minnow	Brook Stickleback	Brown Bullhead	Common Shiner	Creek Chub	Fathead Minnow	Golden Shiner	Green Sunfish	Johnny Darter	Largemouth Bass	Lepomis sp	Pumpkinseed	Rock Bass	Spottail Shiner	Unknown Small Fish	White Sucker	Yellow Perch
HU018WM	08/12/2004	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes	No
HU018WM	08/15/2007	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	No	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No
HU018WM	07/21/2010	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	Yes	No	Yes	Yes	No	Yes	No	No	No	Yes	No	No	No	Yes	No
HU019WM	07/30/2001	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No
HU019WM	08/04/2004	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	No	No	No	Yes	No
HU019WM	10/03/2008	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No	No	Yes	Yes
HU019WM	08/12/2010	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	Yes	No

LEGEND

- TRCA Fish Data Sampling Location
- Study Area
- Municipal Boundary
- Waterbody
- Permanent Watercourse (with Flow Direction)
- Railway

0 50 100 200 Meters

SCALE: 1:5,000
NAD 1983 UTM Zone 17N

NOTES

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

AQUATIC FIELD SURVEY

October 17, 2017 | Rev **1.0** | Figure No. **2f**

Project No. 209.40224.00000

SLR Consulting (Canada) Ltd.

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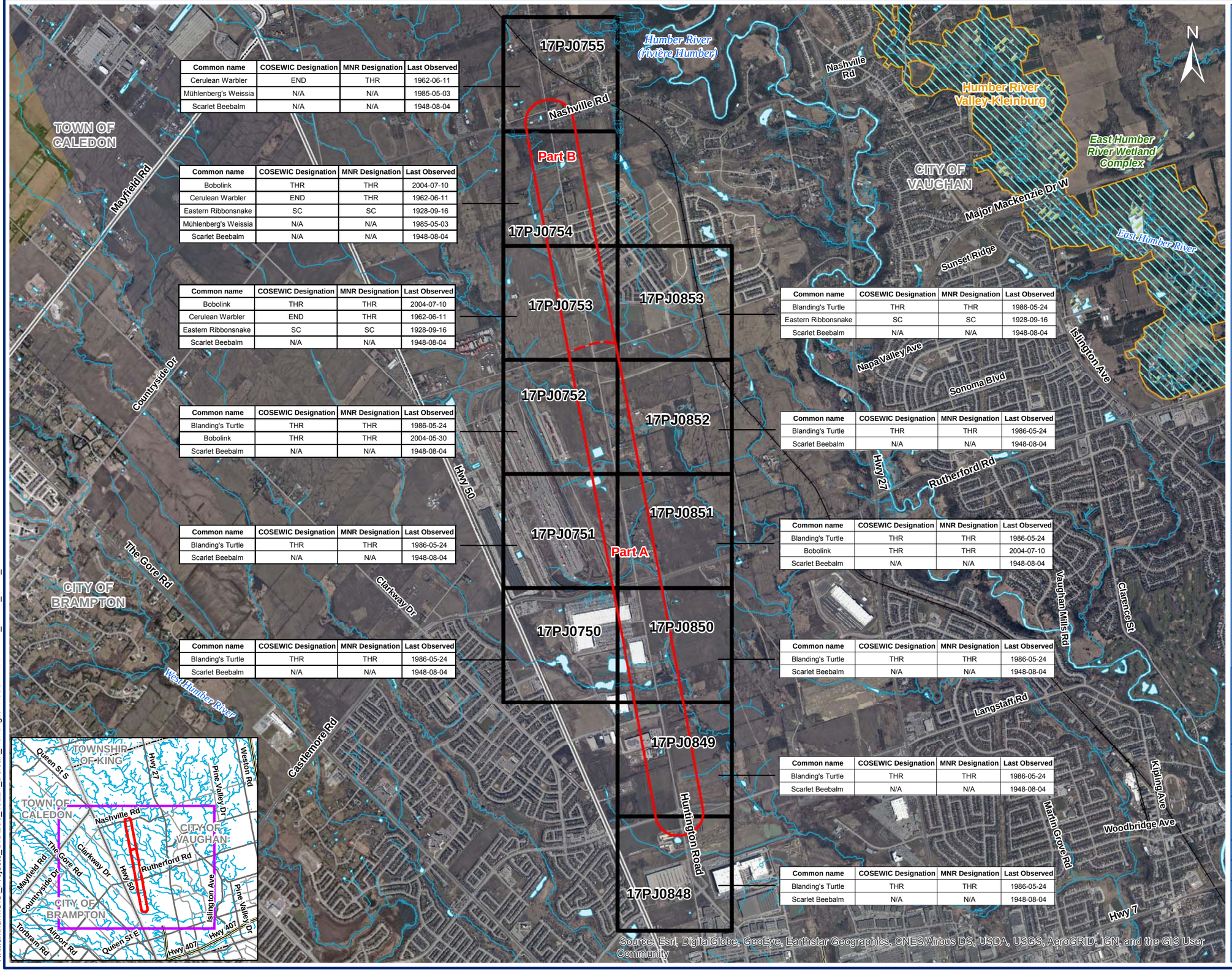

Common name	COSEWIC Designation	MNR Designation	Last Observed
Cerulean Warbler	END	THR	1962-06-11
Mühlenberg's Weissia	N/A	N/A	1985-05-03
Scarlet Beebalm	N/A	N/A	1948-08-04

Common name	COSEWIC Designation	MNR Designation	Last Observed
Bobolink	THR	THR	2004-07-10
Cerulean Warbler	END	THR	1962-06-11
Eastern Ribbonsnake	SC	SC	1928-09-16
Mühlenberg's Weissia	N/A	N/A	1985-05-03
Scarlet Beebalm	N/A	N/A	1948-08-04

Common name	COSEWIC Designation	MNR Designation	Last Observed
Bobolink	THR	THR	2004-07-10
Cerulean Warbler	END	THR	1962-06-11
Eastern Ribbonsnake	SC	SC	1928-09-16
Scarlet Beebalm	N/A	N/A	1948-08-04

Common name	COSEWIC Designation	MNR Designation	Last Observed
Blanding's Turtle	THR	THR	1986-05-24
Bobolink	THR	THR	2004-05-30
Scarlet Beebalm	N/A	N/A	1948-08-04

Common name	COSEWIC Designation	MNR Designation	Last Observed
Blanding's Turtle	THR	THR	1986-05-24
Scarlet Beebalm	N/A	N/A	1948-08-04

Common name	COSEWIC Designation	MNR Designation	Last Observed
Blanding's Turtle	THR	THR	1986-05-24
Eastern Ribbonsnake	SC	SC	1928-09-16
Scarlet Beebalm	N/A	N/A	1948-08-04

Common name	COSEWIC Designation	MNR Designation	Last Observed
Blanding's Turtle	THR	THR	1986-05-24
Scarlet Beebalm	N/A	N/A	1948-08-04

Common name	COSEWIC Designation	MNR Designation	Last Observed
Blanding's Turtle	THR	THR	1986-05-24
Bobolink	THR	THR	2004-07-10
Scarlet Beebalm	N/A	N/A	1948-08-04

Common name	COSEWIC Designation	MNR Designation	Last Observed
Blanding's Turtle	THR	THR	1986-05-24
Scarlet Beebalm	N/A	N/A	1948-08-04

Common name	COSEWIC Designation	MNR Designation	Last Observed
Blanding's Turtle	THR	THR	1986-05-24
Scarlet Beebalm	N/A	N/A	1948-08-04

Common name	COSEWIC Designation	MNR Designation	Last Observed
Blanding's Turtle	THR	THR	1986-05-24
Scarlet Beebalm	N/A	N/A	1948-08-04

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LEGEND

- Study Area
- NHIC Grid
- Municipal Boundary
- Regional - ANSI, Life Science
- Cartographic Wetland
- Provincially Significant Wetland
- Waterbodies
- Intermittent Watercourse
- Permanent Watercourse
- Railway

Distribution of Fish Species at Risk (DFO)

- Protected under SARA (Extirpated, Endangered, Threatened)
- Under consideration for listing (Endangered, Threatened)
- Special Concern Species (including under consideration for listing)

Conservation Authority Fish SAR Listing	
Common Name	**Colour**
American Eel	Orange
Redside Dace	Orange

0 0.5 1 Kilometers

SCALE: 1:32,000
NAD 1983 UTM Zone 17N

NOTES

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

NATURAL HERITAGE INFORMATION CENTRE (NHIC) GRID OF INTEREST AND DFO FISH SPECIES AT RISK

October 19, 2017 | Rev **1.0** | Figure No. **3**

Project No. 209.40224.00000

SLR Consulting (Canada) Ltd.

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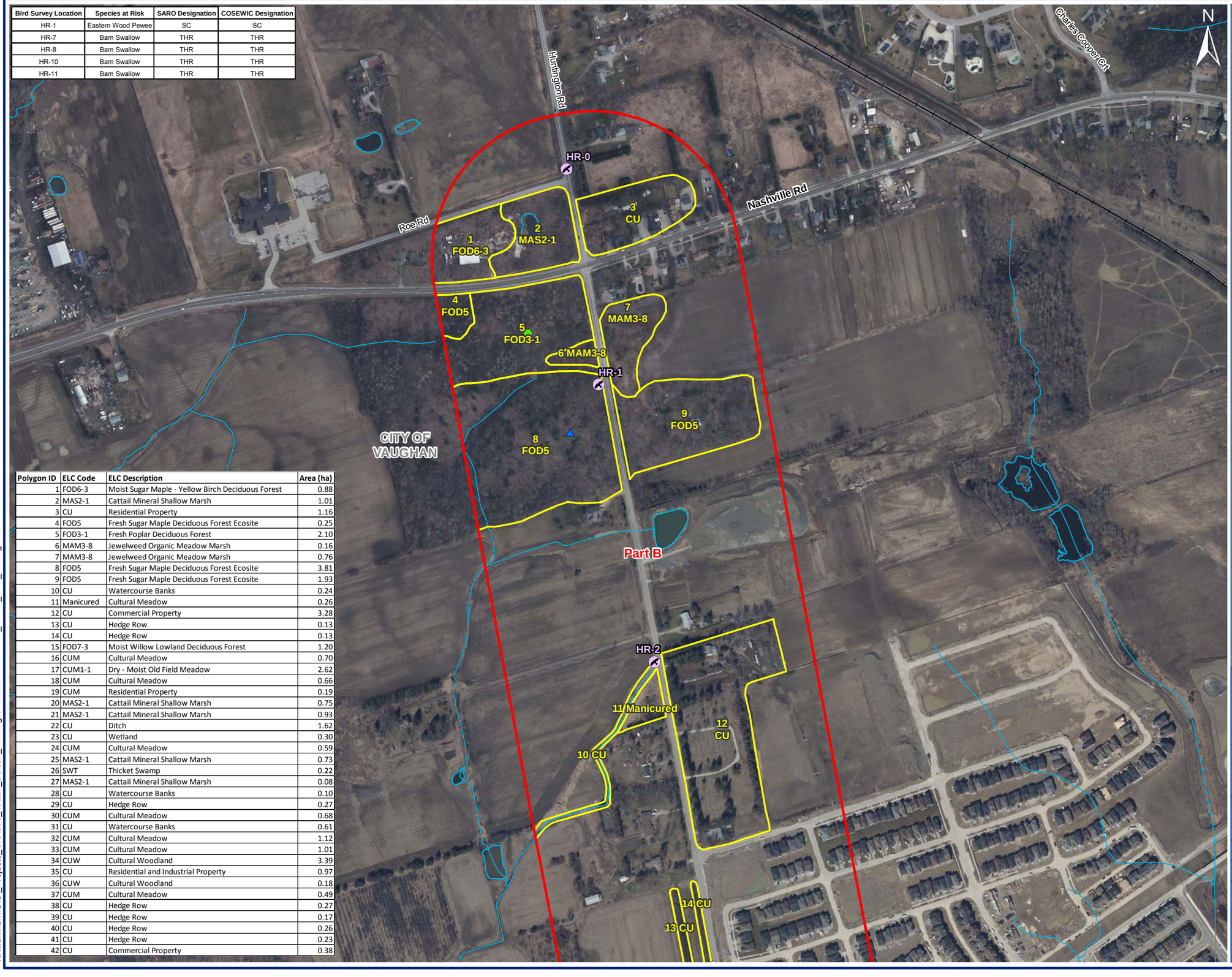
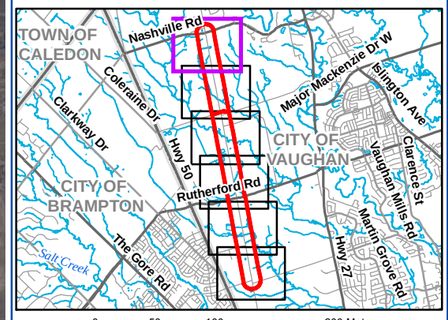
Bird Survey Location	Species at Risk	SARO Designation	COSEWIC Designation
HR-1	Eastern Wood Pewee	SC	SC
HR-7	Barn Swallow	THR	THR
HR-8	Barn Swallow	THR	THR
HR-10	Barn Swallow	THR	THR
HR-11	Barn Swallow	THR	THR



Polygon ID	ELC Code	ELC Description	Area (ha)
1	FOD6-3	Moist Sugar Maple - Yellow Birch Deciduous Forest	0.88
2	MAS2-1	Cattail Mineral Shallow Marsh	1.01
3	CU	Residential Property	1.16
4	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.25
5	FOD3-1	Fresh Poplar Deciduous Forest	2.10
6	MAM3-8	Jewelweed Organic Meadow Marsh	0.16
7	MAM3-8	Jewelweed Organic Meadow Marsh	0.76
8	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	3.81
9	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	1.93
10	CU	Watercourse Banks	0.24
11	Manicured	Cultural Meadow	0.26
12	CU	Commercial Property	3.28
13	CU	Hedge Row	0.13
14	CU	Hedge Row	0.13
15	FOD7-3	Moist Willow Lowland Deciduous Forest	1.20
16	CUM	Cultural Meadow	0.70
17	CUM1-1	Dry - Moist Old Field Meadow	2.62
18	CUM	Cultural Meadow	0.66
19	CUM	Residential Property	0.19
20	MAS2-1	Cattail Mineral Shallow Marsh	0.75
21	MAS2-1	Cattail Mineral Shallow Marsh	0.93
22	CU	Ditch	1.62
23	CU	Wetland	0.30
24	CUM	Cultural Meadow	0.59
25	MAS2-1	Cattail Mineral Shallow Marsh	0.73
26	SWT	Thicket Swamp	0.22
27	MAS2-1	Cattail Mineral Shallow Marsh	0.08
28	CU	Watercourse Banks	0.10
29	CU	Hedge Row	0.27
30	CUM	Cultural Meadow	0.68
31	CU	Watercourse Banks	0.61
32	CUM	Cultural Meadow	1.12
33	CUM	Cultural Meadow	1.01
34	CUW	Cultural Woodland	3.39
35	CU	Residential and Industrial Property	0.97
36	CUW	Cultural Woodland	0.18
37	CUM	Cultural Meadow	0.49
38	CU	Hedge Row	0.27
39	CU	Hedge Row	0.17
40	CU	Hedge Row	0.26
41	CU	Hedge Row	0.23
42	CU	Commercial Property	0.38

LEGEND

- Bird Survey Location
- Butternut
- Vernal Pool
- Study Area
- ELC
- Municipal Boundary
- Waterbody
- Permanent Watercourse
- Railway



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NAD 1983 UTM Zone 17N

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PARSONS

HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

ELC POLYGONS AND BIRD SURVEY LOCATIONS

October 20, 2017	Rev **1.0**	Figure No. **4a**
Project No. 209.40224.00000		

SLR Consulting (Canada) Ltd.

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Bird Survey Location	Species at Risk	SARO Designation	COSEWIC Designation
HR-1	Eastern Wood Pewee	SC	SC
HR-7	Barn Swallow	THR	THR
HR-8	Barn Swallow	THR	THR
HR-10	Barn Swallow	THR	THR
HR-11	Barn Swallow	THR	THR

Polygon ID	ELC Code	ELC Description	Area (ha)
1	FOD6-3	Moist Sugar Maple - Yellow Birch Deciduous Forest	0.88
2	MAS2-1	Cattail Mineral Shallow Marsh	1.01
3	CU	Residential Property	1.16
4	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.25
5	FOD3-1	Fresh Poplar Deciduous Forest	2.10
6	MAM3-8	Jewelweed Organic Meadow Marsh	0.16
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8	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	3.81
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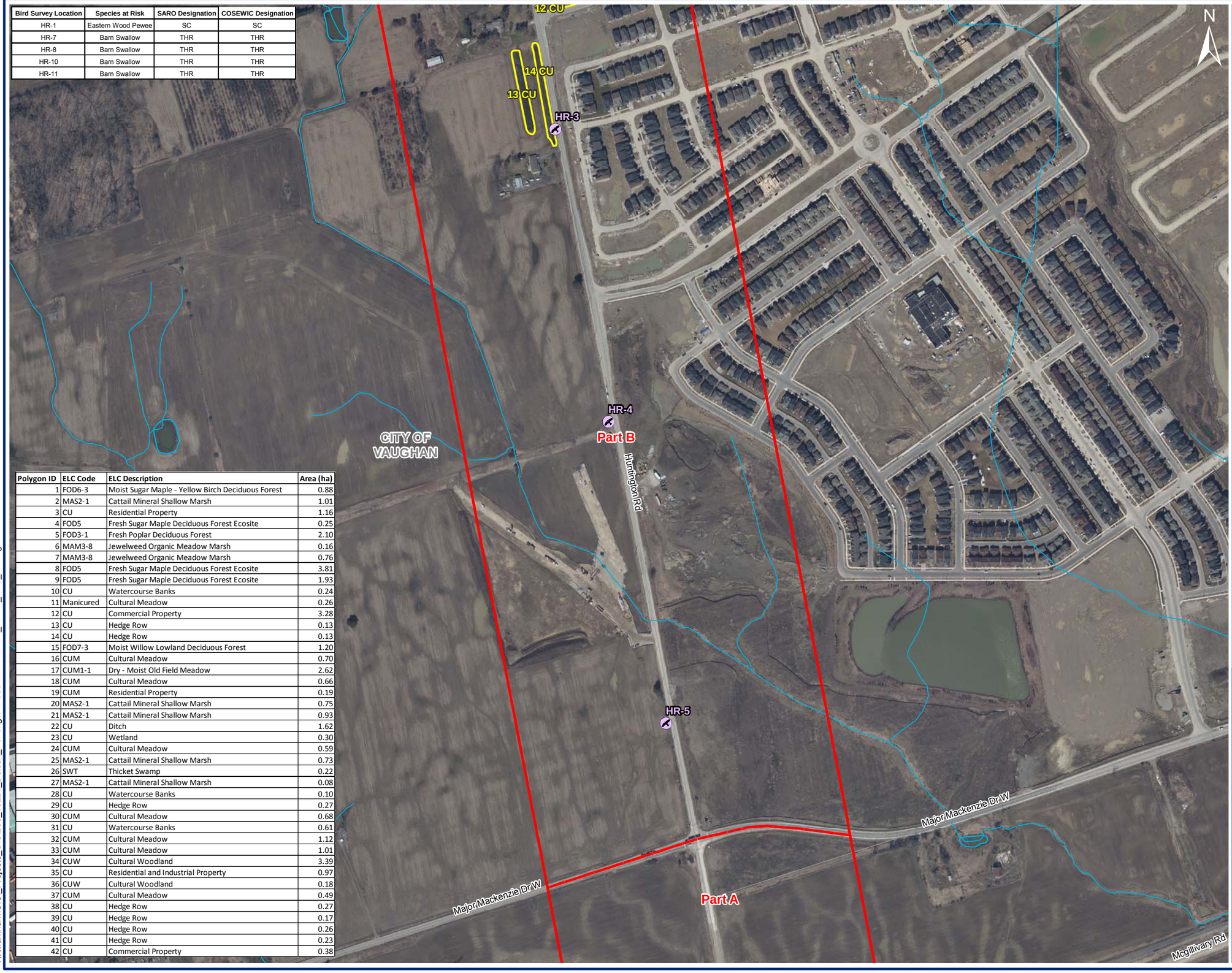
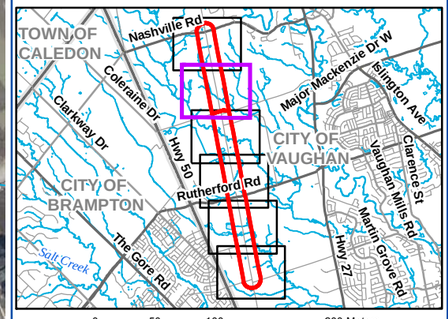
12	CU	Commercial Property	3.28
13	CU	Hedge Row	0.13
14	CU	Hedge Row	0.13
15	FOD7-3	Moist Willow Lowland Deciduous Forest	1.20
16	CUM	Cultural Meadow	0.70
17	CUM1-1	Dry - Moist Old Field Meadow	2.62
18	CUM	Cultural Meadow	0.66
19	CUM	Residential Property	0.19
20	MAS2-1	Cattail Mineral Shallow Marsh	0.75
21	MAS2-1	Cattail Mineral Shallow Marsh	0.93
22	CU	Ditch	1.62
23	CU	Wetland	0.30
24	CUM	Cultural Meadow	0.59
25	MAS2-1	Cattail Mineral Shallow Marsh	0.73
26	SWT	Thicket Swamp	0.22
27	MAS2-1	Cattail Mineral Shallow Marsh	0.08
28	CU	Watercourse Banks	0.10
29	CU	Hedge Row	0.27
30	CUM	Cultural Meadow	0.68
31	CU	Watercourse Banks	0.61
32	CUM	Cultural Meadow	1.12
33	CUM	Cultural Meadow	1.01
34	CUW	Cultural Woodland	3.39
35	CU	Residential and Industrial Property	0.97
36	CUW	Cultural Woodland	0.18
37	CUM	Cultural Meadow	0.49
38	CU	Hedge Row	0.27
39	CU	Hedge Row	0.17
40	CU	Hedge Row	0.26
41	CU	Hedge Row	0.23
42	CU	Commercial Property	0.38



LEGEND

- Bird Survey Location
- Study Area
- ELC
- Municipal Boundary
- Waterbody
- Permanent Watercourse



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NAD 1983 UTM Zone 17N

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PARSONS

HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

ELC POLYGONS AND BIRD SURVEY LOCATIONS

October 20, 2017	Rev **1.0**	Figure No. **4b**
Project No. 209.40224.00000		

SLR Consulting (Canada) Ltd.

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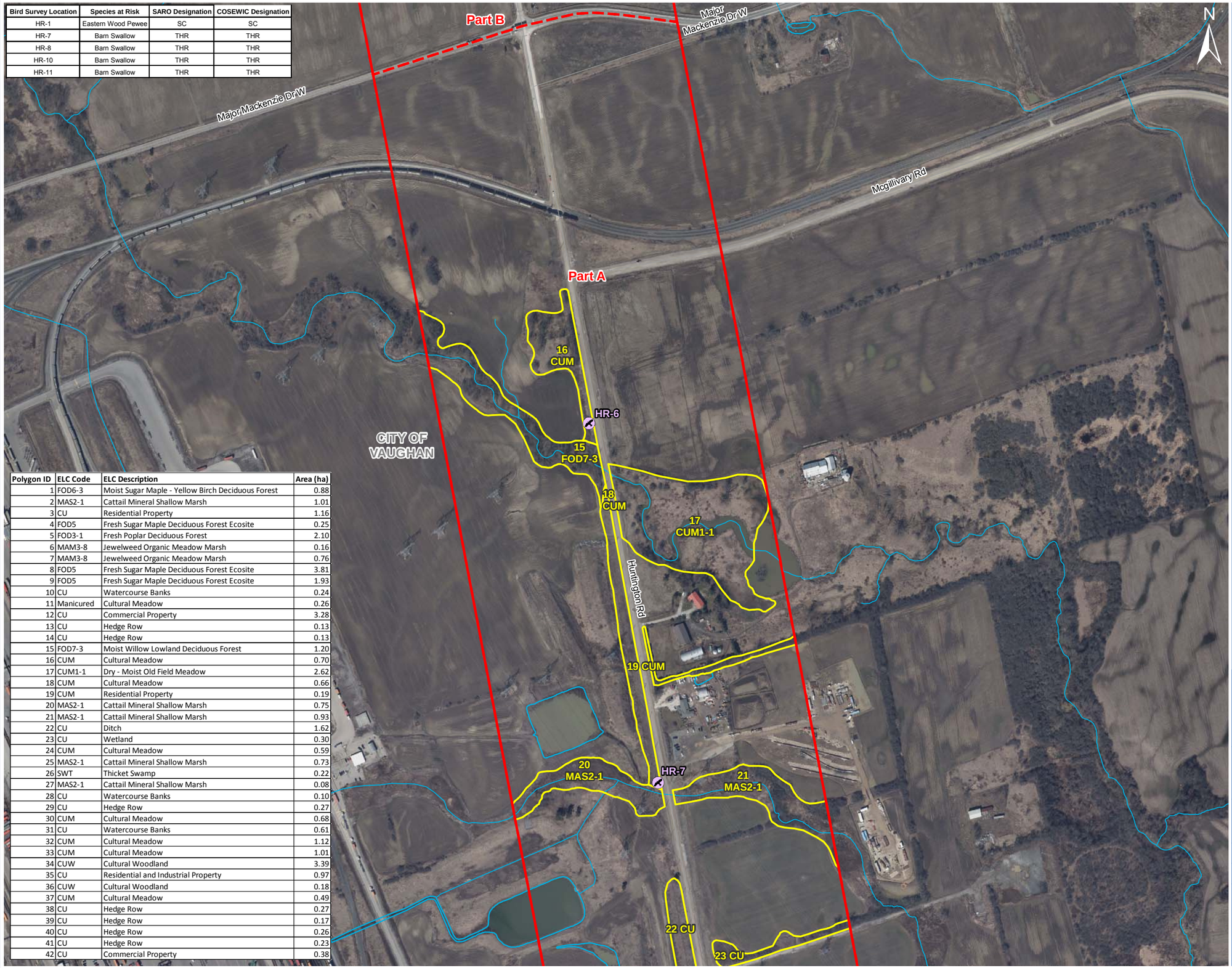
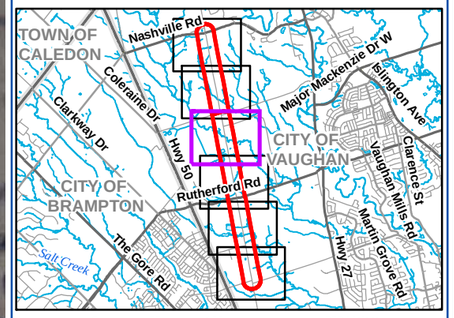
Bird Survey Location	Species at Risk	SARO Designation	COSEWIC Designation
HR-1	Eastern Wood Pewee	SC	SC
HR-7	Barn Swallow	THR	THR
HR-8	Barn Swallow	THR	THR
HR-10	Barn Swallow	THR	THR
HR-11	Barn Swallow	THR	THR



Polygon ID	ELC Code	ELC Description	Area (ha)
1	FOD6-3	Moist Sugar Maple - Yellow Birch Deciduous Forest	0.88
2	MAS2-1	Cattail Mineral Shallow Marsh	1.01
3	CU	Residential Property	1.16
4	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.25
5	FOD3-1	Fresh Poplar Deciduous Forest	2.10
6	MAM3-8	Jewelweed Organic Meadow Marsh	0.16
7	MAM3-8	Jewelweed Organic Meadow Marsh	0.76
8	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	3.81
9	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	1.93
10	CU	Watercourse Banks	0.24
11	Manicured	Cultural Meadow	0.26
12	CU	Commercial Property	3.28
13	CU	Hedge Row	0.13
14	CU	Hedge Row	0.13
15	FOD7-3	Moist Willow Lowland Deciduous Forest	1.20
16	CUM	Cultural Meadow	0.70
17	CUM1-1	Dry - Moist Old Field Meadow	2.62
18	CUM	Cultural Meadow	0.66
19	CUM	Residential Property	0.19
20	MAS2-1	Cattail Mineral Shallow Marsh	0.75
21	MAS2-1	Cattail Mineral Shallow Marsh	0.93
22	CU	Ditch	1.62
23	CU	Wetland	0.30
24	CUM	Cultural Meadow	0.59
25	MAS2-1	Cattail Mineral Shallow Marsh	0.73
26	SWT	Thicket Swamp	0.22
27	MAS2-1	Cattail Mineral Shallow Marsh	0.08
28	CU	Watercourse Banks	0.10
29	CU	Hedge Row	0.27
30	CUM	Cultural Meadow	0.68
31	CU	Watercourse Banks	0.61
32	CUM	Cultural Meadow	1.12
33	CUM	Cultural Meadow	1.01
34	CUW	Cultural Woodland	3.39
35	CU	Residential and Industrial Property	0.97
36	CUW	Cultural Woodland	0.18
37	CUM	Cultural Meadow	0.49
38	CU	Hedge Row	0.27
39	CU	Hedge Row	0.17
40	CU	Hedge Row	0.26
41	CU	Hedge Row	0.23
42	CU	Commercial Property	0.38

LEGEND

- Bird Survey Location
- Study Area
- ELC
- Municipal Boundary
- Waterbody
- Permanent Watercourse



0 50 100 200 Meters

SCALE: 1:5,000
NAD 1983 UTM Zone 17N

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

ELC POLYGONS AND BIRD SURVEY LOCATIONS

October 20, 2017 | Rev **1.0** | Figure No. **4c**

Project No. 209.40224.00000

SLR Consulting (Canada) Ltd.

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Bird Survey Location	Species at Risk	SARO Designation	COSEWIC Designation
HR-1	Eastern Wood Pewee	SC	SC
HR-7	Barn Swallow	THR	THR
HR-8	Barn Swallow	THR	THR
HR-10	Barn Swallow	THR	THR
HR-11	Barn Swallow	THR	THR

Polygon ID	ELC Code	ELC Description	Area (ha)
1	FOD6-3	Moist Sugar Maple - Yellow Birch Deciduous Forest	0.88
2	MAS2-1	Cattail Mineral Shallow Marsh	1.01
3	CU	Residential Property	1.16
4	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.25
5	FOD3-1	Fresh Poplar Deciduous Forest	2.10
6	MAM3-8	Jewelweed Organic Meadow Marsh	0.16
7	MAM3-8	Jewelweed Organic Meadow Marsh	0.76
8	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	3.81
9	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	1.93
10	CU	Watercourse Banks	0.24
11	Manicured	Cultural Meadow	0.26
12	CU	Commercial Property	3.28
13	CU	Hedge Row	0.13
14	CU	Hedge Row	0.13
15	FOD7-3	Moist Willow Lowland Deciduous Forest	1.20
16	CUM	Cultural Meadow	0.70
17	CUM1-1	Dry - Moist Old Field Meadow	2.62
18	CUM	Cultural Meadow	0.66
19	CUM	Residential Property	0.19
20	MAS2-1	Cattail Mineral Shallow Marsh	0.75
21	MAS2-1	Cattail Mineral Shallow Marsh	0.93
22	CU	Ditch	1.62
23	CU	Wetland	0.30
24	CUM	Cultural Meadow	0.59
25	MAS2-1	Cattail Mineral Shallow Marsh	0.73
26	SWT	Thicket Swamp	0.22
27	MAS2-1	Cattail Mineral Shallow Marsh	0.08
28	CU	Watercourse Banks	0.10
29	CU	Hedge Row	0.27
30	CUM	Cultural Meadow	0.68
31	CU	Watercourse Banks	0.61
32	CUM	Cultural Meadow	1.12
33	CUM	Cultural Meadow	1.01
34	CUW	Cultural Woodland	3.39
35	CU	Residential and Industrial Property	0.97
36	CUW	Cultural Woodland	0.18
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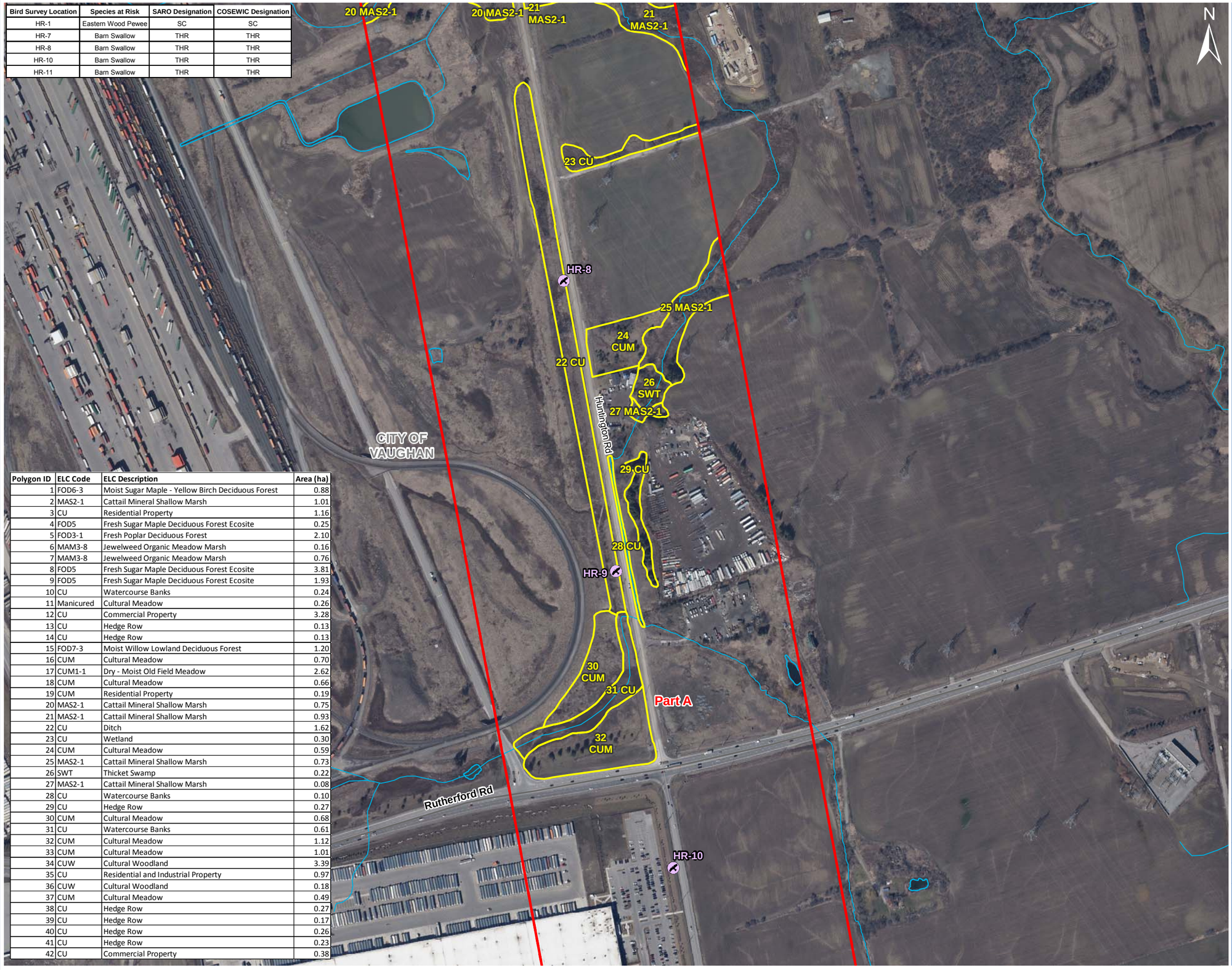
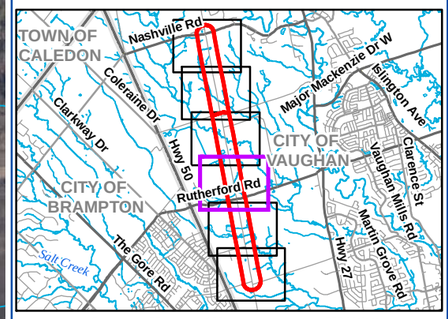
39	CU	Hedge Row	0.17
40	CU	Hedge Row	0.26
41	CU	Hedge Row	0.23
42	CU	Commercial Property	0.38



LEGEND

- Bird Survey Location
- Study Area
- ELC
- Municipal Boundary
- Waterbody
- Permanent Watercourse



SCALE: 1:5,000
NAD 1983 UTM Zone 17N

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

ELC POLYGONS AND BIRD SURVEY LOCATIONS

October 20, 2017 | Rev **1.0** | Figure No. **4d**

Project No. 209.40224.00000

SLR Consulting (Canada) Ltd.

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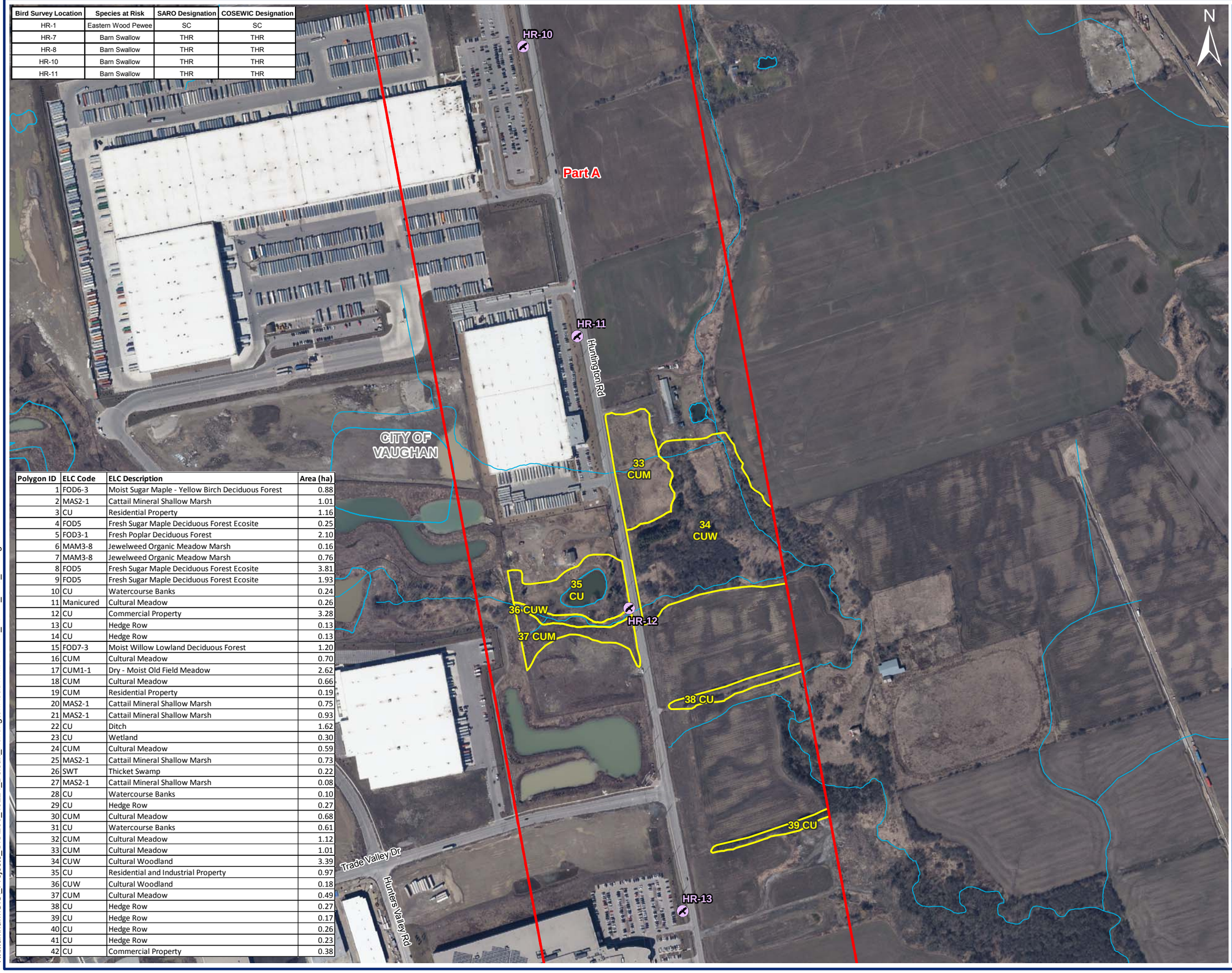
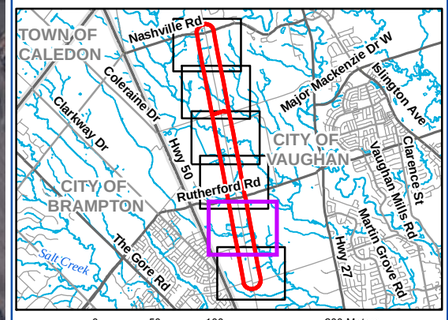
Bird Survey Location	Species at Risk	SARO Designation	COSEWIC Designation
HR-1	Eastern Wood Pewee	SC	SC
HR-7	Barn Swallow	THR	THR
HR-8	Barn Swallow	THR	THR
HR-10	Barn Swallow	THR	THR
HR-11	Barn Swallow	THR	THR



Polygon ID	ELC Code	ELC Description	Area (ha)
1	FOD6-3	Moist Sugar Maple - Yellow Birch Deciduous Forest	0.88
2	MAS2-1	Cattail Mineral Shallow Marsh	1.01
3	CU	Residential Property	1.16
4	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.25
5	FOD3-1	Fresh Poplar Deciduous Forest	2.10
6	MAM3-8	Jewelweed Organic Meadow Marsh	0.16
7	MAM3-8	Jewelweed Organic Meadow Marsh	0.76
8	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	3.81
9	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	1.93
10	CU	Watercourse Banks	0.24
11	Manicured	Cultural Meadow	0.26
12	CU	Commercial Property	3.28
13	CU	Hedge Row	0.13
14	CU	Hedge Row	0.13
15	FOD7-3	Moist Willow Lowland Deciduous Forest	1.20
16	CUM	Cultural Meadow	0.70
17	CUM1-1	Dry - Moist Old Field Meadow	2.62
18	CUM	Cultural Meadow	0.66
19	CUM	Residential Property	0.19
20	MAS2-1	Cattail Mineral Shallow Marsh	0.75
21	MAS2-1	Cattail Mineral Shallow Marsh	0.93
22	CU	Ditch	1.62
23	CU	Wetland	0.30
24	CUM	Cultural Meadow	0.59
25	MAS2-1	Cattail Mineral Shallow Marsh	0.73
26	SWT	Thicket Swamp	0.22
27	MAS2-1	Cattail Mineral Shallow Marsh	0.08
28	CU	Watercourse Banks	0.10
29	CU	Hedge Row	0.27
30	CUM	Cultural Meadow	0.68
31	CU	Watercourse Banks	0.61
32	CUM	Cultural Meadow	1.12
33	CUM	Cultural Meadow	1.01
34	CUW	Cultural Woodland	3.39
35	CU	Residential and Industrial Property	0.97
36	CUW	Cultural Woodland	0.18
37	CUM	Cultural Meadow	0.49
38	CU	Hedge Row	0.27
39	CU	Hedge Row	0.17
40	CU	Hedge Row	0.26
41	CU	Hedge Row	0.23
42	CU	Commercial Property	0.38

LEGEND

- Bird Survey Location
- Study Area
- ELC
- Municipal Boundary
- Waterbody
- Permanent Watercourse



SCALE: 1:5,000
NAD 1983 UTM Zone 17N

NOTES

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PARSONS

HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

ELC POLYGONS AND BIRD SURVEY LOCATIONS

October 20, 2017 | Rev **1.0** | Figure No. **4e**

Project No. 209.40224.00000

SLR Consulting (Canada) Ltd.

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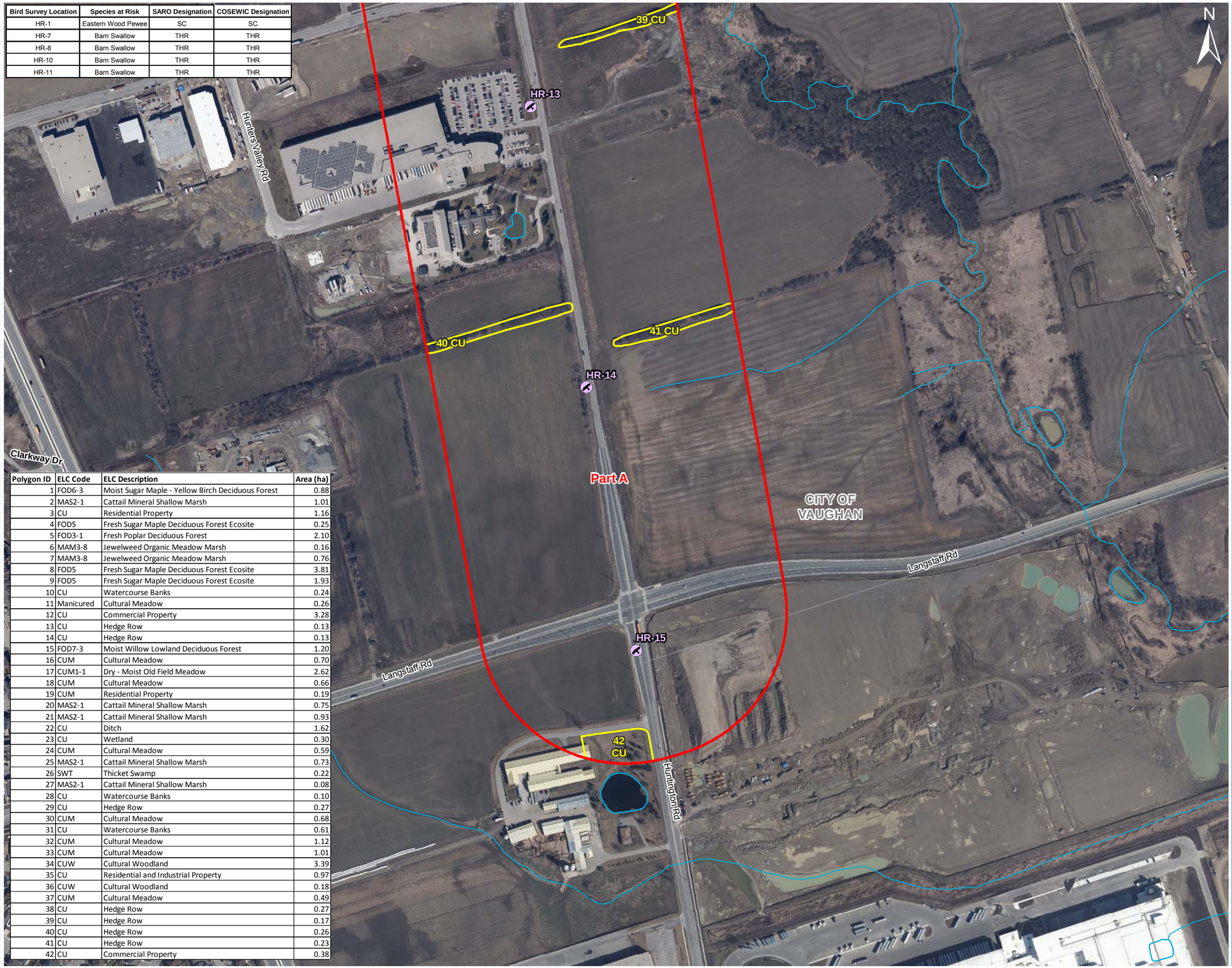
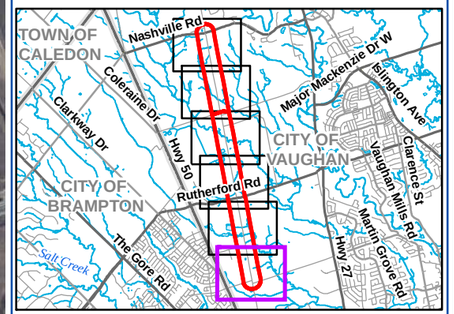
Bird Survey Location	Species at Risk	SARO Designation	COSEWIC Designation
HR-1	Eastern Wood Pewee	SC	SC
HR-7	Barn Swallow	THR	THR
HR-8	Barn Swallow	THR	THR
HR-10	Barn Swallow	THR	THR
HR-11	Barn Swallow	THR	THR



Polygon ID	ELC Code	ELC Description	Area (ha)
1	FOD6-3	Moist Sugar Maple - Yellow Birch Deciduous Forest	0.88
2	MAS2-1	Cattail Mineral Shallow Marsh	1.01
3	CU	Residential Property	1.16
4	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.25
5	FOD3-1	Fresh Poplar Deciduous Forest	2.10
6	MAM3-8	Jewelweed Organic Meadow Marsh	0.16
7	MAM3-8	Jewelweed Organic Meadow Marsh	0.76
8	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	3.81
9	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	1.93
10	CU	Watercourse Banks	0.24
11	Manicured	Cultural Meadow	0.26
12	CU	Commercial Property	3.28
13	CU	Hedge Row	0.13
14	CU	Hedge Row	0.13
15	FOD7-3	Moist Willow Lowland Deciduous Forest	1.20
16	CUM	Cultural Meadow	0.70
17	CUM1-1	Dry - Moist Old Field Meadow	2.62
18	CUM	Cultural Meadow	0.66
19	CUM	Residential Property	0.19
20	MAS2-1	Cattail Mineral Shallow Marsh	0.75
21	MAS2-1	Cattail Mineral Shallow Marsh	0.93
22	CU	Ditch	1.62
23	CU	Wetland	0.30
24	CUM	Cultural Meadow	0.59
25	MAS2-1	Cattail Mineral Shallow Marsh	0.73
26	SWT	Thicket Swamp	0.22
27	MAS2-1	Cattail Mineral Shallow Marsh	0.08
28	CU	Watercourse Banks	0.10
29	CU	Hedge Row	0.27
30	CUM	Cultural Meadow	0.68
31	CU	Watercourse Banks	0.61
32	CUM	Cultural Meadow	1.12
33	CUM	Cultural Meadow	1.01
34	CUW	Cultural Woodland	3.39
35	CU	Residential and Industrial Property	0.97
36	CUW	Cultural Woodland	0.18
37	CUM	Cultural Meadow	0.49
38	CU	Hedge Row	0.27
39	CU	Hedge Row	0.17
40	CU	Hedge Row	0.26
41	CU	Hedge Row	0.23
42	CU	Commercial Property	0.38

LEGEND

- Bird Survey Location
- Study Area
- ELC
- Municipal Boundary
- Waterbody
- Permanent Watercourse



0 50 100 200 Meters

SCALE: 1:5,000
NAD 1983 UTM Zone 17N

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

ELC POLYGONS AND BIRD SURVEY LOCATIONS

October 20, 2017 | Rev **1.0** | Figure No. **4f**

Project No. 209.40224.00000

SLR Consulting (Canada) Ltd.

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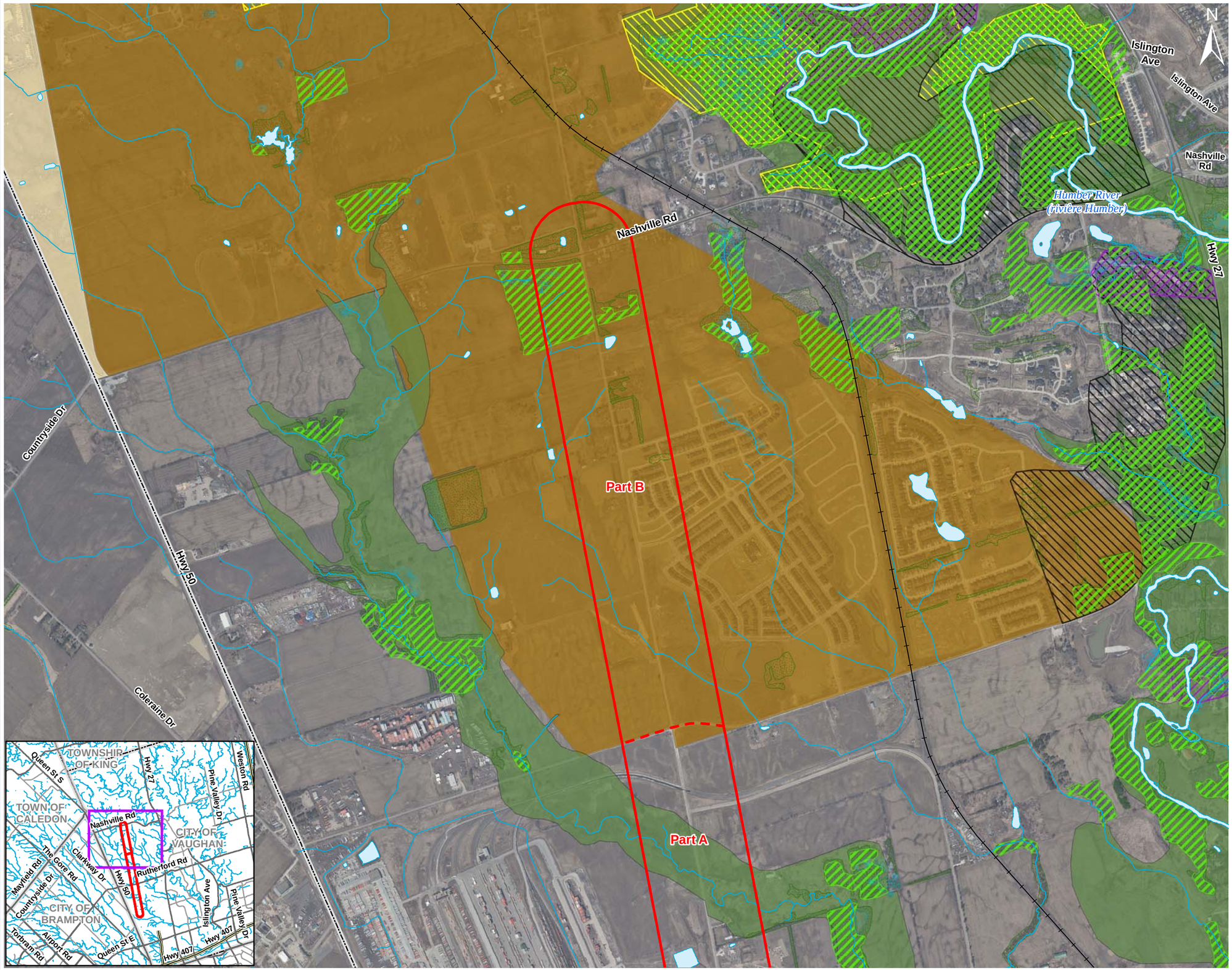

N

LEGEND

- Study Area
- Municipal Boundary
- Natural Heritage System
- Regional Greenlands System
- Agricultural Policy Area
- Rural Policy Area
- Cartographic Wetland
- Waterbody
- Intermittent Watercourse
- Permanent Watercourse
- Railway

Woodlands

- Significant Forested Lands (York Region)
- Conservation Areas Regional Forest (York Region)
- Ecologically Significant Forest (York Region)
- Wooded Area (MNR)

0 250 500 Meters

SCALE: 1:15,000
NAD 1983 UTM Zone 17N

NOTES

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

DESIGNATED AREAS

October 19, 2017	Rev **1.0**	Figure No. **5a**
Project No. 209.40224.00000		

SLR Consulting (Canada) Ltd.

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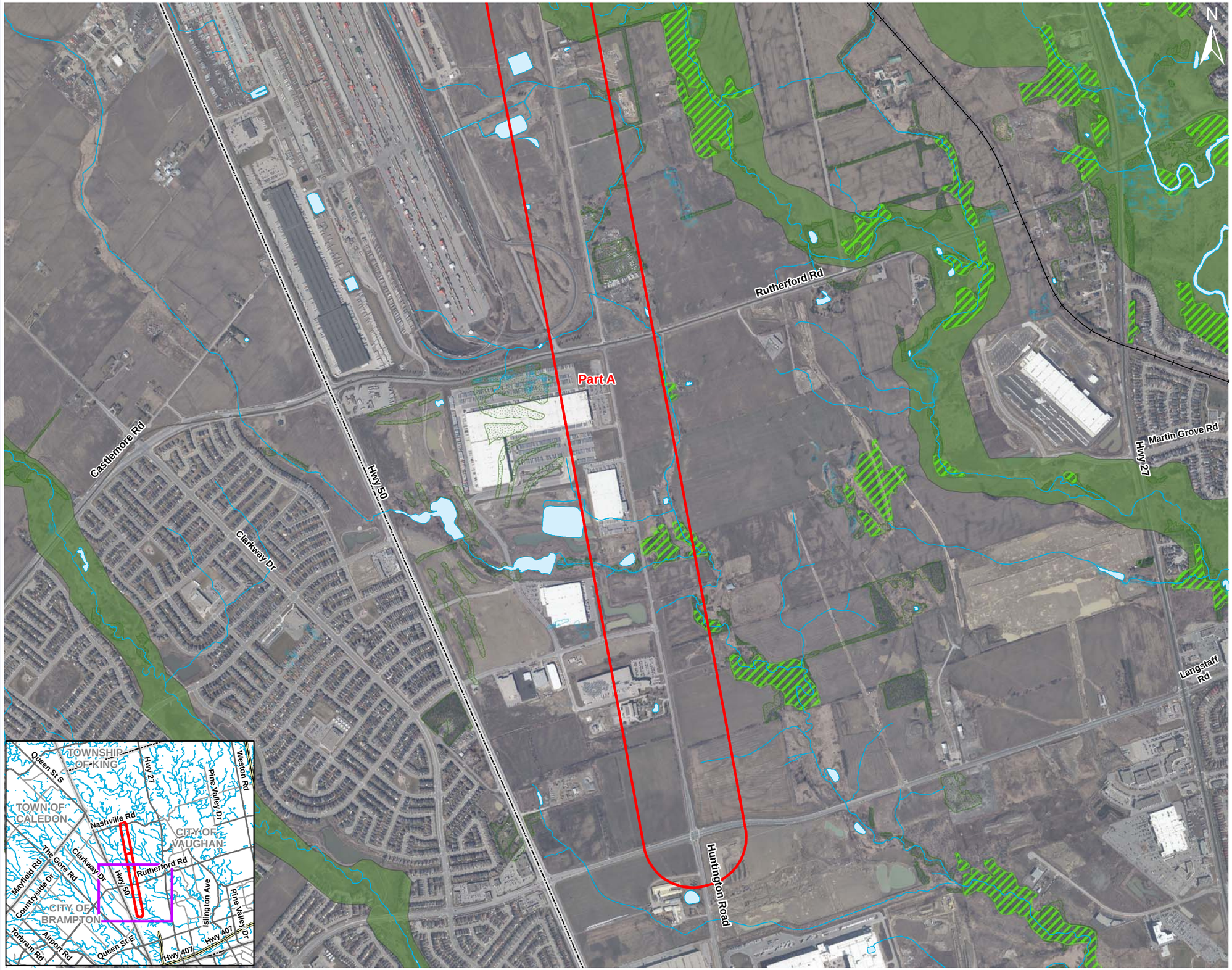

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LEGEND

- Study Area
- Municipal Boundary
- Natural Heritage System
- Regional Greenlands System
- Agricultural Policy Area
- Rural Policy Area
- Cartographic Wetland
- Waterbody
- Intermittent Watercourse
- Permanent Watercourse
- Railway

Woodlands

- Significant Forested Lands (York Region)
- Conservation Areas Regional Forest (York Region)
- Ecologically Significant Forest (York Region)
- Wooded Area (MNR)

0 250 500 Meters

SCALE: 1:15,000
NAD 1983 UTM Zone 17N

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

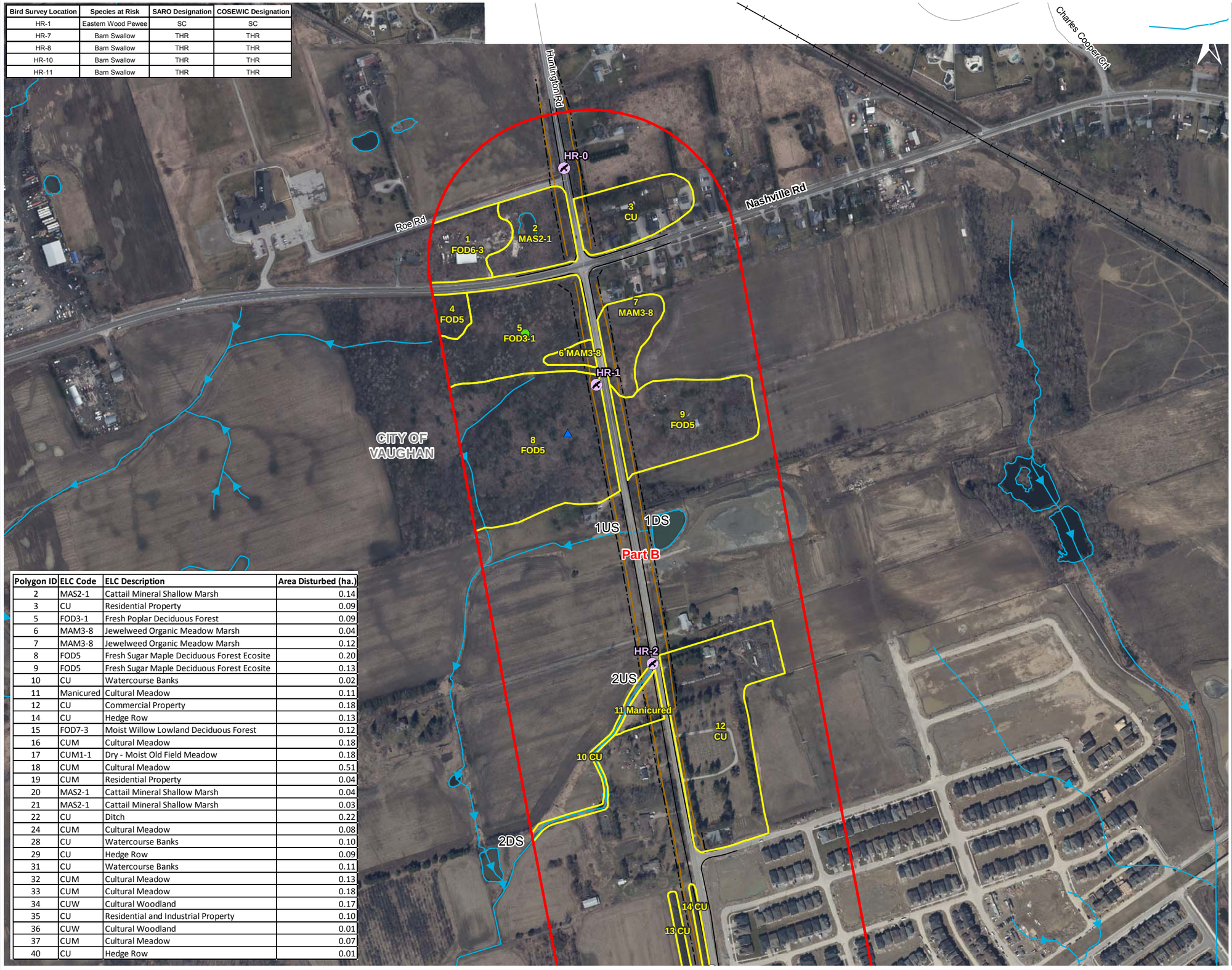
DESIGNATED AREAS

October 19, 2017	Rev **1.0**	Figure No. **5b**
Project No. 209.40224.00000		

SLR Consulting (Canada) Ltd.

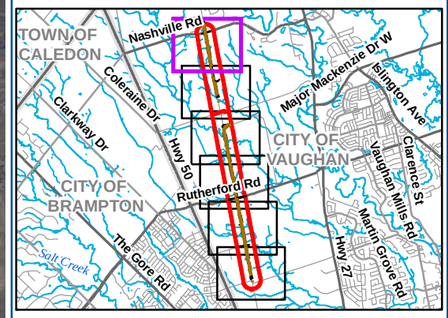
Bird Survey Location	Species at Risk	SARO Designation	COSEWIC Designation
HR-1	Eastern Wood Pewee	SC	SC
HR-7	Barn Swallow	THR	THR
HR-8	Barn Swallow	THR	THR
HR-10	Barn Swallow	THR	THR
HR-11	Barn Swallow	THR	THR

Polygon ID	ELC Code	ELC Description	Area Disturbed (ha.)
2	MAS2-1	Cattail Mineral Shallow Marsh	0.14
3	CU	Residential Property	0.09
5	FOD3-1	Fresh Poplar Deciduous Forest	0.09
6	MAM3-8	Jewelweed Organic Meadow Marsh	0.04
7	MAM3-8	Jewelweed Organic Meadow Marsh	0.12
8	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.20
9	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.13
10	CU	Watercourse Banks	0.02
11	Manicured	Cultural Meadow	0.11
12	CU	Commercial Property	0.18
14	CU	Hedge Row	0.13
15	FOD7-3	Moist Willow Lowland Deciduous Forest	0.12
16	CUM	Cultural Meadow	0.18
17	CUM1-1	Dry - Moist Old Field Meadow	0.18
18	CUM	Cultural Meadow	0.51
19	CUM	Residential Property	0.04
20	MAS2-1	Cattail Mineral Shallow Marsh	0.04
21	MAS2-1	Cattail Mineral Shallow Marsh	0.03
22	CU	Ditch	0.22
24	CUM	Cultural Meadow	0.08
28	CU	Watercourse Banks	0.10
29	CU	Hedge Row	0.09
31	CU	Watercourse Banks	0.11
32	CUM	Cultural Meadow	0.13
33	CUM	Cultural Meadow	0.18
34	CUW	Cultural Woodland	0.17
35	CU	Residential and Industrial Property	0.10
36	CUW	Cultural Woodland	0.01
37	CUM	Cultural Meadow	0.07
40	CU	Hedge Row	0.01



LEGEND

- Bird Survey Location
- Butternut
- Vernal Pool
- Study Area
- ELC
- Municipal Boundary
- Cartographic Wetland
- Waterbody
- Permanent Watercourse (with Flow Direction)
- Railway
- Disturbance Limit
- Proposed Edge of Pavement
- Proposed ROW
- Stream Realignment



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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

ASSESSMENT OF POTENTIAL IMPACTS

October 10, 2017 | Rev **1.0** | Figure No. **6a**

Project No. 209.40224.00000

SLR Consulting (Canada) Ltd.

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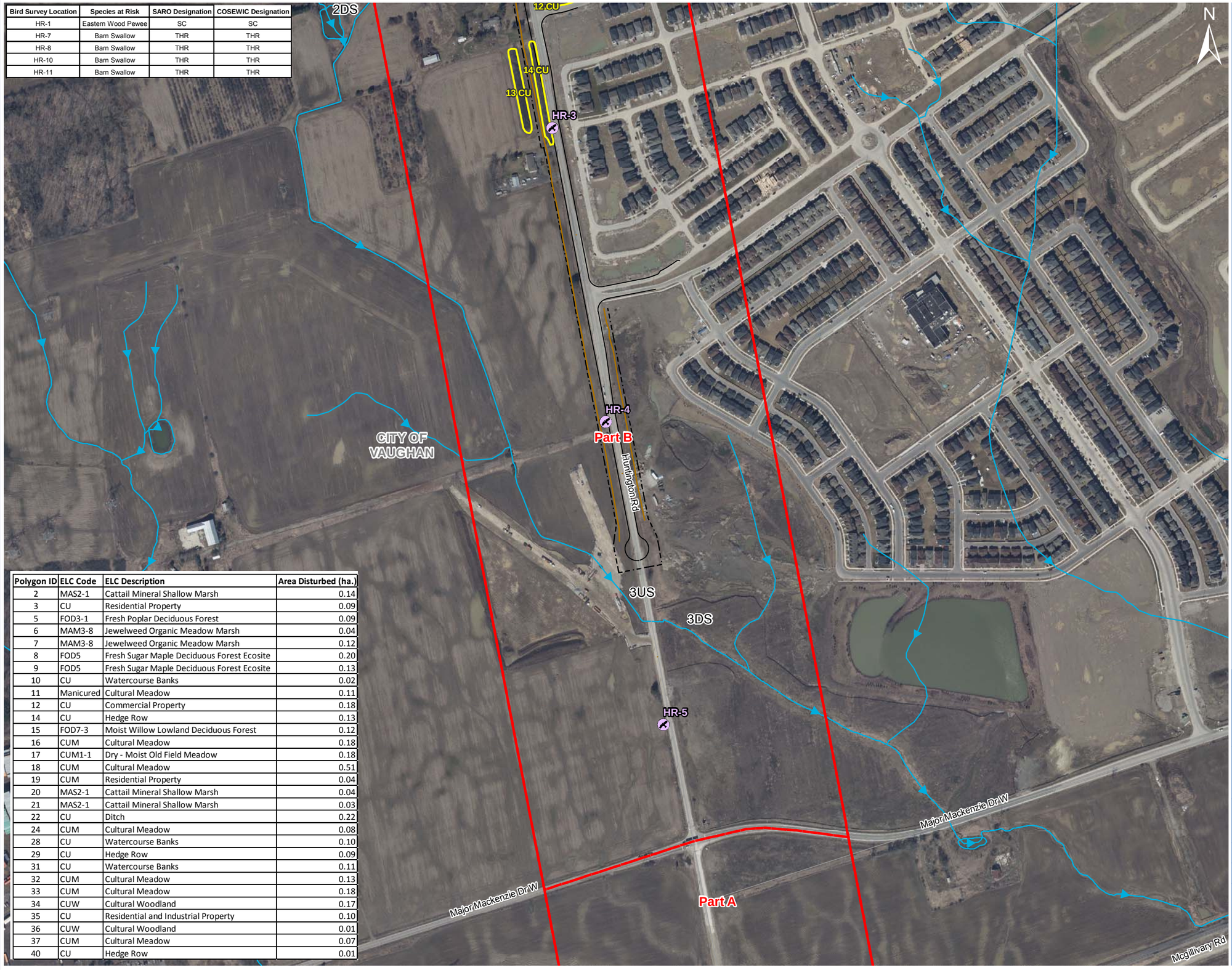
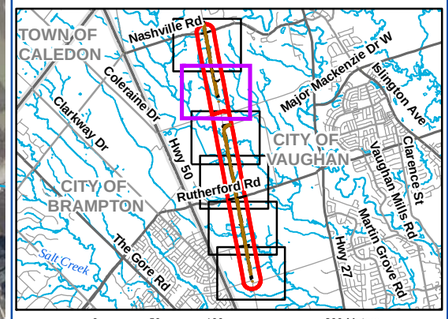
Bird Survey Location	Species at Risk	SARO Designation	COSEWIC Designation
HR-1	Eastern Wood Pewee	SC	SC
HR-7	Barn Swallow	THR	THR
HR-8	Barn Swallow	THR	THR
HR-10	Barn Swallow	THR	THR
HR-11	Barn Swallow	THR	THR

Polygon ID	ELC Code	ELC Description	Area Disturbed (ha.)
2	MAS2-1	Cattail Mineral Shallow Marsh	0.14
3	CU	Residential Property	0.09
5	FOD3-1	Fresh Poplar Deciduous Forest	0.09
6	MAM3-8	Jewelweed Organic Meadow Marsh	0.04
7	MAM3-8	Jewelweed Organic Meadow Marsh	0.12
8	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.20
9	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.13
10	CU	Watercourse Banks	0.02
11	Manicured	Cultural Meadow	0.11
12	CU	Commercial Property	0.18
14	CU	Hedge Row	0.13
15	FOD7-3	Moist Willow Lowland Deciduous Forest	0.12
16	CUM	Cultural Meadow	0.18
17	CUM1-1	Dry - Moist Old Field Meadow	0.18
18	CUM	Cultural Meadow	0.51
19	CUM	Residential Property	0.04
20	MAS2-1	Cattail Mineral Shallow Marsh	0.04
21	MAS2-1	Cattail Mineral Shallow Marsh	0.03
22	CU	Ditch	0.22
24	CUM	Cultural Meadow	0.08
28	CU	Watercourse Banks	0.10
29	CU	Hedge Row	0.09
31	CU	Watercourse Banks	0.11
32	CUM	Cultural Meadow	0.13
33	CUM	Cultural Meadow	0.18
34	CUW	Cultural Woodland	0.17
35	CU	Residential and Industrial Property	0.10
36	CUW	Cultural Woodland	0.01
37	CUM	Cultural Meadow	0.07
40	CU	Hedge Row	0.01



LEGEND

- Bird Survey Location
- Butternut
- Vernal Pool
- Study Area
- ELC
- Municipal Boundary
- Cartographic Wetland
- Waterbody
- Permanent Watercourse (with Flow Direction)
- Railway
- Disturbance Limit
- Proposed Edge of Pavement
- Proposed ROW
- Stream Realignment



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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

ASSESSMENT OF POTENTIAL IMPACTS

October 10, 2017	Rev **1.0**	Figure No. **6b**
Project No. 209.40224.00000		

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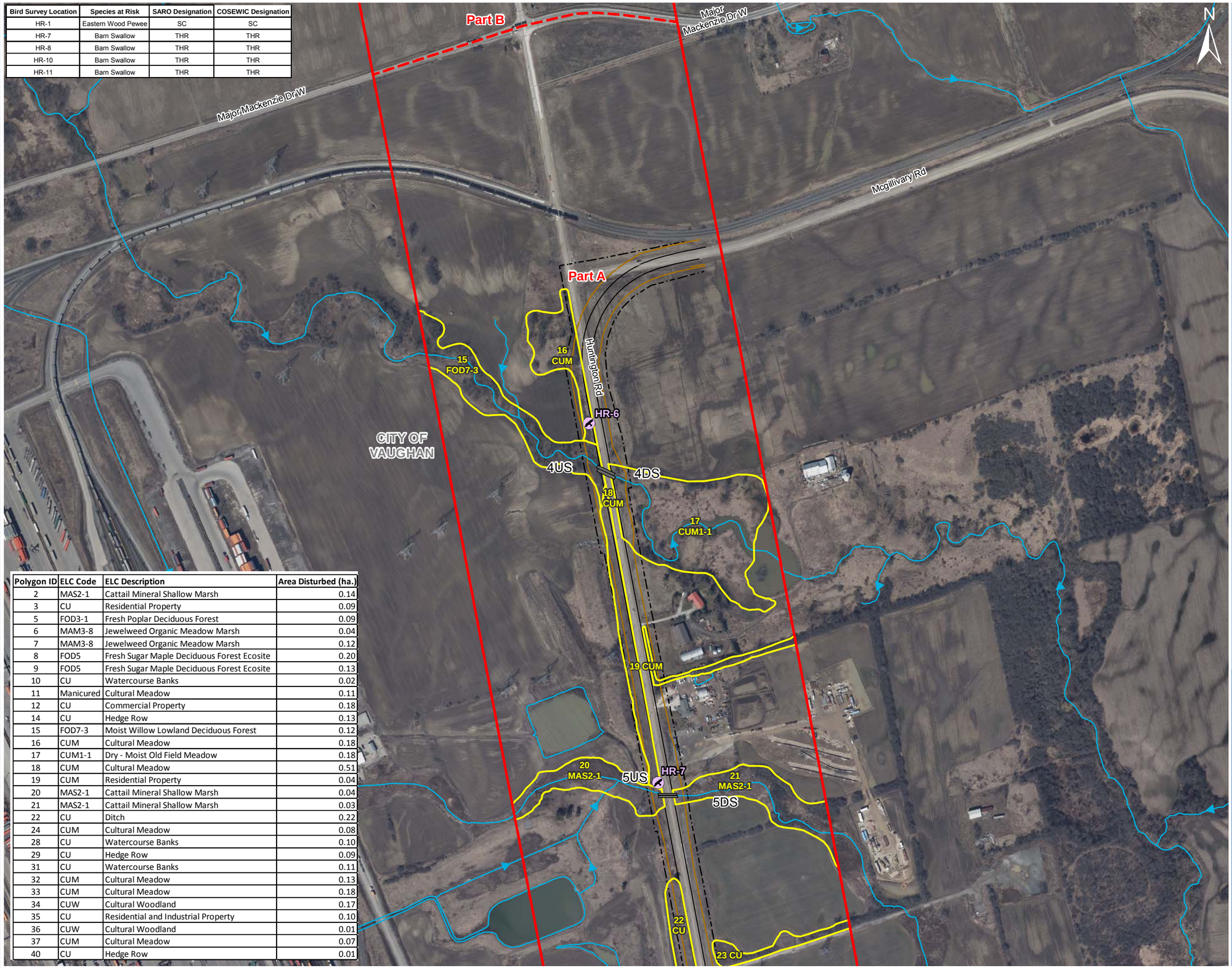
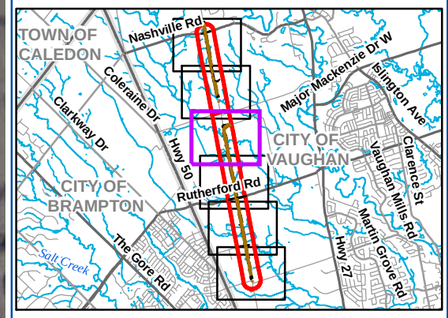
Bird Survey Location	Species at Risk	SARO Designation	COSEWIC Designation
HR-1	Eastern Wood Pewee	SC	SC
HR-7	Barn Swallow	THR	THR
HR-8	Barn Swallow	THR	THR
HR-10	Barn Swallow	THR	THR
HR-11	Barn Swallow	THR	THR



Polygon ID	ELC Code	ELC Description	Area Disturbed (ha.)
2	MAS2-1	Cattail Mineral Shallow Marsh	0.14
3	CU	Residential Property	0.09
5	FOD3-1	Fresh Poplar Deciduous Forest	0.09
6	MAM3-8	Jewelweed Organic Meadow Marsh	0.04
7	MAM3-8	Jewelweed Organic Meadow Marsh	0.12
8	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.20
9	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.13
10	CU	Watercourse Banks	0.02
11	Manicured	Cultural Meadow	0.11
12	CU	Commercial Property	0.18
14	CU	Hedge Row	0.13
15	FOD7-3	Moist Willow Lowland Deciduous Forest	0.12
16	CUM	Cultural Meadow	0.18
17	CUM1-1	Dry - Moist Old Field Meadow	0.18
18	CUM	Cultural Meadow	0.51
19	CUM	Residential Property	0.04
20	MAS2-1	Cattail Mineral Shallow Marsh	0.04
21	MAS2-1	Cattail Mineral Shallow Marsh	0.03
22	CU	Ditch	0.22
24	CUM	Cultural Meadow	0.08
28	CU	Watercourse Banks	0.10
29	CU	Hedge Row	0.09
31	CU	Watercourse Banks	0.11
32	CUM	Cultural Meadow	0.13
33	CUM	Cultural Meadow	0.18
34	CUW	Cultural Woodland	0.17
35	CU	Residential and Industrial Property	0.10
36	CUW	Cultural Woodland	0.01
37	CUM	Cultural Meadow	0.07
40	CU	Hedge Row	0.01

LEGEND

- Bird Survey Location
- Butternut
- Vernal Pool
- Study Area
- ELC
- Municipal Boundary
- Cartographic Wetland
- Waterbody
- Permanent Watercourse (with Flow Direction)
- Railway
- Disturbance Limit
- Proposed Edge of Pavement
- Proposed ROW
- Stream Realignment



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NAD 1983 UTM Zone 17N

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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

ASSESSMENT OF POTENTIAL IMPACTS

October 10, 2017 | Rev 1.0 | Figure No. 6c

Project No. 209.40224.00000

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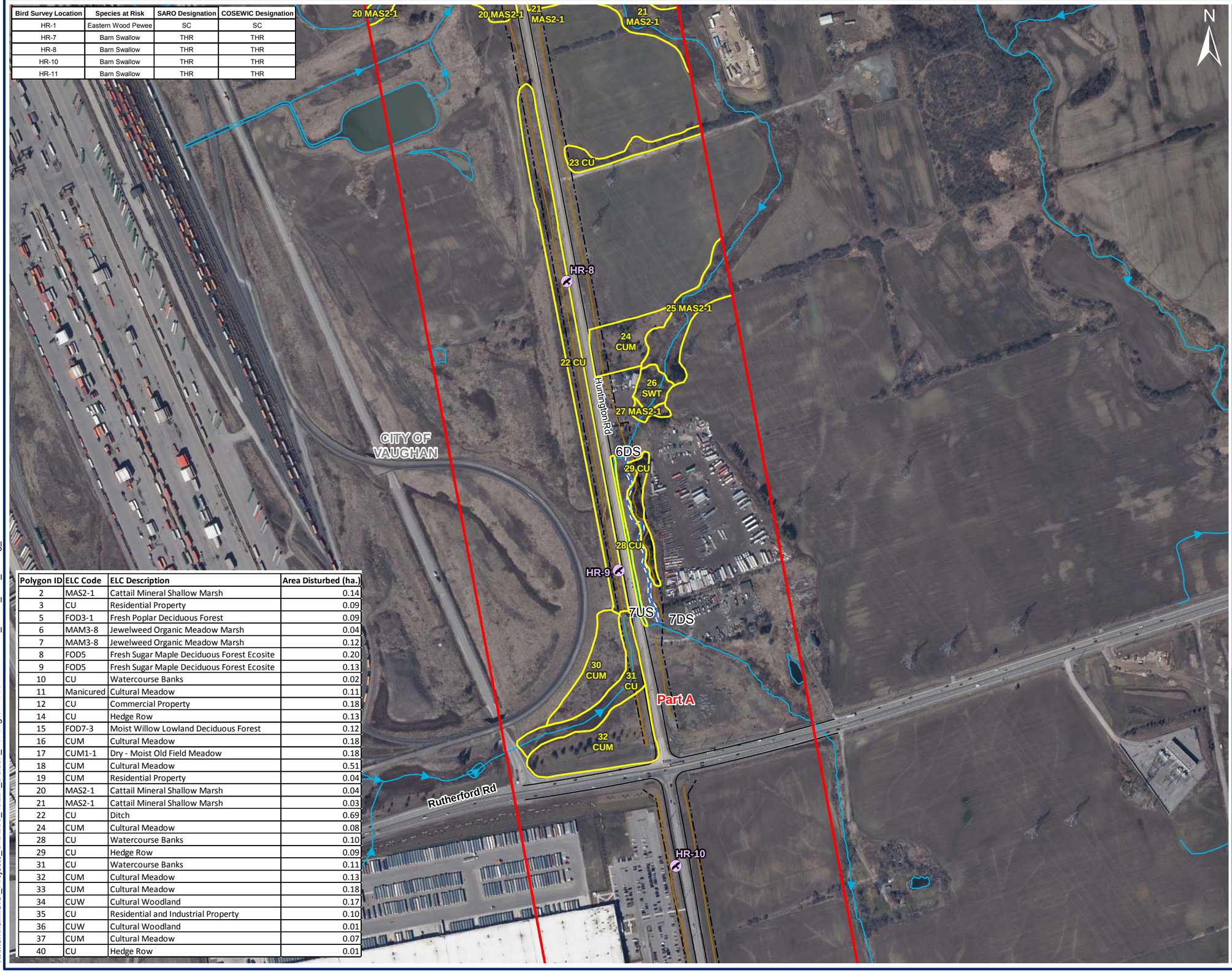
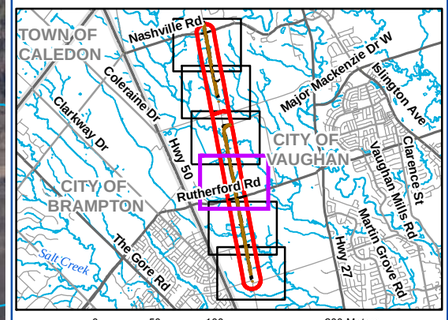
Bird Survey Location	Species at Risk	SARO Designation	COSEWIC Designation
HR-1	Eastern Wood Pewee	SC	SC
HR-7	Barn Swallow	THR	THR
HR-8	Barn Swallow	THR	THR
HR-10	Barn Swallow	THR	THR
HR-11	Barn Swallow	THR	THR

Polygon ID	ELC Code	ELC Description	Area Disturbed (ha.)
2	MAS2-1	Cattail Mineral Shallow Marsh	0.14
3	CU	Residential Property	0.09
5	FOD3-1	Fresh Poplar Deciduous Forest	0.09
6	MAM3-8	Jewelweed Organic Meadow Marsh	0.04
7	MAM3-8	Jewelweed Organic Meadow Marsh	0.12
8	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.20
9	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.13
10	CU	Watercourse Banks	0.02
11	Manicured	Cultural Meadow	0.11
12	CU	Commercial Property	0.18
14	CU	Hedge Row	0.13
15	FOD7-3	Moist Willow Lowland Deciduous Forest	0.12
16	CUM	Cultural Meadow	0.18
17	CUM1-1	Dry - Moist Old Field Meadow	0.18
18	CUM	Cultural Meadow	0.51
19	CUM	Residential Property	0.04
20	MAS2-1	Cattail Mineral Shallow Marsh	0.04
21	MAS2-1	Cattail Mineral Shallow Marsh	0.03
22	CU	Ditch	0.69
24	CUM	Cultural Meadow	0.08
28	CU	Watercourse Banks	0.10
29	CU	Hedge Row	0.09
31	CU	Watercourse Banks	0.11
32	CUM	Cultural Meadow	0.13
33	CUM	Cultural Meadow	0.18
34	CUW	Cultural Woodland	0.17
35	CU	Residential and Industrial Property	0.10
36	CUW	Cultural Woodland	0.01
37	CUM	Cultural Meadow	0.07
40	CU	Hedge Row	0.01



LEGEND

- Bird Survey Location
- Butternut
- Vernal Pool
- Study Area
- ELC
- Municipal Boundary
- Cartographic Wetland
- Waterbody
- Permanent Watercourse (with Flow Direction)
- Railway
- Disturbance Limit
- Proposed Edge of Pavement
- Proposed ROW
- Stream Realignment



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HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

ASSESSMENT OF POTENTIAL IMPACTS

October 19, 2017 | Rev **1.0** | Figure No. **6d**

Project No. 209.40224.00000

SLR Consulting (Canada) Ltd.

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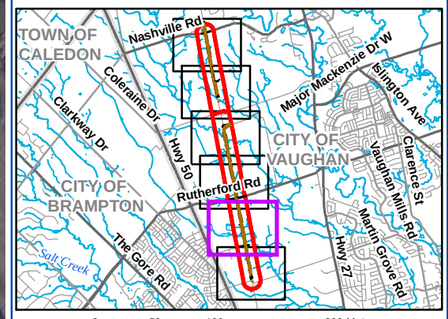
Bird Survey Location	Species at Risk	SARO Designation	COSEWIC Designation
HR-1	Eastern Wood Pewee	SC	SC
HR-7	Barn Swallow	THR	THR
HR-8	Barn Swallow	THR	THR
HR-10	Barn Swallow	THR	THR
HR-11	Barn Swallow	THR	THR

Polygon ID	ELC Code	ELC Description	Area Disturbed (ha.)
2	MAS2-1	Cattail Mineral Shallow Marsh	0.14
3	CU	Residential Property	0.09
5	FOD3-1	Fresh Poplar Deciduous Forest	0.09
6	MAM3-8	Jewelweed Organic Meadow Marsh	0.04
7	MAM3-8	Jewelweed Organic Meadow Marsh	0.12
8	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.20
9	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.13
10	CU	Watercourse Banks	0.02
11	Manicured	Cultural Meadow	0.11
12	CU	Commercial Property	0.18
14	CU	Hedge Row	0.13
15	FOD7-3	Moist Willow Lowland Deciduous Forest	0.12
16	CUM	Cultural Meadow	0.18
17	CUM1-1	Dry - Moist Old Field Meadow	0.18
18	CUM	Cultural Meadow	0.51
19	CUM	Residential Property	0.04
20	MAS2-1	Cattail Mineral Shallow Marsh	0.04
21	MAS2-1	Cattail Mineral Shallow Marsh	0.03
22	CU	Ditch	0.22
24	CUM	Cultural Meadow	0.08
28	CU	Watercourse Banks	0.10
29	CU	Hedge Row	0.09
31	CU	Watercourse Banks	0.11
32	CUM	Cultural Meadow	0.13
33	CUM	Cultural Meadow	0.18
34	CUW	Cultural Woodland	0.17
35	CU	Residential and Industrial Property	0.10
36	CUW	Cultural Woodland	0.01
37	CUM	Cultural Meadow	0.07
40	CU	Hedge Row	0.01

HR-10
Part A
HR-11
Huntington Rd
CITY OF VAUGHAN
8US
8DS
33 CUM
34 CUW
35 CU
36 CUW
37 CUM
9US
9DS
HR-12
38 CU
10DS
HU018WM
39 CU
HR-13
Hunters Valley Rd

N

LEGEND
- Bird Survey Location
- Butternut
- Vernal Pool
- Study Area
- ELC
- Municipal Boundary
- Cartographic Wetland
- Waterbody
- Permanent Watercourse (with Flow Direction)
- Railway
- Disturbance Limit
- Proposed Edge of Pavement
- Proposed ROW
- Stream Realignment



0 50 100 200 Meters

SCALE: 1:5,000
NAD 1983 UTM Zone 17N

NOTES
This map is for conceptual purposes only and should not be used for navigational purposes.
Basedata:Ontario Ministry of Natural Resources, Land Information Ontario (LIO) © Queen's Printer for Ontario, 2012, Downloaded February 2013
Orthoimagery: WMS, York Region 2016,

PARSONS

HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

ASSESSMENT OF POTENTIAL IMPACTS

October 10, 2017 | Rev 1.0 | Figure No. 6e

Project No. 209.40224.00000

SLR Consulting (Canada) Ltd.

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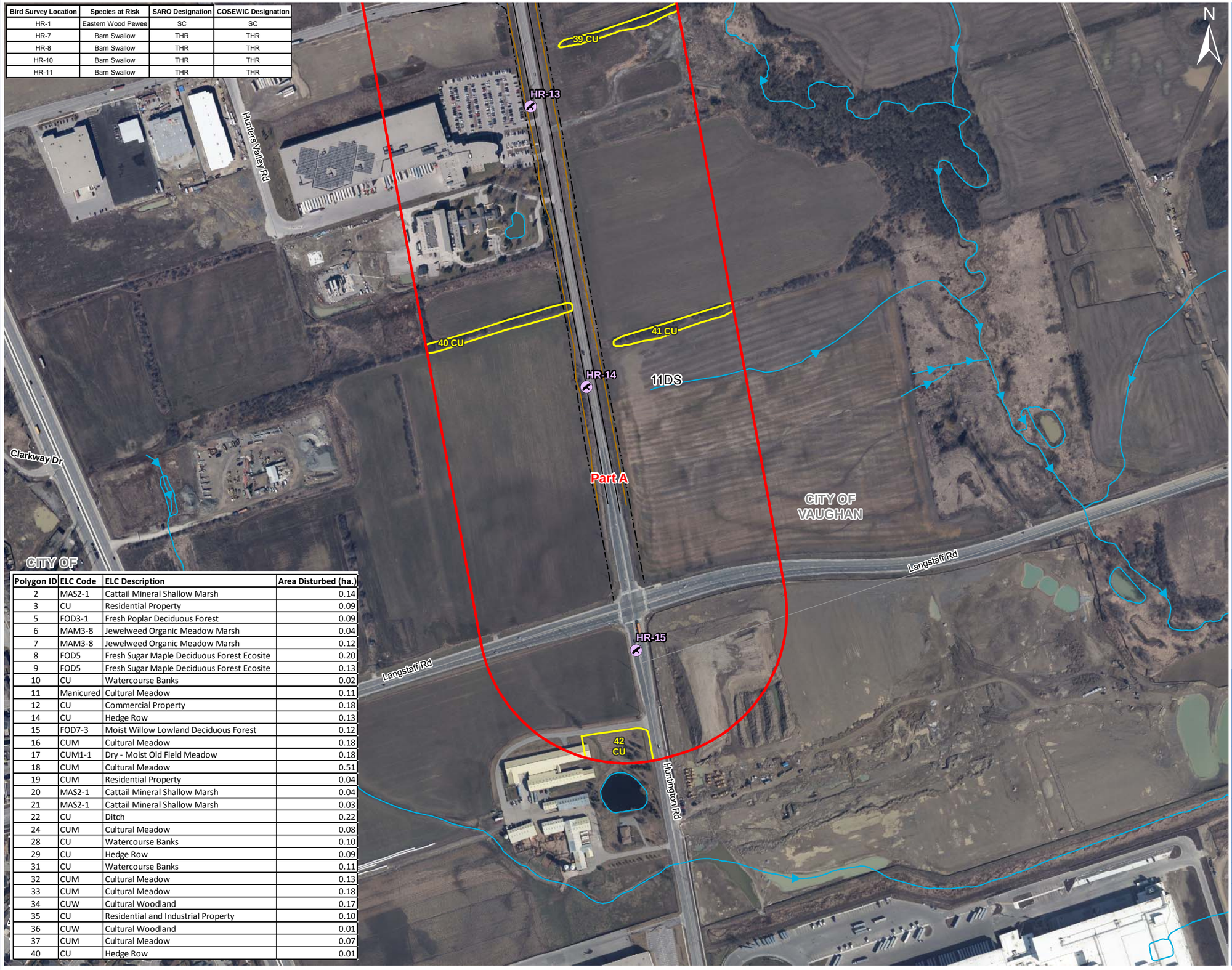
Bird Survey Location	Species at Risk	SARO Designation	COSEWIC Designation
HR-1	Eastern Wood Pewee	SC	SC
HR-7	Barn Swallow	THR	THR
HR-8	Barn Swallow	THR	THR
HR-10	Barn Swallow	THR	THR
HR-11	Barn Swallow	THR	THR

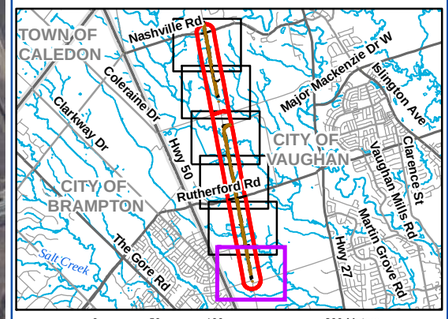
Polygon ID	ELC Code	ELC Description	Area Disturbed (ha.)
2	MAS2-1	Cattail Mineral Shallow Marsh	0.14
3	CU	Residential Property	0.09
5	FOD3-1	Fresh Poplar Deciduous Forest	0.09
6	MAM3-8	Jewelweed Organic Meadow Marsh	0.04
7	MAM3-8	Jewelweed Organic Meadow Marsh	0.12
8	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.20
9	FOD5	Fresh Sugar Maple Deciduous Forest Ecosite	0.13
10	CU	Watercourse Banks	0.02
11	Manicured	Cultural Meadow	0.11
12	CU	Commercial Property	0.18
14	CU	Hedge Row	0.13
15	FOD7-3	Moist Willow Lowland Deciduous Forest	0.12
16	CUM	Cultural Meadow	0.18
17	CUM1-1	Dry - Moist Old Field Meadow	0.18
18	CUM	Cultural Meadow	0.51
19	CUM	Residential Property	0.04
20	MAS2-1	Cattail Mineral Shallow Marsh	0.04
21	MAS2-1	Cattail Mineral Shallow Marsh	0.03
22	CU	Ditch	0.22
24	CUM	Cultural Meadow	0.08
28	CU	Watercourse Banks	0.10
29	CU	Hedge Row	0.09
31	CU	Watercourse Banks	0.11
32	CUM	Cultural Meadow	0.13
33	CUM	Cultural Meadow	0.18
34	CUW	Cultural Woodland	0.17
35	CU	Residential and Industrial Property	0.10
36	CUW	Cultural Woodland	0.01
37	CUM	Cultural Meadow	0.07
40	CU	Hedge Row	0.01



N

LEGEND

- Bird Survey Location
- Butternut
- Vernal Pool
- Study Area
- ELC
- Municipal Boundary
- Cartographic Wetland
- Waterbody
- Permanent Watercourse (with Flow Direction)
- Railway
- Disturbance Limit
- Proposed Edge of Pavement
- Proposed ROW
- Stream Realignment



SCALE: 1:5,000
NAD 1983 UTM Zone 17N

NOTES

This map is for conceptual purposes only and should not be used for navigational purposes.

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Orthoimagery: WMS, York Region 2016,

PARSONS

HUNTINGTON ROAD EA - NATURAL HERITAGE EXISTING CONDITIONS AND IMPACT ASSESSMENT REPORT

ASSESSMENT OF POTENTIAL IMPACTS

October 10, 2017	Rev **1.0**	Figure No. **6f**
Project No. 209.40224.00000		

SLR Consulting (Canada) Ltd.

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APPENDIX A
Correspondence Records

Natural Heritage - Existing Conditions and Impact Assessment Report
Huntington Road Part A and Part B - Langstaff Road to Nashville Road
SLR Project No. 209.40224.00000

Southern Region
Aurora District Office
50 Bloomington Road West
Aurora, ON L4G 0L8

Ontario

Ministry of Natural Resources and Forestry

Ministere des Richesses Naturelles et des Forêts

August 28, 2014

Roger Salema
Parsons
635 Cochrane Drive, Suite 500
Markham, ON L3R 9R9
Phone (905) 917-3272
Roger.Salema@parsons.com

Re: Huntington Road, Vaughan, ON – Environmental Assessment

Dear Mr. Salema,

In your email dated July 15, 2014 you requested information on natural heritage features and element occurrences occurring on or adjacent to the above mentioned location. There are a number of Species at Risk recorded from your study area and the immediate vicinity. As of the date of this letter, we have records of:

Butternut	END	Bobolink	THR
Eastern Meadowlark	THR		

These species may receive protection under the *Endangered Species Act 2007* and thus, an approval from MNRF may be required if the work you are proposing could cause harm to these species or their habitat. If the Species at Risk in Ontario List is amended, additional species may be listed and protected under the *ESA 2007* or the status and protection levels of currently listed species may change. Please provide additional information on your proposal to our office, and we will assess it to determine whether an authorization under the *ESA 2007* is required for the works to proceed.

Natural heritage features recorded for your area include identified wetlands.

Absence of information provided by MNRF for a given geographic area, or lack of current information for a given area or element, does not categorically mean the absence of sensitive species or features. Many areas in Ontario have never been surveyed and new plant and animal species records are still being discovered for many localities. For these reasons, the MNRF cannot provide a definitive statement on the presence, absence or condition of biological elements in any part of Ontario.

This species at risk information is highly sensitive and is not intended for any person or project unrelated to this undertaking. Please do not include any specific information in reports that will be available for public record. As you complete your fieldwork in these areas, please report all information related to any species at risk to our office. This will assist with updating our database and facilitate early consultation regarding your project.

If you have any questions or comments, please do not hesitate to contact me at 905-713-6843 or ESA.Aurora@ontario.ca (Attention: Megan Eplett).

Sincerely,

Megan Eplett
Fish and Wildlife Technical Specialist
Ontario Ministry of Natural Resources and Forestry, Aurora District

APPENDIX B
Aquatic and Terrestrial Photolog

Natural Heritage - Existing Conditions and Impact Assessment Report
Huntington Road Part A and Part B - Langstaff Road to Nashville Road
SLR Project No. 209.40224.00000

Photo 1: Huntington Road – Riparian vegetation showing Willow and Manitoba Maple adjacent to Cultural Meadow

Photo 2: Huntington Road – Cattail Mineral Meadow Marsh with dead sparse Ash overstory

Photo 3: Huntington Road – Edge of Jewelweed Organic Meadow Marsh

Photo 4: Huntington Road – Transition to Cattail in predominantly Jewelweed-dominated Meadow Marsh

Photo 5: Huntington Road – Sugar Maple Upland Forest adjacent to Jewelweed Meadow Marsh

Photo 6: Huntington Road – Typical Cultural Meadow in Study Area – Showing patchy distribution of Common Buckthorn and Manitoba Maple

Photo 7: Huntington Road – Common thin riparian strip of Hybrid Crack Willow overstory

APPENDIX C
Aquatic Habitat Mapping

Natural Heritage - Existing Conditions and Impact Assessment Report
Huntington Road Part A and Part B - Langstaff Road to Nashville Road
SLR Project No. 209.40224.00000
d

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
	Huntington	16	10	2014

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
KAT, ML			

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
19°C	12.9	1646

PHOTO NUMBERS AND DESCRIPTIONS: pH= 8.6 DO- 4.64 mg/L

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:

LOCATION OF CROSSING: #1 D/S.

GPS COORDINATES:	MTO CHAINAGE:

TOWNSHIP:	MNR DISTRICT:

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:
Agriculture	Hwy runoff →

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP X	N/A O

Other O Describe: Closed foot Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (Include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	X	O	O	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	O	O	O	O	
Percentage of area						
Mean depth wetted (m)					10 cm	
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate					Si	

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris / Instream / Overhanging	Organic debris	Vascular Macrophytes / Instream / Overhanging	None
	15%					Overhanging CT	

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
	Sparse			
Predominant Species	Chara			

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
		Garbage barrier	

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES:

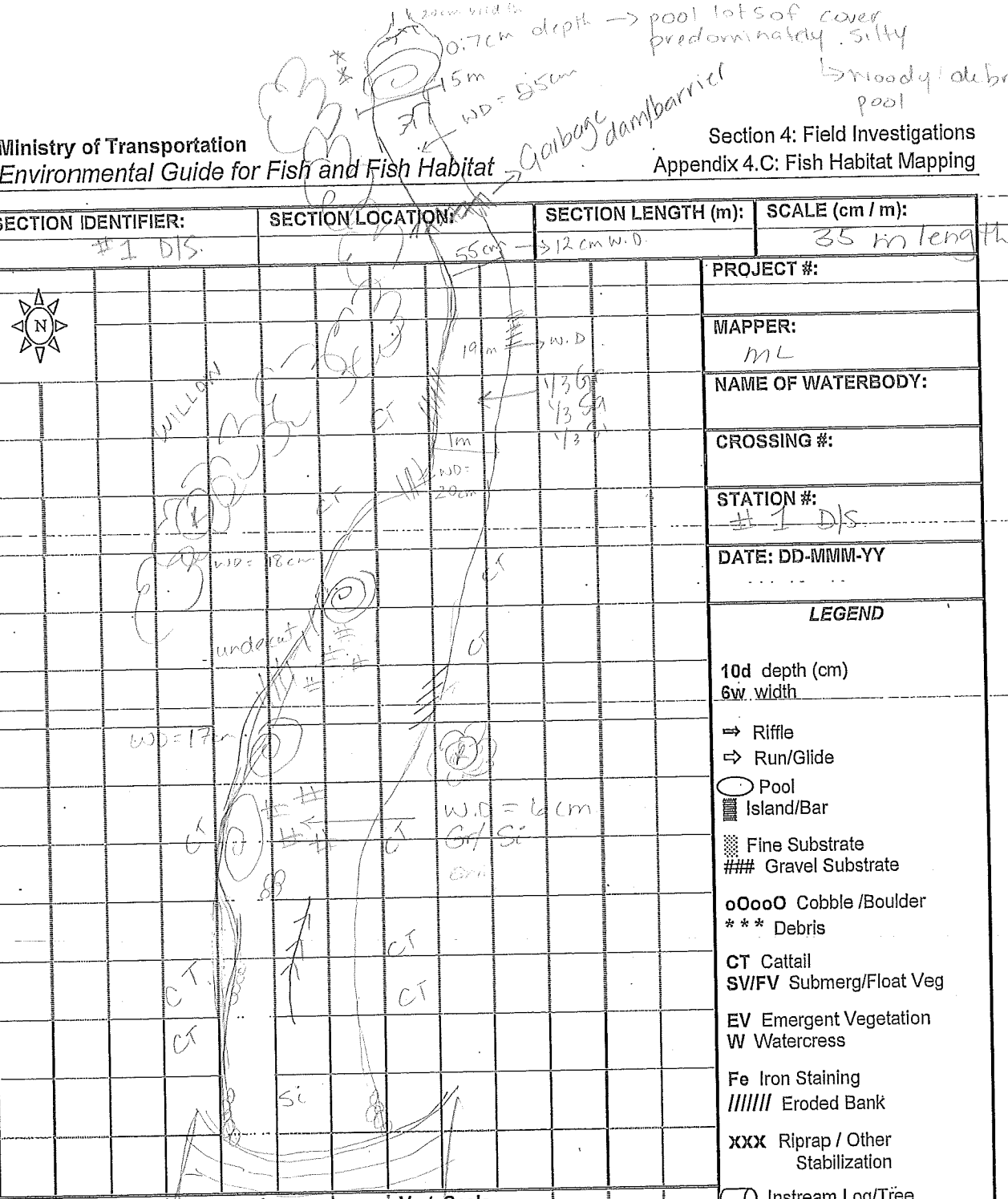
Remove garbage from culvert & drainage channels

COMMENTS:

Steel CSC
H_2O breaching up from inside culvert.
evidence of ground H_2O - no vegetation or staining @ seepage areas - sheen is evident.

Additional Notes Appended? O No O Yes number of pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
#1 D/S.			35 m length



PROJECT #:	
MAPPER:	ML
NAME OF WATERBODY:	
CROSSING #:	
STATION #:	#1 D/S
DATE: DD-MMM-YY	

LEGEND

10d depth (cm)
6w width

⇨ Riffle
⇨ Run/Glide
⬭ Pool
▒ Island/Bar

▒ Fine Substrate
Gravel Substrate
oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

⊢▷ Seep/Spring
-------- Undercut Bank

= Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└─┘ Culvert

PROFILE: Horz. Scale: Vert. Scale:

Poop present → aquatic mammal
Relatively narrow channel with dispersed pools.

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
		16	10	2014

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
KAT, ML	Overcast		

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
18 C	11.9	1716

stirred up 1120 prior to

PHOTO NUMBERS AND DESCRIPTIONS: photos w- KAT pH-8.88 DO-5.08

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:

LOCATION OF CROSSING: #3 upstream

GPS COORDINATES:	MTO CHAINAGE:

TOWNSHIP:	MNR DISTRICT:

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP Ø	N/A O

Other O Describe: Closed Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	O	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run	Pool	Riffle	Flats	Inside culvert	Other
	O	Ø	O	O	O	
Percentage of area						
Mean depth wetted (m)						
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate		Sa, Gr, Si Muck				

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
				Instream 10%		Instream - Chara	
				Overhanging		Overhanging	

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species				

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES:

receives flow from Hwy drainage & creek flows up on bank.

E fish – 150 seconds.

8 Creek Chub

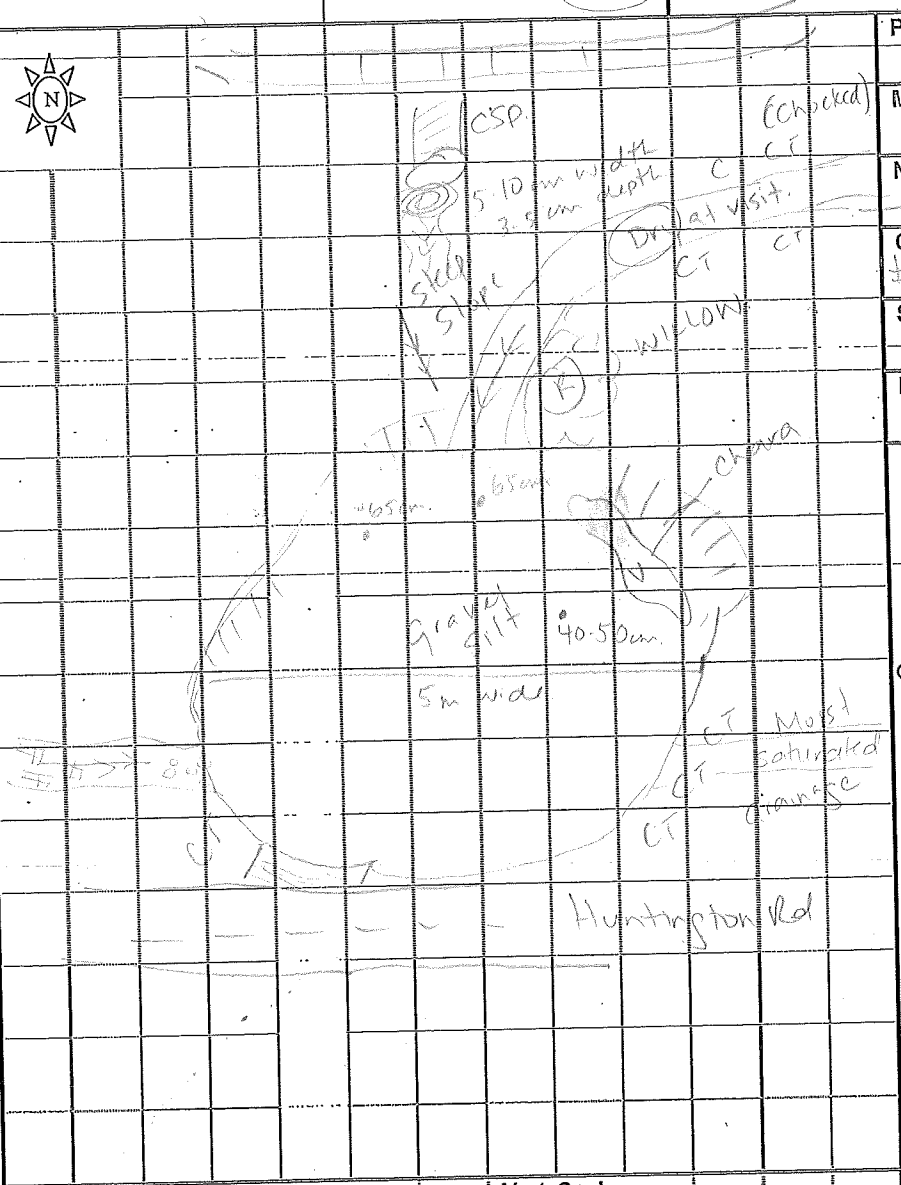
COMMENTS:

Large pool @ base of culvert.
Lots of fish in pool

Additional Notes Appended? O No O Yes number of pages _____

Where is discharge coming from??

SECTION IDENTIFIER:	SECTION LOCATION: ??	SECTION LENGTH (m):	SCALE (cm / m):



PROJECT #:
MAPPER: ML
NAME OF WATERBODY: difficult to pass w/ vehicle
CROSSING #: #3 U/S.
STATION #:
DATE: DD-MMM-YY 16-10-2014

LEGEND

10d depth (cm)
6w width

⇨ Riffle
⇨ Run/Glide
⬭ Pool
▒ Island/Bar

▒ Fine Substrate
Gravel Substrate
oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

⊢▷ Seep/Spring
-------- Undercut Bank

⊢ Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└─┘ Culvert

PROFILE:	Horz. Scale	Vert. Scale

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY: 16	MONTH: 10	YEAR: 2014

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS: KAT	WEATHER CONDITIONS: Sunny	TIME STARTED:	TIME FINISHED:

AIR TEMP: 19 C	WATER TEMP: 11.6	CONDUCTIVITY (µS/cm): 1575

PHOTO NUMBERS AND DESCRIPTIONS: Photos w- KAT pH 9.0 DO - 5.45

] taken post [illegible]

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:

LOCATION OF CROSSING: #3 D/S

GPS COORDINATES:	MTO CHAINAGE:
TOWNSHIP:	MNR DISTRICT:

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP ☒	N/A O

Other O Describe: Closed Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river O	Channelized O	Permanent O	Intermittent O	Ephemeral O	ASSOCIATED WETLAND:

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run O	Pool ☒	Riffle O	Flats O	Inside culvert O	Other
Percentage of area						
Mean depth wetted (m)		35cm-65cm			65cm	
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate		Si, Gr, Sand				

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
				Instream Overhanging	leaf matter	Instream - chara Overhanging 25%	

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species				

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES:

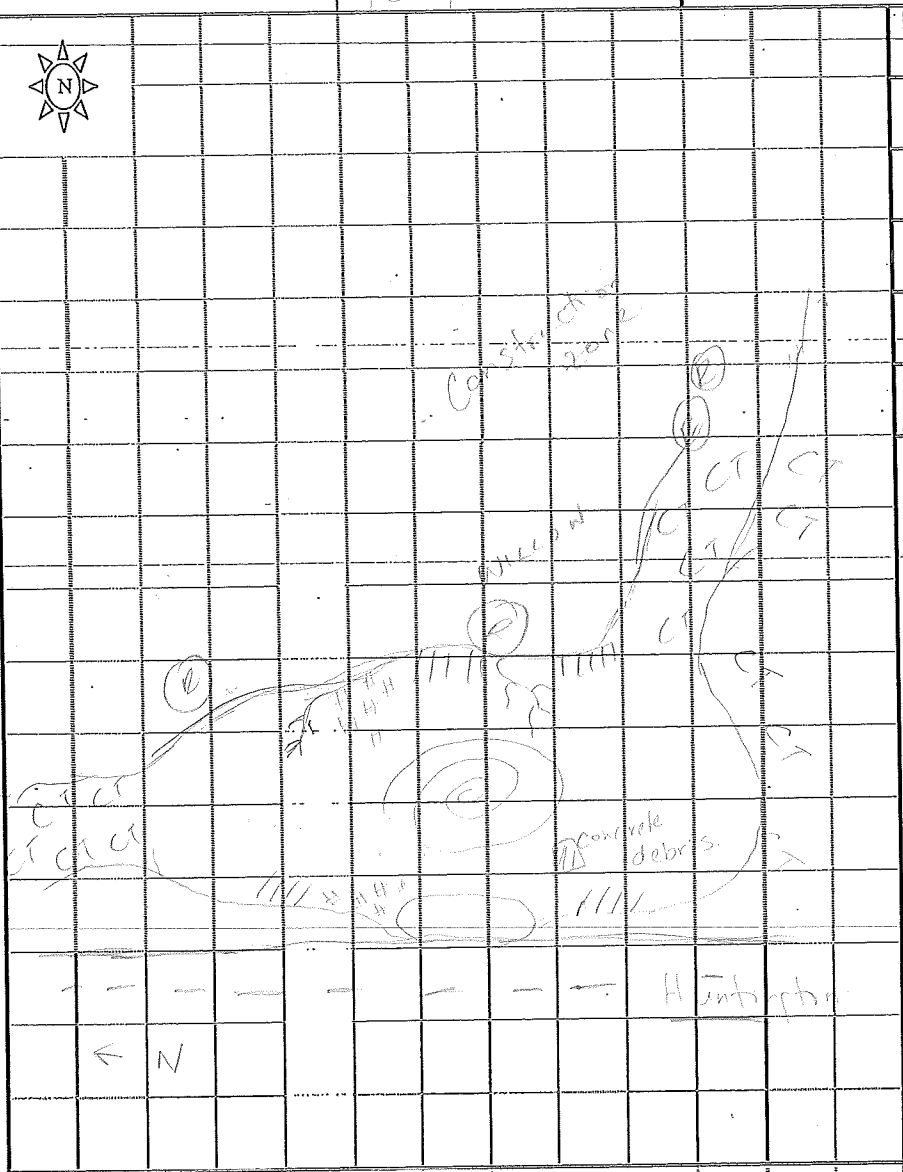
E fishing
250 sec
Creek Chub - 2 large spots x 12 → 40+
brown bullhead x 1
Stickleback x 4
W. Sucker x 2
*Remove garbage

COMMENTS:

Large pool - checked w/ CT.
Good amount of woody debris
lots of fish observed - efished to determine species presence.
surrounding land use - large brick processing factory

Additional Notes Appended? O No O Yes number of pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
	Pool		



PROJECT #:	
MAPPER:	mL
NAME OF WATERBODY:	
CROSSING #:	#3 D/S
STATION #:	
DATE: DD-MMM-YY	16-10-2014

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
⬭ Pool
▒ Island/Bar

▒ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

Seep/Spring
Undercut Bank

Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
Culvert

PROFILE:	Horz. Scale	Vert. Scale

Leaf matter throughout bottom of channel

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY: 16	MONTH: 10	YEAR: 2014

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS: Overcast	TIME STARTED:	TIME FINISHED:
AIR TEMP: 18°C	WATER TEMP: 13.7	CONDUCTIVITY (µS/cm): 2650	

PHOTO NUMBERS AND DESCRIPTIONS: 9.06 DO-669

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:

LOCATION OF CROSSING: #4 U/S.

GPS COORDINATES:	MTO CHAINAGE:
TOWNSHIP:	MNR DISTRICT:

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP O	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	O	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run O	Pool O	Riffle O	Flats O	Inside culvert O	Other
Percentage of area						
Mean depth wetted (m)						
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate		Si				

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	Ø	O	O
Right Upstream Bank	O	Ø	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris	Organic debris	Vascular Macrophytes	None
	15%			Instream Overhanging		Instream CT Overhanging	

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	Ø CT	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species				

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES:

COMMENTS:

Pool @ base of culvert flows into narrow channel to Hwy.
- Backs onto a stormH2O pond. Channel likely recieves flow from this feature
- Also contributing flow from Hwy drainage.
- Natural channel narrows & widens throughout.

Additional Notes Appended? O No O Yes number of pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):

PROJECT #:
MAPPER:
NAME OF WATERBODY:
CROSSING #:
STATION #:
DATE: DD-MMM-YY

LEGEND

10d depth (cm)
6w width

➡ Riffle
⇨ Run/Glide
◯ Pool
▒ Island/Bar

⁘ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** * *** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

◯) Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

⊢▸ Seep/Spring
-------- Undercut Bank

⊨ Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└┘ Culvert

PROFILE:	Horz. Scale	Vert. Scale

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY: 16	MONTH: 10	YEAR: 2014

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS: ML, KAT.	WEATHER CONDITIONS: Overcast	TIME STARTED:	TIME FINISHED:

AIR TEMP: 18°C	WATER TEMP: 13.5	CONDUCTIVITY (µS/cm): 2650

PHOTO NUMBERS AND DESCRIPTIONS: pH - 9 DO - 10.72

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:

LOCATION OF CROSSING: #4 D/S.

GPS COORDINATES:	MTO CHAINAGE:
TOWNSHIP:	MNR DISTRICT:

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP O	N/A O

Other O Describe: Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (Include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	O	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run O	Pool O	Riffle O	Flats O	Inside culvert O	Other
Percentage of area						
Mean depth wetted (m)					17 cm	
Mean width wetted (m)					Note - Vegetation cover	
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate					Si - Sunk to top of boot.	

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	Ø	O	O
Right Upstream Bank	O	Ø	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream Overhanging	None

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	Ø CT	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
			CT	
Predominant Species			Dead CT	

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
	X		

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

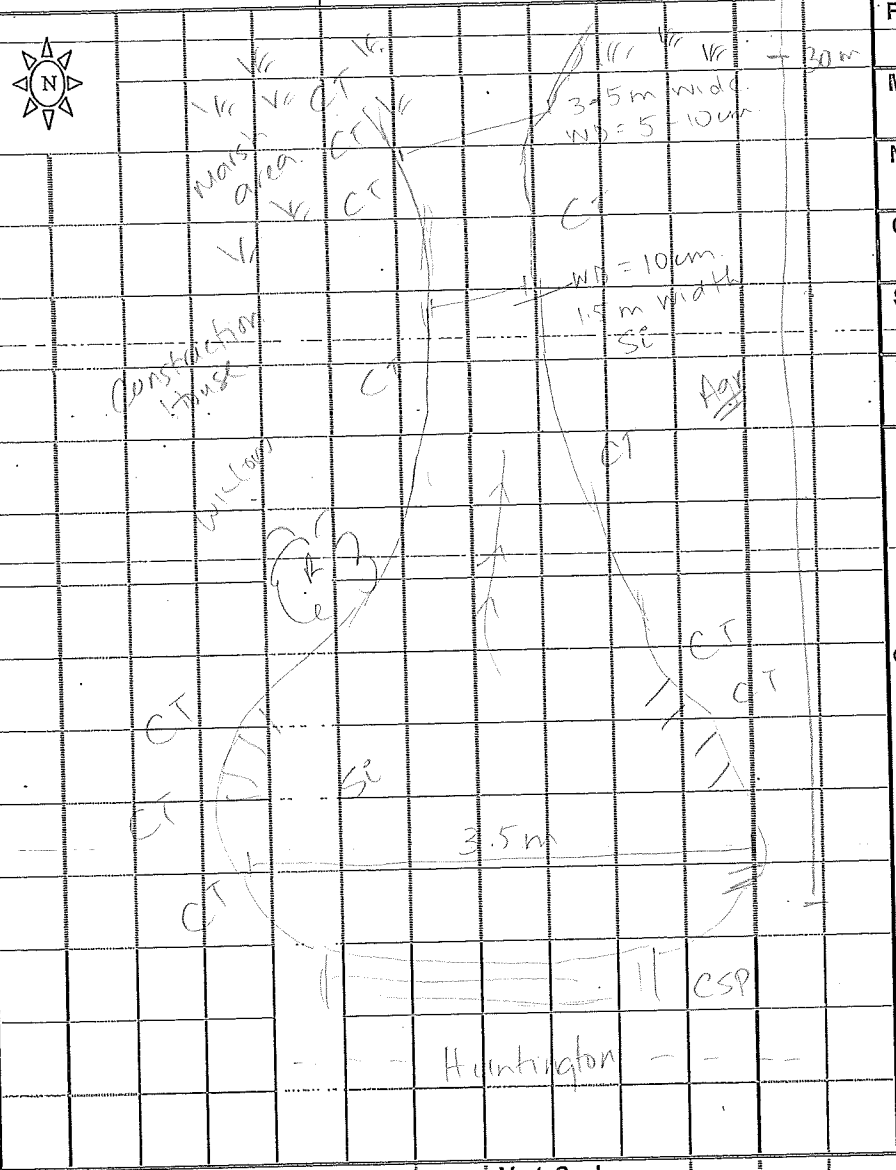
POTENTIAL ENHANCEMENT OPPORTUNITIES:

COMMENTS:

Fairly narrow Channel through sedim. widens to wetland area
Possable - clearly defined Channel
entire length - ~25 cm depth of silt/muck - no Inverts or
wildlife present
Avg H_2O depth = 6-7 cm
~~Poor~~ Uniform until wetland

Additional Notes Appended? O No O Yes number of pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):



PROFILE:	Horz. Scale	Vert. Scale

PROJECT #:

MAPPER: ML

NAME OF WATERBODY:

CROSSING #: #4 D/S

STATION #:

DATE: DD-MMM-YY 16-10-2014

LEGEND

10d depth (cm)
6w width

⇨ Riffle
⇨ Run/Glide
⬭ Pool
▒ Island/Bar

▒ Fine Substrate
Gravel Substrate

oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

⬭ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

⊢▷ Seep/Spring
-------- Undercut Bank

═ Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└─┘ Culvert

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY:	MONTH:	YEAR:
		16	10	2014

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS:	TIME STARTED:	TIME FINISHED:
KATINL	Overcast		

AIR TEMP:	WATER TEMP:	CONDUCTIVITY (µS/cm):
18°C	12.4	840.

PHOTO NUMBERS AND DESCRIPTIONS: pH - 9.5 DO - 6.35

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:

LOCATION OF CROSSING: #5 D/S & U/S. → Rainbow Creek.

GPS COORDINATES:	MTO CHAINAGE:

TOWNSHIP:	MNR DISTRICT:

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP X	N/A O

Other O Describe: Large CSP — Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	X	O	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run O	Pool O	Riffle O	Flats O	Inside culvert O	Other
Percentage of area						Too turbid to see bottom
Mean depth wetted (m)						
Mean width wetted (m)						
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate						

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	O	O
Right Upstream Bank	O	O	O	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream Overhanging	None

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	O	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species				

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES:

e-fishing - u/s only
→ 1078 ⇒ 2 Darters captured
→ Fe staining @ upstream end
→ WD = ± 1m (deep @ u/s
→ wetted depth ⇒ ± 4-5m WD

COMMENTS:

Rainbow Crk - Too deep to wade
- No fish or "real" habitat mapping complete

Additional Notes Appended? O No O Yes number of pages _____

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY: 16	MONTH: 10	YEAR: 2014

Is STREAM REALIGNMENT required for this section:
O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS: Overcast	TIME STARTED:	TIME FINISHED:
AIR TEMP: 19°C	WATER TEMP: 16°C	CONDUCTIVITY (µS/cm): 1060	

PHOTO NUMBERS AND DESCRIPTIONS: DO - 5.68 pH - 9.10

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:

LOCATION OF CROSSING: #6 D/S.

GPS COORDINATES:	MTO CHAINAGE:
TOWNSHIP:	MNR DISTRICT:

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP O	N/A O

Other O Describe: Perched - 0.3 m

Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (Include on habitat map)				ASSOCIATED WETLAND:
TYPE:	Stream / river O	Channelized O	Permanent O	Intermittent O	Ephemeral O

TOTAL SECTION LENGTH (m): CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run O	Pool Ø	Riffle O	Flats O	Inside culvert O	Other
Percentage of area						
Mean depth wetted (m)		.30				
Mean width wetted (m)		130				
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate		Fr. Sand Silt				

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

Is clay bottom

GENERAL INFORMATION

PROJECT #:	PROJECT DESCRIPTION:	DAY: 16	MONTH: 10	YEAR: 2014

Is STREAM REALIGNMENT required for this section:

O Yes O No O Unknown

COLLECTORS:	WEATHER CONDITIONS: Overcast	TIME STARTED:	TIME FINISHED:
AIR TEMP: 19°C	WATER TEMP: 16°C	CONDUCTIVITY (µS/cm): 1060	

PHOTO NUMBERS AND DESCRIPTIONS: DO - 5.68 pH - 9.10

LOCATION

NAME OF WATERBODY:	DRAINAGE SYSTEM:	CROSSING #:	STATION #:

LOCATION OF CROSSING: #6 D/S.

GPS COORDINATES:	MTO CHAINAGE:
TOWNSHIP:	MNR DISTRICT:

LAND USE AND POLLUTION

SURROUNDING LAND USE:	SOURCES OF POLLUTION:

EXISTING STRUCTURE TYPE

Bridge O	Box Culvert O	Open Foot Culvert O	CSP O	N/A O

Other O Describe: Perched ~ 25cm | Size (w x h) m^2

SECTION TYPE AND MORPHOLOGY

SECTION IDENTIFIER:	SECTION LOCATION: (include on habitat map)

TYPE:	Stream / river	Channelized	Permanent	Intermittent	Ephemeral	ASSOCIATED WETLAND:
	O	O	O	O	O	

TOTAL SECTION LENGTH (m):	CURRENT VELOCITY (m/s):

SUB-SECTION(S)	Run O	Pool Ø	Riffle O	Flats O	Inside culvert O	Other
Percentage of area						
Mean depth wetted (m)		.30				
Mean width wetted (m)		130				
Mean bankfull width (m)						
Mean bankfull depth(m)						
Substrate		Fr, Sand Silt				

Bedrock Br	Boulder Bo	Cobble Co	Gravel Gr	Sand Sa	Silt Si	Clay Cl	Muck Mu	Detritus D

↳ clay bottom

BANK STABILITY

	Stable	Slightly Unstable	Moderately Unstable	Unstable
Left Upstream Bank	O	O	Ø	O
Right Upstream Bank	O	O	Ø	O

HABITAT

IN-STREAM COVER (% surface area):	Undercut banks	Boulders	Cobble	Woody Debris Instream Overhanging	Organic debris	Vascular Macrophytes Instream Overhanging	None

SHORE COVER (% stream shaded):	100 – 90 %	90 – 60%	60- 30%	30 – 1%	None
	O	Ø grasses	O	O	O

VEGETATION TYPE (%):	Submergent	Floating	Emergent	None
Predominant Species		Algae		

MIGRATORY OBSTRUCTIONS:	None	Seasonal	Permanent
			perched culvert

POTENTIAL CRITICAL HABITAT LIMITING:	Spawning	Evidence of Groundwater	Other

POTENTIAL ENHANCEMENT OPPORTUNITIES:

Remove perched culvert

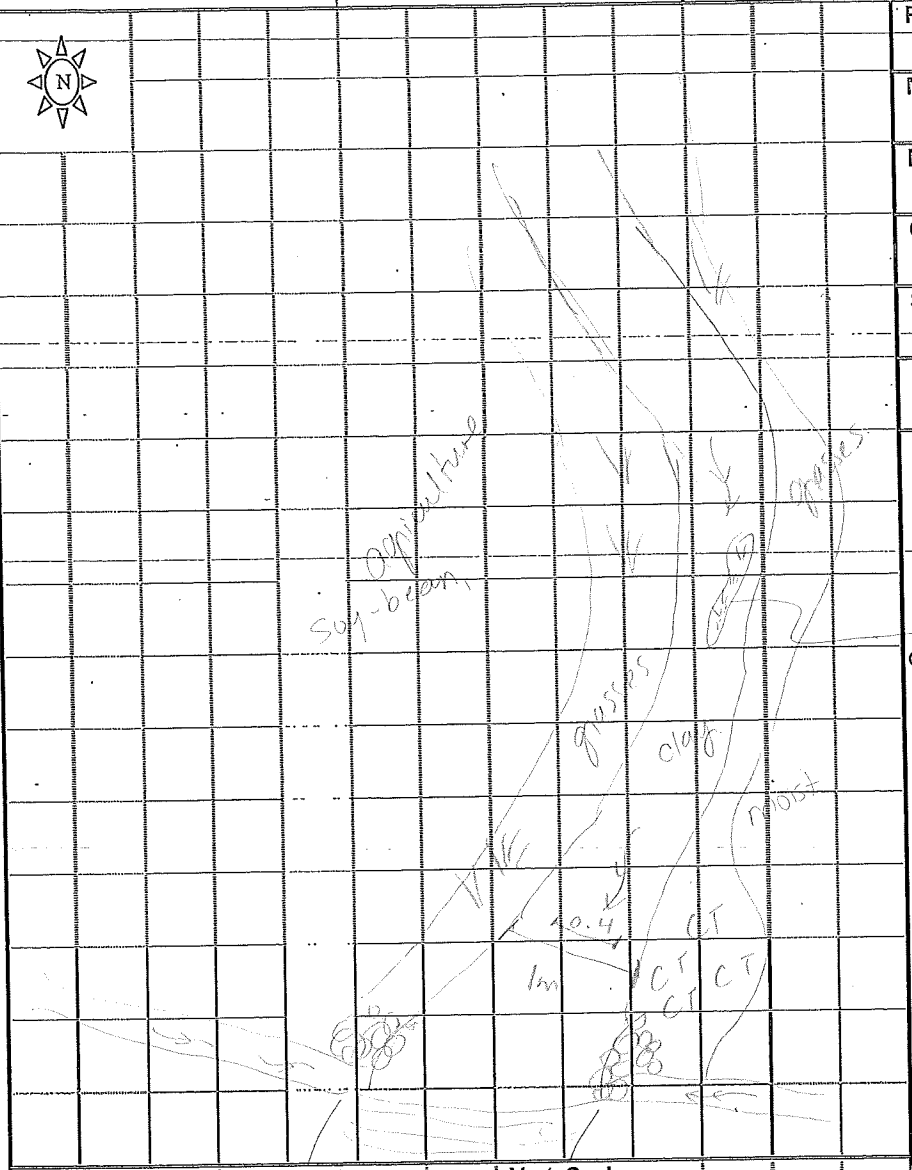
COMMENTS:

Stream is choked in small spots - bordering disconnected saturated land with no overland flow - fish cannot have this habitat

Intermittent stream supplying small downstream pools

Additional Notes Appended? O No O Yes number of pages _____

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):



PROJECT #:
MAPPER: ML
NAME OF WATERBODY:
CROSSING #: #6 u/s.
STATION #:
DATE: DD-MMM-YY 16-10-2014

LEGEND

10d depth (cm)
6w width

⇨ Riffle
⇨ Run/Glide
◯ Pool
▒ Island/Bar

▒ Fine Substrate
Gravel Substrate
oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg

EV Emergent Vegetation
W Watercress

Fe Iron Staining
/////// Eroded Bank

XXX Riprap / Other Stabilization

◯ Instream Log/Tree
^^^ Dam/Weir/Obstruction

® Riparian Tree

⊢⊳ Seep/Spring
-------- Undercut Bank

═ Barrier to Fish Movement
-S- Seasonal Barrier

-x--x- Fence line
└─┘ Culvert

PROFILE:	Horz. Scale	Vert. Scale

CSP - flow W in agriculture - not ranched

SECTION IDENTIFIER:	SECTION LOCATION:	SECTION LENGTH (m):	SCALE (cm / m):
		bank height = 50	cm & undercut

PROJECT #:

MAPPER:

NAME OF WATERBODY:

CROSSING #: #6 DS

STATION #:

DATE: DD-MMM-YY 16-10-2014

LEGEND

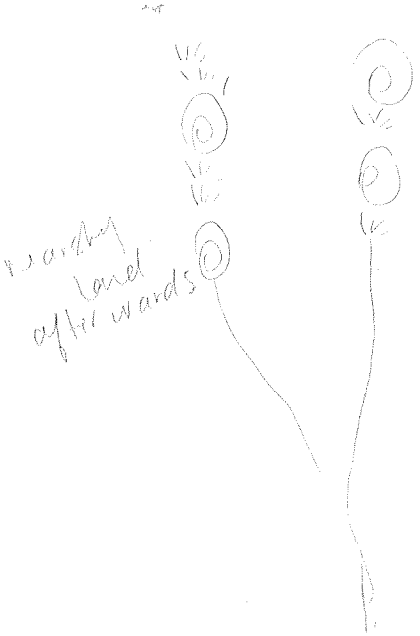
10d depth (cm)
6w width

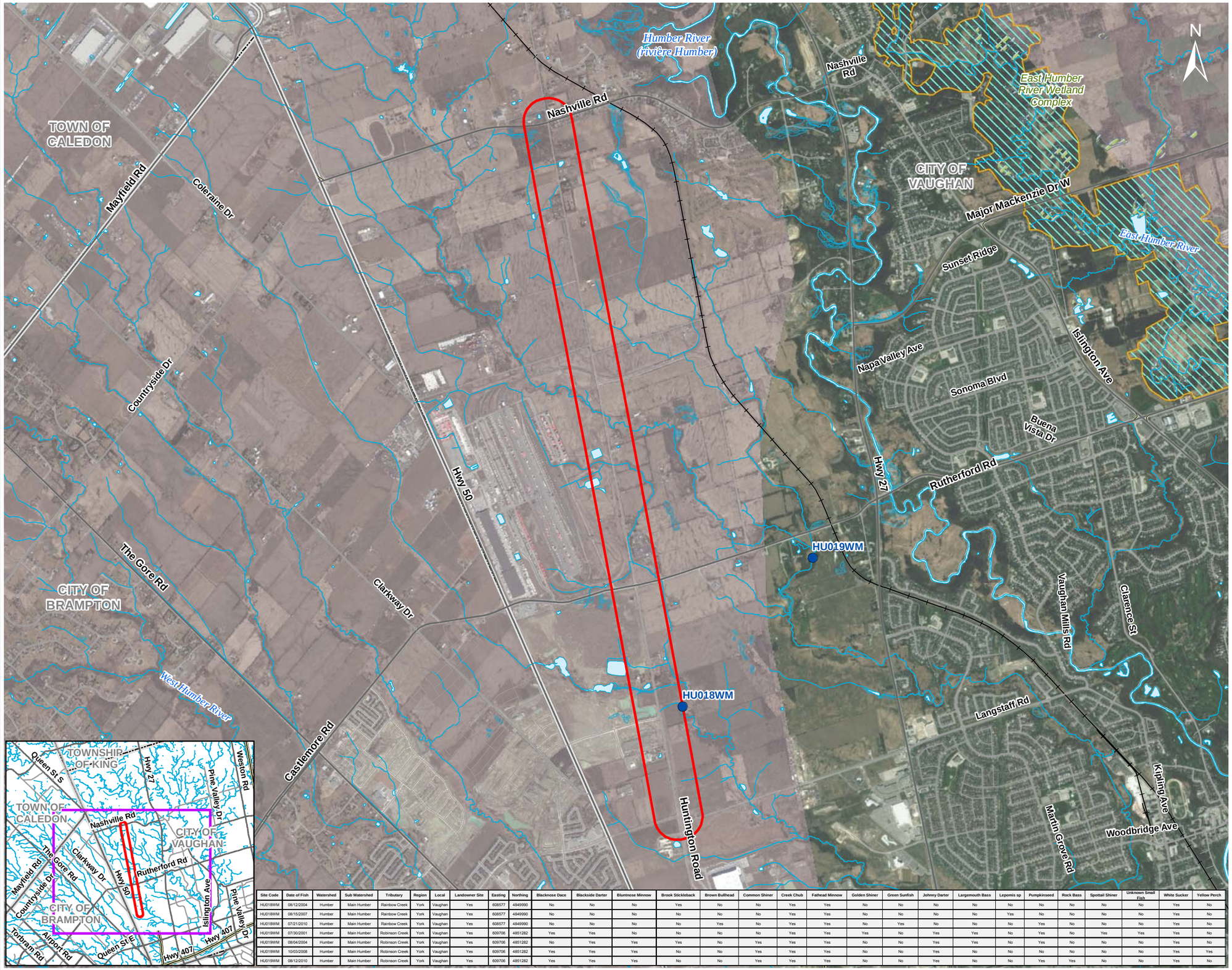
⇨ Riffle
⇨ Run/Glide
◯ Pool
▥ Island/Bar

▒ Fine Substrate
Gravel Substrate
oOooO Cobble /Boulder
*** Debris

CT Cattail
SV/FV Submerg/Float Veg
EV Emergent Vegetation
W Watercress
Fe Iron Staining
//////// Eroded Bank
XXX Riprap / Other Stabilization
◯ Instream Log/Tree
^^^ Dam/Weir/Obstruction
® Riparian Tree
⊢⊳ Seep/Spring
-------- Undercut Bank
═ Barrier to Fish Movement
-S- Seasonal Barrier
-x--x- Fence line
└┘ Culvert

PROFILE:	Horz. Scale	Vert. Scale


alternates btw pool & saturated
glasses for remainder of
segment
carried
forwards
braided.



Site Code	Date of Fish	Watershed	Sub Watershed	Tributary	Region	Local	Landowner Site	Easting	Northing	Blacknose Dace	Blackside Darter	Bluntnose Minnow	Brook Stickleback	Brown Bullhead	Common Shiner	Creek Chub	Fathead Minnow	Golden Shiner	Green Sunfish	Johnny Darter	Largemouth Bass	Lepomis sp	Pumpkinseed	Rock Bass	Spottail Shiner	Unknown Small Fish	White Sucker	Yellow Perch
HU018WM	08/12/2004	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	Yes	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	Yes	No
HU018WM	08/15/2007	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	No	No	Yes	Yes	No	No	No	No	Yes	No	No	No	No	Yes	No
HU018WM	07/21/2010	Humber	Main Humber	Rainbow Creek	York	Vaughan	Yes	608577	4849990	No	No	No	No	Yes	No	Yes	Yes	No	Yes	No	No	No	Yes	No	No	No	Yes	No
HU019WM	07/30/2001	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No
HU019WM	08/04/2004	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	No	No	No	Yes	No
HU019WM	10/03/2008	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	No	No	No	No	No	Yes	Yes
HU019WM	08/12/2010	Humber	Main Humber	Robinson Creek	York	Vaughan	Yes	609706	4851282	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No	No	Yes	Yes	No	No	Yes	No

LEGEND

- Fish Data Sampling Location
- Study Area
- Municipal Boundary
- Cartographic Wetland
- Provincially Significant Wetland
- Regional - ANSI, Life Science
- Waterbodies
- Intermittent Watercourse
- Permanent Watercourse
- Railway

0 0.5 1 Kilometers

SCALE: 1:32,000
NAD 1983 UTM Zone 17N

NOTES

This map is for conceptual purposes only and should not be used for navigational purposes.

Basedata:Ontario Ministry of Natural Resources, Land Information Ontario (LIO) © Queen s Printer for Ontario, 2012, Downloaded February 2013

Orthoimagery: WMS © The Corporation of the County of Simcoe, 2012

URS CANADA INC.

REPORT

FISH DATA SAMPLING LOCATIONS

September 3, 2014	Rev 1.0	Figure No. 1
Project No. 209.40224.00000		

SLR Consulting (Canada) Ltd.

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APPENDIX D
Terrestrial Plant Survey Results

Natural Heritage - Existing Conditions and Impact Assessment Report
Huntington Road Part A and Part B - Langstaff Road to Nashville Road
SLR Project No. 209.40224.00000

Terrestrial Species List for Huntington Road Parts A & B

208.40224.00000

SCIENTIFIC NAME	COMMON NAME	Status					ELC Polygon																																	
		EXOTIC STATUS	S RANK	N RANK	G RANK	SARO STATUS	2	1	5	6 and7	4, 8 and 9	17	15	34 and 36	3	12	11	10	13 and 14	16	19	18 and 24	20, 21, 25 and 27	23	22	29	28 and 31	30 and 32	18	33	35	37	38	39	40	41	42
Cornus alternifolia	Alternate-leaved Dogwood		S5	NNR	G5				Y																														
Tilia americana	American Basswood		S5	N5	G5			Y				Y	Y																										
Fagus grandifolia	American Beech		S4	NNR	G5				Y		Y																												
Ulmus americana	American Elm		S5	NNR	G5?			Y	Y	Y																												
Phragmites australis ssp. americanus	American Reed		S4?	NNR	GST4										Y								Y	Y			Y											
Lycopus americanus	American Water-horehound		S5	NNR	G5					Y																												
Robinia pseudoacacia	Black Locust	SE5	SNA	NNA	G5															Y																		
Medicago lupulina	Black Medic	SE5	SNA	NNA	GNR									Y			Y			Y	Y	Y						Y	Y	Y		Y						
Juglans nigra	Black Walnut		S4	N4	G5				Y										Y																		
Sanguinaria canadensis	Bloodroot		S5	NNR	G5						Y																											
Picea pungens	Blue Spruce	SE1	SNA	NNA	G5																																	Y
Carpinus caroliniana	Blue-beech		S5	N5	G5				Y																													
Typha latifolia	Broad-leaved Cattail		S5	N5	G5		Y			Y								Y					Y	Y	Y		Y										
Cirsium vulgare	Bull Thistle	SE5	SNA	NNA	GNR									Y			Y			Y	Y	Y						Y	Y	Y		Y					
Quercus macrocarpa	Bur Oak		S5	NNR	G5		Y	Y	Y			Y	Y								Y		Y									Y					
Juglans cinerea	**Butternut**		**S3?**	**N3N4**	**G4**	**END**			Y - Dying																												
Prunus virginiana	Choke Cherry		S5	NNR	G5			Y	Y																												
Polystichum acrostichoides	Christmas Fern		S5	N5	G5				Y		Y																										
Rhamnus cathartica	Common Buckthorn	SE5	SNA	NNA	GNR			Y	Y			Y	Y	Y		Y	Y			Y	Y	Y							Y	Y	Y		Y	Y	Y	Y	Y	
Sambucus canadensis	Common Elderberry		S5	NNR	GSTS																																
Asclepias syriaca	Common Milkweed		S5	N5	G5									Y			Y			Y	Y	Y							Y	Y	Y		Y				
Salix euxina	Crack Willow	SE	SNA	NNR	GNR		Y					Y	Y		Y								Y														
Dennstaedtia punctilobula	Eastern Hay-scented Fern		S5	N5	G5						Y																										
Tsuga canadensis	Eastern Hemlock		S5	N5	G5				Y		Y																										
Solidago altissima ssp. altissima	Eastern Late Goldenrod		S5	NNR	GNR							Y	Y	Y			Y			Y	Y	Y							Y	Y	Y		Y				
Juniperus virginiana	Eastern Red Cedar		S5	N5	G5																																Y
Pinus strobus	Eastern White Pine		S5	N5	G5										Y	Y																					
Phragmites australis ssp. australis	European Reed	SE5	SNA	NNA	GSTS										Y								Y	Y			Y										
Dipsacus fullonum	Fuller's Teasel	SE5	SNA	NNA	GNR									Y			Y			Y	Y	Y							Y	Y	Y		Y				
Fraxinus pennsylvanica	Green Ash		S4	N5	G5		Y - Dead	Y	Y			Y	Y										Y - Dead														
Geranium robertianum	Herb-Robert		S5	N4	G5				Y																												
Viburnum opulus ssp. trilobum	Highbush Cranberry		S5	NNR	GNR			Y																													
Arisaema triphyllum	Jack-in-the-pulpit		S5	N5	G5				Y		Y																										
Acer negundo	Manitoba Maple		S5	N5	G5							Y	Y		Y																				Y	Y	
Pinus mugo	Mugo Pine	SE3	SNA	NNA	GNR											Y																					
Symphyotrichum novae-angliae	New England Aster		S5	N5	G5		Y																Y														
Athyrium filix-femina var. angustum	Northeastern Lady Fern		S5	N5	GSTS				Y		Y																										
Picea abies	Norway Spruce	SE3	SNA	NNA	G5											Y										Y											Y
Betula papyrifera	Paper Birch		S5	N5	G5				Y																												
Ribes cynosbati	Prickly Gooseberry		S5	NNR	G5				Y																												
Sambucus racemosa	Red Elderberry		S5	N5	G5			Y																													
Pinus resinosa	Red Pine		S5	N5	G5											Y																Y					
Cornus stolonifera	Red-osier Dogwood		S5	NNR	G5			Y																													
Phalaris arundinacea	Reed Canary Grass		S5	N5	G5					Y																											
Euonymus obovatus	Running Strawberry Bush		S5	NNR	G5				Y		Y																										
Pinus sylvestris	Scotch Pine	SE5	SNA	NNA	GNR									Y							Y																
Onoclea sensibilis	Sensitive Fern		S5	N5	G5			Y	Y	Y																											
Acer saccharinum	Silver Maple		S5	N5	G5											Y																					
Urtica dioica ssp. gracilis	Slender Stinging Nettle		S5	N5	GST5					Y																											
Circaea alpina	Small Enchanter's Nightshade		S5	N5	G5				Y																												
Impatiens capensis	Spotted Jewelweed		S5	N5	G5					Y		Y	Y																								
Symphyotrichum lateriflorum	Starved Aster		S5	N5	G5		Y		Y														Y														
Acer saccharum	Sugar Maple		S5	N5	G5				Y			Y	Y	Y		Y																Y					
Populus tremuloides	Trembling Aspen		S5	NNR	G5			Y							Y																						
Parthenocissus quinquefolia	Virginia Creeper		S4?	N4N5	G5				Y																												
Fraxinus americana	White Ash		S4	NNR	G5																																
Trifolium repens	White Clover	SE5	SNA	NNA	GNR									Y			Y			Y	Y	Y						Y		Y	Y	Y		Y				
Picea glauca	White Spruce		S5	N5	G5																					Y						Y					
Trillium grandiflorum	White Trillium		S5	N5	G5						Y																										
Salix alba	White Willow	SE4	SNA	NNA	G5																																Y
Prunus serotina	Wild Black Cherry		S5	N5	G5			Y	Y		Y																										
Daucus carota	Wild Carrot	SE5	SNA	NNA	GNR									Y			Y			Y	Y	Y							Y	Y	Y		Y				
Echinocystis lobata	Wild Mock-cucumber		S5	N5	G5							Y	Y																								
Rubus idaeus ssp. strigosus	Wild Red Raspberry		S5	N5	GST5				Y																												
Laportea canadensis	Wood Nettle		S5	NNR	G5					Y																											
Fragaria vesca	Woodland Strawberry		S5	N5	G5				Y					Y																							
Betula alleghaniensis	Yellow Birch		S5	N5	G5				Y		Y																										

Y - Present in that Polygon or Area

APPENDIX E
Breeding Bird Survey Results

Natural Heritage - Existing Conditions and Impact Assessment Report
Huntington Road Part A and Part B - Langstaff Road to Nashville Road
SLR Project No. 209.40224.00000

Bird Species List for Huntington Road Parts A & B

209.40224.00000

Common Name	Scientific Name	Status				Total	30-May-14														29-Jun-14															
		Species at Risk (national)[a]	Species at Risk (provincial)[a]	Provincially Rare (breeding season SRANK)[b]	Regional Status		HR-0	HR-1	HR-2	HR-3	HR-4	HR-5	HR-6	HR-7	HR-8	HR-9	HR-10	HR-11	HR-12	HR-13	HR-14	HR-15	HR-0	HR-1	HR-2	HR-3	HR-4	HR-5	HR-6	HR-7	HR-8	HR-9	HR-10	HR-11	HR-12	HR-13	HR-14	HR-15
Canada Goose	*Branta canadensis*			S5		8					6			2																							
Mallard	*Anas platyrhynchos*			S5		1																					1										
Red-tailed Hawk	*Buteo jamaicensis*			S5		1							1																								
Killdeer	*Charadrius vociferus*			S5B, S5N		24				1	2	3		1					1	2		2					2	1		1		1	1			4		2
Rock Pigeon	*Columba livia*			SE, SNA		2										2																					
Mourning Dove	*Zenaida macroura*			S5		23										1							1	1	2	2	1	13						1	1		
Eastern Wood-Pewee	*Contopus virens*	SC	SC	S4B		2		2																													
Willow Flycatcher	*Empidonax traillii*			S5B		9								1	1	1														2	2	1	1				
Great Crested Flycatcher	*Myiarchus crinitus*			S4B		2		1																	1												
Eastern Kingbird	*Tyrannus tyrannus*			S4B		4										1													1			1	1				
Horned Lark	*Eremophila alpestris*			S5B		11						1			2		1			1		2						3					1				
Tree Swallow	*Tachycineta bicolor*			S4B		3																					2		1								
Barn Swallow	*Hirundo rustica*	THR	THR	S4B	York - THR	21								1	2			2											3	2		2	4				5
American Crow	*Corvus brachyrhynchos*			S5B		1																												1			
Black-capped Chickadee	*Poecile atricapillus*			S5		5																												3		2	
Red-breasted Nuthatch	*Sitta canadensis*			S5		1																			1												
House Wren	*Troglodytes aedon*			S5B		5			1																2	1								1			
American Robin	*Turdus migratorius*			S5B		25	1		1		1	1				1	1	1	2	1	1		2		2					2		2		2	2		2	
Gray Catbird	*Dumetella carolinensis*			S4B		2																							2								
Cedar Waxwing	*Bombycilla cedrorum*			S5B		6													1												2			3			
European Starling	*Sturnus vulgaris*			SE, SNA		18			1								3	1		3			4			1				1			2		1	1	
Warbling Vireo	*Vireo gilvus*			S5B		1																			1												
Red-eyed Vireo	*Vireo olivaceus*			S5B		3							1		1									1													
Yellow Warbler	*Dendroica petechia*			S5B		9							2	1			2		2	1									1								
Chestnut-sided Warbler	*Dendroica pensylvanica*			S5B		1							1																								
American Redstart	*Setophaga ruticilla*			S5B		2		2																													
Common Yellowthroat	*Geothlyphis trichas*			S5B		2		1								1																					
Northern Cardinal	*Cardinalis cardinalis*			S5		11							1				1					1		2	1	1			2					1	1		
Indigo Bunting	*Passerina cyanea*			S4B		5	1	2																1					1								
Chipping Sparrow	*Spizella passerina*			S5B		3			1																1									1			
Savannah Sparrow	*Passerculus sandwichensis*			S4B		33	1				2	1	2			1		2		1	4	1	2			1	2	1			1		3	1	1	2	4
Song Sparrow	*Melospiza melodia*			S5B		38	2	1	3	2	1		2	1					4	1	1		1	1	1	2			3	2	2	2	1		1	2	2	
Red-winged Blackbird	*Agelaius phoeniceus*			S4		108	4	1	5	2	1	6	2	7	6	4	1	2	2	4	11	2	3	3	4	1	1	4	2	3	7	3	3	3	2	3	2	4
Common Grackle	*Quiscalus quiscula*			S5B		19												2	1				3			4	2		3				1	1		2		
Brown-headed Cowbird	*Molothrus ater*			S4B		15		1					1		1	1			1	1				1			2		1	1		1	1		1	1	
Baltimore Oriole	*Icterus galbula*			S4B		3									1				2																		
House Finch	*Carpodacus mexicanus*			SE, SNA		2														2																	
American Goldfinch	*Cardeulis tristis*			S5B		18	1	1								3						1				1			2	1	1	1	2	1	2		1
House Sparrow	*Passer domesticus*			SE, SNA		22													3		2	3	2			4			3								5

Number of Species: 39

Number of (provincial and national) Species at Risk: 2

Number of S1 to S3 (provincially rare) Species: 0

Number of Regionally Rare Species: 1

Visual Confirmation

APPENDIX F
Technical Memo SLR, 2016

Natural Heritage - Existing Conditions and Impact Assessment Report
Huntington Road Part A and Part B - Langstaff Road to Nashville Road
SLR Project No. 209.40224.00000

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Memorandum

To:	Loren Polonsky	**From:**	Megan Lloyst, Michael Roy
cc:	Alice Lung	**Date:**	February 3, 2016

Subject: Huntington Road EA Natural Heritage Existing Conditions – Redside Dace Habitat

The purpose of this memo is to provide clarification regarding information received from the Ministry of Natural Resources and Forestry (MNRF) regarding the designation of regulated ("direct" or "contributing") Redside Dace habitat within the Study Area.

The Draft Natural Heritage Existing Conditions Report (November 2014) submitted by SLR reports that DFO's distribution of Fish Species at Risk mapping designates Robinson Creek, within the Study Area, as "under consideration for listing" under Schedule 1 for Redside Dace and/or American Eel. This means that one or both of the species is currently being considered for addition to Schedule 1 – an official list of wildlife species at risk in Canada for which specific protection and recovery measures are developed and implemented. In general, this served as a notice that specific protection and recovery measures are pending for Robinson Creek in the Study Area.

In December 2014, SLR received comment from MNRF indicating that Redside Dace occupy Plunkett Creek, a watercourse located downstream of the Study Area. Plunkett Creek is formed by the convergence of Robinson and Rainbow Creek; both of which transect the Study Area. MNRF indicated that no migratory barriers were present, inferring that Redside Dace can migrate upstream into the Study Area. MNRF had no records of American Eel within the Study Area. With this information, SLR assumes that DFO's mapping records are for Redside Dace only. SLR conveyed to Parsons that the watercourses within the Study Area are likely to be considered as regulated habitat for Redside Dace in accordance with regulations made under the provincial *Endangered Species Act, 2007*.

As a result of the delay and extension to the project schedule (1^{+} year), SLR biologists re-engaged contact with MNRF to discuss the information obtained in 2014 regarding the occurrence of Redside Dace in downstream habitat.

On January 28, 2016 MNRF confirmed that the occurrence of Redside Dace downstream of the Study Area (Plunkett Creek) has not been documented for 20^{+} years. As a result, neither Robinson nor Rainbow Creek is considered regulated habitat for Redside Dace. MNRF recommends that a SAR screening request letter be re-submitted in order for them to retract the potential occurrence of RSD noted in their previous correspondence on the project file, and confirm the occurrence of other terrestrial species likely to occur in the Study Area.

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